INCLUDED MATERIALS

	Hardware Pack
1	Fuselage
1	Canopy
1	Fiberglass cowl
2	Glass wing fillets
1	Fin plate
1	Fiberglass belly pan
1	Horizontal stabilizer
1	Vertical stabilizer
2	Elevator half
1	Rudder
1	Dihedral brace
2	Wing section
2	Aileron
13	CA Hinges
2	Wheel wells
2	Gear covers
2	Gear wires
2	Gear blocks
4	Gear straps
8	Strap screws
2	Wheel collars w/screws
4	Control horns
6	Couplers
7	Clevis
3	L bend connectors
12	Horn screws
12	½" cowl, servo hatch screws
2	Wing bolts
2	Wing washers
1	Tail bracket
1	Tail axle
1	Small collar w/screw
1	Large collar w/screw
1	Tail control arm
1	Tail wheel
1	Brass eyelet
1	Rudder control rod
3	Tail bracket screws
1	Engine control rod
1	"y" tail control rod
2	Aileron rods
4	Aileron servo blocks
2	Aileron servo plates
2	Engine mounts
4	3mm engine bolts
4	3mm Lock nuts
4	3mm Washers
4	Engine mount bolts 4mm
4	4mm blind nuts
4	4mm washers
2	Main wheels
1	Ez connector
1	Rudder control rod
2	Rod nuts
2	Washers
1	Pull pull cable set
2	Brass crimp connectors
2	Threaded couplers
4	Cowl blocks
1	Fuel tank w/hardware
1	Decal sheet

ADDITIONAL EQUIPMENT NEEDED TO COMPLETE YOUR AT-6 ARF

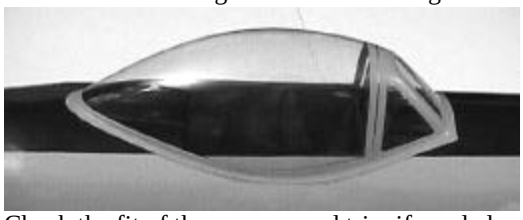
General

.40 to .46 Size two stroke R/C engine and muffler
fuel line
Minimum of 4 channel radio set required with 5 servos, retract servo required for retractable gear
30 minute Z-poxy
Thin Zap CA (pink)
Tru Turn spinner nut
Latex radio foam

PARTS NEEDED FOR RETRACTABLE GEAR

40 Size retract gear, Maxx #ACC109, GP #GPQM2905, Hobbico #HCAP4010
Retract servo
(2) Dubro #172, 2-56 control rods
(2) Goldberg #300, 5-32 axles
(2) Sullivan #525 clevis
(8) Dubro #385 #6 screws
(8) Dubro #325 #6 flat washers
(2) Dubro #121, "EZ" connectors

Make sure to allow enough extra line to the needle valve line to give access for filling.



95. Check the fit of the canopy, and trim if needed. Wash the canopy out with cool water and dish detergent, then dry with a paper towel.
96. Now is the time to install any cockpit details, such as dashboards or pilots (NOT INCLUDED). Secure them firmly in the cockpit with epoxy.
97. Install the canopy on the fuselage with epoxy or "goop". Hold in place with tape until cured.

98. Install the wing fillets on each side of the fuse. Test fit on the fuse and mark the location with masking tape. Test them in place with the wing bolted to the fuse. Glue in place with epoxy or goop, placing a piece of wax paper or plastic wrap between the fuse and the wing. Tighten the wing bolts and let sit until the glue has cured.

99. Use the pictures on the box label and above to locate the decals on the fuse sides and the wing. Clean the area for the decal with alcohol and a paper towel.

100. With your engine fully set up, now reinstall the cowling and fasten in place with the #4 screws. Install your prop and spinner nut. (We recommend Tru Turn spinners).

101. Temporarily place your battery and receiver in the fuse, then install the wing. You want the plane to balance at a point 3 to 3-1/2**"**s back from the leading edge, measured at the fuselage side.
102. Move your battery for or aft as needed to achieve a balance. When the proper radio gear position is found, wrap the gear with foam and secure in place with Velcro or rubber bands.

CONTROL THROWS

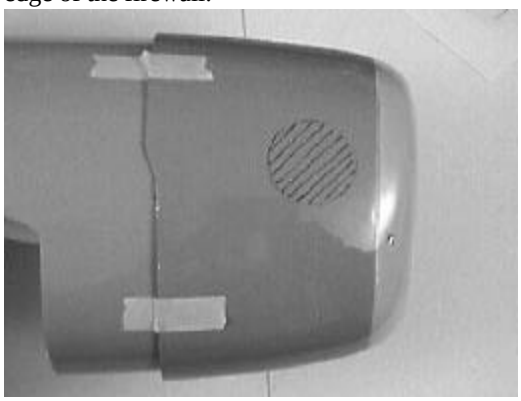
Rudder:	Low rate - 3/4" each way High rate - all you can get
Elevator:	Low rate - 1/2" each way High rate - 1" each way
Ailerons:	Low rate - 1/4" each way High rate - 1/2" each way

PRE-FLIGHT NOTES

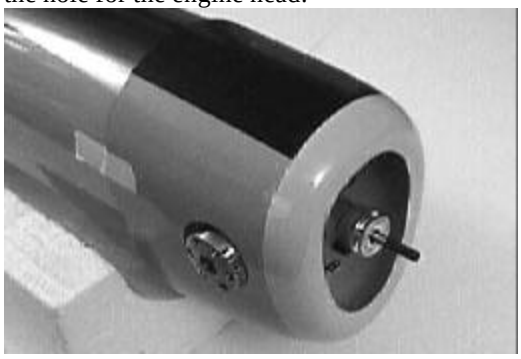
Before the first flight you should double check a few things to ensure a long life for your new plane.

1. Balance the P-47 with the fuel tank empty. Adjust as needed for your particular flying style, but start with the CG forward for the first few flights.
2. Check the control surface throws twice. You may want to change them later, but use the suggestions as a starting point.
3. Break in the engine and test run it. Have it ready before you head to the field.
4. Range check the radio with the engine running to make sure there are no intermittent radio problems.
5. Double check that all the hardware, nuts, bolts, and hinges are tight.

9 o'clock on the firewall, 1/8" over the outside edge of the firewall.

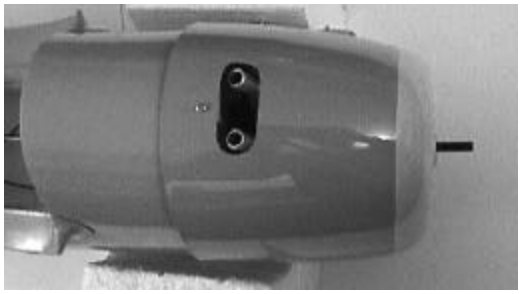


87. Remove the cowl and drill all needed holes. You may need to use a rotary tool and sanding drum or a small fine blade saw and sand paper to open the hole for the engine head.

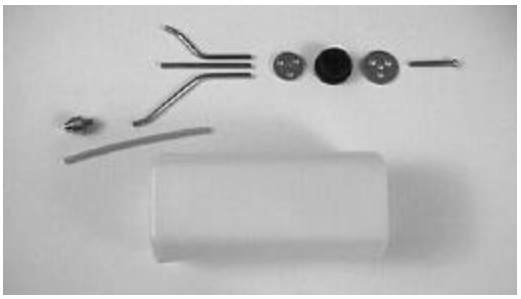


88. Reinstall your engine and test fit the cowl. Use the #4 screws to secure the cowl. Adjust the openings if needed.

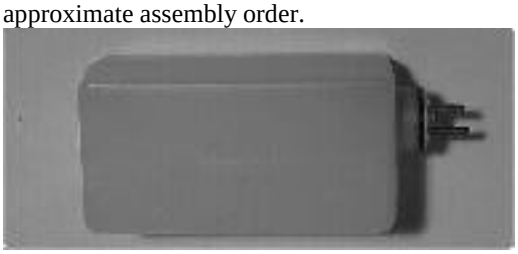
89. Check the area around the carburetor and adjust if it restricts the air flow.



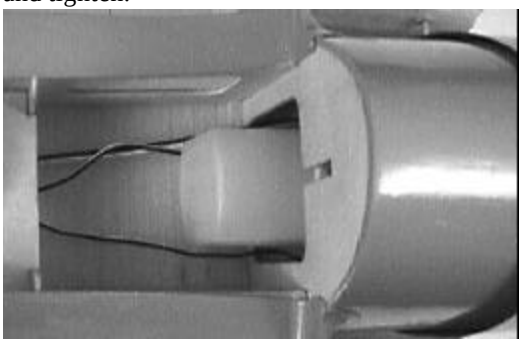
90. Install your muffler on the engine and test fit the cowl again. A "Pitts" style will require an opening as illustrated. Remove the cowl when done.



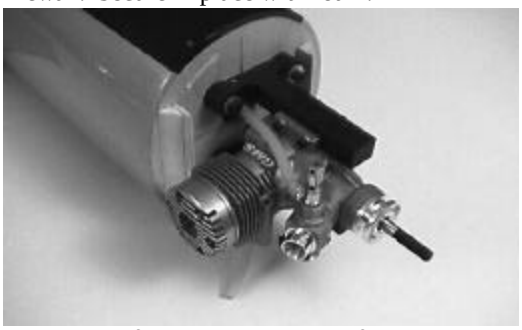
91. Locate the fuel tank and remove all the components for assembly. Check the inside of the tank for any dust or plastic shavings. Blow out if needed. The parts are shown in approximate assembly order.



92. Insert the metal fuel tubes in the fuel stopper. The long tube is for the fuel pickup, the med is for the vent line, and the straight is for an optional three line system for fueling. Insert the clunk on the end of the silicone fuel tubing and cut to required length that allow it to move freely at the end of the tank. Insert the nut and bolt in the stopper, then install the stopper in the tank and tighten.



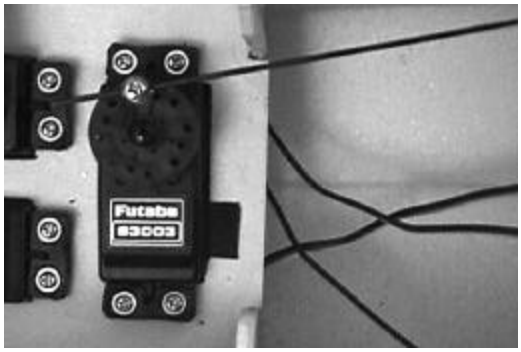
93. Slide the tank in the fuselage through the cut opening with the metal lines out through the firewall. Secure in place with foam.



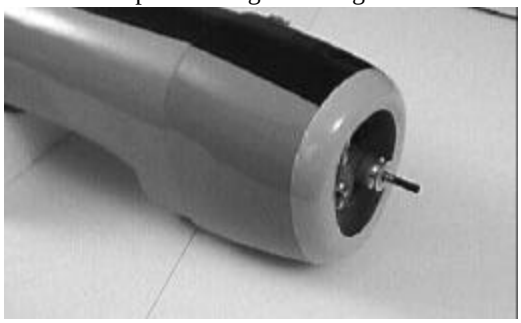
94. Install your fuel line on the end of the tank lines to the muffler pressure and carburetor fittings.

78. Slide the "z" bend of the engine control rod into the hole on the carburetor arm of your engine.
79. Make sure your carburetor and throttle servo are at low position. Reverse your servo if necessary. Install a servo horn on the throttle servo, with an arm back at an angle to the servo.

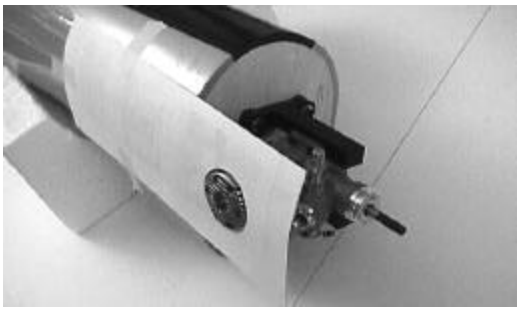
80. Install an EZ connector in the hole approximately the same length of the carburetor arm.



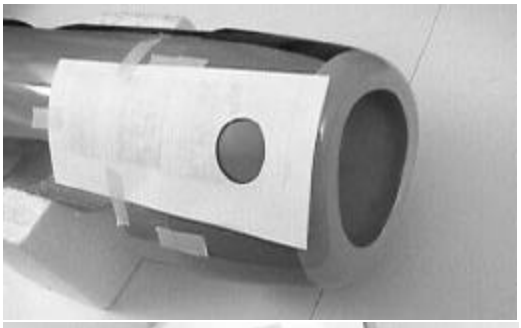
81. Trim the throttle control rod to approximate length, then insert through the hole in the EZ connector. Tighten the connector enough to test the throw of the servo and adjust as needed to allow for maximum throw, but not bind the servo. When satisfied, trim the control rod to ¼" past the EZ connector. Install the servo horn screw, but don't fasten the EZ connector yet, you will need to pull the engine out again soon.



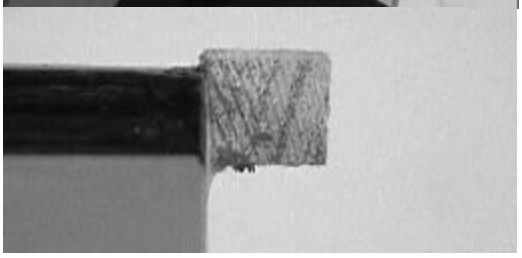
82. Test fit the cowl over the engine to see what needs to be relieved. If you use a .46, the engine should fit in the cowl, a larger motor will require a clearance hole on the side of the cowl.



83. Tape a strip of heavy paper on the side of the fuse as shown. Mark the areas that need to be cut, then cut out the holes on the paper.
84. Reposition the paper back on the fuse and secure in place. Do the same for the needle valve on the top of the fuse, and the cowl mounting holes on both sides. Remove the engine if it requires an access hole in the side of the cowl.



85. Place the cowl on the front of the fuselage and secure in place with tape. Mark all the holes with a pencil or water soluble marker.

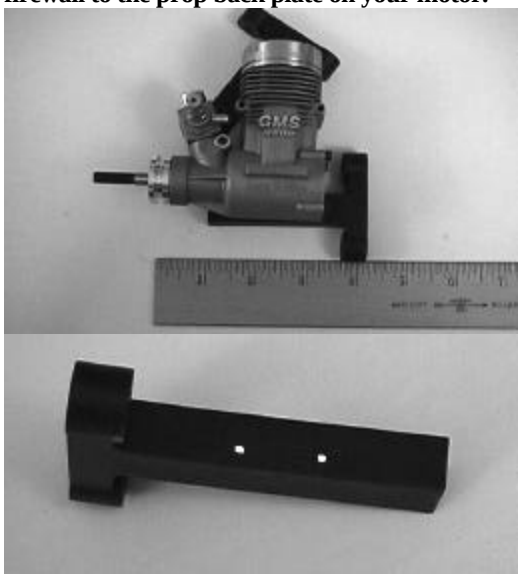


86. Mount the blocks in four places for cowl screws using epoxy. Position the blocks at 12, 3, 6, and

then drill a 1/16" diameter hole for the arm pin. Glue the pin in place with 30 minute epoxy.

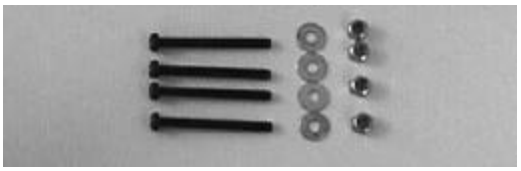
70. **Put a small piece of fuel tubing on each clevis to assure that they stay closed.**

71. Place the fiberglass cowl on a flat work surface and measure from the engine crank hole to the work surface with a ruler. Write down the length. **Subtract 1" from your measurement. This is the distance that will be from the firewall to the prop back plate on your motor.**

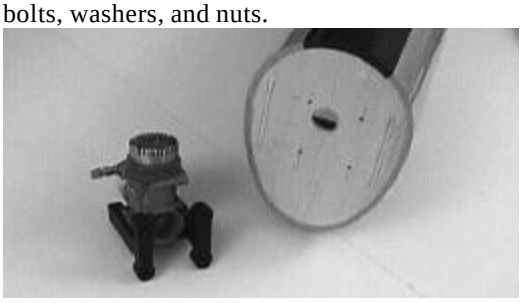


72. Place your engine in the engine mount. Space the engine from the rear of the engine mount using your ruler, until the prop back plate is at your required dimension. Use a pencil to mark the location of the engine mounting bolts on the mounts.

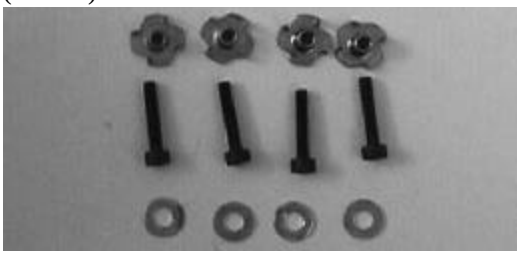
73. With the centers located, drill (4) .125" holes for the engine bolts.



74. Temporarily install your engine using the engine bolts, washers, and nuts.

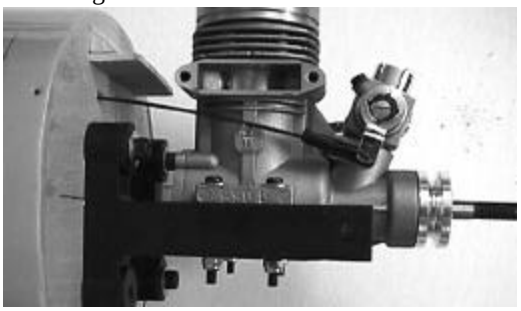


75. Draw two lines on the firewall, one centered vertically, one horizontal, centered on the plywood fuse sides. Position the engine and mount on the firewall, aligning the center lines of the engine to the lines on the firewall, then mark the centers of the mount holes on the firewall with a pencil. Drill the holes out with a 13/64 (or 5mm) drill.

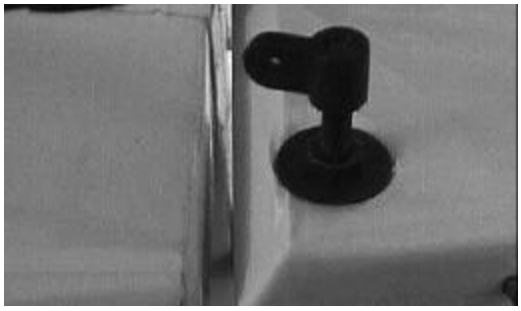


76. Use the 4mm bolts, blind nuts, and washers to mount the engine mount to the firewall. Use thread lock on the bolts.

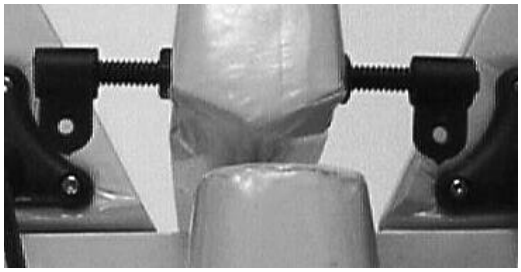
77. Double check the tightness of the engine mounting bolts.



mark, making an "L" bend, and insert the rod into the servo hole. Snap a rod keeper on the end of the rod.



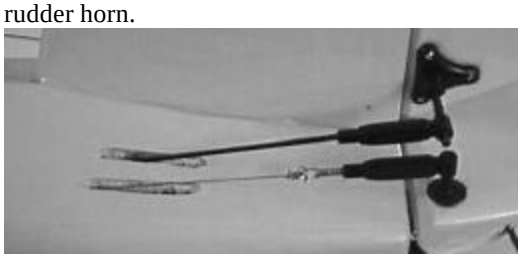
61. Install the rudder control horn through the hole at the base of the rudder. Secure in place with a washer and nut on both sides, keeping both sides equal length. Attach a coupler on the end of the rod.



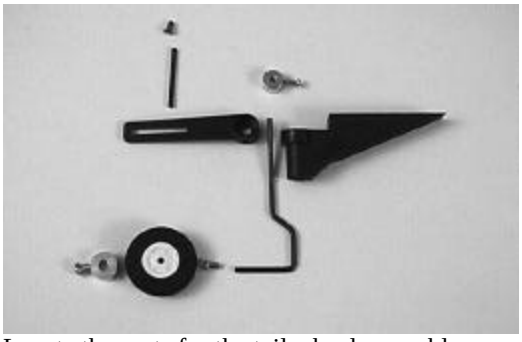
62. Install a coupler on the opposite side, keeping both sides equal length.

63. Construct two rudder cables by threading the cable couplers into two clevis. Snap the clevis onto a straight servo arm, both holes opposite each other from the center.

64. Feed the wires through the fuse and out the lower set of holes at the rear of the fuse. With the servo centered and the servo horn installed, attach a clevis and coupler on each side of the rudder horn.

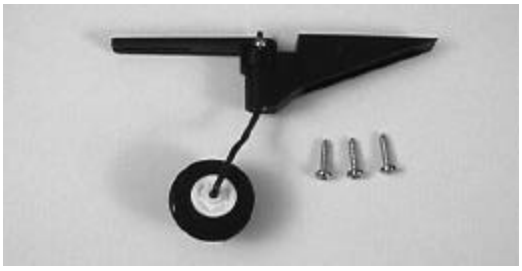


65. Attach the two cables in the same manner as the other end, keeping the cables snug. When attached, adjust the clevis on the couplers to remove any slack in the cables and to help center the rudder.

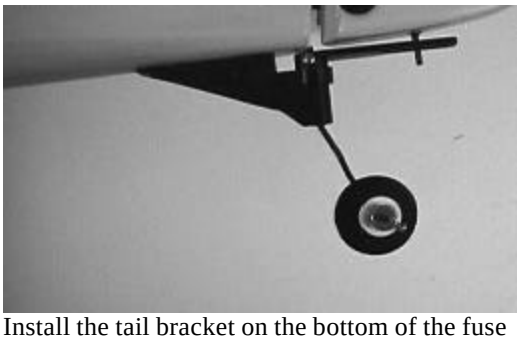


66. Locate the parts for the tail wheel assembly. Includes tail bracket, axle, control arm, arm pin, brass wheel spacer, wheel, 1 large and 1 small wheel collar and screw.

67. Insert the small wheel collar in the control arm and hold in place by starting the threads for the screw.



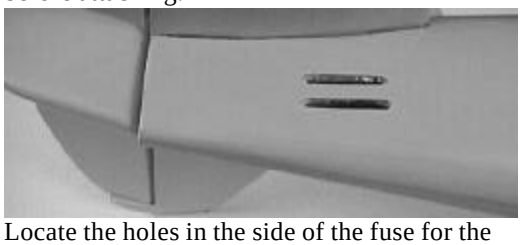
68. Assemble the tail bracket as shown, with the axle being held in place by the control arm. Place on brass spacer on the lower portion of the axle, then the wheel, then hold in place with the large wheel collar. Put a drop of CA or thread lock on the screws in the collars after all adjustments have been made.



69. Install the tail bracket on the bottom of the fuse using (3) ½ screws. Mark a location on the bottom of the rudder, 1-1/4" from the hinge line,

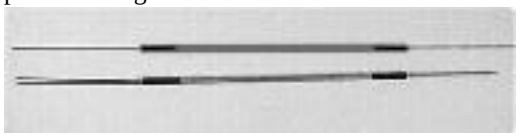
polish remover will clean up any excess CA.

51. Use 30 minute epoxy to glue the fin plate in place. Remove some of the covering on the fuse before attaching.

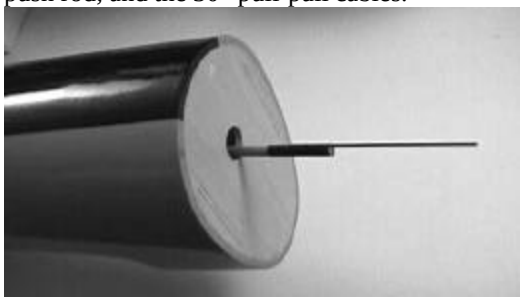


52. Locate the holes in the side of the fuse for the control rods to exit. There are two on both sides. Cut the covering from the slots with a sharp hobby knife.

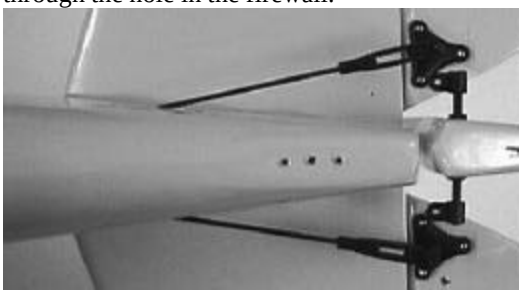
53. Install your servos in the servo tray in the fuselage. Depending on what servos you use, you may need to widen the servo openings. Drill a small pilot hole (1/32") for each servo screw, then install. Connect the servos to your radio and center trim tabs and controls. Temporarily press a straight servo horn in each servo.



54. Locate the two push rods, the pre-assembled "Y" push rod, and the 30" pull-pull cables.



55. Install the control rods in the fuse, and line the ends of the rods up with the hinge lines of the tail. You will have to slide the control rods through the hole in the firewall.



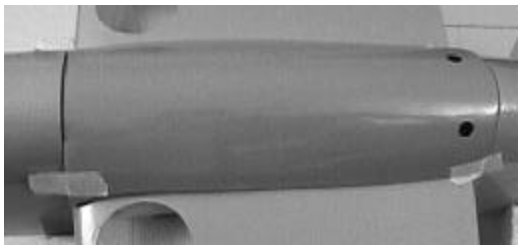
56. Carefully feed the control rods out of the fuse openings, bending the control rods into a "Y" as shown.

57. Hardware needed for each control surface (2 elevator halves). Locate the bag with the control hardware and pull out for each surface: (3) long screws, and upper and lower control horn half, (1) coupler, and (1) clevis.

58. Locate (2) control horns and line them up with the ends of the control rods. Mark through the holes with a pen, then drill through with a 1/16" drill. Install the horns with (3) screws in each horn, into the horn backing plates. Screw a clevis on each side of the elevator control rod and a coupler on each control horn, then snap the clevis onto the control horns.

59. Locate a control rod keeper in the hardware.

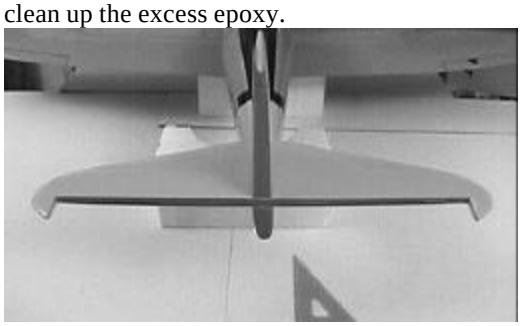
60. With the servos centered on your radio and the control surfaces centered on the tail, mark the intersections of the control rod and the servo arm holes, then add ¼". Cut the control rod with wire cutters, then bend 90 degrees at the servo



43. Test fit the wing center cover.
44. Mark the location of the cover with a pencil or water soluble marker on the wing and the fuse. Run a bead of 30 minute epoxy along the inside of the joint between the cover and the wing. Be careful to not get any glue in the joint of the wing and fuse. Clean any excess epoxy up with alcohol and a paper towel. Use masking tape to hold the cover in place until the glue has set.

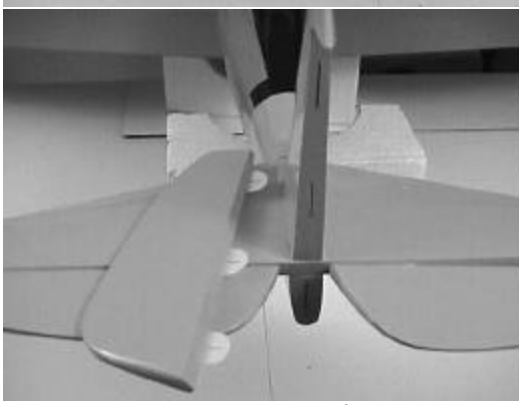
45. Test fit the alignment of the horizontal stabilizer on the rear of the fuse. It should align parallel to the wing. Align the stabilizer by measuring from each side to the center and equalizing the distance, then measure from the stabilizer tips to the trailing edge of the wing and set each side equal.

46. Mark the fuse/stab junction with a felt marker, then carefully trim the covering away from the joint area and not cutting the balsa underneath. Glue the horizontal stab in place with 30 minute epoxy, keeping the alignment parallel and then clean up the excess epoxy.

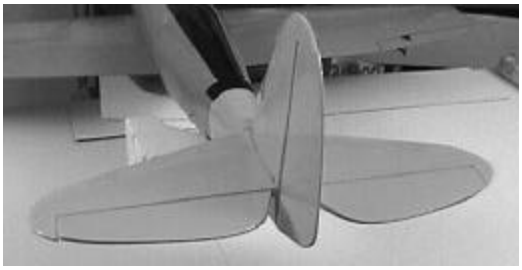


47. Temporarily install the vertical stabilizer in the horizontal slot at the rear of the fuse.

48. Mark the joint with a felt tip marker. Make sure the stabilizer is aligned at 90° to the horizontal stabilizer, then remove the stabilizer and remove the covering as was done with the horizontal stabilizer. Put some 30 minute epoxy in the slot and on the exposed balsa on the stabilizer, then slide together. Check that it is at 90° to the horizontal stabilizer. Wipe off any excess glue with alcohol and a paper towel. Let set until cured.



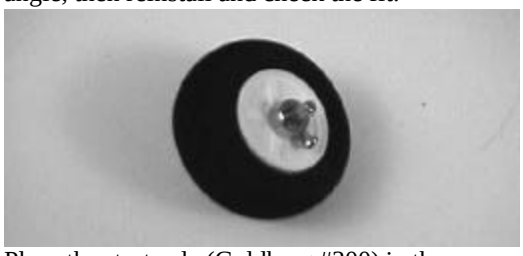
49. Locate the hinge slots in each of the elevator halves, rudder, and corresponding slots on the stabilizers, then open the covering with a sharp hobby blade. Test fit one of the (7) hinges in each of the slots.



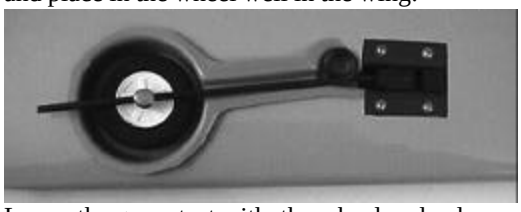
50. Install the control surfaces with the (7) hinges, leaving a small (1/32") gap, then place 2-3 drops of thin CA (Pink Zap) on each side of each hinge. A soft rag with some acetone or nail

33. Trim the plastic wheel well liner to 1/8" from the outline of the gear and test in place. Later, when the gear installation is complete, glue in place with epoxy.

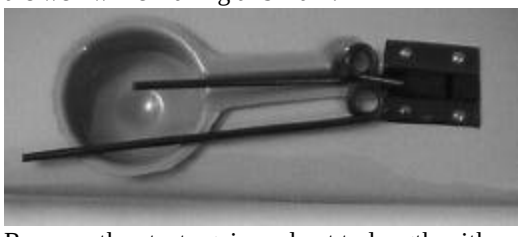
34. Test fit the strut in the gear. For the P-47, the strut angle will have to be changed. Place the strut in a vise and bend carefully to change the angle, then reinstall and check the fit.



35. Place the strut axle (Goldberg #300) in the wheel, then your wheel collar on the axle. Mark the length of the axle you need, then trim the axle with a dremel tool and cut off wheel **(REMEMBER TO WEAR SAFETY GLASSES)**. Assemble the wheel on the axle and place in the wheel well in the wing.

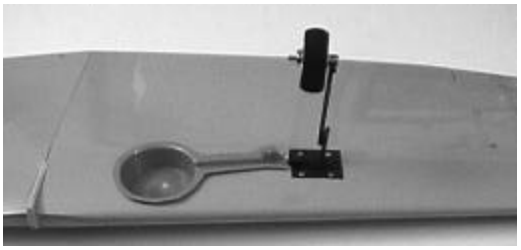


36. Lower the gear strut with the wheel and axle installed, then mark on the strut the length that the strut should be. Keep the wheel centered in the well while making this mark.



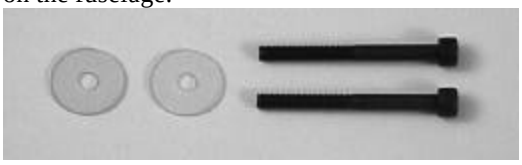
37. Remove the strut again and cut to length with a dremel tool and cut off wheel. Also use the cut off tool to make a flat spot on the strut where the screw for the axle will meet.

38. Reassemble the strut, wheel, and gear, using thread lock on the fasteners.

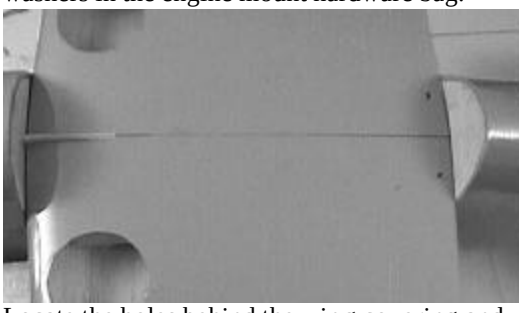


39. Check the alignment of the wheels in the extended position to make sure they are pointing straight.

40. Place a piece of tape around the wire for the retract servo to act as a label. This will help identify the servo wires while installing the wing on the fuselage.

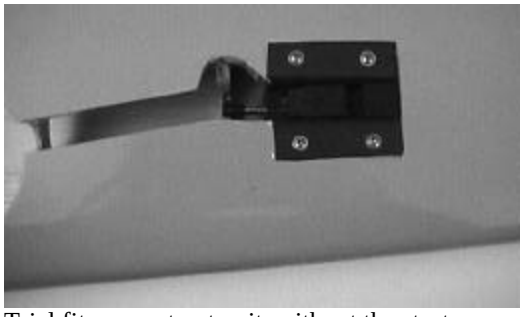


41. Locate the 4mm wing bolts and (2) plastic washers in the engine mount hardware bag.



42. Locate the holes behind the wing covering and pierce them with a sharp hobby blade. Test fit the wing on the fuse, then install the bolts.

26. Install the wheels on the axles with the collars and screws to hold it on. Use thread lock on the screw. **SKIP DOWN TO STEP 41.**

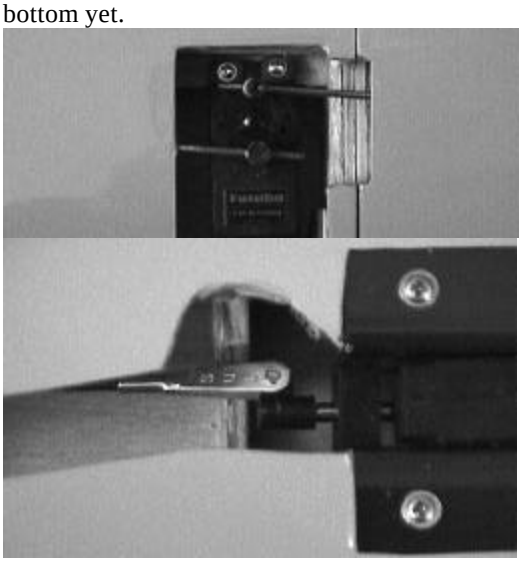


27. Trial fit your retract unit, without the strut attached, in the gear rails in the wing. Mark the hole centers with a pencil, then remove the gear and drill the holes for #6 sheet metal screws (NI). Reinstall the gear unit and fasten in place with the #6 screws.

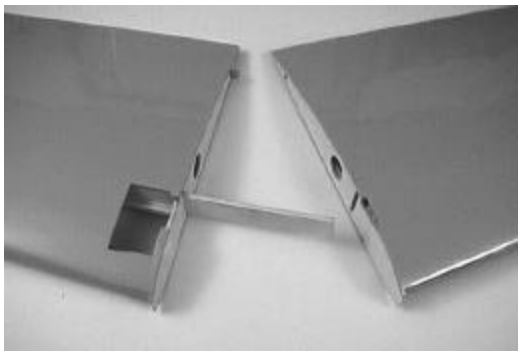
28. Assemble two 2-56 control rods (dubro #172) (NI) with a clevis (Sulivan #525) (NI) on the threaded end.

29. Install your retract servo in the opening in the top of the wing, using the hardware included with it. Carefully route the servo lead out of the opening. Center the servo by connecting it to your radio gear and turning the system on. Make sure it is connected to a retract channel and travel is set to 100%. Remove the screw from the servo horn.

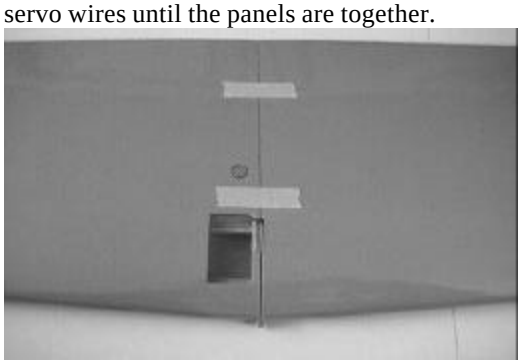
30. Temporarily install (2) "EZ" connectors (Dubro #121) at the top and bottom of a round servo wheel. Don't put the connector keeper on the bottom yet.



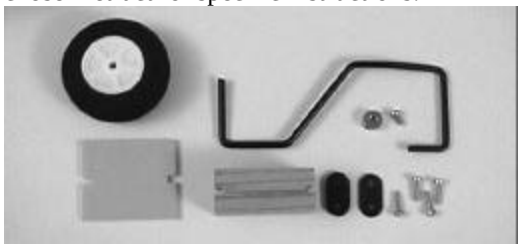
31. Fit the (2) control rods on the end of the gear units and run the other end through the wing openings to the "EZ" connectors on top of the servo. You will need to trim the lengths of the rods to about ¼" to 3/8" past the "EZ" connector.
32. You will want to test the throw of the servo now. First, cycle the servo with the servo horn pulled off the top of the servo, so that you can check the direction of throw. Now press the horn back on, and only lightly tighten the "EZ" connectors (you don't want to damage any of the equipment by binding the system). Cycle the gear system, watching for binding or enough servo travel. Pull up and rotate the servo horn to adjust the amount of travel until the gear go from a fully up and locked position to a fully extended and locked position. If you can't get the gear to fully extend, or can't get them to stop binding, you will need to drill a new hole in a servo wheel either closer to the center to reduce throw, or further from the center to increase throw. *(As retract servos are only capable of on/off switching, you can not adjust them using endpoint adjustments on computer radios).*



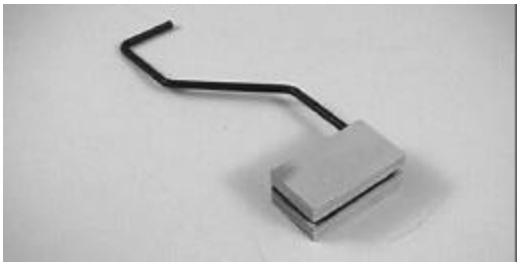
18. Prepare the wing sections for joining, first by test fitting the plywood dihedral braces. Pull the servo wire from the wing panels. Apply 30 minute epoxy to the dihedral brace the dowel pin, and both surfaces of the wing panels. Slide the brace into the first panel, then the second. Pull the servo wire through the center section, being careful to not get any glue on the connector (you can protect the connector by wrapping it with a piece of tape). Slide the wing panels together while pulling the slack from the servo wires until the panels are together.



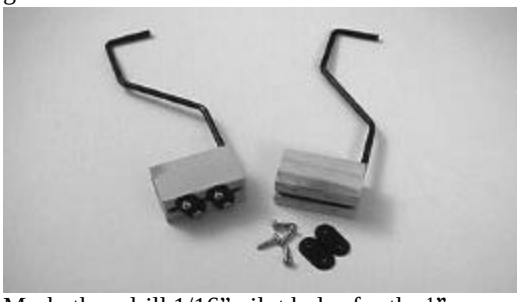
19. Wipe any excess epoxy from the covering with alcohol, then clamp together with masking tape over the joint. Let set until cured.
20. Now is the time to decide if you will use the included fixed landing gear, or install retractable landing gear, not included (NI). If you are using the fixed gear, continue with step 21. If you are going to use retractable gear, go to step 27. Please note that not all retract units are the same and we cannot fully describe how to install every unit. Therefore we are showing a general instruction for a mechanical gear setup. Please refer to the instructions included with you chosen retract for specific instructions.



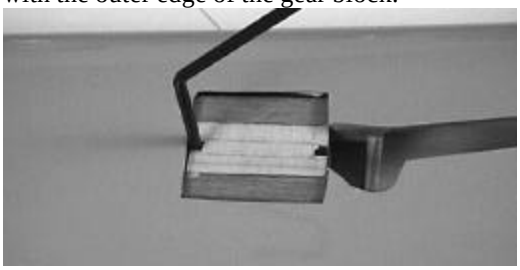
21. Locate the bag containing the fixed landing gear components. Each side will require (1) covered plate, (1) wheel, (1) wire gear, (1) notched gear block, (2) plastic gear straps, (4) ½ screws, (1) wheel collar and screw.



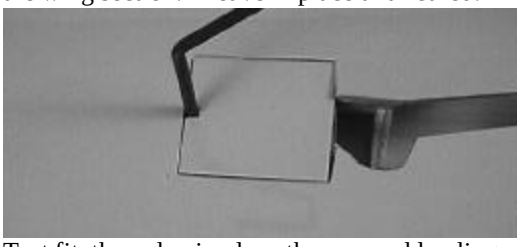
22. Fit the landing gear wire in the notches of the gear block.



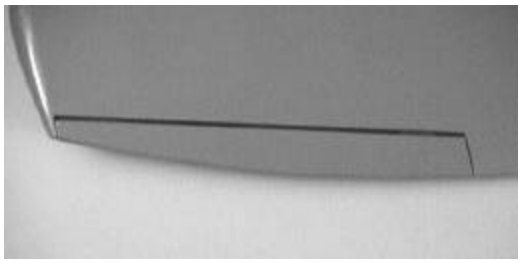
23. Mark, then drill 1/16" pilot holes for the ½ screws, using the gear straps as guides. Fasten the gear straps in place using (4) ½ screws. Sand any portion of the landing gear strap flush with the outer edge of the gear block.



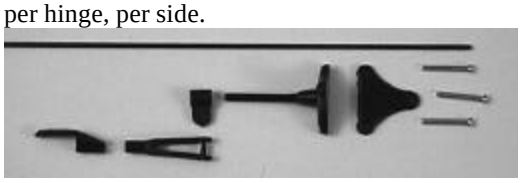
24. Test fit the block, then glue in place with 30 minute epoxy, keeping the edges of the block flush with the edges of the landing gear rails in the wing section. Leave in place until cured.



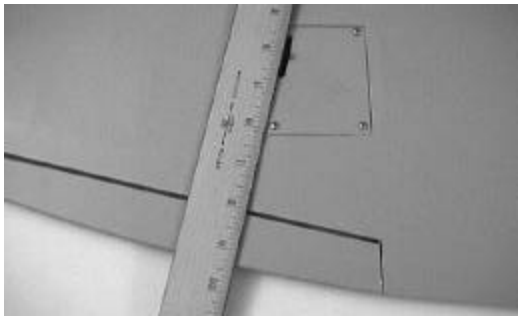
25. Test fit, then glue in place the covered landing gear cover plate. Use 30 minute epoxy. Clean any extra glue off the covering with alcohol.



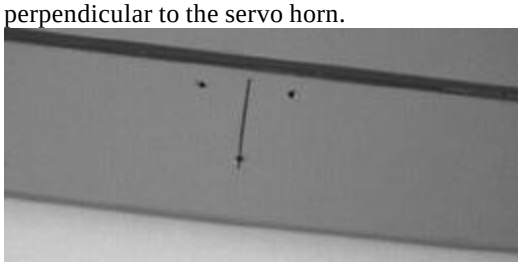
9. Slide the ailerons in place, then glue the hinges in place with thin CA. Use two or three drops per hinge, per side.



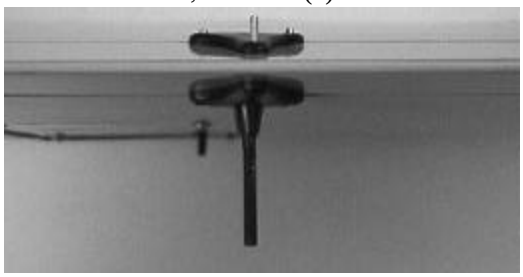
10. Locate the bag with the aileron hardware and pull out for each aileron: (3) long screws, and upper and lower control horn half, (1) aileron coupler, (1) clevis, and (1) rod keeper. Pull out (1) black control rod 8" long from the wire bundle for each side.



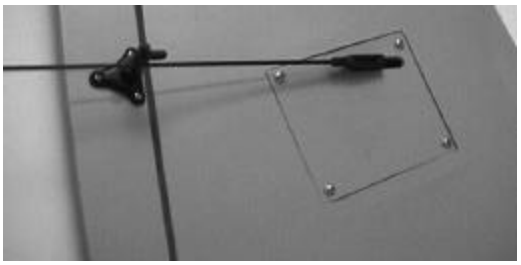
11. Mark a position on the aileron that is perpendicular to the servo horn.



12. Use the aileron horn to mark the location of the holes to be drilled, then drill (3) 1/16" holes.

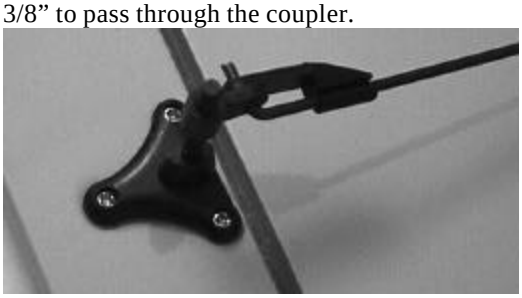


13. Install the aileron horns with the threaded portion on the bottom of the wing and the backing plate on the top of the wing.



14. Thread the aileron coupler on the horn and the clevis on the control rod. Snap the clevis on the servo horn sticking out of the servo plate.

15. Align the control rod with the horn and bend the rod 90 degrees at the position where the rod should pass through the coupler. When bent, use wire cutters to cut the excess off, leaving ¼ to 3/8" to pass through the coupler.



16. Snap the aileron rod keeper on the end of the rod as shown. Make sure you install both the left and right side ailerons. If you need to adjust the aileron linkage, just pop off the keeper, adjust, and re-install.

17. Mark a ½ hole above one of the servo wire exits, on one half of the wings only. Mark the hole on the top of the wing.

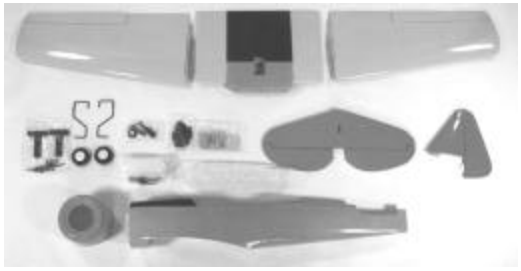
BUILDING INSTRUCTIONS

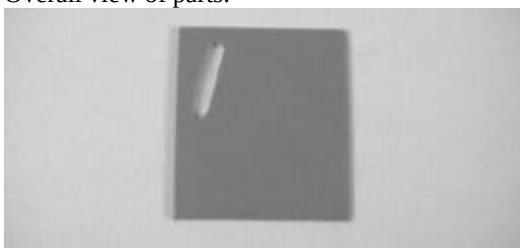
Before starting to build this kit, we urge you to read through these instructions thoroughly. They contain some important building sequences as well as instructions and warnings concerning the assembly and use of the model.

BUILDING SUPPLIES NEEDED

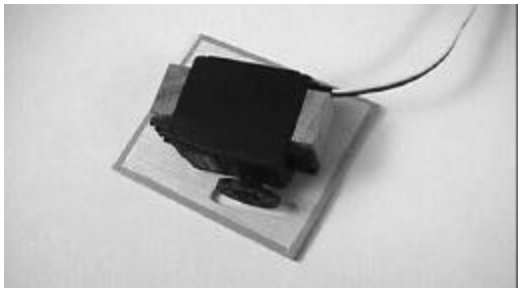
Hobby knife w/ #11 blade
Wire cutters
Pliers
Drill with bits: 1/32", 1/16", 13/64 (5mm)"
Screw drivers
Hex drivers for 3 and 4 mm bolts
Masking tape
Ruler
Water soluble marker
Thread Lock
Rotary tool and bits
Paper towels
Alcohol
Square

See the list at the end of the instruction book for a list of additional R/C equipment you will need to complete the P-47 arf.

1. 
2. Overall view of parts.

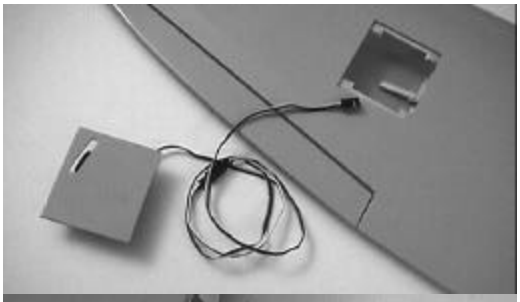


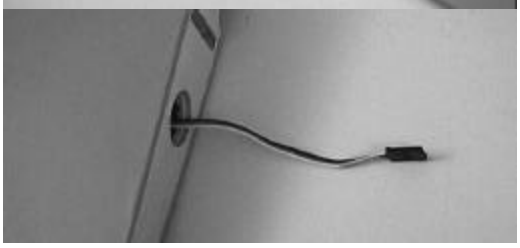
3. Remove the servo plate from both wing halves. Use a sharp hobby blade to remove the covering from the horn exit hole.



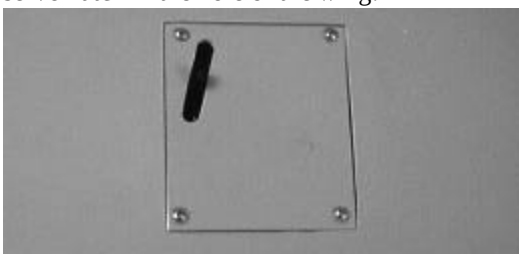
4. Using your servo as a guide, position and mark the location of the servo mounting blocks. Fasten in place with 30 minute epoxy. When cured, secure the servo with the screws provided with the servo.

5. Center you servo with your radio, then attach a single servo horn, extended out of the servo hole 90 degrees to the servo and secure with the servo screw.

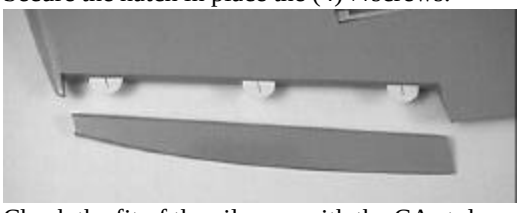




6. Attach a servo extension to each servo lead and secure with tape. Pass the wire through the wing section using the installed string, then place the servo hatch in the hole of the wing.



7. Secure the hatch in place the (4) ¼ screws.



8. Check the fit of the ailerons with the CA style hinges. Each aileron should have (3) hinges.

Lanier R/C

.40-.46 P-47

Almost Ready to Fly

WARNING! THIS IS NOT A TOY!

THIS IS NOT A BEGINNERS AIRPLANE

This R/C kit and the model you will build from it is not a toy! It is capable of serious bodily harm and property damage. It is your responsibility, and yours alone - to build this kit correctly, properly install all R/C components and flying gear (engine, tank, radio, pushrods, etc. and to test the model and fly it only with experienced, competent help, using commonsense and in accordance with all safety standards as set forth in the Academy of Model Aeronautics Safety Code. It is suggested that you join the AMA and become properly insured before attempting to fly this model. If you are just starting R/C modeling, consul your local hobby dealer or write to the Academy of Model Aeronautics to find an experienced instructor in your area.

Write to: Academy of Model Aeronautics, 5151 Memorial Dr. Muncie, IN 47302

LIMITED WARRANTY

Lanier R/C is proud of the care and attention that goes into the manufacture of parts for its model kits. The company warrants that for a period of 90 days, it will replace, at the buyers request, any part or material shown to the company's satisfaction to have been defective in workmanship or material at the time of purchase.

No other warranty of any kind, expressed or implied, is made with respect to the merchandise sold by the company. The buyer acknowledges and understands that he is purchasing only a component kit from which the buyer will himself construct a finished flying model airplane. The company is neither the manufacturer of such a flying model airplane, nor a seller of it. The buyer hereby assumes the risk and all liability for personal or property damage or injury arising out of the buyers use of the components or the finished flying model airplane, whenever any such damage or injury shall occur.

Any action brought forth against the company, based on the breach of the contract of sale to the buyer, or on any alleged warranty thereunder, must be brought within one year of the date of such sale, or there after be barred. This one-year limitation is imposed by agreement of the parties as permitted by the laws of the state of Georgia.