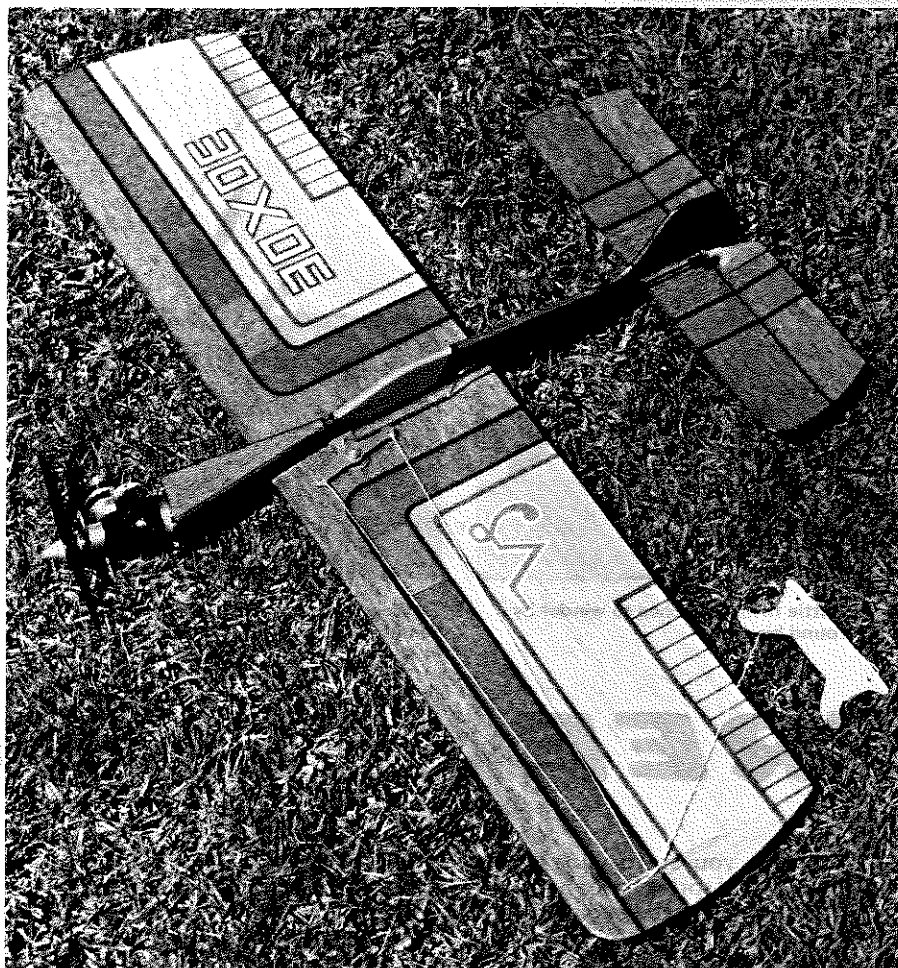


CRYSTAL AMANITA

PHOTO BY DAVE PURCHASE



By TYRONE PARKER . . . An easy-to-build 1/2A control line sport model with detailed instructions for assembly. An excellent model to get that youngster interested in the hobby.

• Crystal Amanita is styled generally like the modern parallel-line type aerobatic monoplanes, and is designed to be vibration absorbent in the front and to distribute vibration throughout the rest of the airframe so as to minimize excess stress in any one area.

Crystal Amanita has proven to be durable and a really good flying machine for about two years that I have been flying and improving the design. It is well worth the time and care to cut and fit the parts snugly, as accurately fitted parts will require minimum glue to hold securely and no amount of glue will make an improperly fitted seam as secure as an accurate one. Excess glue only adds undesirable weight, which both decreases flight performance and dampens flexibility, which results in premature airframe fatigue.

Glue one piece 1/8 x 2 x 24 inch medium balsa to one piece 1/8 x 4 x 24 inch light balsa, to form one piece 1/8 x 6 x 24. Sand top and bottom of wing blank when dry . . . trim tops to outline shown on plan . . . shape edge to half-round and sand smooth.

Cut fuselage to shape from 3/16 bass wood and sand bottom wing spars to shape from 1/32 ply . . . shape top edge of top spars and bottom edge of bottom spar to 1/4-round and sand both spars smooth. Slide fuselage to center of wing

. . . slide spars into position . . . lightly trace spars' outlines onto wing with a .5mm mechanical pencil . . . slide spars back out . . . slide fuselage away from wing center to clear spars area . . . glue spars in place with aliphatic resin glue . . . slide fuselage back to wing center . . . press spars on one side of fuselage tightly to wing with thumb and forefinger . . . tack those spar halves to wing with cyanoacrylate adhesive then press and tack spar halves on other side. Slide fuselage about a 1/2 inch back from wing center . . . apply glue around wing center . . . slide fuselage back to wing center . . . use triangle to check that fuselage is straight up from wing top and straight back from wing trailing edge . . . tack with cyanoacrylate adhesive and seal fuselage to wing seams with aliphatic resin glue.

Cut four firewall plates from 1/16 ply and laminate with cyanoacrylate adhesive as shown on plan. Cut left and right front fuselage side plates from 1/16 ply and sand smooth. Trim fuselage front to angle shown on plan top view and glue firewall in place.

Slide fuselage side plates into position . . . trim inside back edges to fit flat to fuselage . . . trim firewall edge to fit flat to inside front sideplate surfaces and glue side plates in place. Trim 1/8 inch quarter-round basswood fuselage lon-

gerons to fit inside top and bottom edges of left and right fuselage side plates and glue in place.

Cut top and bottom front fuselage plates from 1/16 ply . . . glue bottom plate in place and with the grain running across the fuselage center line. . . plank fuselage bottom from back of bottom plate to back of side plates with 1/16 medium balsa . . . trim and shape edges to 1/4-round and sand smooth. Glue top plate and planking in place . . . trim and shape edges and sand smooth. Cut fin and rudder from 3/16 light balsa . . . glue fin to fuselage . . . taper rudder to about 1/16 at trailing edge and tack lightly in place. Sand both sides of fin and rudder . . . shape fuselage edges back from top and bottom planking and fin and rudder edges to half-round . . . sand smooth and separate rudder from fin and fuselage.

Cut stabilizer from 1/16 medium balsa . . . elevator from 1/16 light balsa . . . sand tops and bottoms . . . shape edges to half-round and sand smooth. Cut top and bottom elevator control horn mounts from 1/64 ply . . . sand smooth and glue in place. Drill 1/16 hinge holes in stabilizer and elevator as shown on plan and glue stabilizer in place. Tack rudder lightly back in place. Cover wing fuselage, fin, rudder, stabilizer, and elevator with lightweight silkspan, using

water thinned white glue (aliphatic resin) to attach. Cut trim designs from tissue as desired and attach. Apply five or six coats of clear dope thinned about 50% with dope thinner and sanding lightly between coats with #600 finishing paper. Apply a finish coat or two of Glaskote synthetic varnish.

Cut control handle from 1/16 ply... drill 3/32 holes as shown on plan... sand handle smooth... seal edges with cyanoacrylate adhesive and apply a coat or two of Glaskote.

Separate rudder from fin and fuselage by running razor edge along the seam on both sides.

Hinge elevator to stabilizer with heavy duty nylon thread. Wrap each hinge three times in the figure-of-eight pattern as shown on plan... tie off ends as shown on plan... trim ends and seal each hinge hole top and bottom with a drop of 5-minute epoxy. Glue rudder in place and seal seams with cyanoacrylate adhesive.

Form the control lines guide by wrapping a length of 1/32 music wire 1-1/2 times around a 3/16 shaft so that the wire resembles the loop end of a safety pin... bend ends over to right angles as shown on plan... trim ends to 3/8... rough sand and press ends carefully into wingtip as shown on plan... pull back and coat ends with cyanoacrylate adhesive.

Bend 1/8 inch of one end of 1/16 music wire pushrod material back to a right angle... clasp the long length next to this bend with narrow pliers and bend the long length forward to a right angle.

Re-drill and trim nylon bellcrank to outline shown on plan... fabricate 1/4 diameter washer from 1/16 nylon to fit between bellcrank assembly bottom and wing spar top... drill 1/16 hole through inside wing as shown on plan and screw bellcrank assembly and washer into place.

Trim top of short nylon elevator control horn to outline shown on plan... slide onto short end of pushrod and around the first bend... tape control horn in place on elevator so that the pushrod length between the bends and through the control horn is directly over and in line with the elevator-to-stabilizer hinge line... set elevator to neutral position... position bellcrank so that there is equal movement from each tip to fuselage side... place pushrod over outside bellcrank pushrod hole... mark

pushrod at point over forward edge of hole... clasp pushrod at this point with inside edges of pliers and with outside edges of pliers forward of this point and bend up to a right angle. Check that the up length is very nearly in line with the bellcrank hole... trim pushrod up length to about 1/4 inch... unscrew bellcrank assembly... slip outside bellcrank pushrod hole over pushrod end and screw bellcrank assembly back into position. Move bellcrank to and fro and see if elevator movement is about the same up as down... untape and adjust elevator control horn back or forth if necessary... when in position so up and down elevator movement is about the same, mark through control

horn base plate holes to elevator control horn mount with a safety pin... set control horn to the side... drill 3/32 holes through marked locations... seal inside edges of holes with cyanoacrylate adhesive... mount control horn and bottom plate... trim mounting screws with a razor saw and file flush with bottom plate. Unscrew bellcrank assembly... place a drop or two of cyanoacrylate adhesive in the mounting hole and screw bellcrank assembly back into position.

Examine the plan and note that the Cox Black Widow engine used to power the Crystal Amanita is adjusted so that the cylinder and fuel pick up are to the outside and the needle valve and fuel tank vents are to the inside. Though it does require a bit of extra work, the glohead and needle valve are more protected in these positions in the event of upright or inverted emergency landings.

Unscrew backplate-to-engine screws... separate backplate from fuel tank... remove fuel line from intake fitting... cut fuel pick-up tube mount from 1/16 nylon and trim to fit inside backplate as shown on plan. Drill tight 3/32 fuel pick-up tube hole. Set mount in backplate and mark mount through backplate screw holes with a safety pin. Remove mount and drill 1/16 holes through marked locations... set mount back in place and screw two backplate-to-engine screws through the fuel pick-up tube mount, so that they hold the mount securely against the inside of the backplate. Cut a 3/8 length of 3/32 brass tube... smooth ends and rough sand body... press tube into mount hole and seal mount hole to fuel pick-up tube

body seam with cyanoacrylate adhesive. Slip one end of a 1-1/2 inch length of medium Sig silicone fuel line over the fuel pick-up tube... slip the other end into the tank and around the fuel tank vent tubes and back, while bringing the tank back so that there is just enough room between the tank and the backplate to slip thin-nose pliers in and gently clasp the fuel line about a 1/4 inch from the end and slip the end onto the fuel intake fitting. Slip the pliers back out and making sure that the two screws through the backplate are lined up through the forward tank screwholes, press the tank and backplate together... fit the remaining two screws into place and secure the engine to the tank.

Hold the engine to the firewall and mark through the tank mount screw holes to the firewall with a safety pin... set engine aside... drill 1/16 holes through marked locations and secure engine to firewall with #2 x 1/2 inch sheet metal screws. Install Cox 263 silencer and attach a Cox 6 x 3 black or Tornado 6 x 3 white propeller.

Cut two 32-foot lines from a spool of Conso 721 white bonded finish heavy duty nylon thread... slip one set of ends through the lines guide to the bellcrank and tie one line end to one bellcrank end hole and the other to the other with clinch knots as shown on plan. Hold line end with thumb and forefinger... clasp line behind windings and pull to close clinch knot... seal knots with cyanoacrylate adhesive and trim ends. Tie the other end of the up control line to the control handle with a clinch knot... seal and trim and tie the other end of the other line to the other end of the control handle with two or three simple overhand knots and don't seal or trim so these knots can be loosened and retied to adjust control handle to most comfortable flying position.

Wrap lines around the hollows at the ends of the control handle up to about two inches from the wingtip... wrap a small rubber band around the middle of the handle to secure the lines and secure the handle across the wing with a large rubber band.

Use 5% nitro fuel... adjust the needle valve so the engine is running just between a crackle and a buzz... wipe the exhaust residue off after every flight and your plane will fly really good and last a long time.

