ROYAL
PRODUCTS CORP.
LOCKHEED
P-38
Lightning
SHEET 2 of 2
WING, EXPLODED VIEW
NOTE: Drill aileron push-rod holes prior to assembly.
Bottom Spar (Assemble like Top Spar)
Top Spar (3/16" x 3/8" Balsa)
Cut Away this portion
DOTTED LINE REPRESENTS ACTUAL SCALE
Actual Scale Outline
HINGE SUPPORT BLOCKS
Royal Pinned Hinge
Hollow to this point
NOTE: Insignia on top of left wing only, and bottom of right wing only.
Extend top sheeting to this line for aileron shroud
W-23A (Top Sheeting 3/32" x 2")
W-23B (Bottom Sheeting 3/32" x 2-3/8")
W-24A (Top Sheeting 3/32" x 1-3/8")
W-24B (Bottom Sheeting 3/32" x 1")
Cam Lock Holes
Kit may be modified to accommodate flaps. The scale outlines are noted on the plans, but no provisions are included with this kit, and the actual mechanics are left to the modeler.
Flap Outline
NOTE: Left Wing is assembled on reverse side of this drawing. Plan may be rubbed with a light oil to increase transparency.
Wing Sheeted Top and Bottom With 3/32" Balsa
Aileron Push Rod
Spar Doublers End Here
3/16" x 3/8" Balsa Spars
3/8" Balsa Joiner
3/32" Plywood Spar
Servo Area
W-16 LEADING EDGE 3/8" x 1" Balsa
RIGHT WING PLAN (Top Sheeting Omitted)
WING DIHEDRAL
NOTE: Shaded areas of W-1 and W-2 must be cut away before assembly (see exploded-view).
Hinge Point
Push Rod
Bellcrank
Shroud
WING ASSEMBLY PROCEDURE
1. Pin bottom main spar in place, and glue dihedral brace WC-1 in place.
2. Draw a centerline on each rib, then glue and pin in place ribs W-3 through W-14, insuring that all centerlines are parallel to building surface.
3. When dry, add top spar, and spar joiners WC-2.
4. Install W-1 and W-2 after cutting away shaded area shown on rib plans. Now install leading edge W-16.
5. Install W-18 and W-19's and aileron bellcrank assembly, and pushrod.
6. Add Hinge support blocks as shown (make from scrap balsa)
7. Glue trailing edge sheeting W-23A and W-24A. When dry, remove wing from plan, install W-17, and add bottom sheeting W-23B and W-24B
8. Carefully measure and cut away aileron section. Refer to bellcrank assembly drawing for correct angle of leading edge of aileron, and cut away after removal from main wing section. Install W-9A, W-14A and W-10A with aileron horn assembly.
9. Add W-26 to leading edge of aileron, and W-25 to wing at aileron bay.
10. Cover rest of wing with 3/32" balsa and add wingtip.
11. When dry, sand to shape.
12. Turn plan over. Trace rib and spar locations, or rub with a light oil to make paper transparent.
13. Place right wing in position and block up wing tip 7" for correct dihedral.
IMPORTANT
Make sure centerline of W-1 (right wing) is parallel to building surface before starting left wing!
14. Build left wing following same procedure as right wing.
STABILIZER ASSEMBLY PROCEDURE
1. Pin bottom 1/8" x 3/16" balsa spar in place.
2. Pin and glue all S-1 and S-2 ribs in place, using a scrap piece of balsa under the leading edges to hold ribs in alignment.
3. When satisfied with alignment, add top spar, leading edge (S-3), trailing edge (S-4) and tips (S-5). S-5 tips glue to centerline of rib S-1, and spars are tapered at ends and glued to S-5 (see exploded view).
4. When dry, remove from plans and add S-6 and S-7 sheeting to top and bottom, using tape and pins as required to hold in place.
5. Spot glue elevator in place, and, when dry, sand to shape.
6. Cut elevator loose and add E-2's and E-3.
STABILIZER, EXPLODED VIEW
STABILIZER LAYOUT (Sheeting Omitted)
S-7 (3/32" sheeting)
1/8" x 3/16" Balsa Spars
S-4 3/8" x 3/4" Balsa
S-6 3/32" Balsa Planking on Top and Bottom
Royal Pinned Hinge
HATCH TOP VIEW
3/8" x 1/2" HARDWOOD
3/16" x 3/8" Balsa Stringer
Shaded Area to be cut-away for retract installation
1/8" Planking
1/4" Sq. Balsa
1/8" x 3/16" Balsa
FUSELAGE SIDE VIEW
CANOPY
Paint WINDOW OUTLINE
HB-1 (3/4" Balsa Block)
Hollow to dotted line
HB-3 (Hardwood)
HB-2 (3/8" Balsa)
HB-4 (3/8" Balsa)
HB-5 (1 3/8" Balsa Block)
NB-5 (1-3/8" Balsa Block)
N-18 (3/16" Balsa)
N-20 (3/8" Balsa)
(Make from Hardwood Dowels)
MACHINE GUNS
N-14 (3/4" x 45° Balsa)
N-12 (3/16" Balsa)
N-13 (1/8" Balsa)
NB-3 (3/4" Balsa Block)
NB-4 (1 1/2" Balsa Block)
N-10 (3/16" Balsa)
N-11 3/16" x 3/8" Hardwood
N-8 (1/8" Plywood)
1/8" Balsa Planking
CG
CHORD LINE
2° Incidence
N-21 (1/8" x 3/16" Balsa)
NB-6 (1-3/8" Balsa Block)
N-22 (3/8" Balsa)
Bottom Surface
NOTE: Some kits may have two NB-1 pieces as shown on pod exploded view, rather than NB-1 and two NB-2's as shown here.
N-2 Entire Shape
N-2A (Lower Shape)
2-3/4" Nose wheel
Cut out for Retract Modification
RETRACT NOSE GEAR MODIFICATION, PLAN VIEW
plywood
Planking cut away as shown.
Royal retract mechanism
RETRACT NOSE GEAR MODIFICATION, EXPLODED VIEW
brace
1/4" sq. balsa stringer ends here
MODIFICATIONS FOR RETRACT NOSE GEAR
1. Formers N-3 and N-4 must be cut away (shaded areas on plan views of these formers) to accommodate retract mechanism and wheel.
2. N-8 is cut away at N-5.
3. Plywood well is fitted between N-3 and N-5 as shown on exploded view.
4. Plywood sides are glued to N-11 and braced as shown. Be sure to cut slot to fit over N-4.
5. Planking on underneath side of fuselage is cut away as indicated on retract plan view.
NOTE: Some kits may have one NB-1 and two NB-2's as shown in cross-section view of N-1 rather than the two NB-1's shown here.
FUSELAGE, EXPLODED VIEW
FUSELAGE TOP VIEW
N-12 3/16" Balsa
N-8 1/8" Plywood
1/8" x 3/16" Balsa
3/16" Balsa Stringer
3/4" BALSA BLOCK
1/4" Sq. Balsa
BOTTOM VIEW