

<b>Revision #</b>	<b>Date</b>	<b>Detail of changes</b>
1	4-9-2009	Original
2	4-23-2012	Addition of Revision page and document number/name

**Section Objective:** To fabricate and install the mid elevator bell-crank. Cut all access and clearance holes needed in the seat back bulkhead

**Required parts:** ALE-0031 mid elevator bell-crank, 1" aluminum angle stock 12"-0.125", 2 bronze bushings.

**Required hardware:** 1 AN4-32A, 4 AN960-416A washers, 1 AN365-428A elastic stop nut, 4 AN365-1032A elastic stop nuts, 4 AN960-1032A washers, 10-32 1.25 long countersunk screws, #10 timmerman washers.

**Required tools:** Cutting wheel, 1" hole saw, #10 drill bit, 1/4" drill bit, electric drill.

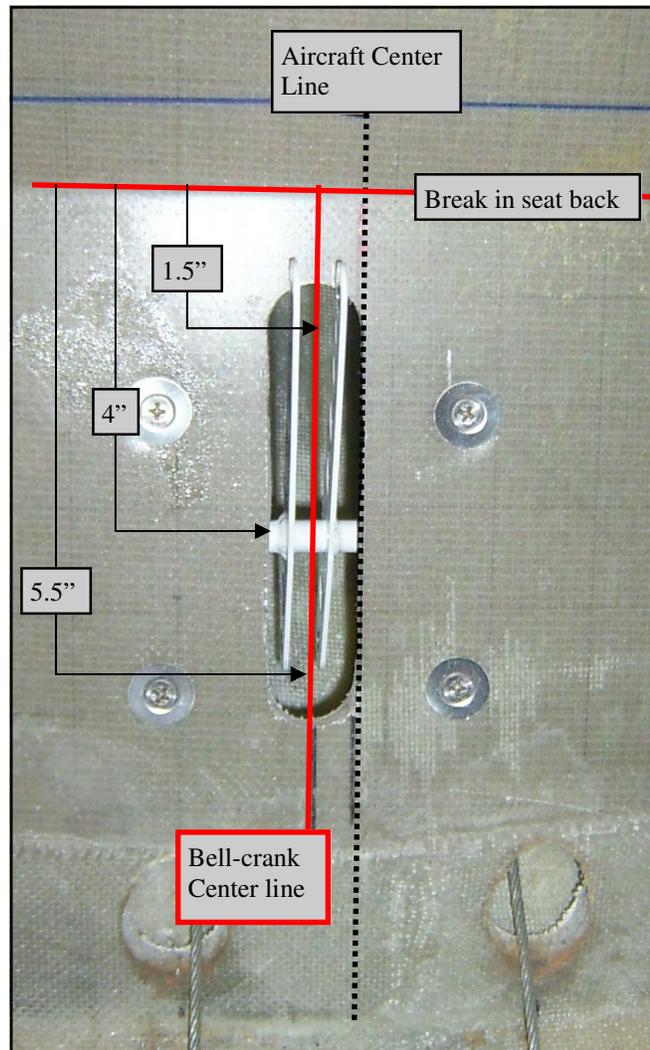
**Required Conditions:** None

**Required skills or training:** Simple knowledge of hand tools and use. Ability to read CAD drawing.

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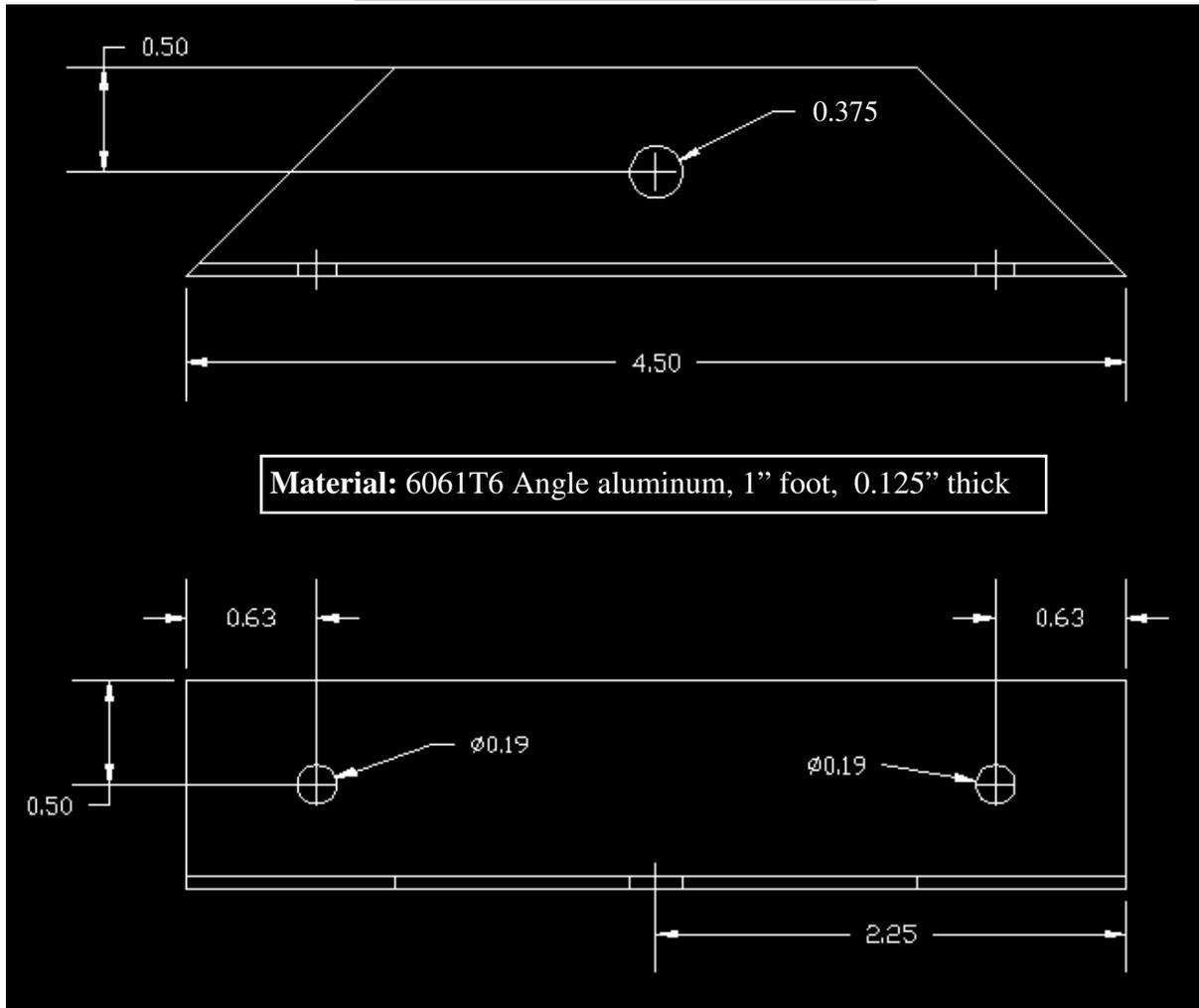
Mid-span elevator bell crank

1. Locate The center line of the aircraft on the seat back bulk-head and mark.
2. Measure over to the co-pilots side 0.5" and mark. The bell-crank will be located here.
3. Measure down from the break in the seat back 1.5" and 5.5" on the bell-crank center line.
4. Using the 1" hole saw drill 1" holes at both of these locations.
5. Use a cut-off wheel to connect the 2 holes to create a bell-crank slot in the seat.
6. Sand the edges of the slot smooth.



7. Use the drawing on the next page to fabricate the mid bell-crank mounts. 2 are required.
8. Make sure to de-burr all holes and use a fine file or buffing wheel to clean all edges.

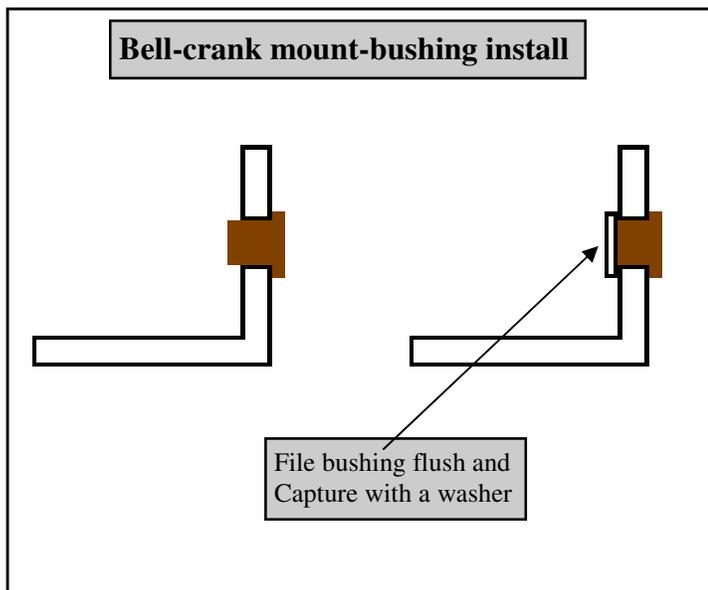
**Mid elevator bell-crank Mount**



Date Completed:

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9. Insert a bronze bushing into each of the brackets.
10. File the side of the bushing protruding thru the bracket as shown in the picture to the right.
11. Assemble the bell-crank and brackets as shown in the diagram on the next using a AN4-32A and hardware shown.
12. Be sure to capture the bushing with a washer which is slightly larger than it when assembling.



13. Once the bell-crank assembly is complete, it is help full to make a drill jig for the seat back bulkhead.

14. Place the completed assembly on a stiff surface you can use for the jig, thin plywood or scrap aluminum will work well.

15. Match drill the base plate holes in the jig material. Be sure to reference up and the front of the jig.

16. Cut out a slot for the bell crank and note the bell crank pivot point.

17. As shown in the picture below, the pivot should be mounted 4" down on the seat from the break in the seat back.

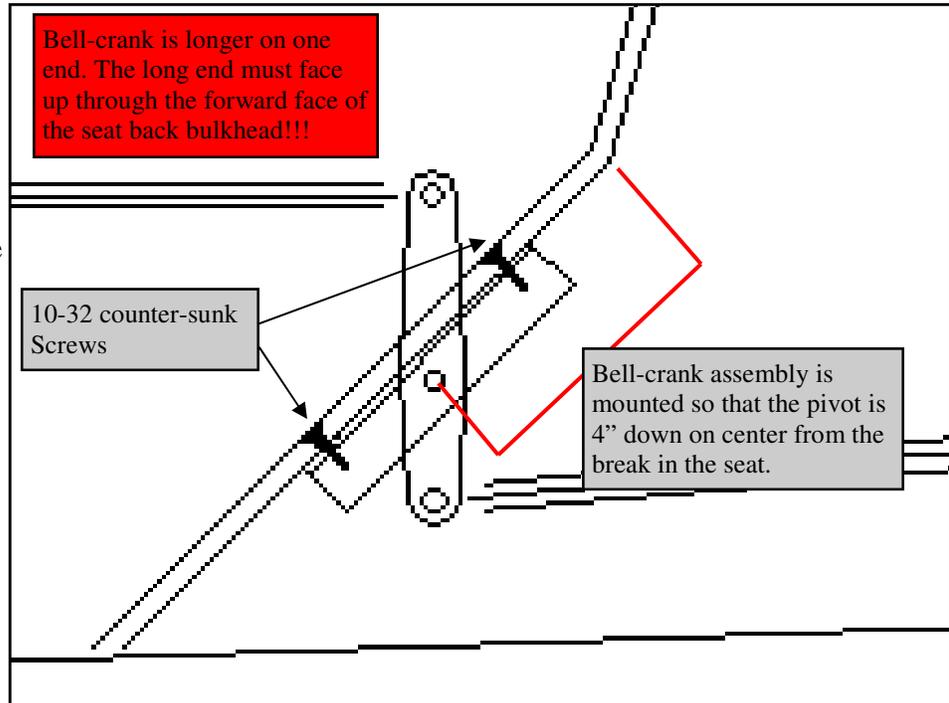
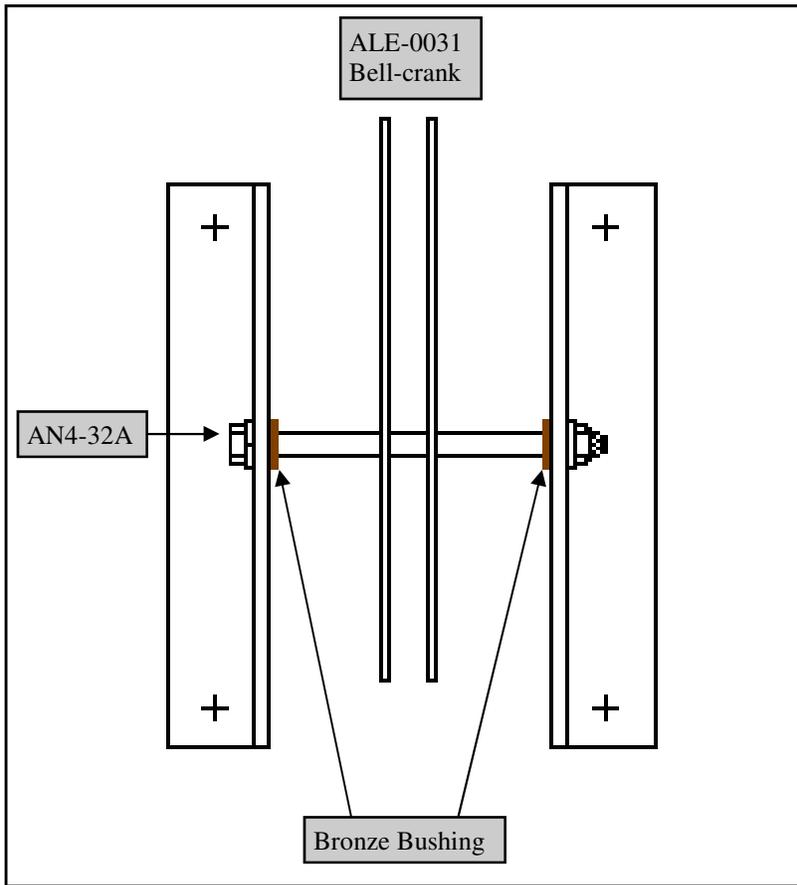
18. Put the drill jig in place with the pivot point 4" down.

19. Make sure the side marked front is facing you so the holes match properly.

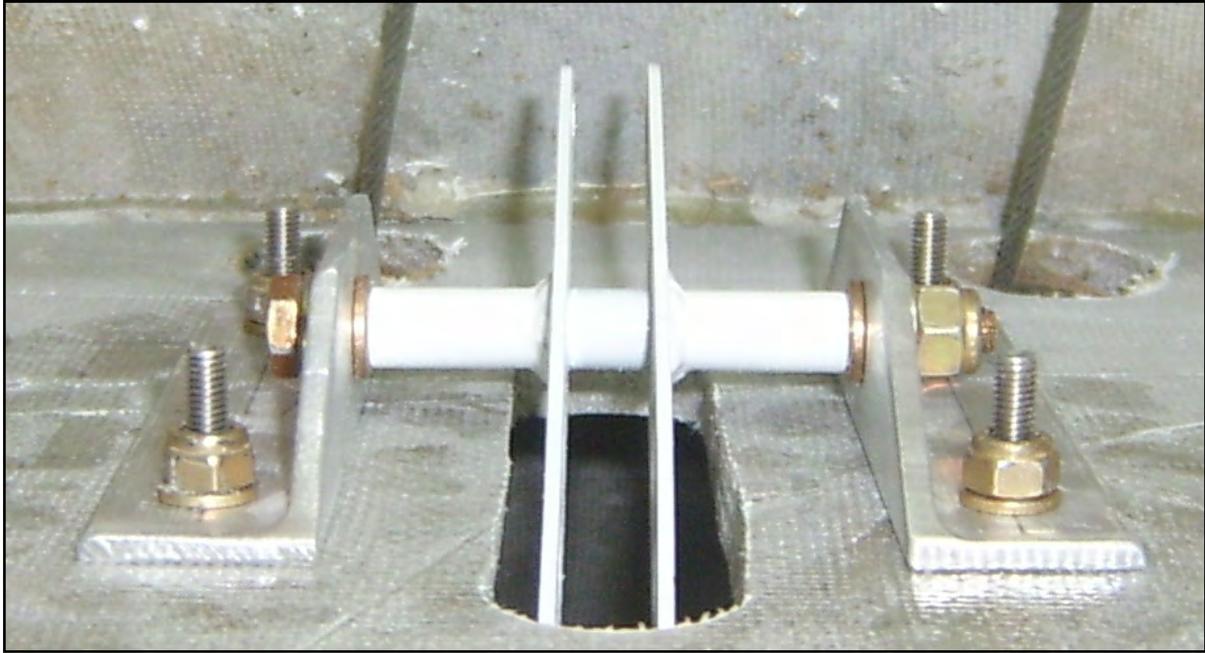
20. Match drill the holes with a #10 drill bit.

21. Attach the bell crank to the bulkhead as shown with #10 screws tinnerman washers and nyloc nuts.

**Intermediate bell-crank Assembly**



Completed Bell crank assembly installed from reverse side of bulk-head



Date Completed:

Flap Drive Clearance Cut

1. Start by marking the left and right sides of the bulk head as shown in the picture below.
2. Your mark should extend straight down to within 1" of the floor.
3. Use the 1" hole saw in the lower corner to create a nice radius.
4. Next use a cutting wheel to cut the line you drew and from the 1" hole upward to the side of the fuselage. Remove the cut out section.
5. This cut out area allows clearance for the flap drive rod to operate and wiring harness to run back behind the seat.

