

RALLY ASSEMBLY MANUAL

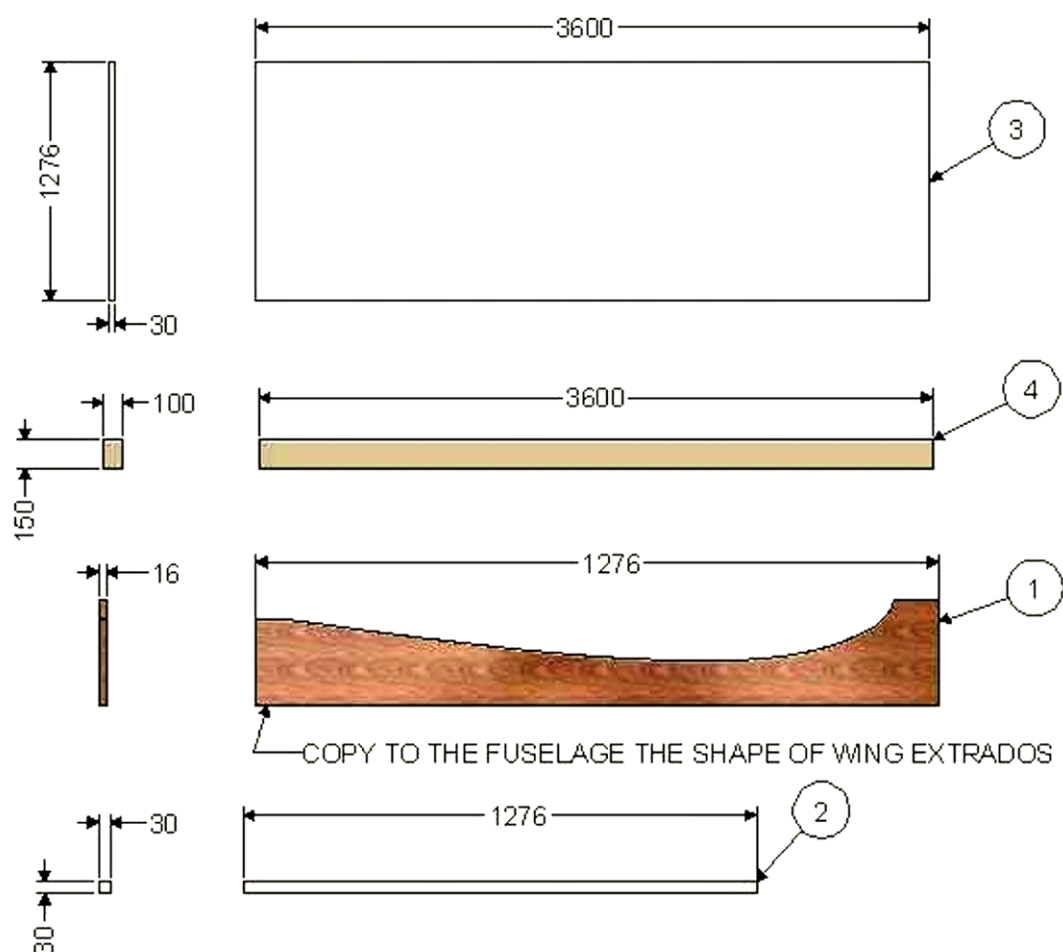
INTRODUCTION

STORMAIRCRAFT recommends to follow step-by-step procedures described into this manual, from wings and all moving surfaces assembly to fuselage assembly.

WING JIG

It is advised to assemble the wing into a jig to obtain an optimal result. Follow instructions below to build wing jig by wood.

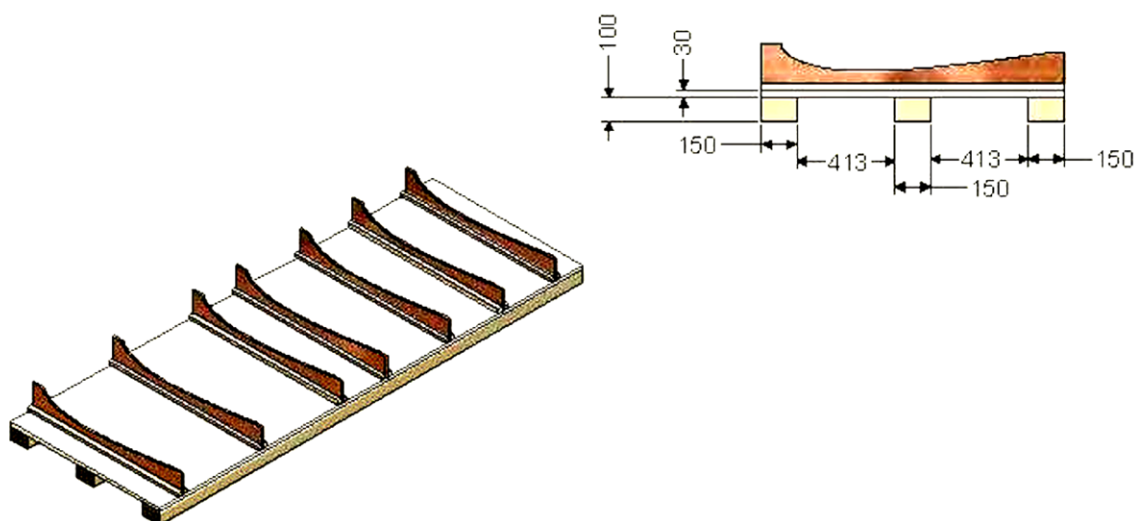
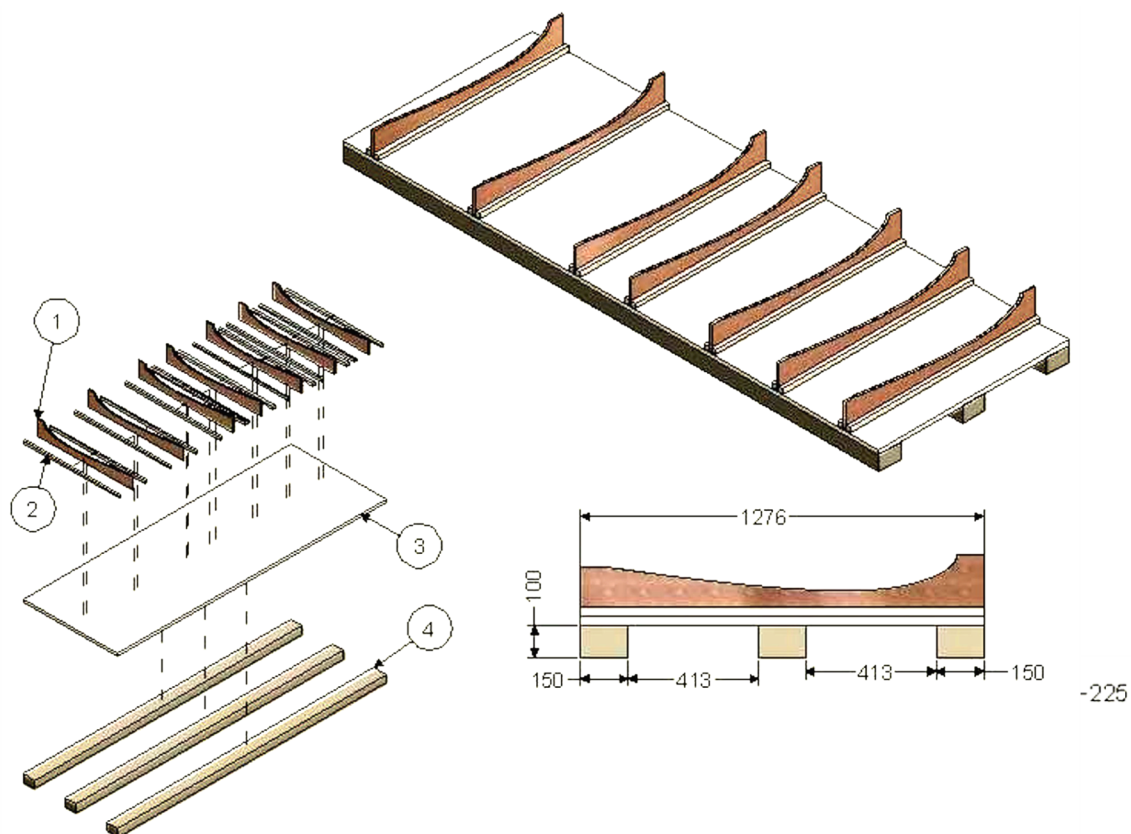
- 1- Prepare a rugged wood basement (3600x1280x30mm). Glue and nail three wood strips to basement as shown below to assure stability (check levelling).
- 2- Take a wood plate (at least 1500x300x30mm) and position on fuselage wing profile and mark it. Cut the wood plate to obtain the wing extrados as shown below. Make the same with other six wood plates (you need seven plates as main ribs number).



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Glue at 90° the seven cut wood plates to wood support in correspondence of wing main ribs (see “ main ribs installation” section in next pages).

Glue and nail two wood reinforcement strips, one for each side, to each extrados woods plates as shown below. Let the glue dry.



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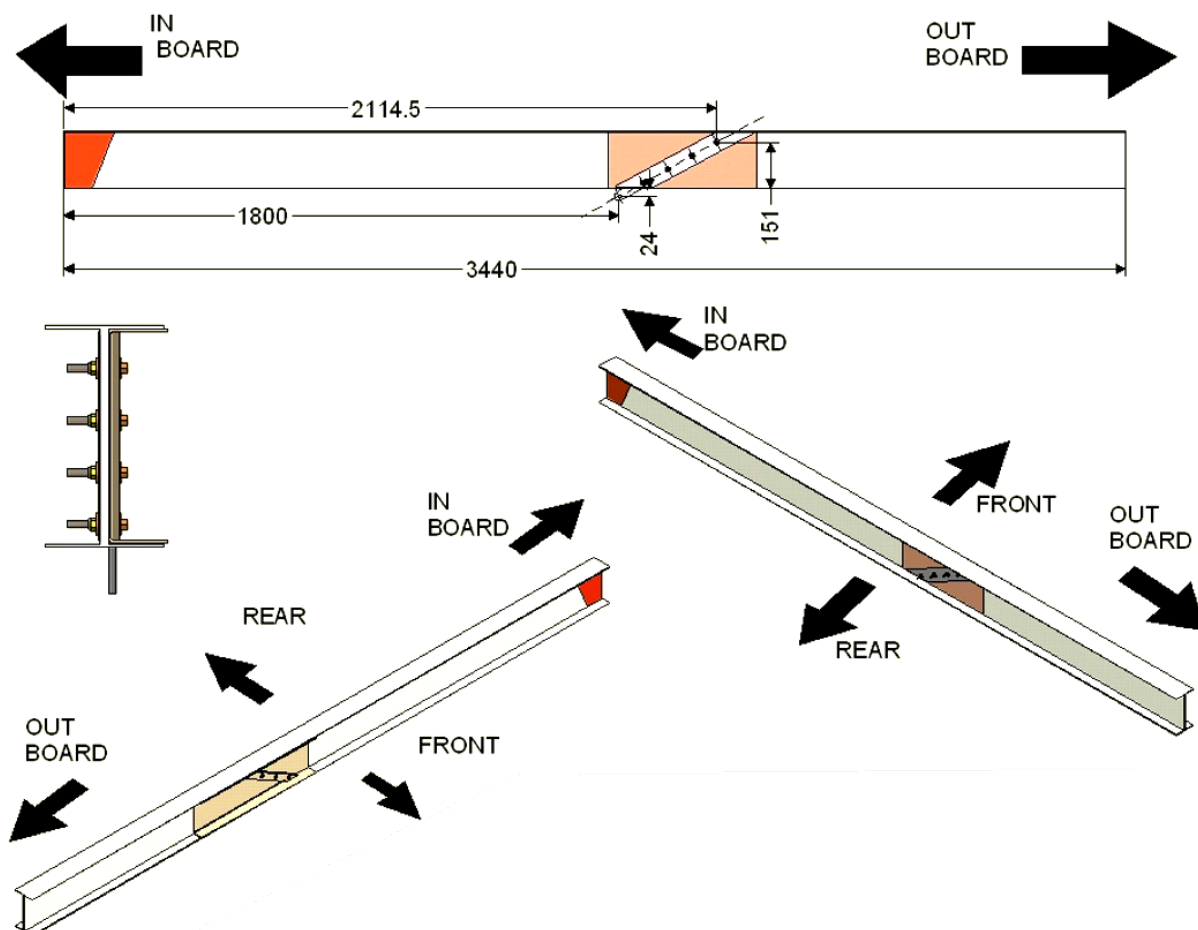
WING

Prepare wing spar. Cut spar edges in order to obtain a total length of 3440mm.

IMPORTANT: cut both edges but do not cut the reinforced inboard wing spar section.

Make a 24mm (length) x 8mm (width) hole on wing spar lower section to pass wing strut connection 0101 (04-010-00/H hardware kit) at 2114.5mm from inboard.

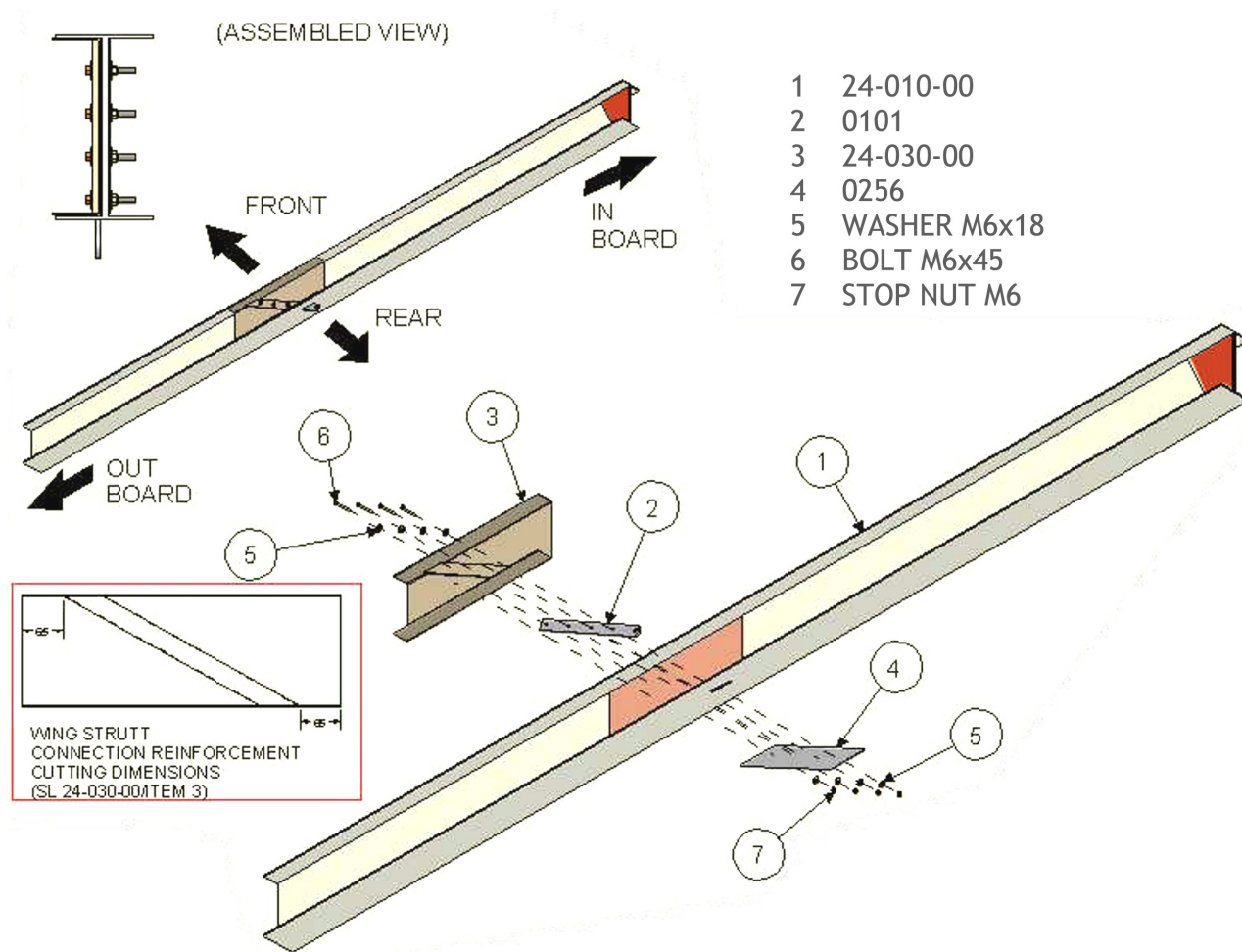
Insert wing strut connection through dedicated hole and align it with wing strut connection reinforcement (14-030-00 for left wing or 24-030-00 for right wing). Remove wing strut connection reinforcement and position reinforcement 0256 (04-010-00/H hardware kit) to wing spar connection 0101 opposite side. Clamp wing spar connection 0101 and reinforcement 0256 to spar; drill wing spar and reinforcement 0256 through wing strut connection holes. Remove clamp and glue wing strut connection and its reinforcement to wing spar with structural adhesive. Sand wing strut connection and reinforcement before gluing. Clean with acetone wing spar area in correspondence of wing strut connection and reinforcement position before gluing. Insert M6x45 bolts through holes previously drilled and screw them.



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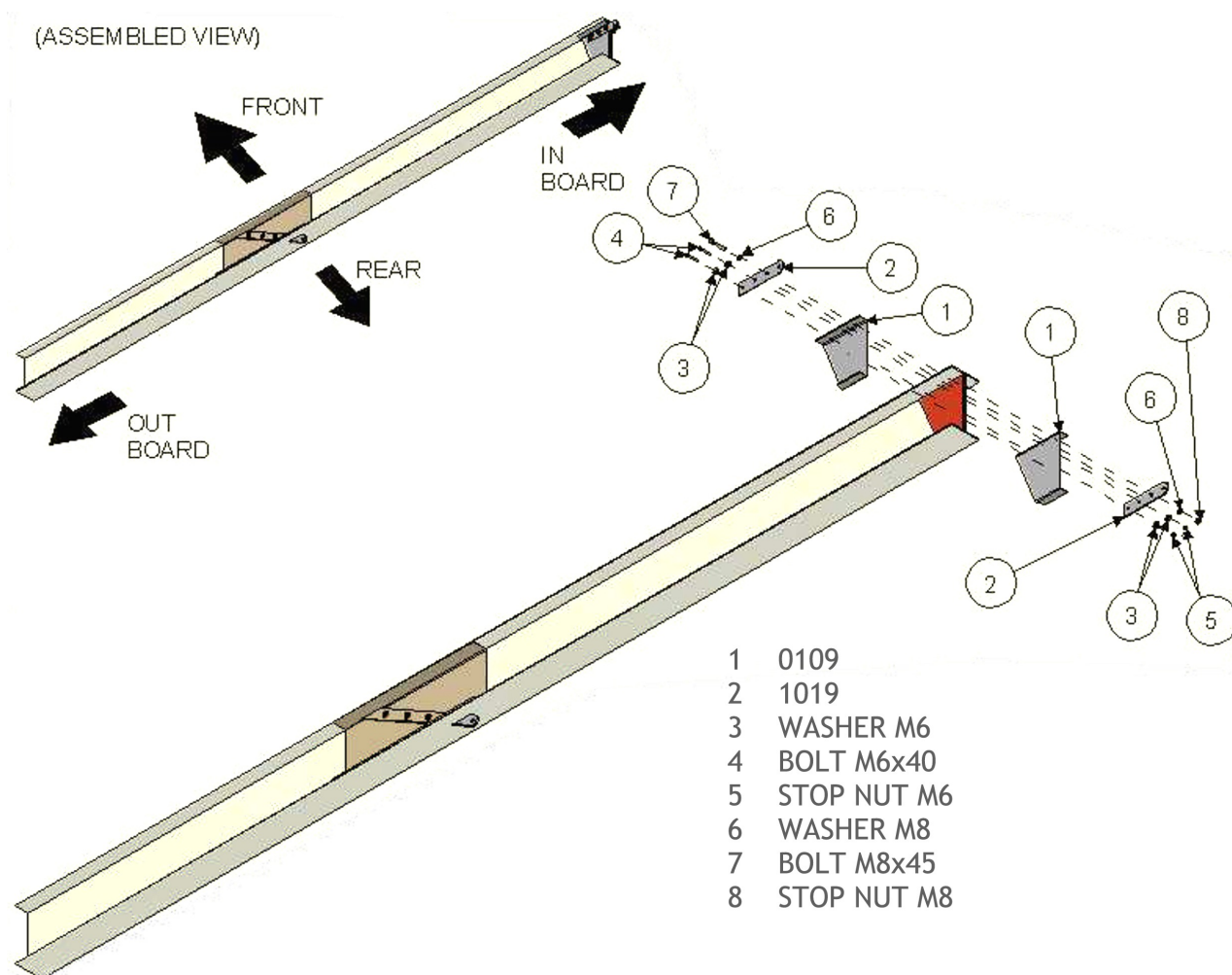


Prepare wing strut connection support cutting both edges leaving 60mm from wing strut connection outline. Clean and send the wing strut connection support section to glue to spar and glue it to the spar using structural adhesive. Let the glue dry.

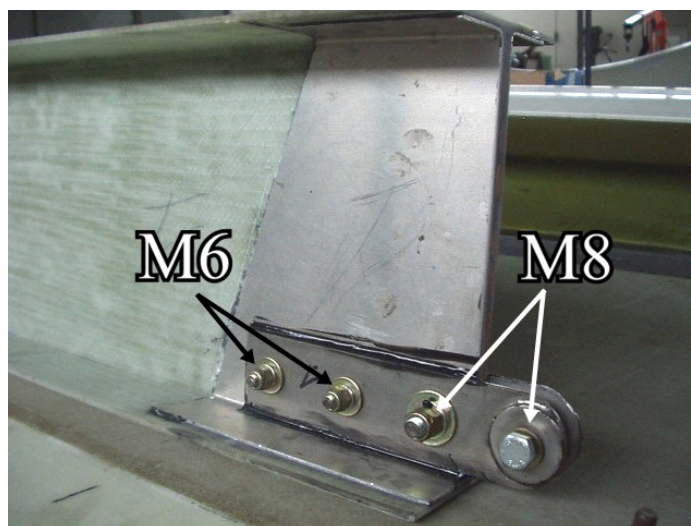
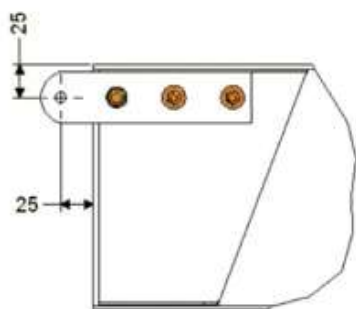


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Position spar reinforcements 0109-1 and 0109-2 (RH and LH) to wing spar leading edge section as shown below.

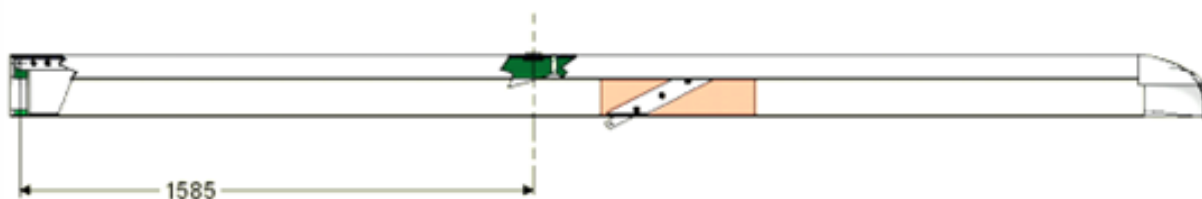
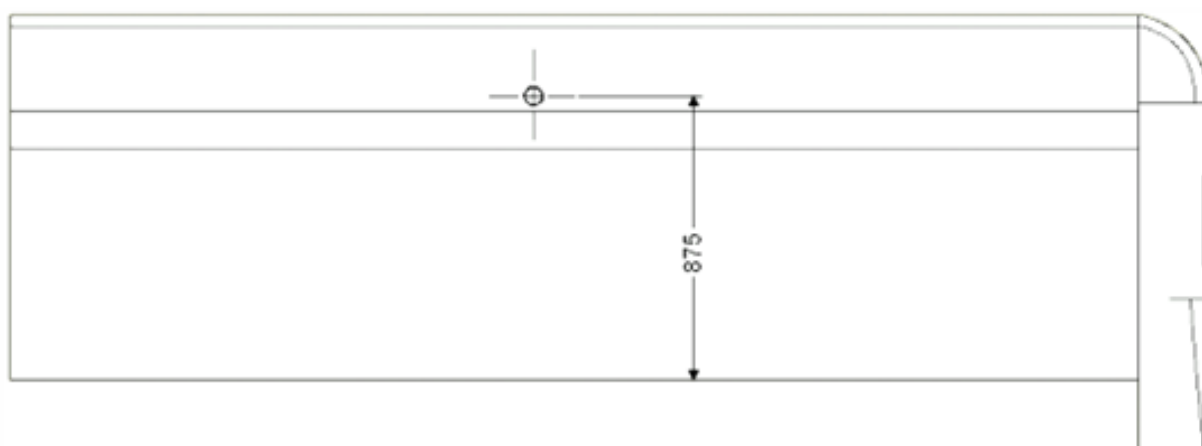
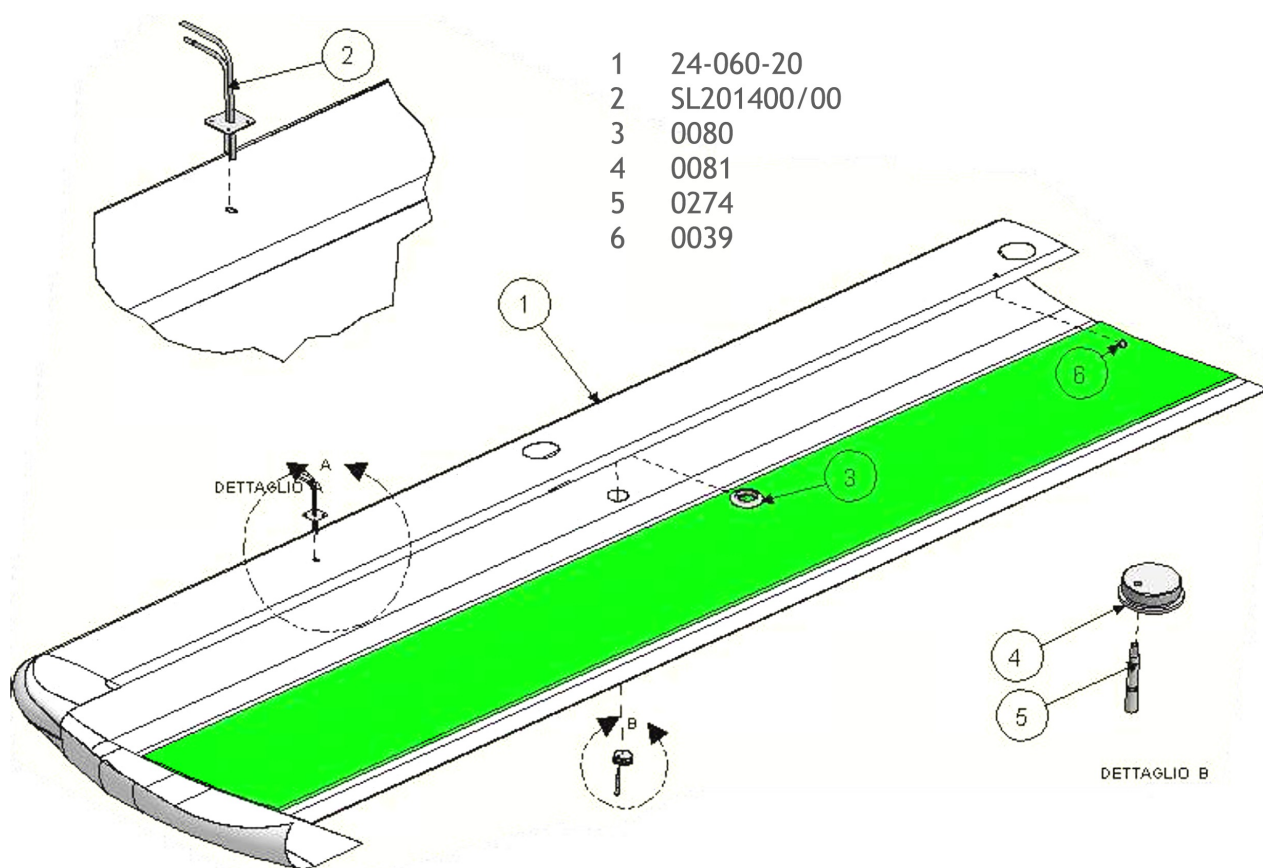


Position fuselage fittings 1019 to spar inboard reinforcements 0109. Drill, glue and screw with M6 and M8 bolts fuselage fittings 1019 to wing spar.



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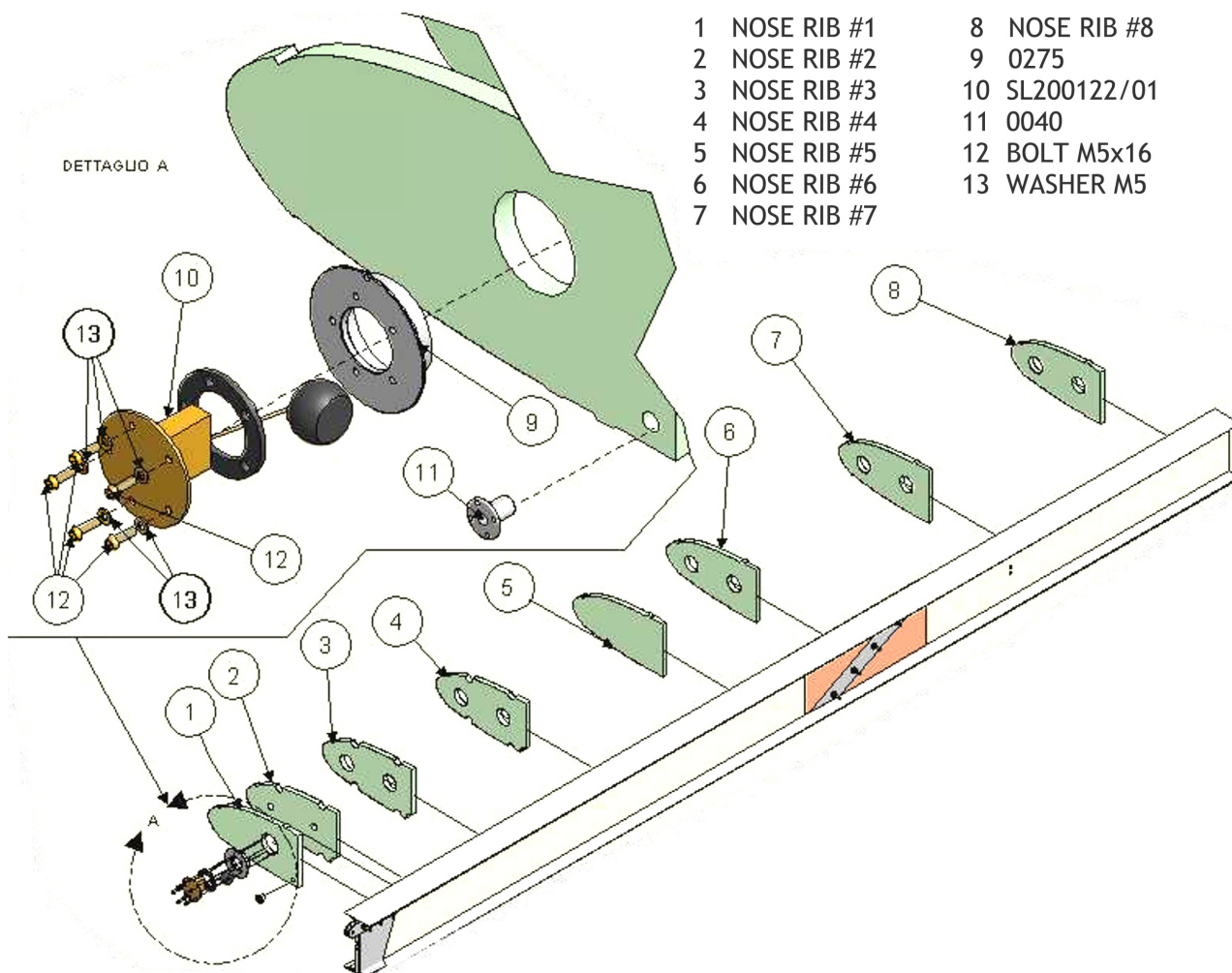
Position upper wing skin on wood jig (if prepared) and drill fuel tank cap hole and pitot hole (if you are assembling the right wing).



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Glue with structural adhesive fuel tank ring cap to wing upper skin.

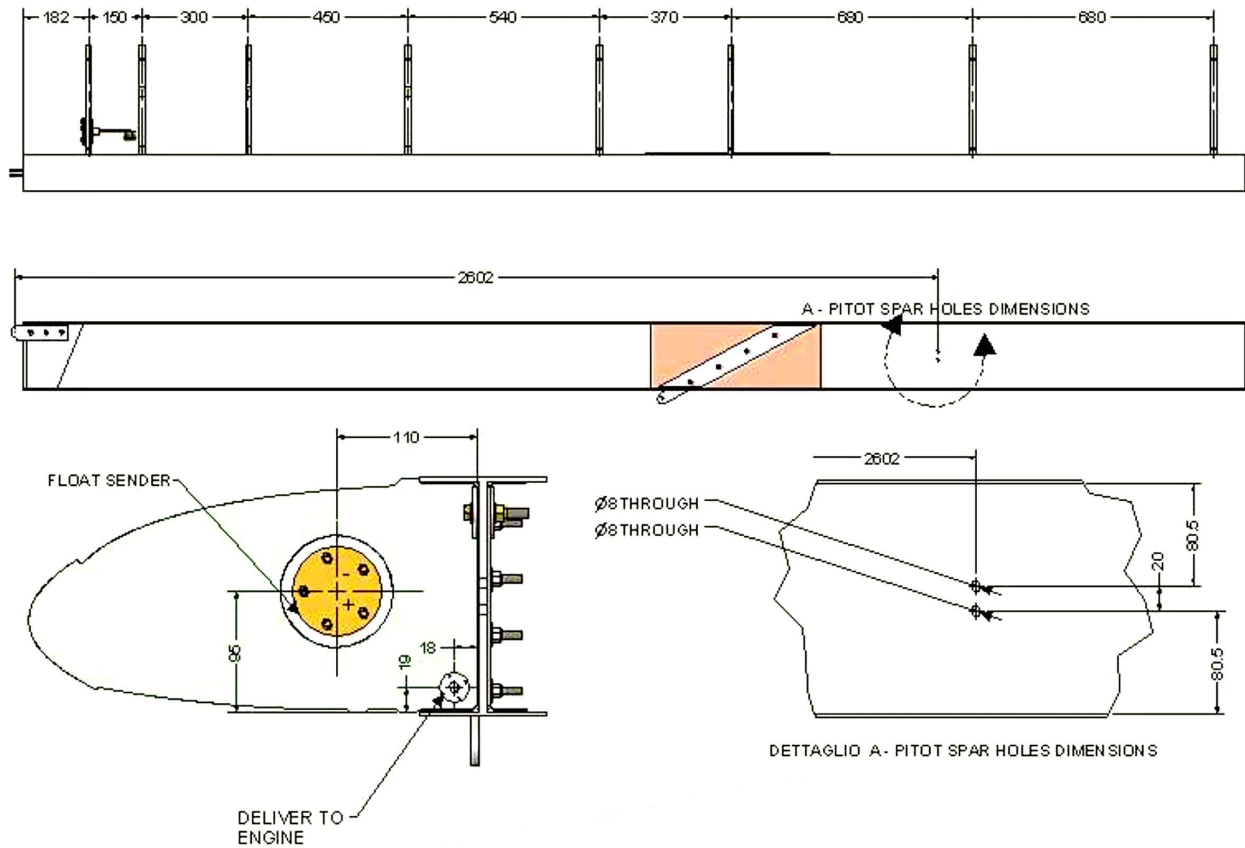
Install fuel float unit sensor (04-090-00/H Fuel float hardware kit) on first rib, as shown below. Keep in mind nose ribs are numbered from 1 to 8 starting from inboard.



Remind to install fuel float sensor at 90° from ground line so it can work correctly. Glue with structural adhesive fuel float unit and fuel pipe fitting 0040 (04-050-00/H Fuel tank Hardware kit) to rib and make a round corner with glue in excess.

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Now you can glue nose ribs to wing spar. Position nose ribs as shown below; keep in mind ribs are numbered 1 to 8, starting from inboard section. (first and fifth ribs delimit wing tank area). Drill pitot tubes holes on spar as shown below.



Moisten area to glue and glue with structural adhesive nose ribs to spar. Let the glue dry.



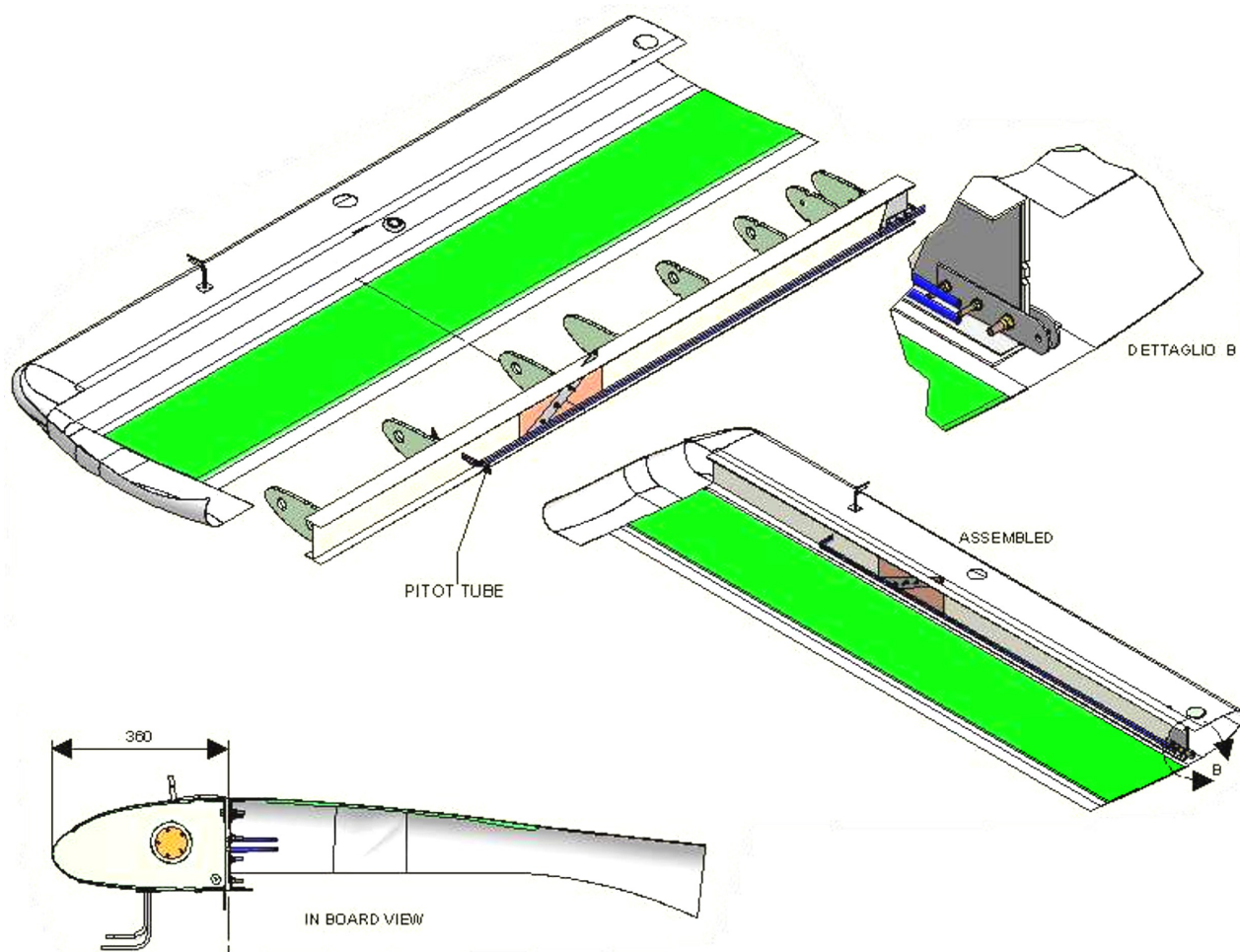
Mark nose ribs position on spar in order to ease main ribs positioning successively.

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IMPORTANT: Keep particular attention to fuel tank area ribs (rib 1-2-3-4-5), proofing this area with 3M Scotch-clad EC776 or similar (make sure it is fuel resistant) diluted with acetone and with a flat brush generously lay the product on the whole tank area, spar and relevant ribs, taking care to lay it also on the hole walls. Let dry and repeat the same operation a second time.

Tip: Lay the proofing product only after glue is dry. Making this operation with care you will avoid fuel leaks. Repeat a second time.

When glue is dry insert wing spar with nose ribs installed inside lower wing skin 14-060-10 (if you are assembling the left wing) or the 24-060-10 (if you are assembling the right wing), moisten the area to glue and glue with structural adhesive wing spar and nose ribs to wing upper skin. Make this operation in two people. If you are assembling right wing it's advised to install pitot before gluing nose ribs to wing skin. For instruction about pitot installation see "Pitot Installation" section in next pages.



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CHECK SPAR AND RIBS CORRECT POSITION

Lay a board on the spar, then lay weights uniformly distributed lengthwise. These weights will allow adhesive to leak out between skin and cap and to obtain a 1 mm thickness between these parts. Using adhesive tape, keep leading edge skin very tight to nose ribs. Lay a board on trailing ribs, then lay weights uniformly distributed lengthwise. After wearing a glove, pass your finger along glued areas so as to form a right and left stripe on each trailing rib and on visible part of main spar. Perfectly seal first and last tank rib.

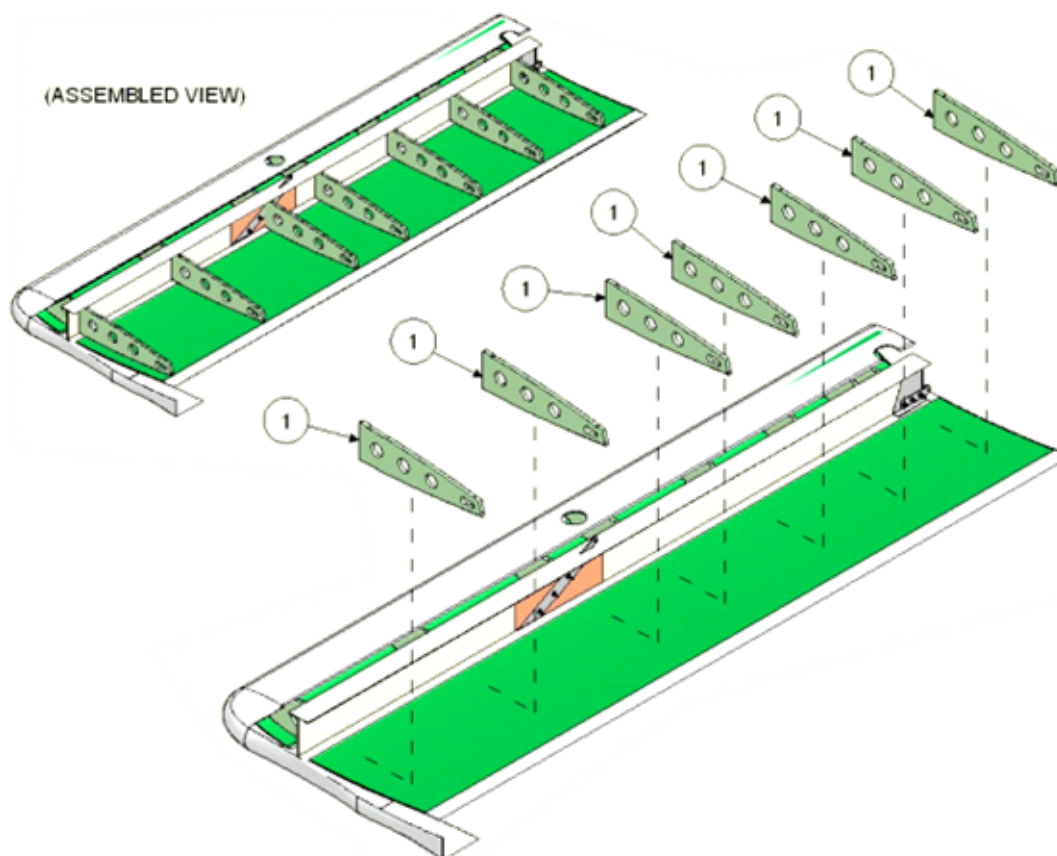
NOTE: Use structural adhesive suggested in this construction manual.

Make a sample at each gluing process and check its features.

Consider the temperature and the humidity level of your workshop.

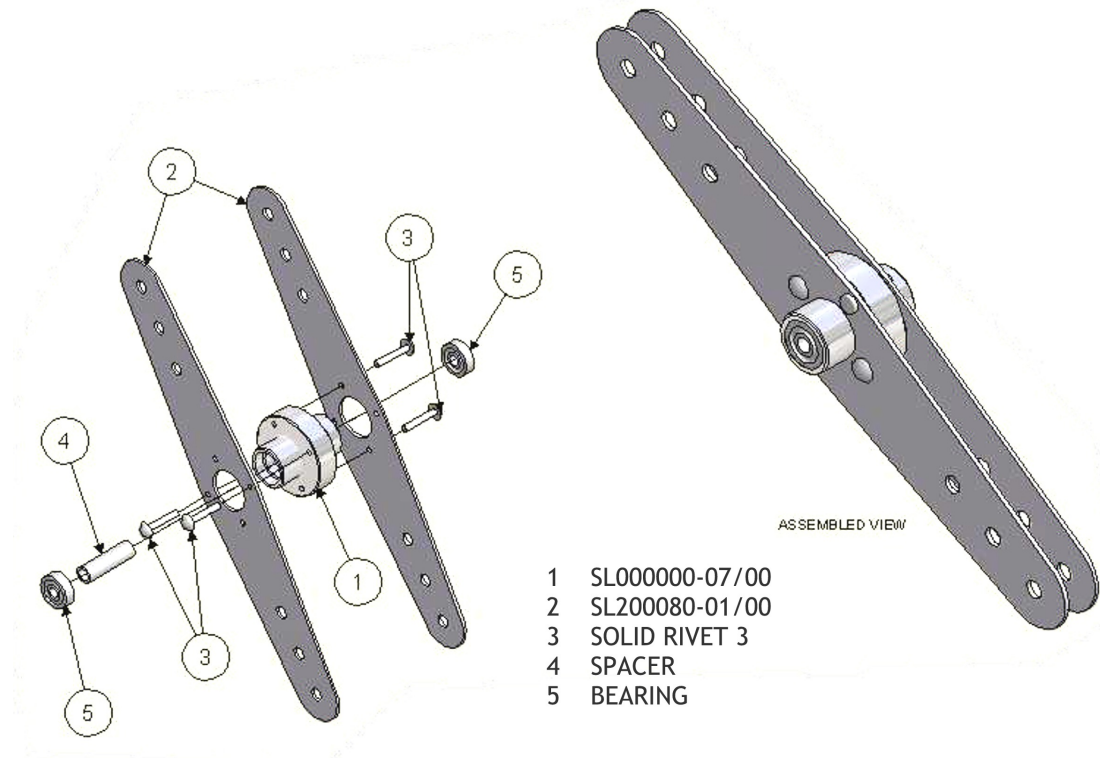
FOLLOW STRUCTURAL ADHESIVE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS VERY CAREFULLY

When glue is dry, position main ribs and glue them with structural adhesive to wing spar and skin in correspondence of nose ribs (excluding nose rib n°2). Let the glue dry.

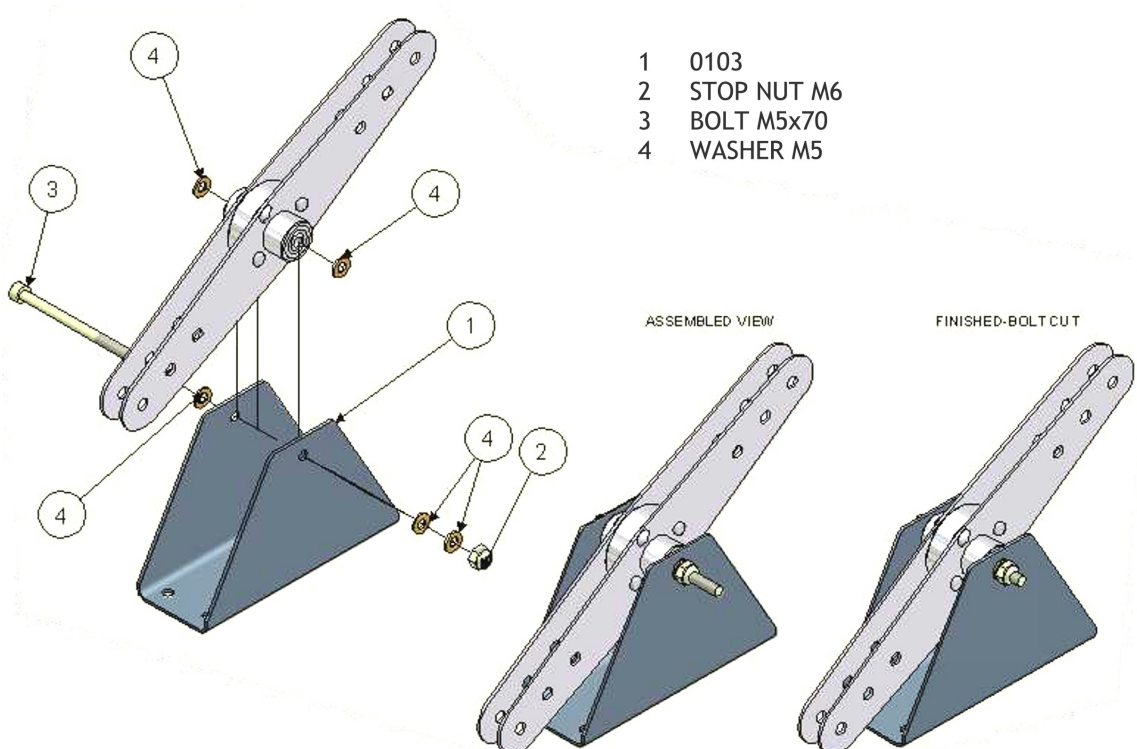


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Prepare wing controls. Start assembling first control, the 04-110-02 one. Insert spacer 0208 (04-110-02/H 180° wing control rod hardware kit) inside bearing support SL000000-07 and close bearing support with two bearings, one for each side. Rivet with solid rivet 3 control bracket 180° SL200080-01 to bearing support as shown below.

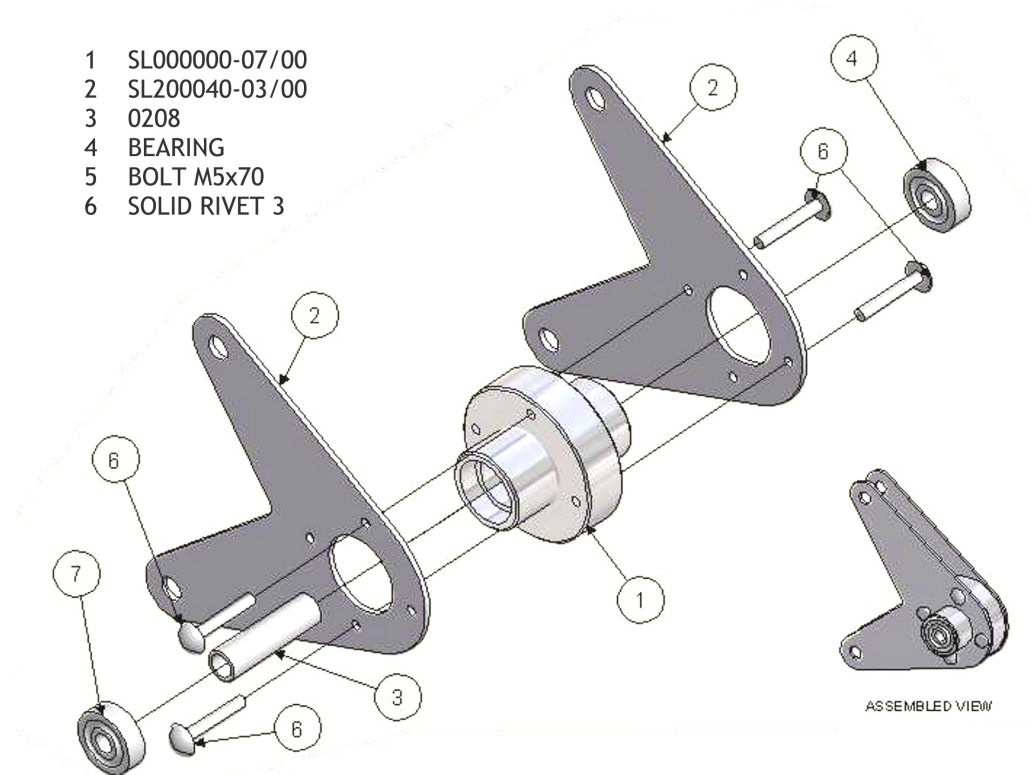


Screw the assembled control to control support 0103 with M5x70 bolt.

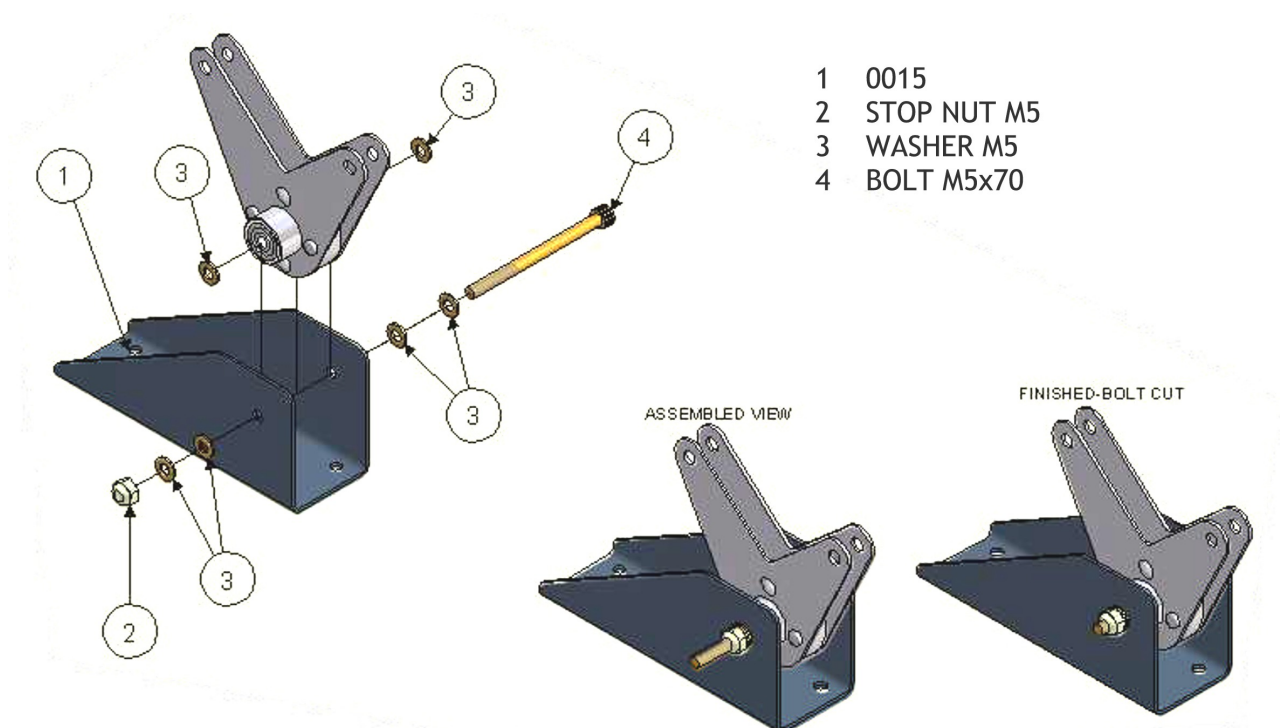


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Follow same procedure for second wing control, the 04-110-01 one. Insert spacer 0208 (04-110-01/H 75° wing control rod hardware kit) inside bearing support SL000000-07. Close bearing support with two bearing, one for each side. Rivet with solid rivet 3 control bracket 75° SL200040-03 to bearing support as shown below.

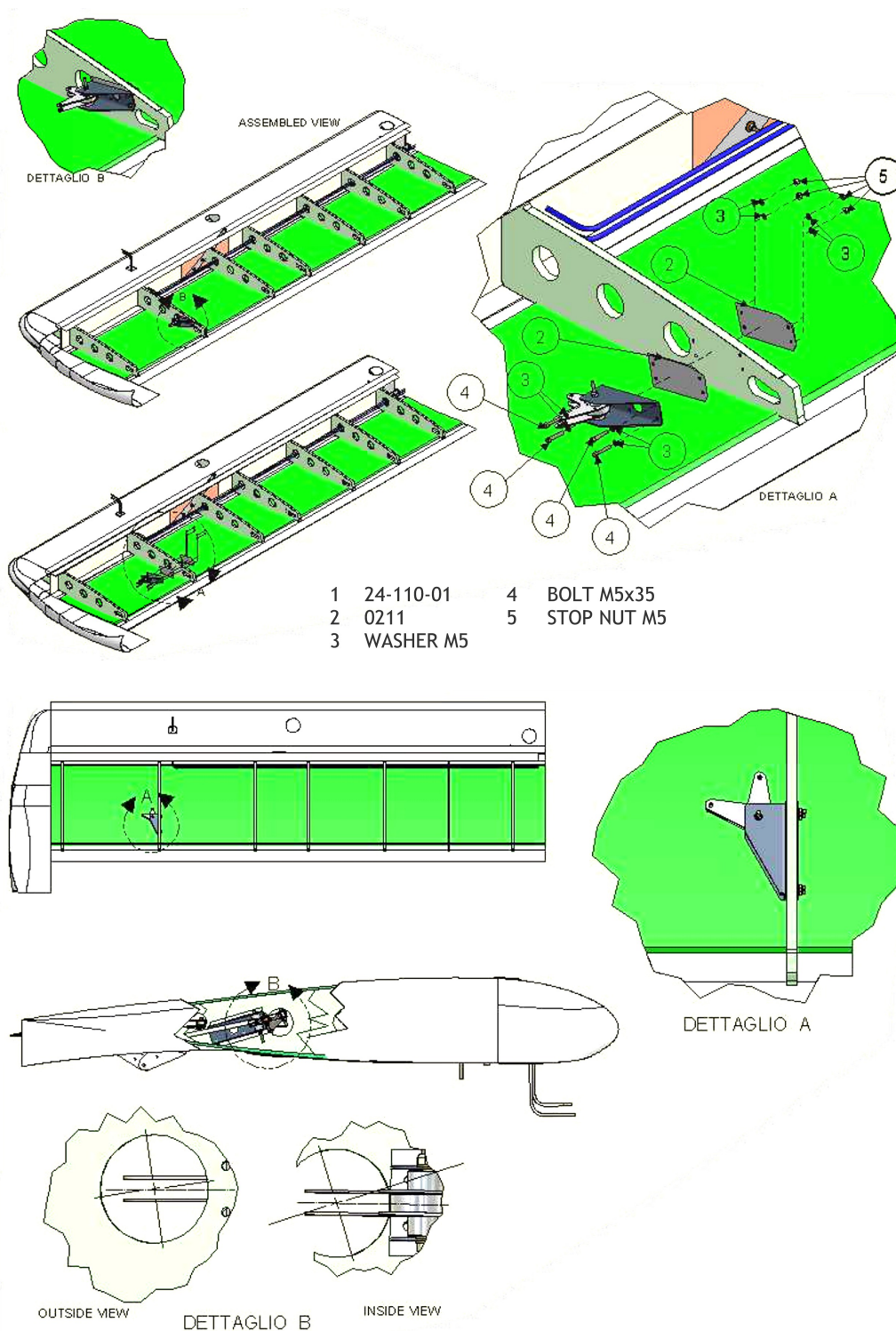


Screw the assembled control to control support 0015 with M5x70 bolt.



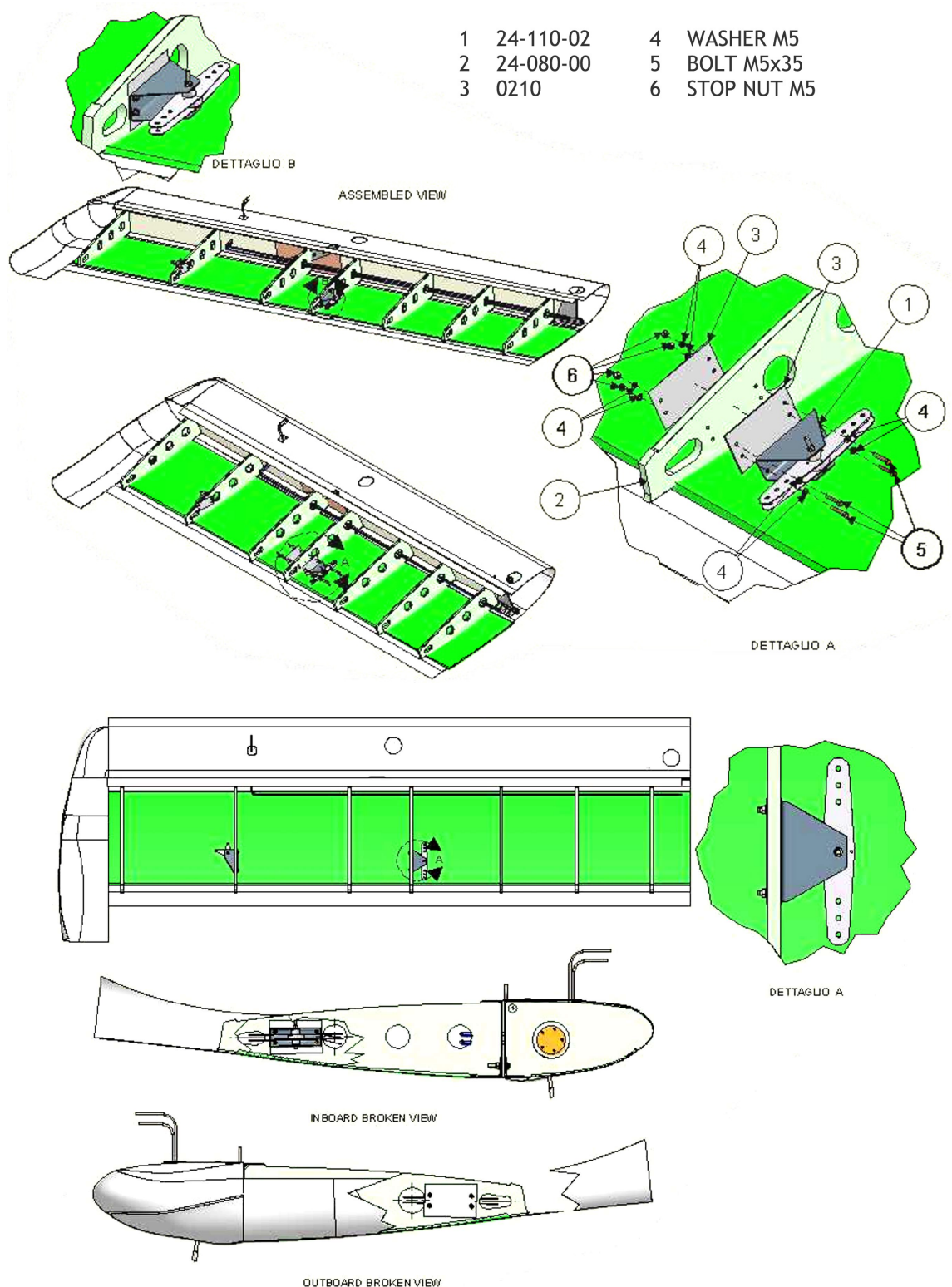
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Glue with structural adhesive control reinforcement plates 0211 to main rib n°6, one for each side, in correspondence of pre-drilled holes and aligned to ribs profile. Sand and clean before gluing. Screw the control to control reinforcement and main rib with M5x35 bolts. Put some structural adhesive between control support and reinforcement plate.

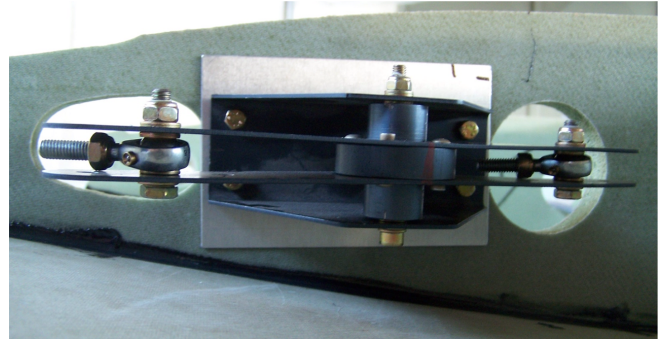


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Follow same procedure for other wing control. Glue with structural adhesive control reinforcement plates 0210 to main rib n°4, one for each side, in correspondence of pre-drilled holes on rib. Sand and clean before gluing. Screw control support to control reinforcement plate and rib with M5x35 bolts. Put some adhesive between control support and reinforcement plate.



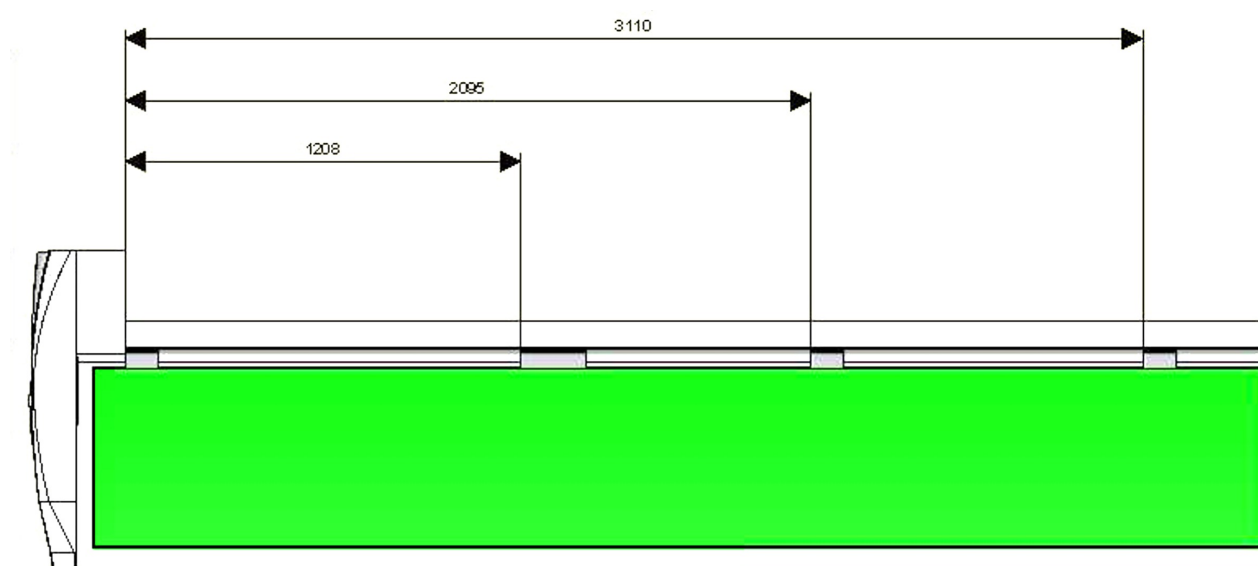
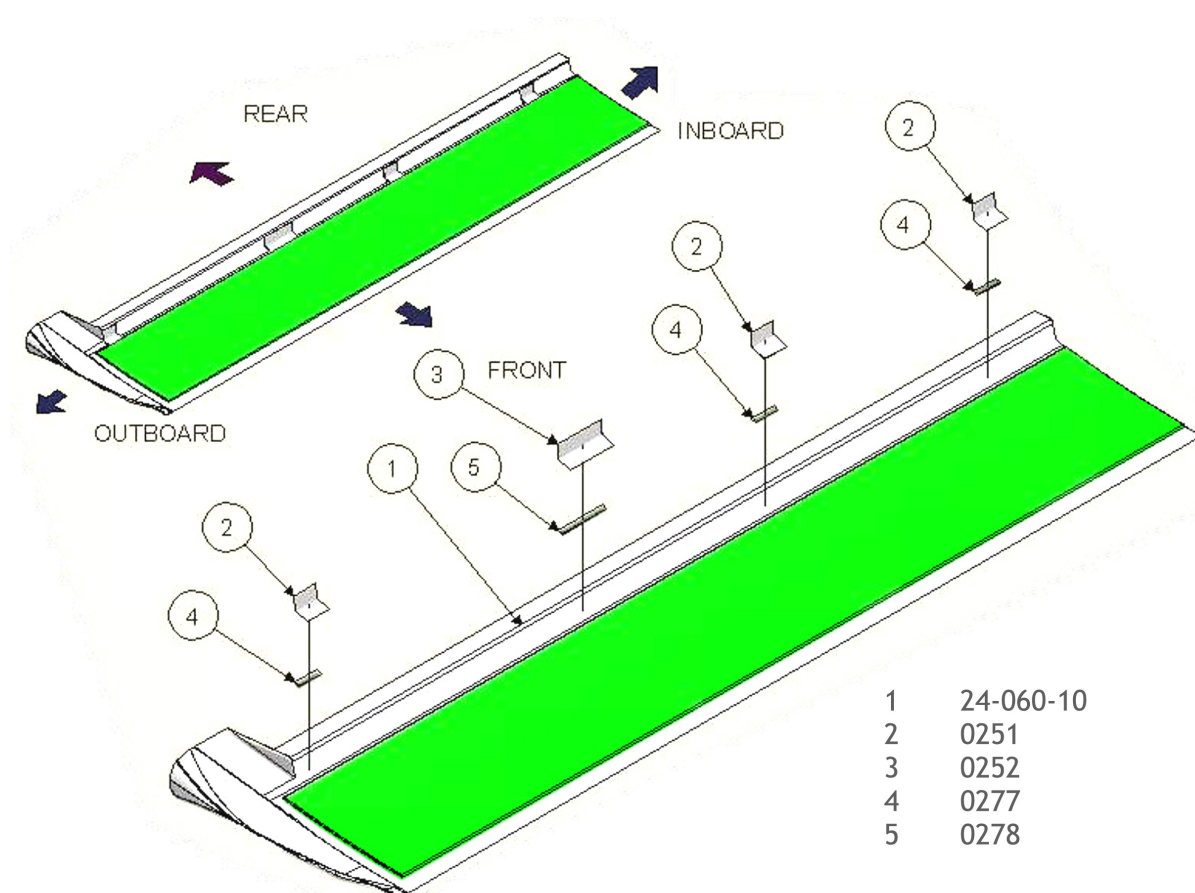
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Before closing wing it's necessary to install wing control rod 04-120-00/2. Take two end rods SL000000-01 (04-120-00/H Wing control rod hardware kit) and insert M6 male bearings, one for each end rod, and screw them with stop nut. Rivet with cherry rivets 3.2 end rods to control rod 04-120-00/2. Check distance between wing controls before riveting end rods, positioning control at 0. Install the assembled rod to wing controls with M6x35 bolts (04-120-00/H hardware kit).

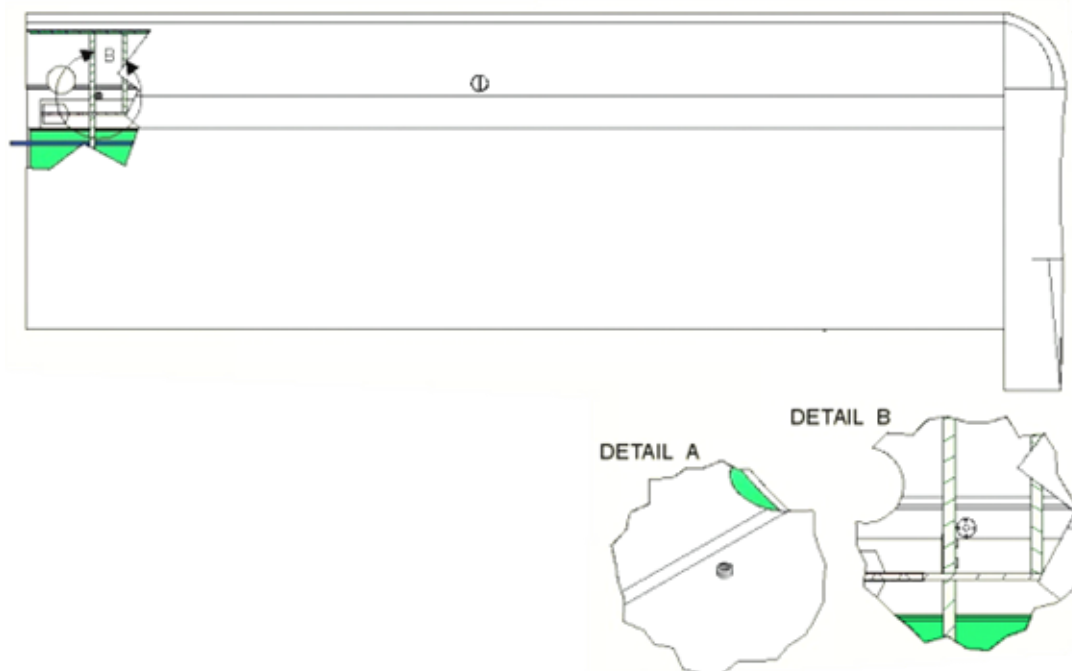
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Prepare lower wing skin, installing flap and aileron connections reinforcements 0251 and 0252. Glue with structural adhesive reinforcements and dedicated spacers 0277 and 0278 as shown below.



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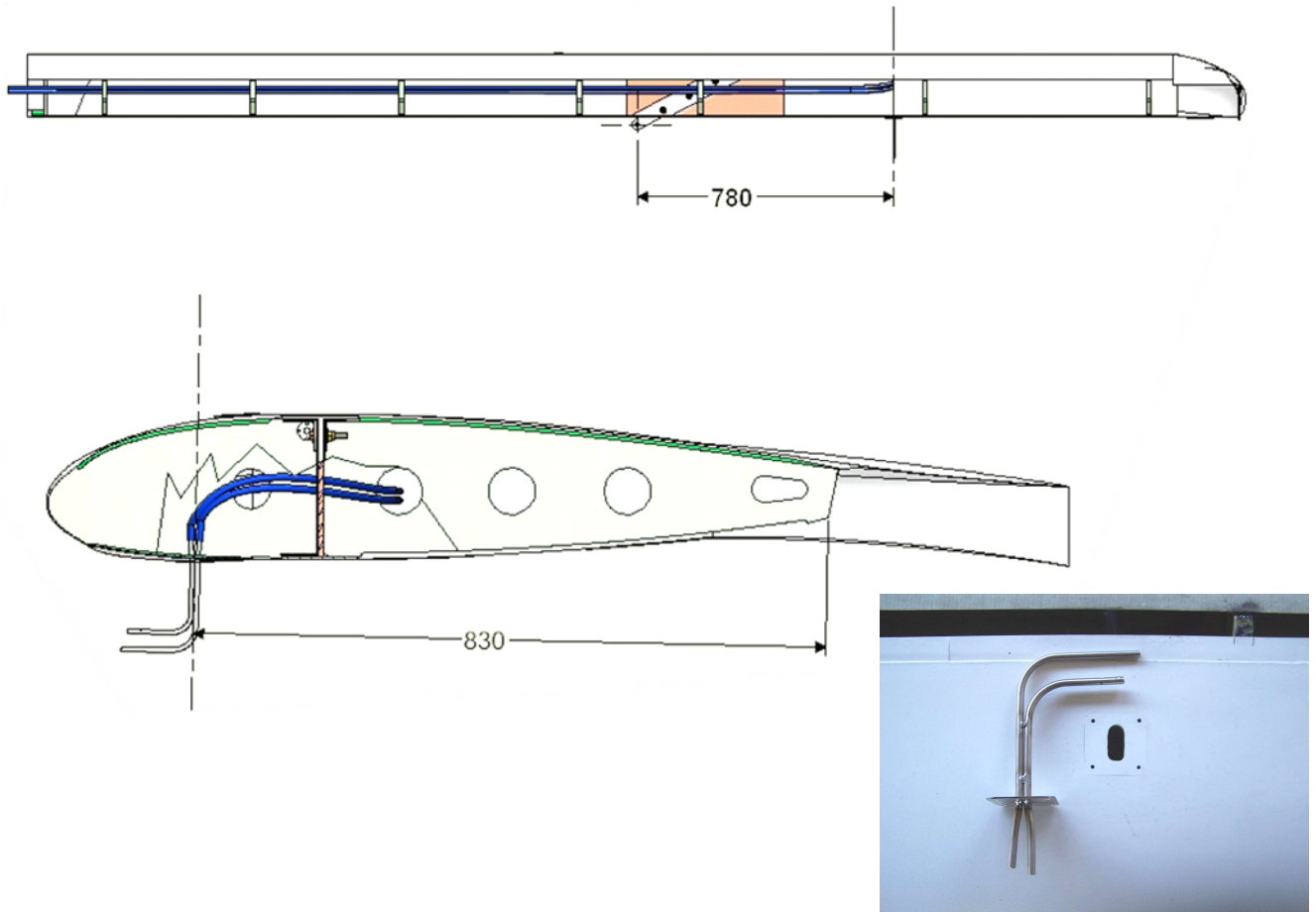
Glue fuel pipe blow down fitting close to first nose rib and wing spar (internal to wing tank area). Do not rivet the fitting, use holes to let adhesive come out.



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PITOT INSTALLATION (RH WING)

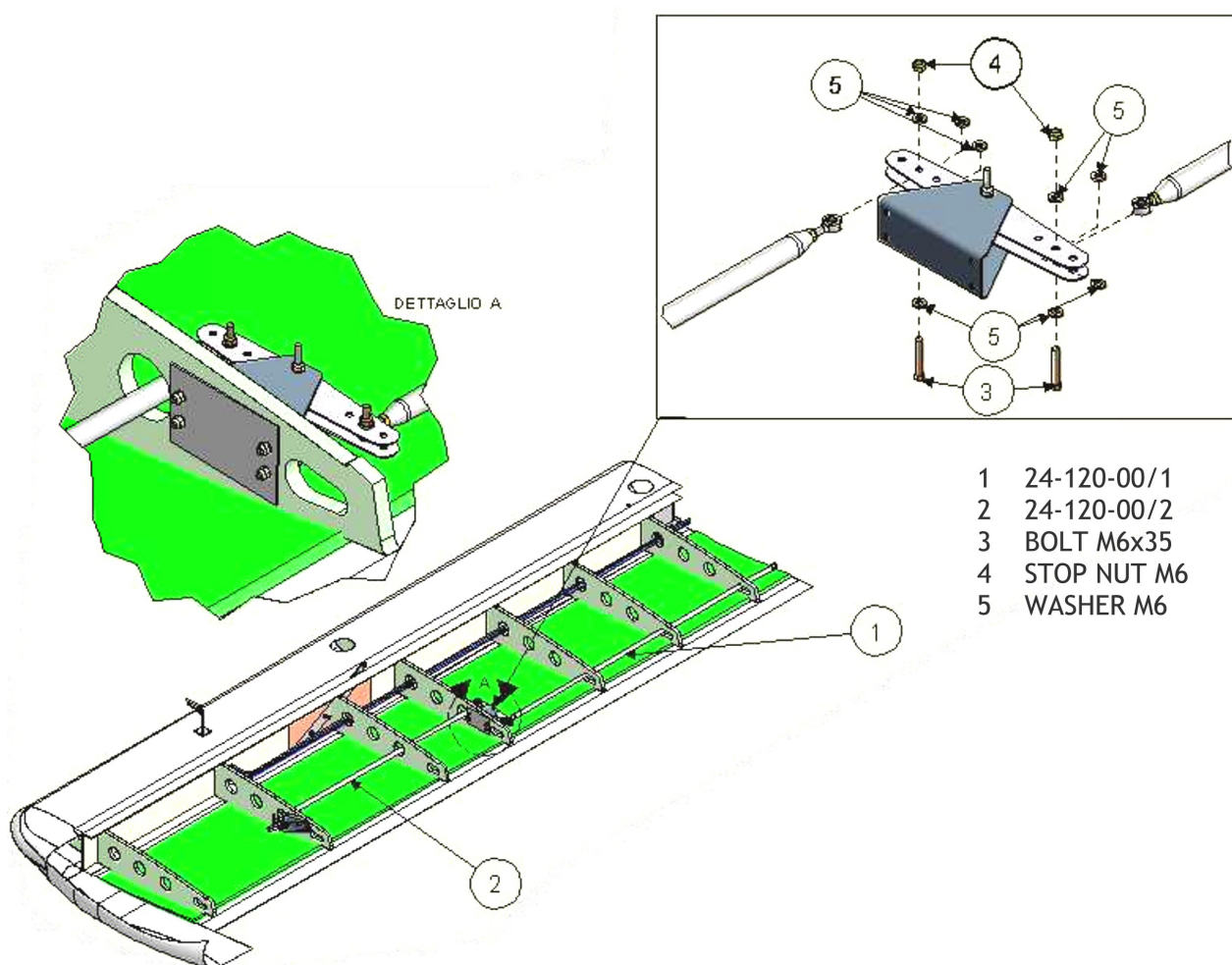
Drill wing upper skin to install pitot. See below for pitot position. Drill wing spar to pass pitot tubes (static and dynamic). Pass tubes through main ribs and through holes on spar. Connect static and dynamic tubes to pitot and rivet it (from outside) to wing skin with cherry rivets 3.2. Fasten pitot tube to main ribs with plastic clamps provided with 04-070-00/H Pitot hardware kit.



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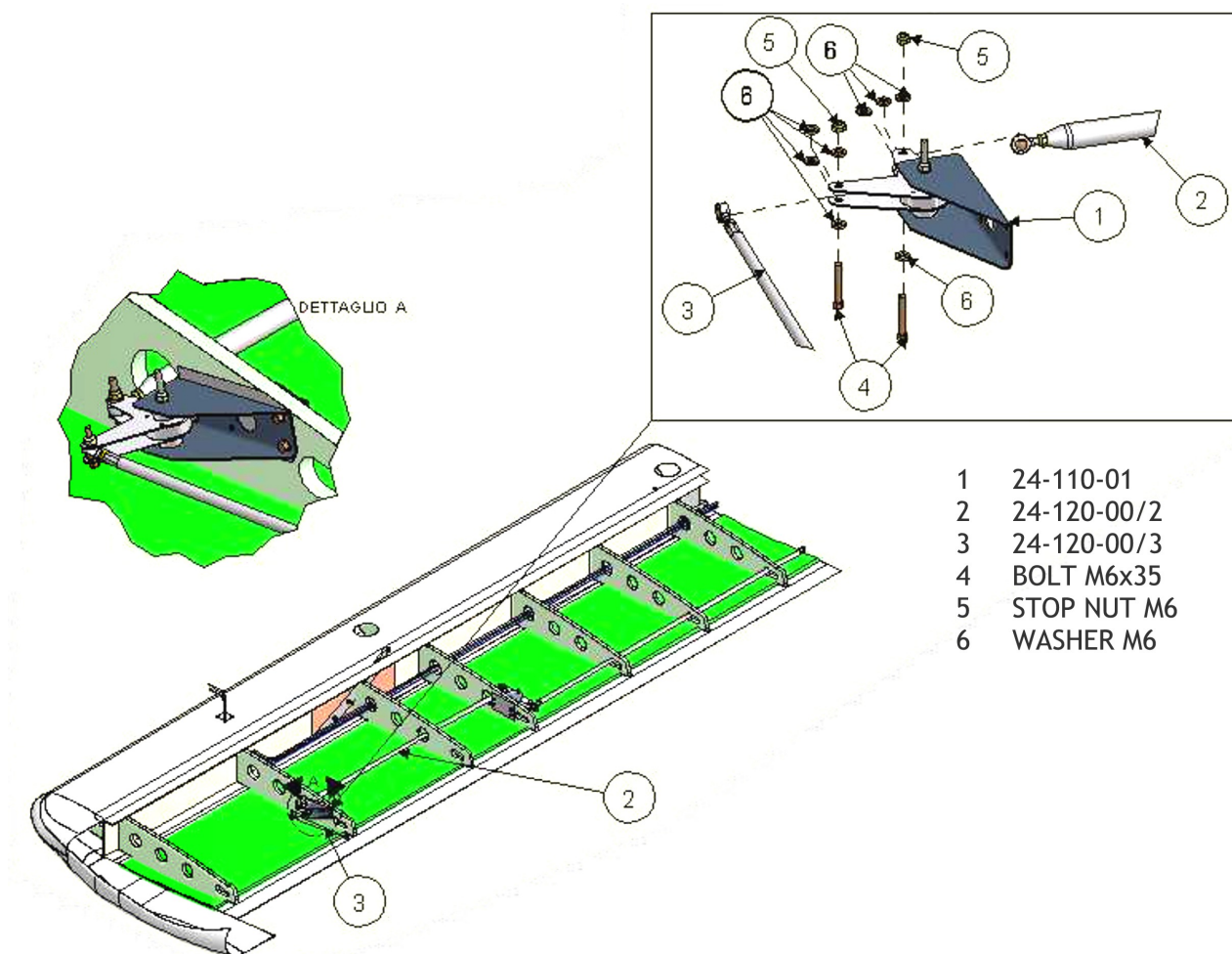
CONNECTING WING CONTROL RODS

Install male bearings to end rods SL000000-01, screwing them with stop nut M6 (04-120-00/H wing control rods hardware kit). Rivet with cherry rivets 3.2 assembled end rods to control rod 04-120-00/1. Screw assembled control rod to first wing control with M6x35 bolt.



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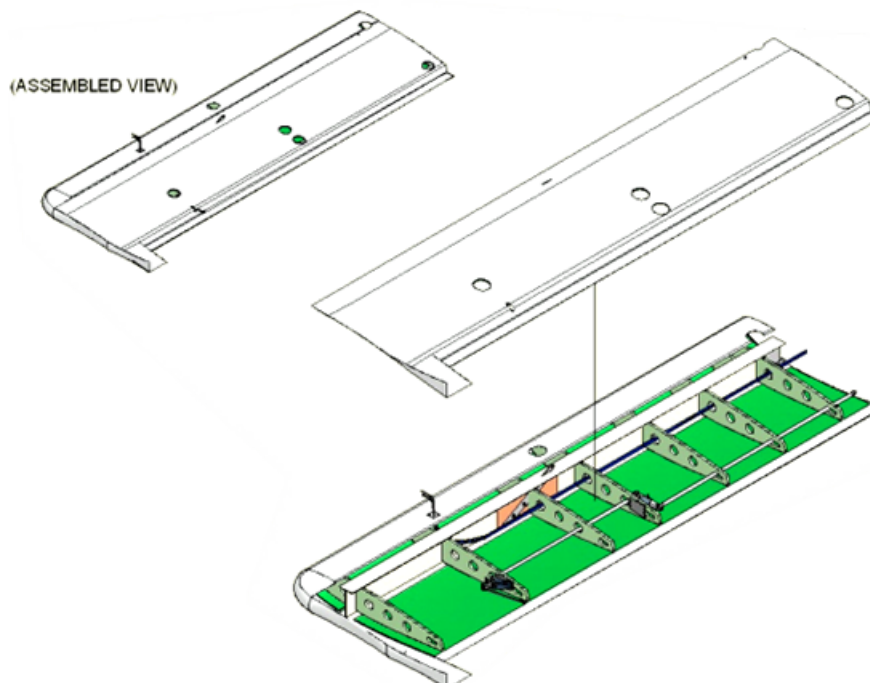
Follow same procedure for wing control rod 04-120-00/2, the one between the two wing controls. Check exact dimension between the two controls and adjust rod length if required. Install male bearings to end rods SL000000-01, screwing them with stop nut M6 (04-120-00/H wing control rods hardware kit). Rivet with cherry rivets 3.2 assembled end rods to control rod 04-120-00/2. Screw assembled control rod to first wing control with M6x35 bolt.



Install male bearings to wing control rod 04-120-00/3, the shorter one with diameter size of 10mm, one for each end. Screw male bearing to control rod with M6 stop nuts. Insert the assembled rod through dedicated hole (see next pages for wing lower skin inspection holes). Screw the control rod to wing second control with M6x35 bolt. To connect wing control rod 04-120-00/3 to aileron see "Connecting aileron to wing" section in next pages.

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Now you can glue with structural adhesive wing lower skin to upper skin. It's advised to put some weight over the skin so to compress the two skins and let glue in excess come out.



When glue is dry, drill inspection holes on wing lower skin as shown below

