

MAST JOIN – C321, F324, C365, F370 and F406

- General
- Preparation
- Pre-assembly
- Final assembly – Conventional masts
- Final assembly – Furling masts
- Check points

General

- This instruction describes the mast joining procedure on sections C321, F324, C365, F370 and F406.
- The mast join is a structural part of the mast and it is of great importance that the joining procedure is carried out correctly.
- Always make sure that the correct fasteners are used in the join, see join drawing. Note that different fasteners are often used in the same join.
- For reference see MB M 1013 NMP and PHB 1013 595-291-E Mast joining using adhesive.

Mast section	Join drawing	Template
C321	507-427-01	M5105
C365	507-408-01	M5205
F324	PS194	M5105
F370	PS195	M5205
F406	507-455-01	-----

Preparation

1. Measure the circumferences of the two extrusion ends that are to be joined together. Use a measure tape. The difference in circumferences must not exceed 4mm or supervisor must be contacted. (To achieve best result, the difference in circumferences should not exceed 2mm.)

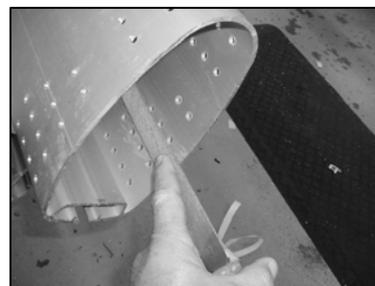
To ensure that the sail slot width on F324, F370 and F406 is the same for the upper and lower mast tubes, temporary spacers must be placed in the sail slots. Failure to do so may lead to inaccurate circumferences values.

2. Check that the mating surfaces of the mast tubes are cut flat and normal to the mast tubes in all directions.
3. Remove burrs and sharp edges by slightly chamfering the inner and outer edges on the mast tubes. 
4. If the join is located above the boom bracket, the sail groove is to be bevelled and grinded according to pics 2a-c. 
5. Check that the correct join sleeves are used, see join drawing.
6. On sections C321 and F324 the forward join sleeve must be cut along the marked line (see pic 1).
7. Grind all inner join edges (see pic 3). 
8. Chamfer the outer join edge slightly. 



Pre-assembly

- No holes are to be countersunk before final assembly.
 - All join sleeve holes (Ø6.8, tapped M8, F406 Ø8,5, tapped M10) must be marked through the pre-drilled holes in the mast with an Ø8mm drill-bit or Ø10mm to ensure that the Ø6.8mm or Ø8,5mm hole becomes centered.
 - To achieve a tight fit it is essential to ensure that there is no gap between mast and join sleeve when drilling (otherwise, burrs can get stuck in between mast and join sleeve).
 - It is recommended to use MRT-screws during the pre-assembly procedure.
1. Mark the mid-point on all join sleeves.
 2. Mark the positions of all screws on the mast according to drawing (or template).
 3. Pre-drill all holes ø3mm and enlarge to Ø8mm. Note: Do not countersink the holes until all join sleeves are in place (final assembly).
 4. Remove any burrs with a coarse file and clean the inside of the mast tubes. (A tight fit between join surface and mast wall is essential.) See picture →
 5. Place one of the forward join sleeves in the upper mast tube and adjust the location to optimise fit. The front sleeve edge should be 1-3mm offset the A-line.
 6. Mark one hole on the forward join sleeve through one the Ø8mm holes. Drill ø6.8 and tap M8. Remove all burrs around the hole.
 7. Put the join sleeve back in place and fasten with one M8 screw.
 8. Make sure that the join sleeve is kept aligned with the mast and fit 4-6 more M8 screws in the join sleeve. Any gap (can be spotted through the holes) must be eliminated.
 9. When a tight fit has been achieved (no remaining gap) move on with the next join sleeve.
 10. Repeat steps 5-9 for the second forward join sleeve.
 11. Turn the mast to a side-up position.
 12. Place one of the aft join sleeves in the upper mast tube. Check join drawing for the correct position.
 13. Make sure that the forward screws are located in the thickened region of the aft join sleeve. (See pic 4.)
 14. Fit the aft join sleeve with 4-5 screws, as described in steps 6-9.
 15. Fit the second aft join sleeve in the same way.
 16. When all four join sleeves are fitted to the upper mast tube, turn the mast so that the A-line is facing up.
 17. Push the two mast tubes together. The screws may need to be loosened slightly to make it easier to push the two mast tubes together
 18. Align the A-lines of the upper and lower mast tubes.
 19. Close any gap at the A-line by lifting one mast end. (Leave a small gap at the sail slot side.)
 20. Drill and tap two holes each side of the A-line and fit M8 screws.
 21. Align the mast tubes so that the sail groove becomes in-line and straight, both laterally and longitudinally.



22. Add a couple of M8 screws in the forward join sleeves close to the A-line to lock the position.
23. Turn the mast to a side-up position.
24. Close any gap at the B-line by lifting one mast end.
25. Make sure that the sail grooves are still aligned.
26. Drill and tap 5-10 holes in the aft join sleeve and fit screws.
27. Turn the mast 180° and repeat steps 24-26.
28. Make sure that the mast is straight, and that the mast surfaces are completely in contact. Make sure that the gap between the mast surfaces does not, anywhere along the circumference, exceed 0.5mm. Use a thickness gauge (pic 6) to check the gap.

Final assembly - Conventional masts

All join sleeve holes (Ø6.8, tapped M8, F406 Ø8,5, tapped M10) must be marked through the pre-drilled holes in the mast with an Ø8mm or Ø10mm drill-bit to ensure that the Ø6.8mm or Ø8,5mm hole becomes centered.

- Drill, tap and countersink all remaining holes. (Screws to be flush with mast surface.)
- Fit MFT-screws using Loctite 639. Check drawing to make sure the correct screws are used.
- Remove pre-fitted MRT-screws which were used during the earlier stage of the process.
- Countersink, and fit MFT-screws with Loctite 639. Check drawing to make sure the correct screws are used.
- Clean the mast.

Final assembly – In mast furling masts

All join sleeve holes (Ø6.8, tapped M8, Ø8,5 tapped M10) must be marked through the pre-drilled holes in the mast with an Ø8mm or Ø10mm drill-bit to ensure that the Ø6.8mm or Ø8,5mm hole becomes centered.

Forward join sleeves:

- Drill, tap and countersink all remaining holes. (Screws to be flush with mast surface.)
- Fit MFT-screws using Loctite 639. Check drawing to make sure the correct screws are used.
- Remove pre-fitted MRT-screws which were used during the earlier stage of the process.
- Countersink, and fit MFT-screws with Loctite 639. Check drawing to make sure the correct screws are used.



Aft join sleeves:

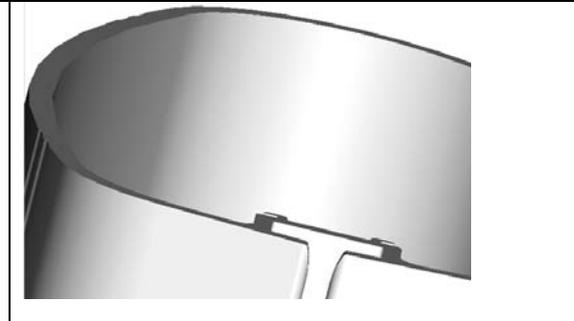
- Drill, tap and countersink all remaining holes. (Screws to be flush with mast surface.)
- Fit a thin rope through one of the holes in each sleeve to be able to refit the sleeves.
- Remove all screws from the aft join sleeves.
- Remove the aft join sleeves through the sail slot.
- Remove all burrs from the aft join sleeves.
- Countersink the holes slightly on the inside of the join sleeve (to prevent sail chafe).
- Remove all burrs on the mast contact surface side using a fine file.
- Countersink the remaining holes in the mast.
- Blow clean the inside of the mast (sail compartment) and make sure there are no burrs..
- Refit the aft join sleeves using MFT-screws and use Loctite 639. Check drawing to make sure the correct screws are used.
- Check that the screws of rows 8 and 9 do not protrude into the sail compartment. If one or more screws are protruding then remove screw(s) and round the screw end, see join drawing.
- Remove all unnecessary Loctite from inside of the mast (sail compartment).
- Clean the mast.

Check points

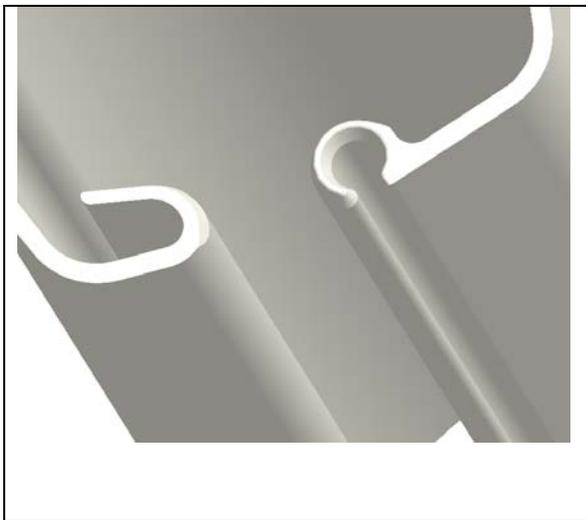
- Check mast straightness in the join area.
- Check that the gap between the mast surfaces does not exceed 0.5mm.
- Check that the sail groove is aliened and properly grinded.
- Check that no screws are protruding into the sail compartment in a way that may cause sail damage.



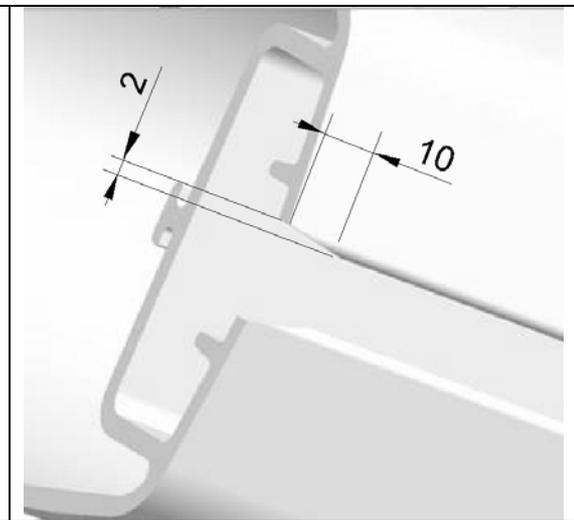
Pic 1



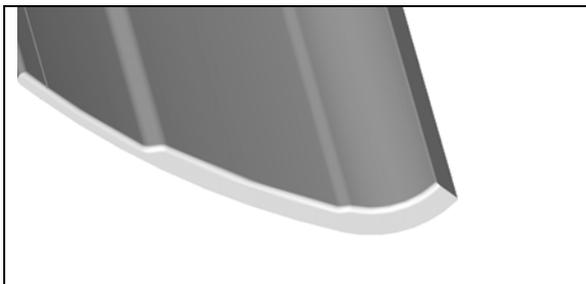
Pic 2a



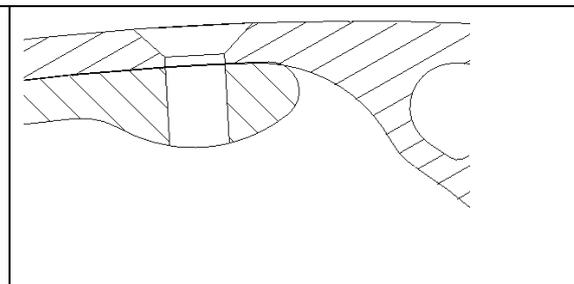
Pic 2b



Pic 2c



Pic 3



Pic 4