

ORCA 2012 MATERIALS LIST (edited 9/14/13)

Nelson Hobby, nelsonhobby@gmail.com has Harley's original canopy plug/mold. Inquire about availability & cost for molded canopies, pitcheron cam pairs & steel pivot rods. (Mentioned below.) Other commonly available hobby or hardware items needed are as follows:

HARDWARE: 12" of 11/32" OD brass tube. All-thread 2-56 steel rod for pushrods. A 10-1/2" piece of 5/16" steel for pivot rod. About 9" of 1/8" music wire. 4 Dubro #181 package. Two 1/8" wheel collars. Two 6-32 x 1/4" socket head machine screws for setscrews. Allen or ball socket wrench for those. Two 6-32 thin-walled threaded brass inserts & 6-32 x 1/2" pan head nylon bolts to secure stab. A #30 & a 11/32" bit.

NON-BALSA WOODS: In birch ply: (1) 6" x 36" x 1/16" for fuse slab sides, (2) 1' x 4' X 1/64" sheets for wing skins. (1) 5 ply, 1/8" x 6" x 12" to laminate for two 1/4" endcaps and to make the two fuselage formers. (1) 12" x 24" X 1/32" for the 16" stab core & fuse bottom sub-decking. (1) 3/4 sq. x 48" stick of bass for drilled blocks for fin threaded inserts & wing drive pins. Also to cut 3 pieces to join s/b/s for the hard contoured fuse bottom front end. Also to cut 4 pieces to join to make the hard nose block. (1) 1/4" x 3/8" x 12" piece of bass or spruce for servo rails. Two 3/16" x 3/8" x 36" strips of spruce, bass or very hard balsa for wing LE's. If you are into vacuum bagging overall cloth skin to foam cores, LE wood may omitted, if preferred.

IN BALSA: AAA, graded light, medium & hard. For the bottom behind the bass block, get a hard 3/4" x 3" x 12 block". Behind it, use light balsa. For there & the fin, preferably use 5/16" balsa. Get a light 3" x 36" piece. If available, for the fin, use ultra-light, 4-6 pound, so called "contest balsa". Scrap of 1/16" balsa for fuselage doublers, stab platform & slot facings the wing tubes go between. For doublers over the ply slab sides, get (2) medium sheets of 1/8" x 3" x 36". (1) pair of medium 1/8" x 3/8" x 36" strips for wing sub-LE's. (1) Light 1" x 3" x 36" plank for the fuselage top. (1) light 1/8" x 4" x 48" for stab top & bottoms.

TRIANGULAR STOCK (TS): Stock TS is usually the wrong size or density for this application. See page 6, GCF#1 about making a tool to hold square strips to cut into triangular stock with a band, jig or scroll saw. Get a sheet of light & medium 5/16" x 3 x 36" balsa. Rip into 5/16" square strips as stock. Use lighter stock behind the rear former.

MISC: Get a linear yard of 36" wide 1.4 oz. plain weave glass cloth for the fuse. Lighter cloth, 1/2 oz. or so, is preferred for the fin & stab. If you intend to optionally glass over the ply wing skins, you'll need light cloth for that. You'll then need a couple of 36" wide linear yards of it, all total. If you have bagging equipment, you probably have thin epoxy with which to glass over the fuselage/tail. If not, the thin, Sig Polyester Finishing Resin can be used, but it eats foam. Lacking bagging equipment, the 1/64" ply skins can be attached to the wing cores with Dave Brown's Southern's Sorghum, a water-based contact cement. A 7 oz. bottle is lots. Use cheap, throw-away, metal-handled "acid" or "epoxy" brushes on resins. Acetone/nail polish remover is a solvent for polyester & epoxy resins, but eats foam. Other useful adhesives include instant CA, CA+, 5 min. epoxy, common yellow wood glue, etc. If you are into vacuum bagging overall CF & glass cloth to foam cores with epoxy resin, Mylar carriers, etc. use your preferences to skin the wing.

WING CORES: Anker Berge-Sonne, bostonsearover@gmail.com offers superb 60# CNC cut cores cut in 2 sections that are easily joined as ORCA instructions detail. See root/tip airfoils on plans. Cores are available (1) Trimmed 5/16" for sub-LE/LE & 1/64" ply skins as plans show. (2) Untrimmed for those who know vacuum-bagging & prefer overall glass/CF cloth skin without a wood LE.