"SPAD XIII"

24 INCH WING SPAN FLYING SCALE

FULL SIZE DRAWING

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BROOKLYN, NEW YORK

COLOR SCHEME: FUSELAGE, RUDDER, & FIN ORANGE. WINGS, ELEVATORS & STABILIZER YELLOW.

HORN DETAIL - RUDDER & ELEVATORS

AILERON HORN DETAIL "O" BE SURE TO CEMENT HORN AS SHOWN

HINGE DETAIL RUDDER ELEVATORS & AILERONS LINK 2 EYE PINS FOR HINGES

MAKE SMALL EXHAUST PIPES FROM 1/4" SQ. BALSA ROUNDED TO SHAPE

MAKE LARGE EXHAUST PIPE FROM 3/8" SQ. BALSA ROUNDED TO SHAPE

DETAIL "W" EXHAUST 2-REQ'D

ELEVATOR HORNS SEE DETAIL

HINGES SEE DETAIL

SPARS 1/16" X 1/8" BALSA

ELEVATORS & RUDDER TRAILING EDGES MAKE FROM 1/16" SHEET BALSA

STRUT 1/16" X 3/8" BALSA

STRUTS 1/16" X 1/4" BALSA 8-REQ'D

NOSE COWL BEND SIDES OF COWL AS SHOWN. BE SURE THAT TOP & BOTTOM OF COWL FIT FORMERS T-1 & B-1

USE THREAD FOR WIRE

INSIGNIA

DIHEDRAL

DIHEDRAL

RUDDER CABLES

LEADING EDGE OF STABILIZER 3/32" SQ. BALSA

ELEVATOR

RUDDER

ELEVATOR CABLES

ELEVATOR

STABILIZER, ELEVATORS RUDDER & FIN RIBS 1/16" X 1/4" BALSA TAPERED TO SHAPE SHOWN ON TOP & SIDE VIEWS

LANDING GEAR STRUTS 1/16" X 1/4" BALSA

LEADING EDGE 3/32" SQ. BALSA

HINGES SEE DETAIL

STABILIZER STRUT 1/16" X 1/4" BALSA

28 BULKHEAD SEE DETAIL

TAIL SKID .028 STEEL WIRE

AILERON

FALSE SPAR UPPER WING

CONTROL STICK

1/8" DIA. DOWEL

RUDDER BAR

AILERON CABLE

PULLEY SEE DETAIL "O"

CEMENT EYELETS INTO FORMERS T-1, T-8

AILERON UPPER WING

COMPENSATING SPRING SEE DETAIL

CEMENT EYELETS INTO FLOOR BOARD AT ANGLE TO GUIDE AILERON CABLE

PULLEY SEE DETAIL "P"

STRINGERS 1/16" SQ. BALSA

INSTRUMENT BOARD CUT OUT & CEMENT TO FORMER T-4

SPREADER BAR 1/16" X 1/4" BALSA

RIB R-1 4-REQ'D UPPER WING

RIB R-2 2-REQ'D UPPER WING

RIB R-3 6-REQ'D UPPER WING

RIB R-4 2-REQ'D UPPER WING

RIB R-5 1-REQ'D UPPER WING

RIB R-6 12-REQ'D LOWER WING

RIB R-7 2-REQ'D LOWER WING

TOP & BOTTOM VIEWS OF FUSELAGE FRAME

SIDE VIEW OF FUSELAGE FRAME 1/4" SCALE

AILERON RIB A-1 2-REQ'D

AILERON RIB A-2 2-REQ'D

AILERON RIB A-3 2-REQ'D

AILERON RIB A-4 2-REQ'D

DETAIL "K" MAKE FROM 1/32" SQ. BALSA ROUNDED TO SHAPE 4-REQ'D

PULLEY 4-REQ'D

CONTROL HORN 5-REQ'D

K" REAR MOTOR HOOK BULKHEAD 1/16" SHEET BALSA 1-REQ'D

REAR MOTOR HOOK .028 STEEL WIRE BEND TO SHAPE SHOWN

PROPELLER SHAFT .028 STEEL WIRE

HEADREST "S" 3/8" X 2" X 2 1/4" BALSA

WING TIPS 1/16" SHEET BALSA

TRAILING EDGES UPPER & LOWER WINGS 1/16" X 3/8" BALSA

EXHAUST 2-REQ'D SEE DETAIL "W"

1/16" SHEET BALSA

COCKPIT COWLING 1/32" SHEET BALSA

1/16" X 3/8" BALSA

AILERON & FALSE SPARS 1/16" X 1/4" BALSA

COMPENSATING SPRING

REAR SPARS UPPER & LOWER WINGS 1/16" X 3/8" BALSA

FRONT SPARS UPPER & LOWER WINGS 1/16" X 1/8" BALSA

SEE DETAIL "Q"

SEE DETAIL "P"

HINGES SEE DETAIL

AILERON HORN SEE DETAIL "O"

INSIGNIA-UPPER & LOWER WINGS 4-REQ'D

1/8" BALSA BEARINGS 30

PULLEY DETAIL "Q" CEMENT PULLEY TO RIB R-6 LOWER WING MAKE BEARINGS FROM 1/8" BALSA BE SURE TO CEMENT PULLEY AT AN ANGLE AS SHOWN 2-REQ'D

NOTE:- PULLEYS ARE TO REVOLVE FREELY

USE PINS FOR SHAFTS

DETAIL "P" CEMENT PULLEY TO RIB R-7 LOWER WING AT ANGLE OF 45°. MAKE BEARINGS FROM 1/8" BALSA BE SURE TO CEMENT PULLEY AS SHOWN 2-REQ'D

AILERON CABLE RUNNING FROM TOP WING INTO LOWER WINGS

SEE DETAIL "S"

RUDDER CABLE

ELEVATOR CABLES

FUSELAGE LONGERONS & BRACES 1/32" SQ. BALSA

NOTE:- 1/16" SHEET BALSA FOR FORMERS & RIBS

LEADING EDGES UPPER & LOWER WINGS 1/16" SQ. BALSA

EYELETS SET AT AN ANGLE TO GUIDE AILERON CABLE TO CONTROL STICK

CONTROL STICK BEARINGS - 31 4-REQ'D

RUDDER BAR 1/16" BALSA

FLOOR BOARD ARRANGEMENT SHOWING RUDDER BAR, CONTROL STICK & BEARINGS

1/8" DIA. HOLE

1" X 3/32" DOWEL TO RAISE RUDDER BAR

1/8" DIA. X 3/4" DOWEL

CONTROL STICK -32 LAMINATE 2 PIECES 1/16" BALSA

USE PINS FOR SHAFTS

FORMER T-1 1-REQ'D

FORMER T-2 1-REQ'D

FORMER T-3 1-REQ'D

CEMENT EYELETS INTO FORMER FOR ELEVATOR CABLES

FORMER T-4 1-REQ'D

FORMER T-6 1-REQ'D

FORMER T-7 1-REQ'D

CEMENT FORMER T-8 EYELETS INTO FORMER FOR RUDDER CABLES 1-REQ'D

FORMER B-1 1-REQ'D

FORMER B-2 1-REQ'D

FORMER B-3 1-REQ'D

FORMER B-4 1-REQ'D

FORMER B-5 1-REQ'D

FORMER B-6 1-REQ'D

FORMER B-7 1-REQ'D

FORMER B-8

NOTE:- LETTERS B, T ON ALL FORMERS MEAN AS FOLLOWS B- BOTTOM FORMER T- TOP FORMER

INSTRUCTIONS FOR BUILDING THE SPAD XIII

FUSELAGE--Build two sides of the fuselage on the plan using 3/32" sq. Balsa. Build both sides together so that they will be exactly alike. When dry, cut apart. Cut out the top and bottom formers from printed sheet. Use razor blade or model builders knife. Bottom formers are marked "B", top formers are marked "T". Notch formers where shown. Be sure notches are only 1/16" to receive stringers which are 1/16" sq. Cement formers in place as shown on plan. When fuselage framework is complete, lay aside. Do not cover until control parts are in place.

WING CONSTRUCTION--Cut ribs and wing tips from printed sheet. Make notches as shown. Use 1/8" sq. Balsa strip for leading edge. For trailing edge 1/16" X 1 1/8" balsa. Wing spars are made of 1/16" X 1/8" strip balsa. Spars are on the bottom of wings to assure smooth covering. Place ribs in their proper places as shown on plan. Aileron ribs are marked "A-1, "A-2", "A-3" and "A-4". Be sure that these ribs are cut accurately so that they will fit the wing section, for aileron spars use 1/16" X 1/4". Now cover bottom of upper wing and top of lower wings. Do not cover top of upper wing and bottom of lower wings until all control parts are in place.

TAIL SURFACES--Build the tail surfaces of 1/16" X 1/8" balsa. Sandpaper to streamline shape. Use 3/32" sq. balsa for leading edge. Stabilizer and elevator spars are made of 1/16" X 1/8" balsa. Taper at the ends to 1/16" to meet tips of stabilizer and elevator. Tips are cut from printed sheet and numbered 18, 19, 20, 21, 22 and 23 for elevator, and 17 and 24 for stabilizer. Build rudder and fin of 1/16" X 1/8" balsa. Sandpaper to streamline shape. Use 1/16" X 1/8" for spars. Rudder tips are cut from printed sheet #25, 26, 27 and 28, for fin. Use 3/32 sq. Balsa for leading edge.

WING AND LANDING GEAR STRUTS--Sandpaper balsa strips 1/16" X 1/4" and 1/16 X 3/16 to a streamline shape for wing struts. Make landing gear struts of 1/16" x 1/4" balsa. Make spreader bar from 1/8" X 1/4" balsa streamlined.

CONTROL SYSTEM--Cut floor board from printed sheet. Notch where shown for control stick. Cut rudder bar #33 from printed sheet. Put in proper place as shown on plan. The control stick #32 is cut from printed sheet and laminated. Cut small hole to receive 1/8" dia. dowel as shown. Before glueing tail surfaces to fuselage, install control threads through fuselage. Tie loose ends to horns on movable surfaces. Insert bulkhead #29 as shown with rear hook, and 6 strands of rubber, glue in place. Insert eyelets into formers "T-7" and "T-8" for elevator and rudder cables. Cover top & two rear sections of fuselage only and glue tail surfaces on. Adjustments are made by pulling threads at front of fuselage. Threads are now glued permanently to controls. Also make two compensating springs from .014 steel wire and glue to aileron spars of right and left upper wing. Connect thread to top of aileron horns and springs as shown so that ailerons are pulled upward. Draw aileron control threads from control stick through eyelets on floor board,, then thru bottom wings and up to top wings, and tie to bottom of aileron horns. Adjust by loosening as required .

FINISHING COVERING--Be sure to draw paper over the fuselage and wings so that there will be no wrinkles. Use dope to cement the paper to the leading and trailing edges of the wings only, not to the ribs, as this will wrinkle the paper when doped. When paper is glued to all surfaces spray with water. Allow to dry. When perfectly dry, apply one coat of dope. Brush one way only to assure a fine even coat.

PROPELLER--Propeller is ready made in the kit. All you need to do is sand blades to airfoil finish.