Stages of Assembling a Meyer's Little Toot

1. Make sure you have installed all the clevis ends and pins into the lower wing flying wire fittings located on the bottom fuselage ailerons before you install the side metal on the airplane. This makes the pin insertion and cotter pin installation much easier.

a. Install all of fuselage flying wire clevis ends before doing anything.

b. Make sure you identify right hand and left hand threaded clevis ends to make correct placements the first time.

c. I recommend you install all left hand threaded clevis ends on the fuselage and safety them before attempting to put your Little Toot together. This will keep the tightening directions of the wires consistent when rigging your Toot.

2. Prepare both right and left wings for installation to the fuselage.

a. Acquire two large tables. One for each wing.

b. Lay both right and left wings upside down on these tables and install the correct I-strut on the bottom side of each top wing.

c. Note: Install all bolts and nuts but do not torque anything.

i.Remember your I-struts upper ends are built with 8 degrees sweep back, so get the correct strut on the proper wing. You probably will not be able to mix right and left.

3. Install one right and one left side landing wires on each side of the cabane struts. (Lets say the back cabane fitting for now) Three half turns on these clevis ends will work just fine for now.

a. Install the right hand clevis end on the bottom end of the single landing wires. Three half turns will make them equal with the top clevis ends on the cabane struts.

b. Wrap a rag or something soft around the bottom landing wire clevis on both right and left sides. This will keep the clevis end from damaging your paint job on the top of the lower wing.

4. Prepare both lower wings for installation.

a. It is understood that you have completely installed the ailerons and safety them before attempting to install the lower wings to the fuselage. A must before installation.

b. You will need three people

i. One person on the wing tip.

ii. One person under the fuselage lying on his back. With drift punch and all necessary nuts, washers and bolts.

iii. One person at the wing root to move the wing in and out, back and forth to assist the man on the floor.

iv. Your tip man is your controller. He is able to move the wing up and down, forward and aft. He needs to be careful not to bend the wing fittings... Listening to the commands of the man on the floor... You're fitting man.

v. Man on the floor will use a drift pin to align fitting holes with fuselage fittings.

vi. Install 3/8" wing bolts in the lower wing fittings at this point.

vii. After Bolt installation is completed, quickly relieve the tip man by having the third man install the 3/8" landing wire pin through the clevis and the lower wing landing wire fitting. This will now support the weight of the wing. Make sure to install the landing wire in the same forward/aft fitting as the cabane strut. Don't cross them.

viii. Install castellated nuts on all wing bolts BUT do not torque them down just yet. This will be accomplished after the entire Aircraft is rigged.

5. Now repeat step Number 4 for the opposite side lower wing.

6. Install the second Landing wire on both right and left side of cabane struts and top lower wing fittings. Follow the same procedures as in Step 4 vii.

7. Without leveling the aircraft at this point. Use two 48" Smart levels and turn the Landing wires until you get an approx. 2 ½ degrees of Dihedral in both left and right lower wings. This is just a rough setting at this point. Final settings will come later.

8. Now you are ready to install the top wings.

a. You will need three people again.

i. One person standing in the cockpit, to install drift pins and install mounting 3/8" bolts

ii. One person on the wing tip. To move tip up and down and forward and aft to assist the man in the cockpit aligning the wing and cabane fitting holes. This person has a very important job. That is to make sure the I-strut does not touch the lower wing just yet.

iii. One person on the wing root leading edge, to assist in movement of the leading edge for ease of installation.

9. Start with the left upper wing.

10. Follow the procedures in Step 7.

11. Carefully install the wing root fittings into the fittings of the cabane struts installing 3/8" bolts with out nuts.

12. Once the wing has had the pins installed.

a. The tip man and the man number 3 carefully align the I-strut into the lower wing I-strut fittings.

b. Install two 5/16" bolts without the nuts installed. Leave loose until final rigging of the aircraft is completed to allow wings to move freely into alignment as wires are adjusted.

13. Repeat Number 7, 8, 9, 10 & 11 for the opposite wing.

14. Now that you have all four wing panels installed, it is time to install the brace wires on the tail sections.

a. Little Toot normally has one flying wire and one landing wire per side.

b. Make sure these wires are installed loosely top and bottom. Assuming you had the Vertical Fin, Rudder, Horizontal Stabilizer and Elevator installed when you took your airplane to the airport.

15. It is now time to level the airplane.

16. Raise the tail of your Toot until it is in a level attitude.

a. Use the fuselage cockpit upper longerons for pitch, and the horizontal back bar of the seat for leveling the aircraft.

b. Using two smart levels approx. 36" long.

i. Verify that the Vertical fin post is plumb at the hinge line.

ii. Adjust the brace wires in order to level, and square the right and left Stabilizers at the hinge lines keeping the fin plumb at the same time.

iii. Tighten the landing, and flying wires until snug.

iv. Check and re-check all vertical and horizontal lines are still accurate.

v. Now the tail section is rigged and you can lock in the jam nuts in place.

17. With your Toot now leveled lets finish the Wing rigging.

a. First check and make sure you have the 2 ½ degrees of Dihedral in both lower wings.

b. Now remove your 48" Smart levels and install them on the right and left top wings.

i. Take a reading on both sides. Your top wings should be level and read zero zero.

ii. If you're Top wings are not level. Then you might have in increase or decrease the dihedral of the lower wings in order to assure your top wings are perfectly level. Remember these are homebuilt airplanes, and may not be dimensionally perfect in every way. We have had to accept lower wing final dihedral settings from 2 to 3 ½ degrees to get a flat top wing.

c. This next step is very important.

i. Check the washout in both right and left wing tips. It should be approx. 1.5 degrees down at the tip. If it is not, make the adjustment in the bottom rear "I" strut to acquire desired washout. When finished lock down the adjustment bolts on you "I" Strut.

d. Now tighten your front two flying wires until snug.

e. Tighten your rear flying wires until snug.

Note: Once the dihedral is acceptable, don't adjust the Landing wires anymore this point. As you tighten your flying wires, the landing wires will receive double the amount of tension as the flying wires. In other words the 2 landing wires will always be the tighter set of wires, and can easily be damaged by over tightening from the four flying wires on each side. Always use the tightness of the 2 landing wires as the gauge.

f. With your Smart levels in place continue to watch the 2 ½ degrees of dihedral and the levelness of the top wings. Sometimes you have to add a slight bit of positive angle to the top wings and as you tighten the flying wires the top wings will become level as the rigging pulls tighter.

g. Continue tightening a flat of wire at a time until you have your wires tight enough for no more than 1" of movement @ 25 pounds in a perpendicular pull at the center of the wire span.

h. Now your Little Toot is rigged.

18. Now go back to all you lower and upper wing root bolts and add the castellated nuts and cotter pins and apply final torque at this time

19. Add the Nuts and needed washers to the I-struts top and bottom and secure with Elastic stop nuts or castellated nuts and cotter pins. I would recommend castellated nuts and cotter pins.

20. Your airplane is now rigged. Make sure all flying/landing wire pins have the cotter pins installed, as well as the cotter pins in the tail section brace wire pins.

If you would like for Meyer Aircraft to come assist you with this rigging attached are our charges for this work. This is assuming the wings and tail surfaces are already installed and all we have to do is rig you're Toot.

1. Travel Cost to and from your facility.

2. You pick us up at the airport and return us upon completion.

3. One night in Hotel

4. Lunch / Dinner

5. $500.00 USD rigging fee.

If you want to discuss this process with us, please feel free to contact me at any time.

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