TUTORIAL VIDEO 07

# 07 Connectors: washers and rivets

Put a washer round every rivet hole of a wing bay part in one go, mesh it with a clean ring of elements round each hole, and join the bay's nine parts with rivets where their holes line up.

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| **Tutorial files** | folder `07_Connectors_washers_rivets` — open `bay_start.beid` first |
| **Video** | Watch video 07 on YouTube |
| **Download files** | Download the tutorial files (97 MB) |

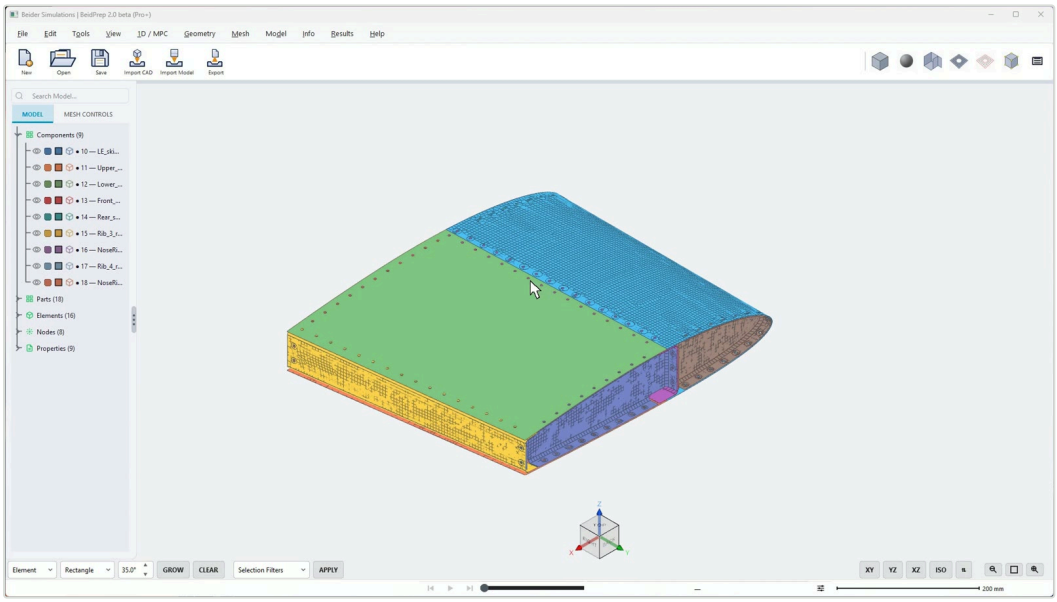
## 1 Opening, The bay

video 0:00

This video puts a washer round every rivet hole of a wing bay, meshes it, and joins its parts with rivets.

The bay has nine sheet-metal parts, already turned into mid-surfaces.

Eight are washered and meshed already; the upper skin is left bare, to show each step.



The screen at 0:16 in the video.

## 2 Washer panel, Scan the upper skin

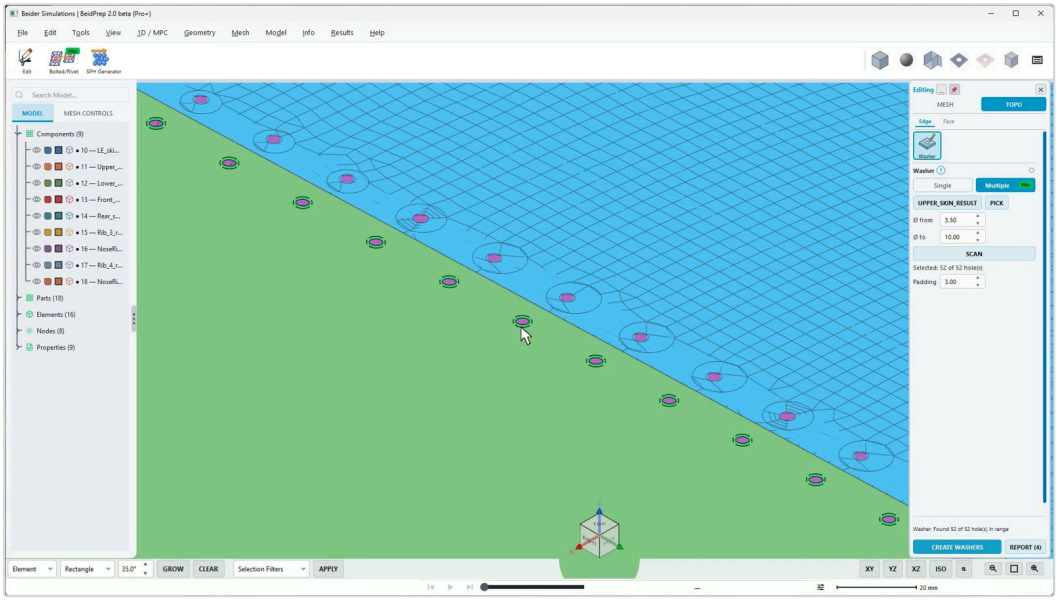
video 0:17

Washer is in the editing tools: Model, Edit, then TOPO and Edge.

1. Choose Multiple, to ring every hole of one body in one go.
2. Pick the upper skin, and set the hole sizes: from three and a half to ten millimetres.

Scan finds the holes and rings them in the view; the line under it counts them.

Control with a right click leaves a hole out and turns its ring red; Control with a left click puts it back.



The screen at 0:45 in the video.

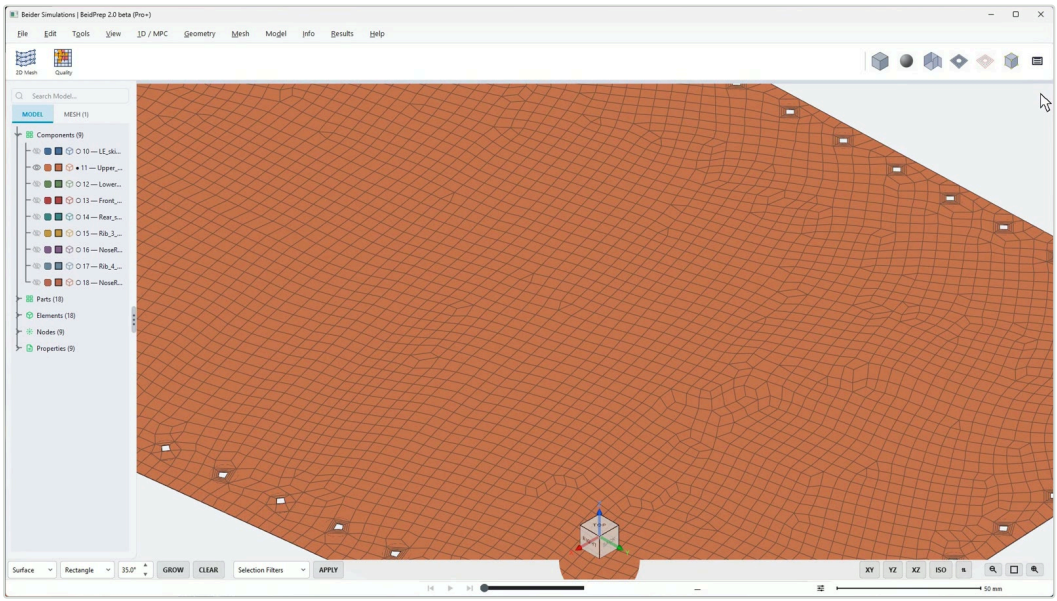
## 3 Create washers, Mesh the skin

video 0:45

Create washers adds a ring of faces round each hole, so the mesh gets a clean ring of elements there.

1. Show only the upper skin: right-click it in the tree, and choose Isolate.
2. Mesh it as the other parts: two D Mesh, a box round the skin, five millimetres, Quad-Dom.

   Each hole now has a clean ring of elements round it.



The screen at 1:17 in the video.

## 4 Bolted/Rivet

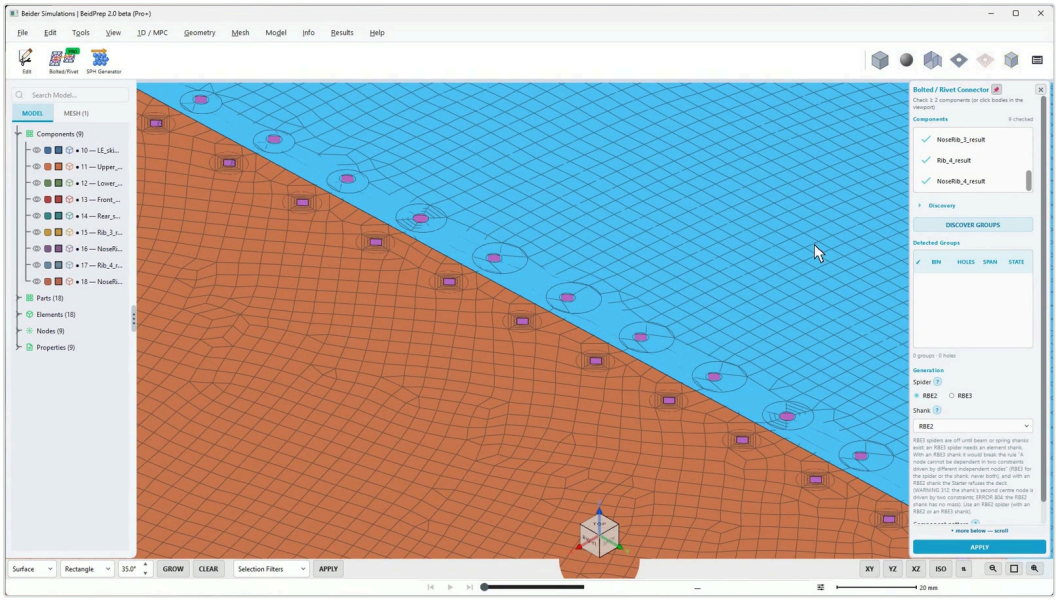
video 1:17

Show All brings the other parts back.

Bolted Rivet, on the Model tab, finds holes that line up through the parts.

1. Tick the parts to search: here, all nine.

   Discover Groups lists every line of holes it finds, with the bolt size and the span.



The screen at 1:39 in the video.

## 5 Apply the rivets, Close

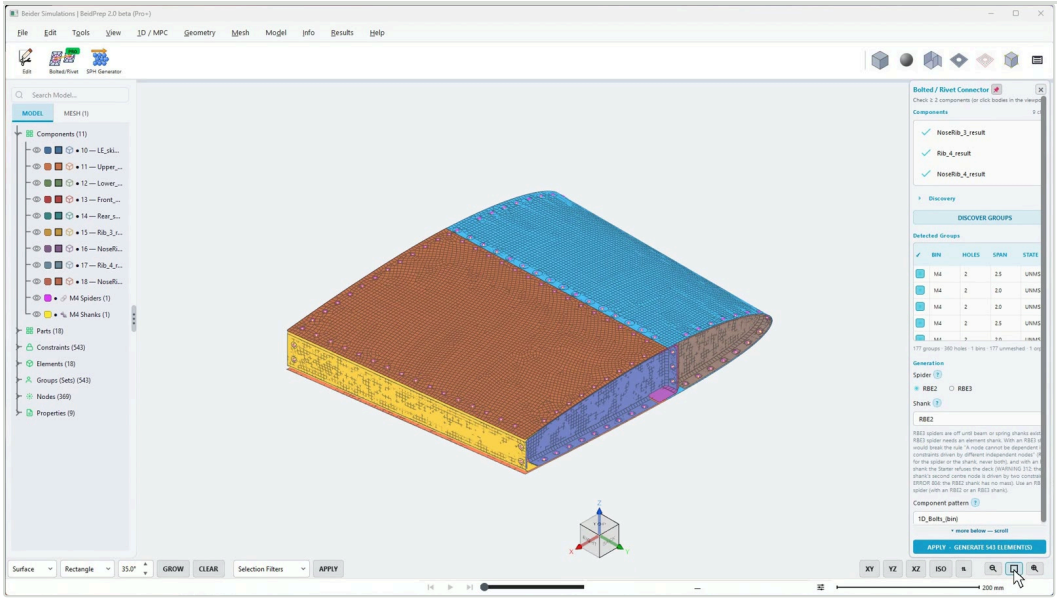
video 1:40

A spider ties each hole's edge to its centre, and a shank joins the centres: here RBE2 for both.

1. Click Apply. With this many holes, BeidPrep asks first, in case the filters are too wide.

   The progress bar counted the connectors as they were made; every rivet is now in the model, drawn on the joints.

   The bay is now one model: nine meshed parts, joined by rivets where their holes line up.




The screen at 1:54 in the video.

Steps and pictures are taken from tutorial video 07. Every picture is a frame of the video.