

**STOL CH 801 ELEVATOR ASSEMBLY - SECTION 1
"SKELETON"**



Refer to the packing list for complete inventory of the parts.

The ribs are supplied tapped together with one label. Remove the tape and label each part for future reference.



Exploded view,
see drawing 8XH-1

Also refer to drawing 8HA-1
for the location of the rib
stations on the spars.



STOL CH 801 tail



ORIENTATION:
The next 2 pages will show how to identify the left and right elevator tip ribs 8H1-1



Lay left and right tip ribs 8H1-1 back to back.
CHECK: The flanges are flush.



Lay the nose rib 8H1-6 and the rear rib 8H1-7 on top of the tip rib 8H1-1
REFERENCE: Line up the leading edge of the nose rib with the front of the tip rib



Rear rib 8H1-7 is symmetrical



Mark the center line on the rear rib 8H1-7



Use the rear rib to locate the center line through the tip rib.

Hold the rear rib to make sure it does not shift or move, remove the nose rib and mark the middle of the flange on the tip rib. Mark the center line along the aft edge of the rib.



Center line through hole for hinge pin 8H3-2



Lay a straight edge on the center line of the two ribs.

Bring the L and R tip rib nose to nose. Lay a straight edge on top of the ribs, adjust the ribs to line up the center lines of both ribs with the straight edge.

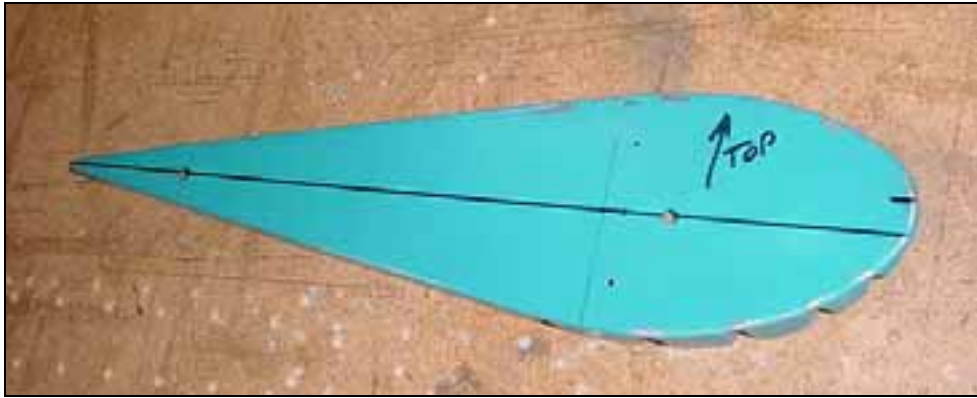


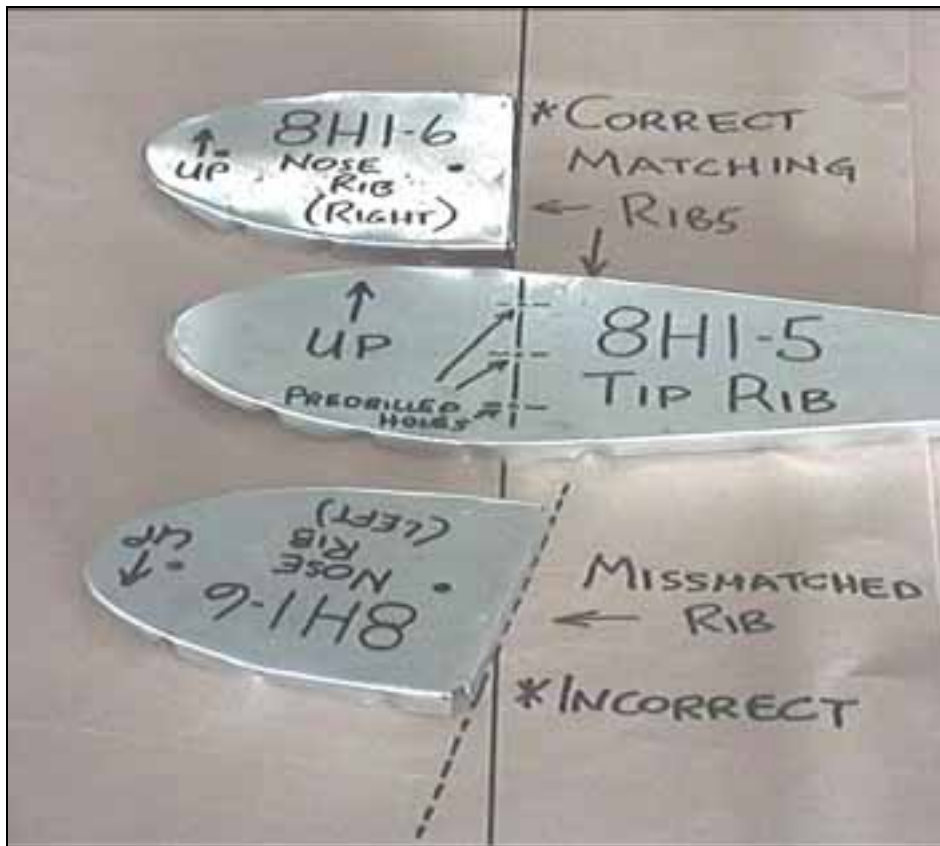
Photo of right tip rib

Mark the orientation on the rib. To do this we will compare them to the tip rib 8H1-5, which is prepared as shown in the above photo. There are two 1/4" tooling holes in the tip rib. Draw the centerline through these holes to



This centerline is approximately 15mm below the center of the nose radius. It is a good idea to mark "up" onto the two tip ribs.

When the rib is positioned as shown in the photo they are then positioned, as they will be in the aircraft. Thus up is as shown.



ORIENTATION of the nose ribs 8H1-6

Compare the outside profile, moving the nose rib until this profile matches that of the tip rib. When the profile matches the straight flange on the tip rib must be aligned like the top rib in the photo. Mark "up" on the tip ribs.

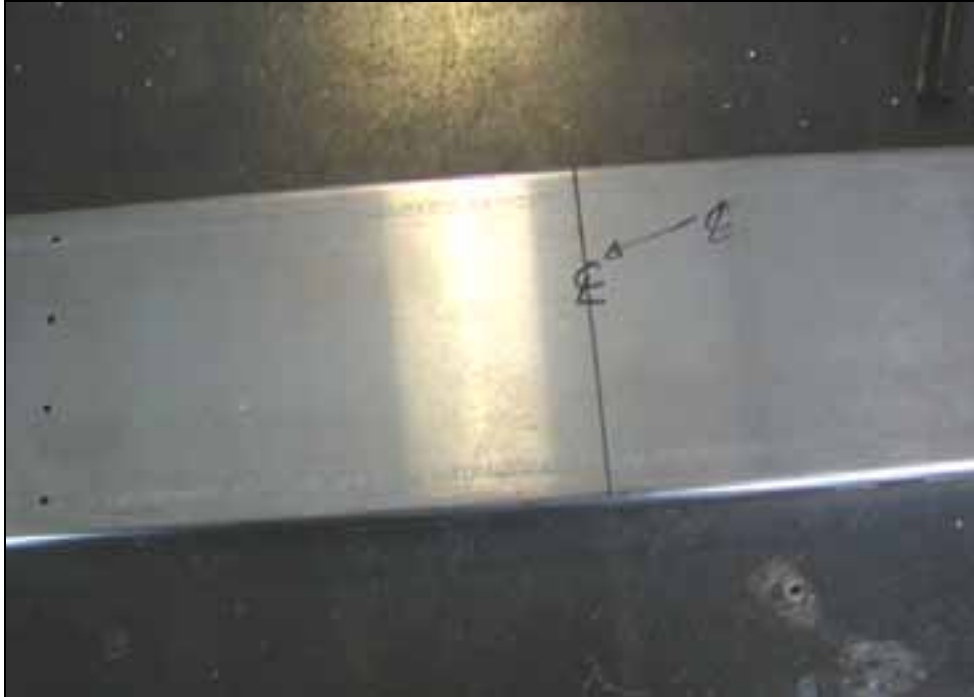
The top two ribs in the photo are positioned correctly. It's a good idea to mark "up" right onto the ribs. To compare the nose ribs to the tip rib, place the ribs as shown in the photo. NOTE: Tip rib in this photo is for the **left side**.



**ELEVATOR SPAR
8H3-5**

Use a square to layout
the aircraft center line

Elevator Spar 8H3-5, length = 3029mm
Layout the aircraft center on in the middle of the spar at 1514.5 mm



Center line



ELEVATOR HINGE PIN ANGLE 8H2-15

ORIENTATION:

The spar flanges 8H2-15 point towards the rear

CLAMP

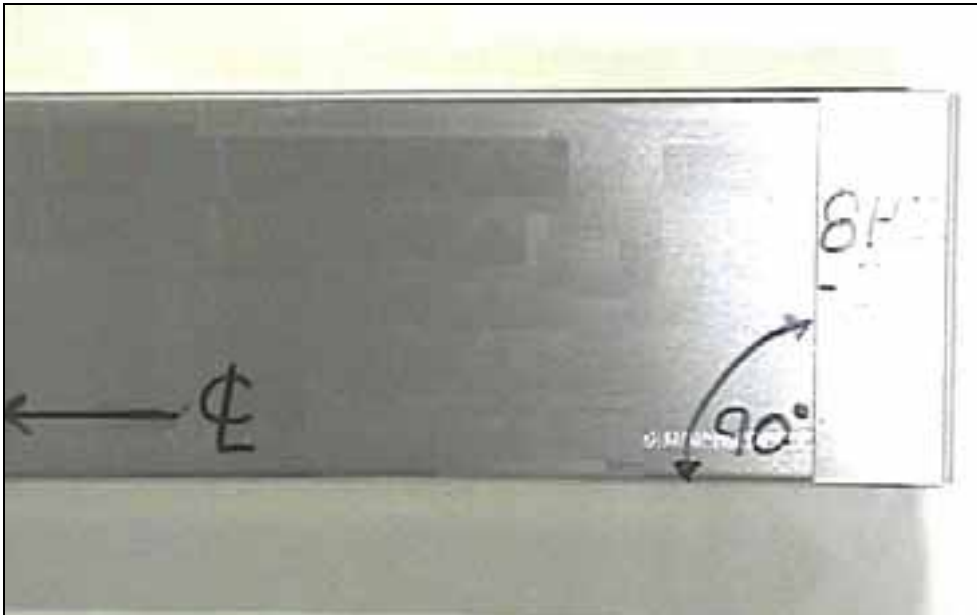
The long leg of the angle on the front side of the spar, the short leg point's forward.

CHECK

1534mm is from the centerline to the end of 8H2-15 This should be held $\pm 1mm$.

The skeleton construction is started by fastening the angle 8H2-15 at each end of the spar.

IMPORTANT: Use a square to set and check the end of the Angle 8H2-15 is square to the top and bottom flange of the spar.



The rivet holes are located by the predrilled, undersized holes in the spar. Drill through the predrilled spar holes with a #20 drill & Cleco.



4 RIVETS A5

Note: The preferred method is to drill and cleco the skeleton together, then take it apart, deburr the hole, apply corrosion protection. Re-assembly with clecos and rivet.

Note: do not drill any holes or clamp anything to the side flange.



Mark the centerline on the spar and on all rib flanges.



REAR RIBS 8H1-7

ORIENTATION

The rib flanges all face outboard from the centerline.

The elevator has seven rear ribs, three to the right of center and four to the left of center.

Drill the holes - 3/32.
Cleco as you go.

Check the drawing of the elevator skeleton to determine the proper orientation of the 8H1-7 ribs. These ribs are symmetrical. Align the centerline of the flange with the predrilled spar holes. Clamp the rib in place, check the position of the rib, keep the spar and rib flanges flush on both sides of the spar.



CHECK: The side of the Rib is square to the top flange of the spar.

4 RIVETS A5

Repeat the process for the rest of the 8H1-7 ribs.
Mark the identity and location of each rib on the rib and spar.
Remove the ribs and place aside for now.



NOSE RIB
8H1-6, qty = 1L + 1R

Keep flanges flush, ribs square.



Align rib flange centerline with holes in spar.



First clamp the rib in place, then back drill through the pre-drilled holes in the spar into the rib flange.

4 RIVETS A5
(same holes as rear ribs)

CHECK: The top and bottom are flush with the spar.



An adjustable square makes an excellent setting gauge.

Set the dept on an adjustable square to the length of the nose rib 8H1-6



Mark the rive line on the 20mm flange of the hinge pin angle 8H2-15

Fitting the tip ribs is next.

Position the tip rib 8H1-5 with the leading edge against the adjustable square (Measure the distance from the spar to the front of the nose ribs 8H1-6, position the tip rib 8H1-5 exactly at the same distance from the spar).

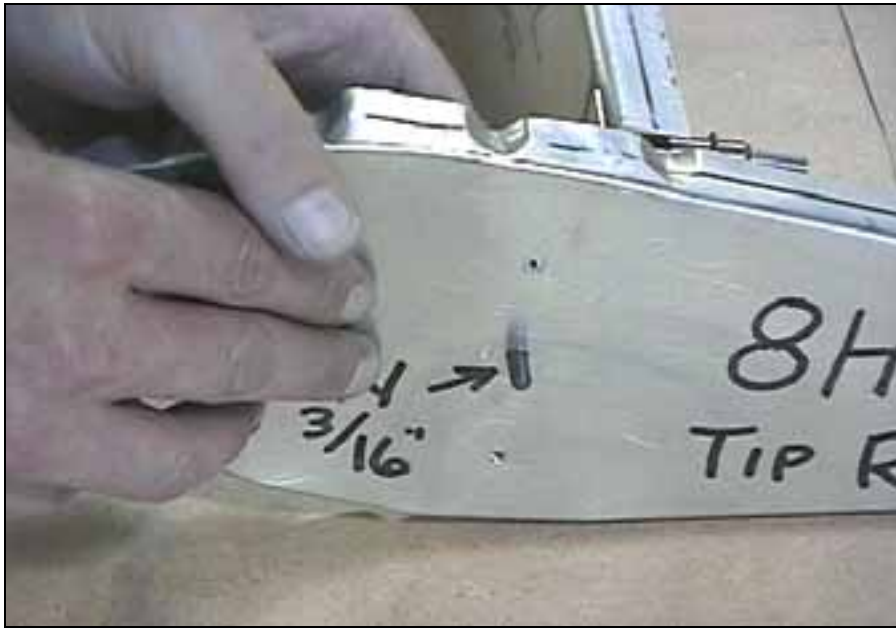


Keep the flanges flat on the bench (rib flanges is flush with top and bottom of the spar flange).

Clamp the tip rib to the elevator hinge pin angle 8H2-15.
 Drill the center hole first; then open it up with a 3/16 drill to accept the outboard hinge pin.



Open hinge hole to 3/16.



The hinge pin is inserted through the elevator hinge pin angle 8H2-15 and the tip rib. Make sure that the hinge plate is flat against elevator hinge pin angle 8H2-15 – you may need to trim the aft edge of the hinge pin 8H3-2 to make room for the radius (flange 8H2-15)

Insert hinge pin. Clamp the hinge pin, elevator hinge pin angle 8H2-15 and tip together. Keep everything flat on the table, check position of spar / rib. All ribs should be lying with the flanges flat on the table.



When riveting install the rivets from the outboard side..

2 RIVETS A5
(8H1-5, 8H2-15, 8H3-2)

Drill one of the other two holes with a 3/32" drill and cleco. Check rib alignment. Drill the second hole with a 3/32" drill. Open the two holes with a #20 drill bit. Deburr and rivet rib hinge pin and spar bracket with two A5 rivets.



**ELEVATOR CHANNEL
8H2-14**

ORIENTATION
Top and bottom flange
point forward

The channel 8H2-14 is
connected to the rear ribs
with std "L".

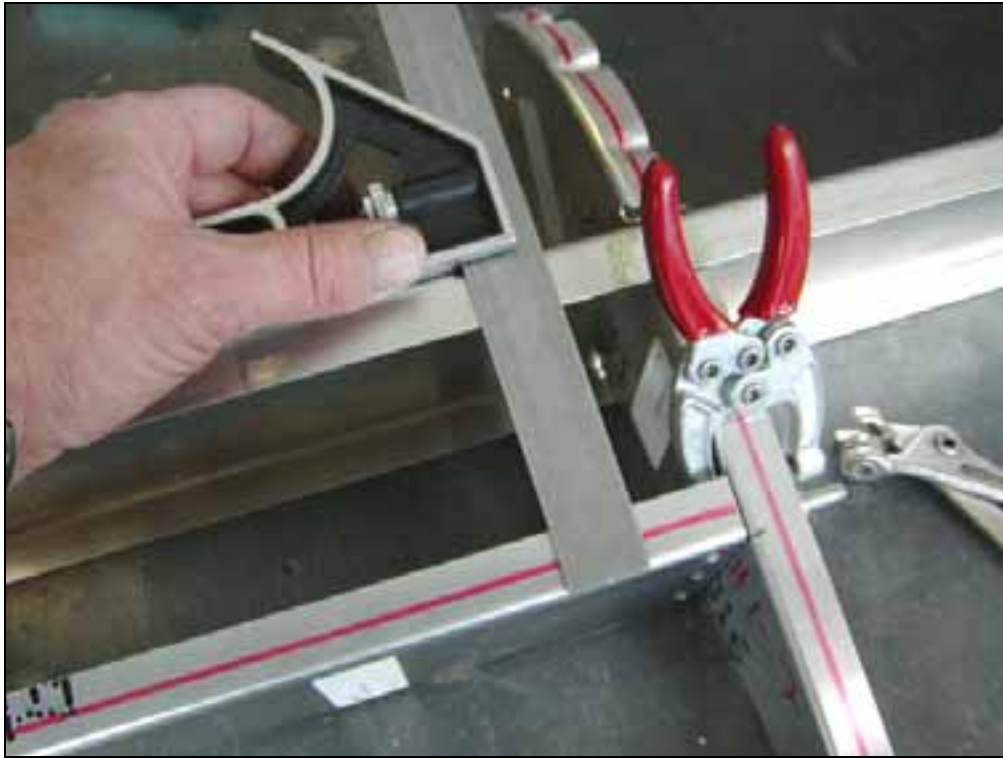
The channel 8H2-14 is fastened to the rear ribs with one piece of Std "L"
75mm long at each end.



3 RIVETS A5
L angles to channel
8H2-3

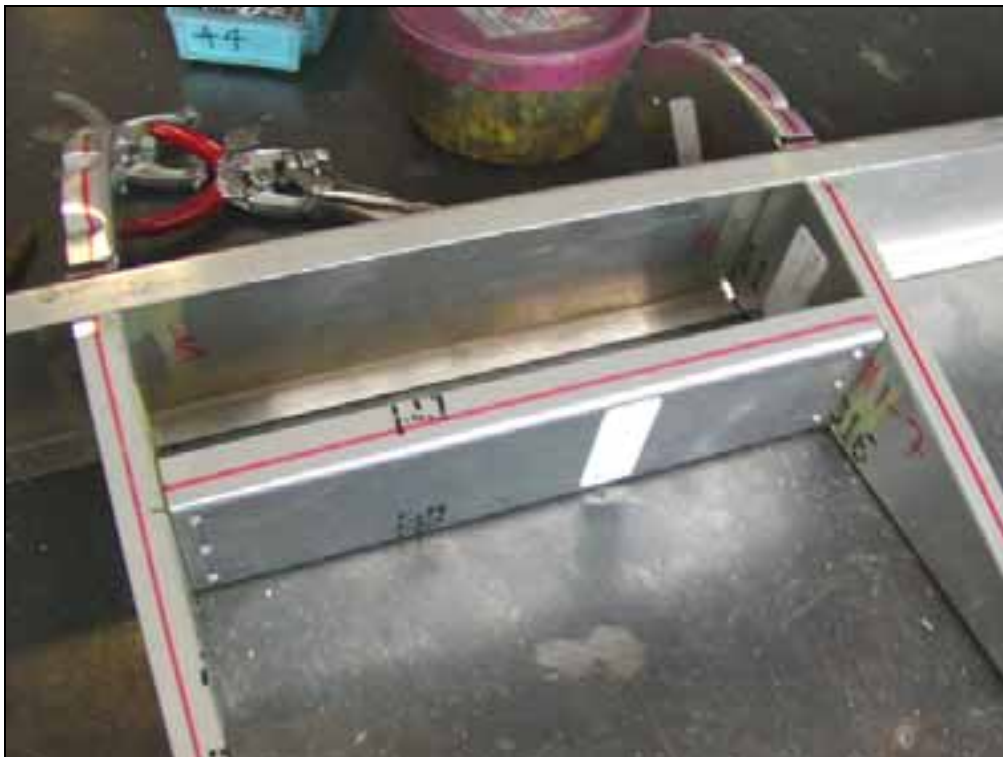
CHECK
The "L" at right angle to
the spar flange

First measure the distance between the two center most rear ribs close to the
spar. The "L" mounted on the rear channel will be positioned such as to
provide that same dimension.



3 RIVETS A5
L angles channel 8H2-14

Now place the channel in position between the rear ribs.
The channel is to be positioned 105mm back from the front surface of the spar (web to web distance). This will result in a flange center distance (spar flange to channel flange) of 85mm.



Note: The rivet lines on flanges will be used to help line up the elevator skeleton with the pre-drilled holes in the skins 8H4-3 and 8H4-2

Disassembly, deburr, apply corrosion protection
Reassembly with Cleco Rivet with A5



3 RIVETS A5
L angles to rear ribs 8H1-7

The skeleton is now ready for the skins.