



ANTARTICA

KR175 DRAKE MANUAL

A TALE BY SAB



ANTARTICA – A TALE BY SAB

Year ZERO: TOTAL DESTRUCTION

In the 21st century, a nuclear war triggered by a group of cyber terrorists, caused the immediate destruction of a large part of the world's population.

The nuclear winter and the radioactive fallout drastically reduced the survivors and mankind found itself on the verge of extinction. Only a few well-organized groups of people survived in the southern hemisphere south of the 40th parallel.

Year 0-300: DARK CENTURIES

During the first three centuries, most of the planet was burned and became inhabitable. The widespread global fires generated large quantities of toxic gases that released nitrogen monoxide into the atmosphere depleting the ozone layer. Global warming was certain and inevitable.

Mankind found itself facing dark centuries, during which most of the technological advances civilization had achieved were lost; cultural knowledge and law and order were non-existent, even the most basic human rights were violated.

Year 300-400: A NEW OPPORTUNITY

As the polar ice caps started to melt, the human race found new hope.

The new climatic conditions of the Antarctic continent allowed for the growth of countless of settlements.

In the year 397, the city of Antarctica was proclaimed the capital of Newland and became the most important cultural, economic and commercial center on planet Earth.

Year 400-500: A NEW POLITICAL SYSTEM

The Antarctic continent was completely colonized by the state of Newland, which established a federation of three dependent states or protectorates: Sanave, Windbay and Stockland, with their own respective capitals of Novolez, Belgrano and New Antartica.

Thanks to its favorable geographical location, the Stockland protectorate had such an economic growth that, around the year 450, New Antartica, its capital became extremely important to the federal capital, Antartica.

Year 512: THE REVOLUTION: HISTORY REPEATS ITSELF

The desire for freedom coupled with discontent due to the high taxation imposed on the protectorates by the state of Newland led to independence movements, which resulted in a declaration of independence of the Stockland protectorate on October 4th, 512. As tensions rised, a battle of independence was inevitable and on June 21st, 513, the Battle of Kemp, a violent air battle between the rebel legion of New Antartica and the elite army of Newland took place.

The arms race had begun.



SAB AVIO WEBSITE



DRAKE MANUAL

Release 1.0 - April 2019

SAB AVIO

www.sabavio.com

support@sabitaly.com

NAME: K175 DRAKE

VERSION: Robodrone

ROLE: Multirole fighter

MANUFACTURER: Kruger Industries

Please read this user manual carefully, it contains instructions for the correct assembly of the KIT.

Please refer to the web site www.sabavio.com for updates and other important information.

VERY IMPORTANT

In the Manual bag you will find a product card with your serial number.
Please take a moment to register your kit online via our website:

www.sabavio.com

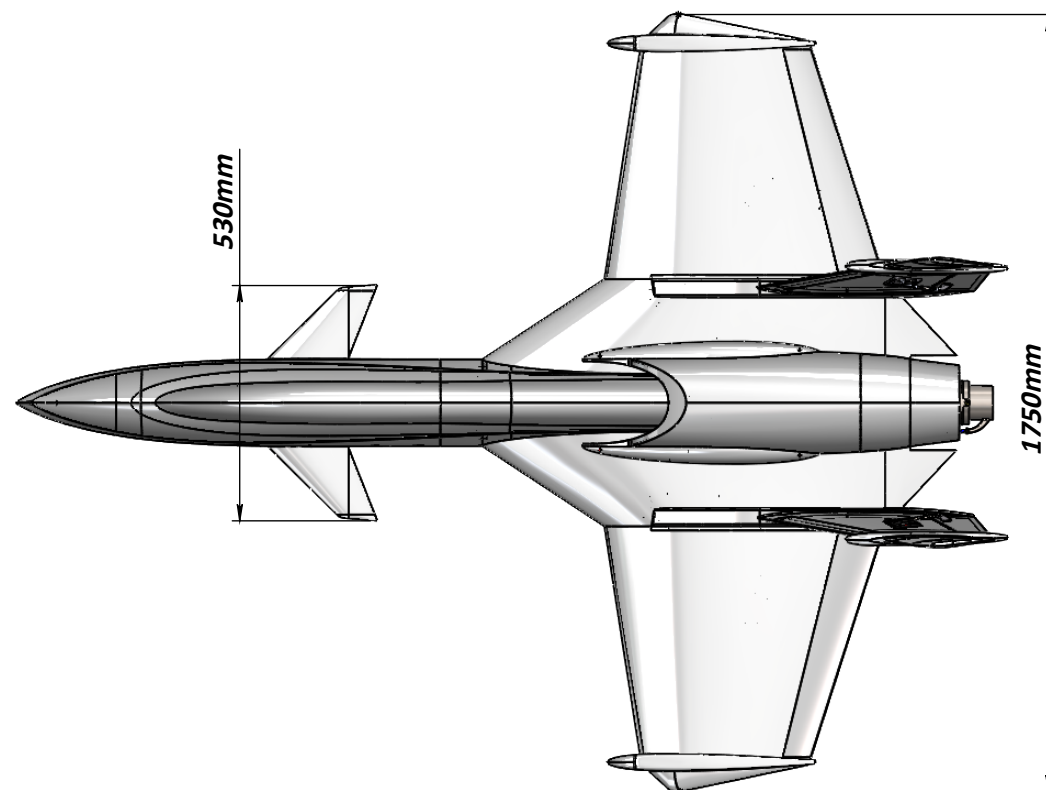
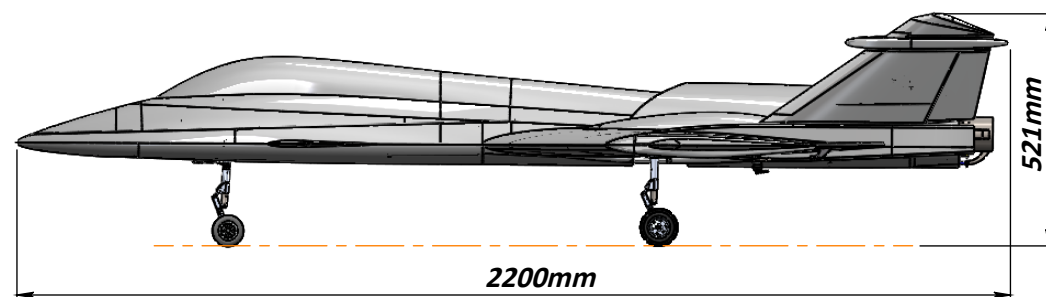
It is extremely important that you take a moment to register your airplane with us. This is the only way to ensure that you are properly informed about changes to your kit, such as upgrades, retrofits and other important developments. SAB Avio cannot be held responsible for issues arising with your model and will not provide support unless you register your serial number.

Thank you for your purchase, we hope you will enjoy your new DRAKE!

SAB Avio Team

SPECIFICATIONS

Wing Span	: 1750mm
Wing Area	: Around 56dm ²
Maximum Length	: 2200mm
RTF Weight (DRY)	: From 12 to 14kg depending on equipment
Tank Capacity	: 4.5 liters
Turbine	: From 12 to 22kg



IMPORTANT NOTES

- *This radio controlled airplane is not a toy.
 - *This radio controlled airplane can be very dangerous.
 - *This radio controlled airplane is a technically complex device which has to be built and handled very carefully.
 - *This radio controlled airplane must be built following these instructions. This manual provides the necessary information to correctly assemble the model. It is necessary to carefully follow all the instructions.
 - *Inexperienced pilots must be monitored by expert pilots.
 - *All operators must wear safety glasses and take appropriate safety precautions.
 - *A radio controlled airplane must only be used in open spaces without obstacles, and far enough from people to minimize the possibility of accidents or of injury to property or persons.
 - *A radio controlled airplane can behave in an unexpected manner, causing loss of control of the model, making it very dangerous.
 - *Lack of care with assembly or maintenance can result in an unreliable and dangerous model.
- *Neither SAB Avio nor its agents have any control over the assembly, maintenance and use of this product. Therefore, no responsibility can be traced back to the manufacturer. You hereby agree to release SAB Avio from any responsibility or liability arising from the use of this product.**

SAFETY GUIDELINES

- *Fly only in areas dedicated to the use of model.
- *Follow all control procedures for the radio frequency system.
- *It is necessary that you know your radio system well. Check all functions of the transmitter before every flight.
- *The turbine of the model is very dangerous, be aware of the danger they pose and the damage they may cause.
- *Never fly in the vicinity of other people.

DAMAGE LIMITS

SAB AVIO SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

Further, in no event shall the liability of SAB Avio exceed the individual price of the Product on which liability is asserted. As SAB Avio has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly the user accepts all resulting liability. If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

LIMITED WARRANTY

SAB Avio reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER This warranty covers only those Products purchased from an authorized SAB Avio dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims.

(b) Limitations- SAB AVIO MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- SAB Avio's sole obligation hereunder shall be that SAB Avio will, at its option, replace any Product determined by SAB Avio to be defective In the event of a defect, this is the Purchaser's exclusive remedy. Replacement decisions are at the sole discretion of SAB Avio. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance or attempted repair by anyone

ADDITIONAL COMPONENTS REQUIRED

- * Turbine from 12kg to 22kg. (with Accessories).
- * Landing gear system.
- * UAT.
- * Batteries.
- * Radio power system.
- * 2 Wings servos (20x40 mm standard size, min. 20 KG).
- * 2 Vector servos (20x40 mm standard size, min. 20 KG).
- * 2 Rudders servos (15x35 mm mini size, min. 6 KG).
- * 1 Canard servo (20x40 mm standard size, suggested 20 KG).
- * 1 Steering system servo (20x40 mm standard size).
- * 3 Doors servos (12x23 mm micro size).
- * Accessories, extensions, tubes.

TOOLS AND ADHESIVES


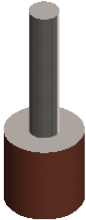




- * Drill with drill bits 2, 3, 4, 5mm.
- * Small milling cutter for drill.
- * Generic pliers.
- * Hexagonal driver, size 1.5, 2, 2.5, 3 mm.
- * Cyano-acrylate glue.
- * Epoxy glue.
- * Medium threadlocker (eg. Loctite 243).
- * Soldering equipment (for electric wiring).

NOTES FOR ASSEMBLY

Please refer to this manual for assembly instructions for this model. Follow the order of assembly indicated. The instructions are divided into chapters, which are structured in a way that each step is based on the work done in the previous step. Changing the order of assembly may result in additional or unnecessary steps.

Use thread lockers and retaining compounds as indicated. In general, each bolt or screw that engages with a metal part requires thread lock.

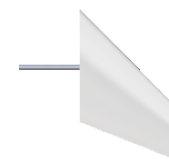
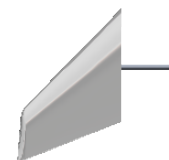
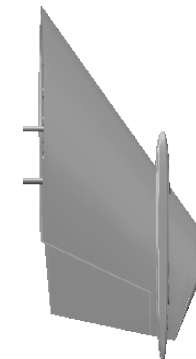
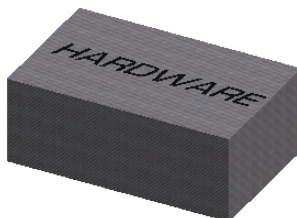
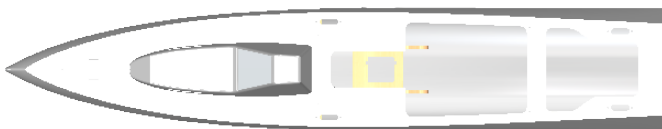
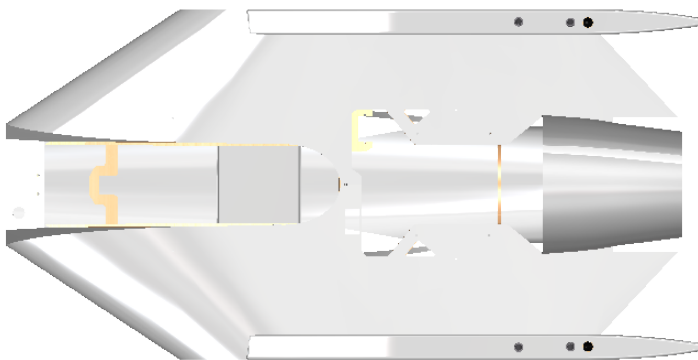
It is necessary to pay attention to the symbols listed below:

 <p>Important</p>	 <p>Sand and fit where necessary</p>	 <p>Use Thread Locker Medium Strength (SAB HA116-S)</p>
 <p>Use CA Glue</p>	 <p>Use Epoxy Glue</p>	 <p>Indicates that for this assembly phase you need materials that are: BAG xxx.</p>

The assembly process is described in the following chapters. Each chapter provides you with the bag number you will need for that chapter. The information is printed in a red box in the upper right corner of the page at the beginning of every chapter.

INSIDE THE BOX

- * Main fuselage
- * Front fuselage
- * Turbine Cover
- * Tank
- * Cone + exhaust pipe
- * Left Wings
- * Right Wings
- * Left Rudder
- * Right Rudder
- * Canopy
- * Left Canard
- * Right Canard
- * Vector
- * BAGS LIST



LANDING GEAR DOORS

Inside the box you have also 1 landing gear door kit. The system needs 3 micro servos (12x23 mm).

If you want to use the landing gear doors go to page 36 and check the assembly instructions.

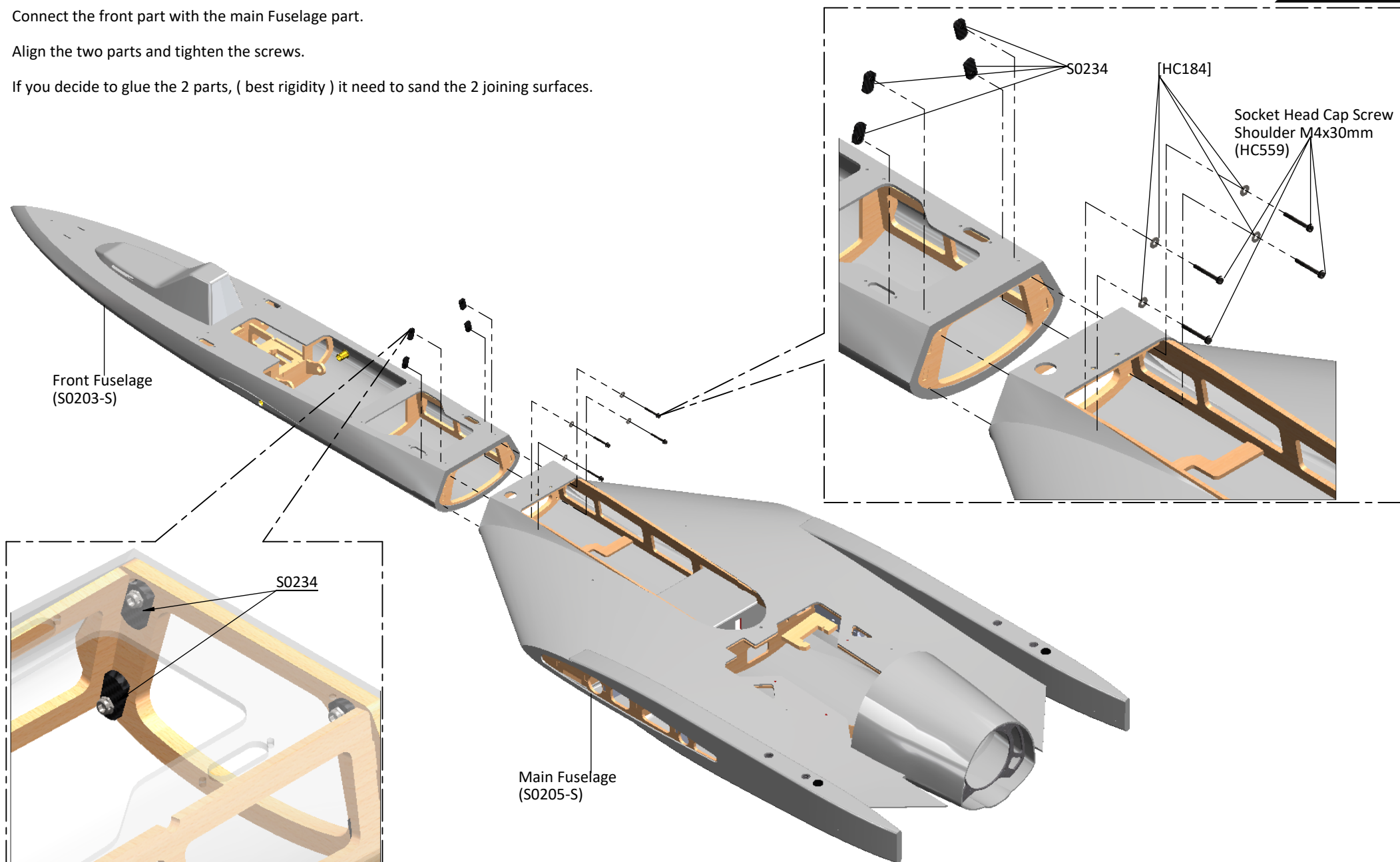
In this case we suggest installing the wires at the same time as installing the other wires and installing the doors before installing the landing gear.



Connect the front part with the main Fuselage part.

Align the two parts and tighten the screws.

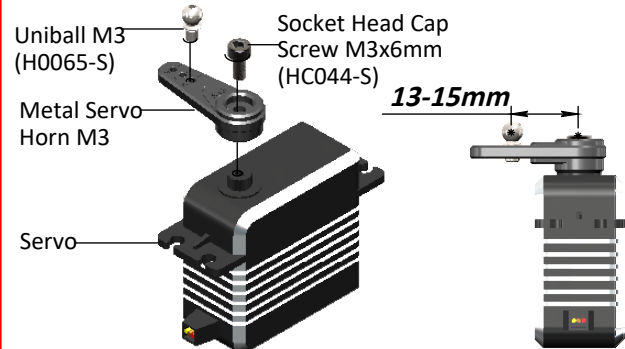
If you decide to glue the 2 parts, (best rigidity) it need to sand the 2 joining surfaces.



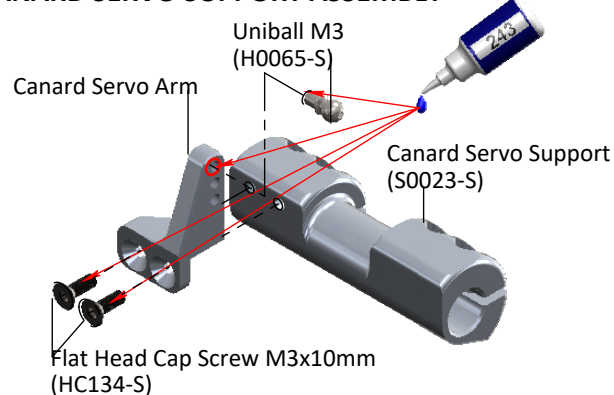
BAG 2

SERVO ASSEMBLY

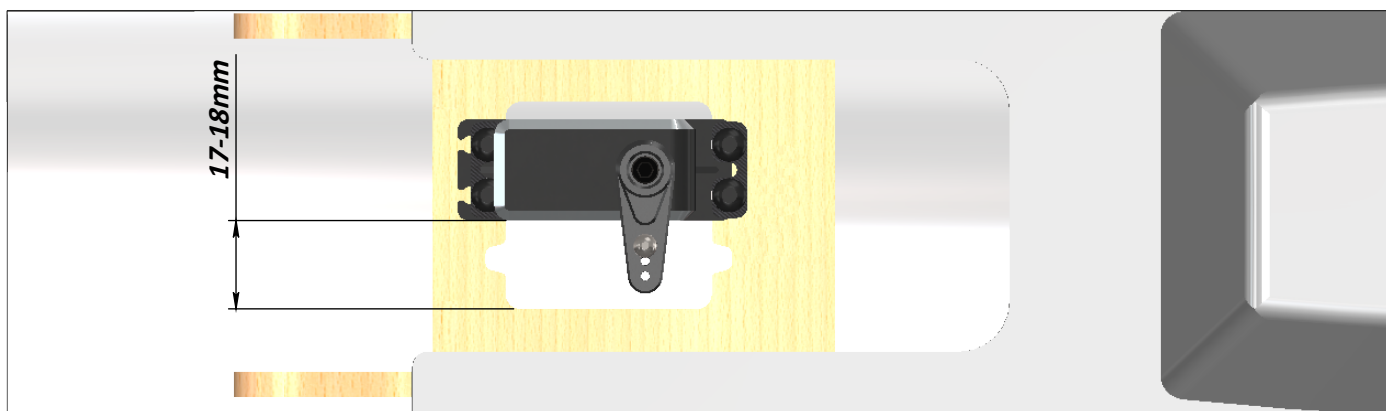
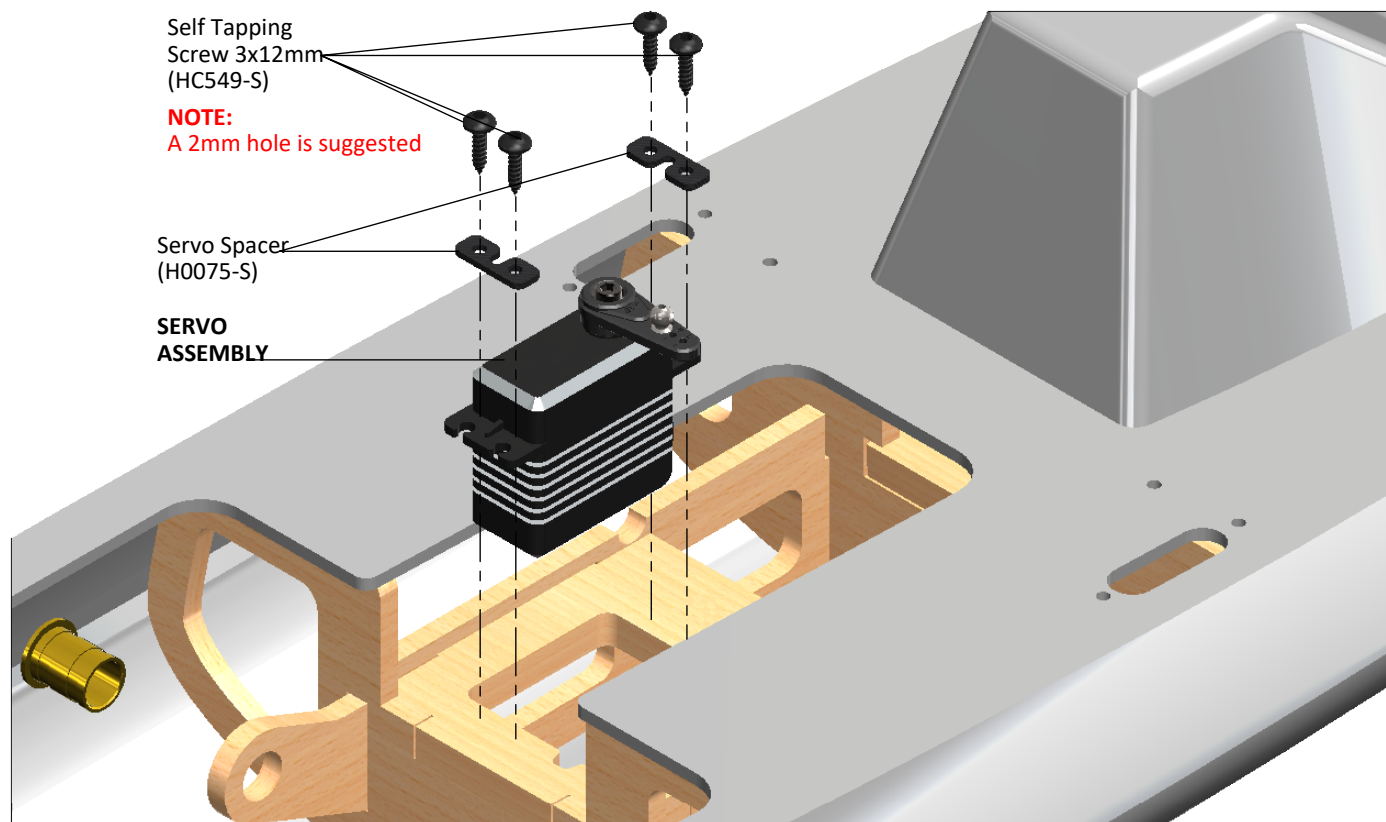
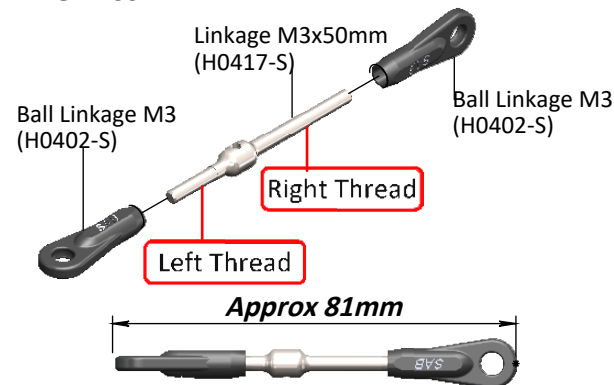
It is suggested metal servo horn with M3 hole.

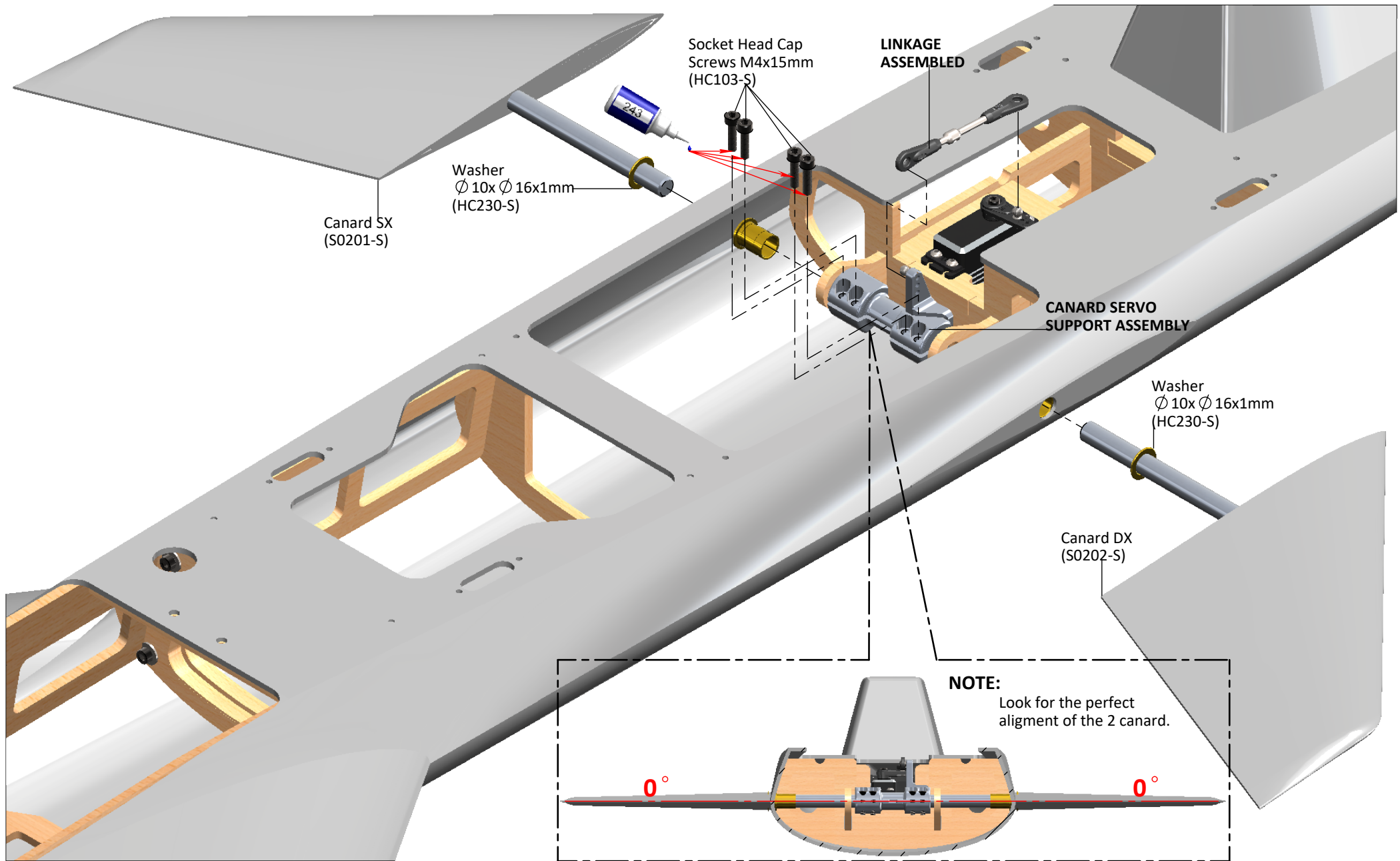


CANARD SERVO SUPPORT ASSEMBLY



LINKAGE ASSEMBLY

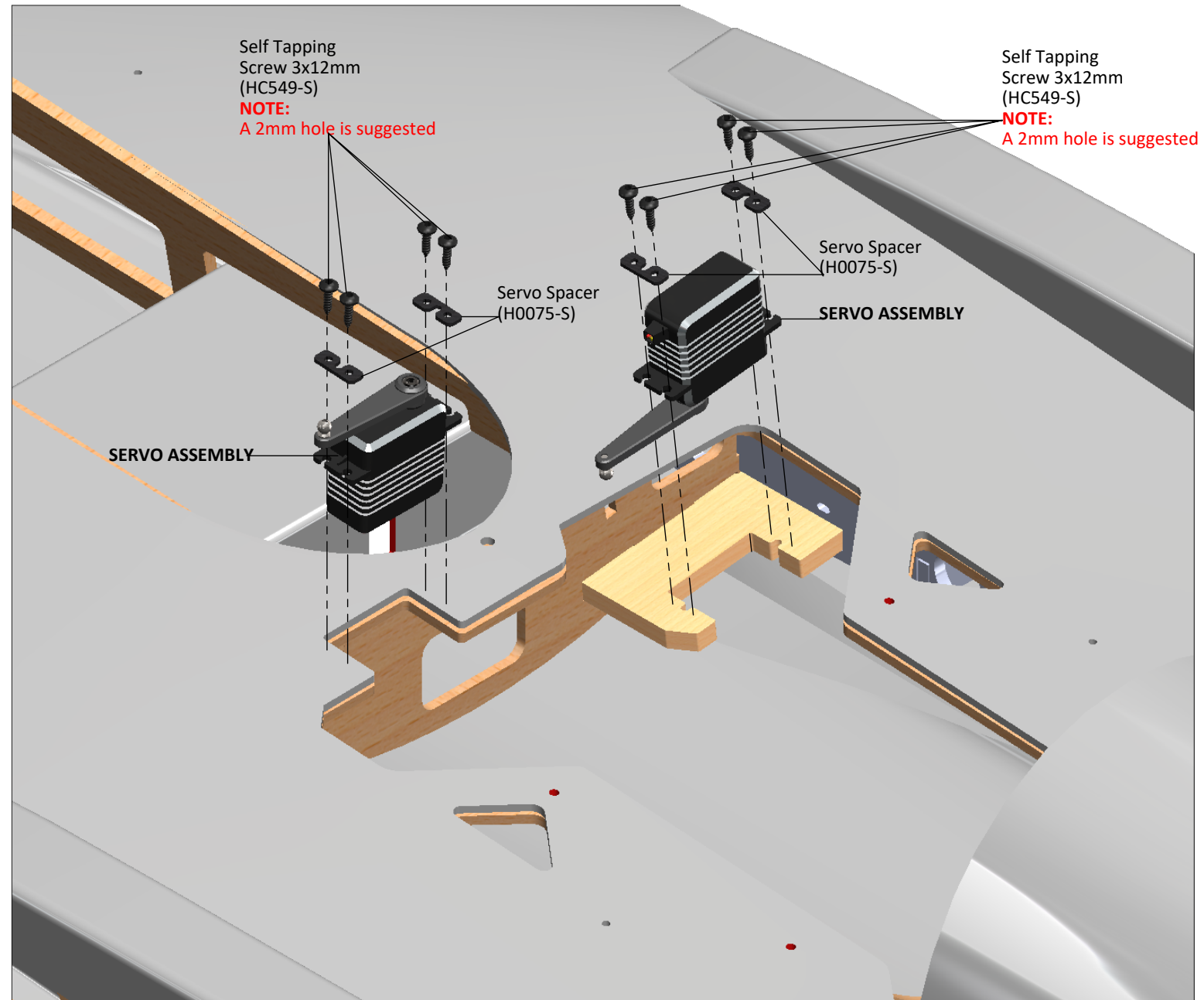
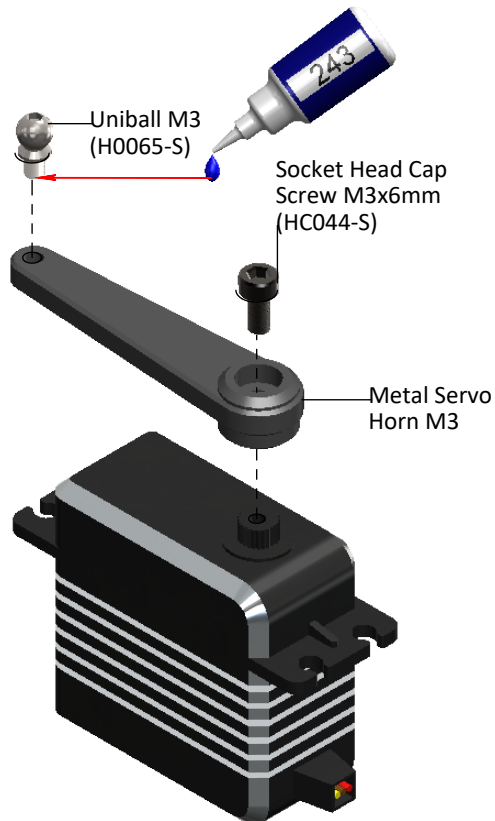
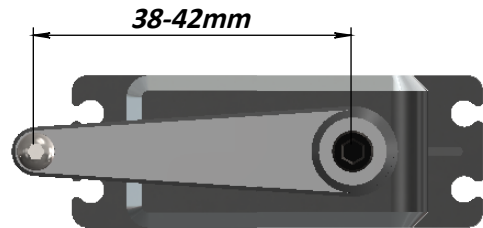




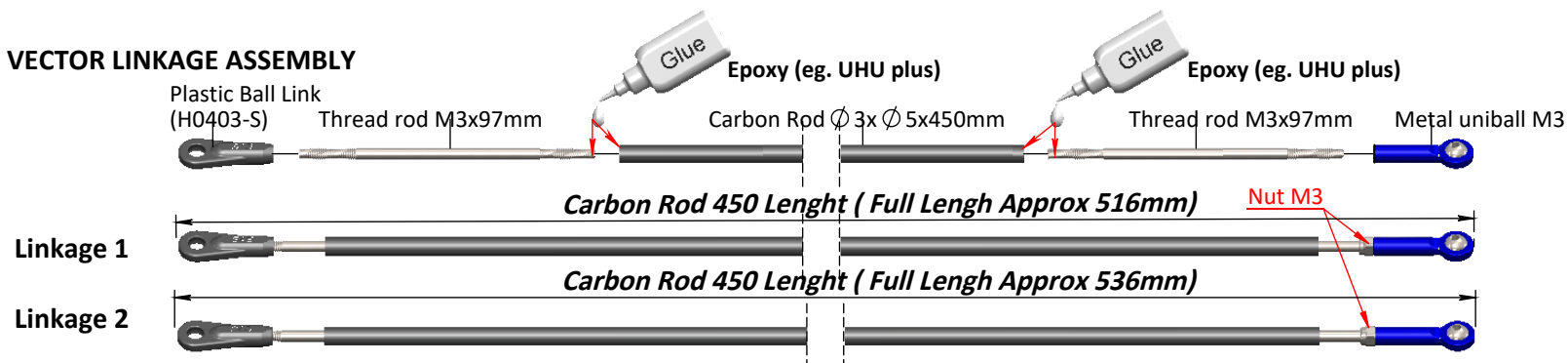
BAG3

SERVO ASSEMBLY ...x2

It is suggested metal servo horn with M3 hole.

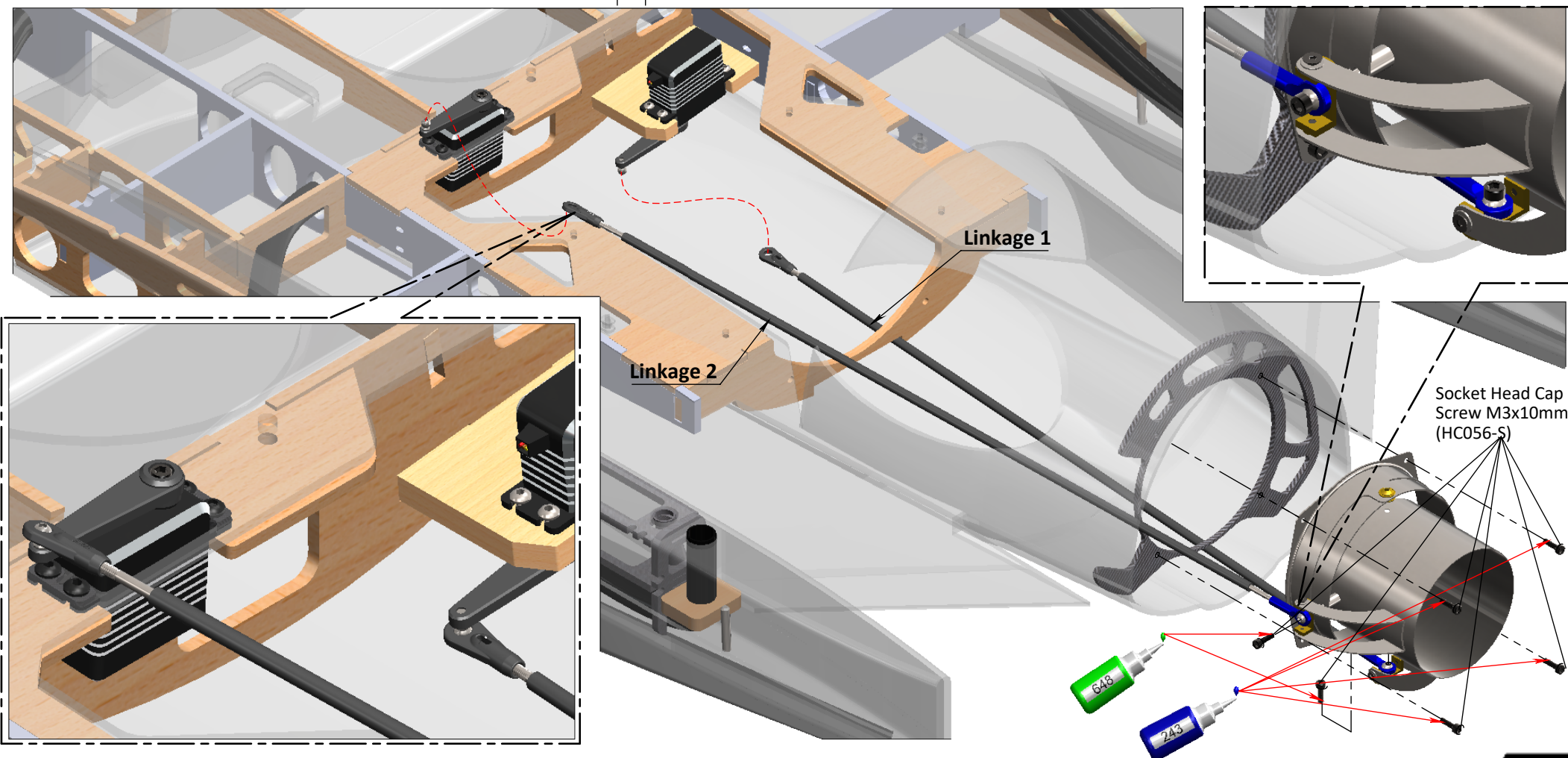


VECTOR LINKAGE ASSEMBLY



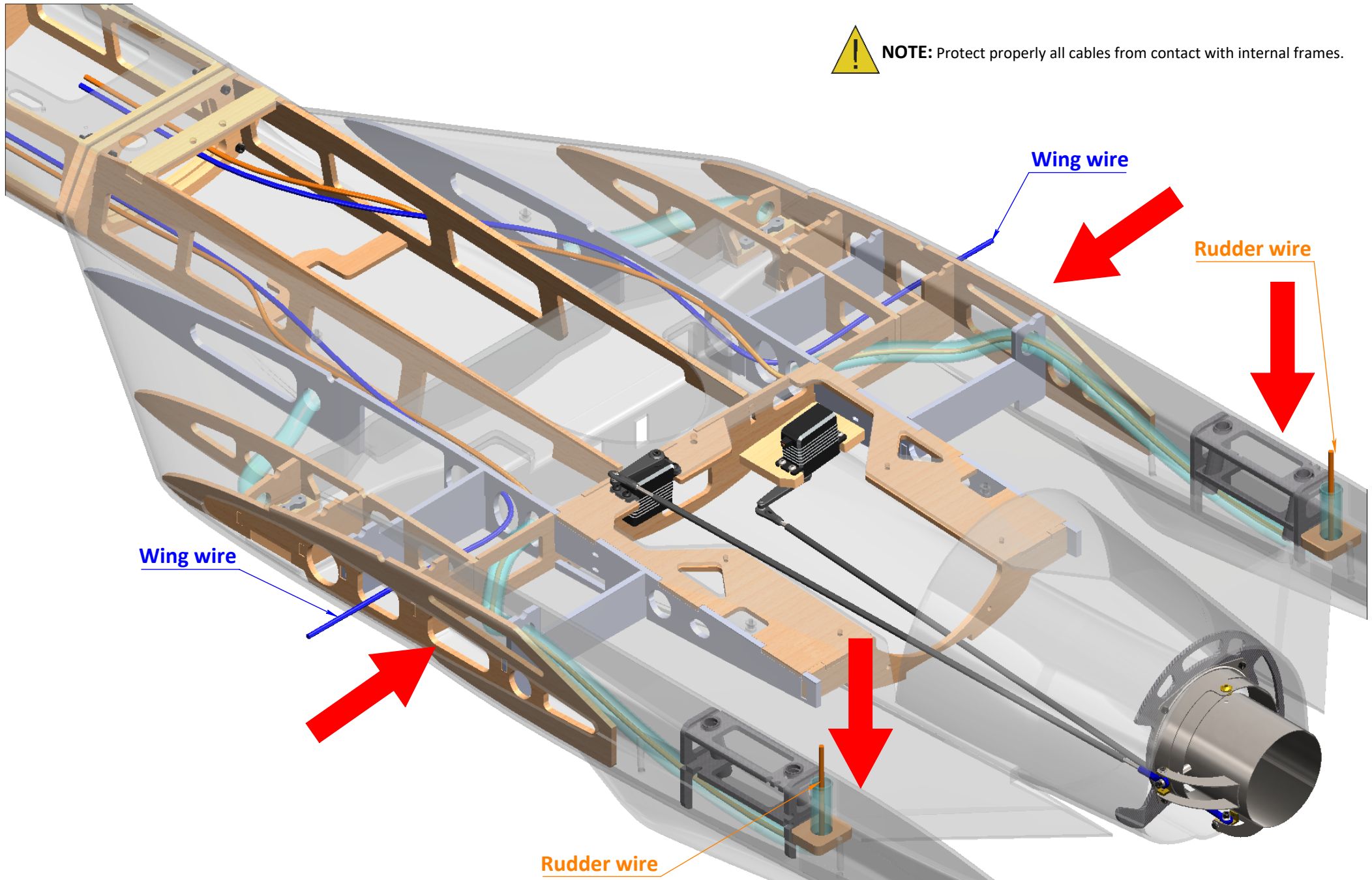
NOTE:

Please allow plenty of time for the glue to cure before inserting plastic ball link onto the threaded rod.



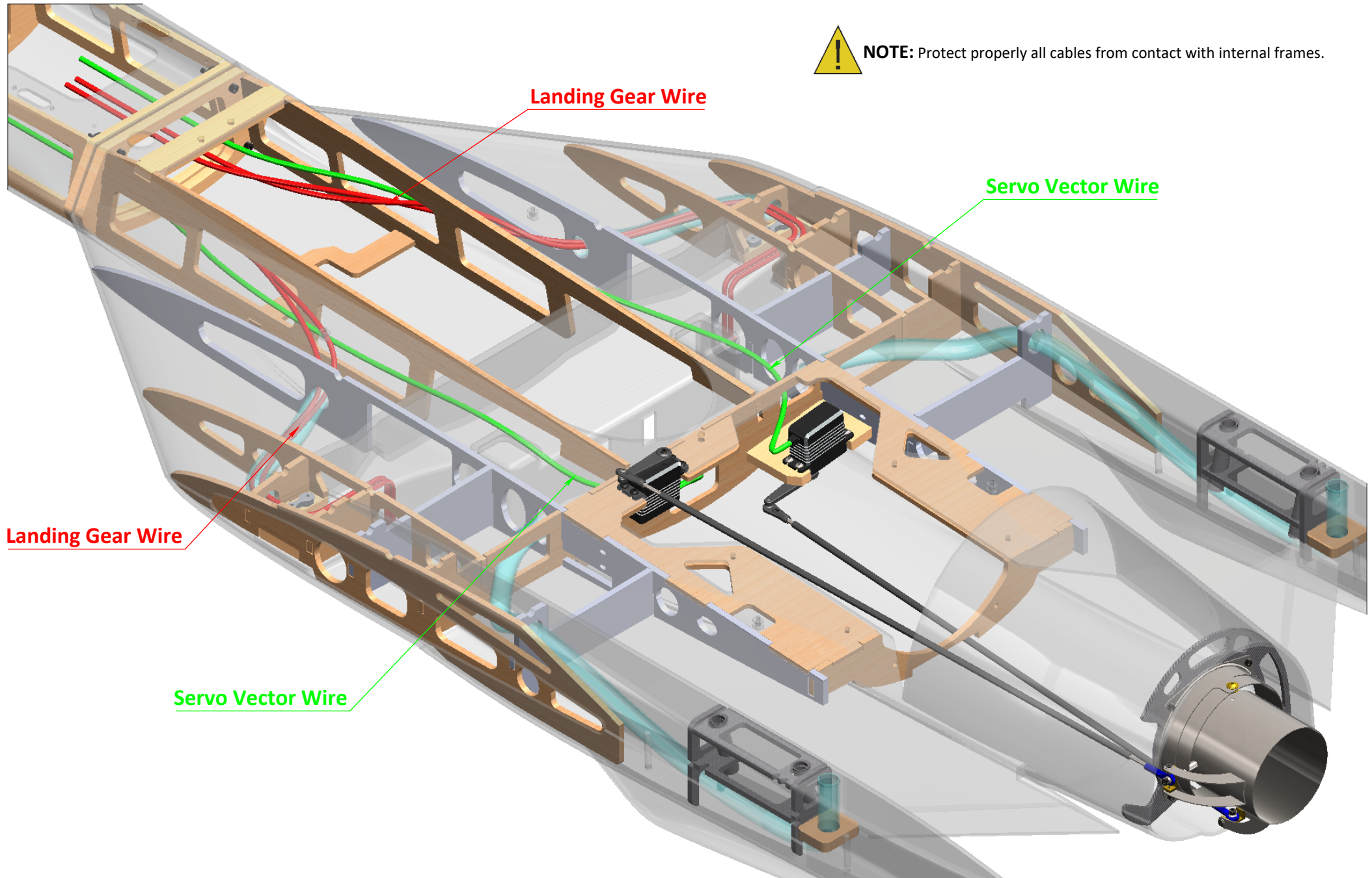


NOTE: Protect properly all cables from contact with internal frames.



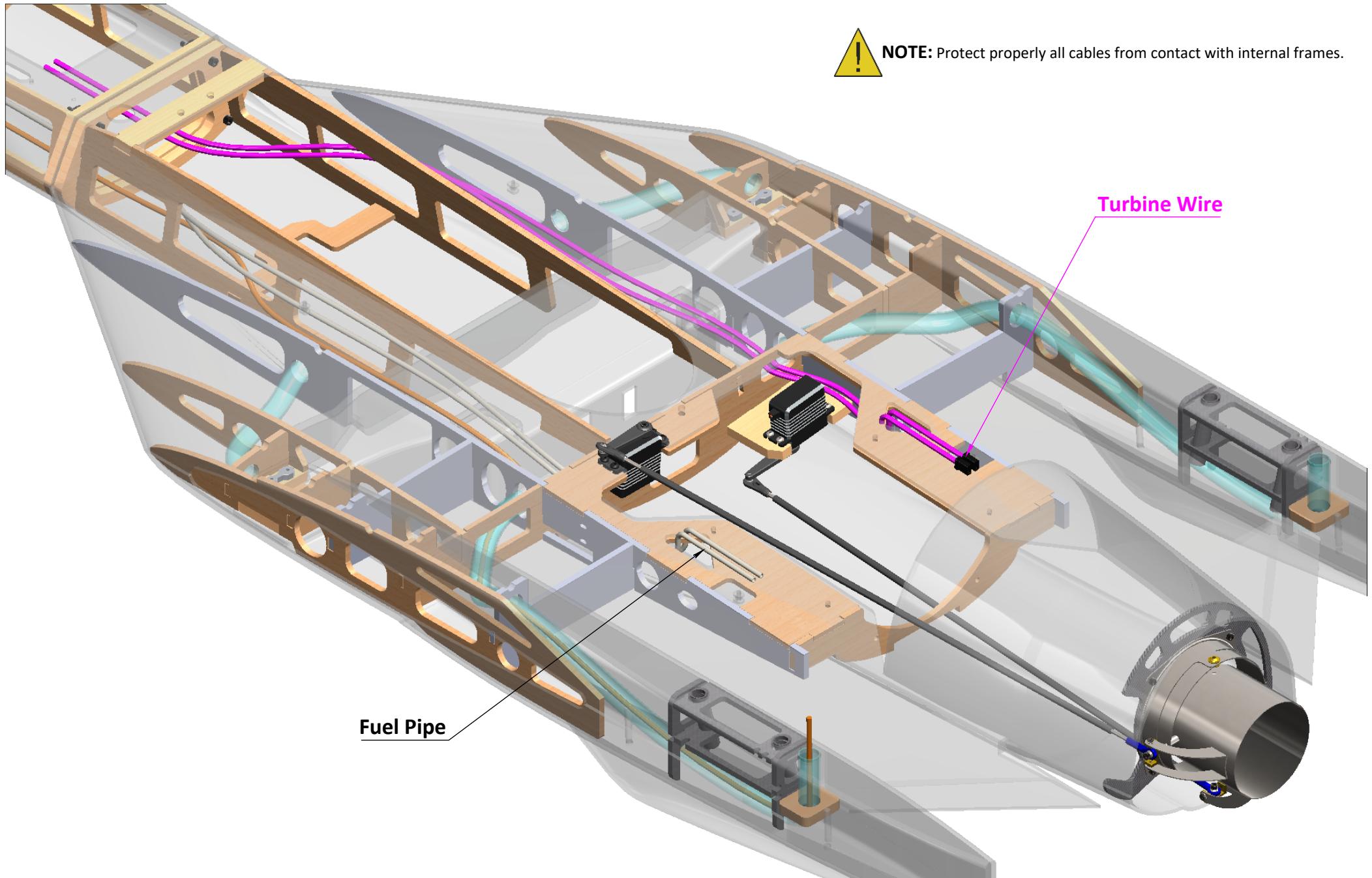


NOTE: Protect properly all cables from contact with internal frames.

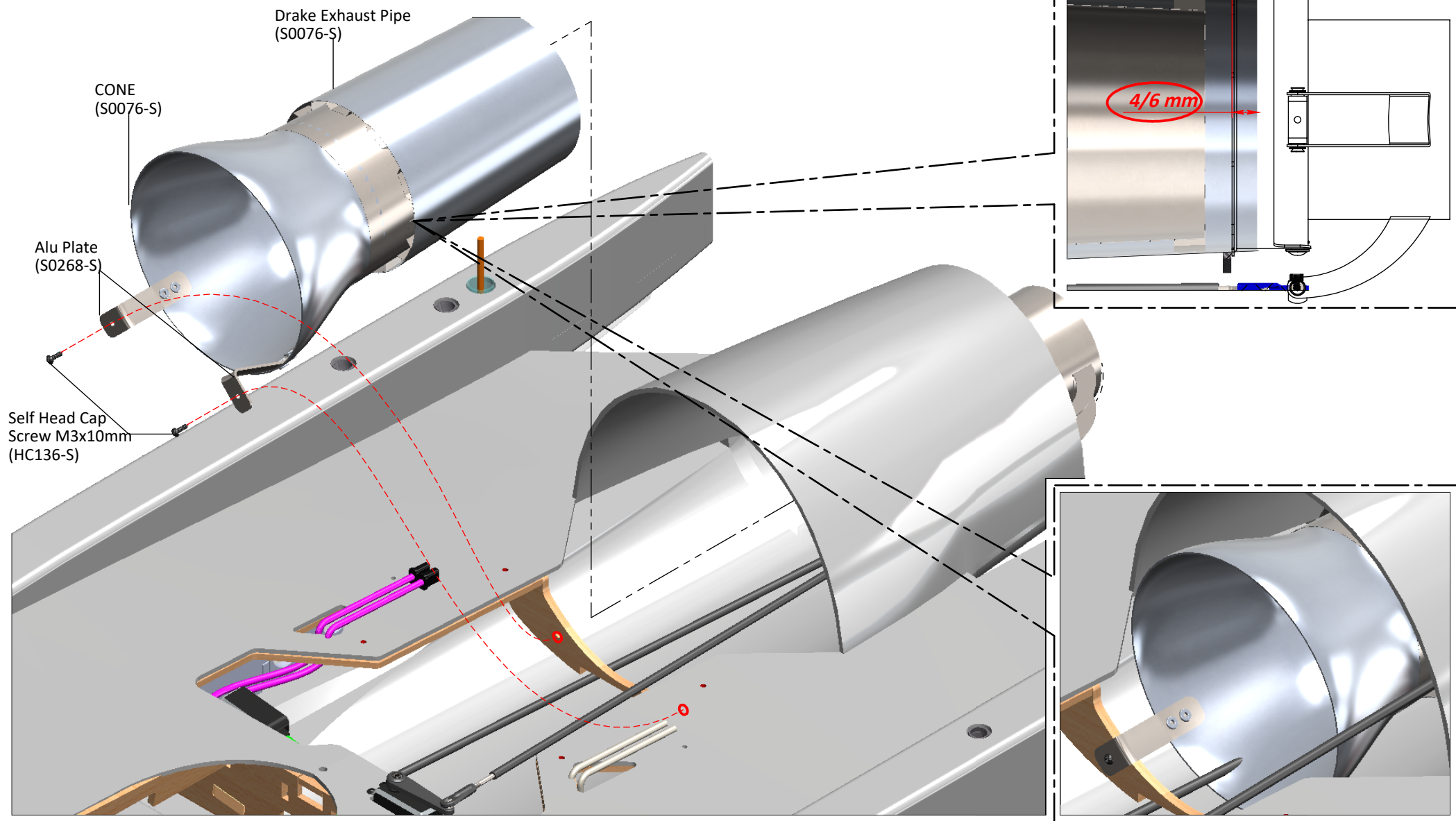




NOTE: Protect properly all cables from contact with internal frames.



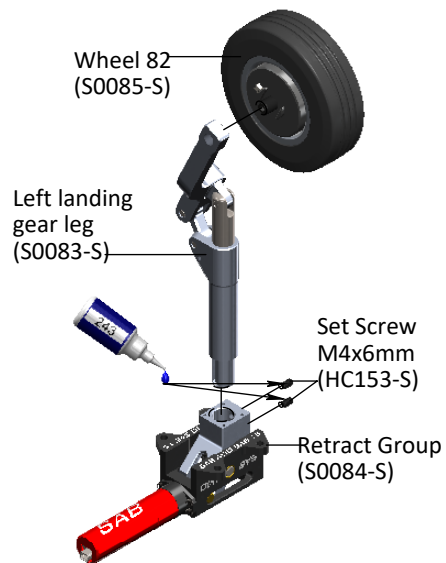
Fix the Tube 4/6mm inside the vector flange as shown in Figure 1.
Hold in this position with the 2 Aluminum parts S0268.



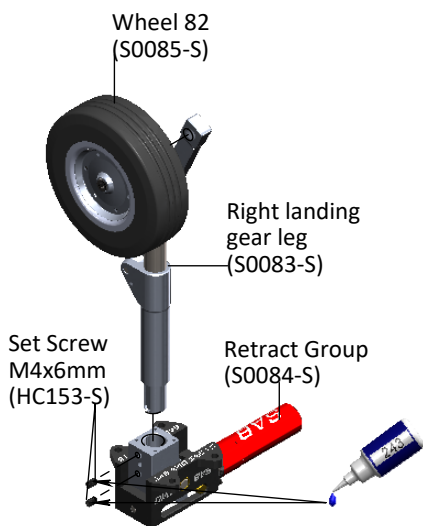
RETRACT BOX

Assembly instructions for SAB Landing Gear.

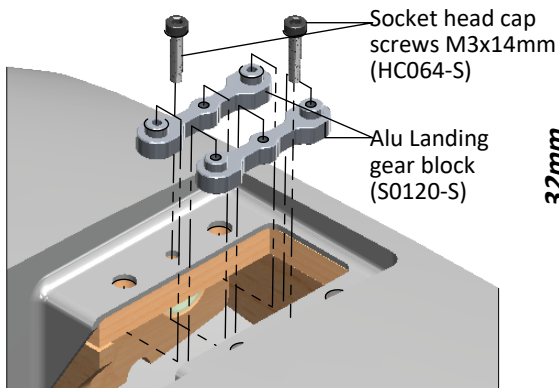
LEFT REAR LANDING GEAR ASSEMBLY



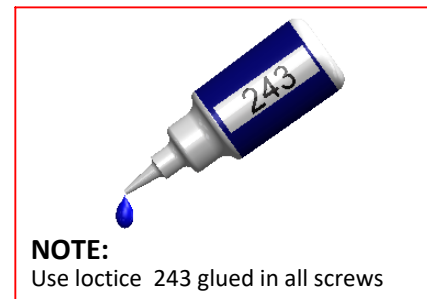
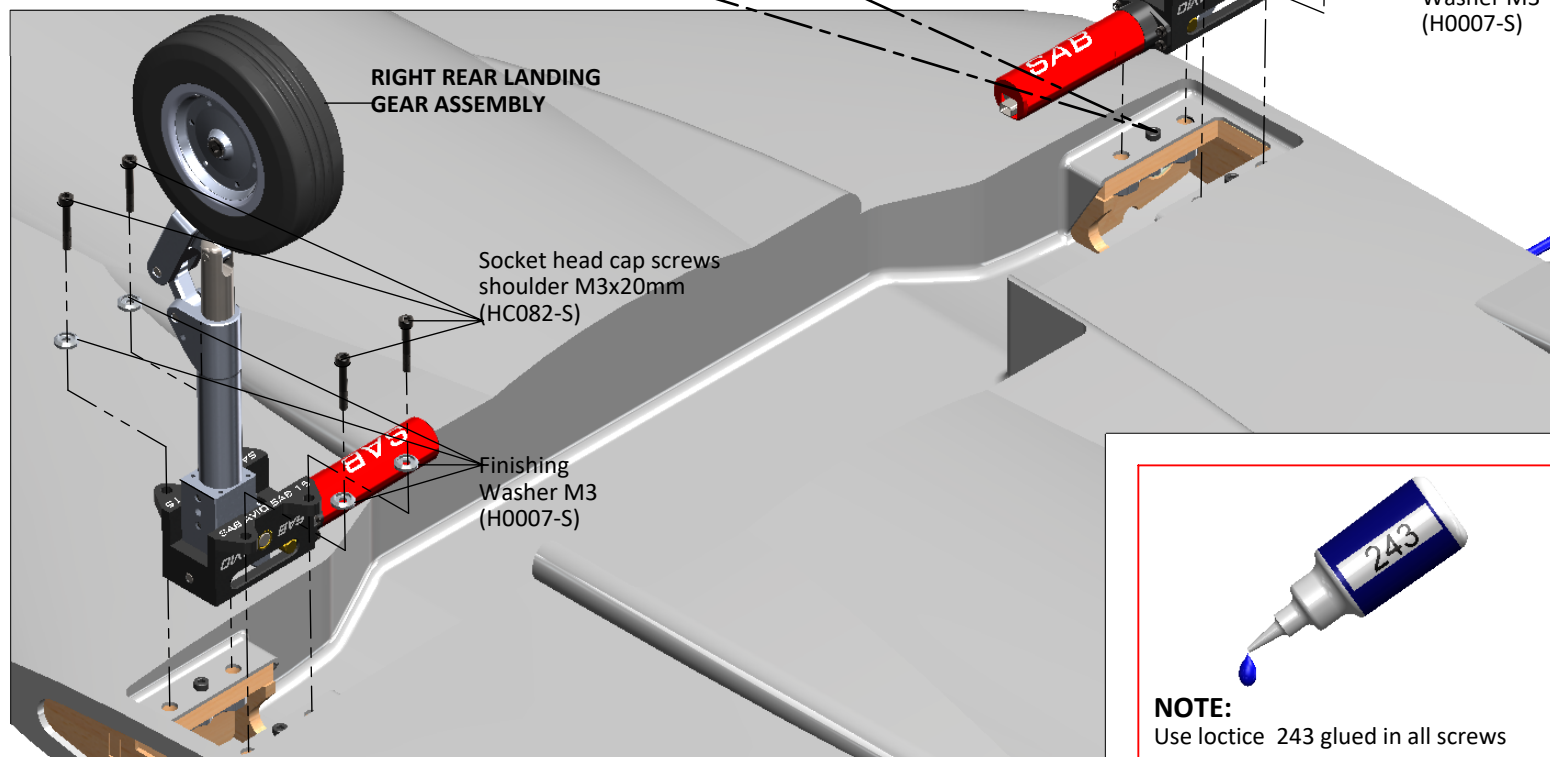
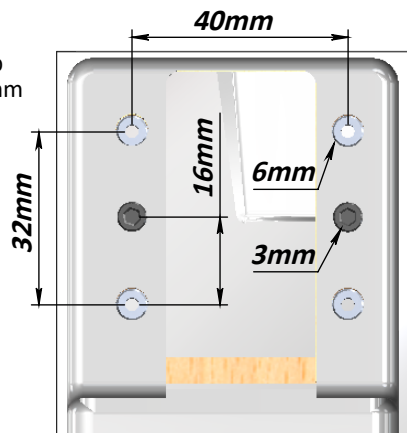
RIGHT REAR LANDING GEAR ASSEMBLY



ALUMINUM LANDING GEAR BLOCK ASSEMBLY

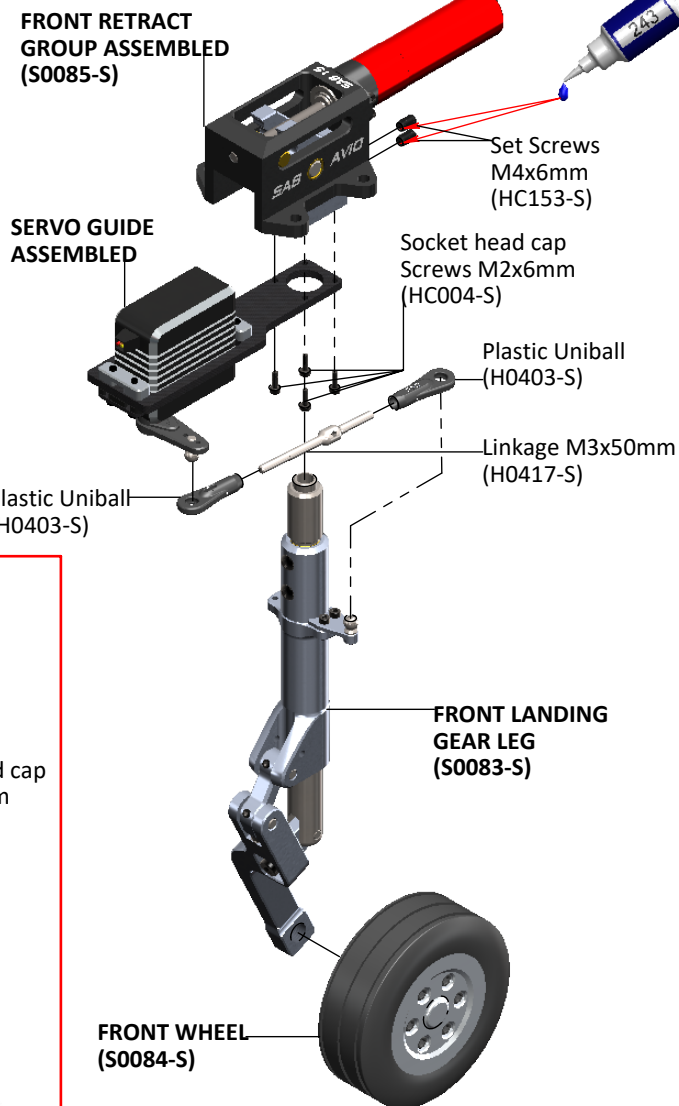


DRILL PATTERN

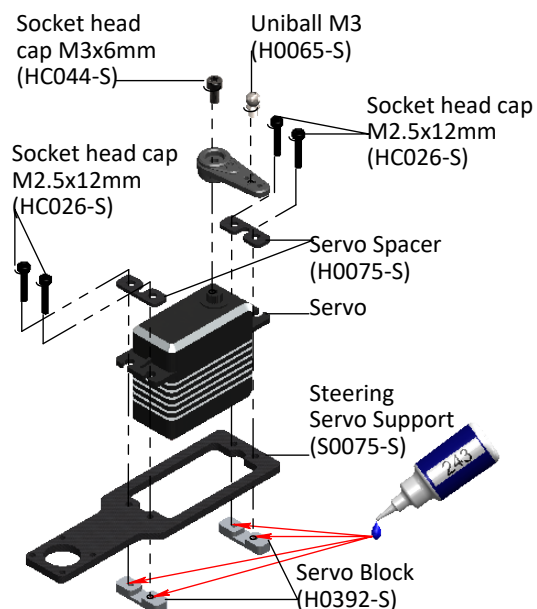


FRONT LANDING GEAR ASSEMBLY Assembly instructions for SAB Landing Gear.

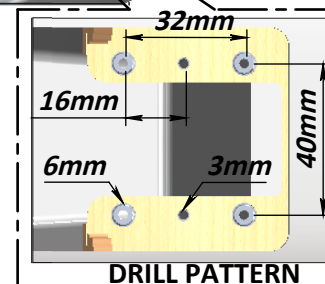
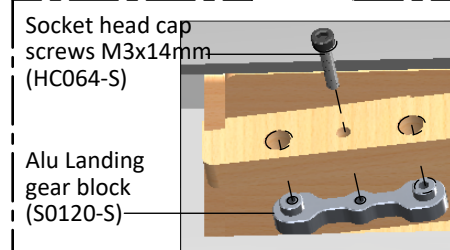
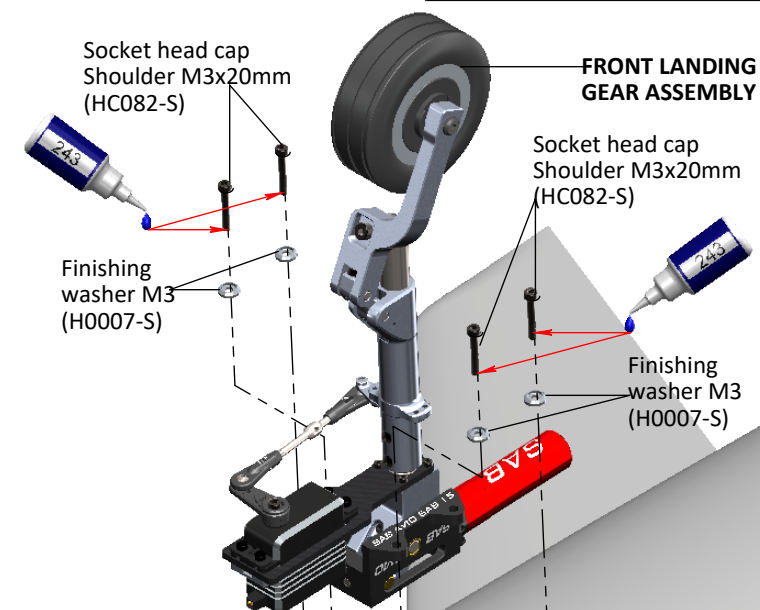
NOTE: Use loctice 243 in all screws



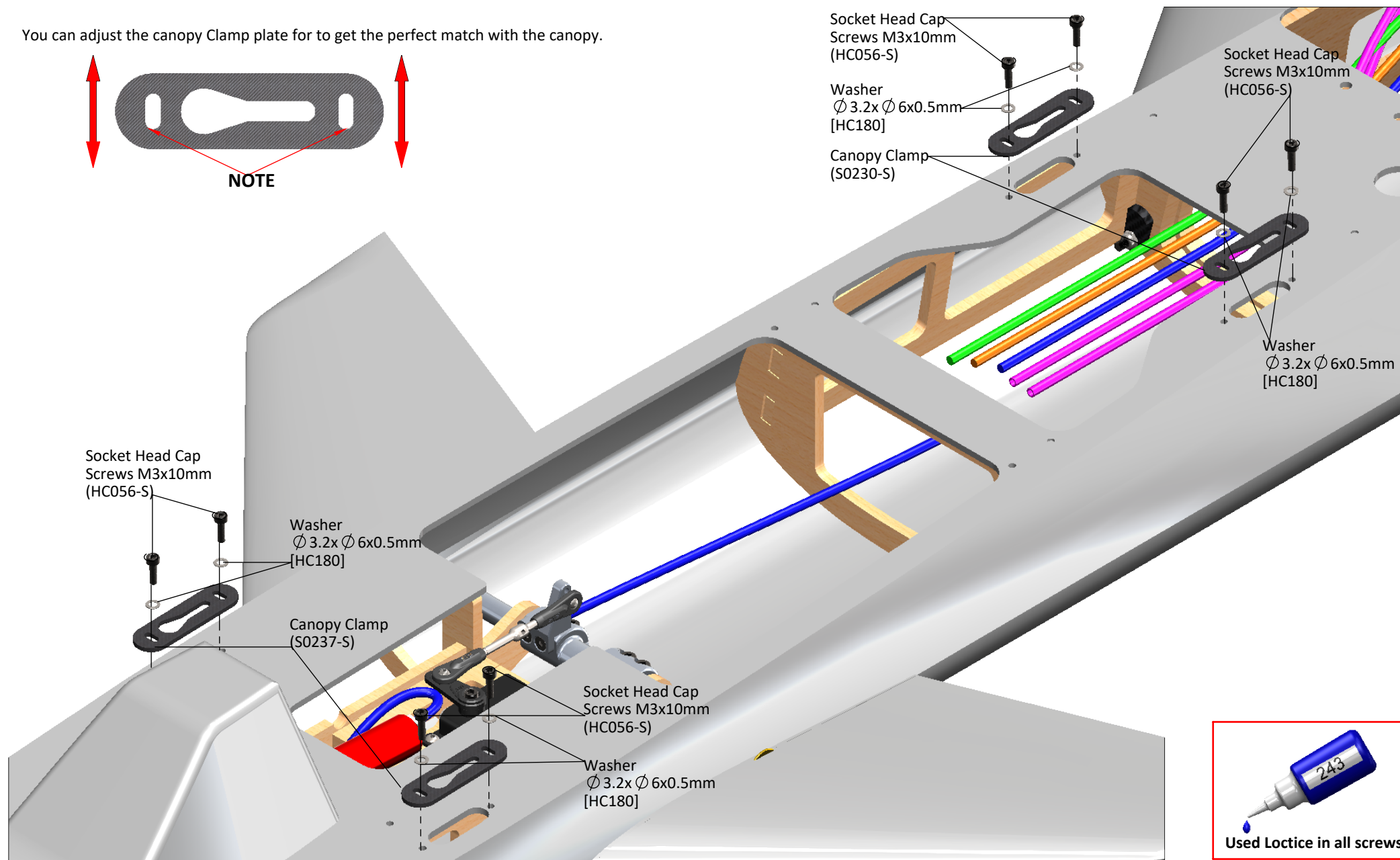
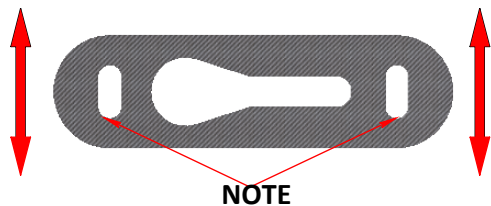
SERVO GUIDE ASSEMBLY



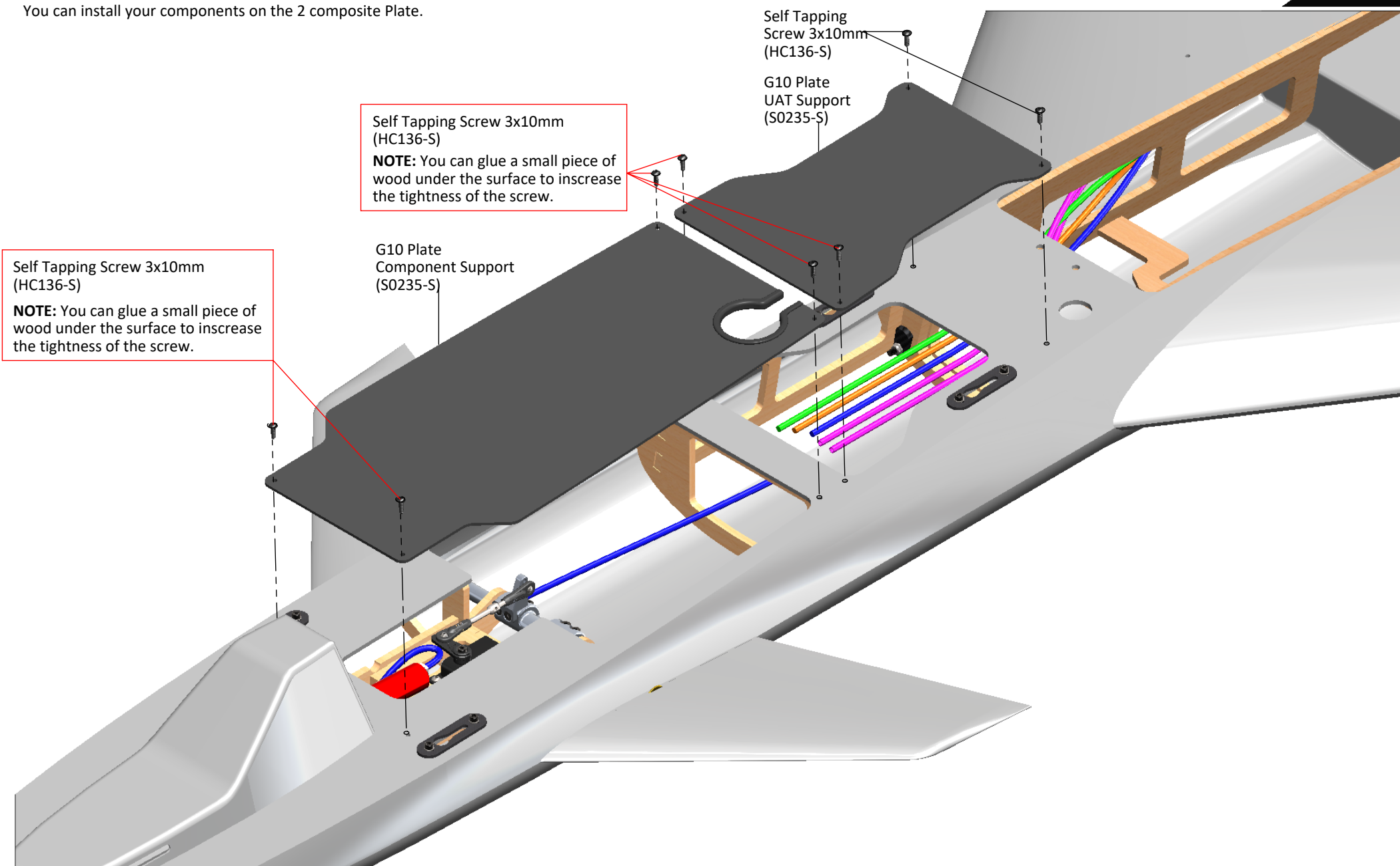
RETRACT BOX



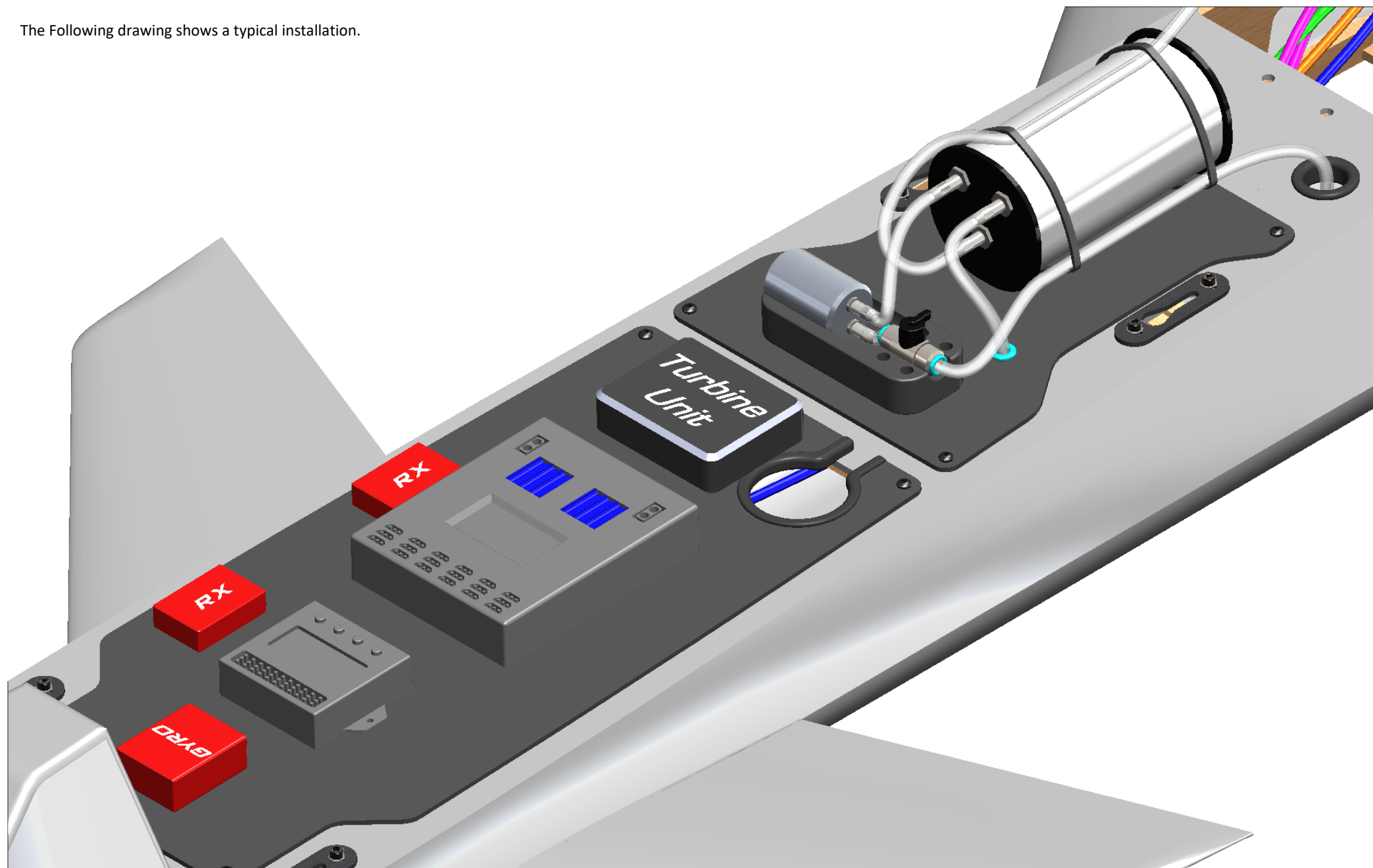
You can adjust the canopy Clamp plate for to get the perfect match with the canopy.



You can install your components on the 2 composite Plate.



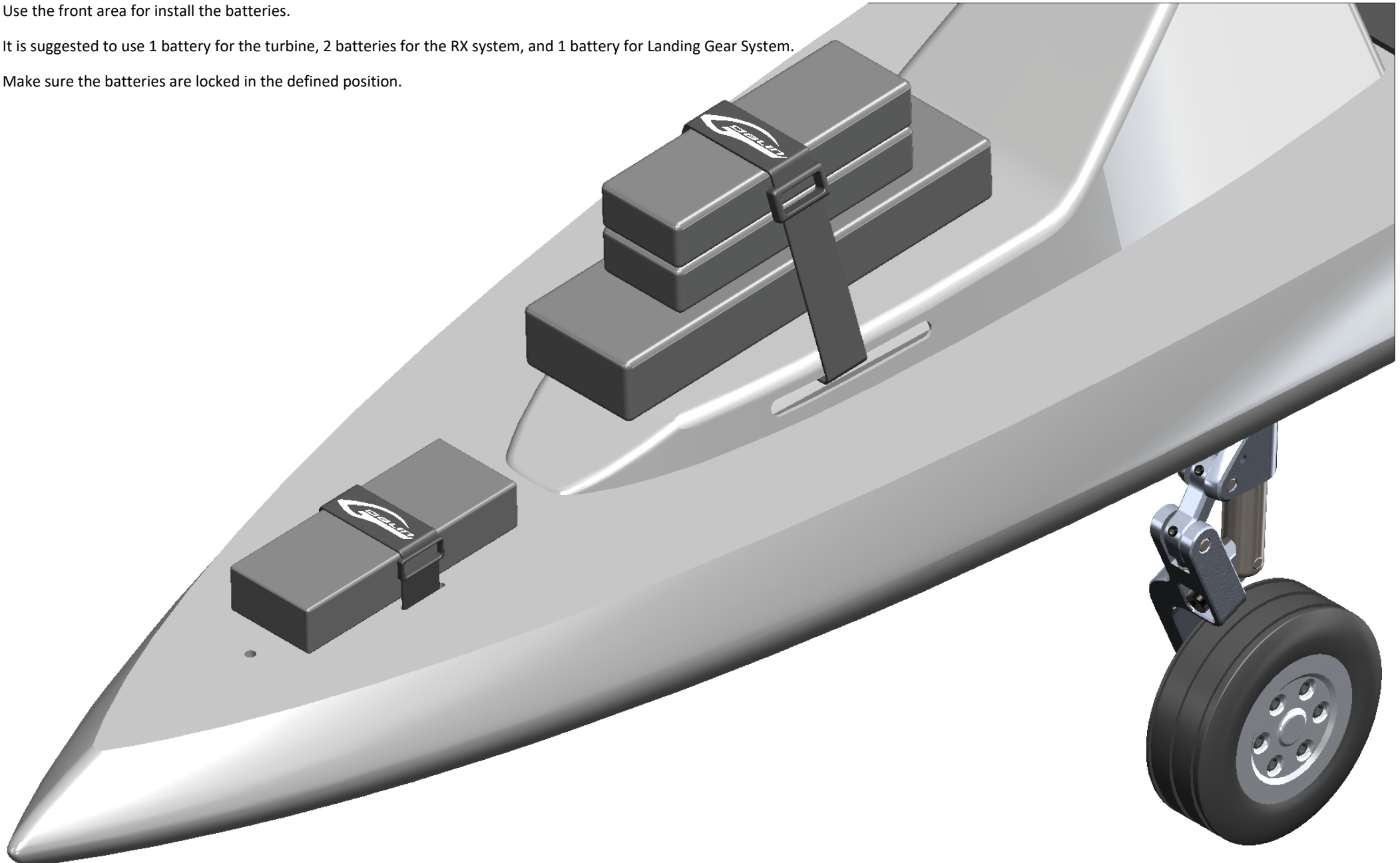
The Following drawing shows a typical installation.



Use the front area for install the batteries.

It is suggested to use 1 battery for the turbine, 2 batteries for the RX system, and 1 battery for Landing Gear System.

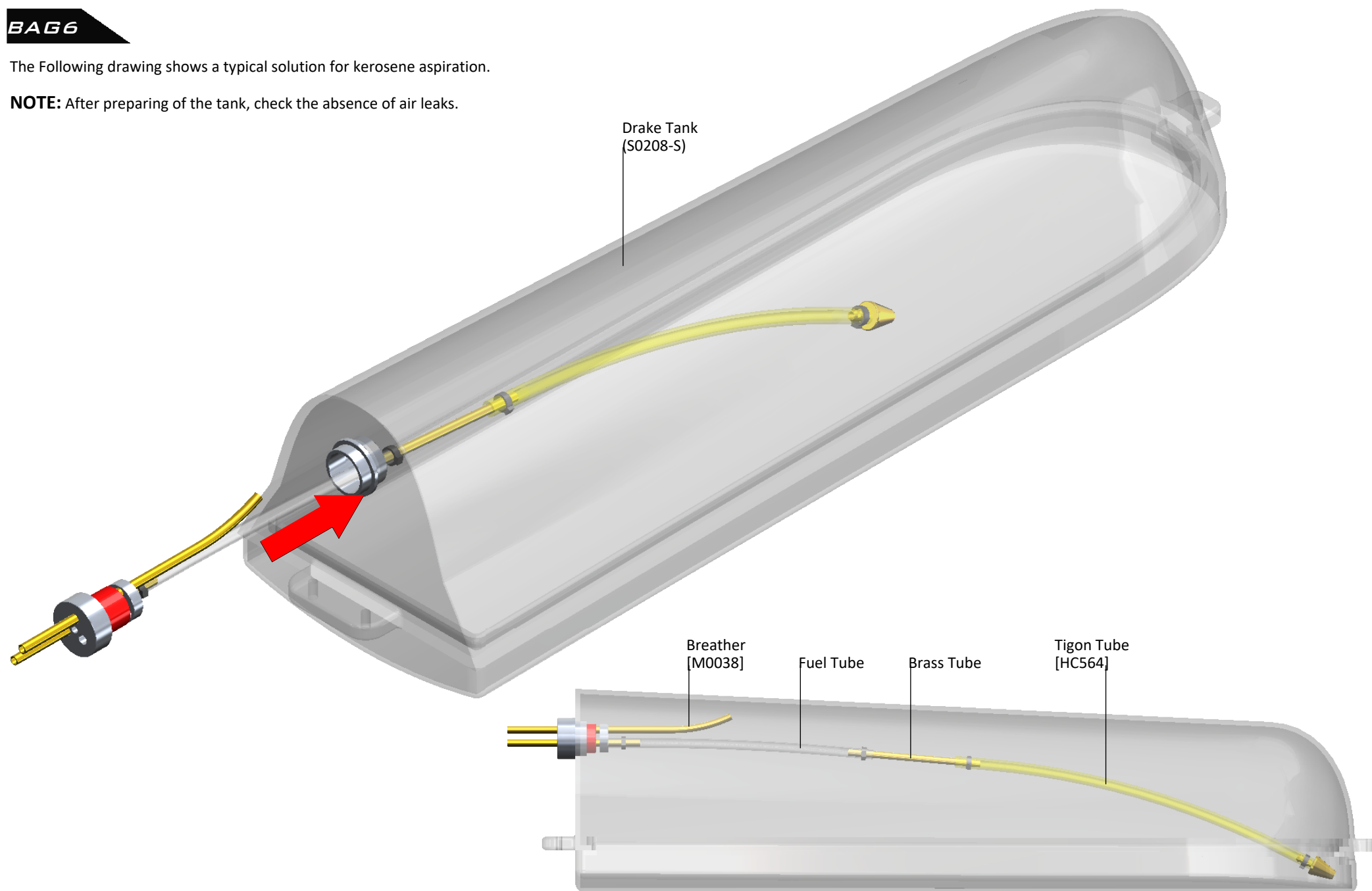
Make sure the batteries are locked in the defined position.

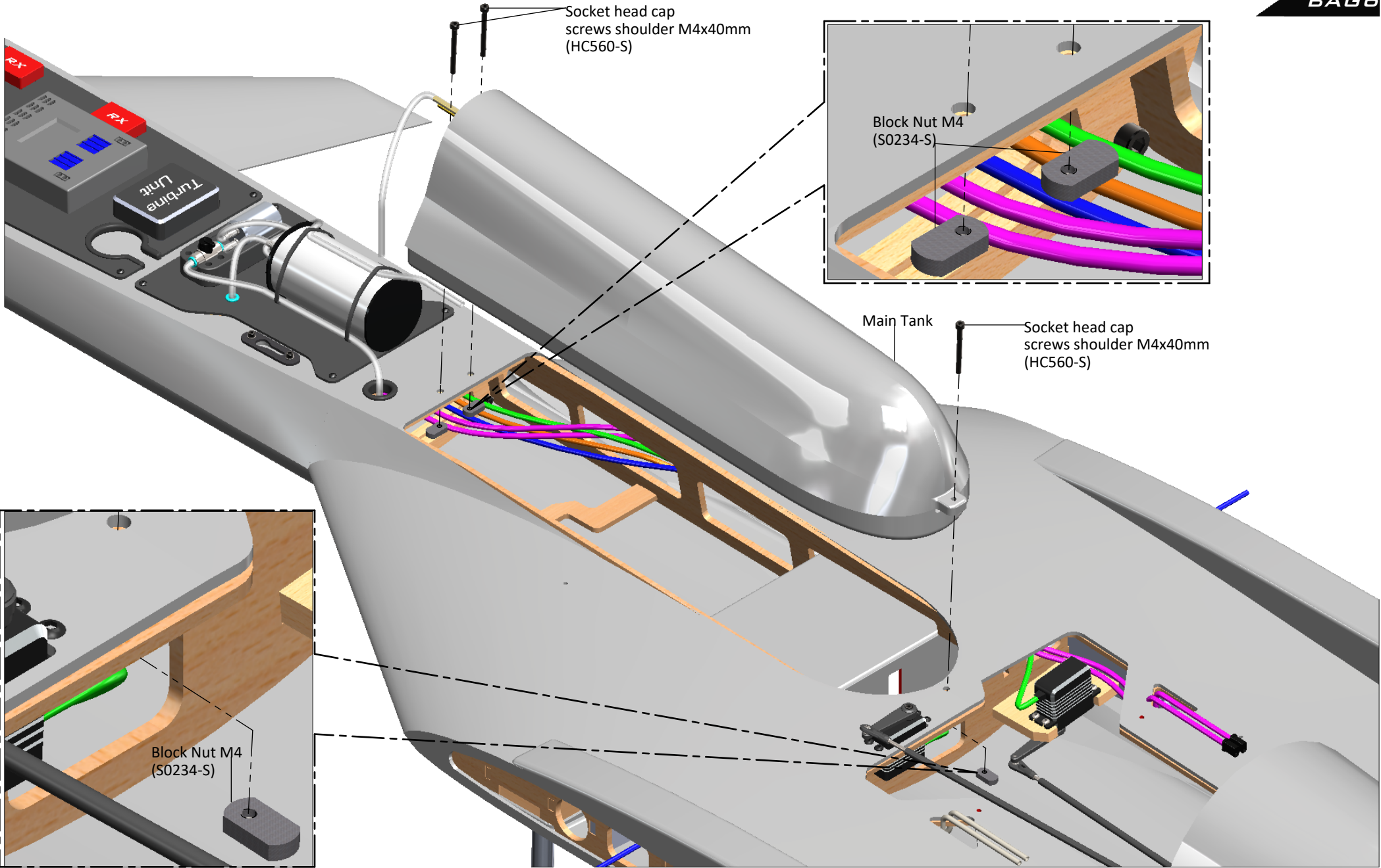


BAG 6

The Following drawing shows a typical solution for kerosene aspiration.

NOTE: After preparing of the tank, check the absence of air leaks.



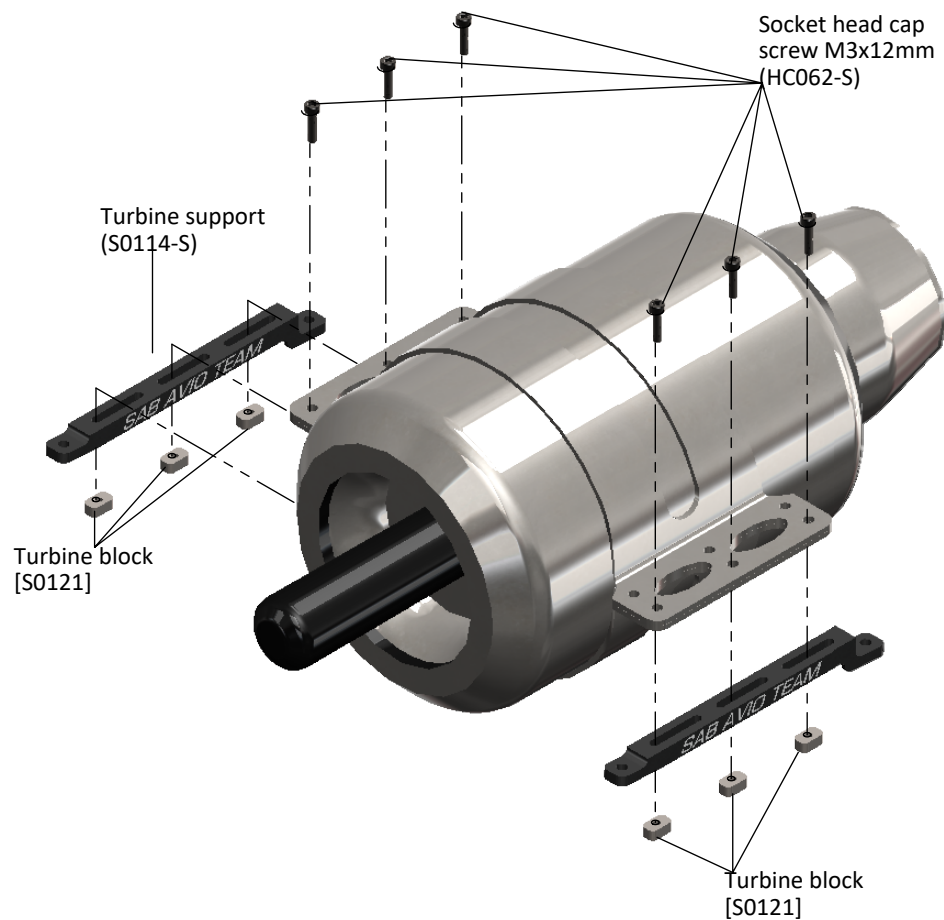




Check the assembly centerdistance of your own turbine. Use this dimensions to define the drilling position of the aluminum support. Drill the red hole 5mm diameter.

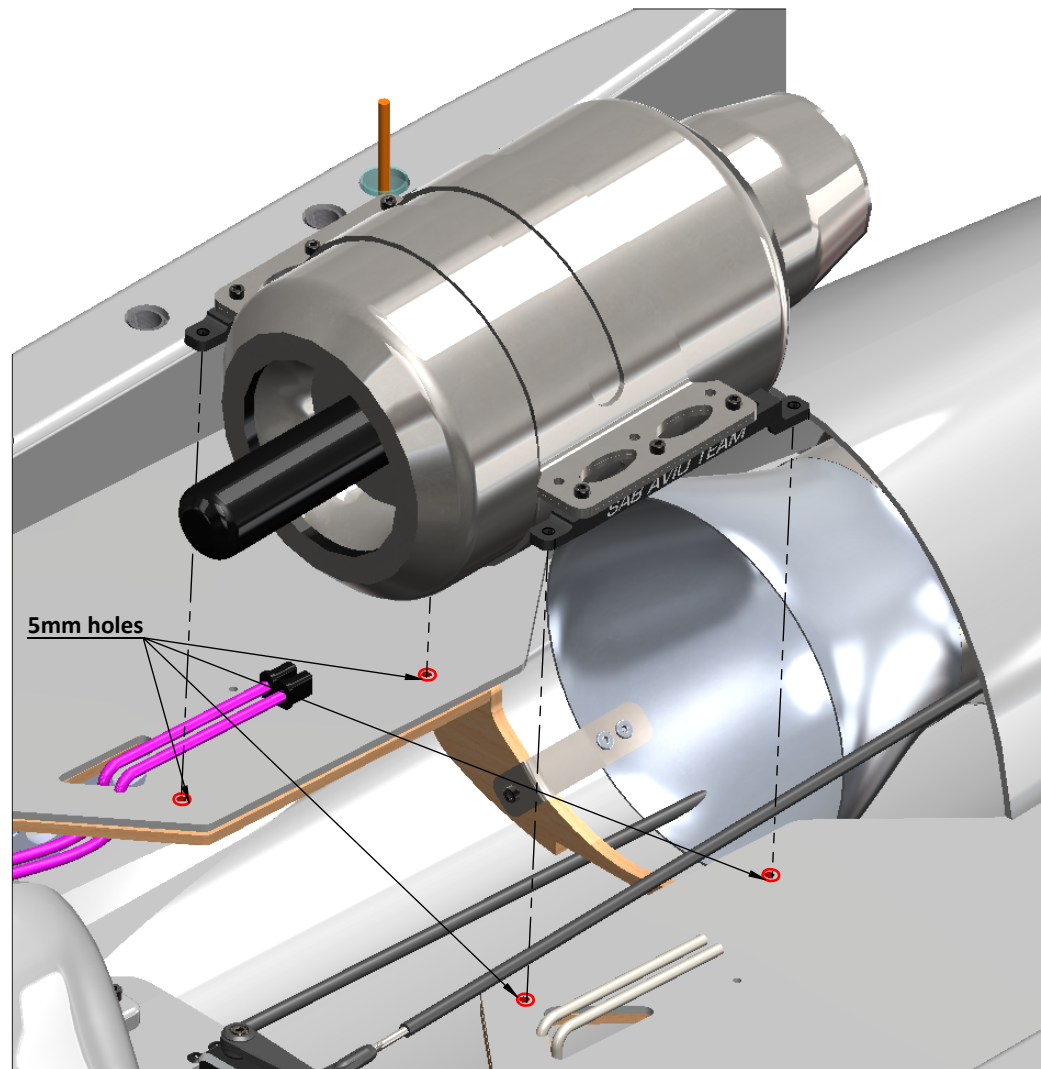
NOTE: We recommend installing the turbine the most forward as possible to optimize the CG.

Assembly Turbine To Turbine Support



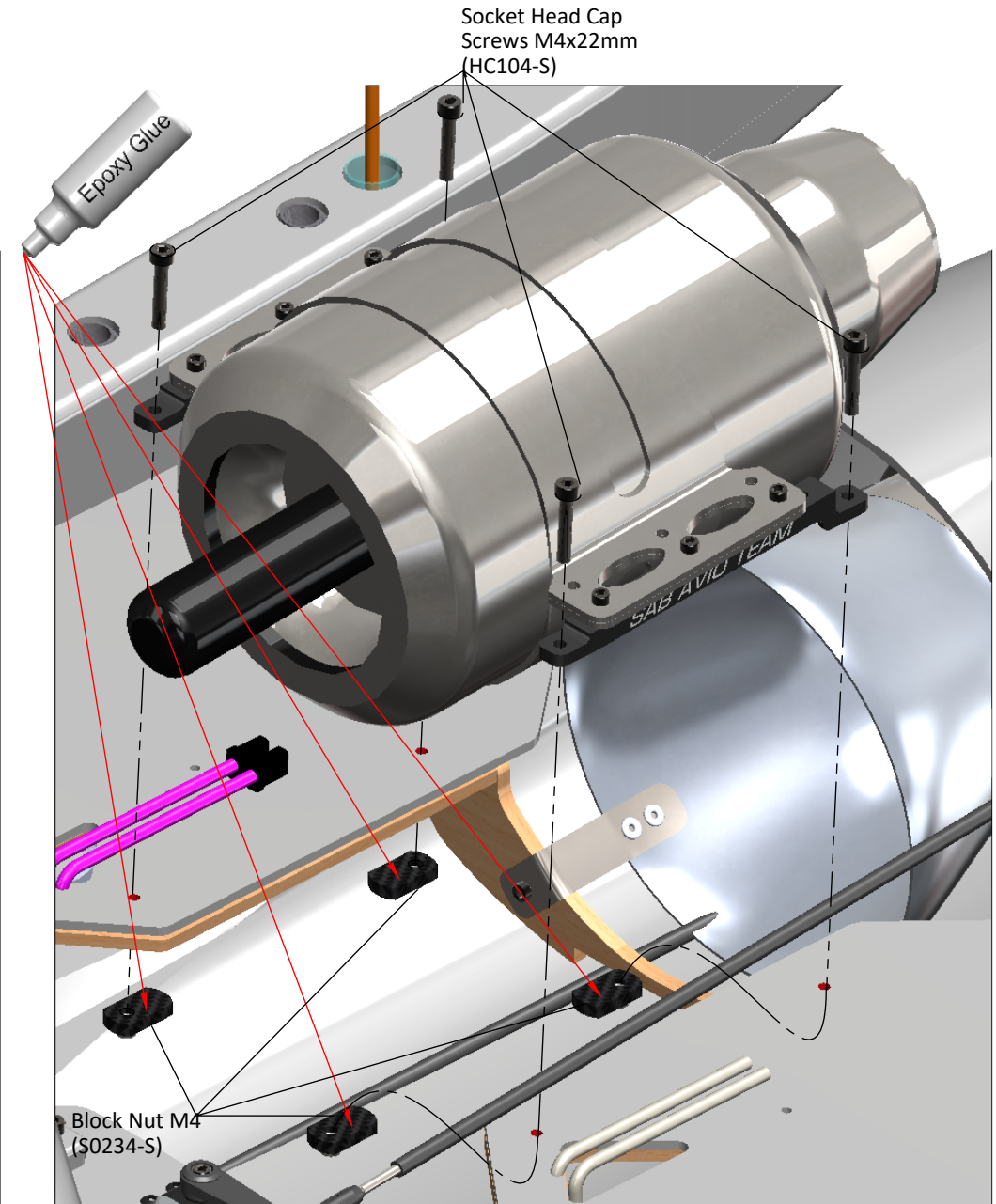
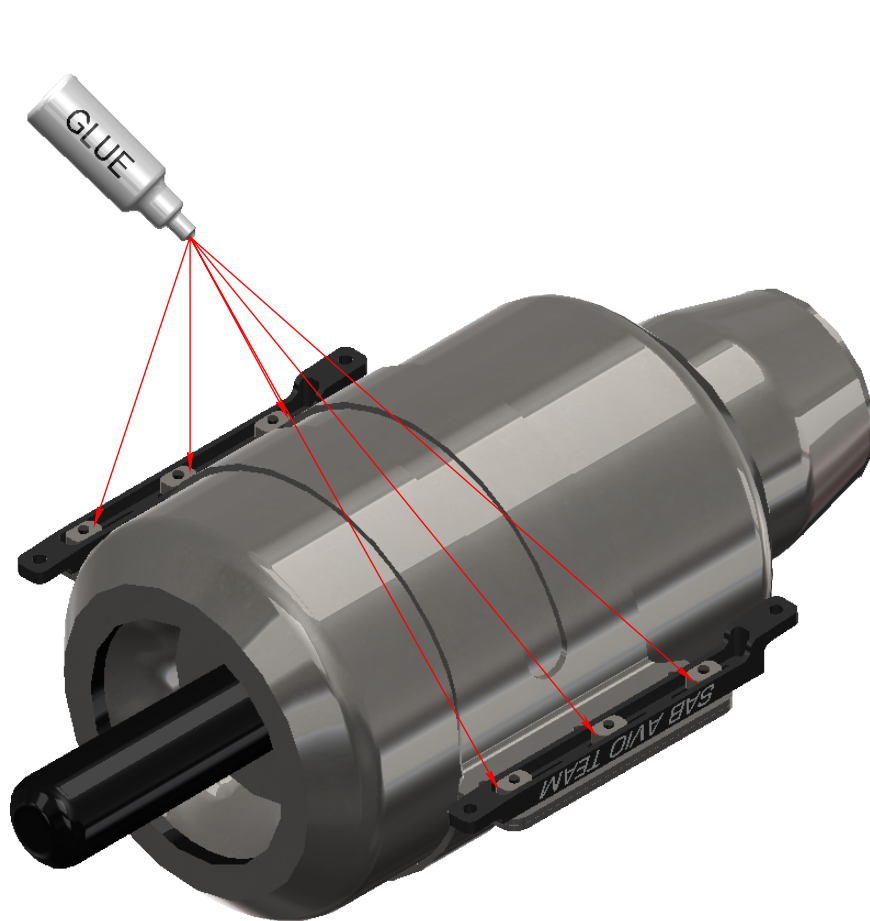
NOTE: No use loctice in screws.

Position the turbine group and find the correct position to make the 4 holes 5mm.



Glue the threaded nuts on the support.

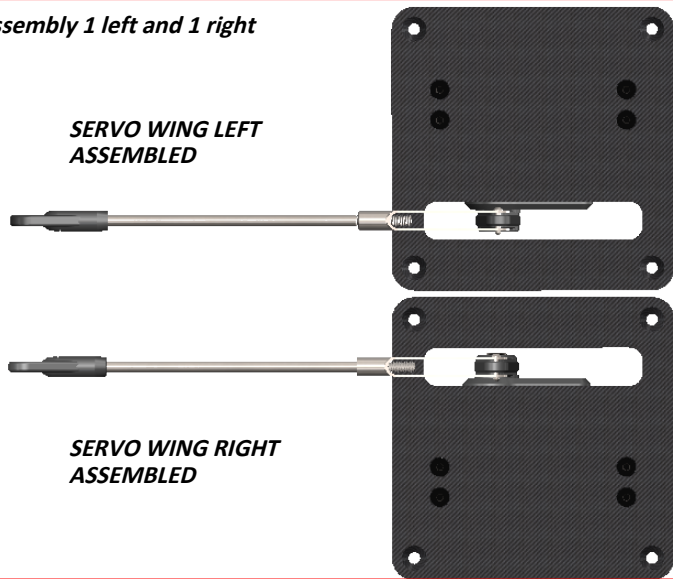
It will be more easy to assembly / disassembly the turbine.



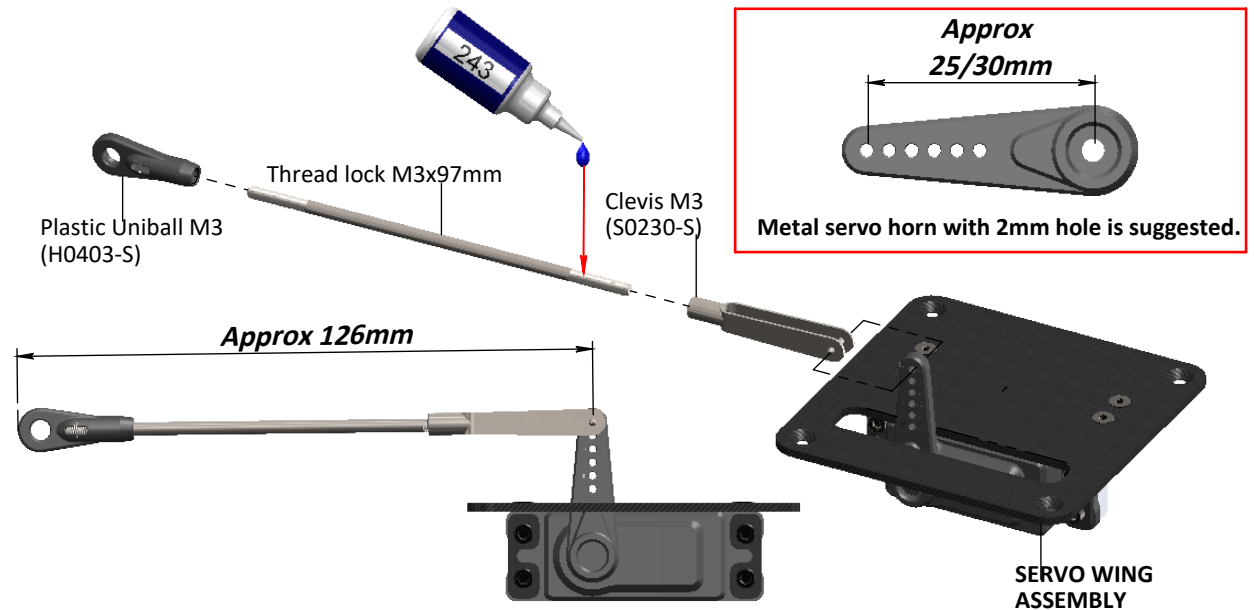
BAGB

NOTE: Assembly 1 left and 1 right

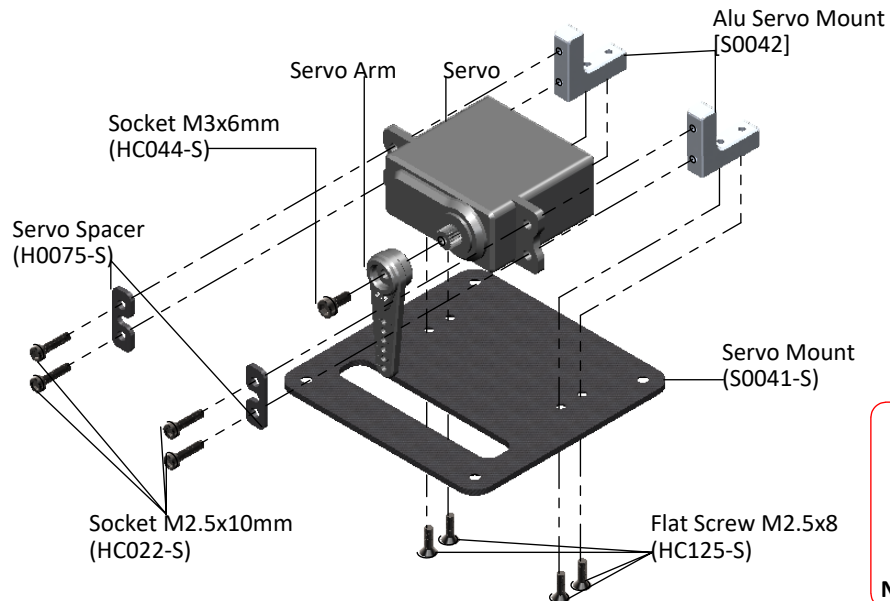
**SERVO WING LEFT
ASSEMBLED**



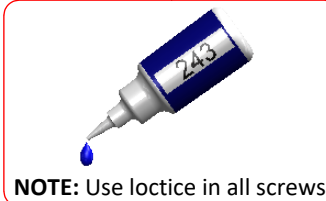
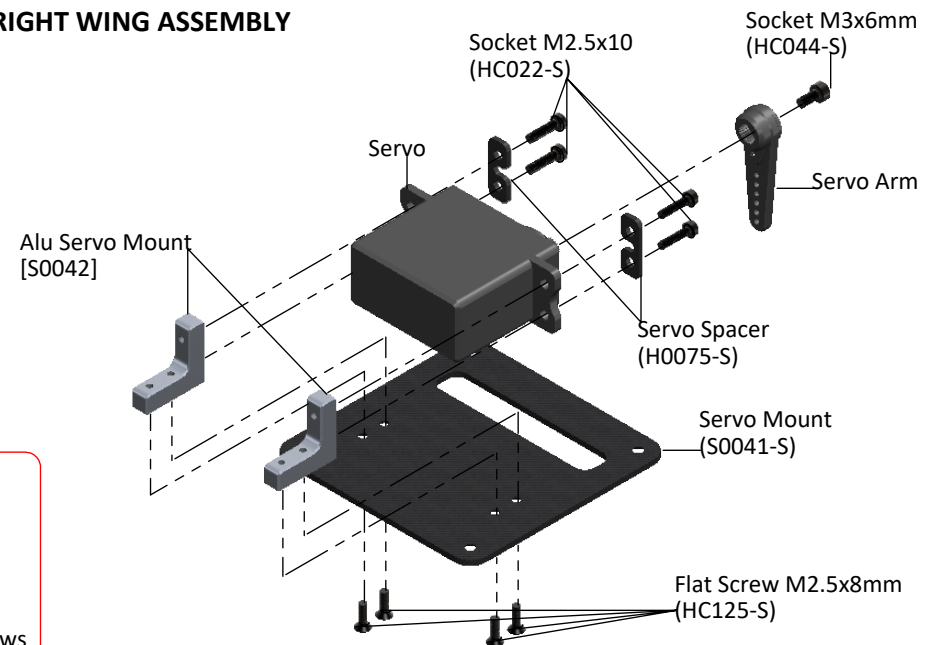
**SERVO WING RIGHT
ASSEMBLED**



SERVO LEFT WING ASSEMBLY

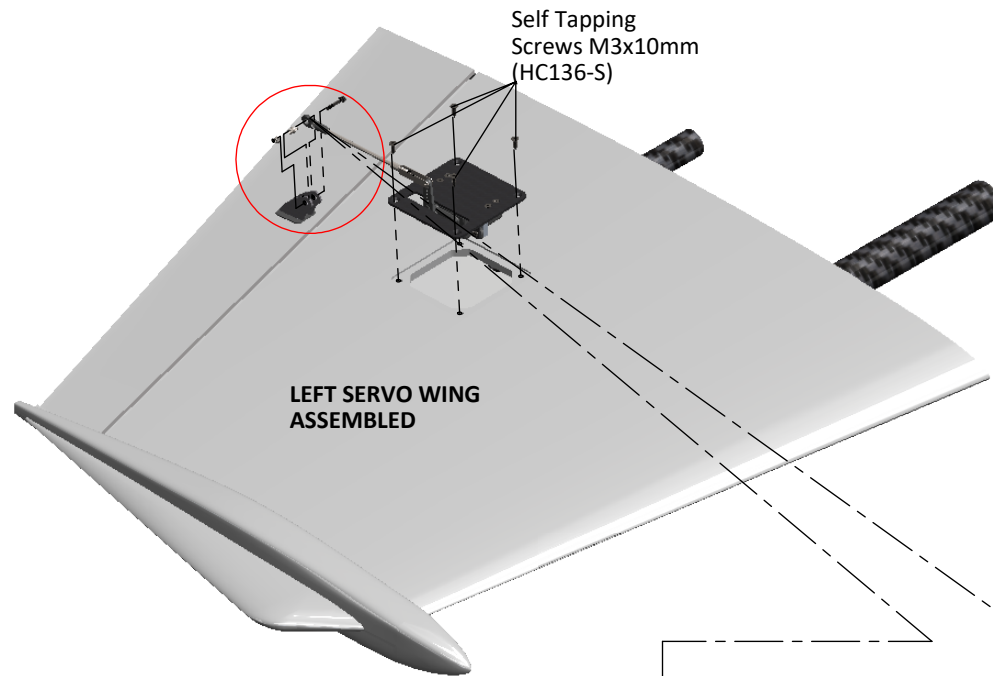


SERVO RIGHT WING ASSEMBLY

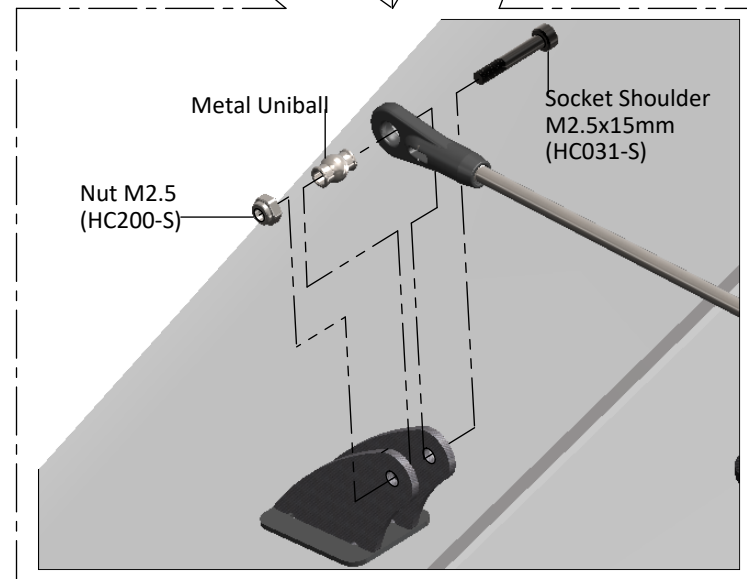
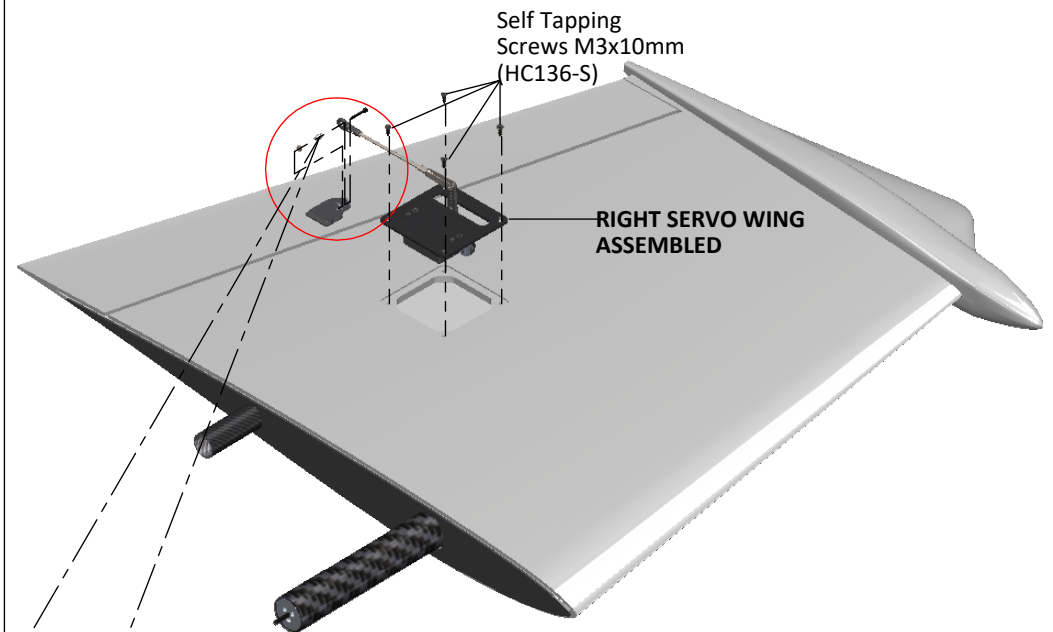


NOTE: Use loctice in all screws

INSTALLATION LEFT SERVO WING

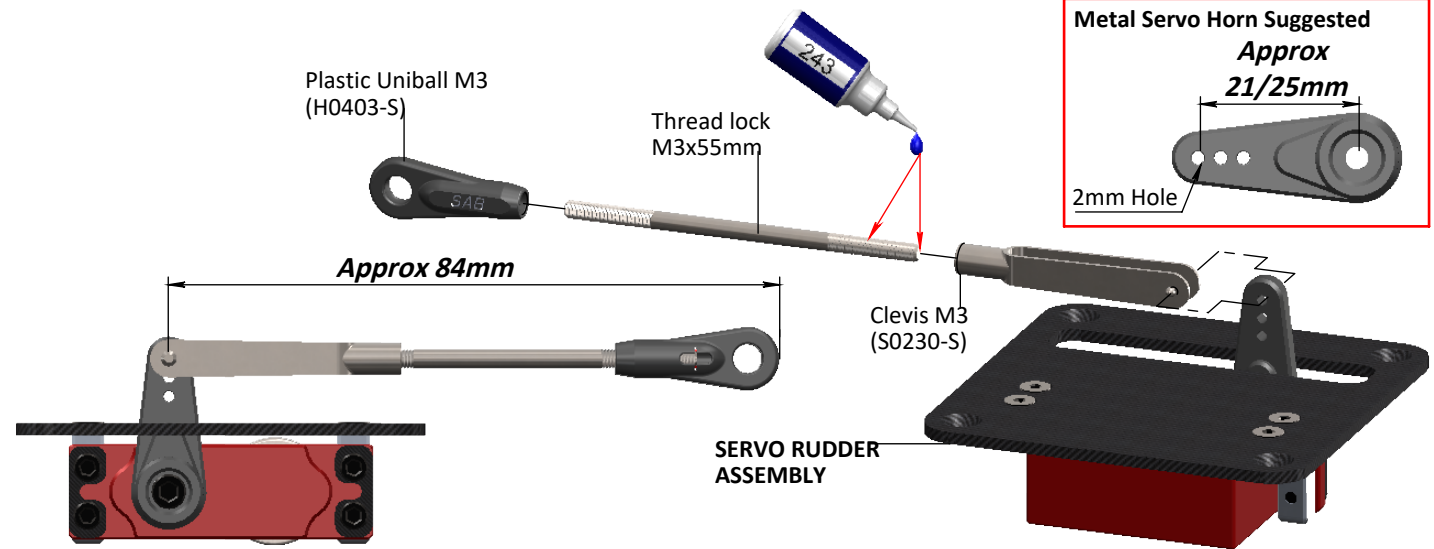
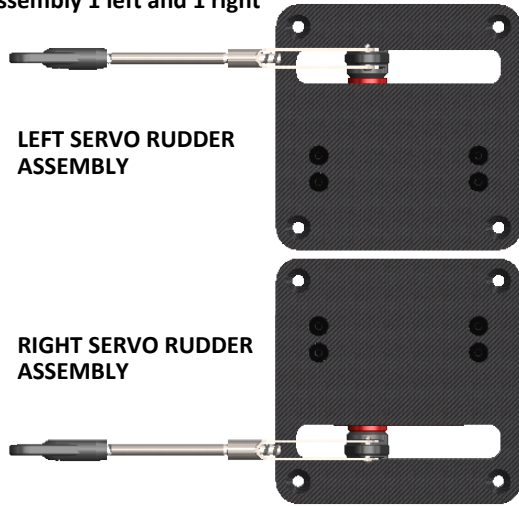


INSTALLATION RIGHT SERVO WING

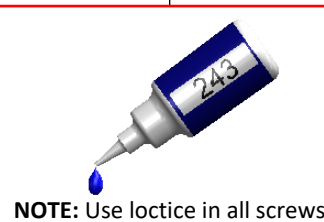
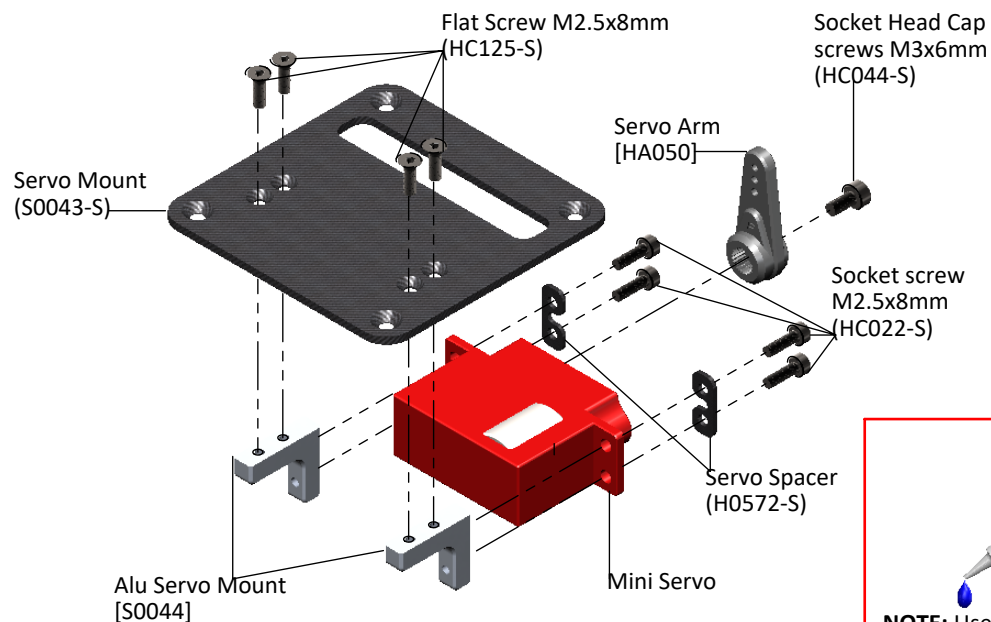


BAG 9

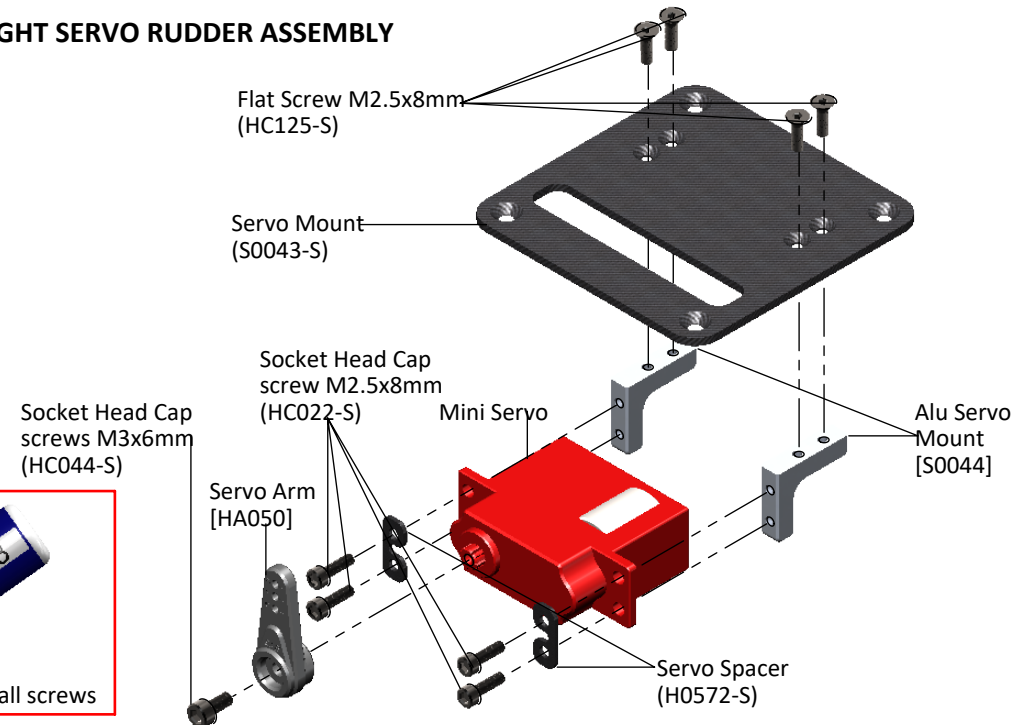
NOTE: Assembly 1 left and 1 right



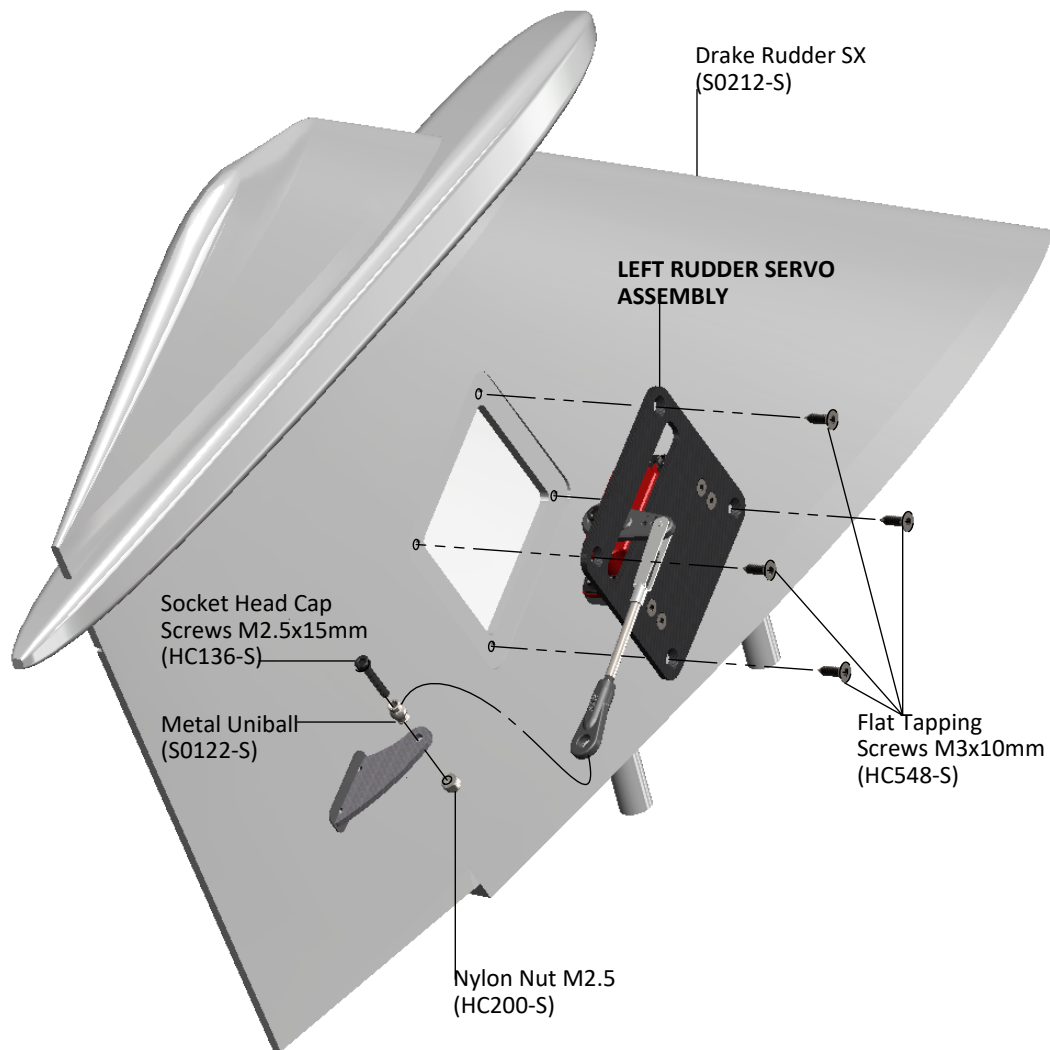
LEFT SERVO RUDDER ASSEMBLY



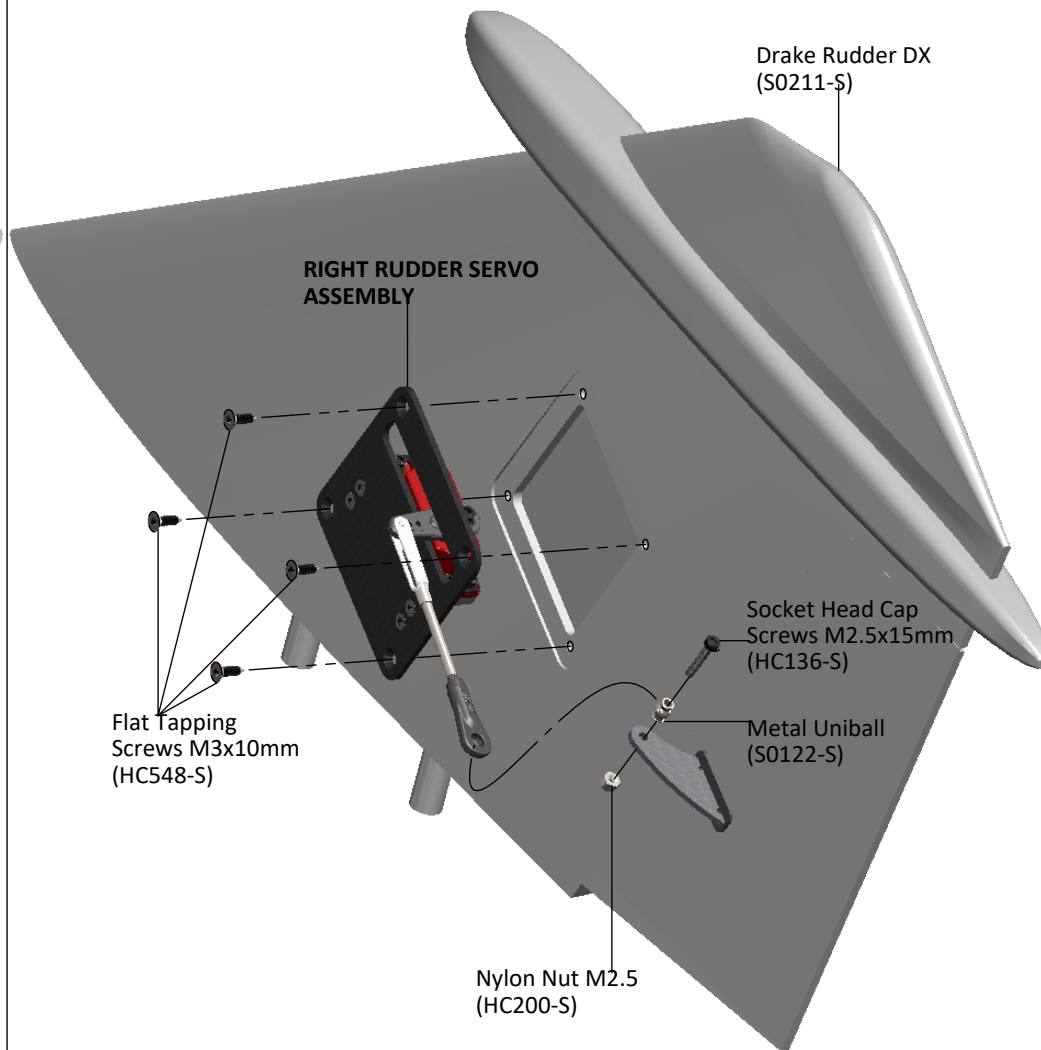
RIGHT SERVO RUDDER ASSEMBLY



LEFT RUDDER ASSEMBLY

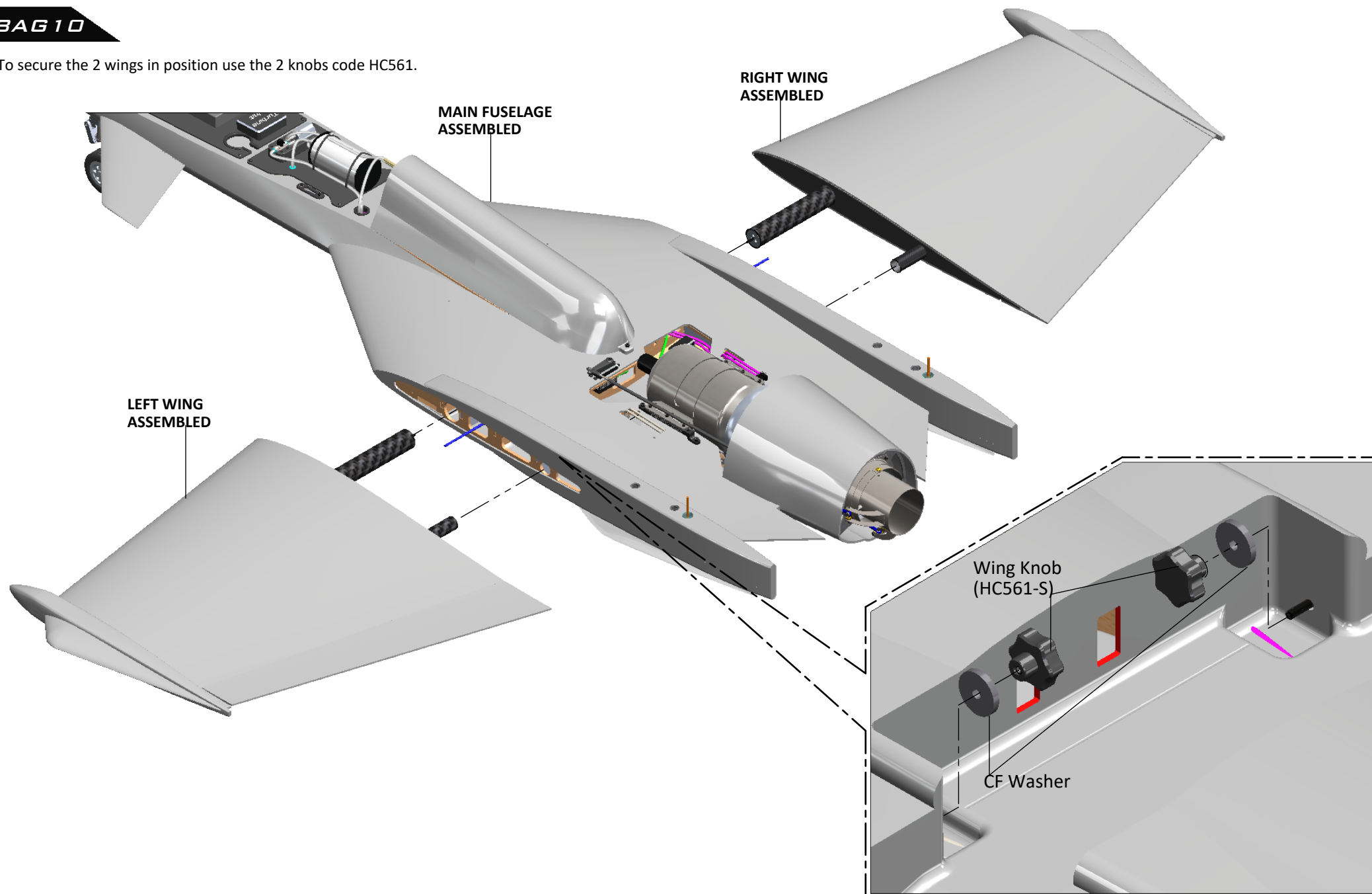


RIGHT RUDDER ASSEMBLY

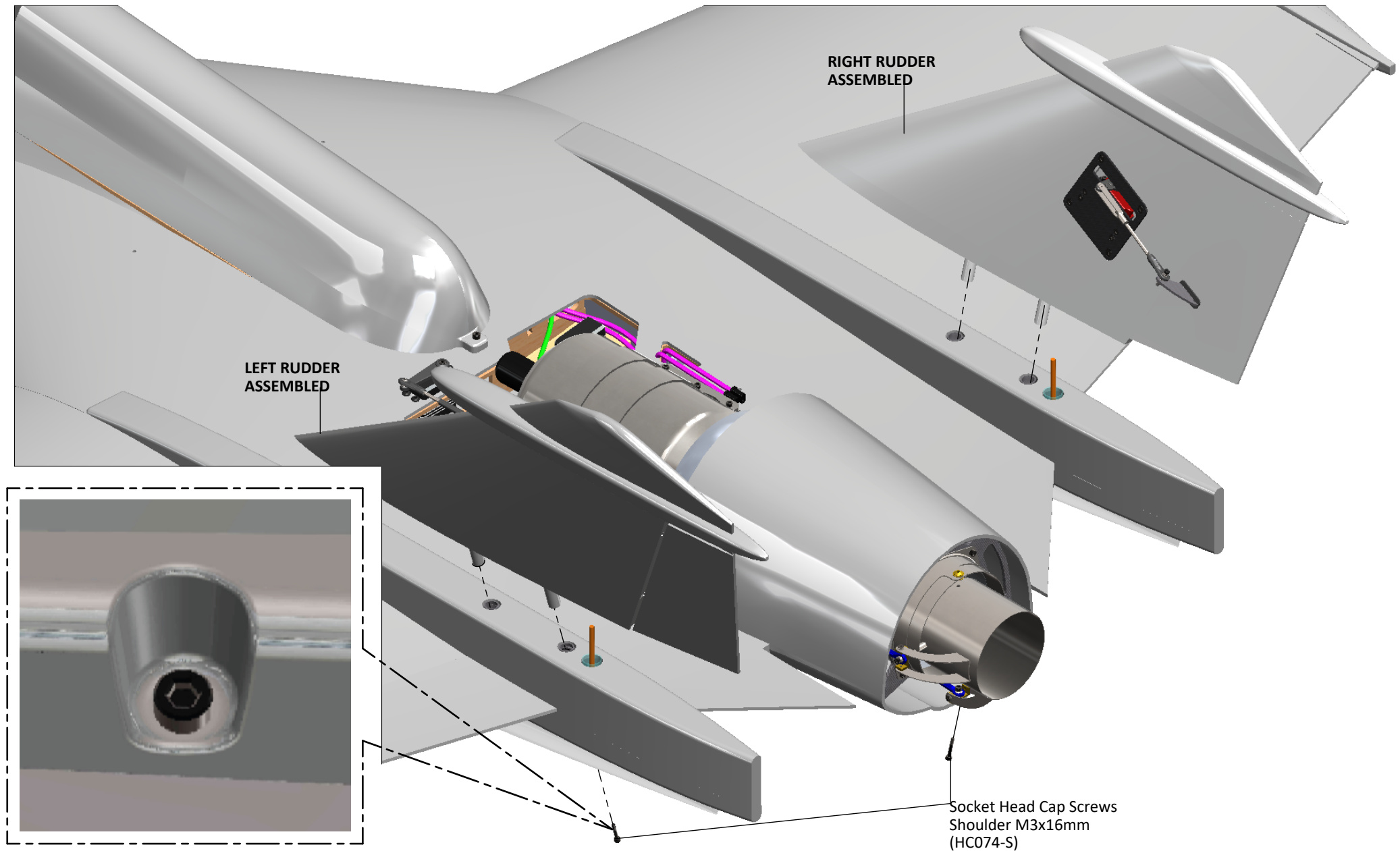


BAG 10

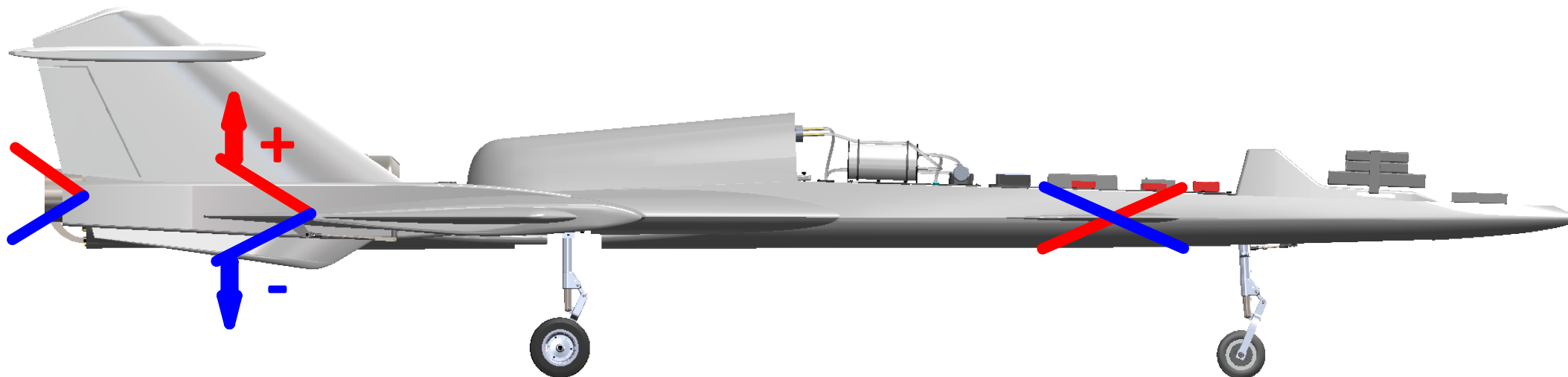
To secure the 2 wings in position use the 2 knobs code HC561.



To secure the 2 Rudder in position use the 2 M3x16 screws.



AILERON, ELEVATORS, CANARD SETUP



Mix the canard rotation with elevator and vector deflection.

When elevator go up, the vector go up and the canard should increase its incidence as in figure.

Set minimum two flight conditions, indicated in table below.

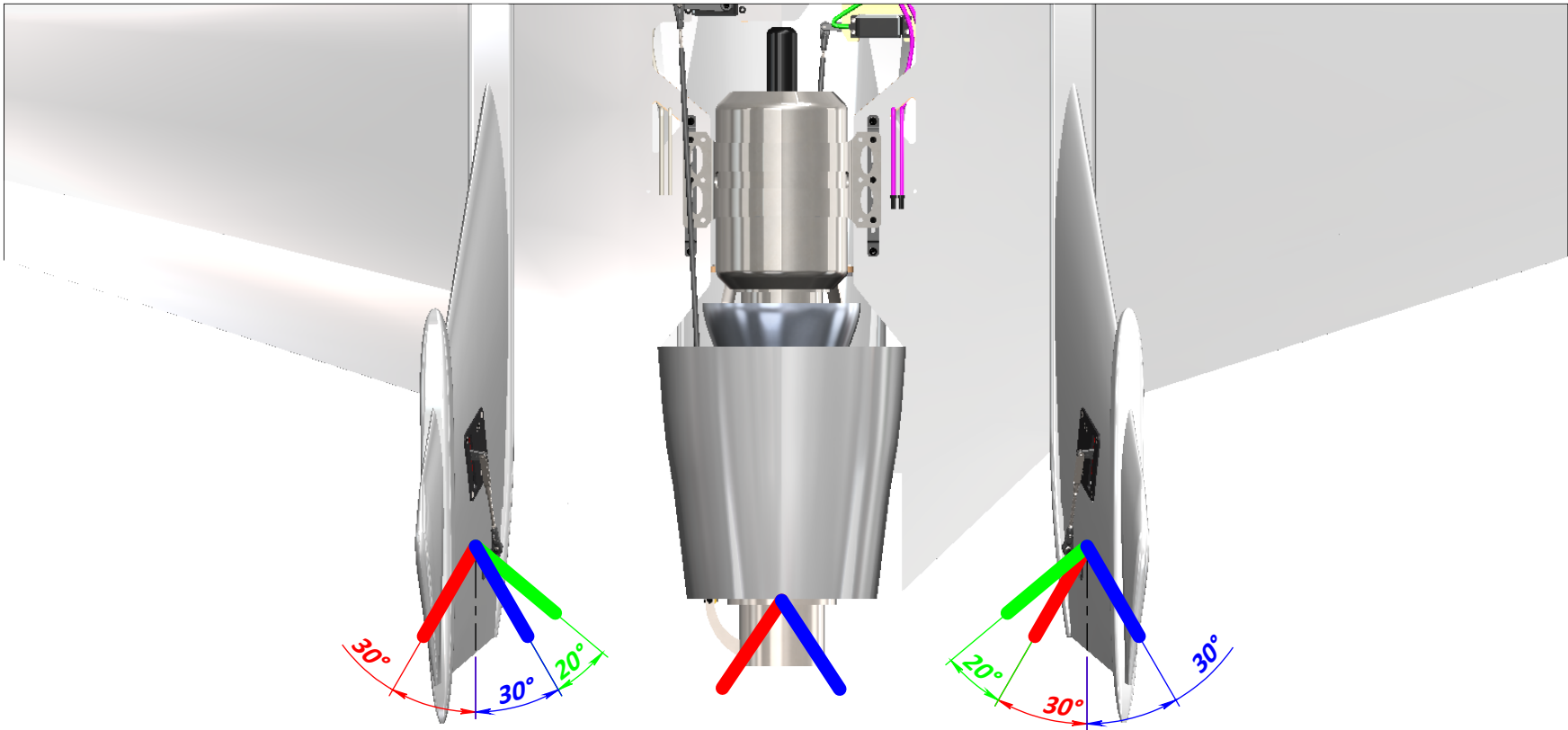
	LOW SPEED CONDITION		HIGH SPEED CONDITION	
	Deflection	Exponential	Deflection	Exponential
Ailerons	-40mm / +60mm	40%	-20mm / +20mm	60%
Elevator	-40mm / +60mm	40%	-20mm / +20mm	60%
Canard	±40mm	-	±20mm	-
Vector	±30°	0	±20°	40%

RUDDER SETUP

Set up the rudder with +30mm external, -50 mm internal.

The extra movment internal can be used for to create breake function.

Mix the Rudder function with Vector function.



	Angle	Exponential
RUDDER	+30° / -30° / -20°	50%

	Angle	Exponential
VECTOR	±30	0%

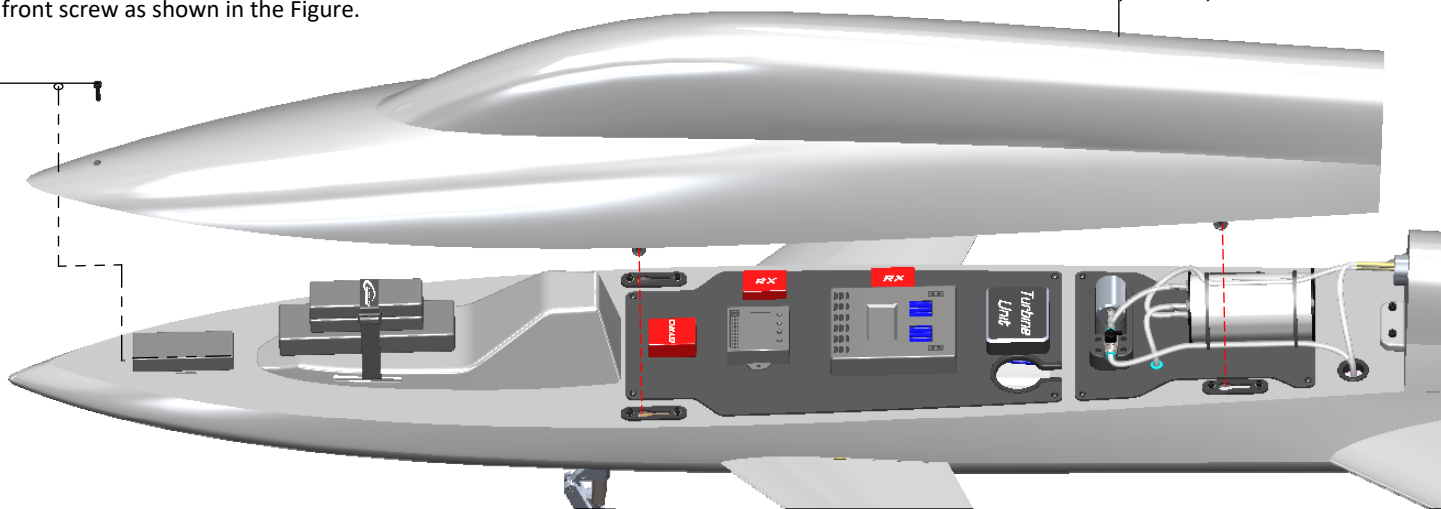
BAG 10

CANOPY

Assemble the canopy by inserting the 4 screws in the appropriate canopy clamps.
It is possible to adjust the screws lenght for to get the best connection.
Ensure positioning with the M4 front screw as shown in the Figure.

Socket Head Cap
Screw M4x15mm
(HC105-S)

Drake Canopy
(S0204-S)

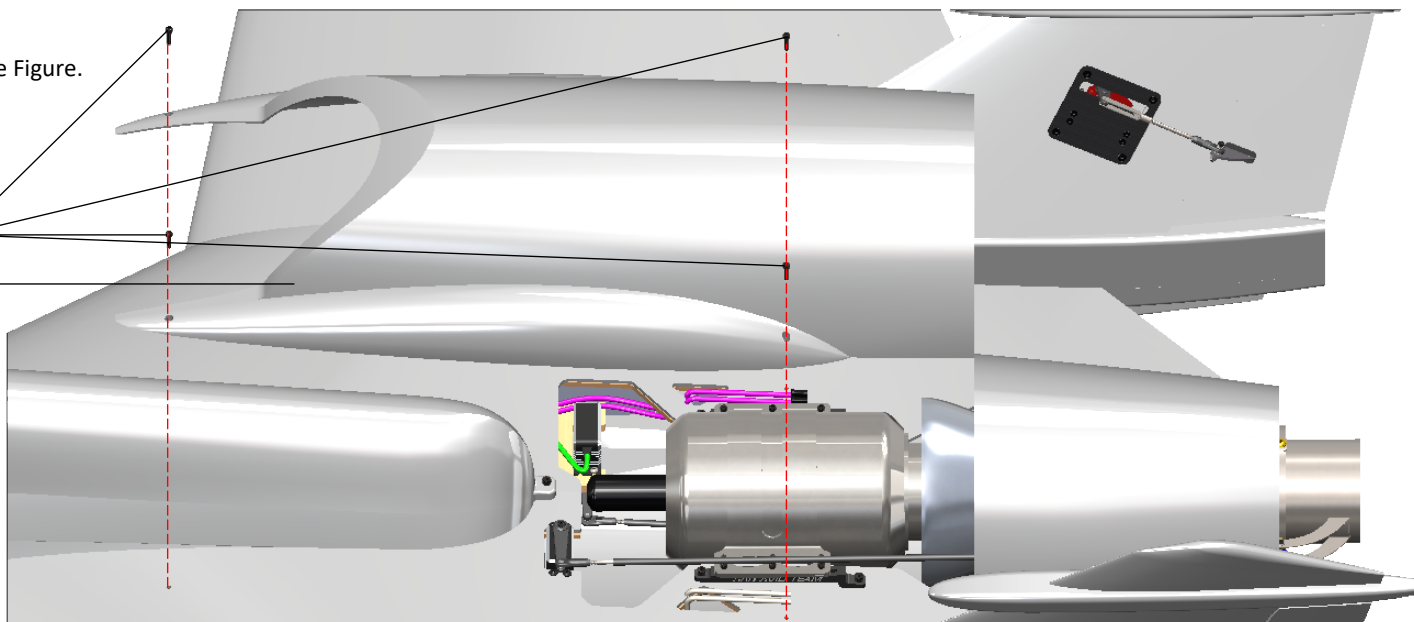


TURBINE COVER

Assemble the turbine cover as shown in the Figure.

Socket Head Cap
Screw M4x15mm
(HC105-S)

Drake Turbine Cover
(S0209-S)

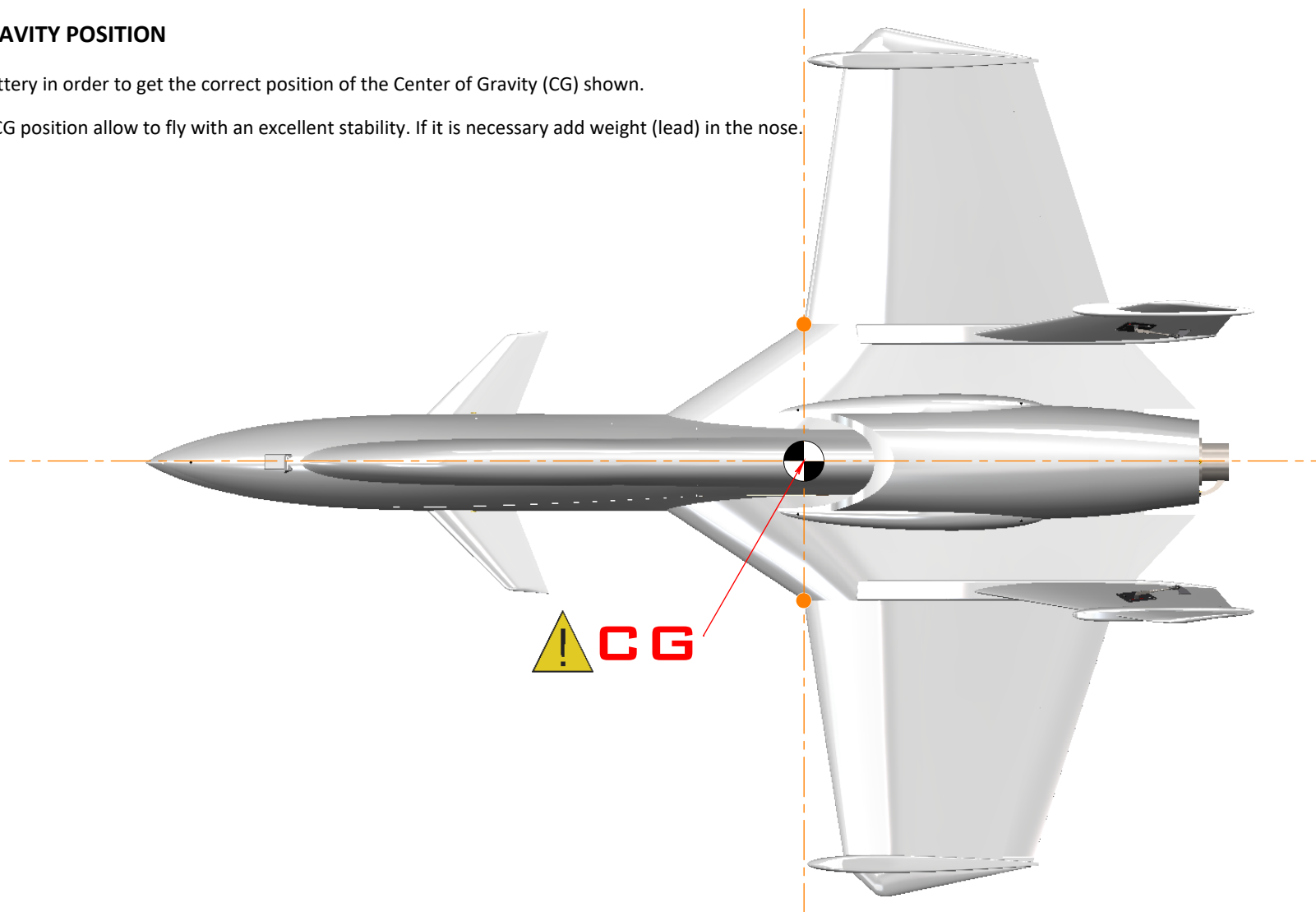


CENTER OF GRAVITY POSITION



Set the Battery in order to get the correct position of the Center of Gravity (CG) shown.

The right CG position allow to fly with an excellent stability. If it is necessary add weight (lead) in the nose.



RADIO TEST and PRE FLIGHT CHECK



- *Set up the remote control and the RX/Gyro system with care.
- *Check that all wiring is well isolated. It is good practice to protect them at the points where they are at most risk.
- *Check the Radio and check the reception on distance.
- *Check the movement of all parts.
- *Before the first flight, do accurate check of CG position!

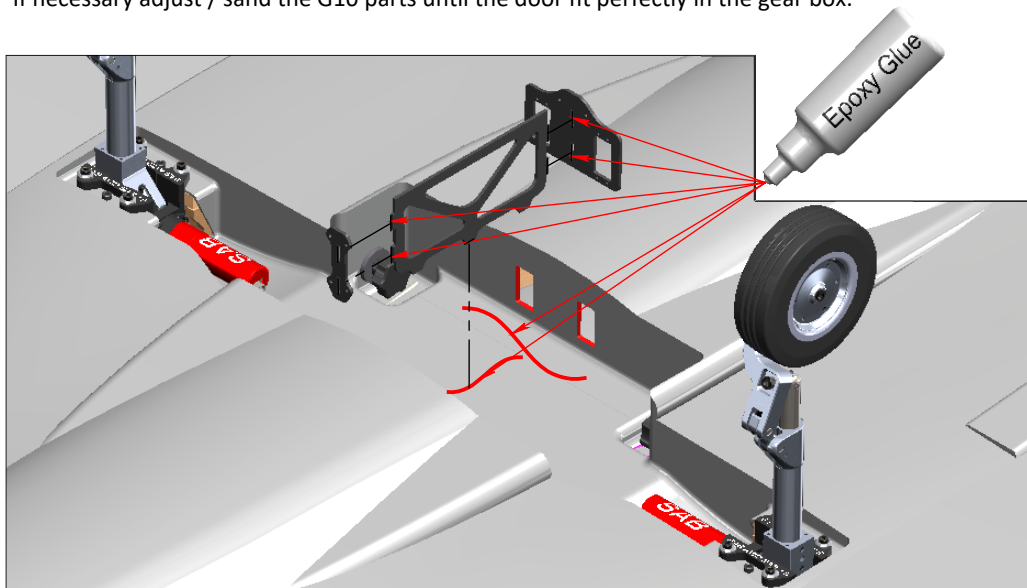
BEFORE ANY FLIGHT



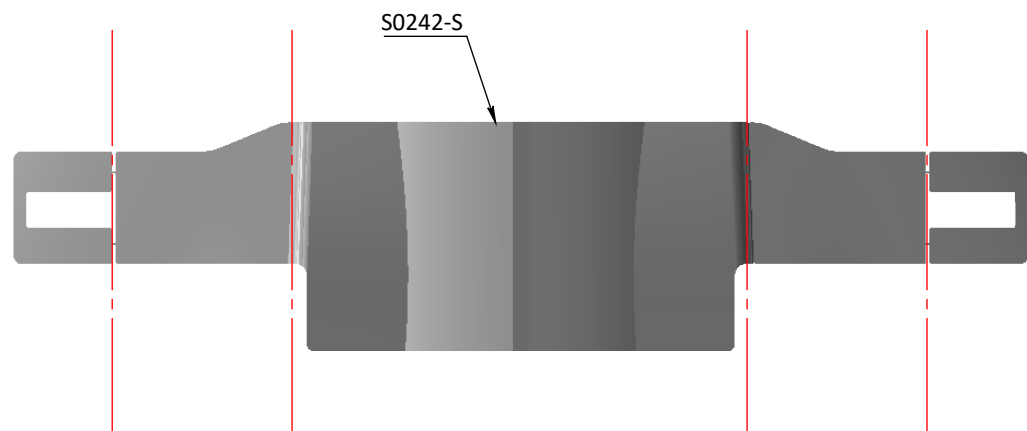
- *Check that all wiring are well connected
- *Check the movement of all parts.
- *Before any flights, consider if CG position can be changed.
- *After any flight, do a general check of the airplane.

BAG 1 1

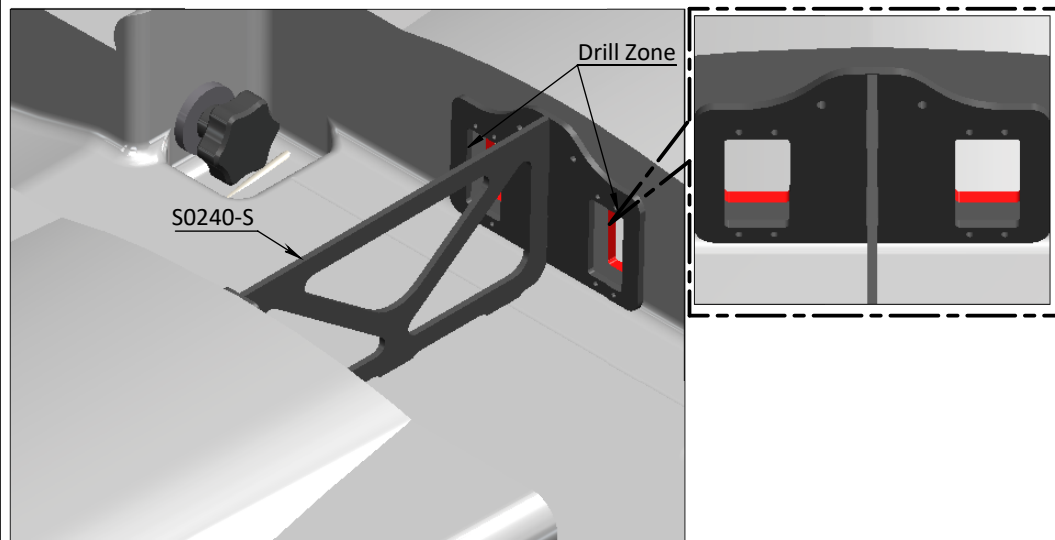
Glue the G10 parts in the main landing gear box using epoxy.
If necessary adjust / sand the G10 parts until the door fit perfectly in the gear box.



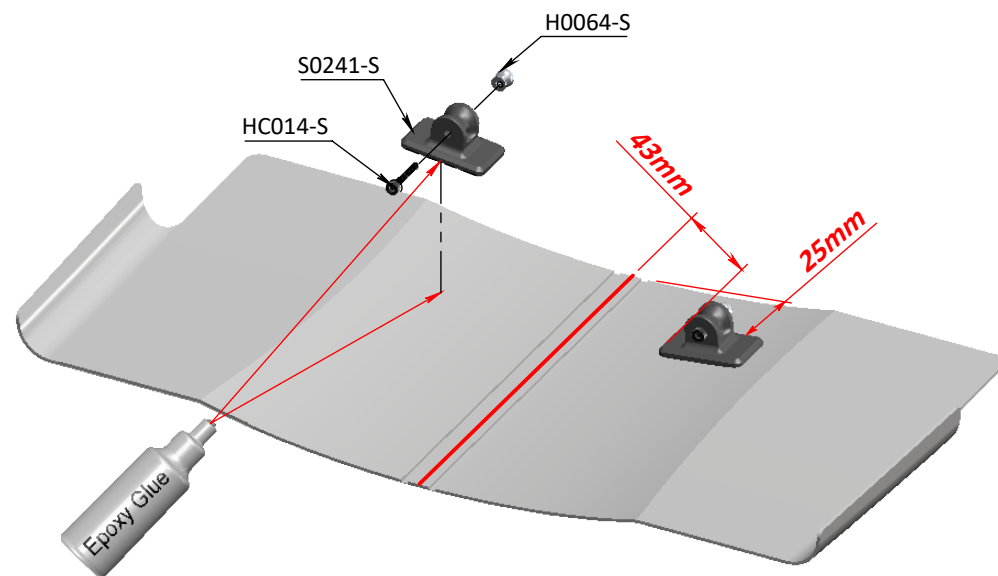
Cut along the pre-cut and get 5 parts.



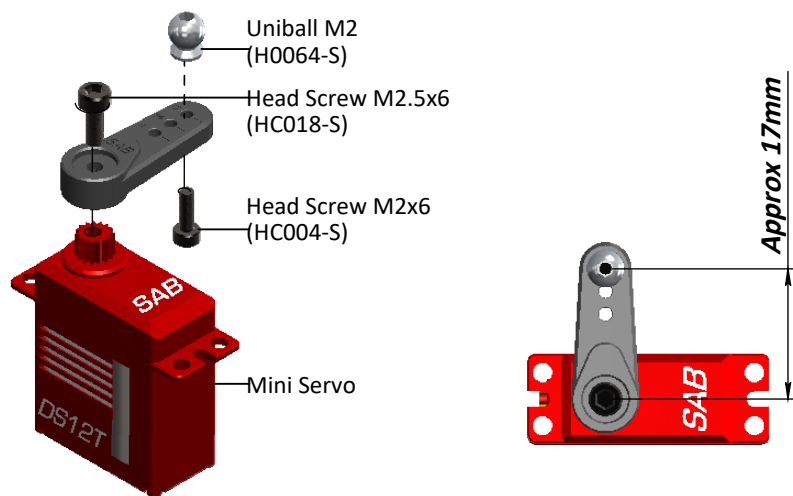
Cut the gearbox wall following the servo slot.



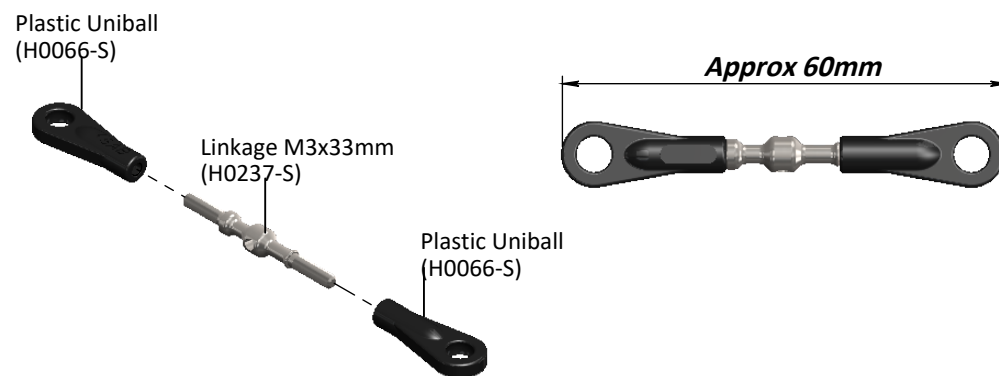
Glue the Door on the G10 parts S0240.



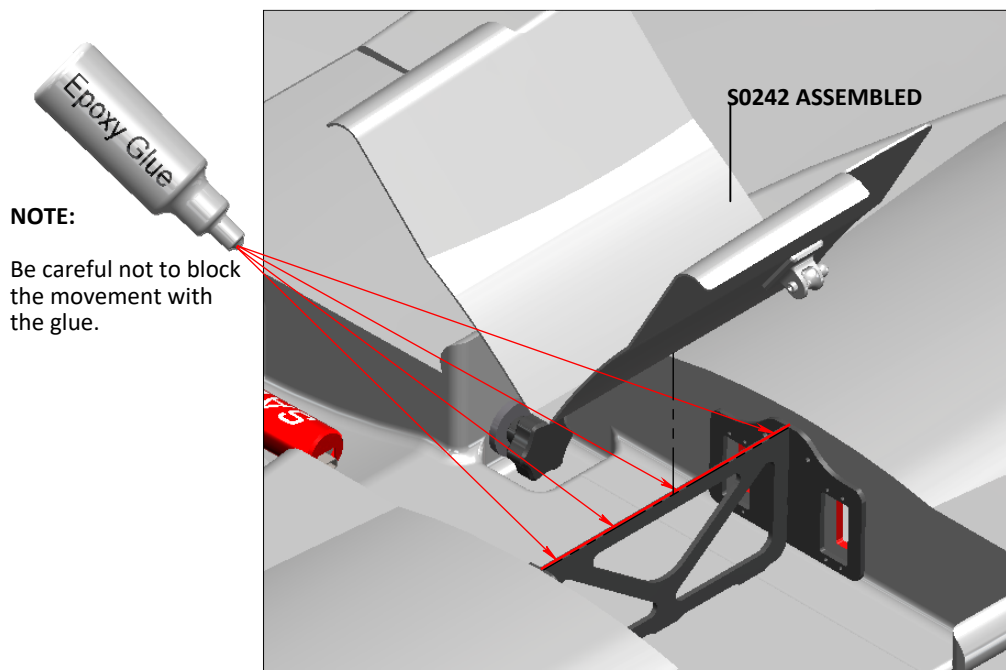
SERVO ASSEMBLY ...x2



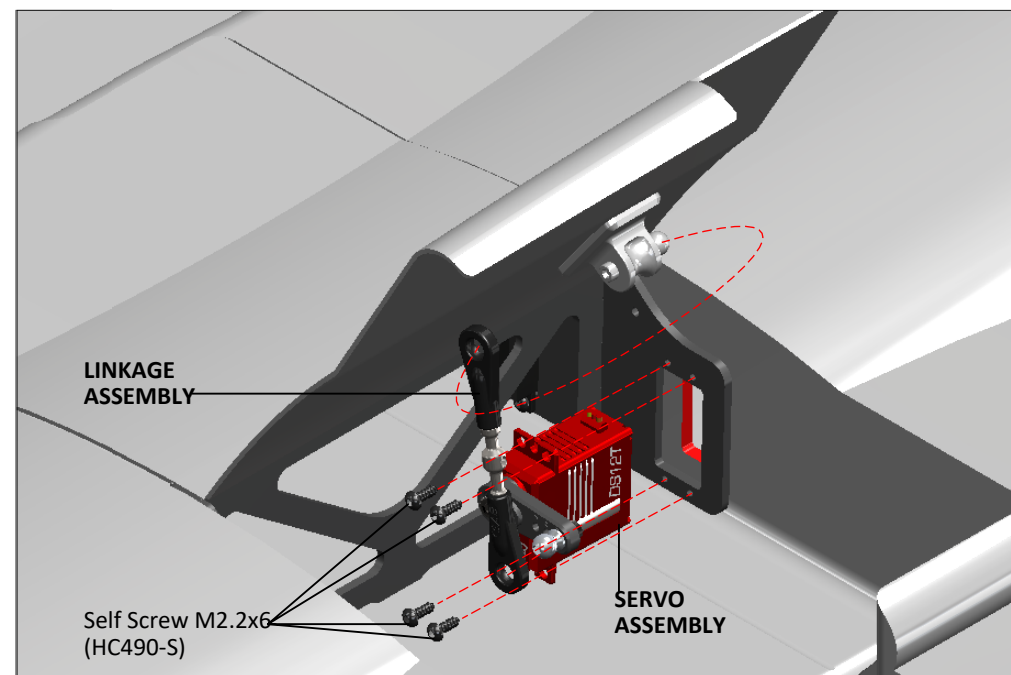
LINKAGE ASSEMBLY ...x2



Glue the door along the central wall. Take care of the perfect alignment.



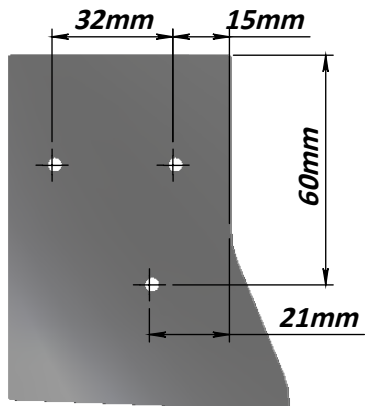
Assemble following the drawing. Make the same on the other side.



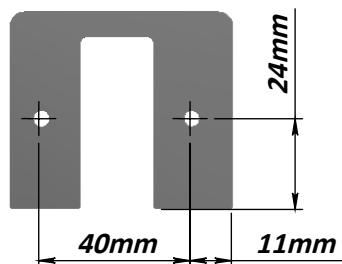
BAG 1 1

Drill the holes following the drawing quotes, if necessary widen the holes until they match with fuselage holes.

S0242 CUT 1



S0242 CUT 2

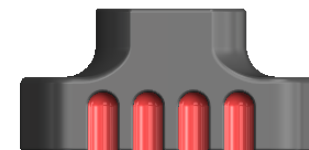


Insert the spacer number 3 in the front side of landing gear

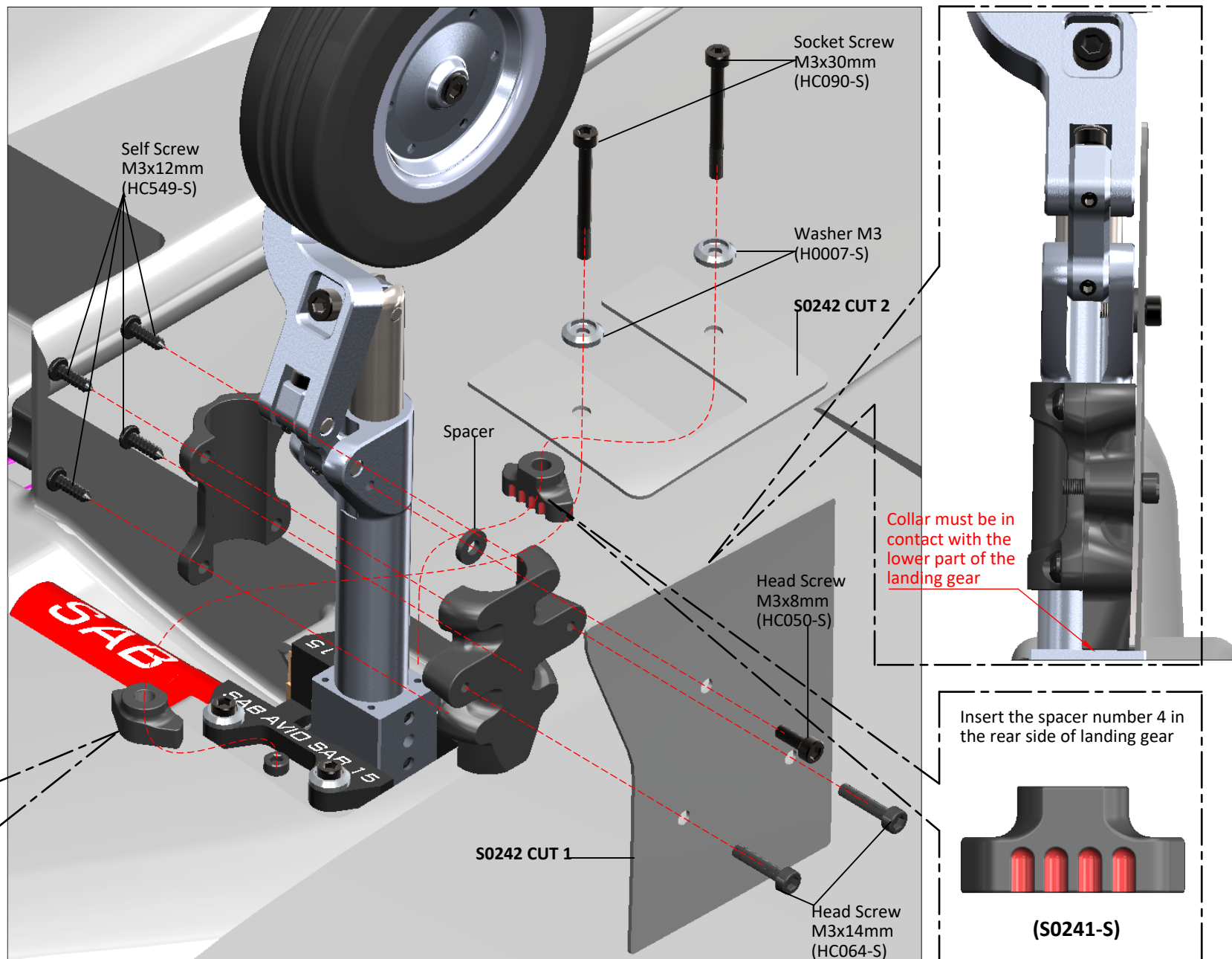


(S0241-S)

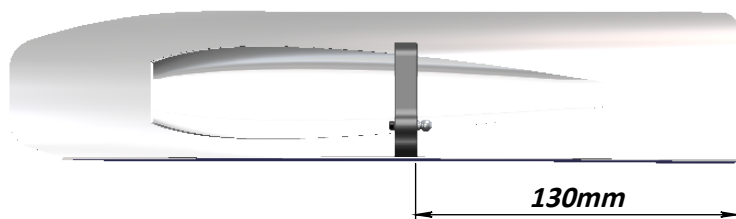
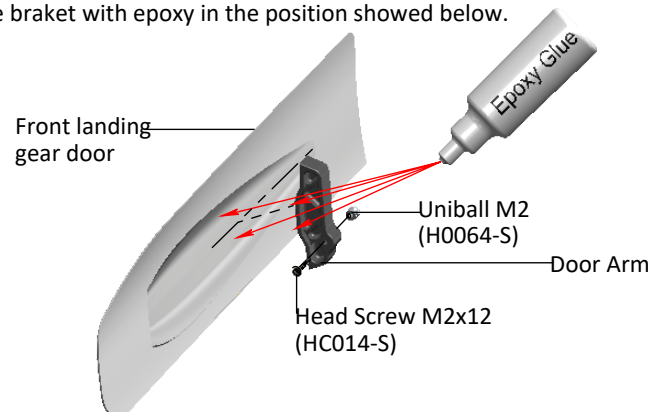
Insert the spacer number 4 in the rear side of landing gear



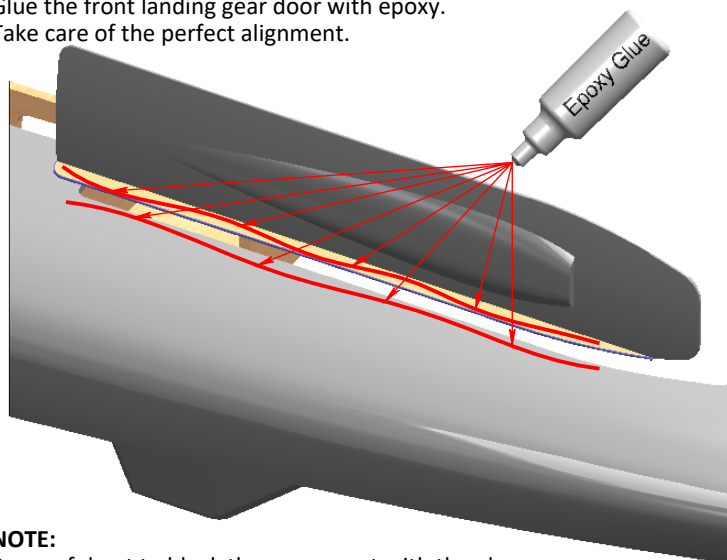
(S0241-S)



Glue the bracket with epoxy in the position showed below.

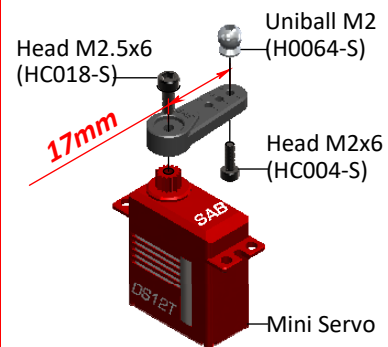


Glue the front landing gear door with epoxy. Take care of the perfect alignment.

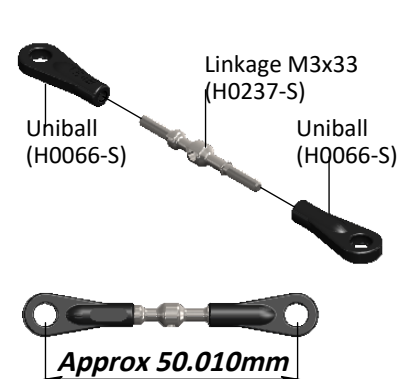


NOTE:
Be careful not to block the movement with the glue.

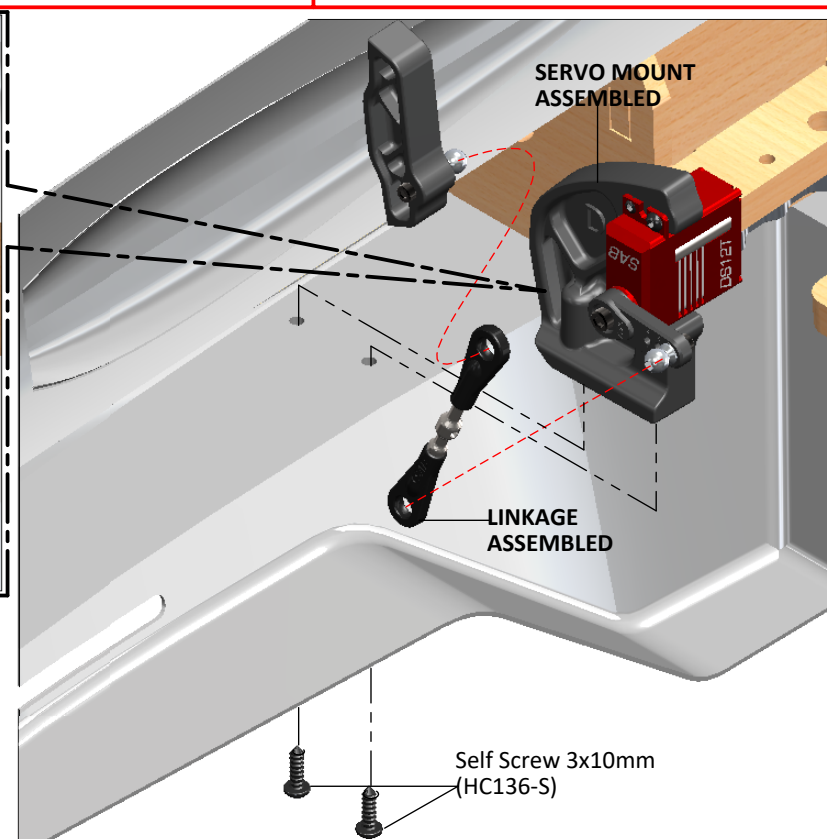
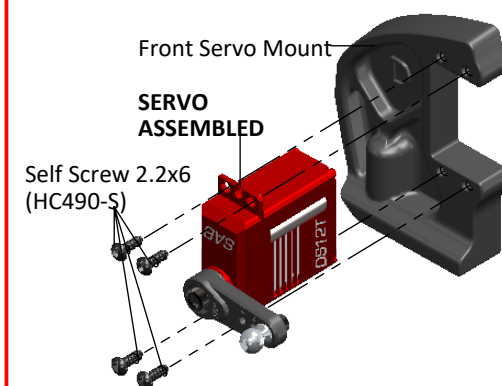
SERVO ASSEMBLY ...x1



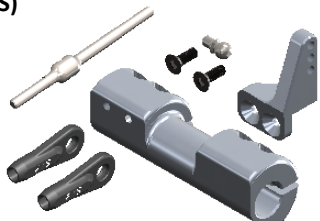
LINKAGE ASSEMBLY ...x1



SERVO MOUNT ASSEMBLY

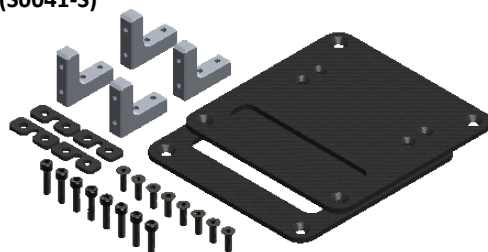


CANARD MECHANICAL (S0023-S)



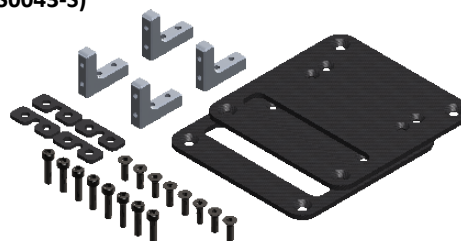
- 1 x Canard Collar.
- 1 x Collar Arm.
- 2 x Plastic Ball Link.
- 1 x Uniball M3.
- 1 x Linkage M3x50mm.
- 2 x Flat Cap Screws M3x10mm.

SERVO WING SUPPORT (S0041-S)



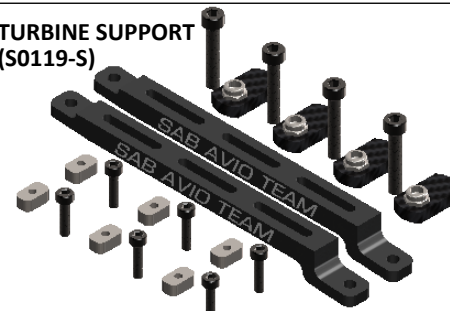
- 2 x CF Servo wing support.
- 4 x Aluminum Servo Wing Mount.
- 4 x Servo Spacer.
- 8 x Socket Head Cap Screws M2.5x10mm.
- 8 x Flat Cap Screws M2.5x8mm.

SERVO RUDDER SUPPORT (S0043-S)



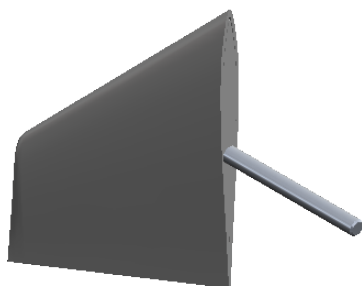
- 2 x CF Servo rudder support.
- 4 x Aluminum Servo Rudder Mount.
- 4 x Servo Spacer.
- 8 x Socket Head Cap Screws M2.5x10mm.
- 8 x Flat Cap Screws M2.5x8mm.

TURBINE SUPPORT (S0119-S)



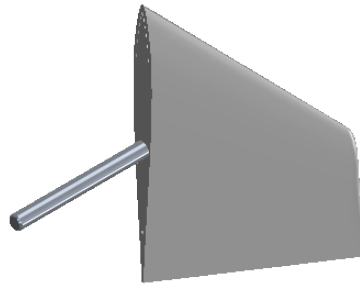
- 2 x Turbine Support.
- 6 x Screw Turbine Block.
- 4 x Block Nut M4 Assembled.
- 6 x Socket Head Cap Screws M3x12mm.
- 4 x Socket Head Cap Screws M4x22mm.

DRAKE CANARD SX (S0201-S)



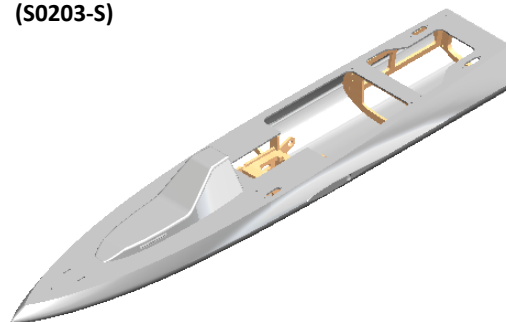
- 1 x Drake Canard SX.

DRAKE CANARD DX (S0202-S)



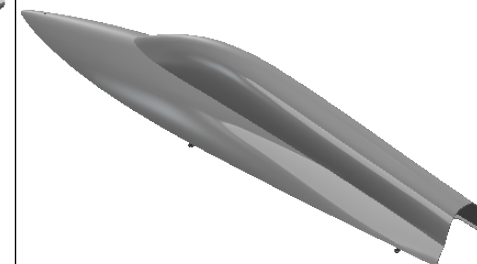
- 1 x Drake Canard DX.

DRAKE FRONT (S0203-S)



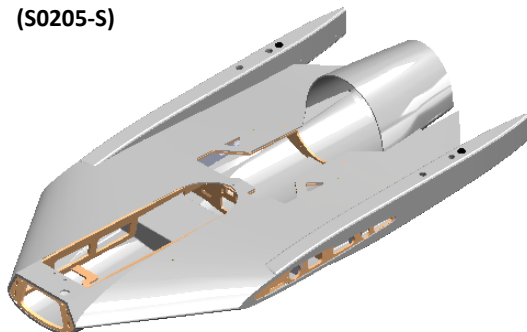
- 1 x Drake Front.

DRAKE CANOPY (S0204-S)



- 1 x Drake Canopy.

DRAKE FUSELAGE (S0205-S)



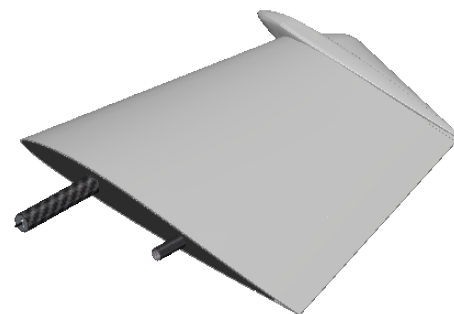
- 1 x Drake Fuselage.

DRAKE WING SX (S0206-S)



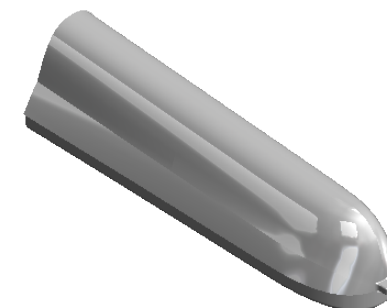
- 1 x Drake Canard DX.

DRAKE WING DX (S0207-S)



- 1 x Drake Canard DX.

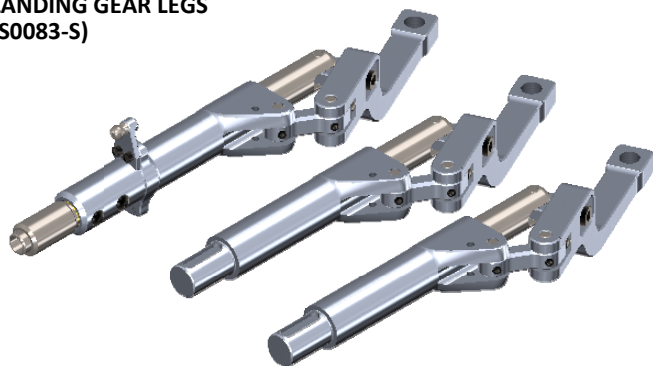
DRAKE TANK (S0208-S)



- 1 x Drake Canard DX.

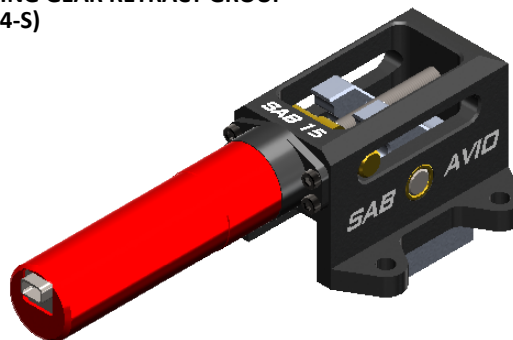
<p>DRAKE TURBINE COVER (S0209-S)</p>  <p>- 1 x Drake Cover Turbine.</p>	<p>DRAKE BOTTOM STABILAZERS (S0210-S)</p>  <p>- 1 x Drake Bottom Wing.</p>	<p>DRAKE RUDDER DX (S0211-S)</p>  <p>- 1 x Drake Rudder DX.</p>	<p>DRAKE RUDDER SX (S0212-S)</p>  <p>- 1 x Drake Rudder SX.</p>
<p>DRAKE TANK TUBE SET (S0213-S)</p>  <p>- 1 x SET Drake Tank Tube .</p>	<p>VECTOR (S0231-S)</p>  <p>- 1 x SET Drake Vector Support.</p>	<p>DRAKE INOX TUBE (S0232-S)</p>  <p>- 1 x SET Drake Inox Tube.</p>	<p>COMPONENTS SUPPORT (S0235-S)</p>  <p>- 1 x G10 Plate Components support. - 1 x G10 Plate UAT support.</p>
<p>REAR DOOR (S0240-S)</p>  <p>- 1 x SET Drake Rear Door.</p>	<p>FRONT DOOR (S0241-S)</p>  <p>- 1 x SET Drake Front Door.</p>	<p>LINKAGE (S0232-S)</p> <p>- 1 x SET Drake Linkage.</p>	<p>HARDWARE (S0232-S)</p> <p>- 1 x SET Drake Hardware.</p>

**LANDING GEAR LEGS
(S0083-S)**



- 1 x SET Landing Gear Legs.

**LANDING GEAR RETRACT GROUP
(S0084-S)**



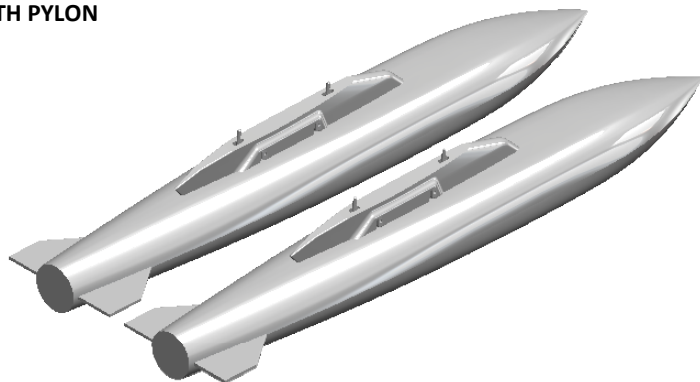
- 1 x SET Retract Group.

**LANDING GEAR WHEELS
(S0085-S)**



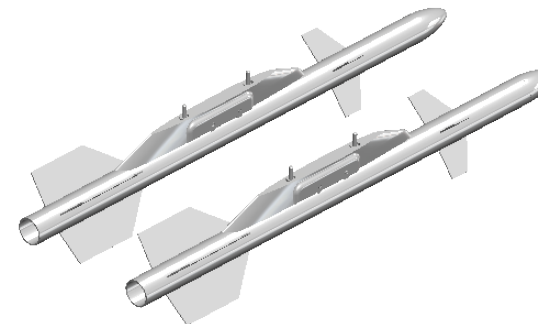
- 1 x SET Landing Gear Wheels.

**WINGS TANK WITH PYLON
(S0075-S)**



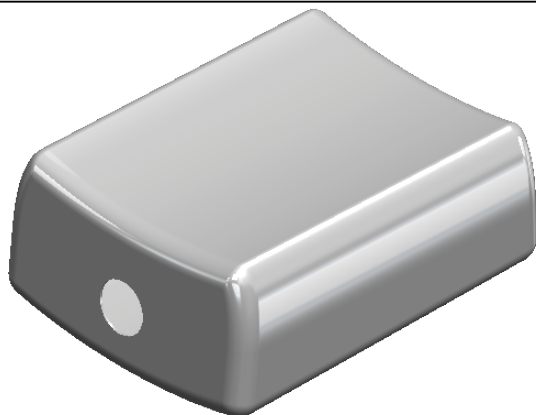
- 1 x SET Wings Tank With Pylons.

**WINGS ROCKETS WITH PYLON
(S0076-S)**



- 1 x SET Wings Rocket With Pylons.

**SMOKE KIT
(S0077-S)**

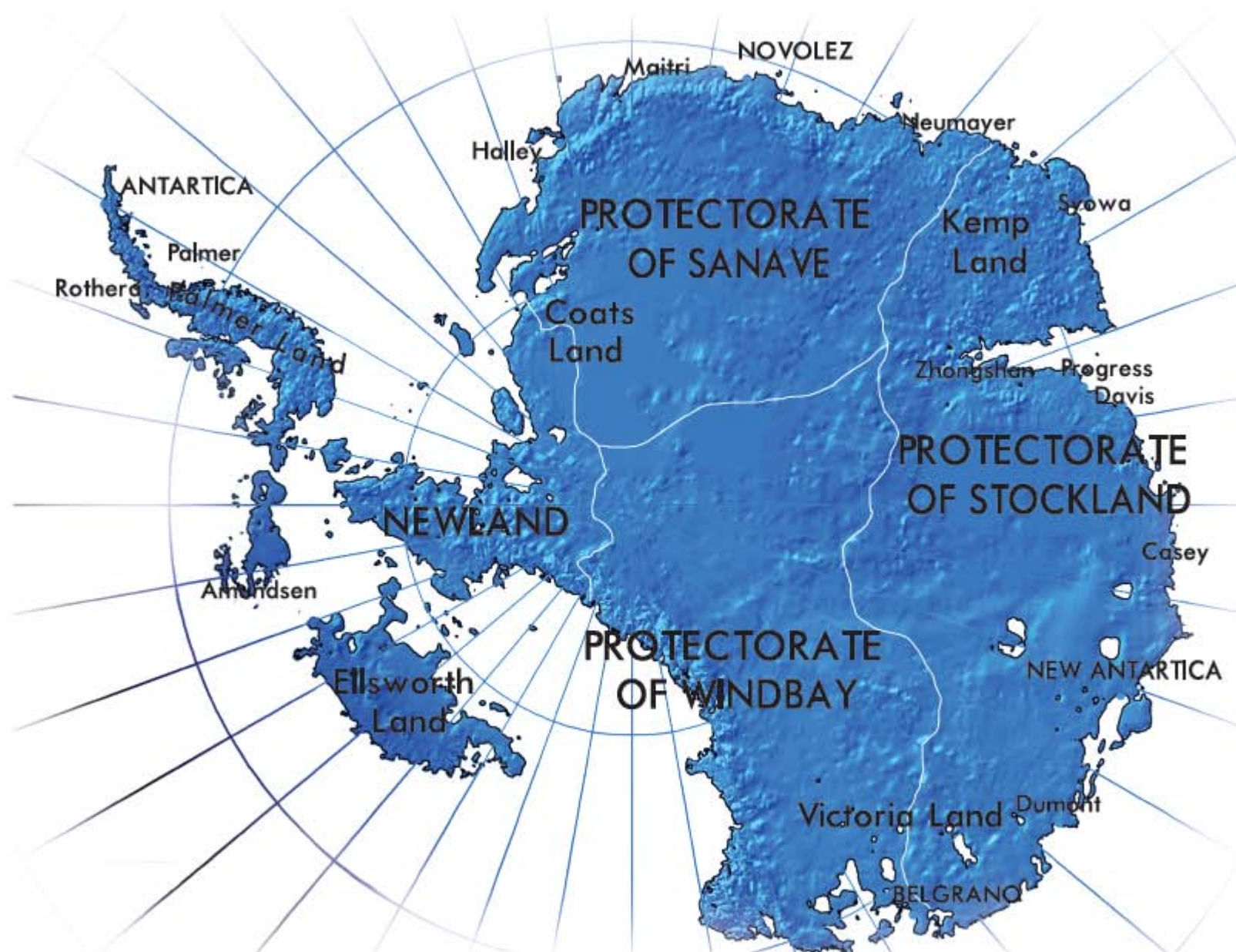


- 1 x SET Smoke KIT.

**DRAKE CARRY BAGS
(S0078-S)**



- 1 x Carry Bags.



KEMP BATTLE

Year 513: THE BATTLE OF KEMP

After months of bankruptcy negotiations, the state of Newland organized a surprise attack with the purpose of destroying the military bases of Syowa, Progress and Davis and regain control of the self-proclaimed state of Stockland.

The attack was scheduled for June 21 st, 513, the first day of winter; which later became famous as "dark day".

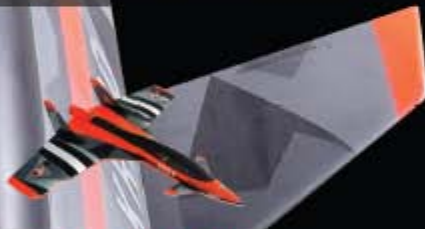
Thanks to intelligence acquired by the secret service of New Antartica, the rebel

legion had prepared itself ahead of the attack and this led to the historic sky battle of Kemp.

On June 21 st, Newland forces comprised of Robodrone Tortuga and Drake Bombers faced the Havok Multirole Fighter of the rebel brigade of Stockland.

The fierce battle caused serious losses to both sides without declaring a real winner.

Huge investments were later made by both parties to increase their arsenal and strengthen their fleet.



NAME: **K1004 TORTUGA**
VERSION: Robodrone
ROLE: Reconnaissance and attack
MANUFACTURER: Kruger Industries



NAME: **K175 DRAKE**
VERSION: Robodrone
ROLE: Multirole fighter
MANUFACTURER: Kruger Industries



NAME: **M169 HAVOK**
VERSION: Robodrone
ROLE: Multirole fighter
MANUFACTURER: Mc Murdo Industries

SAB AVIO WEBSITE



ANTARTICA MOVIE

