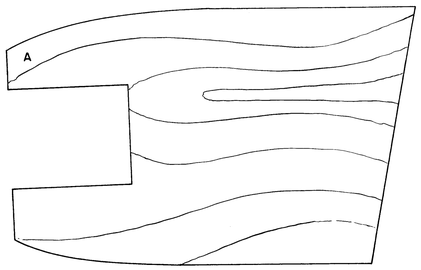
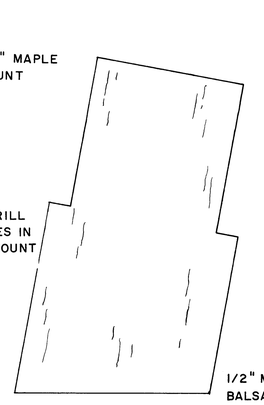


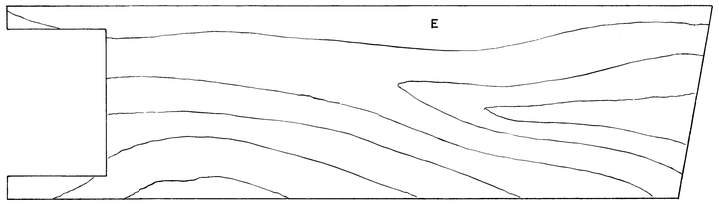
3/32" PLYWOOD (MAKE 2)



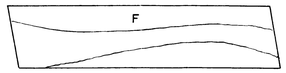
3/8" × 1/2" MAPLE MOTOR MOUNT INSERTS

DRILL HOLES WITH NO. 31 DRILL TO MATCH HOLES IN ROTOR SHAFT MOUNT

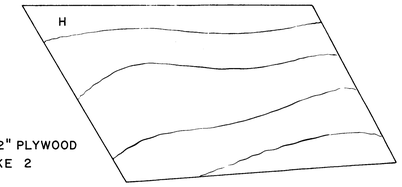
1/2" MEDIUM HARD BALSA.



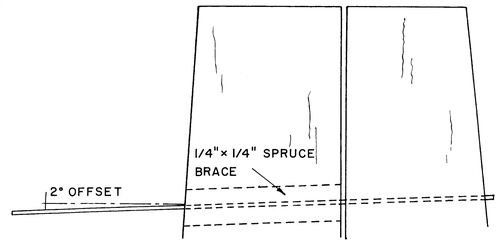
3/32" PLYWOOD (MAKE 2)



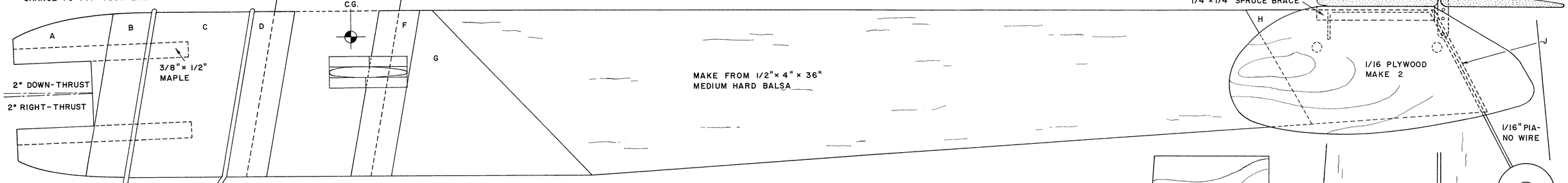
1/32" PLYWOOD (MAKE 2)



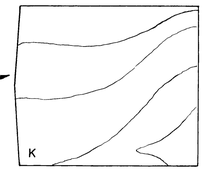
1/32" PLYWOOD MAKE 2

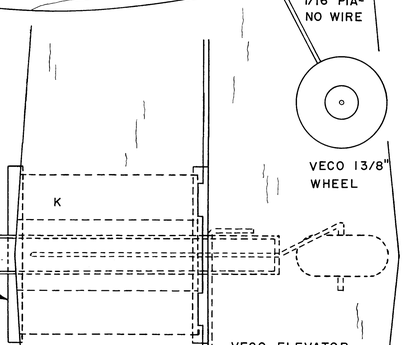


CUTOUT SHOWN FITS ANDERSON SPITFIRE 65. CHANGE TO FIT YOUR ENGINE



FUSELAGE SIDE VIEW



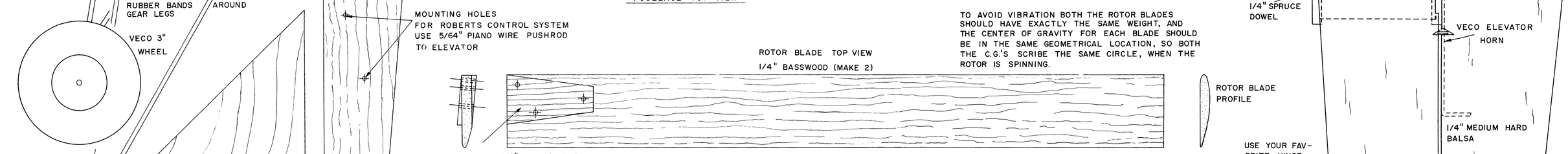


MOUNT ENGINE WITH CYLINDER TO THE OUTSIDE OF CIRCLE, ALSO MOUNT TANK TO THE OUTSIDE OF CIRCLE

1/8" PIANO WIRE

2-3 OUNCE LEAD WEIGHT FASTENED WITH WOOD SCREW AND EPOXY GLUE

1/4"× 1/4" SPRUCE BRACES



FUSELAGE TOP VIEW

TO RETAIN LANDING GEAR RUBBER BANDS WRAP AROUND GEAR LEGS

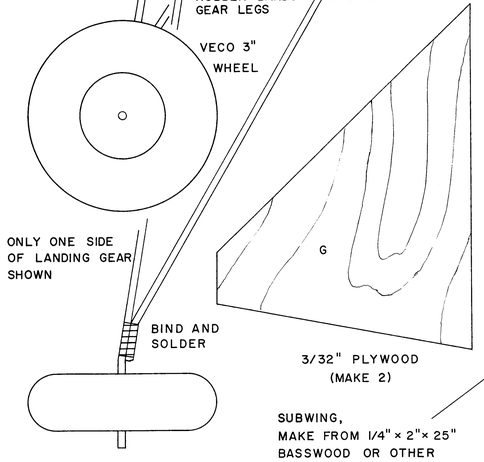
MOUNTING HOLES FOR ROBERTS CONTROL SYSTEM USE 5/64" PIANO WIRE PUSHROD TO ELEVATOR

TO AVOID VIBRATION BOTH THE ROTOR BLADES SHOULD HAVE EXACTLY THE SAME WEIGHT, AND THE CENTER OF GRAVITY FOR EACH BLADE SHOULD BE IN THE SAME GEOMETRICAL LOCATION, SO BOTH THE C.G.'S SCRIBE THE SAME CIRCLE, WHEN THE ROTOR IS SPINNING.

ROTOR BLADE TOP VIEW
1/4" BASSWOOD (MAKE 2)

ROTOR BLADE PROFILE

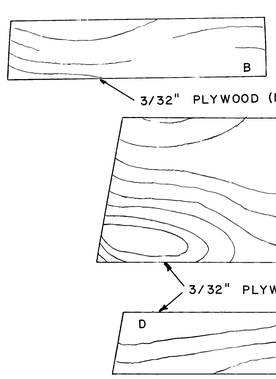
MAKE 4 FROM 3/32" PLYWOOD AND EPOXY GLUE TO ROTOR BLADES BEFORE WORKING BLADES TO AIRFOIL SHAPE. DRILL MOUNTING HOLES WITH NO. 31 DRILL

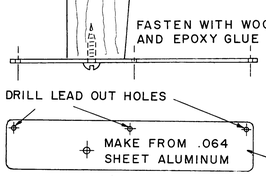


ONLY ONE SIDE OF LANDING GEAR SHOWN

3/32" PLYWOOD (MAKE 2)

SUBWING, MAKE FROM 1/4" × 2"× 25" BASSWOOD OR OTHER HARDWOOD. SAND TO AIRFOIL SHAPE AS INDICATED.

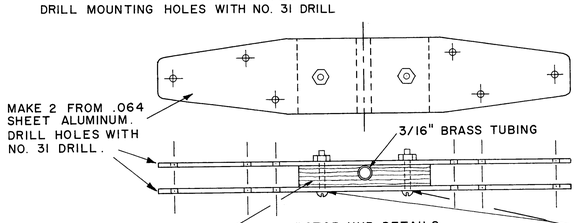




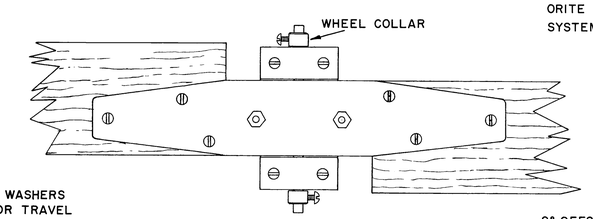
FASTEN WITH WOOD SCREW AND EPOXY GLUE

MAKE FROM .064 SHEET ALUMINUM.

ROTOR STOP PLATE

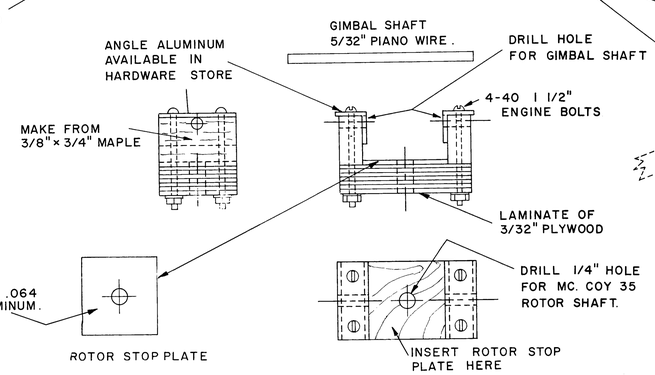


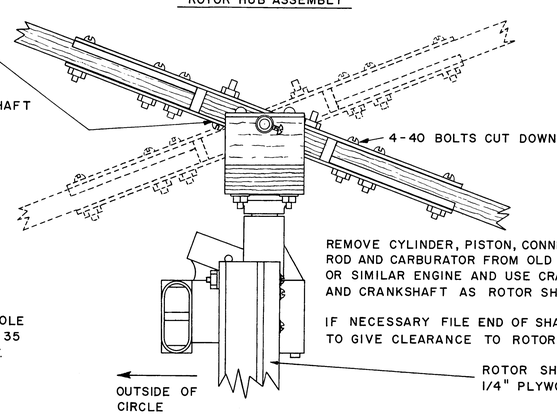
ROTOR HUB DETAILS

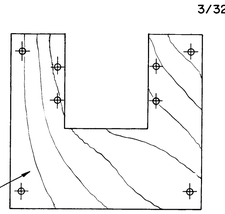


IF NECESSARY INSERT WASHERS HERE TO LIMIT ROTOR TRAVEL TO 1 1/2" TO 2" ABOVE REAR FUSELAGE.

ROTOR HUB ASSEMBLY







USE YOUR FAVORITE HINGE SYSTEM

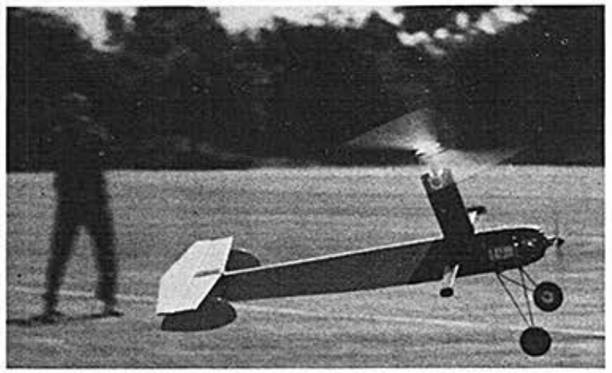
1/4" MEDIUM HARD BALSA

2° OFFSET

1/4"× 1/4" SPRUCE BRACE

DESIGNED AND DRAWN BY OLE DAN NIELSEN

Juan was right...



Autogyros are a challenge!

BY OLE DAN NIELSEN

After a long series of experiments and crackups Don Juan de la Cierva of Spain finally in 1923 had a practical autogyro. The direct forerunner of our modern day helicopter, his gyro utilized a self-rotating set of wings (or "rotor"). This system made the autogyro stall and spin-proof, and made possible extremely low airspeeds and very steep climb and descent angles. The rotor is turned by the airstream passing through the rotor disc . . . the helicopter's rotor is directly connected to an engine.

Lately the autogyro has enjoyed a renaissance in the very popular Bensen gyrocopters.

For quite some time we have worked to adopt the autogyro principle to control line and radio controlled models. We feel you will enjoy building and flying this highly-dependable control liner. Construction follows conventional methods, requires no special tools, and should present no problems. As a matter of fact, we feel this model requires less real building time than a conventional C/L model with wings.

Use a .45 to .65 size engine with throttle control and install a Roberts control system. The model will, of course, fly without the engine control . . . but only with the engine control will you be able to make the model hover, go straight up and down and fly slowly.

Before you start building, familiarize yourself with the plans.

The fuselage is a straight piece of ½ x 4 x 36" medium hard balsa; rotor mast, likewise ½" balsa—mark its position on fuselage. Cut slots for ⅜ x ½" maple engine mounts; make maple inserts for rotor mast. Our engine mount fits an Anderson Spitfire 65. If you use a different mill, change mount to suit yours. Build into mount 2° downthrust shown. Cut A, B, C, D, E, F and G from 3/32" plywood (two of each). Glue A, E and G on fuselage with maple motor and rotor mounts after careful alignment. We used epoxy glue throughout to insure durability and suggest you do, too. When glue is dry, place B, C, D and F on fuselage. Use ⅛" piano wire as spacer between B, C, D for landing gear. Hold parts with small nails while glue sets.

Make 2 part H from 1/32" plywood and glue to sides of tail. Form 1/16" piano wire tail gear wire. Cut groove in tail and fit wire into groove as indicated. Platform K for horizontal stabilizer of 3/32" plywood glues to tail top helping lock tail wire. Align carefully then brace with ¼ x ¼" spruce. Make J of 3/32" plywood and glue over fuselage rear completely locking tail wheel in place. Drill holes to fit ¼" spruce dowels. Form main landing gear from ⅛" piano wire. Bind and solder. Slide landing gear into slots between B, C and D. Gear is held by wrapping rubber bands around gear legs.

Cut sub-wing from ¼ x 2 x 25" basswood or other hardwood. Mark its center and draw a line ¾" both sides of center. Carefully work sub-wing into symmetrical airfoil shape up to these lines so sub-wing middle retains a rectangular cross section. Mark location of sub-wing on fuselage, cut rectangular hole through the body to provide a tight fit. After alignment, glue sub-wing in, brace with ¼ x ¼" spruce. Drill mounting holes for Roberts control system. Guide plate for lead-out wires, cut from .064 aluminum plate, is fastened with wood screw and epoxy glue to end of sub-wing. First drill hole for screw to avoid splitting sub-wing. Attach a 2 or 3 ounce lead tip weight to other sub-wing end with wood screw and epoxy glue.

Horizontal stabilizer and elevator is from ¼" medium-hard balsa; shape to cross section shown, install "Veco" elevator horn. Cut stabilizer slots for hold-down rubber bands. We used nylon hinges for the elevator, but most any type will do.

Vertical stabilizers, cut from 1/16" plywood, are braced with ¼" x ¼" spruce glued to underside of horizontal stabilizer. Give both vertical stabilizers 2° offset.

And so we approach the rotor system. First make the rotor shaft mount from ¼" plywood. We used an old McCoy 35 crankcase and crankshaft for the rotorshaft. Any engine from .15 to .35 will do, just cut out rotorshaft mount to fit yours. Remove cylinder, piston, connecting rod and needle valve assembly from your old engine, and mount its crankcase in the rotorshaft (See pg. 20)

Ole (as in Denmark, his birth place) Dan Nielsen, 32, an importer and distributor of woodworking equipment, lives in Berkeley, Calif., is East Bay R.C. Club member, has pretty wife Inge (top) who holds C/Line autogyro which is seen hovering in other two pix. Hobby Helpers has full size working drawings for ODN's machine.