BONNIE LASS

■ *Bonnie Lass* was especially designed as a team racing trainer and as a model for team racing demonstrations and exhibition flying It was one of several Half-A models that performed at the '51 Los Angeles Hobby Show. These demonstration races proved that it is easy to fly several of these small racers on very short lines and have lots of fun doing it A great deal of interest was created by said little team racers, and the F.A.S.T. Club was repeatedly asked for some sort of simplified rules to cover such an event. The rules as finally completed are

Maximum engine displacement, 05 cubic inches Maximum tank capacity ½ fluid ounce (90 cubic inches) Minimum wing area (lifting surface), 75 square inches Minimum cross section at cockpit, 1¼" x 1½" No engine cut-off required Realistic design, cowled engine, fixed gear, dummy pilot Line length, 26' 3". (This gives 32 laps per mile). Races for 2, 3, or 4 models in 1 mile and 2 mile heat races. Final race for distance of 5 miles

Half-A team racers should have a very definite place in model flying They can be used to learn the fundamentals of team flying Such models are inexpensive, simple to construct, and can fly slow enough so that the pilot can accurately control the flight For small club contests, A 2 contests can be lots of fun But it is in exhibition or demonstration flying that these models really shine. If your club is called upon to give such a show, especially indoors, try this event using the slow-flying techniques and see how the audience eats it up.

Bonnie Lass has a circular fuselage plotted from the NACA 0012 airfoil section The use of cheek cowls gives an appearance similar to the Goodyear racers and offers very good engine operation Construction can be as light as 5 ounces for mild stunt flying or as heavy as 10-12 ounces for slow-flying and indoor flying

For slow-flying and demonstrations first add weight to the model until it weighs about 10 to 12 ounces, but be very careful to keep the balance point exactly the same as before Take an aluminum "Firebaby" prop and reduce the pitch to about 1½ or 2 inches Make a long, smooth take-off and then after a few laps of normal flying, slowly and gradually pull up the nose and at the same time apply a slight backward tow on the lines Model should slow down into a semi-stall and hold its altitude at a speed approximately half of normal

Then gradually bring the nose down to level and apply a slight forward tow on the lines to pick up speed Try changing back and forth from high to slow speed and do this without varying the altitude Now try this in circle with three or four other models With this type of performance you are flying on the ragged edge of a stall, and naturally this should not be attempted in much of a wind Lines as short as 15 feet can be used with this set-up

For a real good team racing show, have all the models ready to go and all the races planned ahead of time so that the whole demonstration can go smoothly When in the air keep the models closely bunched by adjusting the speeds Cooperate in the circle so that first one model will pass the bunch and then another The spectators will enjoy team racing a lot more when there is a close race than when the models merely scream around the circle at top speed

Cut out the wing ribs from 1/16" sheet and the wing tips from ¼ sheet balsa Place wax paper over the plans and then pin spar ribs leading edge trailing edge and tips in place blocking up where necessary with scrap balsa Cement securely and when dry remove from plan Carve and sand all parts to final shape Cover the bottom center section with 1/32 sheet balsa Install the bellcrank cutting away part of the center rib for clearance Install the aluminum tubes in the left wing tip and the lead weight in the right wing tip Install the lead-out wires using 008 flexible wire Cover the upper center section and then cut away where necessary to clear the pushrod Cover both panels with gas model Silkspan and give two or more coats of clear dope

Trace the tail surfaces onto sheet balsa and cut out Carve and sand to a streamline shape Use any type of hinge construction that will permit free action The weight of the elevators in the finished model should be sufficient to move the controls to full down position The original model used a series of eye pins with a music wire hinge pin to form the control horn

Cut landing gear to shape from .025" 24ST dural Bend to shape drill holes and attach wheels If dural is not available, a two strut 3/32" wire gear can be used Bend tail skid to shape from 3/64 music wire

Saw the fuselage block in two lengthwise and then spot-cement it together again Since the fuselage is perfectly round turn the block on a lathe if possible If not, then temporarily cement the spinner in place on the end of the block hand-carve the fuselage to near shape and then finish with sandpaper Half-circle templates can easily be cut from heavy cardboard or veneer Pencil lead rubbed on the edges of these templates will quickly mark the "high spots and greatly speed the shaping Split the fuselage open to form a top and a bottom block Hollow these out as shown on the plan leaving thick portions at the engine bulkhead and landing gear positions

Next glue the tail skid into the lower block and use a small piece of linen to help secure it Glue landing gear mount in place Cut away bottom of fuselage so that the gear may be bolted in place Then replace the piece cut out Mount the engine and spinner in place on the plywood bulkhead #1 using a nut plate behind the bulkhead Cut away the side of the fuselage to clear the engine cylinder and venturi then carefully cut a groove in the fuselage block until the engine and bulkhead fit properly Glue securely in place and reinforce the joint with narrow strips of linen cloth

Glue bulkhead #2 in place Cut block away where necessary and cement the wing and stabilizer in place Hook up the control pushrod Mount the tank in place using scraps of balsa to cement it in securely A stunt type of tank was used in the original *Bonnie Lass* with one copper tube vent coming out of the top of the fuselage for fill another out the bottom for overflow, and a third copper line through the bulkhead for feed line Cut the two vents on a 45 deg angle forward

Cut cockpit hole in upper block, then carve and glue headrest block in place Glue rudder in position Install dummy pilot and instrument panel Carefully cut away the top fuselage block to clear the engine bulkheads and control mechanism Glue permanently in place

Carve the cheek cowls from blocks and hollow as shown on the plan Cut out the right cheek cowl to clear the glow plug then cement both blocks in place Mark carefully the position of the removable portion of the cowl and with a sharp blade cut this portion off This hatch is held in place with two large-size dress snaps Cut exhaust holes in both top and bottom of the fuselage Make an extension for the needle valve and cut a hole to fit Cut an air inlet hole in each cheek cowl, and an air outlet hole in each cowl underneath the wing

After sanding entire model, apply two or more coats of sanding sealer Sand lightly between coats When smooth, paint entire model with a light colored fuel-proof dope such as Sta Attach canopy, put on decals, numbers, insignias etc

The finished model should balance ¾" back from the leading edge of the wing alongside the fuselage The original model weighed six ounces and has flown when loaded down to a total weight of 12 ounces For regular flying use a 3½/4 prop and keep the weight down to normal With such a set up *Bonnie Lass* flew 113 laps on ½ ounce of fuel Its top speed was about 50 mph After you have the feel of your model, get one or two others to fly similar models in the circle with you and learn just how much fun team flying can be

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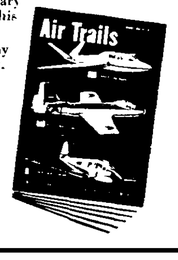

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