

1.

Installing the Flip-Flap actuator

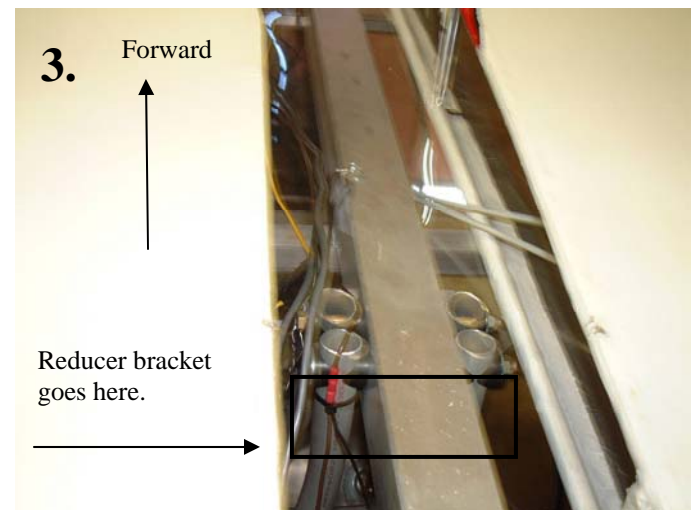
Remove the flap handle in cockpit, and all associated hardware. Remove the push pull rod going back to the slider.

Take the reducer bracket and place over the right side of root tube butting up against the nylon saddle washers.

Drill 2- 3/16" holes on root tube through the bracket and use 3/16" rivets to attach.



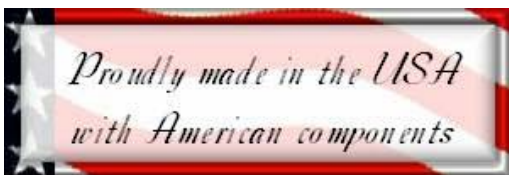
2.



3.

Forward

Reducer bracket goes here.



You may want to place a spacer under the bracket to hold it in place and provide a better rivet placement. A C clamp could even assist in holding the bracket.

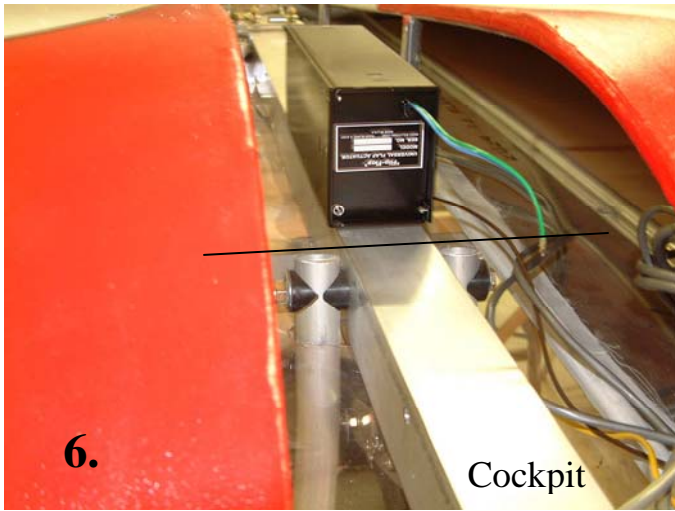
Placement of the unit is with the actuator bar on the lower portion of the unit.



4.

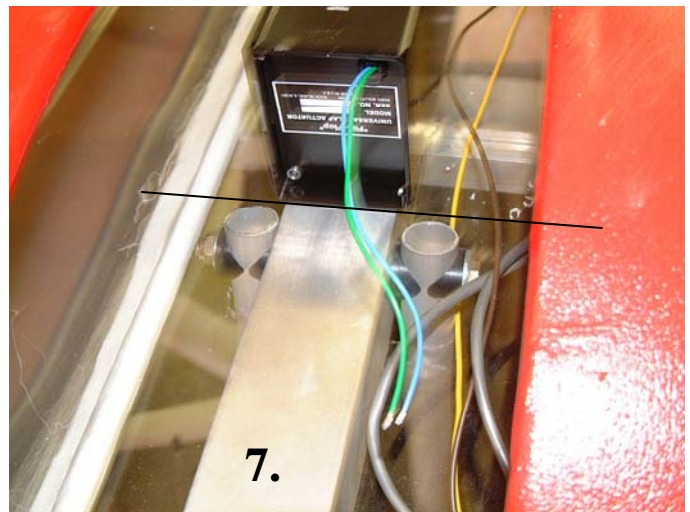


5.



6.

Cockpit



7.

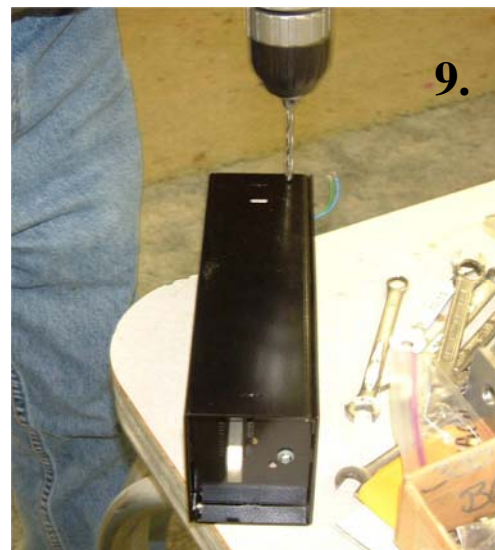
6. Place the unit even with the nylon saddle bushings behind the 2 forward uprights. See lines.

7. With the actuator shaft on the lower position closest to the root tube, mark position with pencil. Later holes will be drilled in the tube.

8. Measure $\frac{1}{4}$ " from the side and $\frac{1}{2}$ " from the end of the unit and drill $\frac{3}{8}$ " holes in opposite corners. After drilling rear hole, drill out actuator arm hole out to $\frac{1}{4}$ ". This accommodates the $\frac{1}{4}$ " bolt that Challenger uses. You will need 2 - AN3 bolts $2\frac{1}{2}$ " long with washers and lock nuts to secure to the aircraft.



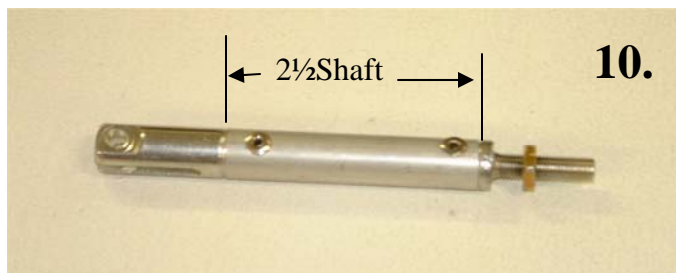
8.



9.

You will need to construct the small shaft from the rod removed from the aircraft or use a piece of scrap.

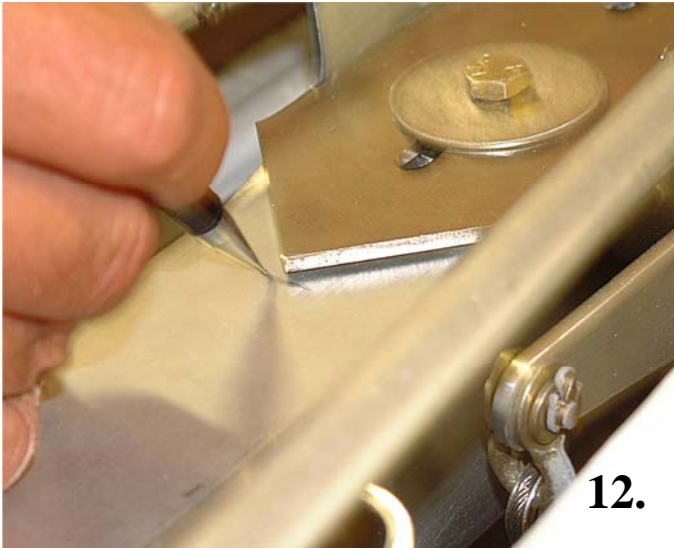
Mount to the slider bracket and the reducer bracket. Now we are ready to construct the long rod between the reducer bracket and the actuator.



10.



11



12.



13.



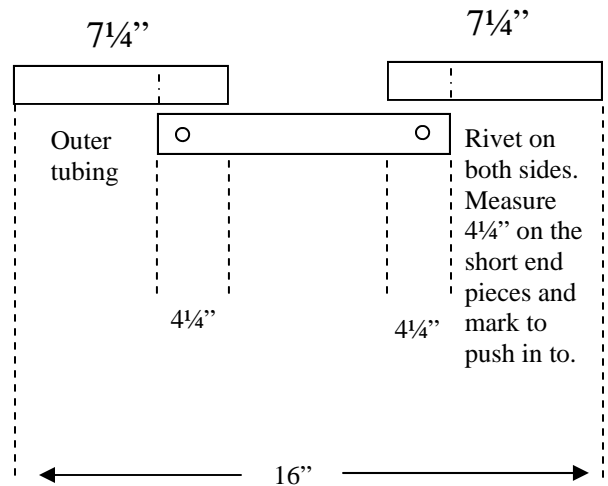
14.

Place the actuator unit in position and drill $\frac{3}{8}$ " holes through the root tube. Holes can be marked so unit can be moved aside. Secure the unit with two AN3 bolts $2\frac{1}{2}$ " long. Be sure to check cockpit area and make sure that the choke cables are out of the way.

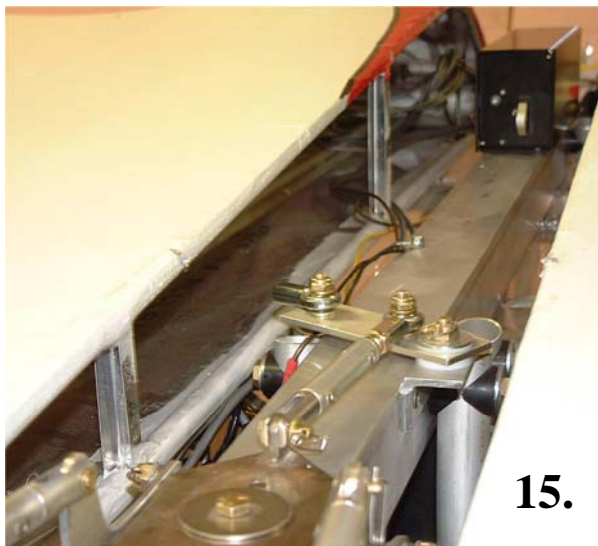
Now you can make the long rod from the one removed according to the example on the right.
(Never exceed the manufacturers recommended range limits when adjusting rod extension.)

To determine the proper setting pull the slider all the way aft and pencil in a line.
Push slider all the way forward and draw another line.
Now make a mark in the center. There is a one inch movement so the line will be $\frac{1}{2}$ " from both lines.

Make the long control arm to these sizes.



Not drawn to scale



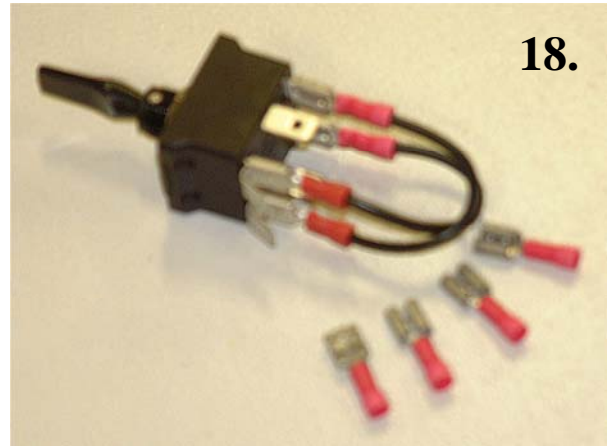
15.



16.



17.



18.

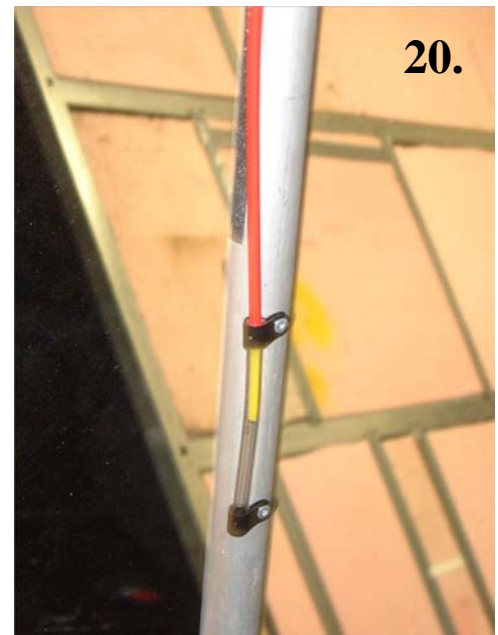
After making all the adjustments to the flaperons and tightening all the bolts you can mount the switch. Find a location on the left hand side of the control panel and drill hole large enough to accommodate the switch. There are 4 terminals on the switch that need wiring. You can use the 2 beside each other to go to the 2 leads on the actuator. Of the remaining 2 leads one goes to 12Volts and the other to the ground. Check the switch for proper operation and if pushing the switch down makes the flap go up then switch the 12 volt lead with the ground and test again.

You can route the wires through the front left upright.

The indicator is installed by raising the flaps all the way. On the unit you will see the hole where the yellow tubing can be screwed into. Now push the red tube over the yellow and push it into the unit. There is a clear piece of tubing to go on the end and 2 clamps to rivet to the right upright. You will have to cut both tubes to a position that is comfortable to you and then make any markings on the upright to indicate flap position.



19.



20.



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