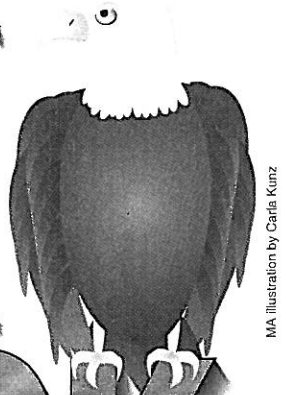
Many years in the making, this model is a true "labor of love" for the dedicated CL Scale modeler



MA Illustration by Carla Kunz

EAGLEROCK

■ **Frank Beatty**

The superb Eaglerock three-views by Joseph Nieto (June 1953 *Model Airplane News*) are the primary reference used to develop the working drawings for this model. Here and there, a rigging wire or strut end may have been moved just a smidgen to tie in with an underlying structural member; but that's really nitpicking it.

An analysis of the three-view at that time indicated that the Eaglerock had an excellent configuration for Control Line flying. With a 2.76:1 tail-to-nose moment, the model is not likely to require any ballast in its nose to achieve proper balance. Its large wheels are well forward for good ground handling operations. (The wheel tread is a bit narrower than some would wish).

There is ample wing area, to keep the wing loading reasonable. The fuselage is smallish, slim, and clean in relation to the model's overall size. The configuration is straightforward, without any strange shapes or structures.

But back then, there was little more than that three-view for reference or documentation, so the project was reluctantly set aside for future reference and research.

In 1973 Reagan Ormond and Jack Brouse flew an Eaglerock A-2 from Grand Prairie, Texas to the EAA Fly-in at Oshkosh, Wisconsin; it was awarded the EAA Antique Grand Champion Trophy. Magazine coverage by *Sport Aviation* (November 1973) and *Vintage Airplane* (August 1973) featured covers, color photos, and lengthy texts describing the airplane and its owners.

Some years later, John A. de Vries' fine book *Alexander Eaglerock*, which includes an excellent three-view, was added to my library. More recently, cockpit photos loaned by Bill J. Witte were added to the growing file. The Eaglerock's time had finally come.

The model has been built to an odd scale of 1⅓ inches to the foot, so that 3⅛-inch-diameter Williams Bros. wheels or the Milman spoked wheels I had on hand would be exactly to scale. It is surprising how much pizzazz the wire wheels add to the model. It would be worthwhile to try to locate a pair of the wire wheels.

The throttle is operated with a Roberts three-wire system. No ballast was required to achieve a proper balance for flying.

An O.S. Max .32 FABC would probably provide ample power, and would be a very good choice if you will always fly in calm conditions. But the second wing, struts, and rigging wires generate considerable drag, so those of us who fly contests or in areas where gusty wind conditions are likely to be encountered should select a .40-size engine.

Photos by the author Graphic Design by Carla Kunz

A .40 flies the model with spirit and can pull its way right through those gusts. Touch-and-gos are a snap, and ground handling is very good. The Eaglerock can be taxied tail-up indefinitely on its two wheels.

CONSTRUCTION

This is a biplane with lots of struts, rigging wires, false ribs, and other detailing. It is a long-time, all-winter, labor-of-love project for those "go the extra mile" types.

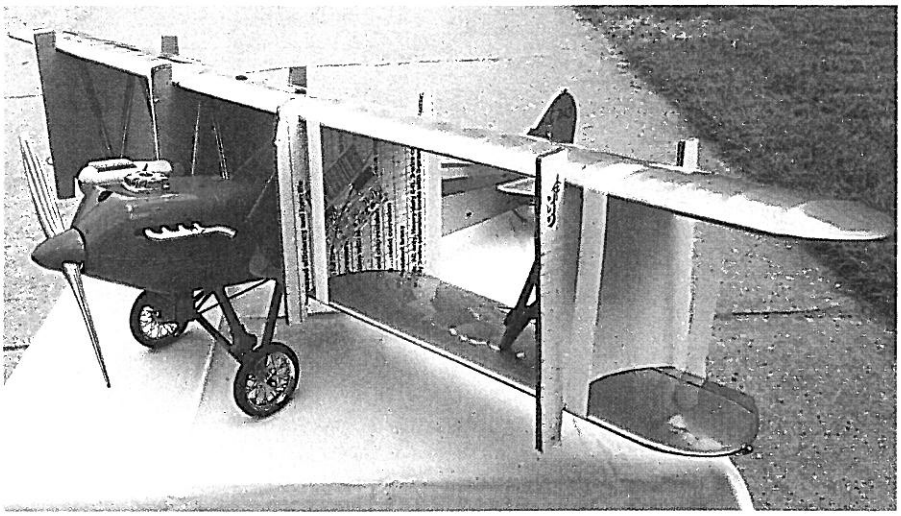
The model has been broken down into many subassemblies. Jigs, strut locator blocks with predrilled pilot holes, and lower wing spar alignment boxes are used to temporarily locate and align the wings while the struts are built in place. The assembly is then taken apart to simplify covering, painting, polishing, and detailing procedures. The parts should automatically be in proper alignment when reassembled.

The undercarriage and tail surfaces will be built first so that construction will not be delayed when those parts are required.

Undercarriage: Bind the 1/8 diameter music wire main strut to the 1/8 plywood mounting plate. Fashion a simple jig to locate and lock the axles in the proper fore-and-aft position relative to the plywood platform. Now bend up, fit, bind with fine wire, and solder all other struts into place. It will be much easier to install and fiberglass the balsa strut and dummy shock absorber fairings now, rather than after this assembly is permanently mounted to the fuselage.

Stabilizer and Elevators: Cut 1/16 sheet balsa cores for stabilizer and elevators. Soak four 1/16 x 3/16 balsa strips in ammonia and bind around the stabilizer leading edge. When dry, these can be cemented to that core. The remainder of the balsa frames and ribs can be cemented to these cores.

Install the elevator horn and the tubing and wire hinge system to these surfaces.



Corrugated cardboard templates and tape are used to align wings while struts are epoxied into their locator socket holes.

Add the hardwood rigging wire mounting blocks. Sand these assemblies to satisfaction and set aside.

Fin and Rudder: The fin and rudder structures are built in the same manner as the stabilizer and elevators.

Fuselage: Cut the 3/32 sheet balsa fuselage sides. Lay out centerlines, bulkhead, and stringer locations on these parts. Cut out all bulkheads. Lay out accurate centerlines on both sides of all bulkheads. It will be easier and more accurate to cement the cabane strut locator blocks, lower wing spar locator boxes, and rigging wire locator blocks to bulkheads 2-5 now, rather than after they are assembled to the fuselage side members.

Epoxy bulkheads 2-4 to the crutch and reinforce the corners with triangular strip gussets. This is the heart of the airplane, so double-check that this is square and in alignment. When dry, cement the remaining bulkheads and tail post in place. Again, check for alignment.

Epoxy the 3/8 x 1/2 x 11 5/8 rock-hard maple engine mounts into place. Locate, drill, and set all bellcrank and engine blind mounting nuts in these beams. Install the 1/8 plywood engine mount to firewall reinforcing gussets at this time.

Make up two 3/32 sheet balsa cabane strut erection jig templates, using the pattern found on Sheet 2 of the plans. Study these patterns carefully. These drawings depict three sets of jigs that are used in different stages of construction. Cement these jigs to the top of the fuselage sides.

Draw centerlines on two 3/8 x 1/2 x 10 pieces of balsa. Measure out 3 3/4 inches from these centerlines and mark the cabane strut pilot hole locations. Drill 1/16 diameter holes through these spars and elongate the holes in the forward spar to about 3/32 x 5/32. Align and epoxy these spars into the cabane erection jigs. The 1/16 wire can be bent up and fitted between the locator holes on the bulkheads and those in the dummy spars.

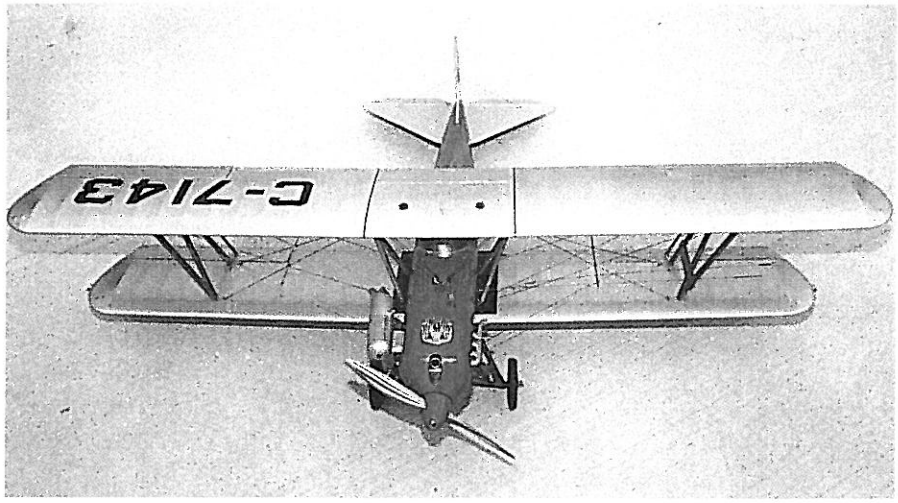
Fit the balsa fairings to these struts. If the fairings are accurately butted against the bottom surfaces of the dummy spars at this time, then the upper wing center section will always be automatically located any time it is fitted to the cabane struts later on. The jigs can now be removed.

Continue fuselage construction by cementing all longerons, stringers, wing root fairing blocks, and stabilizer outline framing members to the fuselage sides. The 1/32 plywood, leadout wire, elevator pushrod wire, and dummy rudder and elevator control wire guides can be added.

Make up the brass throttle reverse travel crank and install. Bolt the engine and bellcrank (with leadouts installed) into place. Slide the stabilizer into its slot and pin firmly in place.

Make up all throttle and elevator pushrod wire linkages. Check that these operate smoothly, without binding. Solder all linkage connections except those at the carburetor crank and elevator horn. The engine and tail surfaces can be removed and set aside.

Spoked wheels and laminated display-only prop are used to dress up the Eaglerock.



Enlarged opening in cowl provides additional cooling air, which will exit through scale opening at bottom of cowl.

Locate and epoxy the fuel tank into position. Epoxy the tail skid assembly into position. Epoxy balsa triangular strip reinforcing gussets to fuselage sides and bulkheads 2 and 3, then epoxy the undercarriage assembly platform against these.

Various balsa blocks and two 1/16 x 1/8 basswood stringers will finish off the fuselage's bottom side. Cement five 1/16 x 1/8 basswood turtledeck stringers and balsa tail cone fairing to the fuselage top.

Cockpit Choices: At this time you must decide whether to install detailed cockpits (for a Precision Scale model) or to install platforms for mounting dummy pilots (for a Sport Scale model). I fly Sport Scale, so I opted for the platforms.

Take time to put a good finish on the platforms and the portions of bulkheads 4-6 that will be visible through the cockpit openings. Make up and install the instrument panels.

Soak a 1/8 x 7 x 12 balsa sheet in ammonia and bend it into position over the fuselage top. When dry, remove that formed part and put a good finish on the inside surface in the cockpit areas. You will find it much easier to fit and glue this formed part to the fuselage in two pieces rather than one. So slit this piece down its center and then apply to model. Wait until all painting and finishing procedures are complete before cutting out the cockpit openings.

Cowlings: Upper and lower cowlings are made from various balsa blocks. Note that an area in the lower cowling just ahead of the undercarriage is left open, just as it is on full-scale Eaglerocks. Two 1/8 x 7/8 guide boxes were created in that part of the cowling to accurately locate the dummy radiator supports on final assembly.

The upper cowling is built up from balsa blocks and shaped. Recessed slots are cut into the cowling to accept the dummy exhaust stacks that are carved from 1/4 basswood. The 1/16 diameter dowels locate and reinforce attachment of these stacks on final assembly. Four blind mounting nuts and bolts locate and hold the upper cowling in position.

Mark and cut all carburetor, needle valve, exhaust, and cylinder head openings in the cowling, and check for clearance. Set the fuselage aside.

Wings: Cut and notch all balsa leading and trailing edges. Make up all basswood spars. Laminate four tips.

More than 60 ribs are required, so make up two plywood or aluminum templates and sandwich batches of a dozen or so balsa blanks between the templates to quickly and accurately shape the ribs. Use the forward section of these templates and #11 X-acto blade to cut the 120 false ribs.

If you find it tricky to accurately assemble wings with three panels (like the upper wing), then try this simple jig:

Take one 2 x 8 x 52, one 3/4 x 8 x 8, and two 3/4 x 8 x 22 pieces of wood. Assemble the three panels to the heavier base piece with the outer panels blocked up until the correct dihedral angle of 1 1/2° is achieved. Tack the plans over the jig and build the

Alexander Aircraft Company logos on fin and rudder. Note tubing and wire elevator hinge system.

EAGLEROCK

Type: CL Scale

Wingspan: 49 inches

Engine: .32-.40 two-stroke

Flying weight: 75 ounces

Construction: Built-up

Covering/Finish: Silk, fiberglass, and AeroGloss dope

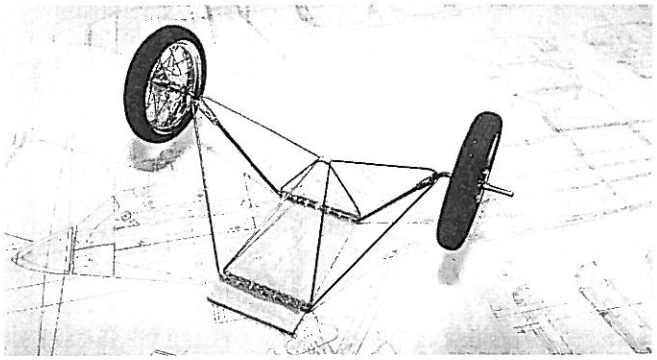
/ing as a one-piece unit. The butt joints of frames and spars can e accurately fitted together and the alignment and dihedral of the uter panels will be dead-on accurate.

Assemble the center section first, followed by the outer anels. The ailerons are built into the wings for accuracy and are eparated later. Install all strut and rigging wire locator einforcing doublers.

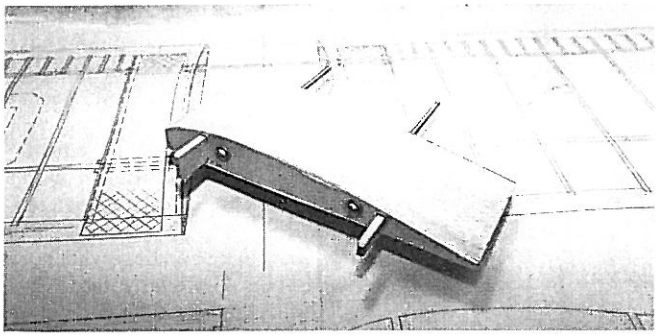
Lift the assembly off the building board and sheet both sides f the center section. This represents a fuel tank. Drill 1/16 iameter holes at all rigging wire or strut end locations. Add the 1/2-ounce outboard wingtip weight. Carve and sand the assembly o shape. Cut the ailerons separate and set the upper wing and ilerons aside.

The lower wing panels can be assembled on a flat building oard in much the same manner as the upper wing. The only ifferences of note are the dummy aileron horn support pieces nd the sheeting at the wing panel roots.

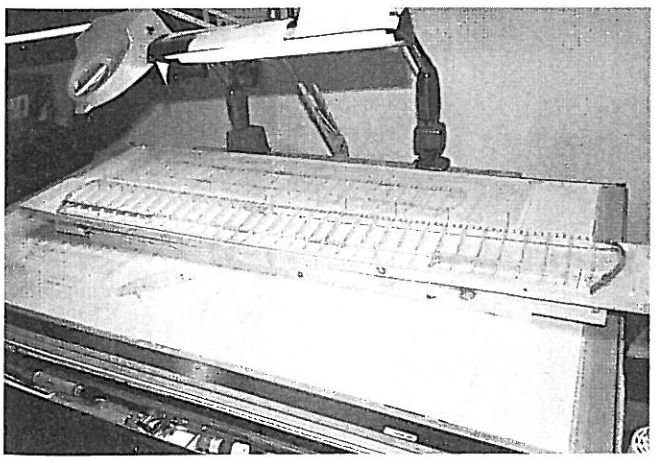
truts and Wing Alignment: Make up four corrugated ardboard interplane strut erection jig templates, using the pattern



Wire undercarriage framework and plywood mounting plate.



Metal templates are used to shape wing ribs from blanks.



Three-panel wing is built in one piece for accuracy.

The aircraft industry always seems to have enjoyed roller-coasterlike periods of enormous growth and prosperity, followed by even steeper declines. World War I stimulated unparalleled technical advances and growth in the industry; but at war's end, development of commercial aviation was dampened for years by the huge numbers of World War I surplus aircraft that were dumped on the market at fire sale prices.

It was in this era and business environment that the Alexander Aircraft Company introduced a new biplane: the Eaglerock.

In the early 1920s, J. Don Alexander, president of a film company, was using "aerial salesmen" to fly between appointments for company business calls. Building those airplanes was a natural next step for someone with Alexander's entrepreneurial nature and enthusiasm. Alexander persuaded his brothers to get into the airplane making business in 1924. An airplane was designed, manufacturing facilities were set up, and a network of distributors and dealers was established.

The new Eaglerock biplanes proved to be so popular with small operators and flying schools that even though plant facilities were constantly expanded, it seemed that production would never catch up with demand; that is, until the stock market crash of October 1929 and the Great Depression. Aircraft sales fell dramatically.

The company tried desperate measures to stay afloat, but on August 5, 1932 the company closed its doors forever. The Alexander Aircraft Company had gone from great growth and prosperity to complete oblivion in just seven years. In its brief corporate life it had produced almost 1,300 airframes, and nearly 900 of these were of the popular Eaglerock biplane series.

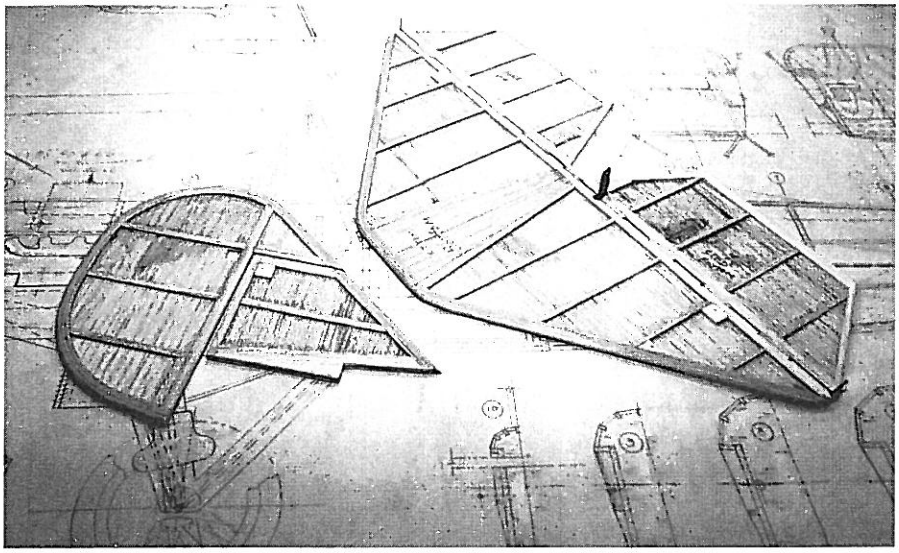
Very few of these Eaglerocks have survived. Wear and accidents claimed some. During the doldrums of the 1930s, out-of-license Eaglerocks were simply stored or parked and rotted away. A few were employed as crop dusters.

Run-out Eaglerocks were also prime candidates when beat-up cheap airplanes were needed in movie production crash sequences.

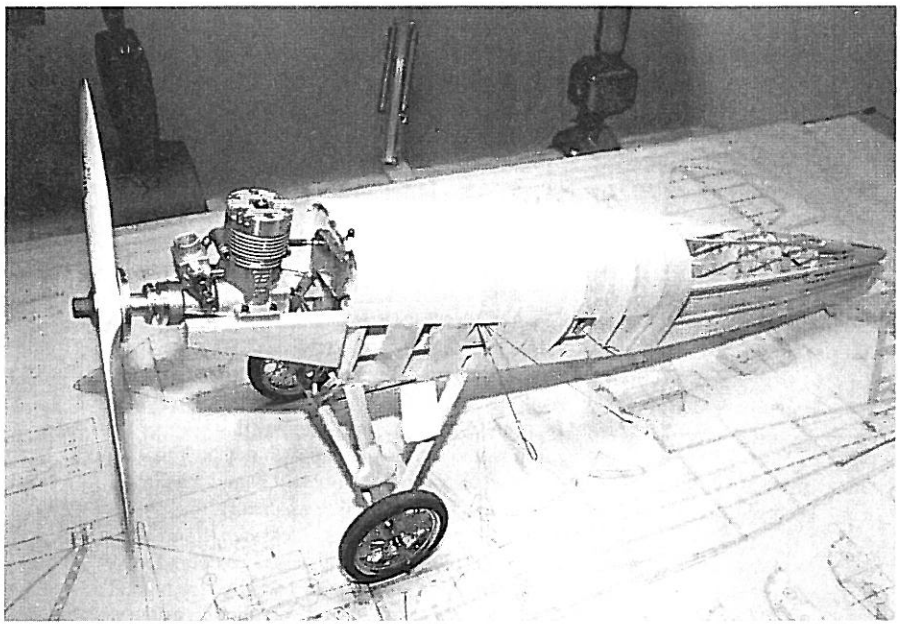
Central Airport has a three-minute segment where the hero taxies his American Eagle biplane into a runaway Eaglerock at an air circus.

The Flying Irishman stars Douglas "Wrong-Way" Corrigan and includes a three-minute clip where a flier who has just failed his medical examination defiantly performs aerobatics, suffers an attack, and plunges to Earth in a really spectacular dive and crash. The close-in shots and crash are of an Eaglerock. Far-away stunt-flying sequences were filmed using a Travelaire 2000. Hollywood of old was not bashful about mixing airplane types in film sequences. ✈

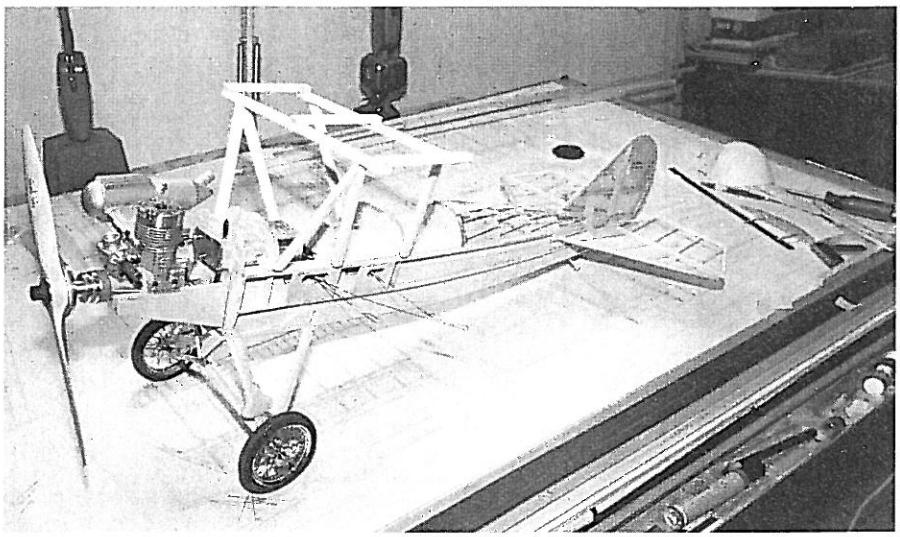
Frank Beatty



Tail feathers have sheet balsa "sandwiched" between scale structural members.



Fuselage top sheeting was formed in one piece to eliminate planking joints.



Cabane struts have been faired out and are located with a simple jig.

on the plans. Slip the lower wing panel spar stubs into the fuselage locator blocks. Slip the cabane struts into their locator blocks. Settle the upper wing onto the cabane strut ends.

Fit the four cardboard templates between the wing panels, two on each side, and bind the assembly with masking tape. Double-check and fine-tune the spacing, angles of attack, and alignment of the four wing panels. When satisfied, start bending, fitting, and soldering the 1/16 music wire interplane and aileron struts. (Patterns for these are shown on the drawings, but I prefer to build them in place on the model. Your choice.)

Fit the balsa fairings to these struts. If the fairing ends are accurately butted against the wing spar doublers, the wings will automatically be aligned on final assembly.

Break this assembly apart. Solder coils of fine copper wire to all strut ends, similar to a screw thread. Drill out all strut locator holes to 3/32 diameter. Reassemble the model and check the alignment of all parts. Little or no change should have occurred in any alignments.

Finishing: All major components are now built and must be prepared for finishing. Fill all dings or pinholes and sand thoroughly. The fabric-covered structures on the full-scale version were covered with silk on the model. Cowlings, struts, and other solid or sheet-covered areas were fiberglassed.

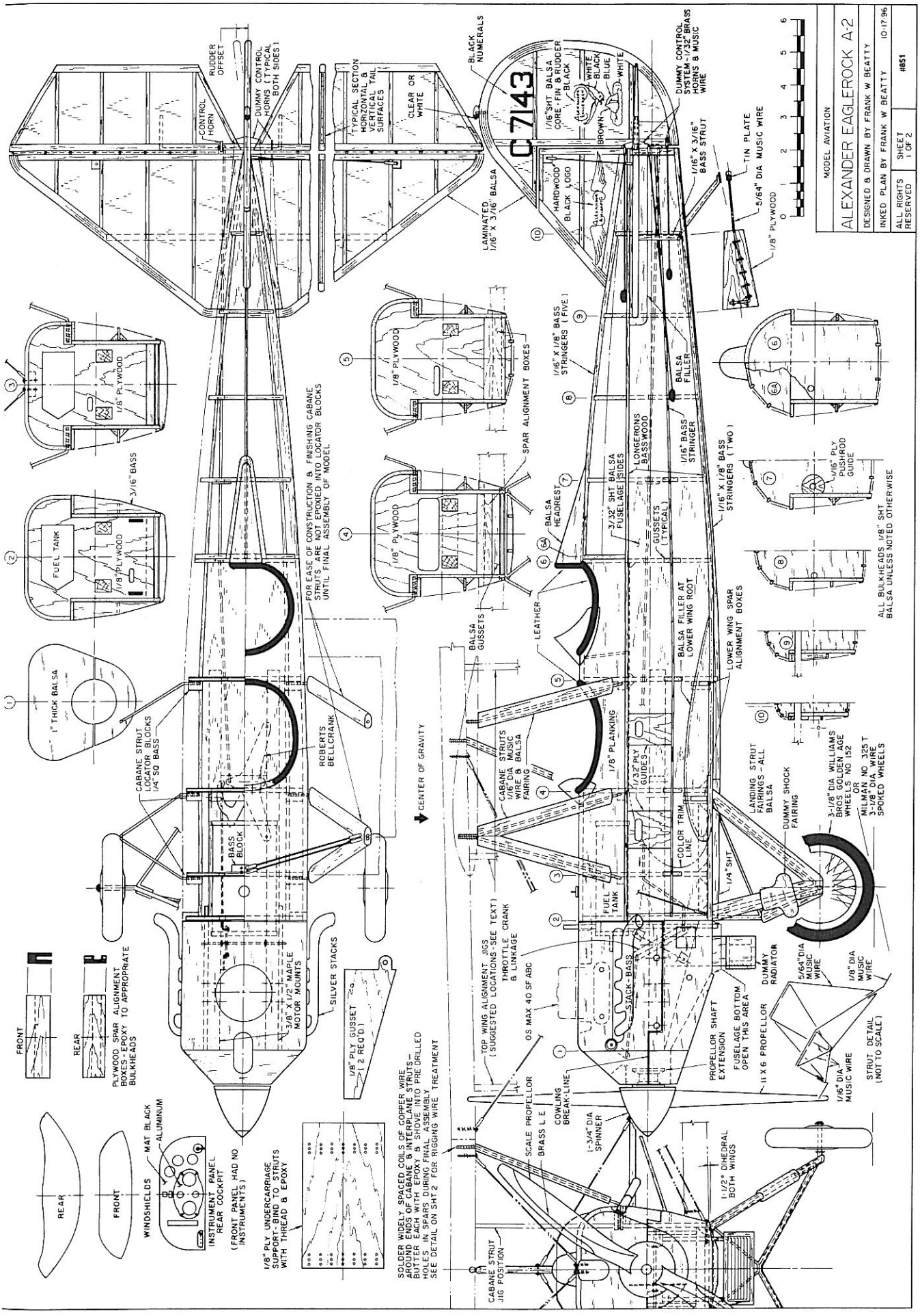
At this point the fin, stabilizer, and headrest are cemented permanently to the fuselage. Punch a hole through the covering at each rigging wire or strut locator hole, or these will be lost under the coats of dope to come.

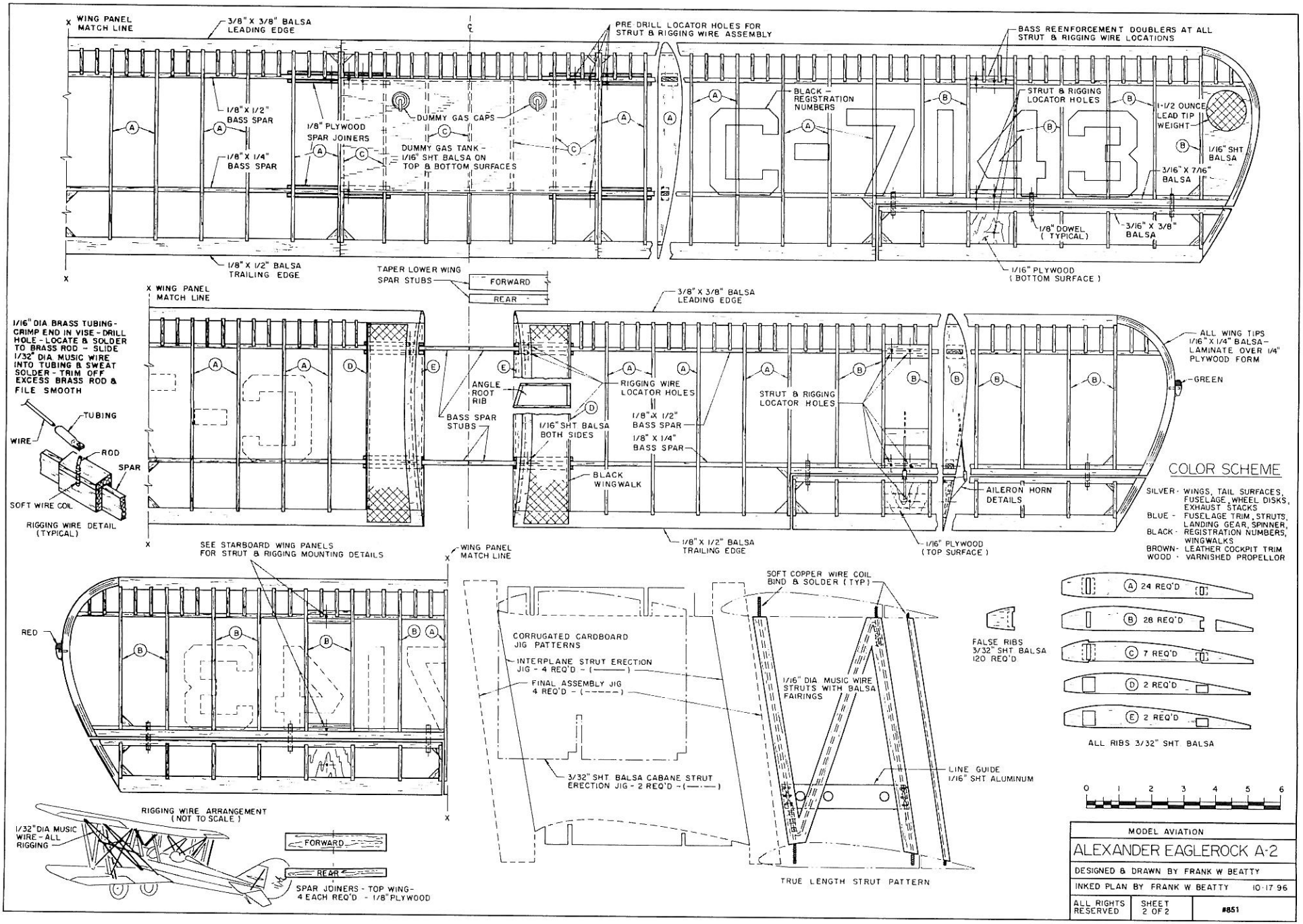
The standard Eaglerock color scheme was silver wings, tail, and fuselage with all metal panels, cowling, and struts painted "Eaglerock Blue." I'm not sure that anyone can say with absolute certainty what color Eaglerock Blue is. "Officially, the Alexander folks describe their color as medium blue," wrote John de Vries. That is pretty vague. He goes on to suggest that Testors gloss enamel blue stock #1110 (a paint for plastic models) is a smidgen too dark, but is just about right when lightened with five or six drops of white.

Current aircraft paint color charts were also examined for useful clues. Ultimately, equal parts of AeroGloss Corsair Blue and AeroGloss Curtiss Blue were mixed to come up with a blue that seems reasonably close. With a simple formula like that, it won't require a chemist to mix up another batch, if the need arises.

AeroGloss dope was used throughout, and all coats were sprayed on. These consisted of a half-dozen clear coats, eight filler coats, and eight silver coats, which were wet-or-dry sanded after every second coat. The fuselage was masked off and then it, all struts, cowlings, and spinners

Continued on page 33


MODEL AVIATION
ALEXANDER EAGLEROCK A-2
DESIGNED & DRAWN BY FRANK W BEATTY
INKED PLAN BY FRANK W BEATTY 10-17-96
ALL RIGHTS RESERVED
SHEET 1 OF 2
#851
C 7143
RUDDER OFFSET
CONTROL HORN
DUMMY CONTROL HORNS (TYPICAL BOTH SIDES)
TYPICAL SECTION HORIZONTAL & VERTICAL TAIL SURFACES
CLEAR OR WHITE
BLACK NUMERALS
1/16" SHT BALSA CORE - FIN & RUDDER
BLACK
WHITE
BLACK
BROWN
BLUE
WHITE
DUMMY CONTROL SYSTEM - 1/32" BRASS HORNS & MUSIC WIRE
HARDWOOD BLACK LOGO
LAMINATED 1/16" X 3/16" BALSA
1/16" X 3/16" BASS STRUT
TIN PLATE
5/64" DIA MUSIC WIRE
1/8" PLYWOOD
1/8" PLYWOOD
3/16" BASS
FUEL TANK
1/8" PLYWOOD
1/8" PLYWOOD
1/8" PLYWOOD
SPAR ALIGNMENT BOXES
1/16" X 1/8" BASS STRINGERS (FIVE)
BALSA FILLER
1/16" BASS STRINGER
1/16" X 1/8" BASS STRINGERS (TWO)
LONGERONS BASSWOOD
3/32" SHT BALSA FUSELAGE SIDES
GUSSETS (TYPICAL)
BALSA HEADREST
1/16" PLY PUSHROD GUIDE
ALL BULKHEADS 1/8" SHT BALSA UNLESS NOTED OTHERWISE
FOR EASE OF CONSTRUCTION & FINISHING CABANE STRUTS ARE NOT EPOXIED INTO LOCATOR BLOCKS UNTIL FINAL ASSEMBLY OF MODEL
1" THICK BALSA
CABANE STRUT LOCATOR BLOCKS 1/4 SQ BASS
ROBERTS BELLCRANK
BASS BLOCK
3/8" X 1/2" MAPLE MOTOR MOUNTS
SILVER STACKS
1/8" PLY GUSSET (2 REQ'D)
BALSA GUSSETS
LEATHER
CENTER OF GRAVITY
CABANE STRUTS 1/16" DIA MUSIC WIRE & BALSA FAIRING
1/8" PLANKING
1/32" PLY GUIDES
BALSA FILLER AT LOWER WING ROOT
LOWER WING SPAR ALIGNMENT BOXES
COLOR TRIM LINE
1/4" SHT
LANDING STRUT FAIRINGS - ALL BALSA
DUMMY SHOCK FAIRING
3-1/8" DIA WILLIAMS BROS GOLDEN AGE WHEELS NO 152 OR MILMAN NO. 325 T 3-1/8" DIA WIRE SPOKED WHEELS
FUEL TANK
STACK-BASS
DUMMY RADIATOR
5/64" DIA MUSIC WIRE
1/8" DIA MUSIC WIRE
TOP WING ALIGNMENT JIG (SUGGESTED LOCATIONS - SEE TEXT)
THROTTLE CRANK & LINKAGE
OS MAX 40 SF ABC
PROPELLOR SHAFT EXTENSION
FUSELAGE BOTTOM OPEN THIS AREA
11 X 6 PROPELLOR
1/16" DIA MUSIC WIRE
STRUT DETAIL (NOT TO SCALE)
SCALE PROPELLOR
BRASS L E
COWLING BREAK-LINE
1-3/4" DIA SPINNER
1-1/2° DIHEDRAL BOTH WINGS
CABANE STRUT JIG POSITION
FRONT
REAR
REAR
FRONT
PLYWOOD SPAR ALIGNMENT BOXES - EPOXY TO APPROPRIATE BULKHEADS
WINDSHIELDS
MAT BLACK ALUMINUM
INSTRUMENT PANEL REAR COCKPIT
(FRONT PANEL HAD NO INSTRUMENTS)
1/8" PLY UNDERCARRIAGE SUPPORT - BIND TO STRUTS WITH THREAD & EPOXY
SOLDER WIDELY SPACED COILS OF COPPER WIRE AROUND ENDS OF CABANE & INTERPLANE STRUTS - BUTTER EACH WITH EPOXY & SHOVE INTO PRE DRILLED HOLES IN SPARS DURING FINAL ASSEMBLY SEE DETAIL ON SHT 2 FOR RIGGING WIRE TREATMENT


WING PANEL MATCH LINE
3/8" X 3/8" BALSA LEADING EDGE
PRE DRILL LOCATOR HOLES FOR STRUT & RIGGING WIRE ASSEMBLY
BASS REENFORCEMENT DOUBLERS AT ALL STRUT & RIGGING WIRE LOCATIONS
1/8" X 1/2" BASS SPAR
1/8" X 1/4" BASS SPAR
1/8" PLYWOOD SPAR JOINERS
DUMMY GAS CAPS
DUMMY GAS TANK - 1/16" SHT BALSA ON TOP & BOTTOM SURFACES
BLACK - REGISTRATION NUMBERS
STRUT & RIGGING LOCATOR HOLES
1-1/2 OUNCE LEAD TIP WEIGHT
1/16" SHT BALSA
3/16" X 7/16" BALSA
1/8" DOWEL (TYPICAL)
3/16" X 3/8" BALSA
1/16" PLYWOOD (BOTTOM SURFACE)
1/8" X 1/2" BALSA TRAILING EDGE
TAPER LOWER WING SPAR STUBS
FORWARD
REAR
WING PANEL MATCH LINE
3/8" X 3/8" BALSA LEADING EDGE
ALL WING TIPS 1/16" X 1/4" BALSA - LAMINATE OVER 1/4" PLYWOOD FORM
GREEN
1/16" DIA BRASS TUBING - CRIMP END IN VISE - DRILL HOLE - LOCATE & SOLDER TO BRASS ROD - SLIDE 1/32" DIA MUSIC WIRE INTO TUBING & SWEAT SOLDER - TRIM OFF EXCESS BRASS ROD & FILE SMOOTH
TUBING
WIRE
ROD
SPAR
SOFT WIRE COIL
RIGGING WIRE DETAIL (TYPICAL)
ANGLE ROOT RIB
BASS SPAR STUBS
RIGGING WIRE LOCATOR HOLES
1/16" SHT BALSA BOTH SIDES
1/8" X 1/2" BASS SPAR
1/8" X 1/4" BASS SPAR
STRUT & RIGGING LOCATOR HOLES
BLACK WINGWALK
AILERON HORN DETAILS
1/8" X 1/2" BALSA TRAILING EDGE
1/16" PLYWOOD (TOP SURFACE)
COLOR SCHEME
SILVER - WINGS, TAIL SURFACES, FUSELAGE, WHEEL DISKS, EXHAUST STACKS
BLUE - FUSELAGE TRIM, STRUTS, LANDING GEAR, SPINNER,
BLACK - REGISTRATION NUMBERS, WINGWALKS
BROWN - LEATHER COCKPIT TRIM
WOOD - VARNISHED PROPELLOR
SEE STARBOARD WING PANELS FOR STRUT & RIGGING MOUNTING DETAILS
WING PANEL MATCH LINE
RED
RIGGING WIRE ARRANGEMENT (NOT TO SCALE)
1/32" DIA MUSIC WIRE - ALL RIGGING
FORWARD
REAR
SPAR JOINERS - TOP WING - 4 EACH REQ'D - 1/8" PLYWOOD
CORRUGATED CARDBOARD JIG PATTERNS
INTERPLANE STRUT ERECTION JIG - 4 REQ'D - (——)
FINAL ASSEMBLY JIG 4 REQ'D - (– – – –)
3/32" SHT BALSA CABANE STRUT ERECTION JIG - 2 REQ'D - (—·—)
SOFT COPPER WIRE COIL BIND & SOLDER (TYP)
1/16" DIA MUSIC WIRE STRUTS WITH BALSA FAIRINGS
LINE GUIDE 1/16" SHT ALUMINUM
TRUE LENGTH STRUT PATTERN
FALSE RIBS 3/32" SHT BALSA 120 REQ'D
A 24 REQ'D
B 28 REQ'D
C 7 REQ'D
D 2 REQ'D
E 2 REQ'D
ALL RIBS 3/32" SHT BALSA
0 1 2 3 4 5 6
MODEL AVIATION
ALEXANDER EAGLEROCK A-2
DESIGNED & DRAWN BY FRANK W BEATTY
INKED PLAN BY FRANK W BEATTY 10-17 96
ALL RIGHTS RESERVED
SHEET 2 OF 2
#851

Eaglerock/Beatty

Continued from page 28

ere sprayed with four coats of Eaglerock ue. The black registration numbers were asked off with Simair Frisket Film. The lver-colored areas were given two coats clear dope to prevent the streaking by el residues or the dull oxidation look lver can often get.

All of this was then hand-rubbed with 7 rubbing compound to a nice gloss nish. Some 20+ coats of dope added out eleven ounces of weight to the odel, or about ½ ounce per coat.

If you have iron nerves and a steady and, the company logos can be put rectly on the Eaglerock fin and rudder ith colored dope and a black Sanford harpie® permanent marker. I took a fferent route:

Cover a 12-inch square of glass with a lm of soapy water. Spray that surface ith silver dope and then apply the arkings to that surface. Protect these arkings with a clear dope overspray. hese can be peeled off the glass, tached to the model with a watery mix Elmer's glue, sealed around the edges ith thinner, and then protected with an verspray of clear dope. For lengthier, ore detailed instructions, see the Hot anary construction article (March 1996 *Model Aviation*).

etailing: Cut out the cockpit openings. pply the leather headrest padding and ockpit coamings. Fabricate windshields f .025 styrene sheet and install.

If not already fabricated and installed, etails like dummy gas tank strapping, ing and rudder tip lights, exhaust stacks, as caps, wing walks, dummy leron/elevator/rudder control horns, lots, and radiator are next. (The dummy adiator has extra-long side extensions hat butt against the engine mounts to elp locate and align it.)

The non-flying decorative propellor as made from nine alternated 1/16 plies of

Swiss pear and basswood, bonded with Elmer's Carpenter's Glue. X-Acto blades will hardly touch these hard woods; a heavy duty rasp and sandpaper is the way to go. Finish with clear dope and simulated brass (dope) leading edges.

Assembly: Coil and solder soft copper wire around the ends of 42 pieces (varying lengths) of 1/32 diameter brass rod. Epoxy the wrapped ends into every rigging wire locator hole with about 1/4 inch of the unwrapped rod standing proud.

Epoxy the lower wing to the fuselage. Epoxy the cabane struts into the fuselage locator holes. Temporarily slip the interplane struts into the lower wing locators. Settle the upper wing onto all these struts.

Slip the cardboard final assembly jigs into place, two on each side, and tape the whole assembly firmly together. Check the wing panels for accuracy of spacing, alignment, dihedral angles, and angles of attack. Fine tune as necessary. Disassemble when all checks out.

Glue the interplane struts to the lower wing and all struts to the upper wing using slow-set epoxy. Slip the templates into place again, tape up firmly, and make sure that all alignments are still on the money; then allow to set overnight.

Rigging Wires: Study the rigging wire fitting details on Sheet 2. They are self-explanatory.

Make up 42 1/16 diameter brass tubing fittings. Bend each brass rod slightly away from the pull of its rigging wire. Using cut-and-try methods, make up individual rigging wires to length. Fit that wire and its fittings to its brass rod counterparts. Solder both fittings to the rods and sweat-solder just one rigging wire end into one fitting.

After all are installed, flex the lower wings up and solder the ends of the "landing" wires into their corresponding fittings to put a little tension on those wires. Flex the upper wings down just a bit and solder the "flying" wires into corresponding fittings to put a little

ension on those wires. Snip off the excess brass rod ends and file smooth. In an effort to do a super-neat job, I cut nine off very short and occasionally a fitting will separate from its rod. It is recommended that these be left a bit long.

Rigging wire vibration dampeners were made from 1/16 diameter x 6 5/8 long brass rod bound to the rigging wires with button thread and CyA.

Flying: From the very first, the Eaglerock flew very steadily, with just a little fore-and-aft oscillation; ground handling was good.

When first completed, the model's thrustline was level when the model was suspended from its recommended balance point. The model tended to oscillate one to three times after applications of elevator control, especially when flying into gusts. I prefer my models to be rock-steady in this respect. Five ounces of lead was added to the model's nose, making the model hang nose-down about seven degrees. That corrected *that* problem.

Observers have noted that this model seemed to be flying too fast for a scale antique biplane. Switching from an 11 x 6 propellor to an 11 x 5 slowed the model to a more scalelike speed. (On a gusty day, I will use the 11 x 6.)

The model has a fairly light wing loading, ample wing area, and considerable lift. Landing approaches must be made at very slow speeds. The model will tend to roll out tail-up on the wheels until a touch of elevator is applied to get the tail on the ground. If the model is taxied too fast coming into the wind, it may want to balloon back into the air.

The Eaglerock can be flown regularly during weekend flying sessions, or it can be very competitive on the contest circuit. Now that's *my* kind of Scale model. ✈

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