The Grumman S-2G Tracker

by Steven A. Hall

PHOTOS: STEVEN A. HALL

Set against the U.S. Navy's hangars at Quonset, Rhode Island, the Tracker looks almost real. And when you run up the engines it sounds real. Big roomy nacelles, a rugged wing to take the loads. **Beneath:** In typical Navy colors the Grumman S-2G Tracker makes an eye-catching Controline entry.

A pair of .35's? Or up to .45's. Try this beautiful twin for your next Controline project. Seldom seem as a model.

The first Tracker I had ever seen up close was at the 1971 Quonset Point Air Show where the U.S. Navy put one on static display. At the 1973 Air Show I took over 75 photographs of this aircraft. Why so many photographs? Because little if any information was available on the Tracker at the time when I was designing my model.

The S-2G Tracker is a twin-engine, high wing monoplane, manufactured by the Grumman Aerospace Corporation. It is designed for operation on land bases and/or aboard aircraft carriers with or without the aid of a catapult takeoff. It is equipped for all-weather flights. The S-2G Tracker aircraft is primarily an anti-submarine aircraft. It is capable of searching for, detecting, and locating an enemy submarine, and then delivering a weapon to the target. The S-2G has a four man crew: pilot, co-pilot, and two ASW operators. The ASW operators assist the co-pilot and operate the sonobuoy, radar, and (MAD) magnetic anomaly detector. It is powered by two 1,525 hp Wright R1820-82WA air-cooled radial engines, each equipped with Hamilton Standard full-feathering three-bladed propellers. The armament equipment consists of six depth charges, six H.V.A.R. missiles and six additional torpedoes carried on underwing bomb racks, sonobuoys, marine markers, underwater sound (SUS), and a search light system. The internal stores or torpedo bay of the aircraft can carry two homing torpedoes, or two Mk. 101 depth bombs, or one nuclear depth bomb. Photographic equipment can be suspended from the right outboard bomb rack. The S-2G Tracker has a cruising speed of 150 mph, a ceiling of 21,000 feet. Wing span is 72'7", length is 43'6" and the height measures 16'7½".

The model's wingspan is 63½", length is 37¾" and the weight is around 4 to 4½ lb. Area of the wing is about 372 sq. inches and the engine size is from .35 to .45.

Fuselage Construction

The fuselage is built in two halves, starting with the left side. All lefts and rights are in reference to the pilot. Cut out all parts for the fuselage. Assembly of fuselage starts by pinning crutch down to plan. Formers F-2-F-17 go down. Glue side loneron on to formers F-2-F-11 so when fuselage half is removed it will not bend out of shape. Do not glue or pin longeron to formers F-12-F-17 at this time. Make ⅛" dia. wire nose gear and slip the wire into the hole of F-1, then mount wire to ⅛" plywood nose gear mount with three "J" bolts. Make and drill ¼" plywood mount, then bolt a large bellcrank. Connect two 3' sections of flexible controline cable to the bellcrank. Bend 3/32" dia. pushrod as shown on plan, wire wrap and solder, then hook to bellcrank. Form the 3/32" dia. wire tailwheel strut and secure in place to ¼" sheet balsa. Do not install strut cover at this time. Cut out ¼" balsa wing mount.

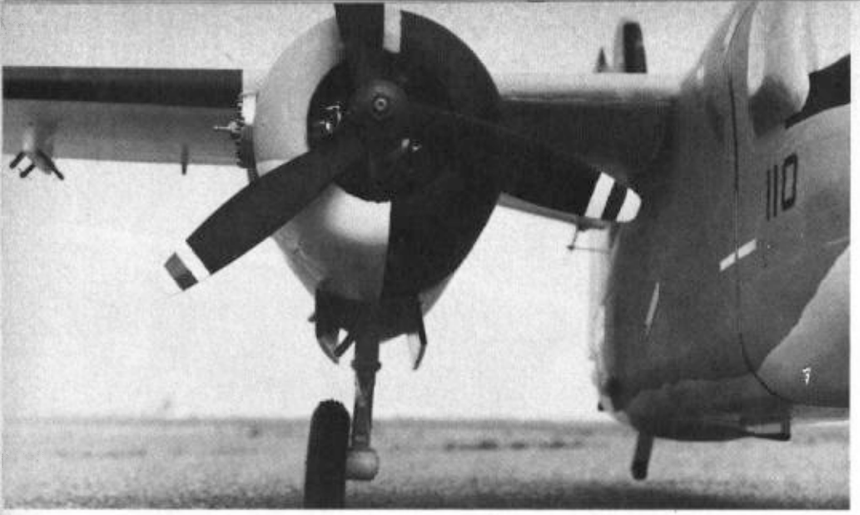
When the left half of fuselage has thoroughly dried, remove and glue nose gear mount assembly, wing mount, bellcrank mount pushrod assembly, and formers F-2-F-17 on the right side of fuselage and let set. Glue side loneron to formers F-2-F-11 and let dry. Now bend both side longerons into formers F-10-F-17 and glue and pin. The bottom of fuselage can now be planked with sheet and ⅛"x¼" balsa.

Tail Assembly

Fabricate all parts for the elevator, rudder, and stabilizer. Glue the stabilizer to the ⅛" plywood rudder stiffener, making sure that the "V" shape of the stiffener is in line with the stabilizer. Slot the trailing edge of the stabilizer and the leading edge of the elevator for the elevator hinges. Round the leading edges of the elevators to ⅜" radius, then install nylon hinges to suit. Roughly carve and sand the stabilizer and elevator to shape shown in sections. Glue above assembly to the fuselage making sure the ⅛" plywood rudder stiffener is vertical and that stabilizer seats on ¼" balsa sheet build up. Rudder is made from three ¼" laminated sheets. To save on weight the rudder is hollowed. Offset it ¾", then roughly carve and sand the rudder.

Wing Assembly

Saw out all parts for the wing. Glue and clamp the secondary spar following doubler outline, then the main spar. Dihedral is 1⅛" under one tip. Pin plan and spars to a soft board and glue ribs R-1-R-14 in place. When dry, remove and do the other side. Now that all the ribs are on both spars and are dry, the leading edge and trailing edge can be centered, glued and pinned in place. Glue and pin wing tips on. The bottom of the wing only is covered with 3/32" sheet balsa at this time. Note slots are cut for nacelle formers, N-8 and N-9 as seen in plan view of wing. The slots will be on the



Build two nacelles, that's enough. Lengthy hardwood engine mounts form basis, formers, planking. Six J-bolts secure each landing gear. Three-bladed props add realism, as does the gear detailing.

The bomb racks are visible here on the underside of the wing. Gear doors are of ⅛" sheet. Keep weight within reason, balance on the C.G. Aircraft flies well, but wait for a reasonable day. **Below:** Tail surfaces. Dual elevator pushrods are required due to the dihedral of the stabilizer.

outside of spars. Cut slot for controline guide at R-13 on the left wing.

Nacelle Assemblies

Slice out all parts for both nacelles. Construction starts by pinning the plan to a soft board. The ¼" balsa sheet crutch, ¼" plywood landing gear mount and motor mounts are glued and pinned in place. Formers N-7 and N-11 are angled off as shown in plan view. N-7 and N-11 on the right nacelle are canted off opposite those shown for the left nacelle. Glue and pin formers N-6, N-9-N-14. Note N-7 and N-8 on both sides of both nacelle are not glued on at this time. Once you have the left halves of the nacelles built, go on to putting formers on the right side. Now fuel tanks go in and N-7 and N-8 on both sides are glued in place. Next comes the ¼" plywood firewall N-5 glued to N-6. The ⅛" dia. landing gear wire is bent to shape. Both the landing gear to nacelles with three "J" bolts.

Make all parts for the cowlings. Note opening in cowlings for the engines are to be cut after planking and sanding is completed. Glue formers N-1-N-4 as shown on plan and let dry. Plank above assembly with ⅛"x⅜", then sand cowlings to shape. A hand-drill or lathe may be used to obtain finer results. If possible use aluminum cowls. Cut N-3, N-4 and exhausts to suit your engines. Cowlings are mounted with three 1/16" wood screws. Install the fuel line on the tanks.

Getting it Together

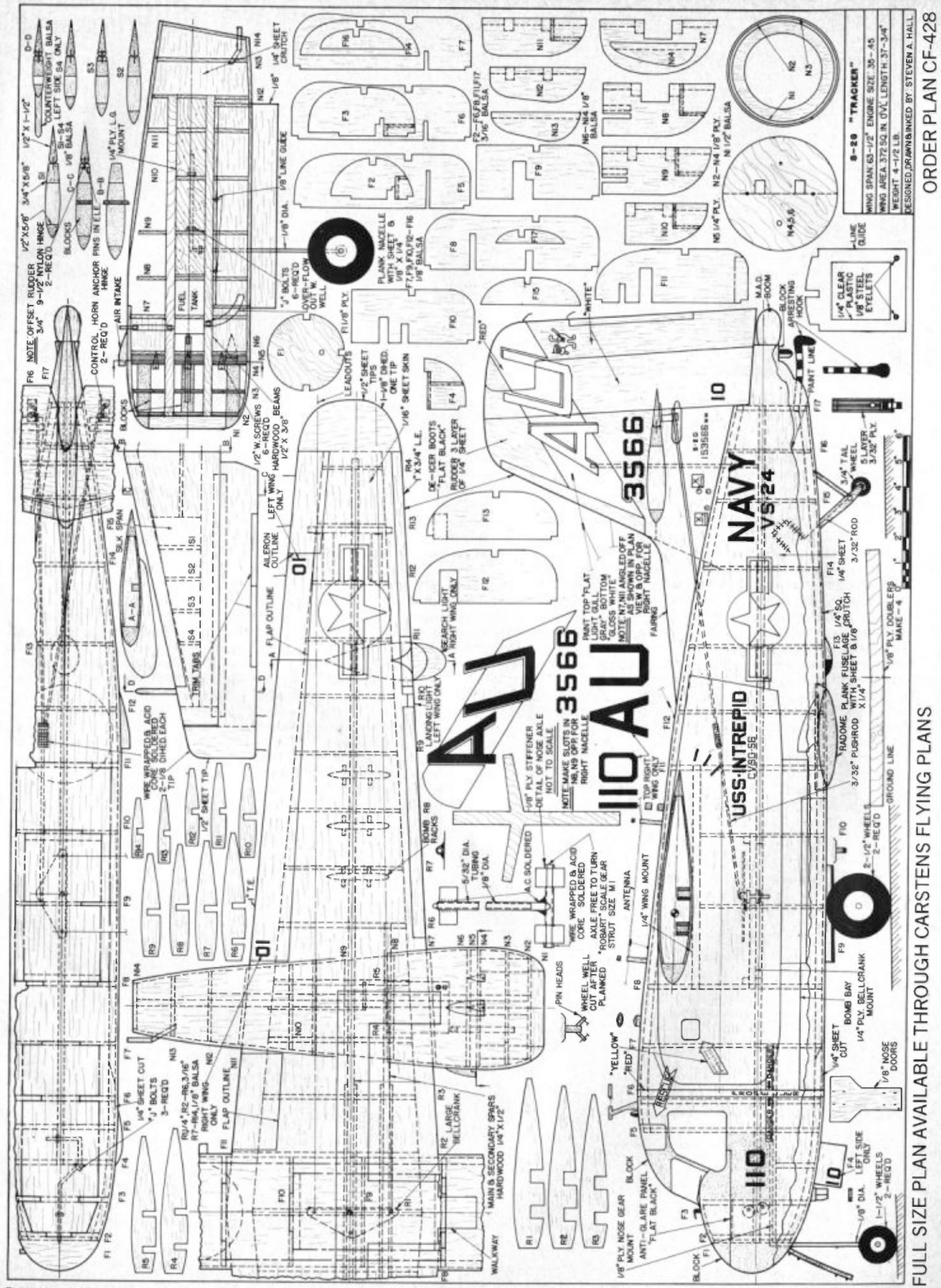
Do not glue, just push both nacelles through slots in the wing bottom, along side of the outside of the main and secondary spars of the wing, to the top of the motor mounts and set on a flat table. Note that the axles of the landing gear should set parallel to the top of the table. Caution; it is important that the center lines of the nacelles and the wing are as drawn in the side view of the fuselage. N-7 and N-11 should touch the leading edge and the trailing edge respectively. Once the nacelles are adjusted, glue, pin, and clamp, then recheck the centerlines of both nacelles and the wing so as to agree with plan.

Cut out a clear plastic controline guide and push through the slot in the bottom of the wing, then glue with epoxy and let dry. Glue and pin the top of the wing with 3/32" sheet. Carve the leading edge and the wing tips and roughly sand the wing. Install controline guide tubes. Plank nacelles with ⅛"x¼" and ⅛"x⅜" balsa, then roughly sand the nacelles.

It is important that the mounting of the wing to the fuselage be a strong one. Block up, glue and pin wing to the fuselage, making sure it's perpendicular to the fuselage as on plan. Plank the remainder of the fuselage, then hook control horns on to pushrod and adjust. Mark, drill, and bolt to the elevators.

Finishing

Build and solder outer nose axle to ⅛" dia. nose gear wire. Cut out nose and tail blocks, glue, pin, and let dry, then carve and sand to shape. Make and glue main and nose wheel doors in place. Cut out, glue, sand, and mount air scoops, bomb racks, stabilizer counterweight, (M.A.D.) boom, windshield wipers, pitot tubes, and the



A Skyraider joins forces with the S-2G. Navy aircraft are a favorite for modelers who well remember 25 wonderful years of Nats hosted aboard the U.S. Naval Air Stations. Both are carrier based machines. Select two reliable engines, properly broken in. Good fuel lines and clean fuel is important.

search light. Make and epoxy glue tailwheel strut cover. Cover the stabilizer with Silkspan. Slice out the circle for the radome and line it with heavy paper and sand and install radome into fuselage. Install detailed landing gear strut covers from "Robart" size M-1, after which wire wrap and solder main gear wheels in place. Make and glue the arresting hook and antenna masts, then adjust balance as shown on plan. Model should balance forward of the main gear to set on the nose wheels. Anywhere from 1 to 5 ounces may have to be added to the nose, depending on how light the tail is. Add right wing weight until when holding at centerline the right wing dips. Mount overboard fuel dumps, then cut out, carve, and sand side windows to shape.

Lightly sand all of the model to a smooth finish. The dope I used was Pactra Aero Gloss and Pactra Aero Gloss Military Flats. Apply four coats of sanding sealer to all balsa surfaces and sand between each of the coats. Start the color with three coats of Swift White to the bottom area of the plane and to the top of all the control surfaces, back section of rudder, elevators, inner and outer flaps and both ailerons. Sand between each of the coats. Paint the top of the plane with three coats of Light Gull Gray. Wing walks are made of extra fine sandpaper. Cut out and glue wing walks in place, then paint flat black. National insignia and lettering may be applied by decals or better yet, by painting. If the national insignia is painted use Swift White, Stearman Red, and Corsair Blue. Lettering is Flat Black. Rescue arrows are Cub ellow and jet Black. Front of the nose door and ends of wheel doors are painted Stearman Red. The cat on the rudder has Green eyes, Red nose, tongue, and lighting bolt; White bandage and mouth; and a Black body. De-icer boots and antiglare panels are Flat Black and windows and search light glass silver.

When all is completed mount your engines. Note that a slot is to be cut in the top of the needle valve and a ½" dia. hole is to be drilled in the nacelle cowlings directly above the needle valve in order that the needle valves can be adjusted safely with a long screwdriver. Finally, all the antenna wires. When starting the engines, start the left engine first, then the right engine and go back and top off the left fuel tank before releasing the plane for flight.

Now your S-2G Tracker is ready for action in the sky over the oceans of the World.

My S-2G won Hobby 1 model building contest, for the Best Wood Model of 1975. The Tracker was on display in the window of Hobby 1 in Warwick, Rhode Island for four weeks.

Best of luck on your model of the S-2G Tracker.