

1/5 PT-17 STEARMAN ARF

RADIO CONTROLLED MODEL AIRPLANE

INSTRUCTION MANUAL

Shown with optional upgraded scale dummy engine, electric motor and propeller.



Congratulations on your acquisition of a Maxford USA ARF PT-17 Stearman!

The PT-17 is a biplane that was used as a military trainer by the US Army Air Corps during the 1930s and served throughout WWII. The PT-17 is also widely known as the Stearman, Boeing Stearman, Boeing Model 75, or the Kaydet. At least 9,783 were built and thousands of surplus PT-17s were sold on the civil market after the conflict.

This almost-ready-to-fly radio-control version of the PT-17 is based on the aircraft that is owned by John Mohr, who very kindly sent us many detailed pictures of his personal aircraft. We also acknowledge and thank Jay Smith, editor of Model Aviation, for his help and advice on this project.

This model is constructed mainly of laser-cut balsa and light plywood. As shown above, it is finished with a Mylar film covering. It may also be special-ordered with a flat-finish Mylar or as a fabric-covered and repainted ARF.

We invite you to enjoy the pride of ownership and the joy of flying your high-quality balsa and light-ply almost-ready-to-fly version of this historic aircraft.

Maxford USA[®]

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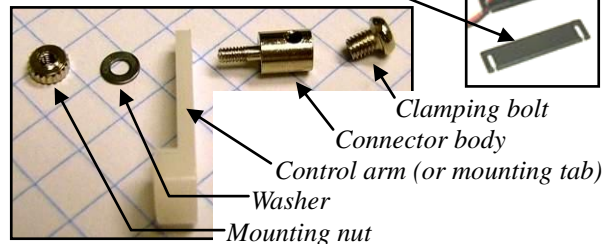
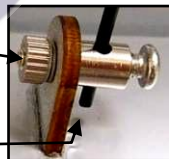
I. SAFETY PRECAUTIONS & ASSEMBLY TIPS:

(IMPORTANT – READ THIS SECTION BEFORE YOU BEGIN ASSEMBLY)

1. This product should not be considered a toy, but rather a sophisticated, working model that functions much like a full-scale airplane. Because of its performance capabilities, this product, if not assembled and operated correctly, could cause injury to you or spectators and damage to property. Maxford USA provides you with a high-quality, thoroughly tested model airplane kit with assembly instructions. However, the quality and capabilities of your finished model airplane depend on how you assemble it, and your safety depends on how you use and fly it. Any testing or flying of this model airplane is done entirely at your own risk.
2. Assemble this model airplane according to these instructions. Do not alter or modify the model beyond the assembly and power system options covered in these instructions, as doing so may result in an unsafe or unworkable model. In a few cases the instructions may differ slightly from the photos; in those instances the written instructions should be considered as correct. If you have a question or concern about these instructions, before you proceed with assembly of this product, contact your dealer or speak to a Maxford USA customer service representative at 562-529-3988 (Monday through Friday, except national holidays, 9 AM to 5 PM Pacific time).
3. While this kit has been flight-tested to meet or exceed our rigid performance and reliability standards in normal use, if you elect to perform any extremely high-stress flying, such as racing or advanced aerobatics, or if you install a larger power system than specified, you (the buyer or user of this product) are solely responsible for taking any and all necessary steps to reinforce the high-stress points and/or substitute hardware that is more suitable for such increased stresses.
4. Throughout the lifetime of this model, use only the Maxford USA-recommended or same-sized engine or motor and a new or well-maintained radio control system and batteries recommended by the maker of your motor and radio system.
5. It is your responsibility to install the R/C system and other components in such a way that this model airplane passes all applicable safety/range tests and that the power system and controls operate correctly and smoothly.
6. Recheck the operation of this model airplane before every flight to ensure that all equipment is still operating correctly and that the model has remained structurally sound. Also before every flight, check all electrical and structural connections; do not fly without properly connecting or replacing any that you find poorly connected, damaged or worn.
7. Before you begin assembly of this model airplane, read all instructions and test-fit each part to ensure you fully understand the instructions and that no parts are missing, damaged or unsatisfactory. Temperature and/or humidity differences between the factory, our warehouse and your home or workshop may dictate the need for slight adjustments to the wings, struts and/or the vertical or horizontal stabilizer's mounting surfaces to ensure proper alignment; however, we recommend you contact us before you attempt any such adjustment(s).

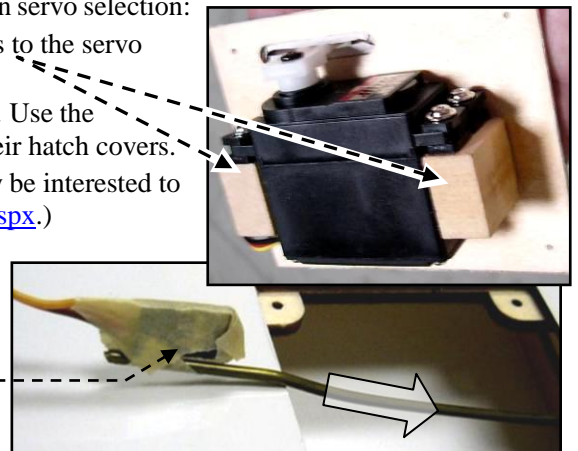
8. To help ensure the security of any in-line servo-type connections, optional Maxford USA servo-extension safety clips are recommended.

9. Assemble EZ Link connectors (whether included or an option for this model). As shown at the right, when applying threadlock compound or CA adhesive, be careful to **NOT** glue the EZ Link connector to the control arm or mounting tab; also be careful to not let the pushrod rub or bind against nearby surfaces.



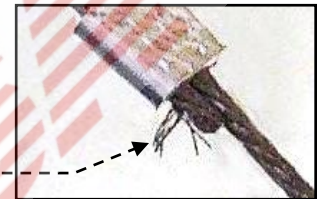
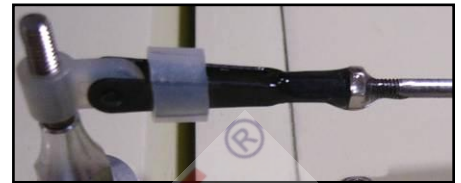
10. As shown at the right, this model allows customers some choice in aileron servo selection:

- a. Test-fit your aileron servos and the supplied wood mounting pedestals to the servo hatch covers.
- b. Use epoxy to attach the mounting pedestals to each servo hatch cover. Use the hardware provided with your servos to mount the aileron servos to their hatch covers.
- c. Using your radio or a servo tester, center the aileron servos. (You may be interested to learn more about servo testers at <http://www.maxfordusa.com/servo.aspx>.)
- d. String may be supplied to pull your servo's lead and servo extension through the wing to your radio receiver; however, you may find it easier to use masking tape to temporarily attach the connector to the end of a length of coat-hanger wire, then use the wire to pull the lead and connector through the airframe as shown at the right.
- e. Guide the servo into the servo bay, cover the servo bay with the servo-hatch and secure the hatch with screws or glue.



11. After you have determined each servo-mounting-screw's location, apply thin CA adhesive to harden the wood where the servo's mounting screws will be inserted.

12. If Mylar hides a CA hinge's slot, find and open the slot by carefully pressing with a fingernail or sharp hobby knife.
13. Use the tip of a hot soldering iron to burn and remove any Mylar covering material to obtain good wood- to-wood gluing surfaces at the horizontal and vertical stabilizers.
14. We recommend 30-minute epoxy for permanent attachment of critical parts such as where the horizontal and vertical stabilizers attach to the fuselage.
15. If you have concern about the security of any factory fabrication procedure(s), we recommend you apply 30-minute epoxy around the perimeter of such part(s) as an extra safety precaution.
16. We recommend use of a thread-locking compound to secure all hardware from vibration. Also, once the included clevises are adjusted, we suggest you coat each clevis and rod with epoxy to securely and safely affix each clevis to its rod. As a safety precaution, always check each clevis before and after each flight.
17. This model includes some fiberglass or carbon-fiber reinforced parts. If you drill, grind or sand a fiberglass or carbon-fiber reinforced part, always wear safety goggles, a particle mask and rubber gloves to guard yourself from eye, skin and respiratory-tract irritation; never blow into the part to remove fiberglass or carbon fiber dust (the dust may blow back into your face).
18. Check the Mylar covering material's joints and surfaces; if necessary, carefully use an iron (do NOT set the iron's temperature too high) to secure the edges and to tighten any loosened areas. Recheck and retighten from time to time.
19. For your safety, do NOT leave any strands of wire poking out from the end of any crimp tube. Exposed small steel strands can be sharp enough to cut or abrade skin!-----
20. Minor production details may vary.
21. If you are not an experienced ARF assembler or R/C pilot or have not flown this type of model before, we strongly urge you to get assistance from an experienced ARF assembler or R/C pilot.
22. Periodically check any preinstalled magnets to ensure they remain securely positioned.
23. Read all instructions included with your batteries and charger. Failure to follow all instructions could result in permanent damage to the battery, its surroundings, and bodily harm! If you crash this model airplane, check whether the batteries are damaged. Do NOT attempt to use or recharge a damaged battery.



II. WARRANTY, LIABILITY WAIVER, AND RETURN POLICY

Maxford USA guarantees this kit to be free from defects in material and workmanship at the time of purchase. All of our products have been inspected in our factory and are checked again when shipped from our warehouse.

However, Maxford USA cannot directly control the materials you may use nor your final-assembly process. Therefore, Maxford USA can NOT in any way guarantee the performance of your finished model airplane. Furthermore, in purchasing this product, you (the buyer or user of this product) exempt, waive, and relieve Maxford USA from all current or future liability for any personal injury, property damage, or wrongful death, and if you (the buyer or user of this product) are involved in any claim or suit, you will not sue Maxford USA or any of its representatives.

If you do not fully accept the above liability and waiver, you may request a return merchandise authorization number (RMA#) as explained in item 2, below.

If you think there is a missing part or any shipping damage, please read our after-sales service and return policy as outlined below.

1. Inspect your order upon delivery for any shipping damage or missing part. If you find a problem you must contact us within 10 days from receipt of your purchase by calling (562) 529-3988, Monday through Friday, except holidays, between the hours of 8:30 AM and 5 PM Pacific time. During this telephone conversation, and with your support, we will determine how to resolve your concern. (Note: Maxford USA batteries are sold without warranty and are not eligible for return or credit.)
2. To request an RMA#, call (562) 529-3988, Monday through Friday, except holidays, between the hours of 8:30 AM to 5 PM Pacific time. If we elect to issue you an RMA#, you must clearly mark this RMA# on the outside of the package. (No return or exchange will be authorized after 10 days from the date of your receipt of the product; any package delivered to us without a Maxford USA RMA# is subject to being returned to the sender, as received, with return postage payable upon delivery.) Returned merchandise must be in its original condition as received from Maxford USA, with no assembly or modification, in the original packing materials, complete with all manuals and accessories. Return shipping and insurance charges must be prepaid by you, the buyer.
3. Returned merchandise that is accepted by Maxford USA for credit is subject to a 10% to 20% restocking fee (the final amount will be determined by Maxford USA upon receipt and examination of the returned merchandise).

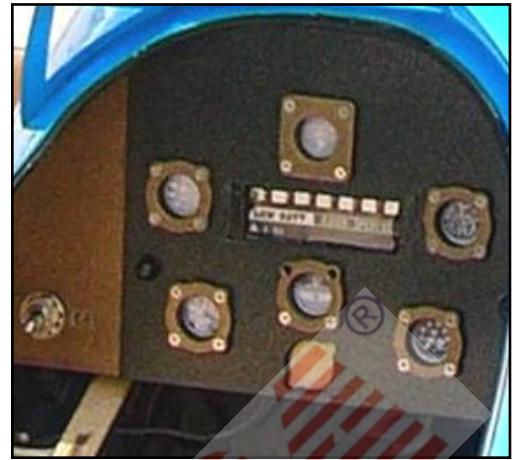
Return Address: **Maxford USA RC Model Distribution, Inc.**

15939 Illinois Avenue #C

Paramount, CA 90723 (Print the RMA# issued by Maxford USA on the package near the address.)

III. SPECIAL FEATURES OF THIS PT-17 MODEL

- Wing panel sets are removable for ease of storage and transport.
- Includes a plastic dummy engine. An optional built-up wood dummy engine is available as an upgrade.
- Each aileron is operated by its own in-wing servo (servos not included).
- Steerable tail wheel – controlled by a dedicated tail wheel steering servo (servos are not included with this ARF).
- Streamlined landing gear.
- Pull-pull rudder cables.
- Stick-on decal set.
- Wing support kit is included for safe transport and storage.
- Dashboard set available as an optional upgrade, includes an LED radio-system voltage indicator, radio-power switch and charge-connector.



IV. SPECIFICATIONS *

Wingspan	77 inches
Wing Area	1,686 square inches
Length	57 inches
ARF weight	14 pounds and 4 ounces
Flying weight	15 pounds and 14 ounces
Engine required (Not included)	90 to 120 glow or an equivalent electric power system such as the Uranus 638109 brushless motor and 100 Amp High Voltage Brushless Controller
Propeller (Not included)	18 to 20 inch (as recommended for your power system)
Radio system (Not included)	Minimum of 4 channels and 5 standard servos (a 6 th servo is needed to control the throttle if a gas or glow engine is used)

*(All dimensions and weights are approximate.)

V. PARTS LIST

1. Items you must supply to complete this PT-17:

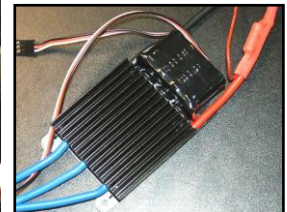
- 5- and 30-minute epoxy or aliphatic resin glue, thin and thick Cyanoacrylate (CA) adhesives.
- Pliers, Allen wrenches, a high speed rotary tool, scissors and masking tape.
- 90 to 120 glow engine, or an equivalent-powered motor system.
(See <http://www.maxfordusa.com/brushlessmotorandcontroller.aspx> for detailed information about Maxford USA electric power systems.)
- Propeller.
- Five standard-sized servos (four standard servos if you use an electric power system), two 18-inch extensions, one 6-inch Y-connector, and a minimum of a 4-channel radio-control system.
- Optional upgrade items:



Optional Uranus 638109 brushless motor (above) and 100 Amp High Voltage Brushless Electronic Speed Control (shown below)



Optional upgraded balsa and light ply dummy engine

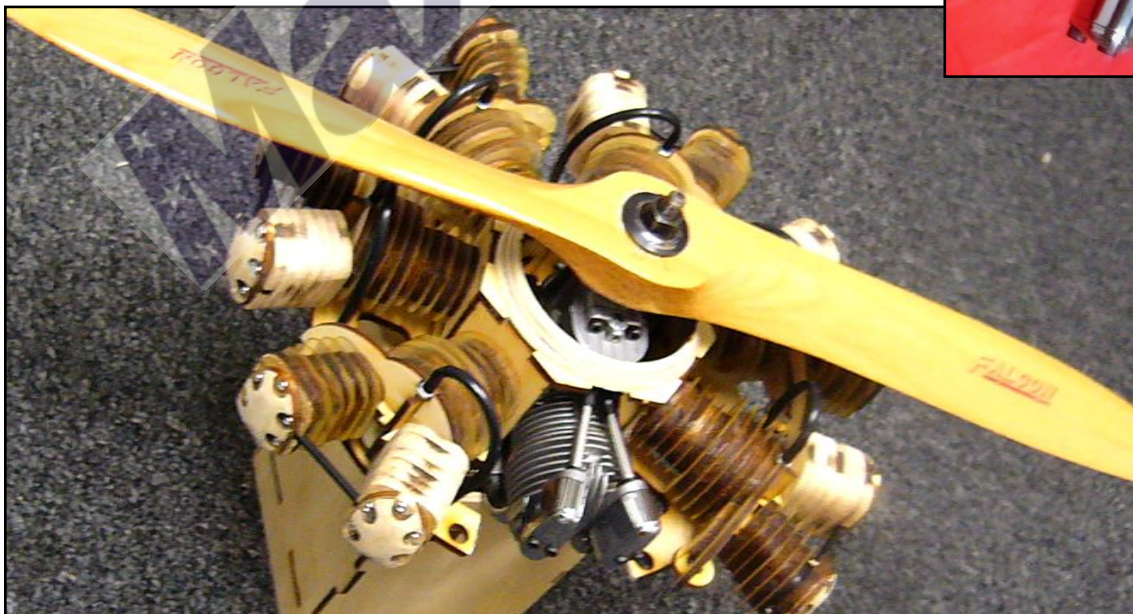
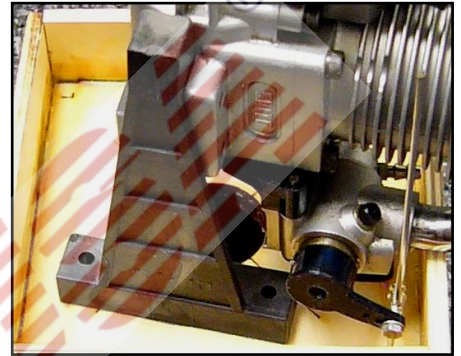
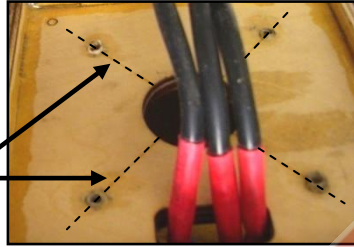


2. Items included with this PT-17:

- Prepainted plastic dummy radial engine.
- Precovered fuselage, upper and lower-wing panels, upper-wing's center section, vertical and horizontal stabilizers, rudder and elevator, with precut hinge openings.
- All necessary hardware for pull-pull cables for rudder and tail wheel and pushrods for ailerons and elevator.
- Wing-rod joiners, preformed cabanes and struts, and all required control horns, hinges, linkages, wing wires, tail braces and related hardware.
- Streamlined landing gear with scale-like wheels.
- Complete set of scale markings.
- Magnetically-secured cockpit-hatch assembly.

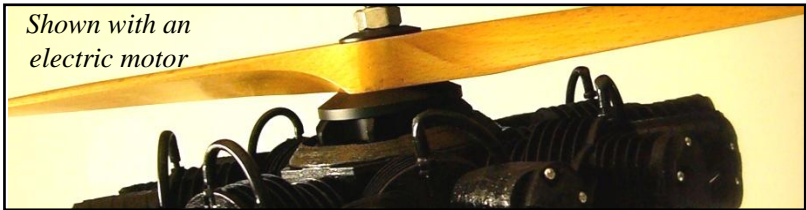
VI. ASSEMBLY PHOTO-INSTRUCTIONS

1. Using the mounting hardware supplied with your motor or a mount recommended for your engine (not supplied), test-fit your motor or glow engine to the forward-facing surface of the engine mounting box ('firewall'). Center the propeller shaft on the intersecting lines on the firewall that form an 'X.' Mark the firewall where openings are needed for mounting your motor or engine. If you are using a glow engine, point the engine's cylinder head toward the ground. (Use the "L" and "R" on the sides of the engine mounting box as viewed from the pilot's seat to determine which way is "down.")
2. If you are using a glow engine: Decide where to install your throttle servo and mark where to make an opening for the throttle pushrod and fuel line (not supplied).
3. Form all necessary openings in the firewall. Mount your engine or motor onto the firewall (use threadlock compound to help protect the motor or engine mounts from vibration).
4. Insert the engine mounting box into the fuselage with the side marked "L" toward the pilot's left-hand side to maintain the right and down thrust built into the engine mounting box's firewall.
5. If you use an electric motor: Test-fit the dummy engine over your motor and to the PT-17's nose. If you use a glow engine: As pictured below, remove one dummy-engine cylinder and its adjoining crankcase to test-fit the dummy engine over your glow engine; also remove material from a neighboring cylinder to make room for your engine's exhaust pipe and muffler if necessary.



NOTE: The unpainted dummy engine pictured in several places in this manual is a prototype; details of construction may vary. All dummy engines produced for this ARF will be prepainted when shipped.

6. Test-fit the dummy engine over your electric motor or glow engine and to the PT-17's nose and adjust the depth of the engine mounting box in the fuselage to position the propeller for a minimum of 1/4-inch clearance in front of the dummy engine as shown at the right.



7. If a glow engine is used, install and connect your throttle pushrod and fuel line (not supplied).



8. When satisfied with the position and fit of your electric motor or engine, propeller and dummy engine, use glue or wood screws to secure the engine mounting box into its opening inside the fuselage as pictured below. (NOTE: Possible future repairs are more difficult if the engine mounting box is glued.)

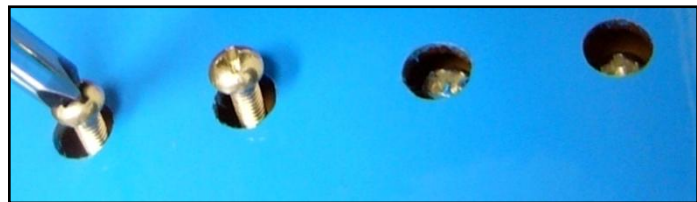
9. If you use a glow engine: Install the fuel tank inside the engine mounting box. If you use an electric motor: Insert a piece of foam rubber (not included) inside the front of the engine mounting box to cushion and protect your flight battery.



10. Use epoxy to glue 3 pieces of wood spaced equally behind the nose ring. When the glue is fully cured, secure the dummy engine to the nose by driving 3 wood screws through the dummy engine's mounting ring, through the nose ring and into the added wooden. (SUGGESTION: Drill small guide holes before driving in these wood screws.)

11. Slide the upper ends of the landing gear's struts into their slots in the fuselage.

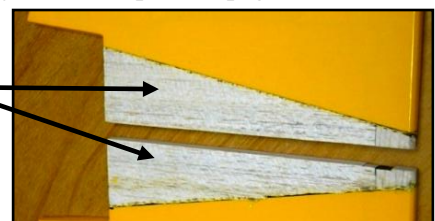
12. Secure the struts to the fuselage by driving bolts into the blind nuts preinstalled in the fuselage.



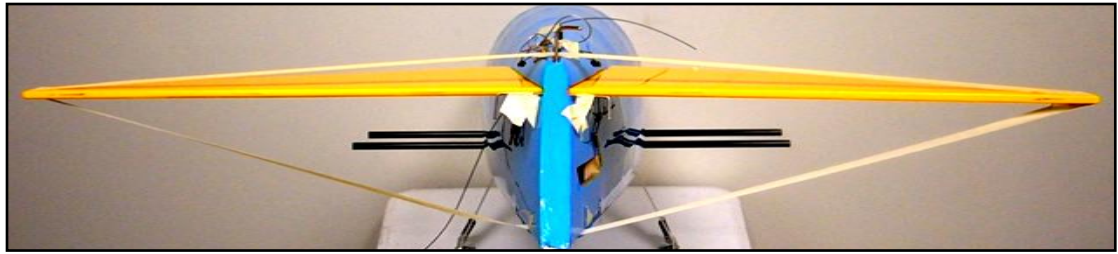
13. Slide the lower wing's composite wing rods into their openings and midway through the fuselage.

14. Test-fit the elevator joiner and both halves of the horizontal stabilizer into their openings at each side of the fuselage. (NOTE: Position the horiz. stab. fully forward for clearance to insert the elevator joiner in step 51 on page 9.)

15. To ensure good wood-to-wood glueing surfaces between the horizontal stabilizer and the fuselage, remove the Mylar from the parts of the horizontal stabizer that will be captured inside the openings in the fuselage as pictured at the right.



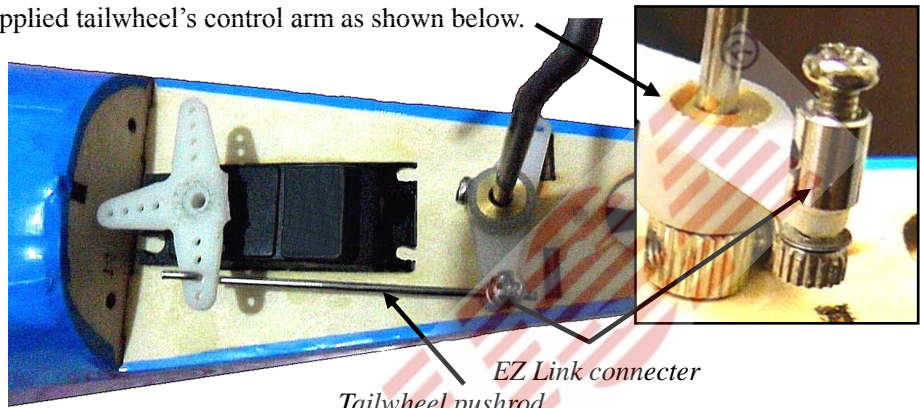
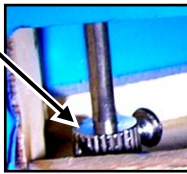
16. Use 30 minute epoxy to secure the horizontal stabilizer into its openings in the fuselage. As shown at the right: Visually compare the horiz. stab. to the wing rods, then apply masking tape to hold the horizontal stabilizer parallel to the lower wing's wing rods until the epoxy is cured fully.



17. Attach an EZ Link connector to the supplied tailwheel's control arm as shown below.

18. Test-fit your tail wheel servo, its output arm, the tailwheel's strut, a wheel collar and the control arm to the bottom of the tail as shown at the right.

19. Position a wheel collar onto the tailwheel strut inside the opening on the right side of the tail.



20. As shown at the right, test-fit the tailwheel fairing to determine how far the tailwheel strut should extend into the tail, then set the tailwheel fairing aside.

21. Test-fit the tailwheel pushrod between your tailwheel servo and the EZ Link connector.

22. Temporarily position the tail wheel onto its strut.

23. Center the tail wheel strut and your tailwheel servo. Cut the tailwheel's pushrod to fit between your servo and the EZ Link connector as shown above.

24. Remove the tail wheel from the tailwheel strut.

25. Attach an 18-inch servo extension to your tailwheel servo. (NOTE: Depending on the length of your servo's lead and where you position your receiver, a longer tailwheel servo extension might be needed; we recommend using an optional Maxford USA servo-extension safety clip to secure the extension to your tailwheel servo's lead.)

26. Guide the tailwheel servo extension forward into the cockpit area.

27. Mount the tailwheel servo into its tray with its provided hardware.

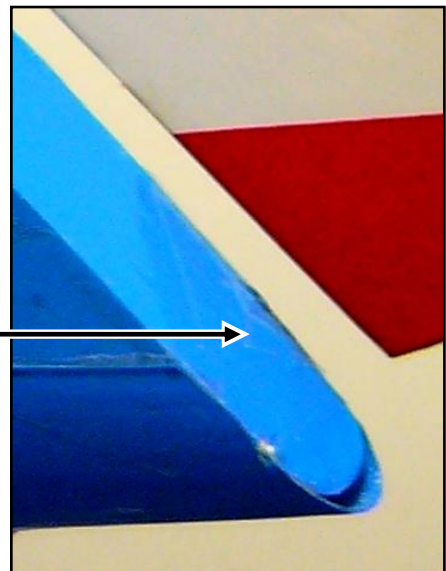
28. Double-check to ensure the tail wheel strut extends far enough to clear the tailwheel fairing. Secure both wheel collars and the tailwheel control arm onto the tailwheel strut.

29. Securely tighten the EZ Link connector onto the tailwheel's pushrod.

30. Position the tailwheel fairing over the tailwheel strut and attach it with the provided wood screws, or you may attach the tailwheel fairing with glue if being able to perform adjustments or repairs is not a concern.

31. Trim the portion of the tailwheel fairing that extends beyond the end of the fuselage.

32. As pictured on the following page, test-fit the vertical stabilizer into its opening above the horizontal stabilizer. Using CA hinges, test-fit the rudder onto its control rod behind the vertical stabilizer.



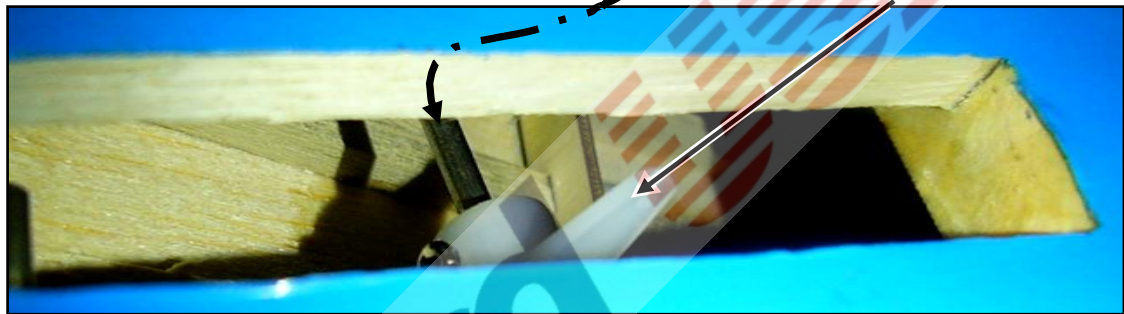
33. Ensure good wood-to-wood glueing surfaces between the vertical stabilizer and fuselage by removing the Mylar from the parts of the horizontal stabizer that will be captured inside this opening as pictured below.



34. Use 30 minute epoxy to secure the vertical stabilizer into its opening in the fuselage. Visually compare to ensure the vertical stabilizer is at 90-degrees to the horizontal stabilizer.
35. Test-fit 2 CA-hinges between the rudder and the vertical stabilizer above the predrilled opening in the rudder for the rudder's control rod.

*Rudder's control rod.
Rudder's pull-pull control arm.*

36. As shown at the right, inside the opening on the right side of the tail, test-fit the rudder's pull-pull control arm onto the lower end of the rudder's control rod and



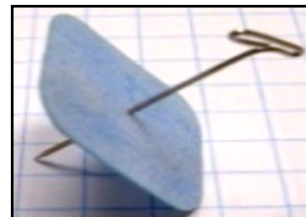
the lower end of the rudder's control rod into its opening in the 'floor' of this opening.

37. Remove and temporarily set aside the rudder, its CA-hinges, and the rudder's pull-pull control arm.
38. Cut 2 lengths of 27 1/2 inch (70 cm) cable to use as rudder pull-pull cables from the longer supplied stranded steel cable.
39. Use crimp tubes to attach one cable to each end of the rudder's pull-pull control arm.
40. Guide the free ends of these cables through the opening on the right side of the tail and forward all the way into the cockpit area.
41. Position the rudder's control rod into its opening in the 'floor' of the compartment on the right side of the tail.



42. Align the rudder to the control arm and tighten the screw to secure the rudder's pull-pull control arm to the rudder's control rod.

43. Insert a straight pin through the center of both of the rudder's CA hinges. (NOTE: During assembly, these pins keep the CA hinges centered and help to ensure there is enough space between the rudder and the vertical stabilizer to allow the rudder to freely move to the left and right.)

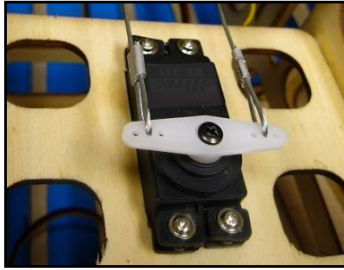


44. Apply 5-minute epoxy to the end of the rudder's control rod. Immediately guide the opening in the rudder on onto its control rod and insert the CA hinges between the rudder and vertical stabilizer.
45. Apply CA adhesive to permanently attach the rudder to the vertical stabilizer. Remove the pins from the CA hinges after the CA adhesive has fully polymerized.
46. Use your radio or a servo tester to center your rudder and elevator servos. (NOTE: You may learn about servo testers at <http://www.maxfordusa.com/servo.aspx>.)



47. Use the hardware provided with a standard-sized servo to install your rudder servo in the front/lower opening of the servo tray as shown below.
48. Align the rudder to your elevator servo's output arm. Attach the rudder's pull-pull cables to the rudder servo using your choice of either of the methods described below:

a) Draw the cables snug and use crimp tubes, as shown below.



b) Draw the cables snug and use crimp tubes with threaded rods and clevises to allow for fine-tuning adjustments, as shown below.



49. Use the hardware provided with another standard-sized servo to install the elevator servo in its servo tray above and behind the rudder servo.

50. Attach a clevis and the elevator pushrod to the control arm on the left side of the elevator servo.

51. Insert the metal elevator joiner through the tail section in the space behind the horizontal stabilizer as shown at the right.



52. Test-fit both halves of the elevator onto the metal joiner. At the same time, test-fit CA-hinges between the elevator and horizontal stabilizer. (NOTE: Use pins to center the CA hinges and to ensure enough space between each half of the elevator and the horizontal stabilizer so the elevator can move up and down freely at least 2-inches/5 cm from level with the horizontal stabilizer.)

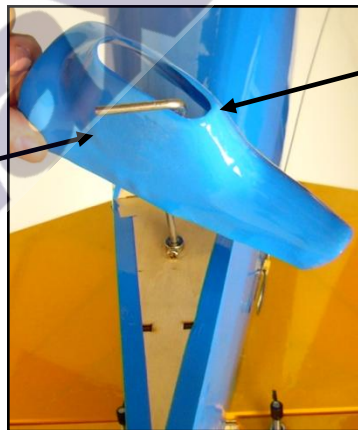


53. As shown at the right, install a control horn assembly in the the bottom of the right side's elevator and attach an EZ Link connector to the elevator's control horn.

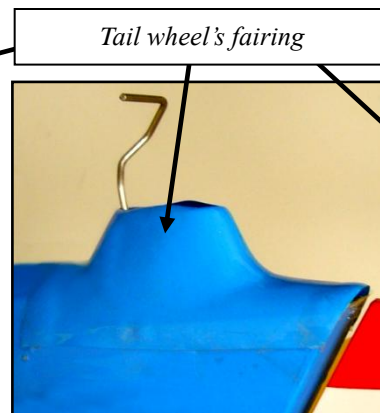


54. Apply CA adhesive to permanently attach each half of the elevator to its metal joiner, to its CA hinges and to the horizontal stabilizer. Remove these pins after the CA adhesive has fully polymerized.

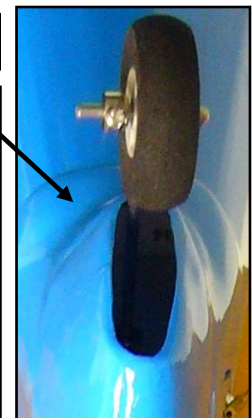
55. As shown at the right, guide the tail wheel's fairing over the tail wheel strut and onto the tail.



56. Test-fit the tail wheel's fairing to the bottom-rear (tail) of the fuselage.



57. Secure the tail wheel's fairing to the fuselage using your choice of glue, transparent tape or screws.



58. Guide the elevator pushrod into the opening on the EZ Link connector and apply 5-minute epoxy to the ends of the the elevator joiner.

59. Insert both halves of the elevator onto the joiner and slide the elevator's CA hinges into their slots. Immediately apply CA adhesive to permanently attach the elevator to the horizontal stabilizer. Remove the pins from the CA hinges after the CA adhesive has fully polymerized.

60. Hold your elevator at neutral (on the same level as the horizontal stabilizer) and tighten the EZ Link connector onto the elevator pushrod.

61. If necessary, cut off the portion of the elevator pushrod that extends excessively behind the elevator servo's EZ Link connector. (NOTE: Leave approx. 1/2-inch of extra pushrod for possible adjustments).

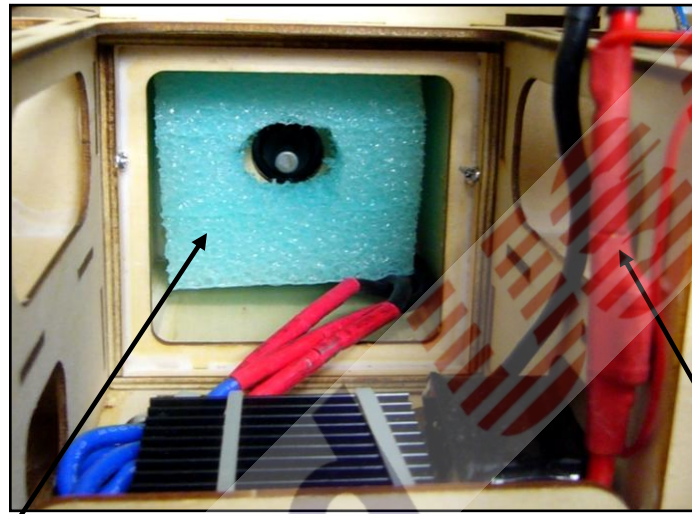


62. If you use a glow engine, install your throttle servo and connect the throttle pushrod between your engine and throttle servo.

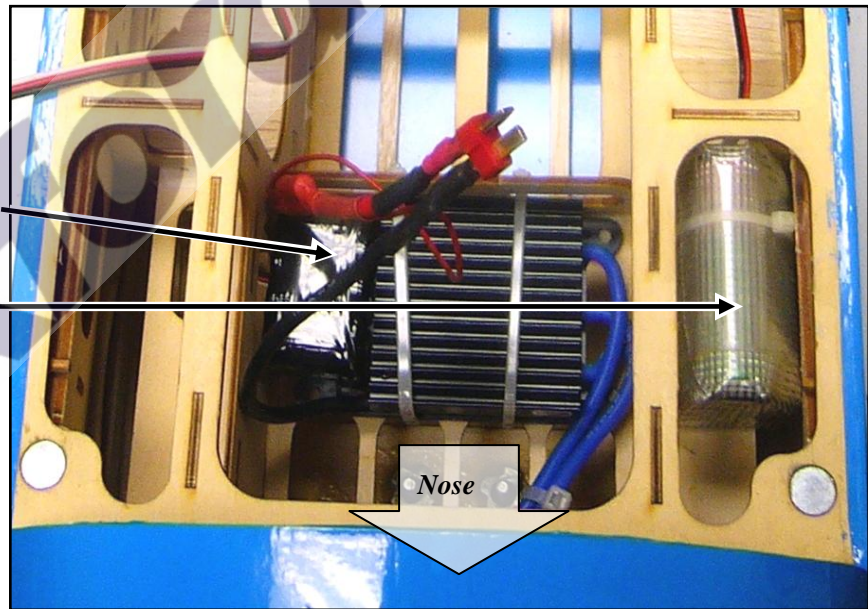
(NOTE: For better appearance and airframe longevity, we recommend using an electric power system for this model. For scale-like flying using our U638109 motor, 100A ESC and a 19x6 propeller, you may use two 4S/4,000 mAh or above LiPo batteries in series. For extra power, we recommend using a 10S or 12S/3,900mAh or above LiPo battery – or three 4S LiPo batteries in series, with an 18x8 to 20x8 propeller.)

63. If you use an electric motor, confirm or correct its direction of rotation.

(NOTE: If you are using an electric power system, inserting some foam rubber (not included) inside the engine mounting box may serve as a 'safety cushion' for your flight battery. The PT-17's spacious cockpit permits great flexibility in where you install your radio and power system components. During all of our EP flight tests the ESC was mounted behind and below the engine mounting box and we secured our radio's battery above and to the left of the ESC as pictured at the right. Our receiver was held in position with double-sided foam tape at the right-hand side of the servo tray as shown below.

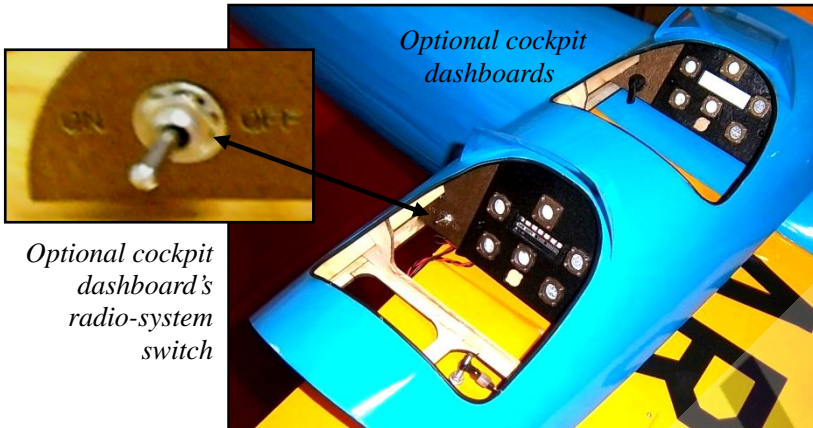
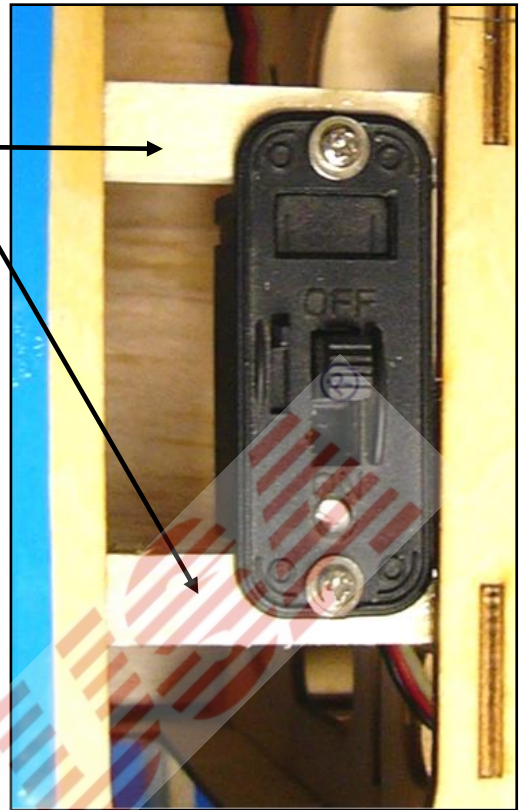


IMPORTANT:
To avoid sparks, always connect the ESC to your flight battery first, THEN connect the anti-spark connector.

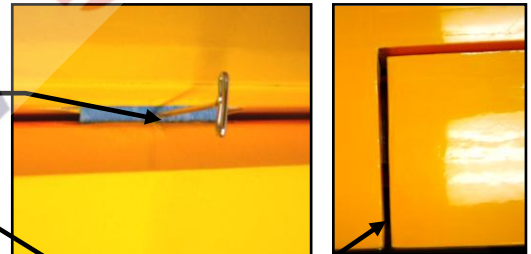


Wait until you are ready to adjust your PT-17's center of gravity to decide on the final positions of your batteries.

64. You may opt to connect a UBEC to your flight battery or carry a receiver battery to power your radio system. If you use a battery for your radio system and if you are not using the optional cockpit dashboards: Use scrap wood (such as popsicle sticks) to mount your radio-system's power switch where it is easily accessible from inside either of the cockpits. If you are using the optional cockpit dashboards: Test-fit and glue each dashboard with epoxy. The rear dashboard's radio-system voltage indicator is compatible only with 4 or 5 cell NiCd or NiMH batteries. Connect your radio-system's battery and receiver to the radio-system switch. (NOTE: Depending on your choice of location for the receiver and battery, servo extensions may be needed between the switch, receiver and/or battery; the dashboard's wiring also includes a connector for charging your radio-system's battery.)

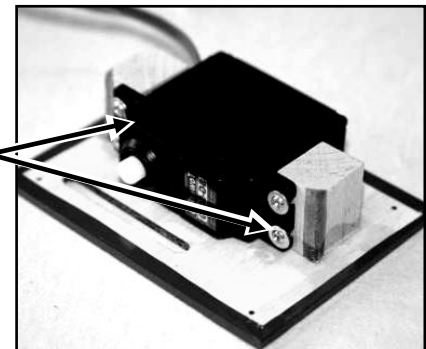


65. Test-fit both ailerons to their lower wing panels with CA hinges. Stick a pin through the center of each of the aileron's CA hinges to keep them centered as you push the control surfaces together. Leave space between the ailerons and their wing panels so each aileron moves up and down freely at least 1 1/2-inches (38mm). Ensure the inner ends of the ailerons do not bind against the cutouts in their adjoining wing panels.



66. Apply thin CA to permanently secure each aileron hinge to its wing panel and aileron. Remove the pins after the CA adhesive has polymerized fully.

67. Connect two(2) of your servos to a servo tester or to your radio and center both servos for the ailerons. Disconnect the aileron servos and set aside your servo tester or transmitter.

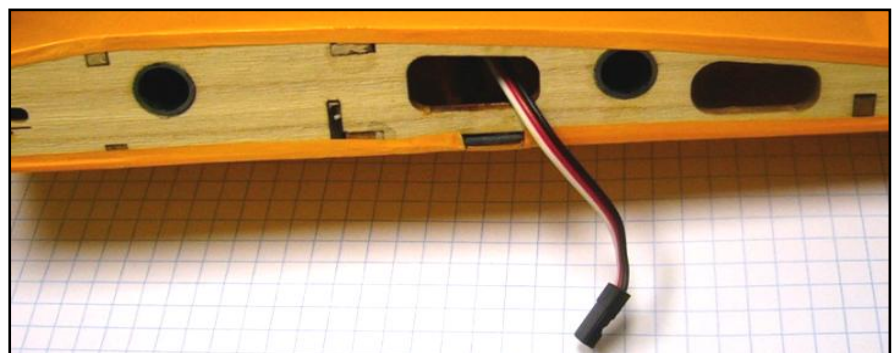


68. Test-fit your aileron servos to the hatchplates, to the supplied pushrods and to the ailerons.

69. Use 5-minute epoxy and a pair of hardwood blocks to mount an aileron servo to each aileron servo hatchplate. (NOTE: To avoid splitting the hardwood blocks, predrill the hardwood blocks to fit your servo's mounting pattern.) Using the servo manufacturer's hardware, attach a servo arm to each aileron servo and an aileron servo to each servo mounting hatchplate's mounting blocks, then attach each servo and backplate assembly to its wing panel with glue or the provided screws.

70. Connect each aileron servo to an 8-inch servo-wire extension. (We recommend using an optional "servo extension safety clip" at each connection.)

71. Use string or a length of straight coat hanger wire and masking tape to pull each extension's connector from the servo well, through the wing, and to the root of each wing panel as shown at the right.



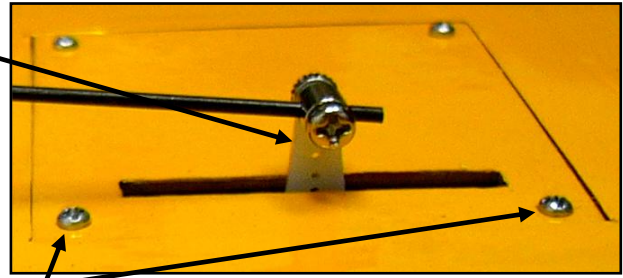
72. Apply masking tape to hold each aileron aligned with its adjoining wing panel.

73. Select servo output arms long enough to extend fully beyond the outer surface of the aileron hatch covers as shown at the right.

74. Attach an EZ Link connector to the outermost hole in each servo output arm.

75. Use the hardware provided with your servos to attach the output arms (and their EZ Link connectors) to your aileron servos.

76. Position the aileron hatch covers with their servos over the servo bays as pictured at the right. Use glue or screws to secure the hatch covers to their wing panels.



77. Insert an aileron pushrod into each EZ Link connector. 'Point' the free end of each pushrod toward the trailing edge of its wing panel.

78. Using the pushrods as your guide, mark and drill holes in the ailerons to install the aileron control horn assemblies. (NOTE: Actual hardware supplied for control horns may vary from that shown at the right.)



79. Thread a clevis onto each aileron's pushrod and attach these clevises to the aileron's control horns. Remove the masking tape from the ailerons.

(NOTE: Once you have adjusted the ailerons, coat each clevis and pushrod with epoxy to securely and safely affix each clevis to its rod; also, as a safety precaution, check each clevis before and after each flight.)

80. Guide the 2 identical ends of a 12-inch Y-harness out through the openings on each side of the fuselage as shown at the right. Connect its servo-like connector to your receiver's aileron port.

(NOTE: If necessary, attach a servo extension to the Y-harness' servo-like connector to reach your receiver's aileron port.)



81. As shown below, use wood screws to attach 2 wing wire anchor points to the bottom of each top wing panel's center section. (NOTE: Harden these screw openings with thin CA adhesive.)

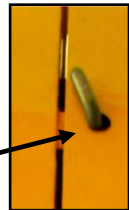


Locations of the top wing's wing-wire anchor points

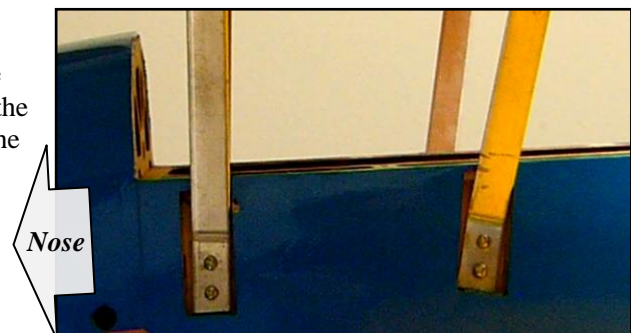
82. Use 9/16-inch (15mm) wood screws to attach the cabane struts to the bottom of the top wing's center section. (NOTE: Position the longer cabane struts toward the front and the shorter cabane struts toward the rear.)

83. Slide the top wing's composite wing rods into their openings and midway through the top wing's center section. Slide the top wing panels onto their wing rods. (NOTE: Carefully guide the Maxlok tabs at the root ribs into their matching slots in the top wing's center section.)

84. Insert the 2 shorter Maxlok pins into their openings in the bottom of the top wing's center section.

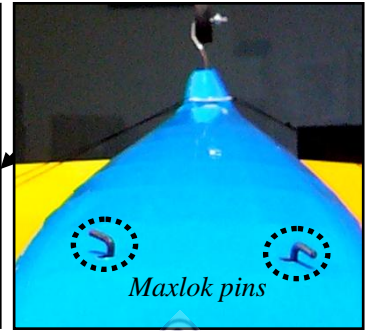
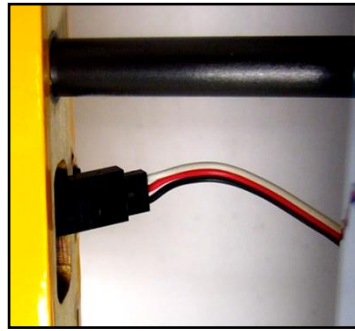


85. Test fit the lower ends of the cabane struts into their openings on each side of the fuselage. Align the carbon-fiber rods in the top wing's center with the lower wing's carbon fiber rod and with the horizontal stabilizer. (NOTE: If desired, at this time the angle of the top wing may be set to 0 degrees relative to the lower wing and the horizontal stabilizer by 'fine tuning' the position of the cabane struts on the sides of the fuselage.)



86. Securely attach the cabane struts to the sides of the fuselage with 9/16-inch (15mm) wood screws.

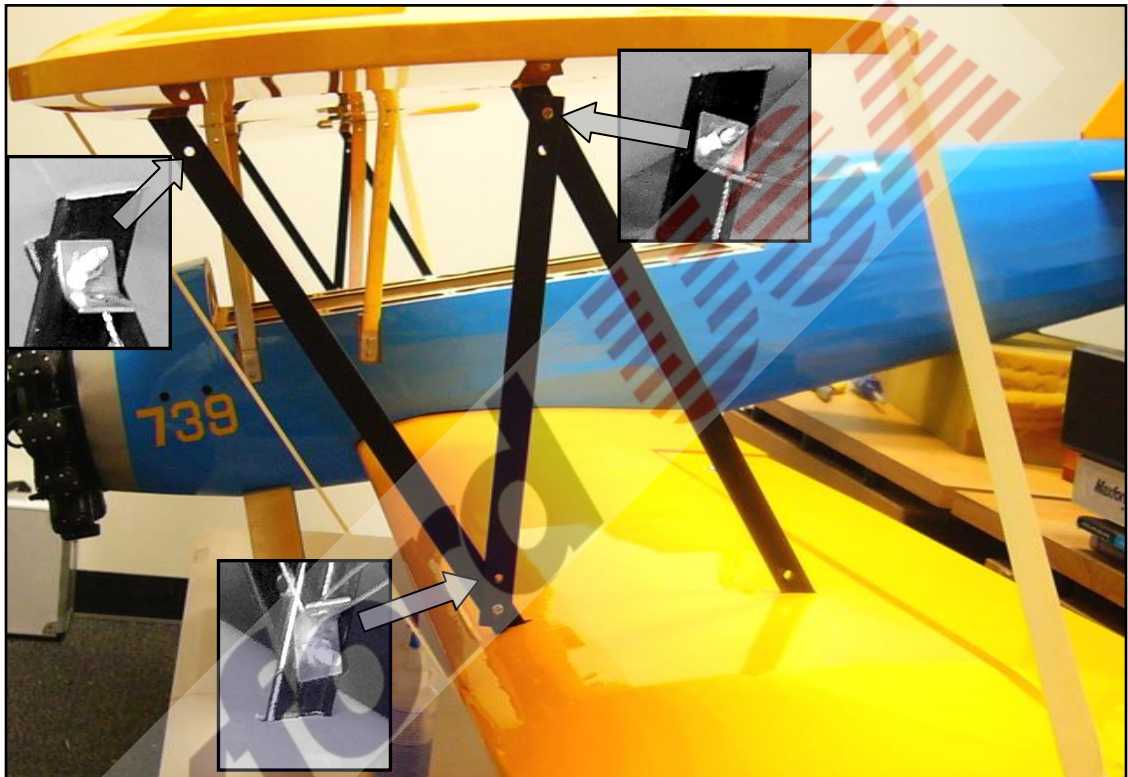
87. Slide the lower wing panels onto their wing rods. As each wing panel nears the fuselage: Connect an aileron-servo extension to the end of the aileron's Y-harness and guide the Maxlok tab at the wing panel's root rib into its slot in the side of the fuselage.



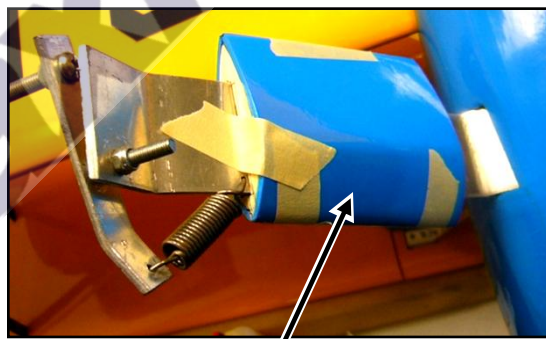
88. Insert the 2 remaining (longer) Maxlok pins into their openings in the bottom of the fuselage.

89. Test-fit the composite struts into their openings in the top of the bottom wing and the bottom of the top wing. (NOTE: The front strut is approx. 12-inches (30 cm) long; the strut's diagonal brace is approx. 9-inches (23 cm) long.

90. Use 3 wing wire anchors per strut and the supplied nuts and bolts to assemble both struts, but do not tighten the nuts at this time. (NOTE: As shown at the right, on the side of each strut facing the fuselage, position 2 wing-wire anchors at the top and 1 wing wire anchor at the bottom of each strut.)



91. Guide the wing struts into their openings in the bottom of both left and right panels of the top wing. Use epoxy to secure both wing struts into their openings in the top and bottom wing panels. While the epoxy is still fresh, firmly press the left and right pairs of top and bottom wing panels together, secure each pair of wing panels with masking tape, and set aside the fuselage and wing panels until the epoxy is fully cured.



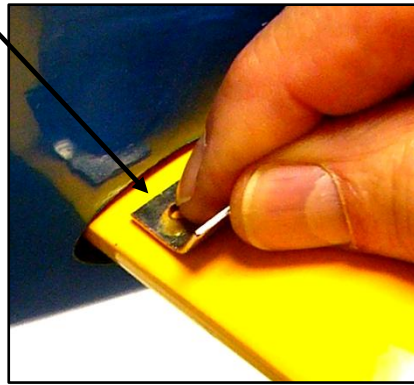
92. Test-fit both halves of the airfoil-shaped landing gear leggings over and around their struts. As shown at the right, apply epoxy and masking tape to secure them to the struts. Remove the masking tape from the wings and struts when the epoxy is fully cured.



93. Carefully guide the landing gear's top fairing over the landing gear's axle and spring suspension. Slide each fairing all the way down its legging and test-fit the fairing to the contour of the fuselage as shown at the right.

94. Use masking tape and epoxy to attach the fairings to the fuselage. Remove all masking tape after the epoxy is fully cured.

95. Use wood screws to attach wing-wire anchors (#1 in the diagram shown below) near the fuselage at the leading edges of both lower wing panels. Apply thin CA adhesive to harden the holes for these wing-wire anchor screws. Point the free end of these wing wire anchors toward the nearest wing strut as you secure the wood screws.



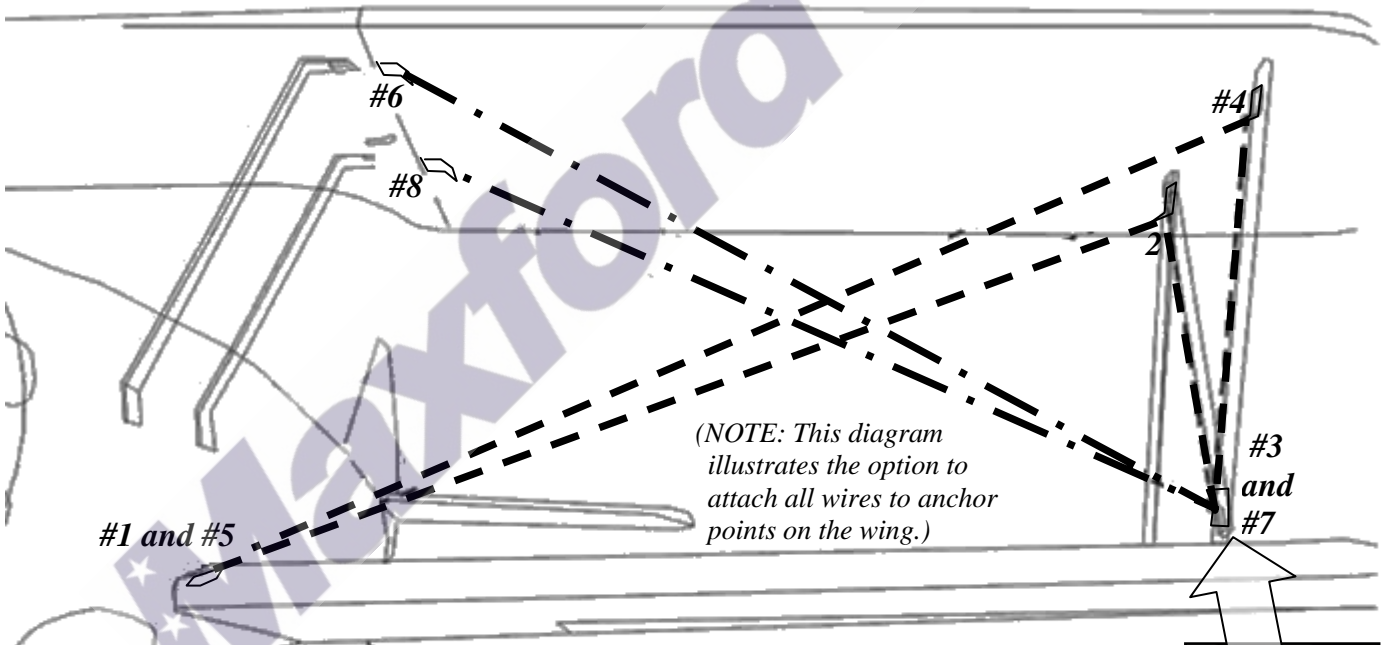
96. This model uses Maxlok pins to attach the top wing panels to the top wing's center section and the lower wing panels to the fuselage. Please choose between either of the following 2 wing-attachment options:

- a) Install wing-wire anchors with springs in front of the landing gear on each side of the nose as pictured above. You will attach the wing-wires' clevises to these fuselage-attached anchor points during setup at the field. (NOTE: An optional small piece of wood may be glued inside the nose to reinforce where these screws attach these anchor points.)
- b) If you value speed and convenience during setup, combine anchor points #1 and #5 as pictured below. During setup you will use only the 4 Maxlok pins to secure the wing panels.

97. Slide a crimp tube onto a wing wire. Guide the wire through the free opening in the anchor point near the leading edge of the left-side's lower wing panel (#1 in the diagram below). Bring the wire back into and through the crimp tube, then firmly crimp the tube onto the wire as pictured at the right.

98. Repeat the above step to attach a wing wire to the anchor point near the leading edge of the right side's lower wing panel.

99. Guide the wing wire(s) between anchor points 1 through 5 on the left side of your PT-17's upper & lower wing panels as shown below. (Note: This picture is for illustration only – not drawn to scale.)

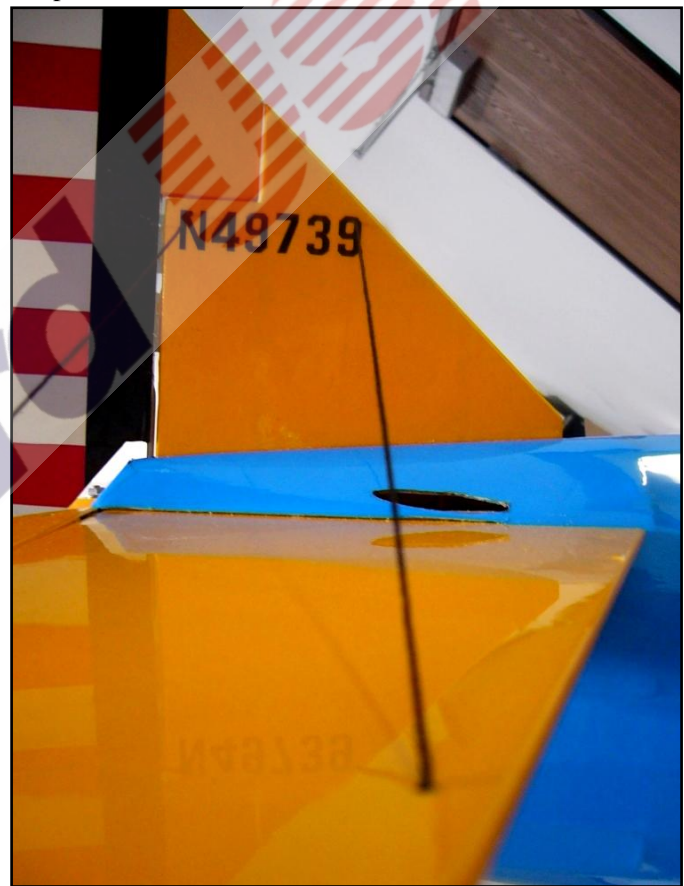
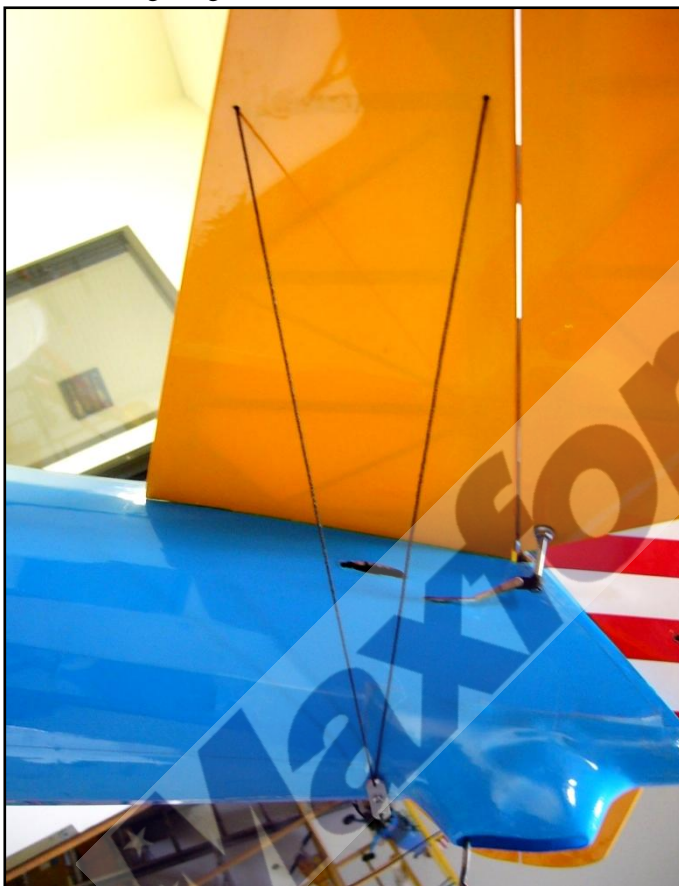
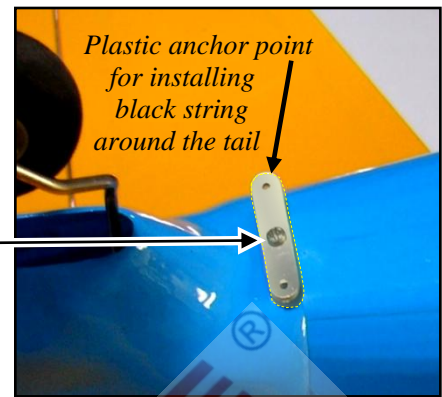


Warning: As you guide the wing wires between the numbered anchor points, adjust the tension on each segment of the wire to ensure the wing panels do not become warped. Although these wing wires are only cosmetic, uneven tension on the wing wires could warp the wings, causing the airplane to not be safely controllable in flight.

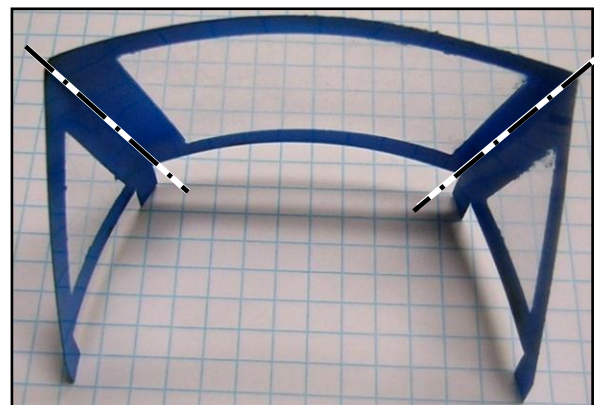
100. When the wire reaches anchor point 5: Pull the wire snug with even pressure between all anchor points; slide a crimp tube onto the wire; guide the wire through anchor point 5; guide the wire back through the crimp tube; apply gentle tension to the wing wire; firmly crimp the tube onto the wire; and cut the wire close to the crimp tube.



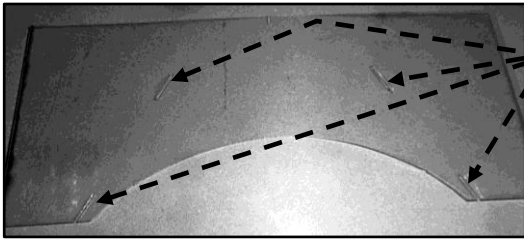
101. Attach a clevis and threaded rod at anchor point #6. Uses crimp tubes to install the remaining left-side wing wire(s) from anchor points 6 through 8.
102. In the same manner as used for the left-side wires, install wing wire(s) between the right side's wing panels.
103. When all wing wires are in position and the wire's tension adjusted equally, secure all threaded rods into their clevises by applying epoxy onto the rod's threads and inside each clevis.
104. As pictured at the right, use a wood screw to attach a plastic anchor point in front of the tail wheel to the bottom-center of the fuselage.
105. Install the empennage wires (black string): If necessary, open six small holes under the Mylar in the tail section (2 near the top of the vertical stabilizer and 2 in each half of the horizontal stabilizer at approx. 9 inches from the fuselage).
106. Tie one end of the supplied black string to either side of the anchor point.
107. As pictured below, guide the free end of the string from the anchor point: up through the horizontal stabilizer; through the vertical stabilizer; down through the horizontal stabilizer; through the open hole in the anchor point; up through the horizontal stabilizer; through the vertical stabilizer; down through the horizontal stabilizer; and back to the anchor point.
108. Pull the string snug around the tail section and tie it to the anchor point.



109. Apply CA adhesive to secure the knots, then cut off and discard the remaining length of excess string.
110. Form 2 sharp bends in each windshield as shown at the right.
111. Center the supplied template in front of the coaming at each cockpit. (NOTE: Be sure to position the top edges of the windshields to visually align with the top wing.)



112. Using the openings in the template (shown below), make 4 narrow cuts to receive the 4 tabs in each windshield. Set aside the template and test-fit a windshield in front of each cockpit.



Template's
4 slotted
openings

113. Use epoxy or windshield adhesive to secure the windshields in position. (NOTE: Before the glue dries, re-check that the top edges of the windshields visually align with the top wing.)

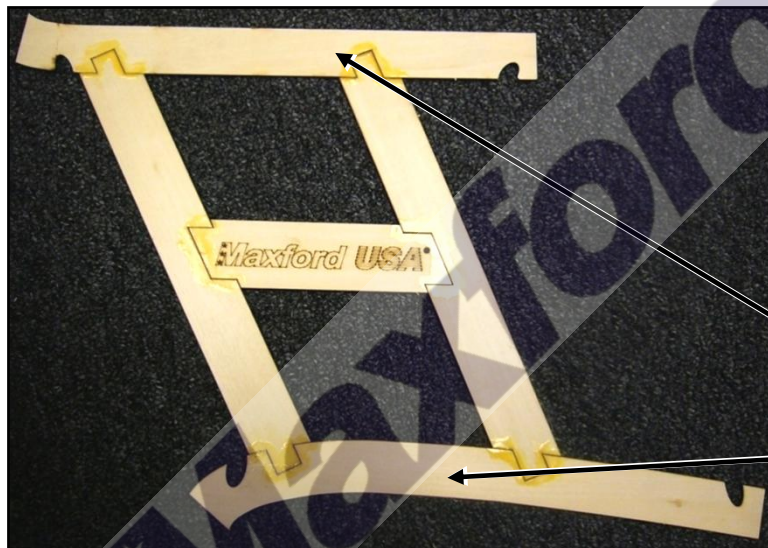
114. Position and secure your radio equipment in accordance with your radio manufacturer's instructions. Perform any necessary initial adjustments to your servo directions, end points, control throws, etc.

115. Use epoxy and scrap wood to secure optional 1/5 scale pilot figures (available at <http://www.maxfordusa.com/flyboypilot-2-1.aspx>) in their cockpits.

116. Balance and install the propeller on your motor or engine.

117. To ensure the wings, struts and wing wires remain secure during removal and storage, test-fit the parts of the two sets of wooden wing supports as shown below.

118. Glue the wooden wing supports together as shown below.

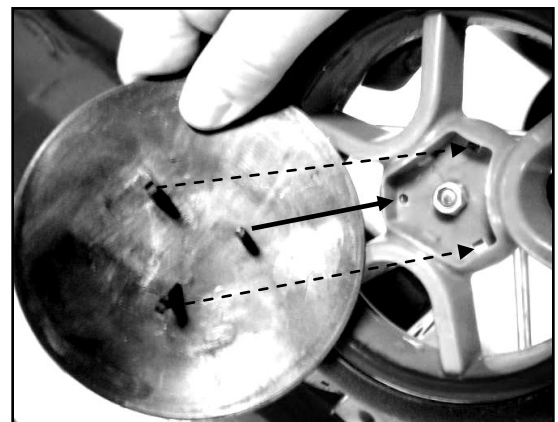


(NOTE: When completed, each supports' curved wooden surface will rest against and support the bottom of the top wing and the top of the bottom wing. Use rubber bands or string to secure the wing supports to their wing panels for transport or storage.)

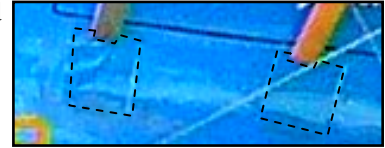
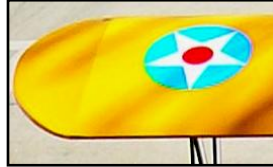
119. If necessary, adjust the supplied self-locking nuts to ensure the landing gear suspension (shown at the right) moves smoothly.

120. Use self locking nuts to attach each wheel to its axle.

121. Apply thin CA to secure the landing gear nuts from vibration.



122. As shown at the bottom of the preceding page, align each hubcap's round post to the round opening in the hub of each wheel. Press the retaining clip at the end of the two remaining posts into their rectangular openings in the hubs. (NOTE: A conservative modeler may also apply epoxy to ensure the hubcaps remain attached to their wheels.)
123. As shown at the right, trim 2 pieces of blue plastic to fit around the cabane struts and over the openings on each side of the fuselage. Attach these covers to the fuselage with epoxy or thick CA adhesive.
124. In the same manner, cover the rectangular opening on the right side of the tail.
125. Trim, peel and stick the markings as shown at the right.



Congratulations! Assembly is finished!

VII. SETUP AND ADJUSTMENTS

1. For your first flights, set your PT-17's center of gravity (CG) at the Maxlok pin in the bottom of the top wing. If necessary, move batteries and/or add weight to the nose or tail to ensure the CG is correct.
2. Check the heat-shrink covering material's joints and surfaces; if necessary, carefully use a dedicated covering-material iron and heat gun to secure the edges and to tighten any loosened areas. Recheck and retighten from time to time.
3. Double-check servo centering, direction and end-point adjustments: If you fly mode 2, when you pull the right stick toward you, the elevator should deflect upwards; push the right stick to the right and the right aileron should deflect upwards and the left aileron should deflect downwards; push the left stick left and the rudder should deflect to the left as viewed from the rear of the fuselage. Review your radio's instruction manual if you require assistance with any radio-related or servo-adjustment questions.
4. If you are using a Computer Radio: For initial flights set all linkages for near-max. possible deflections; then, soften the aileron's and elevator's control throws by selecting 60% or more exponential (use 30% exponential for the rudder).
Initial settings if you are using a Non-Computer Radio:

	<u>Low rates</u>	<u>High rates</u>
Ailerons	±12 degrees / ±7/8 inches ..	±25 degrees / ±1 1/2 inches
Elevator	±15 degrees / ±3/4 inches	±20 degrees / ±1 1/8 inches
Rudder	±20 degrees / ±2 1/2 inches	±25 degrees / ±3 1/2 inches
5. Trim adjustments: The ailerons and rudder will probably require no adjustments (you will probably be able to leave them centered, as assembled); if you fly at fast (non-scale-looking) air speeds, be prepared to dial in some down-elevator trim.

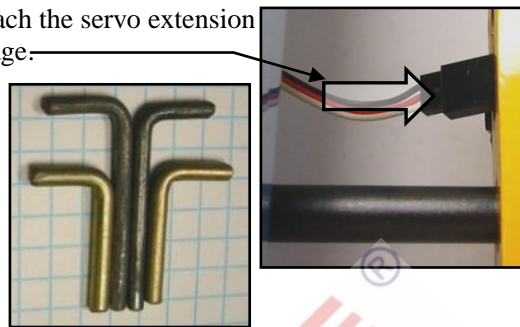
VIII. PREPARATION FOR TRANSPORT AND FIELD SETUP

1. To remove and store the wings:
 - a) If you have anchor points on each side of the nose, release the wing-wire clevises at each side of the fuselage.
 - b) Insert and tie string or use rubber bands to secure the wooden wing supports between the top and bottom wing panels near the root ribs.
 - c) Remove and set aside the Maxlok pins that secure each pair of left and right wing panels to the top wing's center section and to the fuselage.
 - d) Gently pull the wing panels outwards a few inches, disconnect the aileron extensions from the Y-cable, and set aside the servo extension safety clips.
 - e) Continue to gently pull outwards on each set of wing panels until the left- and right-side pairs of upper and lower wing panels slide fully off their wing joiners.
 - f) For safe-keeping, return the Maxlok pins into their openings in the lower wing's center section and fuselage.



2. To reinstall the wings:

- a) Remove and set aside the 4 Maxlok pins.
- b) Carefully align and slide each set of left and right wing panels toward each other on their wing joiners.
- c) Reconnect the aileron extensions to the aileron's Y-cable, reattach the servo extension safety clips and neatly dress the wires inside the wing or fuselage.
- d) Position the Maxlok pins into their openings in the upper wing's center section and the fuselage – and double-check to ensure the magnets are holding the Maxlok pins in position. (NOTE: The longer pair of Maxlok pins belong in the bottom of the fuselage; insert the shorter pair of Maxlok pins into the bottom of the top wing's center section.)
- e) If you have wing-wire anchor points attached to the fuselage, reattach the wing-wire clevises to the end of the spring attached to each side of the fuselage.



IX. PRE-FLIGHT CHECKS

1. Double-check the security of the motor- (or engine-) mounting box to the fuselage.
2. Make certain all clevises, horns, nuts, bolts, screws and other connected parts throughout the air frame and landing gear are secure.
3. Double-check for correct control directions and smooth operation of the throttle, ailerons, elevator and rudder.
4. Get into the habit of moving your transmitter's throttle to minimum before turning ON your transmitter. Carefully break-in and operate your engine (or electric power system) according to the manufacturer's instructions.
5. As with all radio-controlled model airplanes, this model must pass the radio range ground check recommended by your radio's manufacturer, or you may not safely fly.
6. For your safety and for the safety of those around you, perform a final pre-flight check of all connections and clevises.
7. Carefully perform whatever additional preflight safety checks you or your club may think are necessary.

HAPPY LANDINGS!

REMINDER:

An important notice to our customers –

THIS PRODUCT IS NOT A TOY.

PLEASE ENJOY YOUR HOBBY AND FLY SAFELY!

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