

# **ATEC 321 FAETA NG - Aircraft assembly and disassembly**

- ⇒ At least two persons are needed for assembly/disassembly. One for assembly and one (or better two) assistant(s) to assure careful handling with appropriate parts and to avoid their fall and damage.
- ⇒ All parts needed for assembly are delivered together with the aircraft.
- ⇒ Do not push hardly on any surface during manipulation to avoid cracks in the gel-coat (especially in the area of dividing lines, edges, not-stiffened areas).
- ⇒ Clean, grease and secure all pins before assembly.
- ⇒ Pay attention to correct adjustment of ailerons and flaps, which is carried out by shortening/lengthening of pushrods (screw/unscrew adjustable end).
- ⇒ After the aircraft assembly:
  - carry out deflections adjustment by levelling record
  - test the engine run, check both fuel tanks and correct values on fuel indicators
- ⇒ For each next assembly, it is necessary to replace locking nuts and split pins with new ones.

## **1/ Tailplanes Assembly / Disassembly**

At least two people are needed for assembly/disassembly. Pay attention to avoid a fall of small parts into the inner space of the tail fin during manipulation!!

### **a) Horizontal tailplane (HT) and vertical tailplane (VT) assembly**

- ⇒ In case the aircraft is delivered with the vertical tail rudder already installed, it is necessary to remove it to reach the access to attachment points of the horizontal tailplane attachments. For disassembly instructions see the part b) on the Page 7.
- ⇒ Prepare the tailplanes for assembly (2 halves of horizontail tailplane and vertical tail rudder):



## Horizontal tailplane (HT) assembly

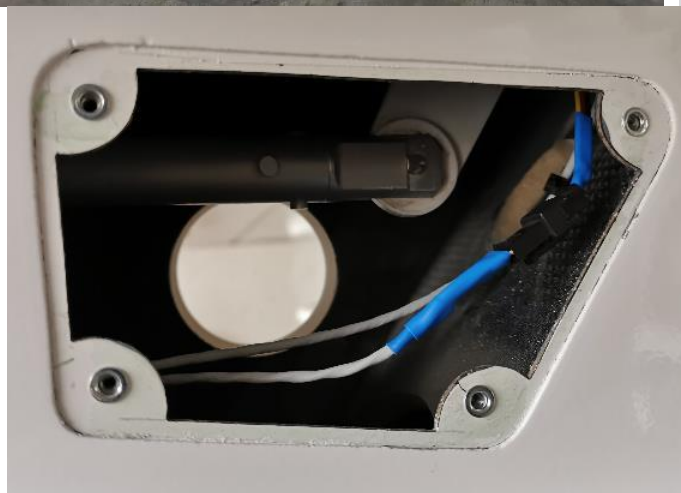
⇒ Remove the cover of the mounting hole situated under the HT on the left side of the fuselage:



⇒ Connect the right half of the HT with the elevator first. Insert its crossbeam into the hole in the fuselage and insert the elevator into the pins in the steering lever at the same time.



⇒ Connect the left half of the HT same way. At the same time, it is necessary to get the trim servo wire through the hole into the fuselage.



⇒ Install two M8 screws, which connect both halves of the HT, into appropriate holes and screw them into the bulkhead inside the tail. Screws must be secured by the Loctite 243 and fitted with a locking washer to avoid their self-loosening and must be properly tightened.

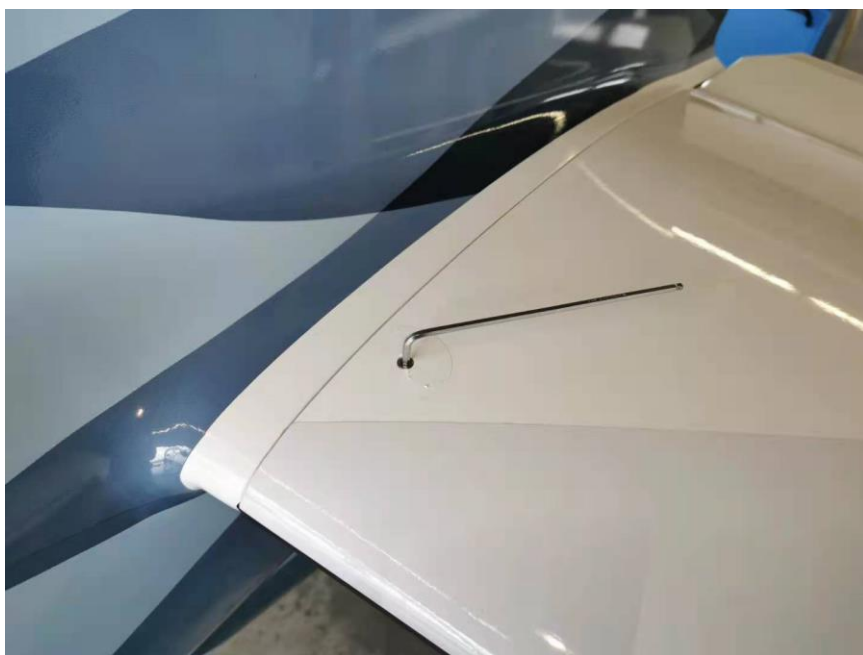




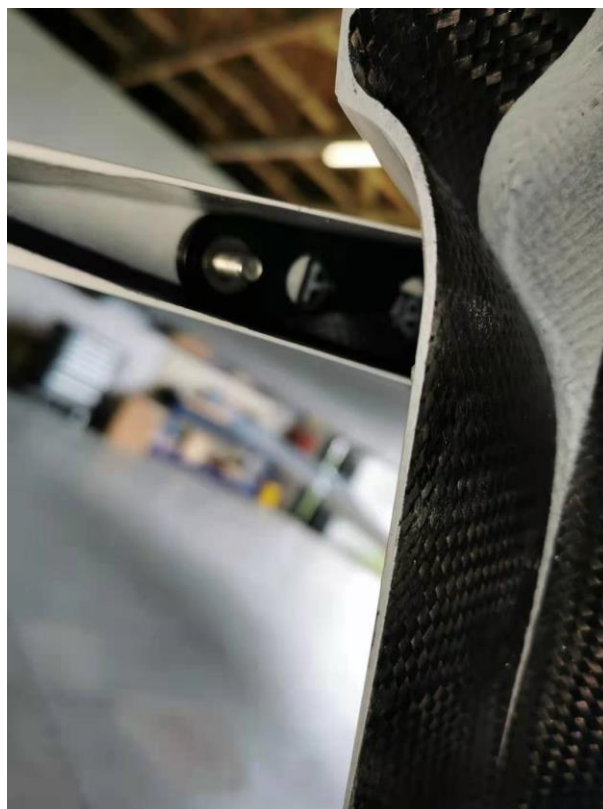
(interior of the tail fin)



⇒ Install M4x35 screw in the hole situated in the front root area of each half of the HT stabilizer. These fix both HT halves with connecting tube. Secure the screws by the Loctite 243.



⇒ Prepare two nuts and two washers for M6 screws. Install them on M6 screw fixing the elevator to the steering lever. Install it the same way on the second half of the horizontal tailplane.





### **Vertical tail (VT) rudder installation**

⇒ Prepare the VT rudder for its installation to the fin tail.



⇒ Push the pedals to deflect the VT rudder either to the left or right. Keeping deflected position, insert the VT rudder (its upper pin) into its upper hinge on the tail fin and push its lower carrier to the tail fin at the same time.



⇒ Prepare two M5x35 stainless screws. Adjust the steering back to neutral position and install both screws on each side of the VT rudder. These fix the VT rudder in the lower carrier.



⇒ Install the cover of the mounting hole situated below the left horizontal tailplane.



⇒ Cover the gap between the fuselage and HT by any suitable white plastic tape (strip, eg. 3M) which avoids water intrusion into the fuselage.

### **b) Horizontal and vertical tailplanes disassembly**

Remove the VT rudder. Unscrew two M5 screws fixing the VT rudder in the lower carrier. Deflect the rudder fully to the left or right. Pull the bottom part of the rudder out of the lower carrier and then, lift the rudder upwards to remove it out of the upper hinge.

Disassembly of the HT is carried out in reverse order. Unscrew the front M4 screws from the upper side of the HT. Finally, unscrew both M8 screws connecting both HT halves with the fuselage. Pull both HT halves out of the fuselage.

## 2. Wings Assembly/Disassembly

At least two persons are needed for wings assembly/disassembly. One for assembly and one (or better two) assistant(s) to hold and support the wing to avoid its fall and damage.

The assistant holds the wing by the wingtip and you hold it by the root. The third person can support it also by trailing edge (flap) near to the wing root. Lay the wing on any smooth, soft pad (e.g. mattress) in order to prepare it for assembly and to avoid its damage. Do not press the wing surface to avoid cracks in the gel-coat especially in the areas of material connections, dividing lines, edges and not-reinforced areas.



### a) Wings assembly

(same for both left and right wing)

#### • **Aileron pushrod preparation - connection to the wing**

Screw the aileron pushrod to its adjustable end protruding out of the wing. Pay attention to install the correct pushrod (LEFT or RIGHT) to appropriate aileron. Exact adjustment will be tuned later.



- **Flap pushrod preparation - connection to the wing**

Place the wing to the position by its leading edge down. Use a special stand or any soft pad (1). Hold the wing together with your assistant (who holds the wing by its wingtip). The assistant deflects the flap (2) to enable better accessibility to the flap steering lever which is inside the lower hole of the wing. The steering lever now protrudes out of the wing (3). Its ball bearing may be secured by the binding wire to avoid its fall apart during manipulation with the wing. Carefully remove the binding wire first and then connect the pushrod to the lever (4).

(1)



(2)

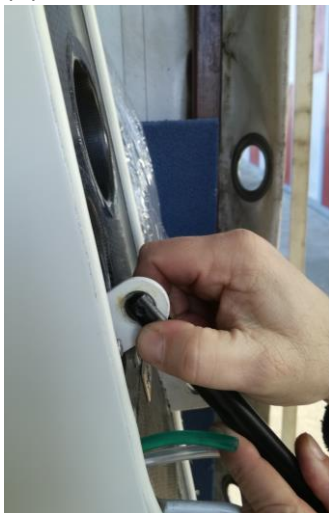


(3)



Pay attention to install correct pushrod (LEFT („L“)/RIGHT („R“)) to appropriate wing (L/R) and to keep correct pushrod position (its non-adjustable end leads into the wing, the adjustable end leads into the fuselage (see the sticker with the letter L/R on the upper side of the pushrod). Secure the connection by the pin of Ø5mm + spacer + split pin (all such parts delivered together with pushrods).

(4)



- **Wing attachment to the fuselage**

Prepare two of main wing pins and grease them by appropriate amount of vaseline. Pay attention to their correct position – UPPER pin is WITHOUT thread, LOWER pin is WITH thread.

Pick up the wing with a help of your assistant(s) (*you hold it by the wing root, your assistant holds it by the wingtip, the third assistant can hold it by the flap near to the wing root*) and attach it close to the

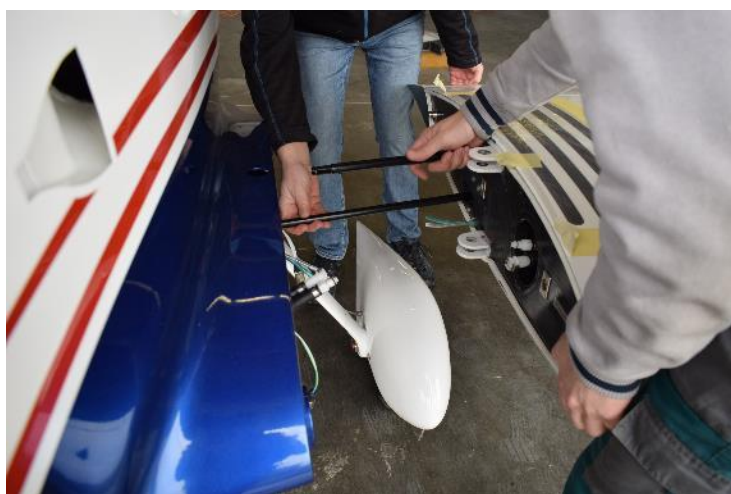
fuselage, so that both pushrods (aileron and flap) enter the fuselage through the corresponding holes. But, do not attach it completely yet. Leave a sufficient space between the wing and fuselage to keep an access to connectors and so to be able to interconnect the rest of the equipment between the wing root and fuselage. During the wing installation, all persons must still hold and support the wing or the wing must be properly underlaid and secured to avoid its fall and damage.

Connect the rest of the equipment:

- static and dynamic pressure hoses of Pitot tube (on the left wing only)

*Note: Pay attention not to interchange the hoses of Pitot tube during assembly.*

- quick couplings of fuel hoses
- cable connector of the fuel gauge
- cable connector of strobes/position lights and autopilot (if equipped with)



Push the wing towards the fuselage and attach it completely without any gap in between. Insert main wing pins into the holes with fittings.

First, insert the upper pin (without thread) (1). Then insert the lower pin (with thread) (2). This operation requires careful use of hammer and any auxiliary metallic rod ( $\varnothing$  18mm) to beat the pins into the holes. During this operation, the assistant (holding the wing by the wingtip) pays attention to keep the correct dihedral angle. If needed, he can move up the wing slightly as to enable to easier accomodate pins into the holes.

(1)



(2)



Both pins must be inserted as to be fully beaten. Then the assistant can leave the wing.



From the upper side, secure pins by the bolt and tighten it by the torque 25 Nm.

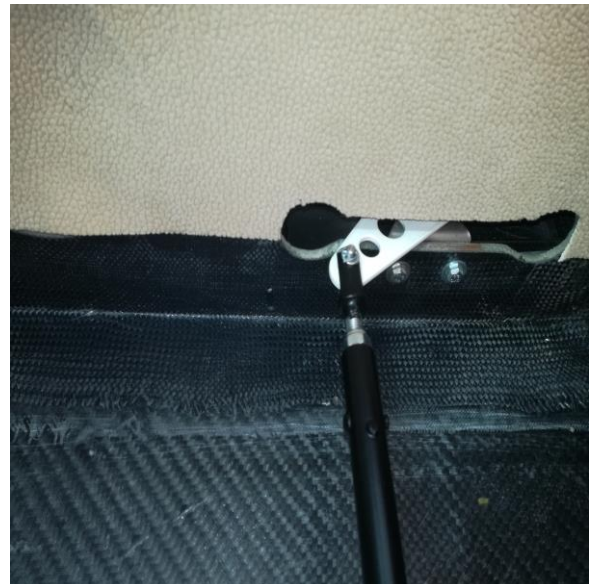


Install M10 self-locking nut on its lower end to secure the wing attachment properly. Finally, cover the holes with any white plastic sticker (to avoid water intrusion).



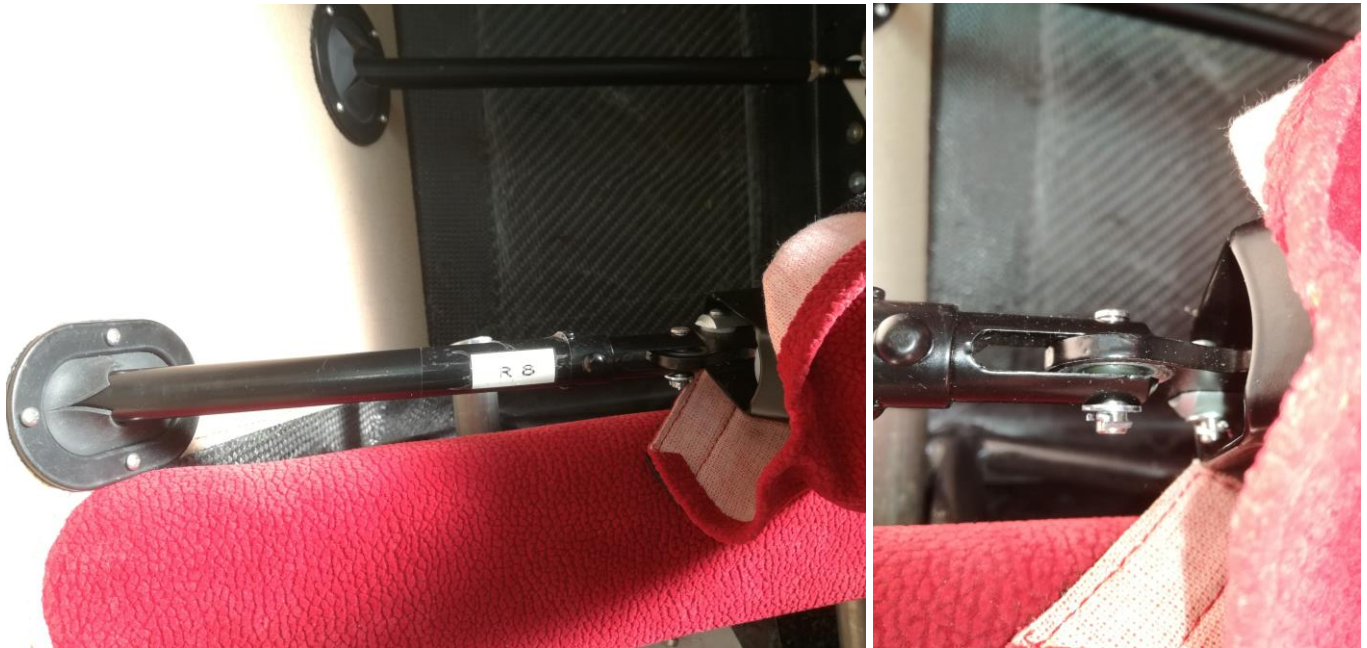
- **Flaps pushrods connection inside the cockpit**

Remove the seats to have better access to the flap steering lever situated in the central tunnel. Connect the pushrod with the lever and secure it by the pin Ø 5mm and spacer + split pin (all parts delivered with the pushrod). Eventually, it is possible to insert the pin Ø 5mm via from bottom side (better accessibility to insert the spacer and split pin). Install seats back.



- **Ailerons pushrods connection inside the cockpit**

Screw the pushrod to the control stick and tighten it fully. Then loosen it again by a number of turns indicated on the pushrod. This assures correct neutral position of ailerons. Secure the connection with the pin Ø 5mm and spacer + split pin (all parts delivered with the pushrod).



## **b) Wings disassembly**

⇒ Drain the fuel off the both tanks.

⇒ Inside the cockpit, disconnect ailerons pushrods from the control stick and flaps pushrods (in the central tunnel).

⇒ Release and remove the locking nut of the bolt of the wing pins.

⇒ Unscrew the bolt only partially (by approx. 2cm).

⇒ Use the hammer and beat out the lower pin by light tapping on the head of the bolt.

⇒ Unscrew the bolt completely and pull out the lower pin.

⇒ Pull or beat the upper pin out with a help of any metallic rod of Ø 18mm and the hammer.

If needed, the assistant (holding the wing by the wing tip) can slightly lift the wing to allow the pins to be pulled out more smoothly.

The assistant still holds the wing by the wingtip and you hold it by the root (the third person can hold the wing by the trailing edge near its root) to avoid its fall and damage.

⇒ After pins removal, partially pull the wing out of the fuselage in order to reach the space between the wing and fuselage and have enough access to disconnect equipment. Support the wing at the area of its root rib with a help of the assistant (or you can support it by your knees) and disconnect:

- static and dynamic pressure hoses of the Pitot tube (only on the left wing)

*Note: Pay attention not to interchange the hoses of the Pitot tube during their next re-assembly.*

- quick couplings of fuel hoses
- cable connector of the fuel gauge
- cable connector of the strobes/position lights (if equipped with)

⇒ Store the wings on any safe and dry place with stable temperature. Wings need to be properly secured and prevented from structural and surface damage.