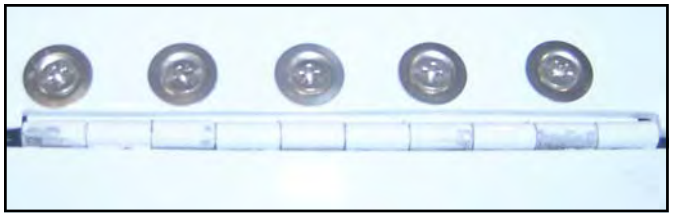
21. Elevator Final Installation

Items required: Elevators, Rear elevator bell-crank, 1.25" push pull tube, large end cones, 5-24 rod ends, 10-32 countersunk screws, #10 timmermann washers, AN3 hardware, AN4 hardware, AN5 hadware

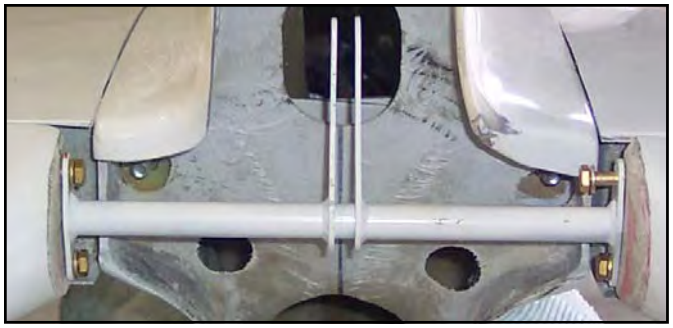
Date Completed:

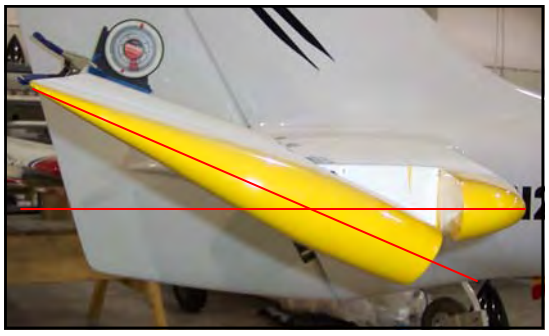
1. After paint it may be needed to run a 3/16" drill bit thru the attach holes to clean out the paint.
2. Counter sink the holes so that the timmermann washers will fit.
3. Use clecos to hold the elevators in place temporarily.



4. Install the elevators with #8 timmermann washers, 8-32 counter sunk screws, and 8-32 nyloc nuts

5. Place the rear elevator bell crank in position and slide the AN4 mounting bolts in place, **do not bolt at this time.**
6. Place the Elevator in its full up position. This will be 25 degrees of up travel.





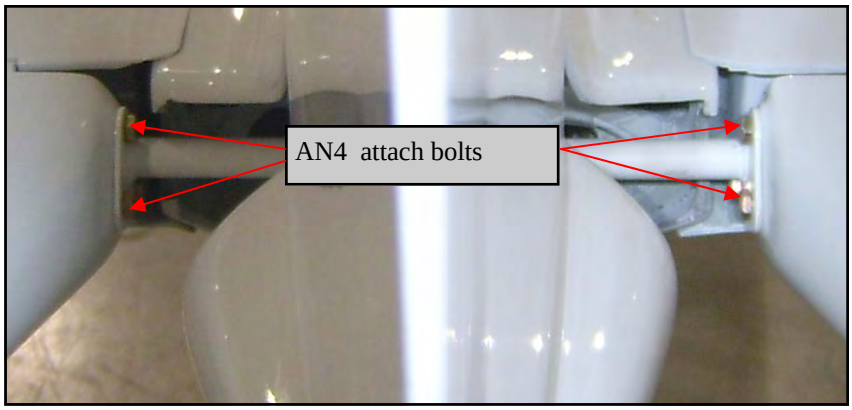
7. Place the mid elevator bell-crank so that the top rests with in 1/8" of the seat bulkhead.

8. Measure between the bottom hole of the mid bell-crank, and the hole in the rear elevator bell-crank.
9. This measurement will be the length of the elevator push pull tube between the rod ends.

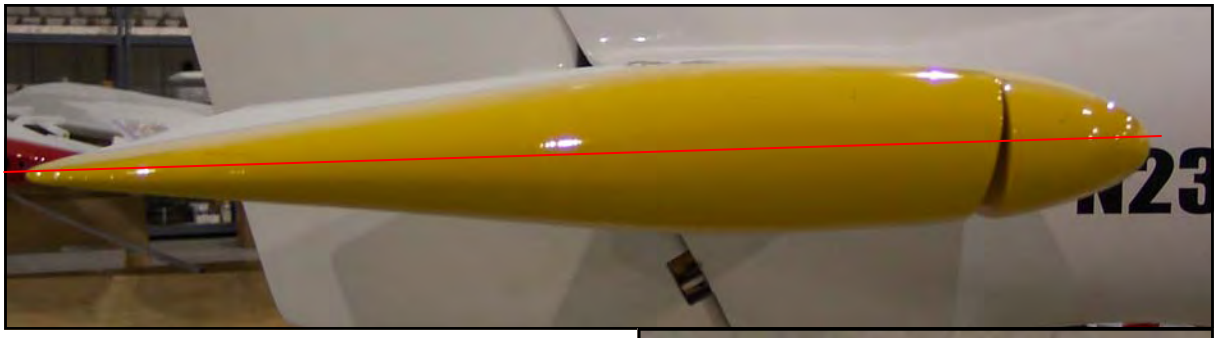
10. With that in mind, locate a large end cone and a 5-24 rod end. Run the rod end in to the cone 5 turns, this is the minimum so now run the rod end in half the distance left and lock the jam-nut.
11. The length between the center of the rod end and the raised flange on the cone is important. Take the distance measured between the bell-cranks, and subtract the distance of the rod end/cone assembly from each end.
12. Cut the push pull tube to length, de-bur the ends of the tube and check the fit of the end cones.
13. Measure in 1/2" from the end of the tube drill a 3/16" hole in one side of the tube.
14. Slide the end cone in and with a v-block drill thru the cone and the other side of the tube.
15. Use the appropriate AN3 bolt to attach the end cone.
16. Repeat for other end of tube, with one exception.

17. A trim hook must be installed on the bottom side of the mid bell-crank end.
18. A slightly longer hook must be made and installed 25" back from the front and attached to the top with a AN3 bolt thru the tube.
19. The hook should be 6".
20. Slide the push pull tube in thru the back of the tail spar, it will not go thru with rear bell-crank installed.

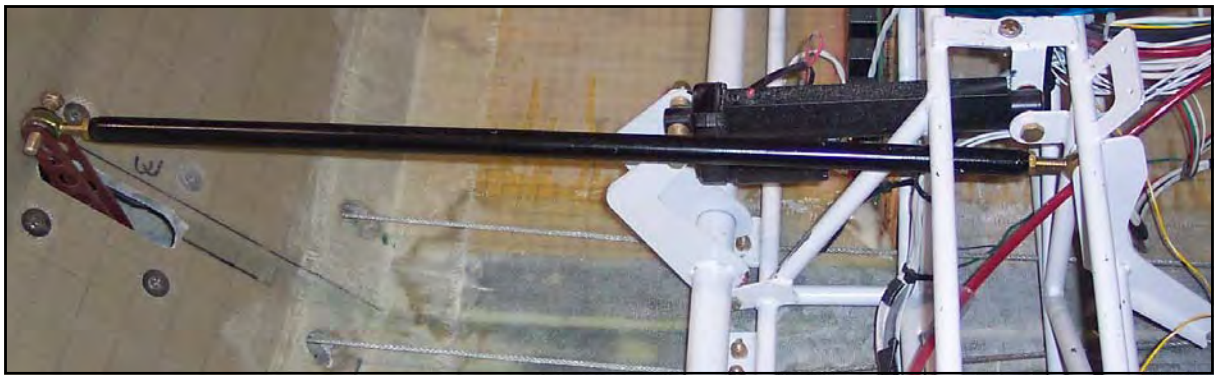
21. Attach to the mid bell-crank with a AN5 bolt.
22. Install the rear bell-crank with AN4 bolts as in the picture below.
23. A 1" hole must be drilled in the bottom of the elevators to access the back of the bolts to install the nyloc nuts.
24. Once finished a plug can put in the hole to "clean" it up.
25. Place the elevator in the neutral position, place an inclinometer at the widest part of the elevator.



26. Note the reading, this will be the zero point.
27. Move the elevator up for a 25 degree change.
28. Place the mid elevator bell-crank back towards the seat bulk-head leaving 1/8” clearance between them.



29. Adjust the long push pull tube at this point.
30. The rod ends are attached to the bell-crank with AN5 bolts.
31. Once the push-pull tube is attached lock the jam-nuts.



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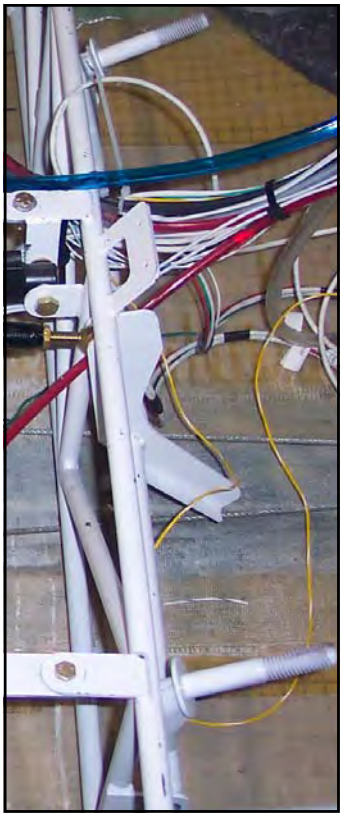

32. Locate the Stick mixer.
33. Install a flanged bronze bushing in each mixer mount on the front side of the spar box.
34. Install the Stick mixer between these mounts with AN4-5A bolts and loctite 242, use washers to take up side lash and tighten the bolts so the mixer still moves freely.
35. Now Place the Stick mixer in the up position against the stop.
36. Locate the mid elevator push rod, this part should be 21” in length and 5/8” diameter tube.
37. Place a 5-24 rod-end and jam-nut on each end.
38. Adjust the push rod to fit between the bell-cranks.
39. Bolt the push-rod in with AN5 bolts and nyloc nuts.
40. Lock the jam nuts down.
41. Insure that the elevator will hit the stop but not interfere with anything else. The rear bell-crank to rudder clearance is the most critical check that there is no interference.
42. The elevator should travel down 15 degrees. The clearance between the elevator and the horizontal tail or balance, depending on the modification you chose, should be about 1/8” at 15 degrees down if the modification was done correctly.