

STEARMAN PT-17

EP 50-INCH SPORT-SCALE ARF Ver. 1.1

INSTRUCTION MANUAL



Lloyd Carlton Stearman (October 26, 1898 – April 3, 1975) was both an aircraft designer and the founder of the Stearman Aircraft Corporation, maker of the Stearman PT-17 (also know as the Model 75 and the Kaydet).

His Stearman PT-17 was the U.S. Army Air Corps’ primary flight trainer during World War II. At least 9,783 were built, and at war’s end thousands of surplus PT-17s were sold on the civilian market.

This model of the famous Stearman PT-17 is an almost-ready-to-fly RC airplane designed for those who want an easy-to-fly electric-powered airplane with great sport-scale appearance. It is based on the full-scale PT-17 owned by John Mohr, who very kindly sent us many detailed pictures of his personal aircraft. We thank PT-17 owner/pilot John Mohr; we also acknowledge and thank Jay Smith, editor of Model Aviation magazine, for his help and advice on this project.



We invite you to enjoy flying this balsa and light-ply almost-ready-to-fly aircraft.

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I. IMPORTANT SAFETY PRECAUTIONS TO PROTECT YOUR MODEL, YOURSELF & OTHERS:

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 build 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 the model airplane according to these instructions. We recommend that you do not alter or modify the model beyond the assembly 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 correct. If you have a question or concern about these instructions, before you proceed with assembly of this product, contact us at (562) 529-3988, Monday through Friday, except national holidays, between 9 AM to 5 PM Pacific Time.
3. 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 smoothly and correctly.
4. 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 mechanical connections, and do not fly without replacing any that you find damaged or defective.
5. If you are not an experienced R/C pilot or have not flown this type of model before, we strongly recommend that you get the assistance of an experienced R/C pilot.
6. Throughout the lifetime of this model, use only the Maxford USA-recommended or same-sized power system and a new or well-maintained R/C radio system and batteries recommended by the maker of your power and radio system.
7. While this kit has been flight-tested to meet or exceed our rigid performance and reliability standards in normal use, if you plan to perform any extremely high-stress flying, such as racing or advanced aerobatics, or if you plan to install a larger or different 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.

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 on the following page.

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

1. Inspect your order upon delivery for any missing, damaged or unsatisfactory part(s). If you believe there is a problem, you must call us at (562) 529-3988 (Monday through Friday except holidays, between the hours of 9 AM and 5 PM Pacific time) before you begin assembly and within 10 days from receipt of your purchase. During this telephone conversation, and with your support, we will determine how to resolve your concern.

2. To request an RMA#, call (562) 529-3988, Monday through Friday, except holidays, between the hours of 9 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 Mfg., Inc.
15939 Illinois Avenue, #B-C
Paramount, CA 90723

IMPORTANT: Print the RMA# issued by Maxford USA on the package near the above address.

III. SPECIFICATIONS:^{*}

Wingspan	50-inches
Length	37 inches
ARF / Flying weight (including one battery)	2 pounds, 2 ounces / 3 pounds, 3 ounces
Motor (Not included)	400 Watt outer-rotor, brushless (Recommended: Maxford USA Uranus 35425 or equivalent)
Electronic Speed Control (ESC)	60 Amp – Able to drive the outer-rotor brushless motor (Recommended: Maxford 60A or equivalent)
Battery	3S/2100mAh 20C LiPo (Optional: two 3S/2100mAh 20C batteries in parallel)
Propeller (Not included)	11x7
Radio system (Not included)	Minimum of 4 channels with 4 mini-servos (Recommended servos: Maxford USA ES08A or equivalent)

^{*}(All dimensions and weights are approximate.)

IV. SPECIAL FEATURES:

- The fuselage, wings and empennage are factory-built from laser-cut balsa and light plywood.
- The ‘oversized’ magnetic hatch is big enough for easy access to all fuselage-mounted components.
- A dummy radial engine and a pair of scale windshields are included.
- Plastic leggings cover the aluminum main landing gear for true-to-scale looks; wheels have treaded tires.
- The included steerable tail wheel also has a true-to-scale appearance.
- Optional detail-upgrade items: Set of two cockpit dashboards and two 1/8-scale pilot figures (one set for the front cockpit, and a second set for the rear cockpit).

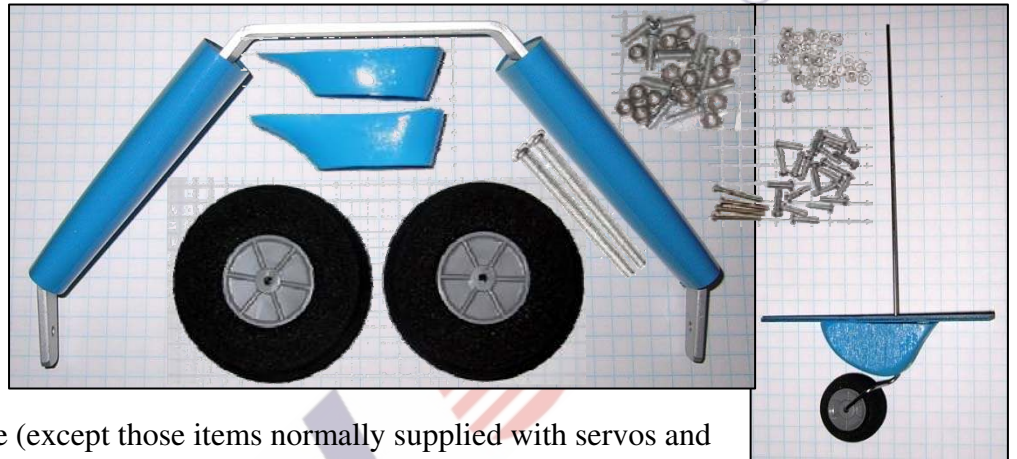
V. PARTS LIST:

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

- 5-minute epoxy, Cyanoacrylate (CA), windshield adhesive, and a small amount of petroleum jelly.
- Some masking tape, a drill or high-speed rotary tool, a few common hand tools (such as screwdrivers and long-nosed and diagonal or side-cutter pliers, etc.), and some alcohol (for removing any excess epoxy).
- Electric power system (ESC and LiPo battery with connectors) and an 11x7 propeller.
- ES08A or equivalent mini-sized servos (4 each, 23.56-mm x 11.56-mm x 20.42-mm), two 10-inch servo lead extensions, one 6-inch Y-cable, and a four channel (or more) radio control transmitter and receiver.

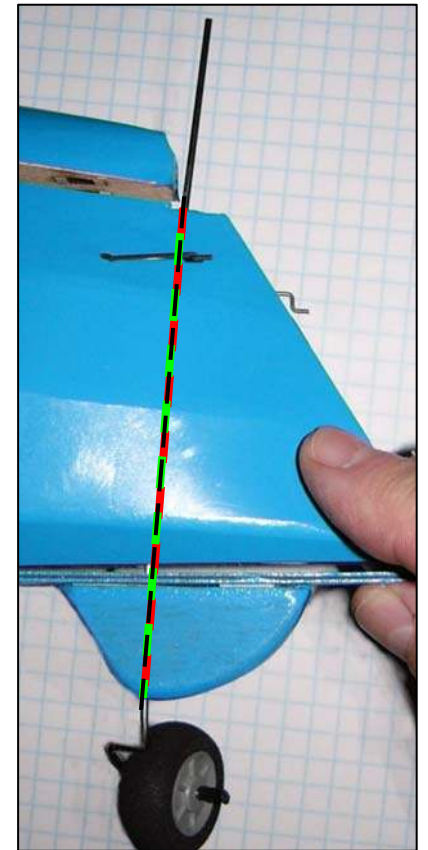
3. Items included with your Stearman PT-17:

- Precovered fuselage, wing panels, cabanes, N-struts, simulated wing-wires, vertical and horizontal stabilizers, rudder and elevator, pre-painted dummy radial engine, and all associated hardware.
- Precut, precovered hatch, secured by rare-earth magnets, and precut mounts for all servos, with all required control horns and pushrods.
- Full set of CA hinges with matching precut hinge slots.
- Aileron, rudder and elevator pushrods, with all required linkages.
- Pre-bent aluminum main landing gear, landing gear fairing assemblies, wheels, and all related mounting hardware.
- Steerable wire tail wheel strut assembly and tail wheel with mounting hardware.
- Carbon fiber wing rods; plywood cabanes and struts, with included attachment bolts and nuts.
- Battery's mounting platform, with two-sided hook-and-loop material to secure the battery inside the fuselage.
- All required assembly hardware (except those items normally supplied with servos and the electric power system's components).
- This detailed, illustrated instruction manual.



VI. ASSEMBLY INSTRUCTIONS:

1. Poke a small hole in the Mylar covering to expose the ends of the preinstalled pushrod tubes for the **rudder and elevator pushrods**. Insert the rudder and elevator pushrods through the holes and into these tubes, with the pushrods' Z-bend ends projecting from the aft end of the fuselage.
2. Test-fit the **tail wheel's strut** through the bottom of the fuselage and through the opening in the **horizontal stabilizer** to ensure you understand where the tail wheel's strut must pass through the horizontal stab. Once you know how to fit of the tail wheel's strut through the horizontal stabilizer: *a)* Remove the Mylar covering from the very center of the horizontal stabilizer that will be 'buried' inside its mounting slot and *b)* Apply some petroleum jelly to the tail wheel's strut where it passes through the openings in the fuselage and the horizontal stabilizer. (NOTE: Throughout these instructions, "test-fit" means to trial-position the parts without using any adhesives to ensure you understand their correct alignment and position; at the same time, this is your opportunity to discover any manufacturing tolerances which may have little or no effect on the way your model flies, but allows you to fine-tune each part's fit before it is permanently secured into position.)
3. Apply a small amount of 30-minute epoxy to the horizontal stabilizer and slide it into position in its slot at the rear of the fuselage. Before this epoxy has time to thicken, **make sure you have enough petroleum jelly on the tail wheel's strut to prevent it from being epoxied to the fuselage or horizontal stabilizer**, apply a small amount of 30-minute epoxy to the top surface of the tail wheel's mounting plate (where it mates to the bottom of the fuselage), then insert the tail

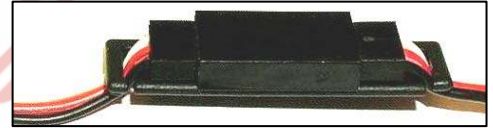


wheel's strut from the bottom of the fuselage and through the horizontal stabilizer, and secure the tail wheel assembly to the fuselage with the supplied small wood screws. Remove any excess epoxy with alcohol.

4. Test-fit the vertical stabilizer in its slot at the top rear of the fuselage, then temporarily position the rudder behind the vertical stabilizer and above the horizontal stabilizer. Using the predrilled hole in the leading edge of the rudder as a guide, note where the tail wheel's strut needs to be bent to fit into this hole; then use pliers to **form a 90-degree bend in the tail wheel's strut**.
5. Remove the Mylar covering from the vertical stabilizer that will be 'buried' inside its slot at the rear of the fuselage, **apply a small amount of 30-minute epoxy to the base of the vertical stabilizer**, and firmly press it into position in its slot. Remove any excess epoxy with alcohol.
6. Using the provided hardware and predrilled holes, **attach a nylon control horn to the left side of the rudder** and to the **bottom right side of the elevator**.
7. When the epoxy is cured, twist the elevator's control horn onto the elevator pushrod, then insert the elevator's CA hinges into their precut slots in the elevator and horizontal stabilizer. Apply thin CA adhesive to each of the elevator's CA hinges to **secure the elevator** to the horizontal stabilizer.
8. Twist the rudder's control horn onto the rudder pushrod, then insert the rudder's CA hinges into their precut slots in the rudder and vertical stabilizer. Apply thin CA adhesive to each of the rudder's CA hinges to **secure the rudder** to the vertical stabilizer.



9. Attach a 10-inch extension to each aileron servo; feed the servo extension from the servo bay and out through the root rib of each lower wing panel. Use your radio to center the aileron servos, then use the hardware provided with the servos to **mount each servo in its bay in each lower wing panel**. (NOTE: To ensure the security of your extension and Y-connector connections, we recommend you install an optional "servo-extension safety clip" at each connection.)



10. **Position the 6-inch Y-cable** inside the fuselage and guide each of the Y-cable's male connectors out of the fuselage through openings on each side of the fuselage that correspond with where the 10-inch extensions exit the lower wing's root ribs. Slide the supplied **carbon fiber lower wing rod and lower wing alignment pin** so they are centered in the fuselage.
11. Slide each lower wing panel onto its carbon fiber lower wing rod and alignment pin. When each lower wing's root rib gets within a few inches of the fuselage, **connect each wing panel's 6-inch extension** to the Y-cable's connector protruding from the fuselage, then **slide both lower wing panels against the fuselage**.

12. **Attach the aluminum landing gear struts** to the fuselage using bolts and the blind nuts preinstalled inside the fuselage.
13. Test fit the fairings around the struts and to the fuselage. **Secure the fairings** with epoxy; use masking tape to hold the fairings in place until the epoxy is cured.
14. Use the provided 1½-inch axle bolts and two nuts per axle to **attach the wheels** to the pre-bent aluminum landing gear.



15. Using the predrilled holes in each aileron, **attach the nylon control horns** to the ailerons with the provided extra-long bolts, and mount a supplied **quick connector** to each control horn. Twist the Z-bend end of each aileron's pushrod into its aileron servo's control arm.



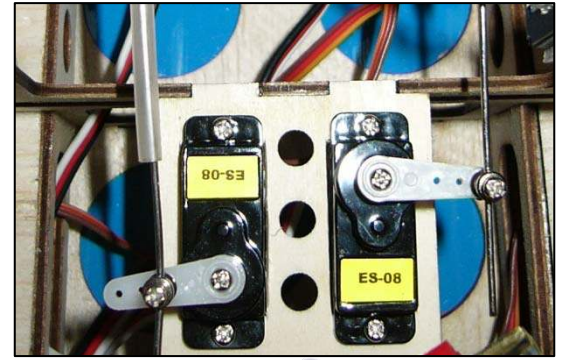
Guide each aileron's pushrod into its quick connector. Insert each aileron's CA hinges into their precut slots in each aileron and at the trailing edge of each lower wing panel. Apply thin CA adhesive to each of the aileron's CA hinges to **secure each aileron** to the lower wing. Holding each aileron in its 'neutral' position, **tighten the quick connectors** onto their aileron pushrods.



*Quick
Connectors*

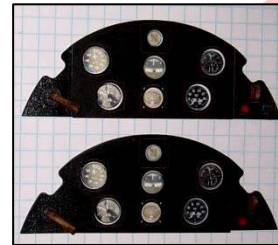
16. Lift off and set aside the cockpit hatch. Use your servos' hardware to **mount your elevator and rudder servos** in the fuselage-mounted servo tray and use your radio to center your rudder and elevator servos.

17. **Attach the supplied quick connectors** to the servo arms supplied with your rudder and elevator servos. Insert the rudder's and elevator's pushrods into these quick connectors, but do not tighten the quick connectors onto the pushrods at this time. Position the rudder's and elevator's servo arms so they are centered on their servos, then secure each servo arm with its provided hardware.



18. Hold the elevator and rudder in their 'neutral' positions and **tighten the rudder's and elevator's quick connectors** to their pushrods.

19. To **attach the optional dashboards**, position a dashboard at the front of each cockpit and secure it with CA adhesive.



20. Leaving the preprinted blue edging and three or four mounting tabs at the bottom of each windshield, **trim the windshields** to fit in front of the cockpits. Cut slots in front of the cockpits to match the windshield's mounting tabs, insert the tabs into the slots, and **secure the windshields with windshield adhesive**. Apply masking tape to hold the windshields securely in position.

21. To **mount the optional 1/8-scale pilot figures**, cut popsicle sticks to a length of 3 5/8-inches and use 5-minute epoxy to secure one stick across each hatch opening. Glue a pilot figure to each of these wooden cross-pieces.

22. Use the mounting hardware provided with your Maxford USA motor to attach the X-mount to the motor. Position the motor so its wires are toward the bottom of the airplane, and use the provided screws to **attach the X-mount and motor to the PT-17's firewall**. (Note: As explained at the top of page 9, if you are not using a Maxford USA U35425 motor, you may need to add some of the supplied spacers to bring your motor forward to fit inside the dummy engine and/or modify the firewall's opening to fit your motor's wires.)

23. Place your ESC inside the fuselage and route its three motor wires through the firewall. Using the connectors provided with your motor, **connect the ESC to your motor**. Plug the ESC's 3-wire throttle connector into your receiver's throttle channel, then check your motor's rotation as follows:

a) If you use a computer radio, ensure your transmitter's "end-point adjustments" are set to their normal, full-range settings. Set your transmitter's throttle and throttle trim controls to minimum. With **NO PROPELLER** on the motor, switch **ON** the transmitter. Connect the ESC to your battery and listen for a series of initialization sounds. Then, raise the transmitter's throttle halfway up, and **the motor should power-up in the clockwise direction** as viewed from the rear of the airplane. If so, proceed to step 23.

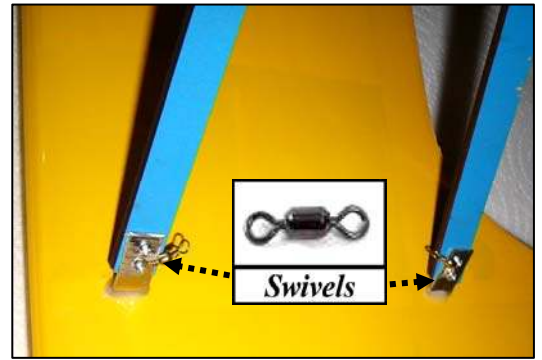
b) If the motor powered-up in the counterclockwise (wrong) direction as viewed from the rear of the airplane, return the throttle control to minimum, disconnect the ESC from the battery, swap either 2 of the 3 ESC-to-motor wires, and repeat the above step to ensure your motor now rotates in the correct direction.

24. Disconnect your battery and radio and push the motor/ESC wires fully into the fuselage. (You may use an optional wire tie to secure the motor wires and your ESC to the fuselage.)

25. Use the provided 3/8-inch long bolts and their matching nuts to securely **attach the four cabanes to the fuselage**. (Suggestion: You may optionally apply some thread-lock compound to each of the cabane's and strut's bolts and nuts.)



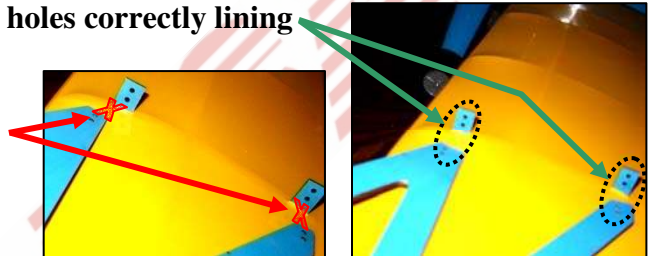
26. Slide the upper wing's carbon fiber wing rod and alignment pin half-way into either upper wing panel, then slide the remaining wing panel onto the exposed end of the wing rod and alignment pin and press the wing panels together. **Place the top wing upside-down** on a soft surface. (Suggestion: You may apply a 2- to 3-inch length of 1/2- to 3/4-inch-wide transparent tape to the bottom of the top wing where the two wing panels meet to ensure the wing panels remain firmly together.)



27. Position the fuselage upside-down and above the top wing and **align the cabanes with the top wing's cabane anchor points**. Using a total of 8 bolts (**with a swivel at each of the four bolts** nearest the wing's surface, as shown), secure all four of the cabanes to the upper wing with matching nuts.

28. Place the PT-17 right-side-up, then **identify which N-strut belongs on the left and right side** as follows:

- The photo at the far right shows the N-struts' **predrilled holes correctly lining up with the lower left wing's mounting points**.
- The photo at the near right shows an N-strut that is **NOT** correctly positioned – Its **predrilled holes do NOT line up** with the lower left wing's mounting points.
(Note: **This N-strut should be rotated end-for-end and used on the lower right wing**).

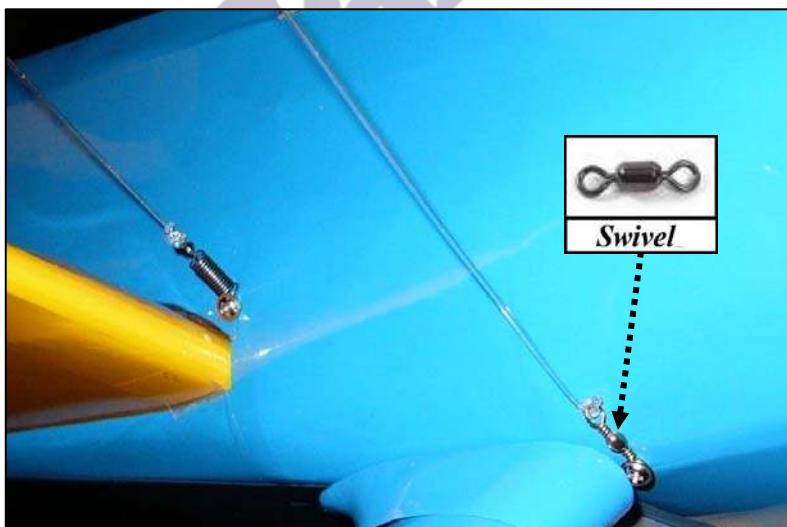


26. With both N-struts correctly positioned, **secure both N-struts between the upper and lower wing panels** using a total of 16 bolts (8 per side), eight swivels (4 per side, attached at the inner surface of each of the 4 bolts nearest the wing's surface), and 16 nuts. (You may optionally apply thread-lock compound to each of the N-strut's bolts and nuts.)

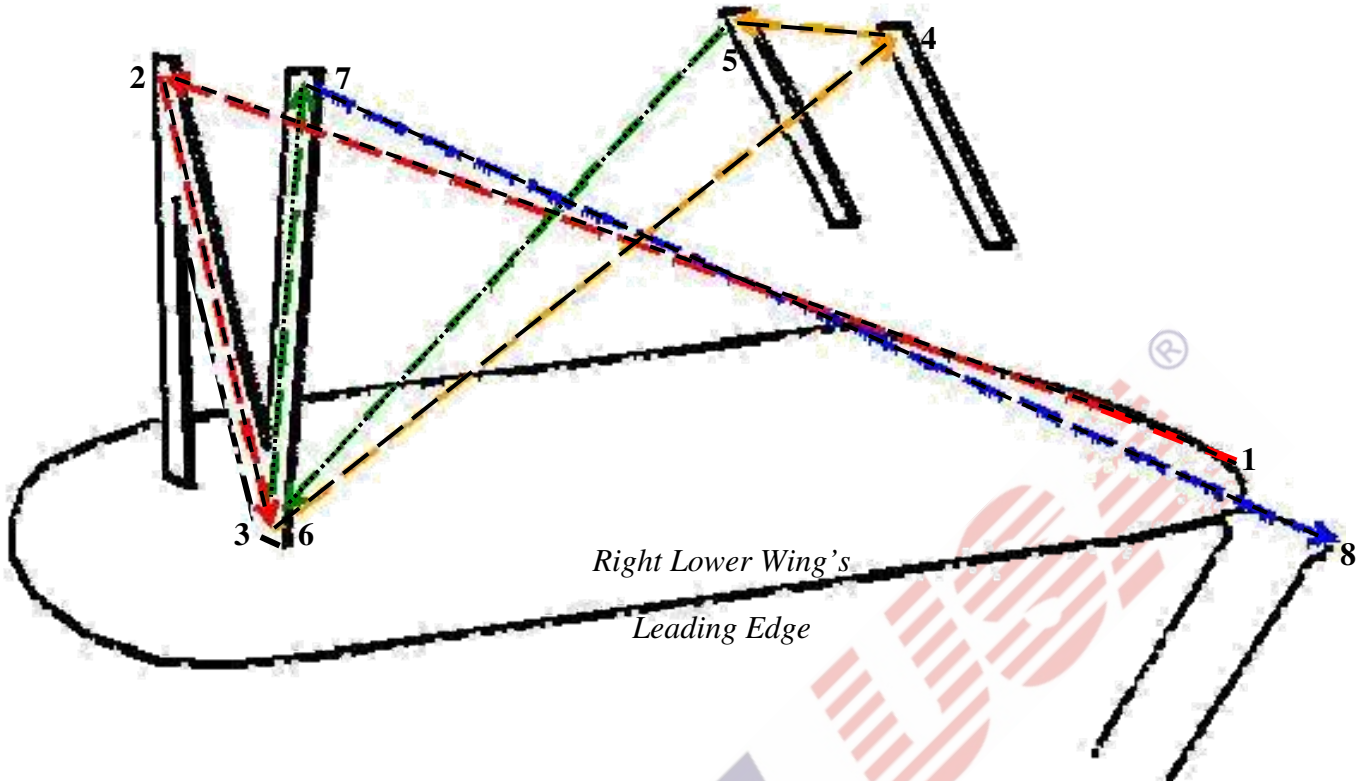
27. To **install** a supplied nylon fishing line as a **'wing wire'** between the **right side** upper & lower wing panels, begin by tying one end of the line to a spring.



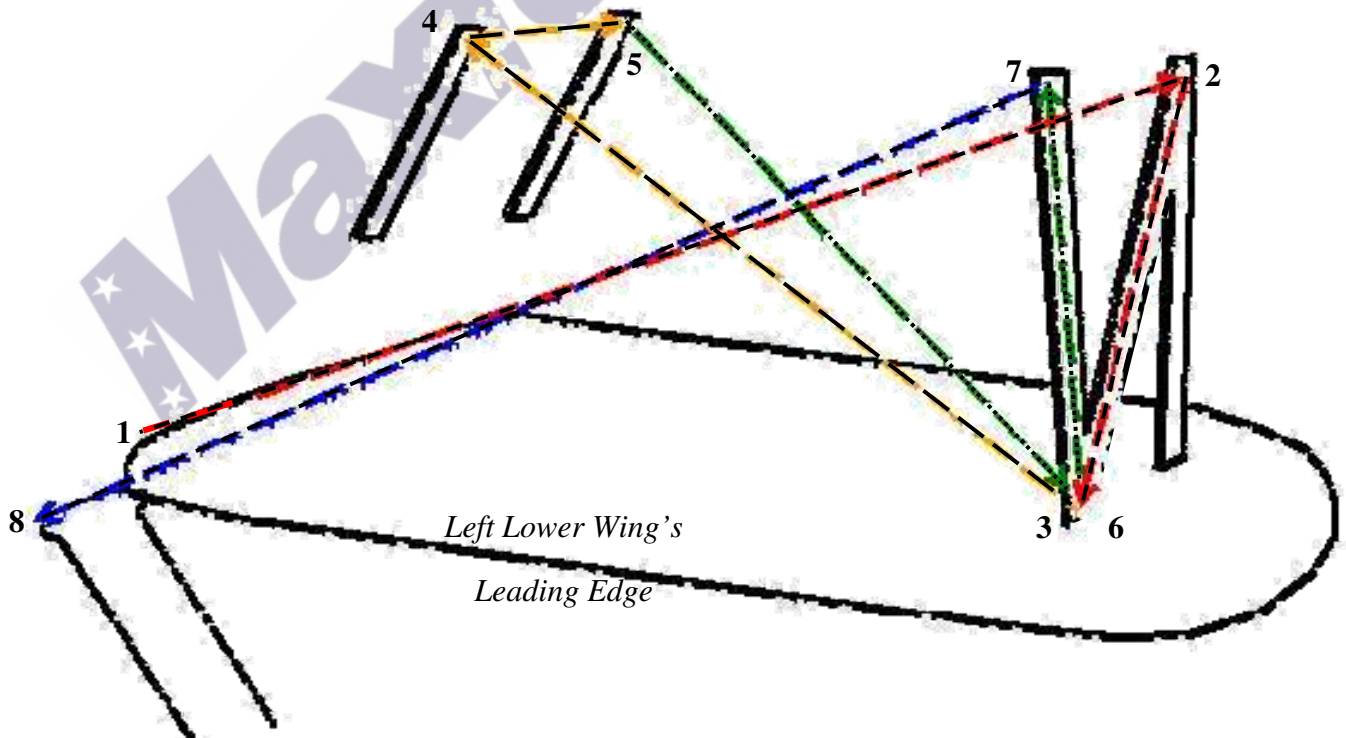
28. Use a wood screw to **attach the loose end of the spring to the fuselage** just above the wing's leading edge. (This spring is wing wire anchor point #1.) 'Harden' this screw's hole with a drop of CA adhesive.



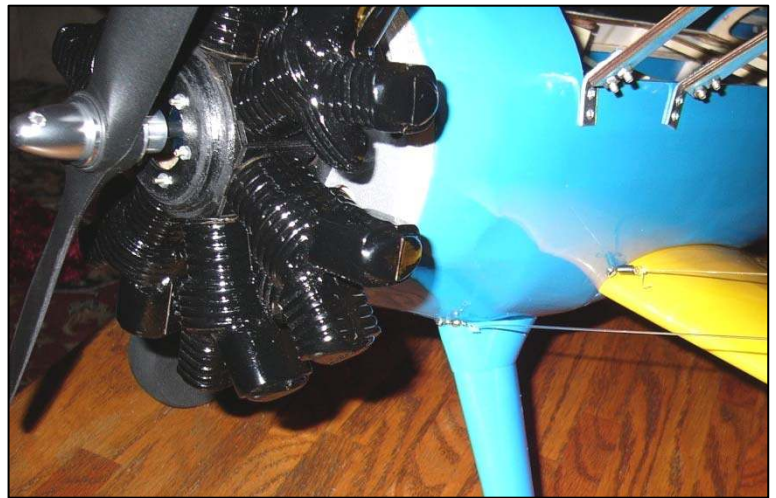
29. From the spring, route the wing wire from anchor-point to anchor-point (**#1 through #8**) as shown below:



30. **Prepare to terminate the line** at anchor-point #8 by attaching one end of a swivel at the front edge of the landing gear's upper fairing with a wood screw. ('Harden' this screw's hole with a few drops of CA adhesive.)
31. Bring the end of the line through the loose end of the swivel and draw the line snug enough to expand the spring at anchor point #1 by about 50%. **Tie the line** to the swivel at anchor point #8, add a drop of CA adhesive to secure the knots in each end of the line, then cut off and discard any excess line.
32. Using the diagram below, repeat steps 27 through 31 and route the wing wire from anchor-point to anchor-point (**#1 through #8**) to install the second supplied nylon fishing line as a 'wing wire' between the **left side** upper & lower wing panels as shown below:



33. **Test-fit** the false firewall and repainted dummy radial engine over your motor and against the PT-17's firewall. (Note: The Maxford USA U35425 motor does not require any spacers; however, you may need to add some of the supplied spacers to bring your motor forward to fit inside the dummy engine and/or to modify the openings to fit the motor's wires, depending on your motor's size and shape.)
34. When you are content with the dummy engine's fit, use the mounting holes in the dummy engine and the predrilled holes in the false firewall as a guide to drill three 1/8-inch pilot holes into the PT-17's firewall. Then, using the supplied wood screws, **attach the dummy engine and false firewall.**



35. Use the collet supplied with your motor to **mount your 11x7 propeller.** (Suggestion: To maximize safety and minimize vibration, we strongly recommend you balance your propellers before you use them.)
36. When the windshield adhesive is thoroughly dry, remove the masking tape from the cockpit hatch. Slide the front of the cockpit hatch forward to the front of the fuselage opening, then lower the aft portion of the hatch to the fuselage and **allow the rare-earth magnets to hold the hatch in position.**

Congratulations! Assembly is finished!

VII. SETUP AND ADJUSTMENTS:

1. Set your PT-17's **center of gravity (CG) at approx. 3 3/8-inches back** from the leading edge of the wing. If necessary, move the battery and/or add weight to the nose or tail to ensure the CG is correct. (Suggestion: *a*) **Always secure the battery** in place with the provided hook-and-loop material; *b*) Once you have test-flown and determined the final position of your battery, mark the battery's location on the battery shelf.)
2. **Check the Mylar** covering material's joints and surfaces; if necessary, carefully use an iron on a low heat setting to secure the edges and to tighten any loosened areas. Recheck and retighten from time to time.
3. If desired, apply the supplied adhesive-backed sticker **graphics and identification markings.**
4. **Check/adjust servo** centering, direction and end-point settings. Review your radio's instruction manual if you require assistance with any radio-related setup and/or servo-adjustment questions.
5. **Initial settings:**
 - Ailerons ± 20 degrees ($\pm 3/4$ inch)
 - Elevator ± 25 degrees ($\pm 1 \ 5/8$ inches)
 - Rudder ± 20 degrees ($\pm 1 \ 5/8$ inches)



6. If you are using a **Computer Radio**: Add some “Exponential” in your transmitter to soften the aileron’s and elevator’s control throws.
7. **Trim adjustments**: The ailerons and rudder will probably require no adjustment (in all probability you will be able to leave them centered, as assembled); however, be prepared to set the elevator trim depending on how slow or fast you like to fly. For example, if you generally fly low and slow, your PT-17’s elevator may require a small amount of up-trim.

VIII. PRE-FLIGHT CHECKS:

1. Double-check the security of your motor and propeller, and make certain all screws, linkages and other connections are secure.
2. Double-check the control directions and amount of control throw of the ailerons, elevator and rudder.
3. As with all radio-controlled model, this model airplane must pass the radio-range ground check recommended by your radio’s manufacturer, or you may not safely fly.
4. Get into the habit of moving your transmitter’s throttle to minimum before turning ON your transmitter, and carefully operate your motor to ensure your safety and the safety of all the people and objects around you.

Congratulations on completing assembly of your new Stearman PT-17.

May you enjoy many Happy Landings!

REMINDER: *An important reminder to our customers!*

- *The quality and capabilities of your finished model airplane depend on how you assemble it.*
- *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.*

PLEASE ENJOY YOUR HOBBY AND FLY SAFELY!

Manufactured by:

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Distributed by:

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