Technical Note TN.JS-025

17 February 2015

TITLE

Water Tank Sloshing Procedure

DESCRIPTION

This Technical Note describes the procedure to seal the water tanks of the inboard wings, 21m tip wings and the fin.

INSTRUCTIONS

SEALING OF INBOARD WING WATER TANKS

The following process needs to be followed to seal the inboard wing's water tank after production:

1. Mix 15 litres of Velvaglo paint and 15 litres of turpentine, using 5 litres of each at a time. First stir the Velvaglo until its consistency turns from gel to liquid, then add the turpentine and mix thoroughly.
2. Wrap the regions of the wing where the tank caps are situated, with just the tank caps exposed for use.
3. Put the tip side of the wing in the rig with the crane; and the root side on the other lower rig, with the tip side tank cap to the top.
4. Connect the crane to the temporary connector on the wing.
5. Adjust the wing with the root side is slightly downwards.
6. Ensure that the main valve and root rib drain is closed.

Figure 1: Preparation of Wing for Sloshing

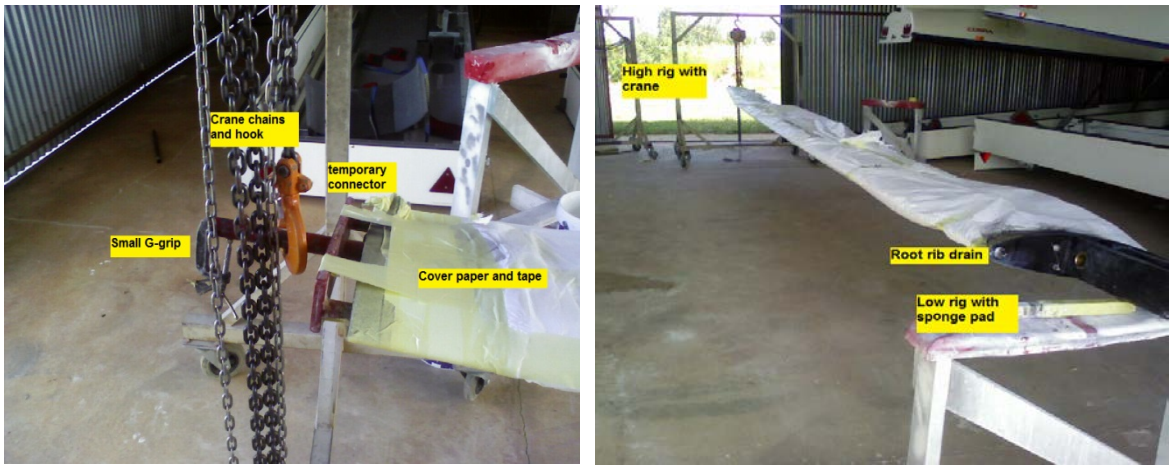

Figure 2: Preparation of Sloshing Equipment

7. Loosen and remove the tip side cap and insert the funnel and sieve.
8. Pour the 30 litres of Velvaglo and Turpentine mixture into the wing.

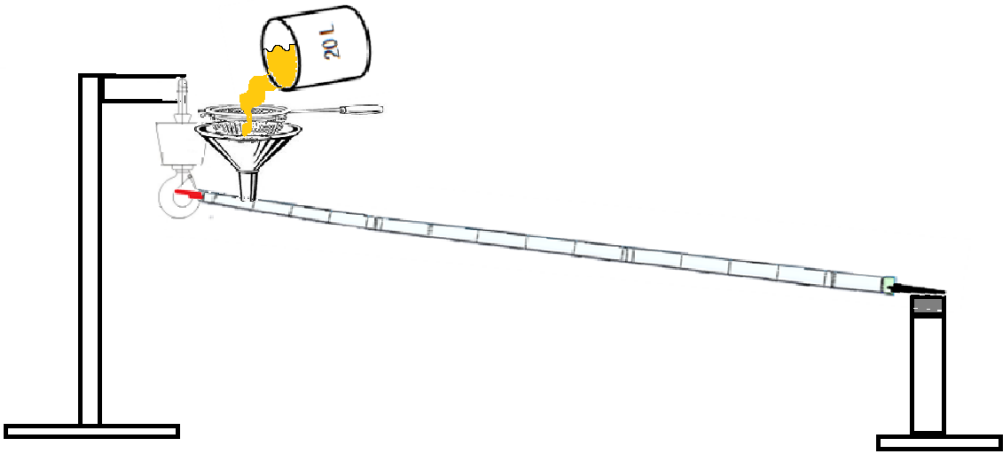

Figure 3: Poring of Mixture into Wings

9. Close the tip valve tightly and cover it with tape.
10. Jack up the wing until inclined at about 30° using the crane.
11. Rotate the wing 360° on the root side 2-3 times, sloshing the first compartment.

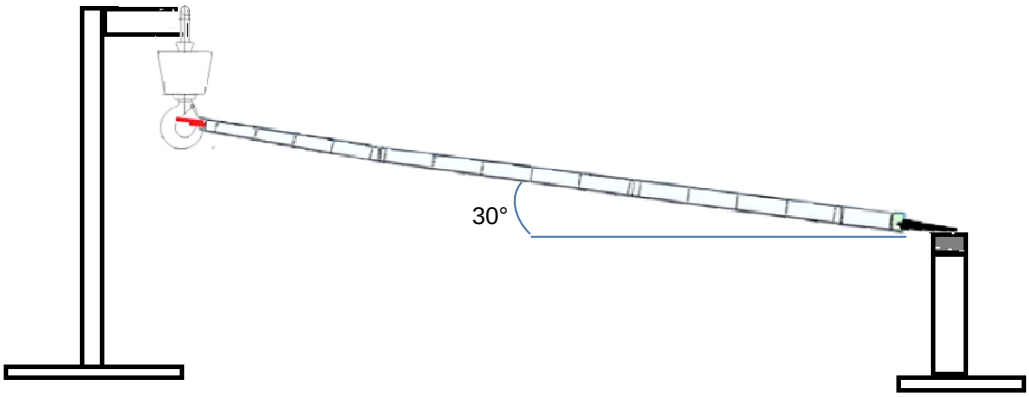

Figure 4: Wing at about 30 Degrees – Tip at Top

12. Lower the wing until almost level and slosh the second compartment 2-3 times (wing can be rotated while being lowered).

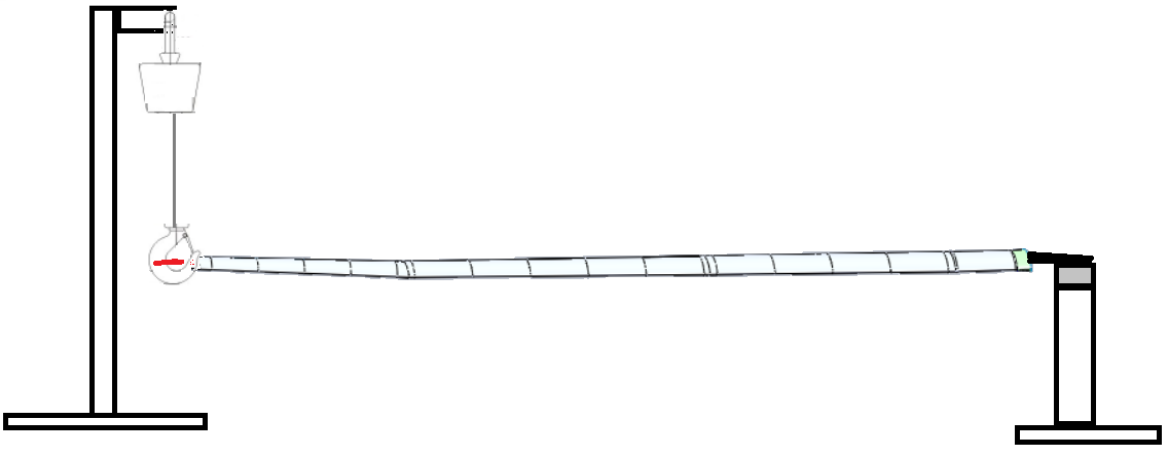

Figure 5: Wing Horizontal

13. Lower the wing down another 10° and slosh third compartment 2-3 times.
14. Lower the wing until the tip trailing edge is about 50mm off the ground, then carefully slosh the last compartment 2-3 times.

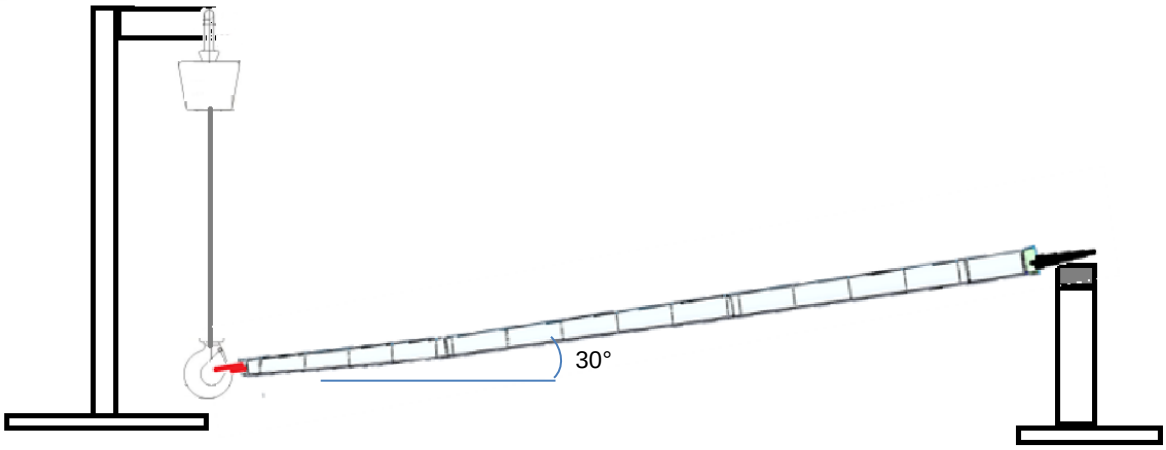

Figure 6: wing 30 degrees – Tip bottom

15. Rotate the wing while the wing is being jacked up until about 10° under level.
16. Rotate the wing with the leading edge is facing down.

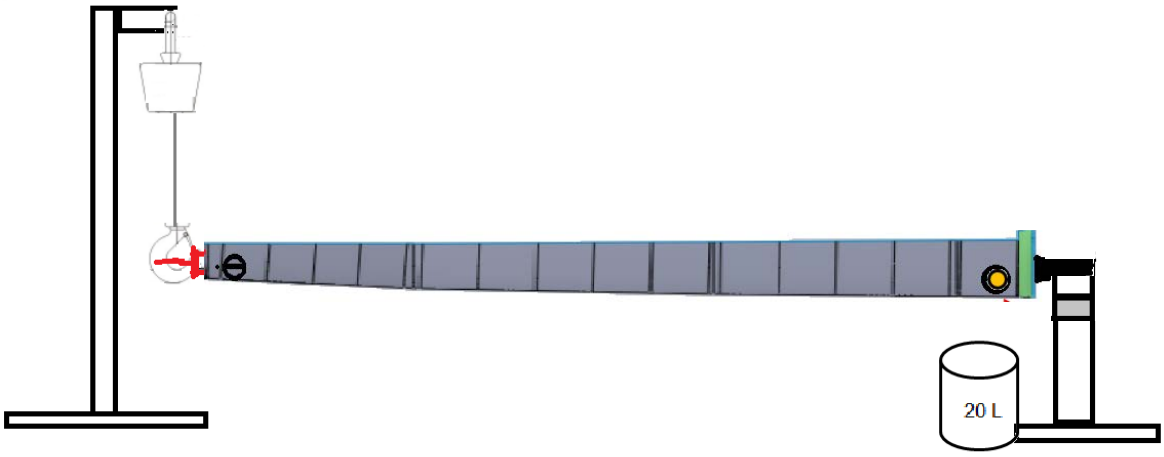

Figure 7: Inserting of Lid Plug at Root – Wing with Leading Edge to the Top

17. Lift the wing at the tip side.
18. Hold the one container at the main valve and carefully tilt the wing for the main valve to face downwards.

Figure 8: Draining of Mixture

19. Lift the wing higher at the tip side and open the main valve.
20. Drain all the paint mixture and rotate the wing with the leading edge facing downwards.
21. The wing can be swung from side to side to get most of the paint out.
22. Use the syringe and pipe to remove the excess paint out of the leading edge bucket of the wing.

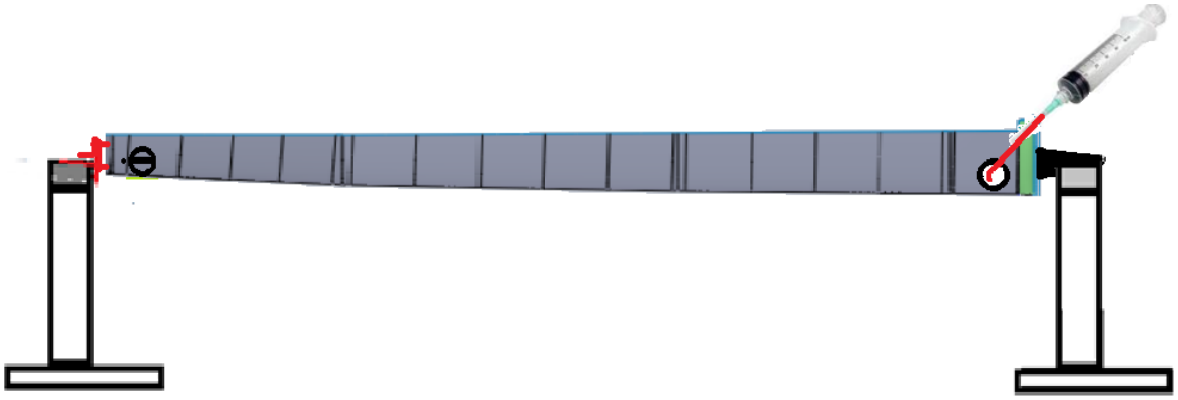

Figure 9: Removing of Excess Mixture

23. The root rib drain can also be opened to drain the remaining paint.
    NOTE: Be careful as the paint sprays out of the root rib drain.
24. After drainage, position the wing in a level attitude; allowing the rest of the paint to spread out evenly.
25. Use the vacuum cleaner (on blow) to circulate hot air through the wing.

Figure 10: Air Drying of Tank

26. Allow the first layer dry for 4 hours and repeat the process for the final layer.
27. Allow the layer to cure for 24 hours.
28. Clean the drain valve and seat and ensure water system functions correctly.

MATERIAL REQUIRED FOR SLOSHING OF INBOARD WING TANKS

Materials Needed:

- Plascon Velvaglo satin, 15 litres (3 x 5l)
- Mineral Turpentine, 15 litres (3 x 5l)

Equipment Needed:

- 1 x High rig with crane
- 1 x Low rig with sponge pad
- 2 x 20 litre containers
- Funnel and sieve
- Clay
- Syringe with long flexible pipe
- Wrapping and tape
- Coin to open tank caps
- Connector
- Vacuum cleaner

SEALING OF 21M TIP WING WATER TANKS

The following process needs to be followed to seal the 21m tip wing's water tank after production:

1. Mix 5 litres of Velvaglo paint and 5 litres of Turpentine. First stir the Velvaglo until its consistency turns from gel to liquid, then add the turpentine and mix thoroughly.
2. Wrap the regions of the wing where the tank caps are situated, with just the tank caps exposed for use.
3. Insert clay into the vent port on the tip side.

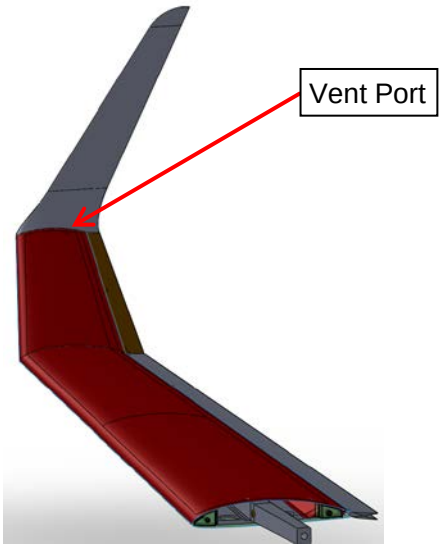

Figure 11: Tip Vent Port

4. Turn the wing upside down with the tip valve to the top.

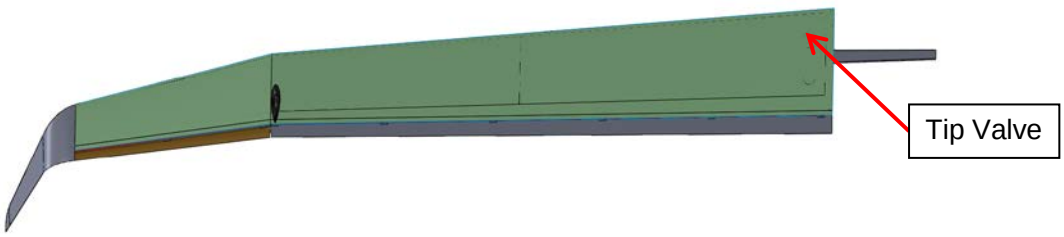

Figure 12: Tank Drain Valve

5. Level the wing with the root side slightly upwards.
6. Insert the funnel and sieve into the tip valve.
7. Pour the 10 litres of Velvaglo and Turpentine mixture into the tank.
8. Tightly close the tip valve and cover it with tape.

9. Tilt the wing up on the root side to about 30°.

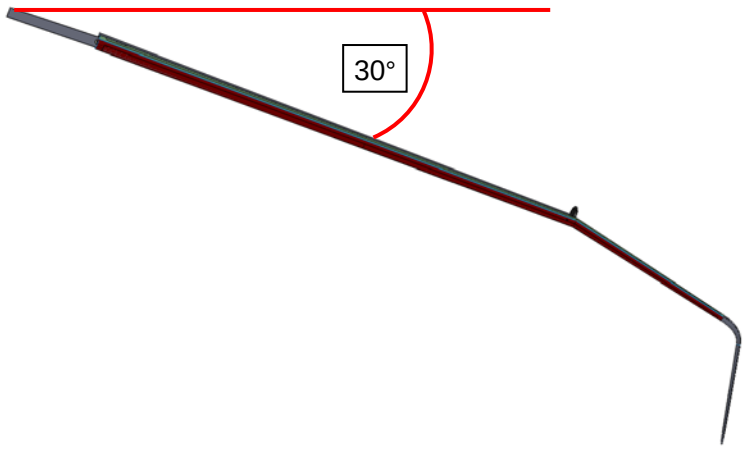

Figure 13: Wing at 30º

10. Rotate the wing 360° two to three times, sloshing the tank.
11. Lower the wing down to about 10º and turn the wing over two to three times, sloshing the tank further.

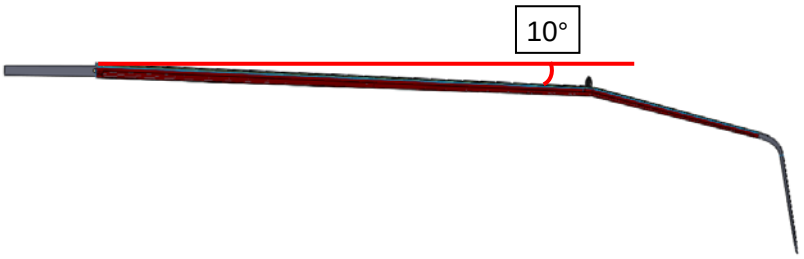

Figure 14: Wing at 10º

12. Lower the wing to level and turn the wing over two to three times, finishing the sloshing of the tank.
13. Rotate the wings until the leading edge faces downwards.
14. Hold the one container at the tip valve and tilt the wing with the tip valve is facing downwards.
15. Remove the clay from the vent port on the tip side.

16. Lift the wing higher at the tip side and open the tip valve.

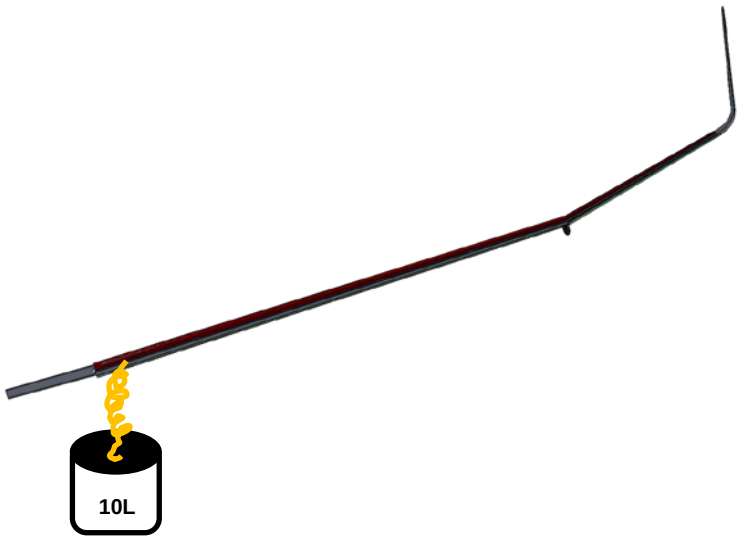

Figure 15: Draining Tip Wing Tank

17. Drain all the paint mixture.
18. The wing can be swung from side to side to get most of the paint out.
19. The junction rib drain can also be opened to drain the remaining paint.
    NOTE: Be careful as the paint sprays out of the junction rib drain.
20. Turn the wing so that the leading edge faces downward.

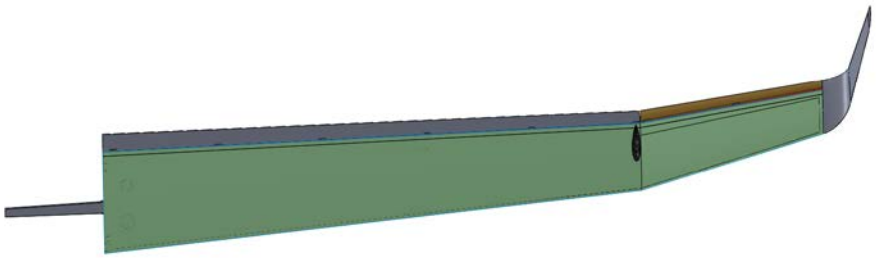

Figure 16: Leading Edge Facing Down

21. Use the syringe and pipe to remove the excess paint out of the leading edge bucket of the wing.
22. Turn the wing so that the tip valve are at the bottom; allowing the rest of the paint to spread out evenly.
23. Use the vacuum cleaner (on blow) to circulate hot air through the wing.
24. Let the first layer dry for 4 hours and then repeat to apply final layer. Let the final layer dry for 24 hours.
25. Clean up afterwards and tightly seal remaining Velvaglo and Turpentine mixture for storage.

MATERIAL REQUIRED FOR SLOSHING OF 21M TIP WING TANKS

Materials Needed:

- Plascon Velvaglo satin, 5 litres
- Mineral Turpentine, 5 litres

Equipment Needed:

- 2 x 20 litre containers
- Funnel and sieve
- Syringe with long flexible pipe
- Wrapping and tape
- Connector
- Vacuum cleaner

SEALING OF FIN WATER TANKS

The following process needs to be followed to seal the fin's water tank after production:

1. Remove the tail valve as described in the JS1 Maintenance Manual:
    a. Remove the tailwheel and mud guard.
    b. Undo lever by removing the hinge pin (Fig. 20, #9).
    c. Undo the locking nut (Fig. 20, #22).
    d. Remove the silicon tubing from valve body.
    e. Remove tail valve body by rotating the valve anti-clockwise.

Figure 17: Tail Valve Body

    f. Use the tail valve remover tool to remove item no. 7 in Fig. 14.

2. Cover the tail tank with plastic around the vents and also try to cover the inside of the tail wheelbox gap.

Figure 18: Wheel Box Cover Plastic

3. Insert the 500mm flexible pipe with insert into the tail valve position and route the pipe with a downward flow out of the wheel box gap.
4. Insert the plug into the pipe at the end.

Figure 19: Tail Valve Insert

5. Mix 5 litres of Velvaglo and 5 litres of Turpentine. First stir the Velvaglo until its consistency turns from gel to liquid, then add the turpentine and mix thoroughly.
6. Use the 200mm Flexible pipe and insert it into the tail tank (at the top vent) and insert the funnel and sieve into the top of the pipe.

Figure 20: Funnel in Tank Top Valve

7. Insert clay into the tail tank vents.
8. Pour all the mixture into the funnel and sieve.
9. Slosh properly by swinging the tail up and down and to the sides and rotating the fuselage as well.
10. Ensure there is a bucket under the exit of the pipe.
11. Remove the plug from the pipe in the tail valve position and let all the paint drain out (there should be at least 8.5 litres drained mixture).
12. Attached the vacuum cleaner to one of the vents and blow air through the tailtank.
13. Remove the insert and pipe after half an hour.

14. Leave the vacuum cleaner on for at least 12 hours before turning the fuselage and installing the tail valve, tailwheel and mudgaurd.

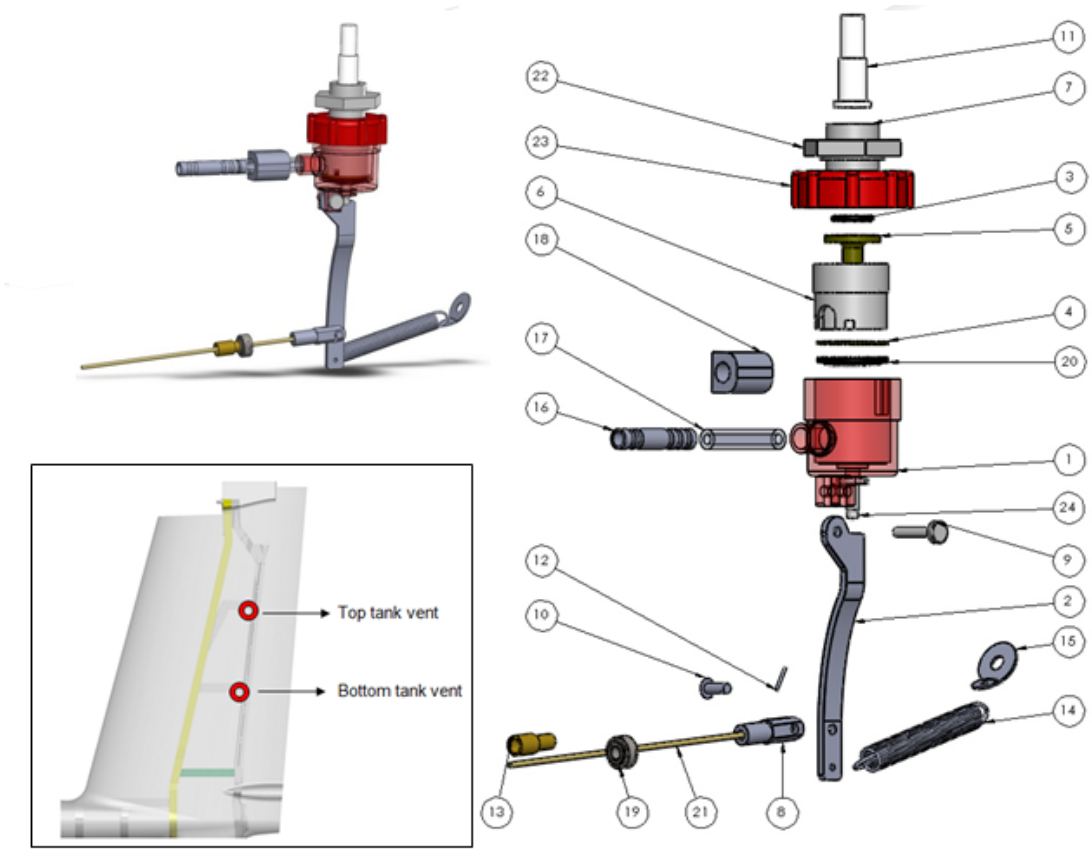

Figure 21: Tail Valve and Vent Positions

MATERIAL REQUIRED FOR SLOSHING OF TAIL TANKS

Materials Needed:

1. Plascon Velvaglo Satin, 5 litres
2. Mineral Turpentine, 5 litres

Equipment Needed:

1. 2 x 5 litre containers
2. Funnel and sieve
3. Wrapping and tape
4. 200mm Flexible pipe with insert (for filling)
5. 500mm Flexible pipe with insert (for drainage)
6. Plug
7. Vacuum cleaner
8. Tail valve remover tool

GENERAL NOTES

MASS AND BALANCE

No change to mass or balance.

MANUALS

No change to Flight or Maintenance Manuals.

NOTES

This technical note must be implemented by an approved maintenance technician.