Kawasaki Ki 45 ("Nick") *DRAGON SLAYER*

Designed by David P. Andersen May 2014
Prototypes by Dick Steine and Jeff Quesenberry

Construction Manual

Scale factor:	1/5th exactly	Weight:	45 ½ lbs dry
Wing area:	1676 sq. in.	Wing loading:	65 ounces/sq. ft.
Span:	120 inches	Length:	86 inches
Engines:	40 -50 cc each		

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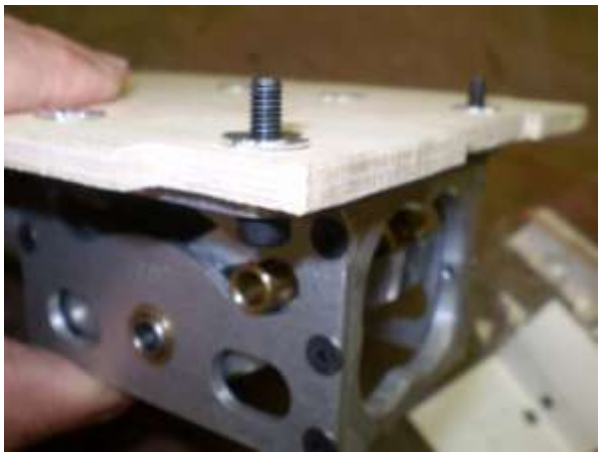
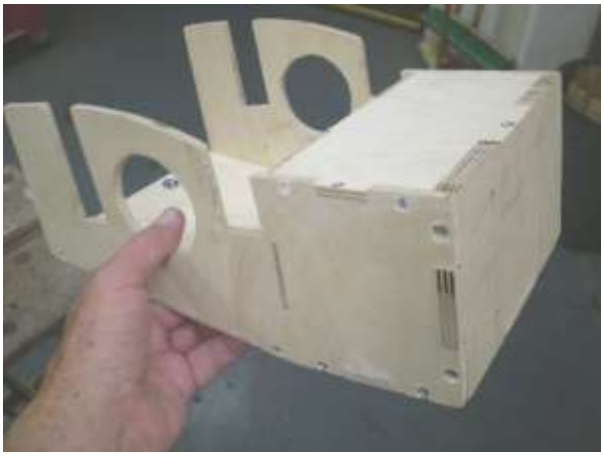
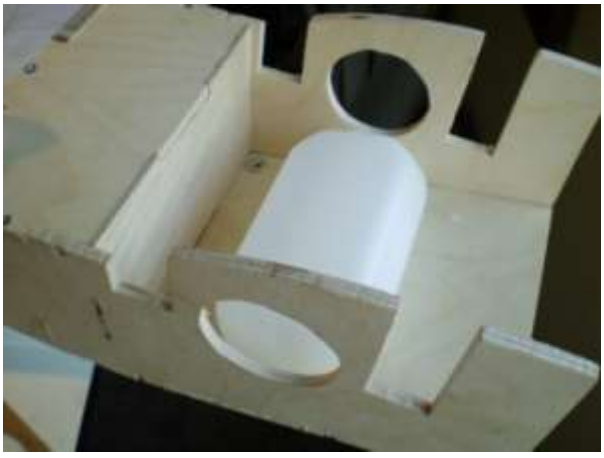
The DVD mentioned on the plans is no longer available because all of its information is presented here and on www.mnbigbirds.com.

Wing Center Section Assembly.

Fit retracts to the nacelle box lower surface with blind nuts. Assemble the nacelle box with screws and epoxy. Note that the left and right nacelle boxes are mirror images.

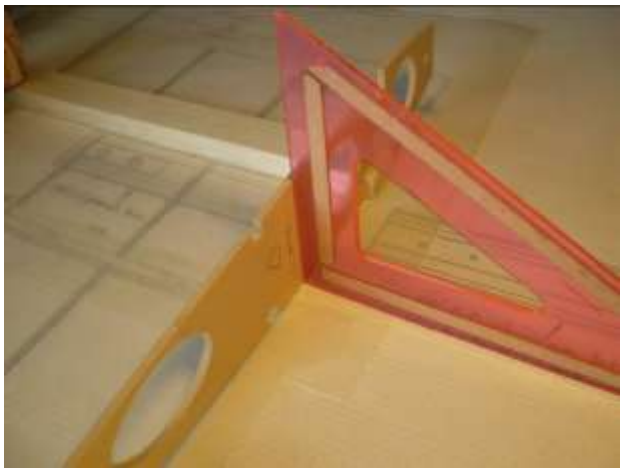


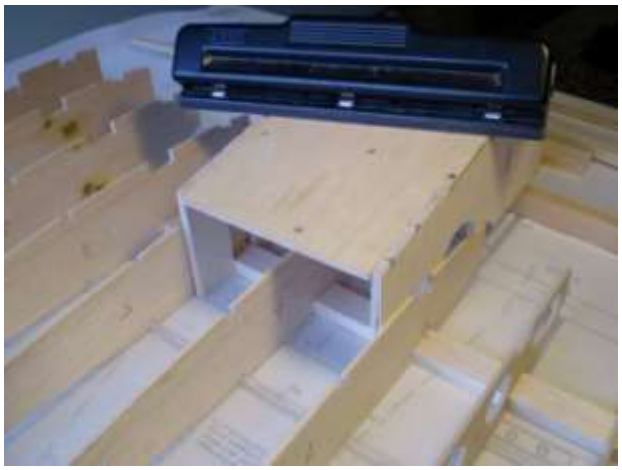
The firewall is screwed but not glued to the nacelle box with 6 wood screws. The fuel tank is mounted behind the firewall. Alternatively, for rear-carb engines, or if a larger tank is required, mount the tank behind the rear wall, and install a removable hatch in the rear wall so that the tank can be accessed from the front.


Verify the fit of the retract and engine to the tank box. Remove for further construction.


Lay the upper washout stick on the plans and rest (don't pin) the rear spar on top of it. Fit the ribs to the spar. The main spar rests on the plans while the washout stick elevates the rear spar. The center section of the wing has no washout but it has taper. The washout stick aligns the ribs all to the same incidence angle.

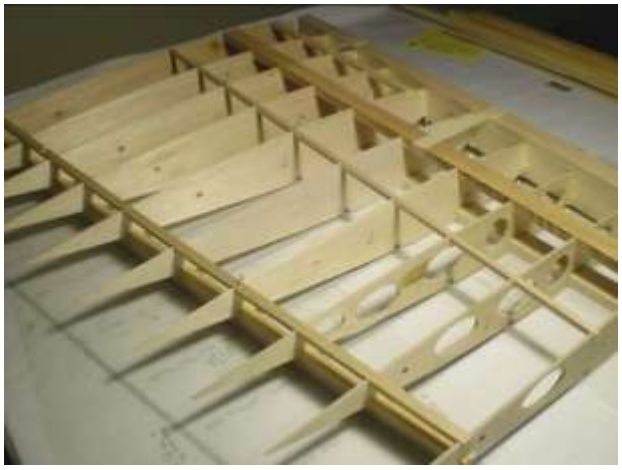



Tilt rib 1 inboard using the template on the plans. Rib 10 must be vertical to match the outer panel.




Align ribs 5 & 7 against the nacelle box. Glue the lower main spar and ribs in place but…


Remove the nacelle box before the glue sets. Plane the spars and leading edge to match the ribs.

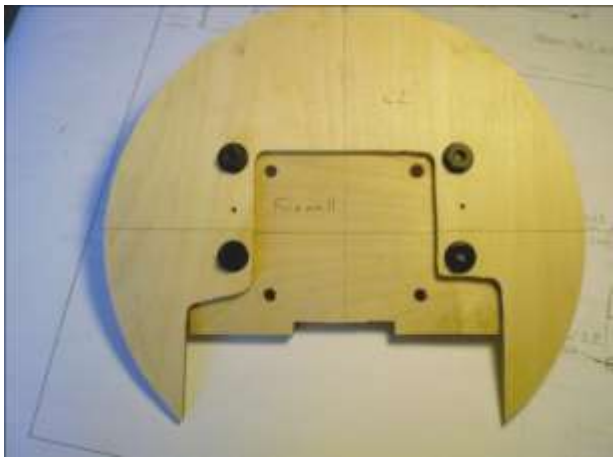



The lower surface of the (left) wing panel is now ready for sheeting. Install the flaps now or later. Turn the wing over. Support the rear with the bottom washout stick. Plane the spars to match the ribs, install sheer webs, install servo cables and air lines. Sheet the top surface, leaving some access to the wing tube area and dihedral brace slots in the inner wing ribs.

The inner section is sheeted with 1/8” sheet but the outer section is covered with 3/32” sheet.


Remove the sheeting between ribs 5 and 7 to accept the nacelle box. Cut away part of rib 6 to allow inspection of the fit of the nacelle box.


. Fit the nacelle box between ribs 5 and 7. Inspect the fit thru the lightening hole in ribs 5 and 7.

Glue the nacelle box in place with tons of epoxy. Fit and remove cowl former C2 to firewall before installing C2 into the cowl.

Construct the other center section panel and join the center sections, elevated to the dihedral angle shown on the plans.


Re-install the retracts. Cut a slot in the wing's lower surface for wheel clearance.


Cut the doors free with a Dremel thin cutting wheel. Install the lower nacelle on the wing.


At the same time, install former N1 to stiffen the lower nacelle. Install the upper nacelle.

Install cowl former C2. Cut-out is clearance for the engine mount. Bolt C2 to the firewall with four ¼ x 20 nylon socket-head bolts.

Paint the cowl former C1 flat black and add the scale hydaulic lines. Epoxy it to the cowl sides. Note how the cutout in the lower portion is a baffle to direct cooling air thru the cylinder head of the engine. Four small holes in C1 provide a long bolt-driver access to the cowl mounting screws holding C2 to the firewall.

Cutout for G45 in bottom of cowl.

Fit and epoxy the cowl to C2.

Remove the cowl and reinforce C2 with a bead of epoxy. 4 holes are for nylon bolts to the firewall.

Make 4 piano hinges from DUBRO hinges, one wire each. Hinge the doors with the DUBRO piano hinges. The hinge line is a straight line despite the compound-curved surface.

Doors closed. The small opening behind the doors is clearance for wheel travel.

Flap with DUBRO hinge installed beneath the outer layer of 1/64” ply.

Wing ready to receive flap.

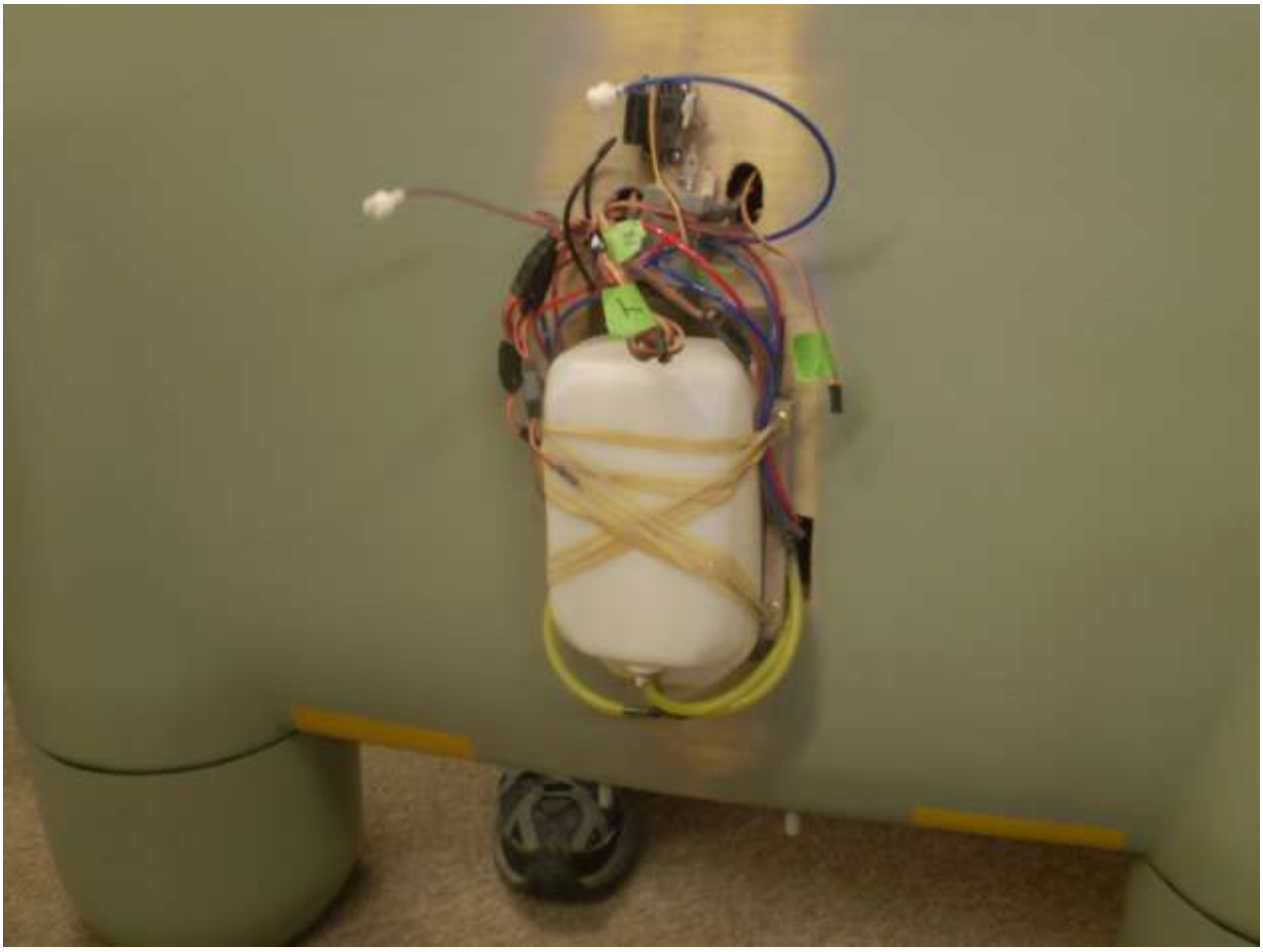
Flap installed.

Fit and attach the flap fairing to the flap.

It folds into the nacelle as the flap is lowered.

Trim the end of the nacelle as needed to allow at least 60° of flap travel.

Wing center section is now complete and ready to mate with the outer panels.
It already looks fast.



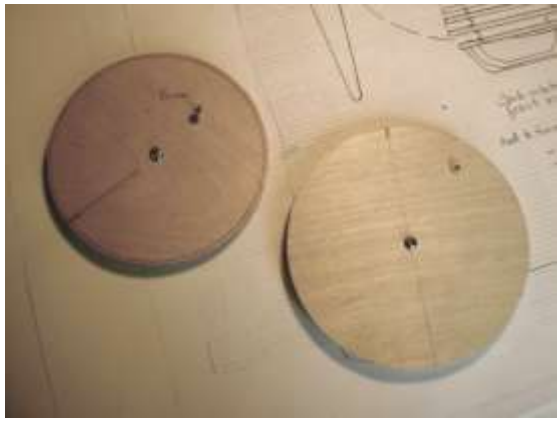
Alternatively, instead of separate fuel tanks in each nacelle, a single 32-40 ounce gasoline tank can be installed in the wing center section for easier access. A single pick-up plus a T-split will work for gasoline engines but not for glo engines.

Scale carb air intake detail. G45 engine cooling is primarily thru bottom of cowl.

Cowl Hydraulic Lines

It is not necessary to install dummy engines cylinders in the Ki 45. The engines cylinders of the full-sized Ki 45 were deep inside the cowl—about midway between the front and rear of the cowl, so they couldn't be seen from the front anyway. Instead, a pair of circular hydraulic lines and their supporting brackets are seen up front. We suspect that these hydraulic lines controlled the variable pitch propeller.

We mount a flat-black cooling baffle here with a cutout to direct incoming air to the cylinder head of the engine. We construct the hydraulic lines from 1/8" aluminum tubing and glue them, unpainted, to the cooling baffle. But first, we must construct a tool to bend the tubing.



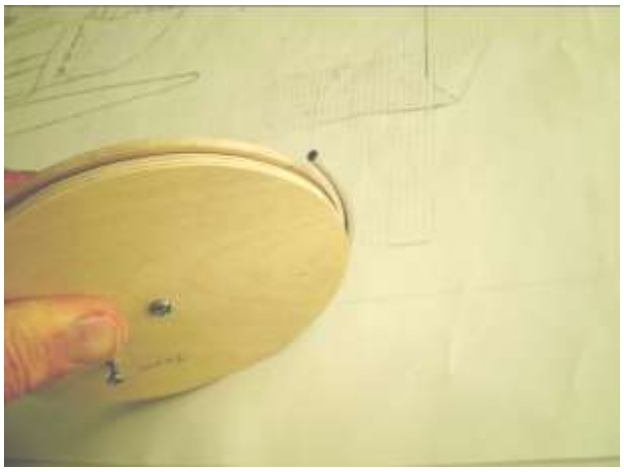
Cut three plywood circles for each hydraulic ring.

Inner ring bending tool: The inner circle has a diameter of 4 1/8". The two outer circles have diameters ¼" larger—4 3/8" or slightly less.

Outer ring bending tool: The inner circle has a diameter of 4 1/2". The two outer circles have diameters ¼" larger—4 3/4" or slightly less.

Note how the inner circles have diameters slightly smaller than the diameters of the cowl rings shown on the plans.

Assemble the tubing benders with wood screws.

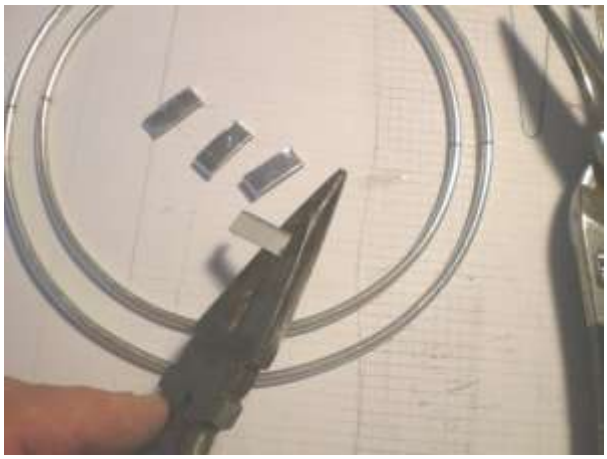



Insert K & S 1/8" diameter thin wall aluminum tubing into the slot in the wheel. While holding it in place, roll the wheel on the workbench. The tubing will be bent to a diameter somewhat larger than the diameter of the inner circle, but exactly the diameter shown on the plans.


Remove the tubing from the bender and cut it to exactly one-half of a circle. Cut by scoring with a razor blade and snap it off. Make 4.

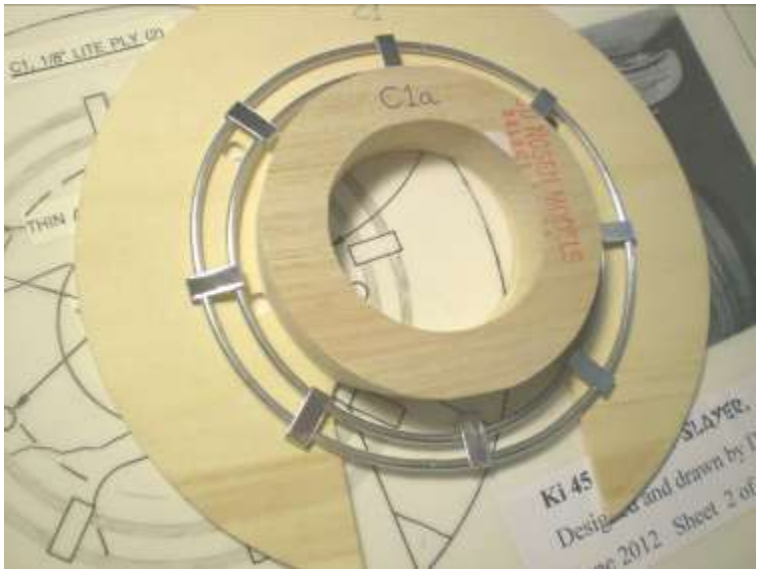
Also bend a short length of 3/32" diameter tubing. Cut a short length and epoxy it into one end of each joint. Let set. Connect the two semi circles by applying more epoxy and joining the two halves.

Repeat the above operation for the other tubing of each cowl.



Cut and bend 8 aluminum brackets per cowl.

Bevel C1a for better airflow over the crankcase, using C1 as a pattern.



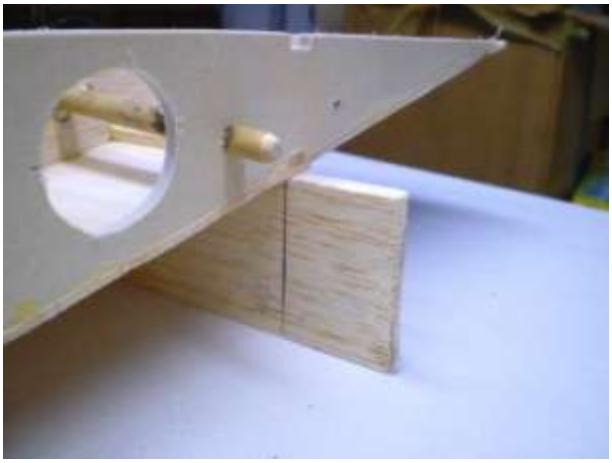
Trial fit to C1 before painting and installation of C1 and C1a into the cowl.

Completed cowl front with Siewert “Frank” spinner.

Wing Outer Panel Construction

N.B.:The inner section is sheeted with 1/8” sheet but the outer section is covered with 3/32” sheet.

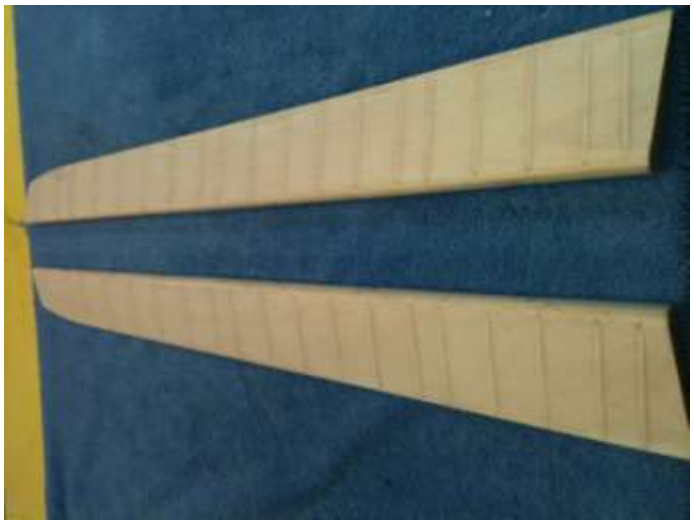
Lay the main spar flat on the plans. Elevate the rear spar with the upper surface washout stick and assemble, inverted, over the plans. Clamp the innermost rib to the outermost rib of the center section in order to make them flush. Install the wing tube and sleeve. Note how the washout stick creates a 2° twist (“washout”) in the wing panel.



Plane the spars flush with the ribs. Taper the leading edge. Sheet most of the bottom surface.

Turn over.
Elevate the rear spar with the lower surface washout stick. Install any remaining shear webs. Install the aileron servo.

Apply the upper surface wing skins starting with the ailerons. Leave a slight gap at the aileron leading edge of he aileron so that the aileron can be cut free later. This should leave a slight twist in the aileron due to washout.




Cut the ailerons free. Round the leading edges. Mate the out and inner wing panels. Sand the surfaces for a flush, continuous fit.

For a gapless fit, place Saran Wrap on the end of one of the wing panels. Coat the mating surface with thick epoxy, epoxy & microballoons, Bondo or other hard, sandable gap-filling adhesive. Connect the wing panels with securing screws in place.
When cured, remove the Saran Wrap and sand away any remaining flash.

3M Hair Set Tape used for rib pinking.

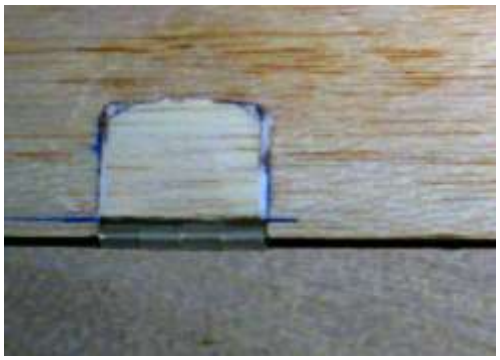
Conventional external aileron linkage.

Flap Assembly

Flaps are a 3/32” sheet balsa core between two layers of 1/64” ply. Hinges are embedded in the core before the layers are glued together with epoxy finishing resin. This technique was described to me by Roy Maynard and proven on previous designs. It is strong and lightweight and, most important, resistant to warping.


Rout slots in the 3/32” sheet balsa flap core with a Dremel router bit in a drill press. Cut the depth slightly deeper than the thickness of a DU-BRO giant scale hinge. Without changing the setting of the bit, route matching slots in a length of 1/8” balsa wing sheeting. Glue hinges in the core with epoxy. Pins are not required if the epoxy oozes thru the holes in the hinges.


Glue the flap layers together with finishing resin. Clamp and weight to a flat surface.
Then glue the hinges to a length of 1/8” wing sheeting slotted in the previous step.




Cut a 1/16” balsa scab and apply it to the wing side of each hinge. Sand flush and fill remaining gaps with drywall spackling paste. Sand smooth.
Attach the flap horns over the hinges. The flap horn bolts doubly secure the flap hinges.


The plans show the flap servo and pushrod hidden inside the flap fairing. Note how the flap fairing rotates into the nacelle as the flap is lowered. However, a more conventional (and non-scale) method would have the flap servo and pushrod outside the fairing as shown above.

Fin and Rudder Construction

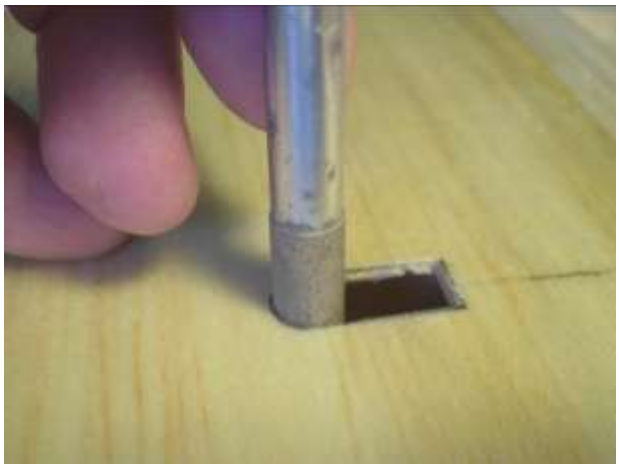
The rudder servo control scheme is kinda different. The rudder servo is mounted in the fuselage immediately below the rudder and drives the rudder with a slotted servo arm and a wood screw in the bottom of the rudder. Separate servos steer the tail wheel and partially retract the tail wheel.


Assemble the fin and rudder as clamshell halves over the plans. Plane the fin's leading and trailing edges to match the ribs. Round the rudder's leading edge.

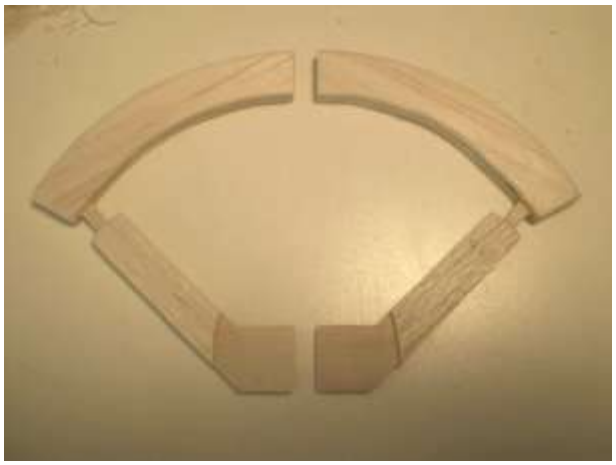

Block-plane the rudder and fin ribs. Sheet the fin halves while they rest on a flat surface. The rudder is not sheeted; it will be covered with fabric.


Route and glue Robart hinge points in the rudder before joining the rudder halves together. Route and glue Robart hinge pockets to the fin's rudder post, using the rudder for alignment. then glue the fin halves together.

Add ¼" sq sheeting support onto the rudder post. Glass the fin. Test fit the rudder counterbalance.



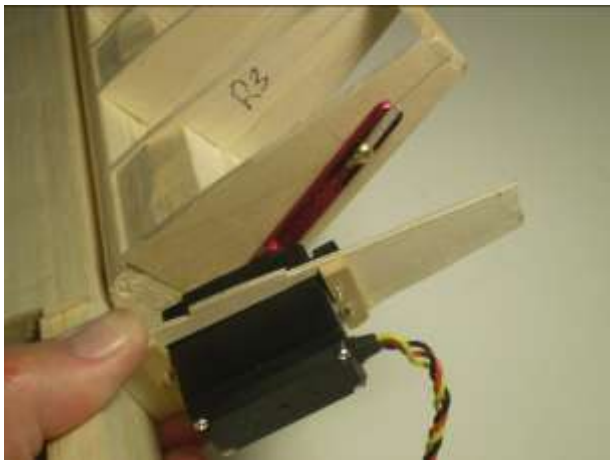

Cut and trim the counterbalance hole. Align before cutting slot in rudder.

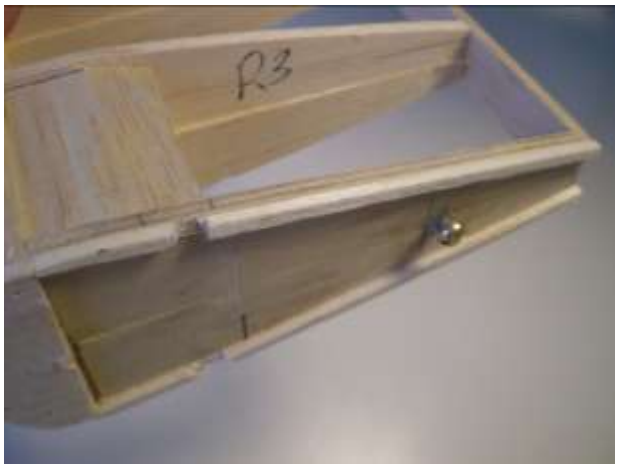


Counterbalance ready for finishing.

Rudder servo arm before slotting.

The rudder servo arm is slotted to match the shaft of a brass wood screw in the bottom of the rudder. (To see how to cut the slot, see Stab and Elevator Construction.) The servo is fitted to a ply tray and glued to the rudder post. The fit of the screw in the slot must be tight enough to minimize play but not tight enough to cause binding. To prevent galling, grease the slot and the screw. Note how the rudder can be removed by loosening the set screws in the hinge pockets and pulling it straight back. This permits servicing of the servo.





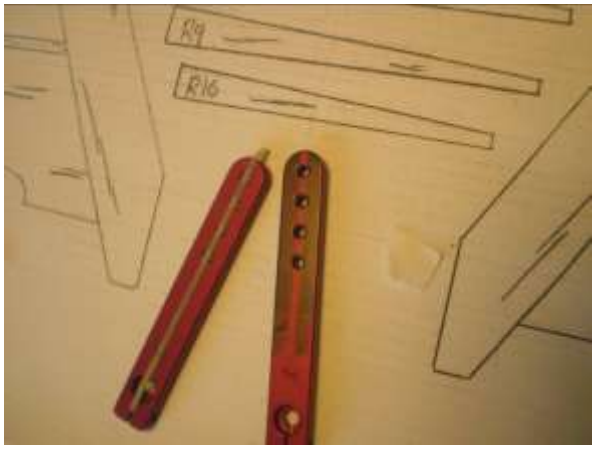
Close the gap in the bottom of the rudder by adding 1/8" sq balsa strips. This hides the servo arm. The fin is now ready for installation onto the fuselage. See Tail Assembly.

Completed fin and rudder including scale rudder counterbalance.

Stab and Elevator Assembly.

The elevator servos are mounted in the elevators, one per elevator half in order to hide non-scale pushrods. But, if you prefer, a more conventional installation is shown on the plans.

A slot in the aluminum servo arm connects to a fixed aluminum plate in the stab. For maintenance, the elevator can be removed by loosening the set screws in the Robart hinge pockets and sliding the elevator rearward. The stab is sheeted, but the elevators are fabric-covered.



Lay a 1/16" strip of ChartPak trim tape on the elevator servo arm. Color with a permanent marker and remove the tape. Mount the arm in a wooden jig and cut the slot slightly undersized.

Trim the slot to a snug fit to 1/16" sheet aluminum using a metal emery board. Fit a JR wing servo to its mounting board before installation.

Assemble the stab and elevator halves over the plans.


Partially sheet the stab, leaving the hinge area open. Install the 1/16" aluminum servo plate. Add a hardwood reinforcement. Epoxy well but leave the center clear for the servo arm.


Plane the elevator ribs to match the leading and trailing edges. Block-plane to a uniform shape.


Install the elevator hinges before joining elevator halves. Join the elevator halves with a servo in place. The servo is not screwed or glued in place. It is just a friction fit at this point.

Install Robart hinge pockets in the stab using the elevator as a guide. Servo acts as a hinge too.

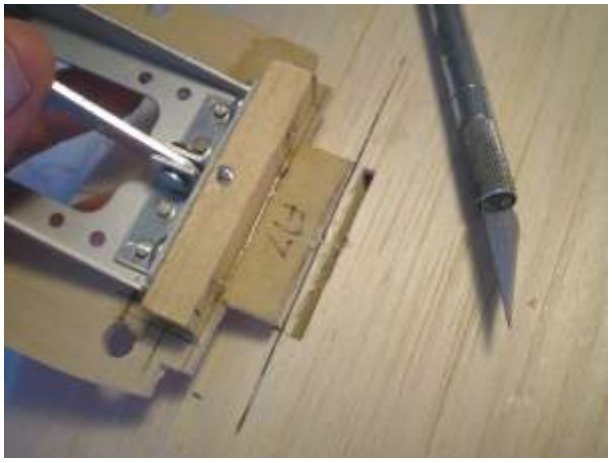
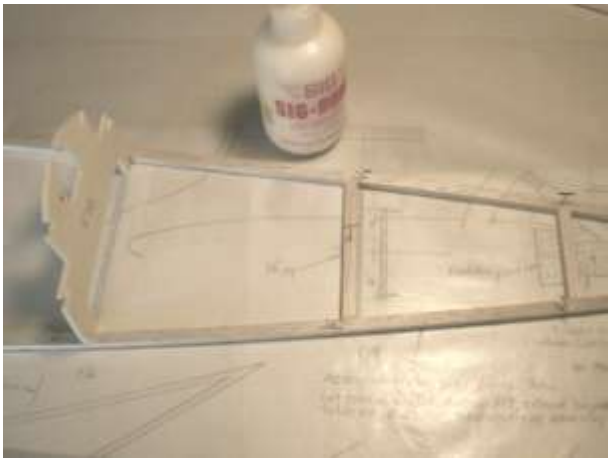
Spot-glue the elevator servo in place with a single glob of thick glue. This allows the servo to be removable. The servo cable passes thru the stab into the fuselage where it will be accessible from the tail wheel hole.

Alternatively, a Hitec wing servo can be substituted.

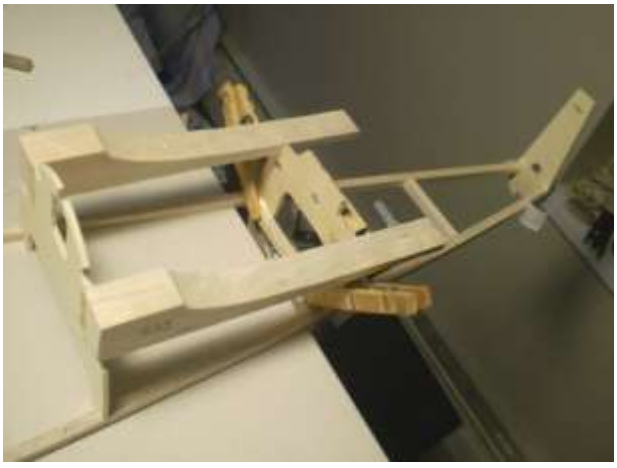
Cut a slot in the Hitec aluminum servo arm to fit the elevator plate. Glue the Hitec servo in place. A JR mounting plate is shown on the plans.

Tail Assembly

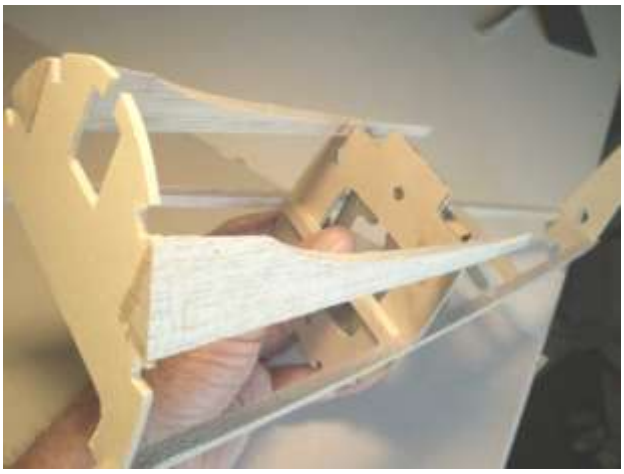
The tail and the rear fuselage are assembled as a separate section and joined to the fuselage crutch later during construction of the fuselage. The tail must be built first.

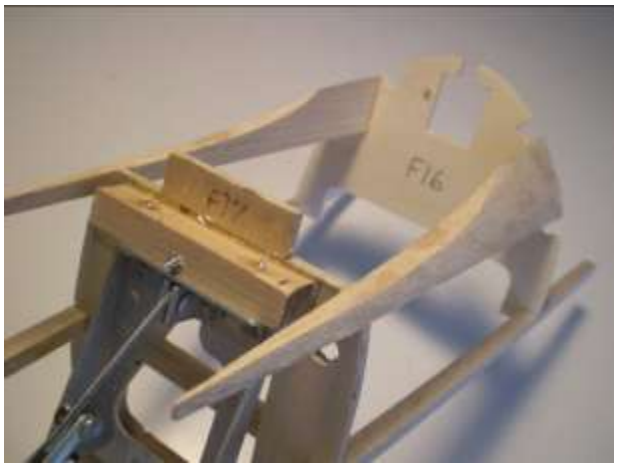
Cut a slot in the stab ahead of the spar. The tab on F17 will later be inserted into this slot.
It is a common practice for modelers to stand in front of the stab while running up the engines. This causes a strong rearward force on the stab. To prevent damage to the stab-fuselage junction, the stab must be well anchored to the fuselage. The tab on F17 and the spar in the stab support this rearward force. It is a safety feature--don't omit it!
Assemble the fuselage crutch over the plans—just from ahead of F16 to the end of the crutch. Attach F16 and F18.

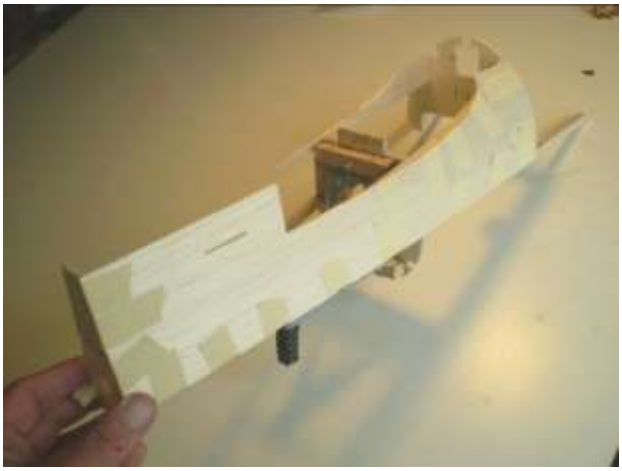



Mark the position of F17 on the crutch. Move the crutch so that it overhangs the building table.
Install F17 with the tail wheel retract previously attached (see Tail Wheel Strut Modification). Install stab saddles SS1.

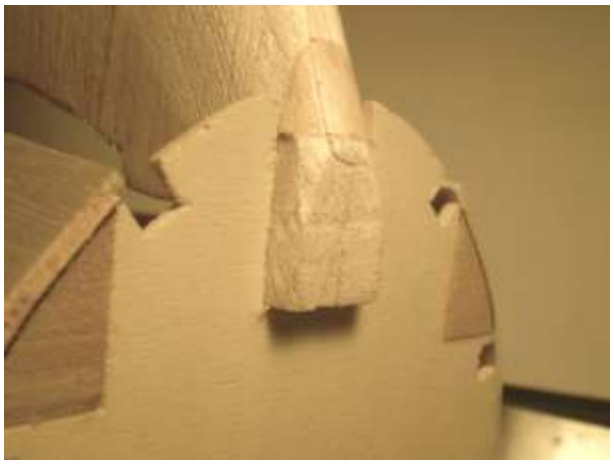
Shape SS1s to match formers F16 and F17. The tail is now ready for sheeting.



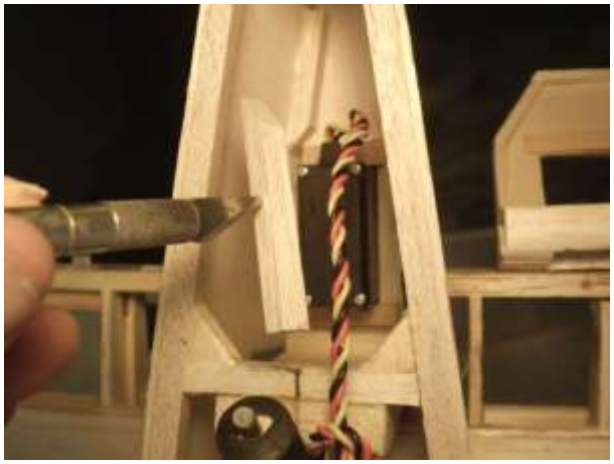


Install the Upper Tail Sides. Hold with masking tape while yellow glue dries. Trim if necessary to match SS1s.


Fit the stab to the fuselage and remove. Verify the fit of the fin to the fuselage but don't glue it yet.




The fin fits into a notch in F16. When all fits, align and glue the stab and fin in place with yellow glue.




Reinforce the rudder servo tray with ¼" sq balsa. Here, the rudder servo is seen by looking up into the tail wheel hole. Note how the rudder post connects to the crutch cross-piece.


Fill the fin-stab gap, if any, with Gorilla Glue polyurethane glue. It expands to fill the gap.
The stab is now ready for the remaining sheeting. (The fin was glassed earlier.)


Cut sheeting to fit the stab trailing edge so that it goes under the fin and abuts the fuselage sheeting. Install with yellow glue. The stab can now be glassed and primed before joining the tail to the rest of the fuselage.

Top view of elevator and rudder servos.

Bottom view, including tailwheel strut.

Partially completed tail ready to be attached to the fuselage.

Tail Wheel Strut Modification

A standard Robart retractable tail wheel unit is upgraded to scale by extending the strut length, adding a rubber boot, extending the fork length and shape, and installing a larger tail wheel.

Robart retract prior to modification.

Cut two 1/16” aluminum fork extensions per the plans. Attach them to the fork with a bolt thru the axle hole. Holes are countersunk. Bolts are 2-56 flat-head machine screws.

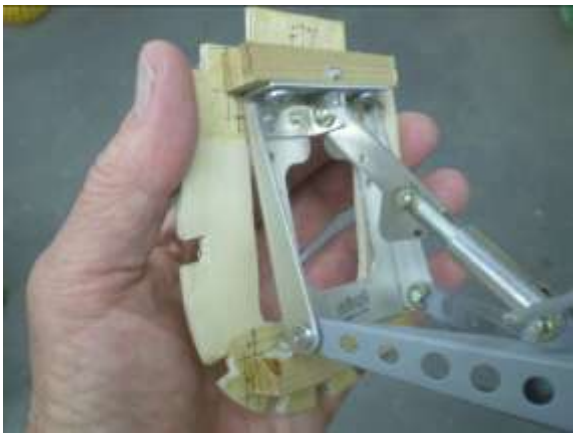
Drill remaining holes thru the fork and bolt the fork extensions in place. Use LOCKTITE.


Cut off excess bolt lengths with a Dremel cutoff wheel. Heads are flush with the fork extension.


Extend the strut by replacing the Robart music wire with a longer length. Drill a hole thru a length of wooden dowel. Insert the wire thru the dowel.


Cut model boat rubber boots to the length of the dowel and install them over the dowel.

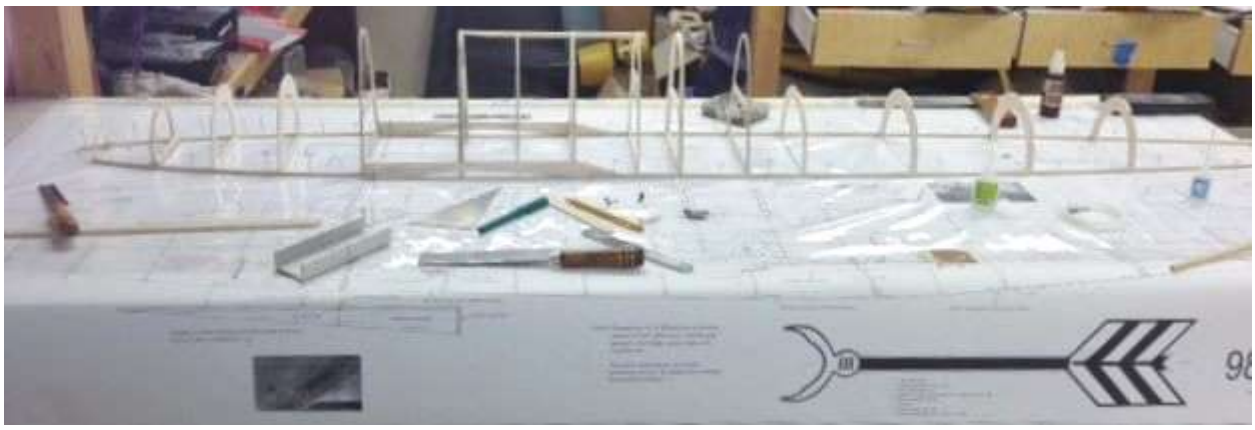

Apply auto body putty to the fork, covering the seams and screw heads. Sand smooth and coat with primer. Compare the result to a photo of the full-size. Trim to shape as needed.

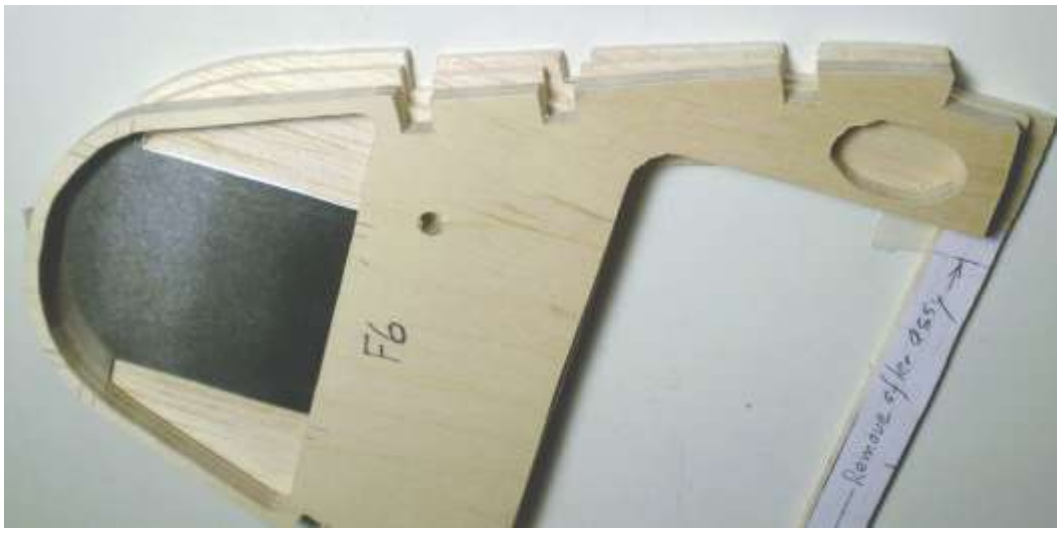
Replace the Robert set screw with a socket-head bolt. Use LOCKTITE. Screw and epoxy the completed assembly to former F17.

Fuselage Construction.

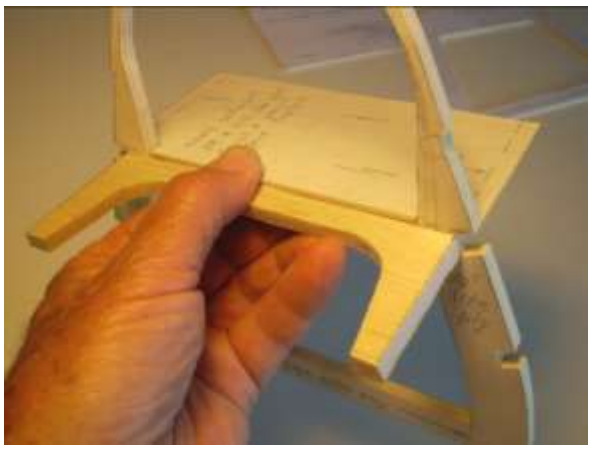
Fuselage structure uses the half-formers on a crutch method.



Cover the plans with wax paper. ¼" sq sticks are laid on the top-view plans sheet 1. Glue the upper portions of each former to the crutch, moving the crutch slightly if necessary to snug it into the ¼" sq. notch in the corner of each former.

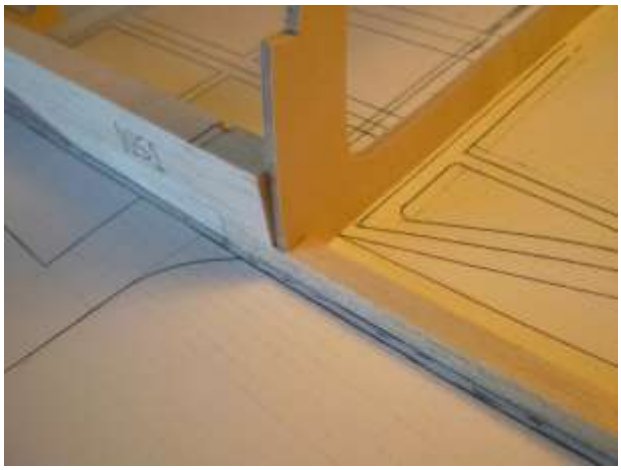


Note that there is a slight widening in the fuselage from F6 to F9. This is scale. It provides headroom for the navigator.

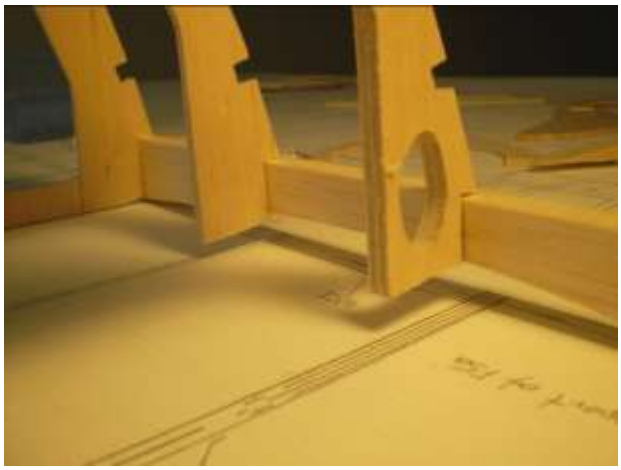


Fit the navigator's shelves to F10. Finish and paint them prior to installation.

The crutch is interrupted by the upper portion of the wing saddle WS1 at formers F6 thru F9. As shown below, the formers are glued to WS1.



F5 rests on the crutch and against WS1.



F6, F7 & F8 rest on WS1.

Note how the stringer at the rear of F4 is not continuous but abutts against the rear of F4.

Attach the tail before sheeting the fuselage.


Sheet most of the fuselage upper half after attaching the tail. Pilot patiently waits.


Nose before sheeting. Nose after sheeting.

Tip: Wet the *outside* of the balsa sheet with hot water before attaching. Rub it in. Helps bending.


Install upward-pointing guns (not all versions). Add elevator fairings, rough cut at this point.

Turn fuselage over, add lower formers.

Install tailwheel steering and retract servos.

Tailwheel steering cables and retract pushrod. Also shown are rudder and elevator servo

Tailwheel shown in down position. Sheeting around the tailwheel is rough-cut, awaiting cables. final trim.

Install the wing saddle and sheet the rear lower surface. Install the wing saddle base and formers with the wing in place, covered with wax paper. This fits the wing saddle base flush to the wing.


Wet the outside surfaces of sheet balsa with hot water and glue to the lower nose.


Install the cannon channel before the sheeting is complete.


Mount the fiberglass nose. Secure it well so that the nose can be used to hold lead-shot ballast if needed (prototype required 8 oz). Sand and fill the joint for a flush fit.


Draw the filet outline on the fuselage. Then install wing filet F6. Install rear wing filet F12.

Fill the the front and rear portions of the wing filet with microballons and epoxy or other lightweight filler material. Shape and sand to contour.

Cover the wing with wax paper and assemble the belly pan on the wing's lower surface.
Cannon channel in belly pan shown ready to sheet.

Belly pan hold-down bolt, 1 of 4.

The belly pan can be installed in either of two methods. It can be held in place with 4 nylon bolts or it can be permanently glued to the wing's lower surface. The previous page shows the former method. The photos above show the later. In this case only two holes in the belly pan are required for access to the wing hold-down bolts. But note that gluing the belly pan in place requires larger gaps in front and back in order to install and remove the wing.

Cut sheeting for rear position.

Fit rear fairing (or canopy).

Use pattern on plans to cut optional rear canopy.

Install rear cabin details.


Install Midwest instrument panel and other cockpit detail.

Paint the inside of the fuselage center section flat black.
Cover the center section with either 1/64” ply (shown) with clear plastic windows glued inside or cover the center section with one large sheet of plastic and mask off the windows. The pattern is shown on the plans.

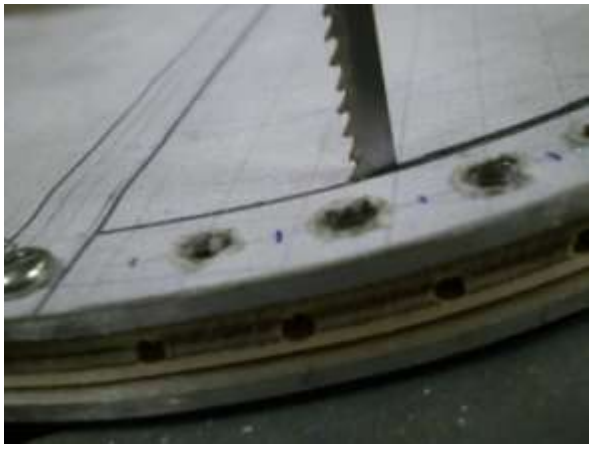
Tail cone with nav light.

Electrical access hatch.

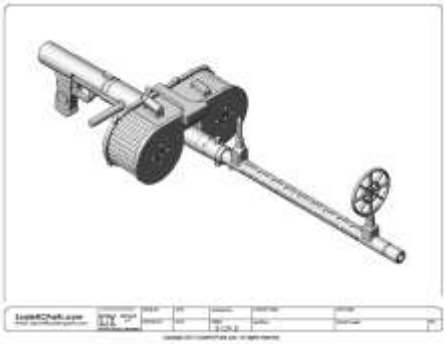
Paint and add markings.


Completed fuselage. Part of rear canopy held with screws, removable for access to servos.

Gun and Cockpit Detail

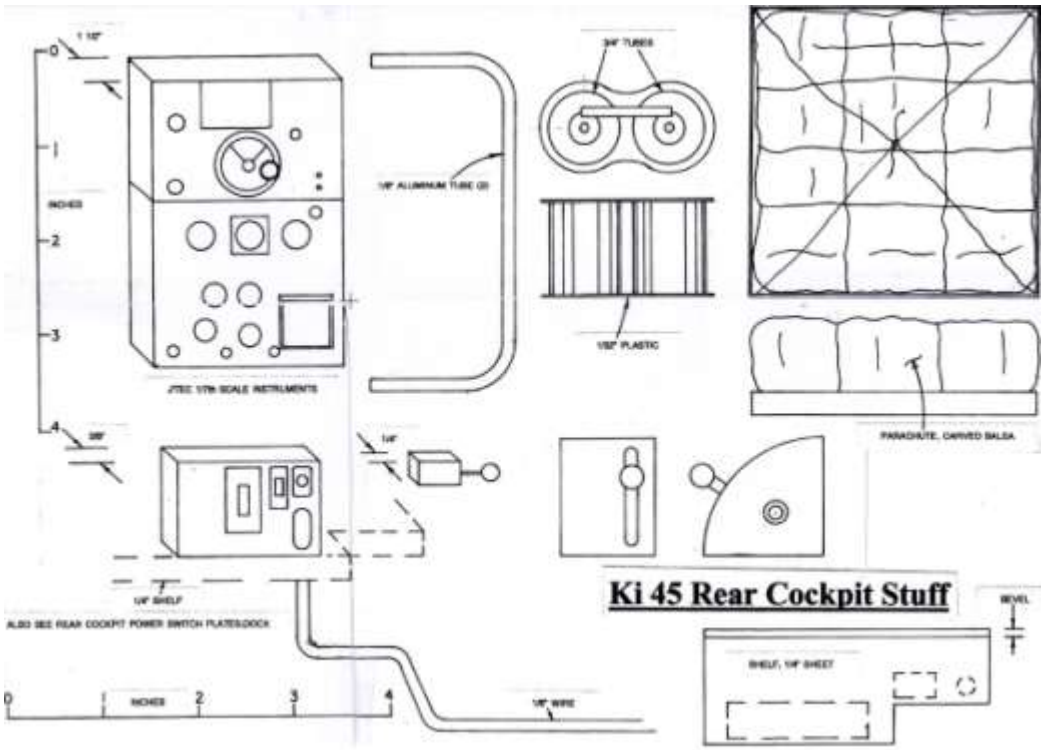


Drill holes and cut thewood and aluminum gun carriage with a bandsaw.

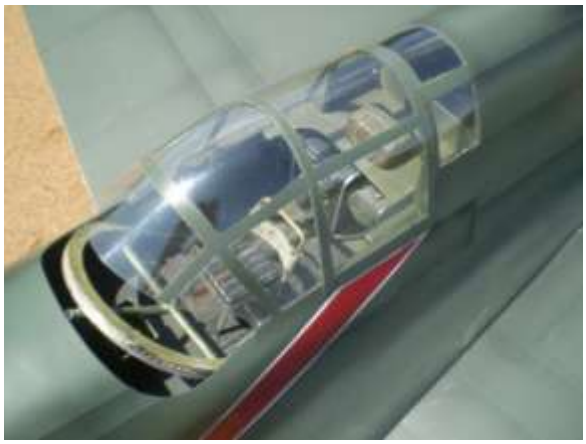


Assemble the 3D printed gun.

Instrument panel parts ready for assembly.



Rear cockpit parts are shown half-size.




Completed rear cockpit. Gun stowed for flight.


Ki 45 Parts List

Aircraft grade hardwood (birch, maple, etc) plywood:

2--1/32 x 12 x 36	WS4, WS5, elev servo mount, elev TE
1—1/16 x 12 x 36	SS2, rudder counter balance
1--¼ x 12 x 48	Nacelle boxes, F6
1--1/8 x 12 x 36	F1, F17, R1, dihedral braces
1--3/8 x 6 x 12	Firewalls, LE dihedral brace
2—1/64 x 12 x 24	Flap skins

Lite (poplar) Plywood :

1--1/8 x 12 x 48	F3, F4, F6, F9, F12, F18, misc.
1—1/4 x 8 x 12	F10

Basswood:

1—1/16 x ¼ x 12	JR elev servo support
1—1/4 x 1 x 30	Center wing spar
1—1/4 sq x 24	Elev plate support, stab spar,
1—3/8 x ½ x 6	T/w retract support
2—1/2 x 1 x 30	Center wing spar
1—1/2 x 1 ½ x 6	Wing bolt support
1—1/8 sq x 12	F6 window frames

Balsa sheets (very light 4-6 lb, or light 6-8 lb):

2—1/16 x 3 x 36	Rudder counterbalance, wing filets
2—3/32 x 4 x 24	Flap cores
32—3/32 x 4 x 36	Rudder TE, fin sheeting, stab sheeting, upper tail side, rudder counterbalance, fuselage sheeting, sheer webs, flap core
20—1/8 x 4 x 36	F2, F9 thru F16, filet supports, fin ribs, rudder ribs, wing ribs, cannon channel, sheer webs, washout sticks
20—1/8 x 4 x 30	Center section sheeting
1—1/4 x 3 x 36	WS2, stab TE, stab LE, elev trim tabs, hinge supports
1—3/8 x 3 x 36	WS1, elev trim tab
2—1/2 x 1 x 30	Center spar
1—1/2 x 3 x 36	WS3, elev TE, fin tip, rudder tip, stab tip, rudder trim tab
1—3/4 x 3 x 36	SS1, FR1, elev gairings, rudder hinge support
1—1 x 6 x 24	Wing tips

Balsa sticks:

2—1 x 2 x 30	Inner wing panel LE
2—1/2” x 1 ½ x 30	Outer panel LE.
2—1/16 x ¼ x 36	Elev spar
4—1/8 x ¼ x 36	Spars
4—1/4 x 1 x 30	Outer spars

4—1/4 x 3/8 x 30	Rear center wing spars
30—1/4 sq x 36	Spars
1—3/8 x ¾ x 36	Fin LE
1—1/2 x ¾ x 24	Rudder post
1—3/4 sq x 24	Rudder LE
1—3/4 x 24 triangular	Spar support

Estimated wood cost (Balsa USA, September 2012): $340.

Other stuff:

1—12 x 18 x 0.020 clear plastic	Center canopy, landing light
1—1/4 x 36 birch dowel	Wing pins
1—3/8 x 36 birch dowel	Wing dowels

1—1 ¼ OD x 24 aluminum tube and matching phenolic wing tube

1/16" aluminum sheet	Elevator servo plates
1—3 x 3 thin aluminum sheet	F6 armor plate
20—Robart Hinge Points and sockets	Ailerons, elev, rudder
12—Klett or DU-BRO hinges	Flaps

2—Tru Turn Siewert "Frank" flying spinners. http://www.tru-turn.com

1 pair--Sierra Giant Scale Andersen Ki 45 retracts or Shindin 110-degree retracts.
www.sierragiant.com *or* http://shindinmachine.com

1 pair--Light Weight 6" DU-BRO wheels

1—Robart #160 scale tail wheel retract

1—2 ½" tail wheel

1—Pro Boat Rubber Boot, PRB2073, Horizon Hobbies, www.horizonhobby.com

1 set--Molded parts from Micko Aircraft and Accessories—cowls, nacelles, canopies, tailcone, nose cone, carbs, flap fairings, scale exhaust ports
www.mnbigbirds.com

1—"Andersen KI 45 instrument panel", $140, SAC Midwest, http:www.sacmidwest.com

10—1/4 x 20 nylon socket head bolts—Cowl bolts, wing bolts

2—DU-BRO No. 416 16-oz fuel tanks

1 sheet—Dry transfer graphics, file name: *Anderson jap nom.cdr*, www.pro-mark.com

48--#4 x ¾" F.H. wood screws—Tank boxes

12--#6 x ¾" F.H. wood screws—Removable firewall

1—8 ½ " x 11" 0.020 clear plastic sheets—Flat portion of rear canopy.

Elevator servos:

JR DS378 wing servo (recommended) or
HiTec HS-5125MG wing servo or
MKS Ds6125 Sailplane Thin Wing Digital Servo

Recommended engines: FPE 4.2, DA 50, G45.

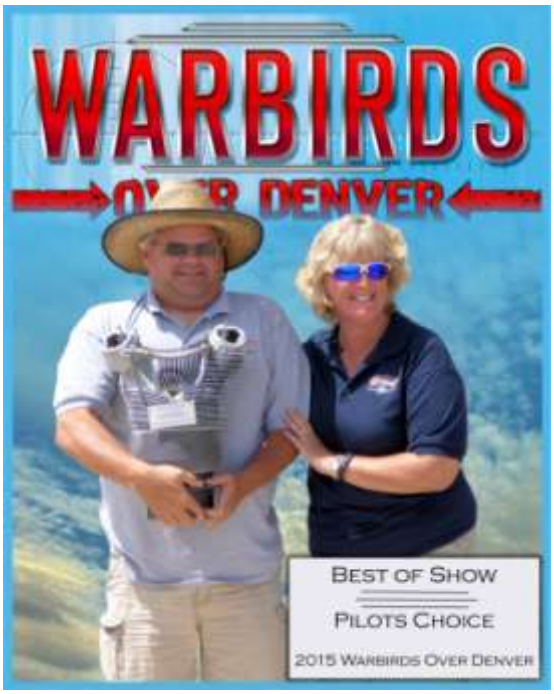
Optional Type 98 rear-cockpit gun (same as German MG 15 as used in Ziroli Stuka):
contact Kirk Schneider at http://www.scalercparts.com. Recommended.

Also see IFlyTailies MG 15 gun kit,

http://www.iflytailies.com/store/gun-imitations/

Also see attached 3D printer files for Type 98 gun by Kirk Schneider.

Completion Views



Wha was zat?

On the flight line with Mitsubishi Babs.

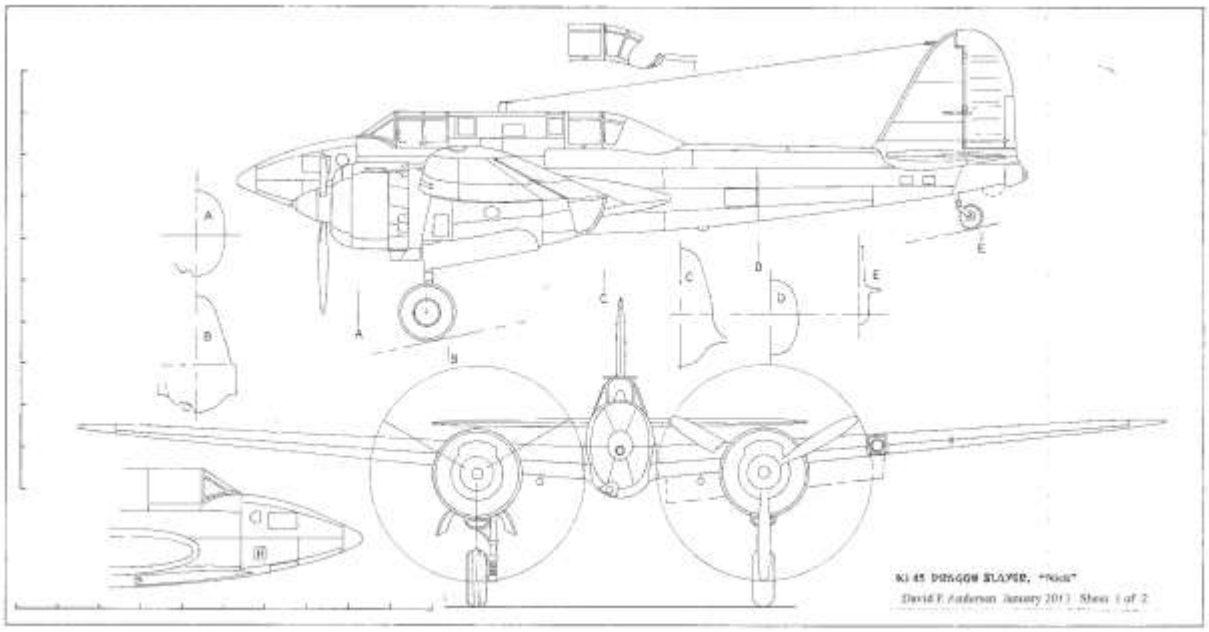

59


59


1st flight, Jeff Quesenberry, Owatonna, May 2014



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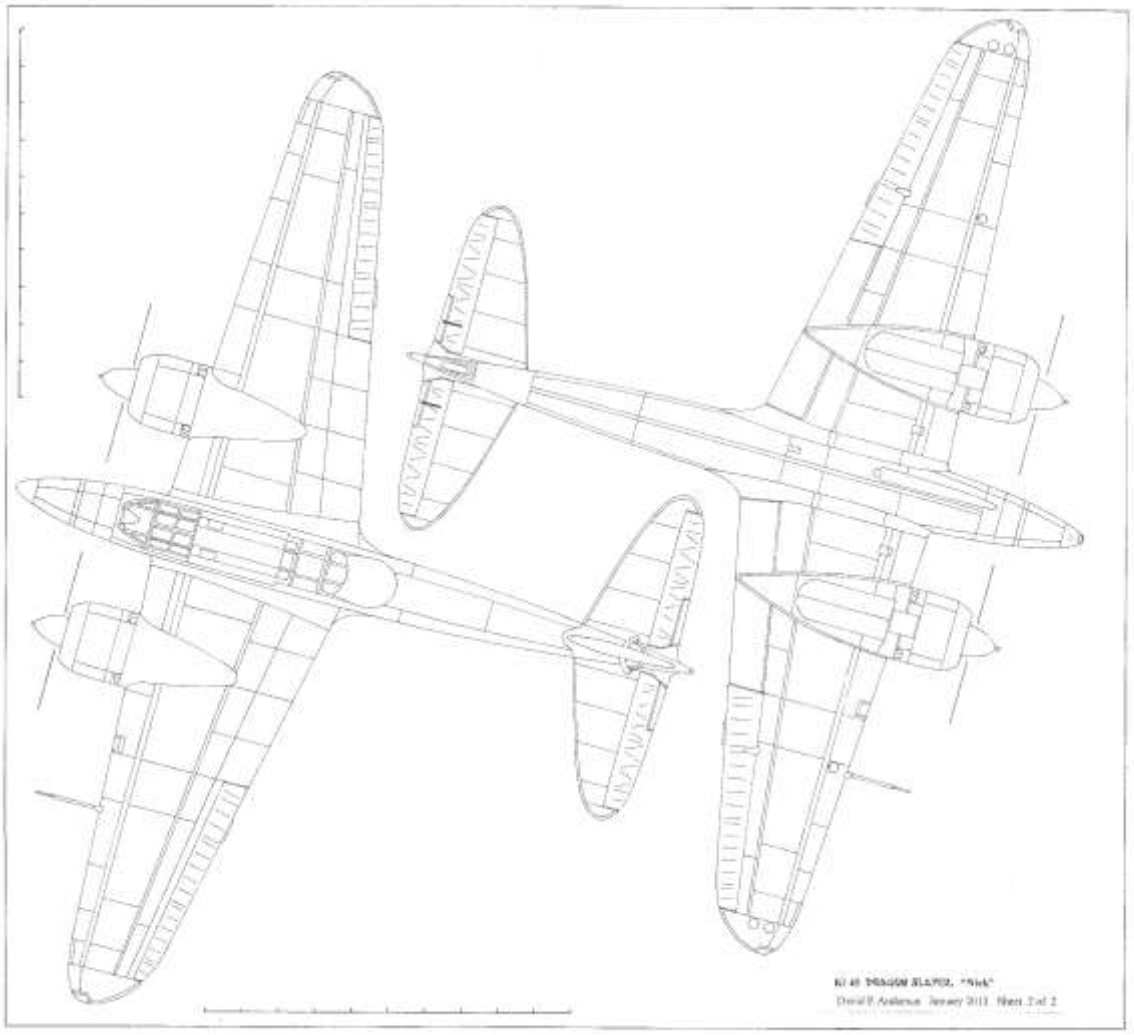
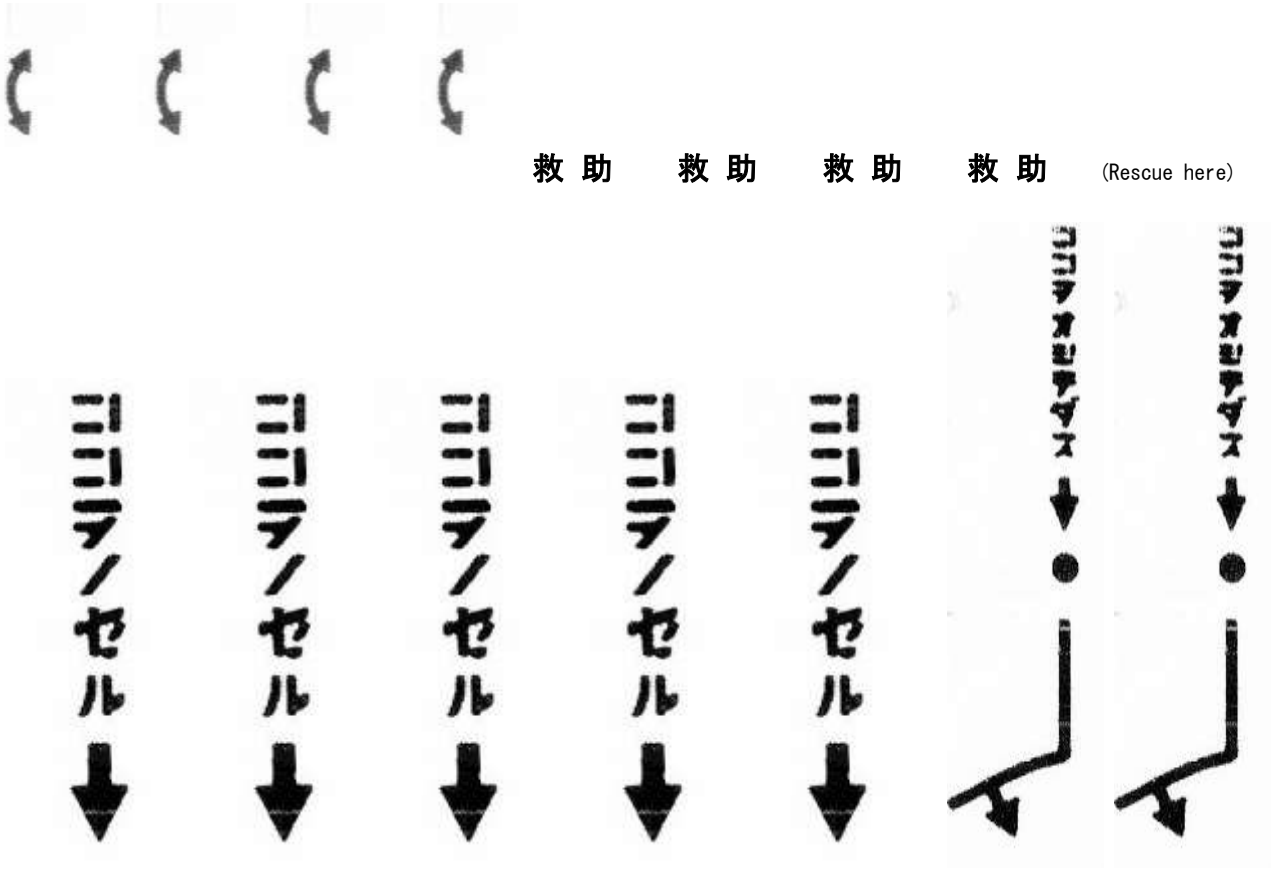
KI 45 DRAGON SLAYER, "Nick"
David F. Anderson January 2011 Sheet 1 of 2


KI 45 DRAGON SLAYER, "Nick"
David F. Anderson January 2011 Sheet 2 of 2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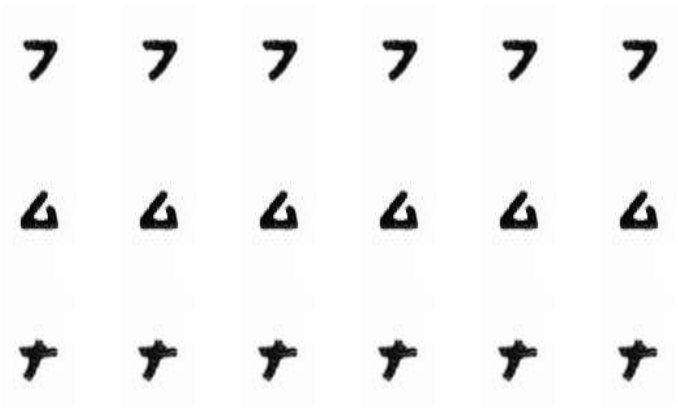
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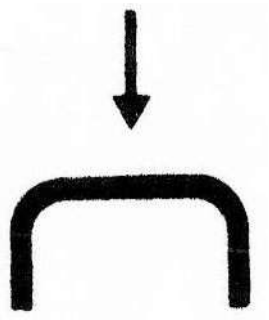
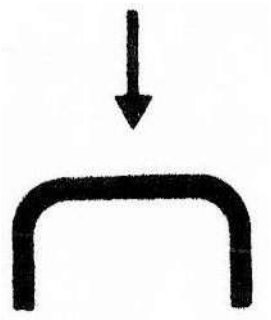
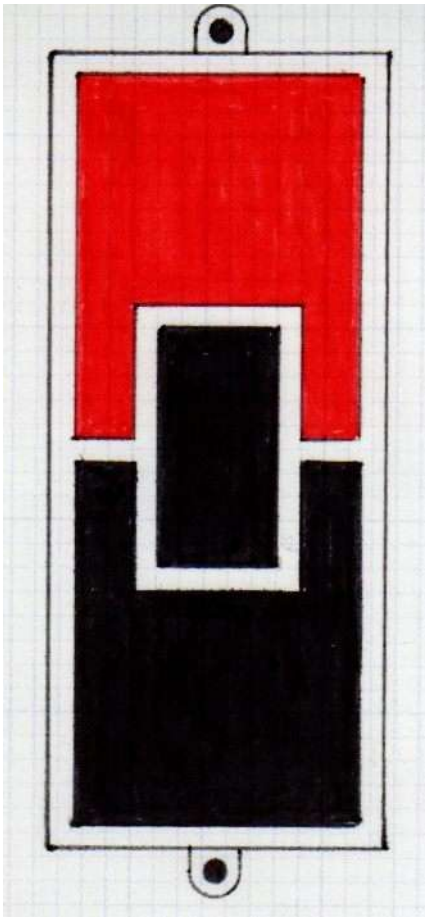






Full size

model size

Ki 45 Rear cockpit power switch plates

Tail Numbers

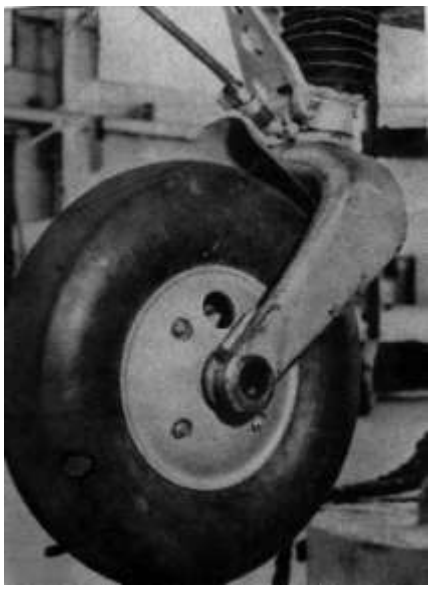
98 98 25 25

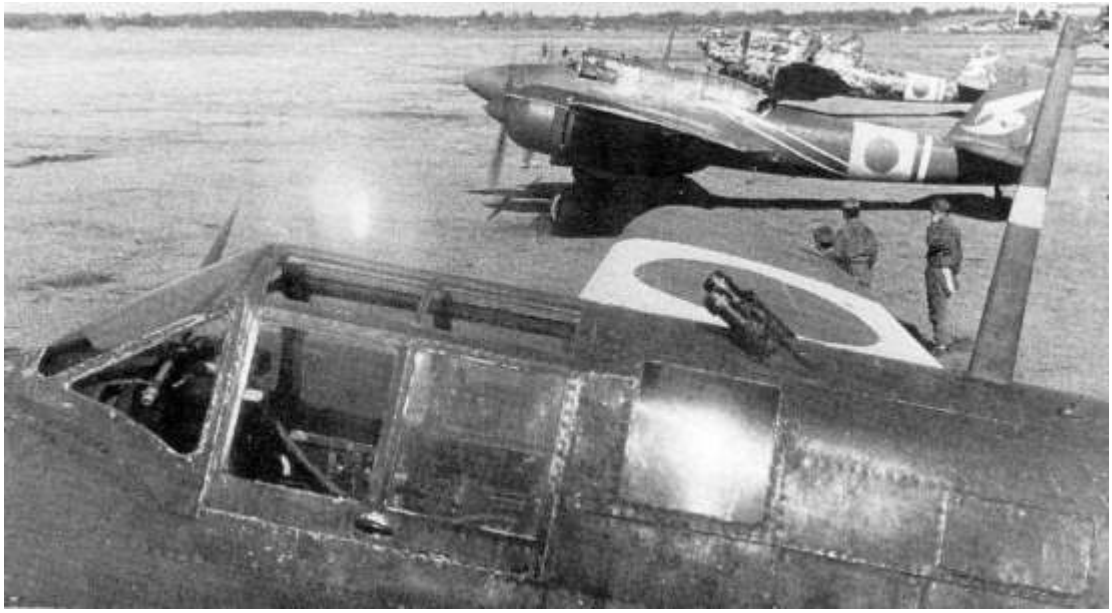
(Arial narrow 150, 1.5 inches high. Make 2 in white)

Full-Size Views


Ki-45 of the 53rd Sentai, a special ramming unit.


PART FVONT CKPT
TYPE AT NCK
SER. 4281
LOCATION CLARK
20 FEB 45





Close-up of nose.

References

http://www.mnbigbirds.com Plans, parts, construction manuals, videos, etc..

KOKU FAN Drawing No 55. The KOKU-FAN Bunrin-Do Co., 1-Chome, Jinbo-cho, Kanda, Chiyoda-Ku, Tokyo, Japan http://www.bobsairdoc.com

Profile Publications Number 105, "The Kawasaki Ki-45 Toryu."

Japanese Army Air Force Camoflage and Markings World War II, Donald Thorp, 1968.

Scale Aviation Modeler International, "Dragon Slayer", October 2008.

Famous Airplanes of the World No. 21, "Army Type2 Two-Seat Fighter 'Toryu'", March 1990. (In Japanese.)

The Maru Mechanic No. 11, July 1978. (In Japanese.)

The Maru Mechanic No. 44, January 9184. (In Japanese.)

Japanese Aircraft of the Pacific War, R.J. Farncillon, Funk & Wagnalls.

Complete Book of World War II Combat Aircraft 1933-1945, Angelucci, Military Press, P262.

Monogram Close-Up 14, "Japanese Cockpit Interiors, Part 1." 1978

Hasegawa Hobby Kit, "Kawasaki Ki-45Kai Koh TORYU (NICK)

Hasegawa Hobby Kit, "Kawasaki Ki-45Kai Tei TORYU (NICK) 'SHINTEN SEIKUTAI'

###

Thanks

Dick Steine left and Jeff Quesenberry right at a Scale Flyers of Minnesota club meeting..

Roy Maynard, Jeff Quesenberry and Rick Steine built and tested the first three prototypes. In the process, they proofed the plans and provided valuable suggestions that were included in the design. They also provided most of the photos for the construction notes.

Jeff Micko built the molds for the fiberglass parts and continues to provide molded parts to modelers all over the world.

Kirk Schneider designed and produced the 3D printed gun, a first for this type of model.

Inflight videos by Brian Hacker (brianhacker8675309@gmail.com), and photos by Pedro Restrepo and Chris Launer.

Jon Bomers composed the web site presentation on www.mnbigbirds.com.

This has been a unique team effort. Thanks to you all.

--David P Andersen