INSTRUCTION MANUAL

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Made by TS Composite

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COMPOSITE

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INTRODUCTION

Thank you for purchasing your new all Composite Oxalys Evolution.
Read carefully and understand this Manual. It provide important information for the safety during the construction of the model and how operate it.

WARNING

The Oxalys Evolution is an high performance model, capable of any extreme maneuver, especially in the F3A envelope. Therefore must be operate from an experienced pilot well trained and with adequate skill level.
This remote control air model is not a toy! If not correctly assembled and operated , it can cause serious bodily harm, damage to propriety or even death.
It is your responsibility and yours alone to assemble this remote control model airplane, operate, maintain it's airworthy and fly in safe manner.
Always ask for the help of an experienced remote control flyer before assembly and flying this model.
Do not attempt to make any unnecessary modification, the Oxalys Evolution flies perfectly as designed.
During assembly, take your time and don't be in a rush to finish. Use only a good quality and perfectly working radio gears. Use only the right engine size and the right accessories.
Before every flight, make sure to accurately check every component of the model (frame, radio gear, engine etc.). If something does not check out right, DO NOT FLY!!!
Do not attempt to fly alone! The first flight must be made by an experienced pilot.
Make sure that all spectators and helpers are behind the air model, and at the safe distance when the engine is running, as recommended in the Instruction Manual of your Engine Manufacturer, and that the model is properly secured when you start up the engine.
Fly only in A.M.A. (Academy of Models Aeronautics) approved sites.
Follow the instruction included in this manual, do not attempt to make any modification.
Work carefully and take your time, and ever following all the instructions with the radio equipment ant with the engine.
Follow the A.M.A. National Model Aircraft Safety Code.
The Academy of Models Aeronautics provide guidelines for safety operations of the remote controls air models in the United Sates of America and also provides liability insurance.
For more information contact:
Academy of Models Aeronautics
5151 East Memorial Drive
Muncie, IN 47302
Telephone (317) 287-1256
Or visit the web www.modelaircraft.org

LIABILITY EXCLUSION

The TS Composite, as manufacturer of this kit, provides you a fine product with high level of construction, but the model require assembly as described in the building instructions.
You must understand that we can't have any control of the quality of your job and how you assemble the model, the installation of the remote control equipment, the installation of the engine, the others accessories, glues used and any modification, methods you use for building the model, and how you understand the instructions contained in this manual.
Therefore the flying characteristic of the model, how you operate it, both on ground and flight, and where you operate it, depend ONLY on you, an ONLY you are responsible for your actions.
For this reason the TS Composite deny all liability, and is not responsible for any personal injury, death, damage or property loss and any other direct or indirect consequent damages.

SPECIFICATIONS

Wingspan:	1890 mm
Overall Length:	1990 mm (including spinner)
Take off weight:	4500 - 4700 gr.
Recommended engines:	120-170, 2 or 4 stroke. Electric: Hacker 50 or similar.

CONTENT OF THE KIT

1. nr. 1 Composite fuselage.
2. nr. 1 Composite one piece wing.
3. nr. 2 Composite ailerons.
4. nr. 2 Composite stabs (one left + one right).
5. nr. 2 Composite elevators (one left + one right).
6. nr. 1 Composite rudder.
7. nr. 2 Carbon fiber wheel paint.
8. nr. 2 Composite landing gear (one left + one right).
9. nr. 1 Set composite plates (to cut as required).
10. nr. 6 Aluminium anodized control horns (3 L + 3 R).
11. nr. 1 Carbon fiber stab tube.
12. nr. 1 Fiber glass sleeve for stab tube.
13. nr. 1 Set adjustable incidence for stabs.
14. nr. 1 Set aluminum accessories.
15. nr. 1 Carbon fiber tail wheel.
16. nr. Wing Fixing Screw set
17. nr. 1 Manual Instruction / Drawings.
18. nr. 1 “T” Canalizer kit (only in GOLD series).
19. nr. 1 Thermo Cover Bag Set (only in GOLD series).

ADDITIONAL REQUIRED EQUIPMENT NOT INCLUDED IN THE KIT

1. Remote control equipment
nr. 6 channel radio
nr. 2 high torque servo 150 oz/in torque (ailerons)
nr. 1 high torque servo 150 oz/in torque (rudder)
nr. 2 high torque servo 150 oz/in torque (elevators)
nr. 1 standard servo 50 oz/in torque (engine)
nr. 1 2000mH battery 4,8V or 6.0V

2. Engine
2 stroke 120 -160
4 stroke 120- 170
Electric Hacker 50 or similar

3. Other items needed
nr. 1 3.25" spinner
nr. 4 4mm or 8/32" bolts for fix the wing at the fuselage
nr. 4 4mm or 8/32" blind nuts

nr. 12 self tapping screw for fix the carbon fiber control horns.
nr. 20 heavy duty flat nylon hinges 1-1/8x5/8".
nr. 2 60mm or 2-1/2" diameter wheel.
nr. 1 3/8" diameter tail wheel.
nr. 1 Engine mount.
nr. 1 Tank 450 or 500cc
nr. 1 set assorted pushrods

4. Glues
CA Zap medium or similar.
Pacer canopy glue
60 minute epoxy or Hysol 9462

BUILDING INSTRUCTION

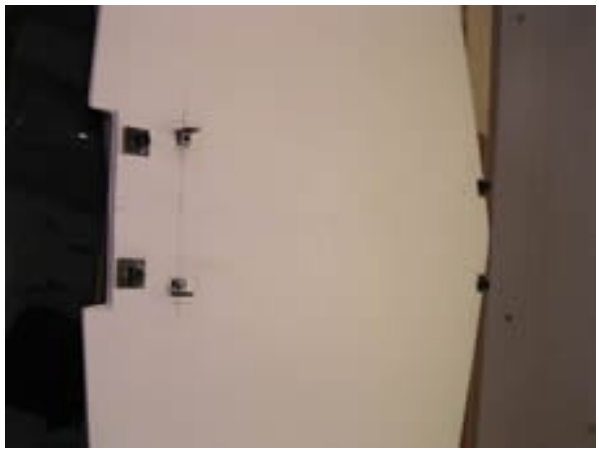
1. Fuselage

Is highly prefabricated, so need only minor work for complete.
Carefully fix the firewall to the fuselage with small drop of CA, according with the dimension of your engine mounting and your engine.
When you are sure about the perfect alignment and that you have enough clearance between the spinner and the fuselage, glue permanently the firewall with epoxy mixed milled fiber glass or better with Hysol 9462. (see picture 1).

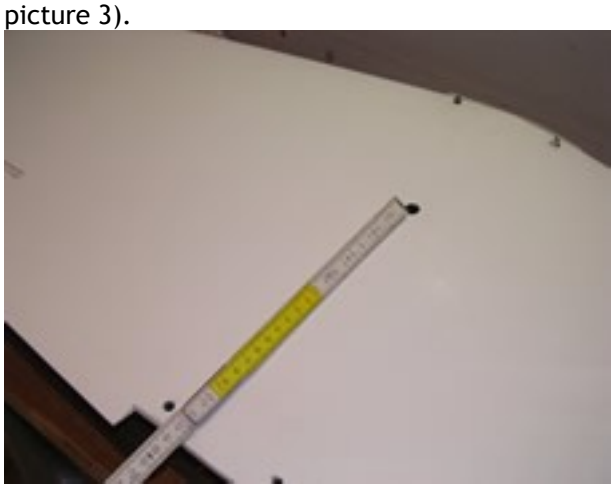

Picture 1

2. Wing

Drill a 7mm or 1/4" inc. hole on the marker (indentation) on top and the bottom of the wing. Glue the 4 black aluminum bushing to the hole that you just drilled to the bottom of the wing going through the top of the wing with epoxy or Hysol 9462. Grind excess if necessary so the bushings are slightly flush on the top surface of the wing. Follow the drawing to install the servos of the ailerons inside the hole on the bottom of the wings. (see picture 2)



Picture 2

Follow the drawing and make two holes on the center of the top wing for the servo extensions outlet (see picture 3).


Picture 3

Slide the wires inside the servo wire tubes in the wing located between the servo and the center of the wing. These tubes prevents the servo wire extensions from shaking inside the wing during flight.
Check the position of the control horn on the aileron and align the servo with him for free movement of the push rod.
The carbon fiber control horn must be installed in the consequence space on the aileron with two self tapping screw not supplied in the kit.
For install the nylon flat hinges, with a Dremel enlarge the slot already on the wing and the ailerons. Glue the hinges with epoxy. Always use a very small amount of petroleum jelly or wax on the pin for allow free movement of the hinge.

3. Wing bracket.
The two carbon fiber bracket must be installed in the inside of the fuselage in accordance with the holes in the wing. Spot glue the bracket with CA with the wing installed and perfectly in square with the fuselage and then glue in place with epoxy or Hysol 9462. (see picture 4).
Mark the where you need to drill the hole for the blind nuts. Install inside of the bracket the blind nuts and secure them with CA.


Picture 4

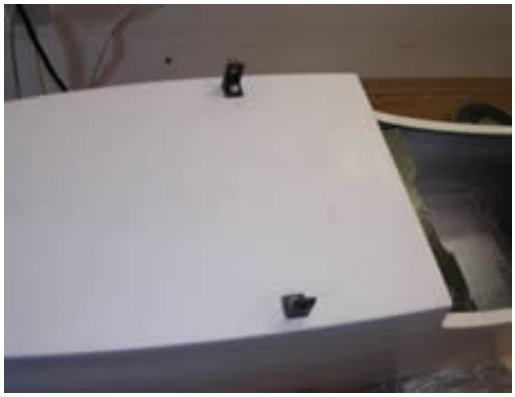
4. Radio plate.
According with your preferred lay out cut the hole for the rudder servo.
Shape the radio plate for fix in the fuselage. Glue with small drop of CA and after with epoxy.

5. Landing gear
Fix each leg with nr.3 H4 bolts on the fuselage where are located the appropriate recess on the cowling.

6. Tank
Install the tank in the desired position inside the fuselage and wrap with Velcro tie.

7. Receiver and battery.
The receiver and battery must be installed on the radio plate installed before in the fuselage. Wrap the receiver and the battery with Velcro tie.
Also the engine servo must be installed in the fuselage, on your preferred position, with some 1/8" plywood (not supplier in the kit).

8. Cowling
The cowling must attached at the fuselage with four aluminium bracket supplied in the kit.
Choose your preferred location and glue with epoxy or Hysol 9462. We suggest to ad for safety a small screw after the glue is dry. Glue on the cowling the four special aluminium washer for hold the four bolt. (see picture 5)


Picture 5

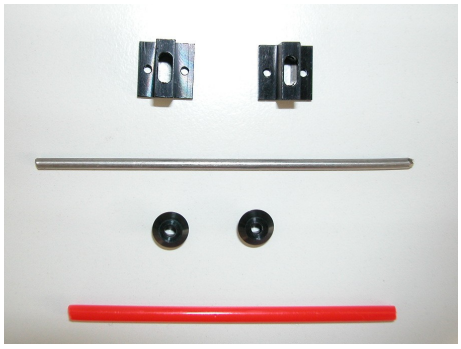
9. Engine
Install the engine with your preferred engine mount. The engine offset is already on the model, simply align the spinner with the nose of the fuselage. (see picture 6)


Picture 6

10. Stabs
For install the stabs, gently make an hole with a 10 millimetre drill bit where is the REAR (see drawings) on rear of the fuselage. Use first a smaller drill bit for maximum precision.
Insert the fiber glass sleeve provided with the carbon fiber rod. The length of the sleeve must be 40 mm. The Double check the alignment with the fuselage and the wing, and spot glue with CA, then permanently glue with epoxy or Hysol 9462 by pressing a little to compress the fuselage (1 or 2 mm) and to ensure the perfect fit of the stabs to the fuselage suface.
With a 3 mm drill bit make an hole on the FRONT mark on the rear of the fuselage. This hole is for the 3mm steel rod for the incidence regulator supplied (see picture 7).

Pic. nr. 7

Slide inside the fuselage the steel rod and the red plastic sleeve.
Glue the two special aluminum washers inside the fuselage for hold the red plastic sleeve.
Cut the stab where is marked with a cut on the rib for install the incidence regulator (it must be already done. There a space on the stab, reinforced with carbon fiber, designed for hold the incidence regulator. (see picture 8)



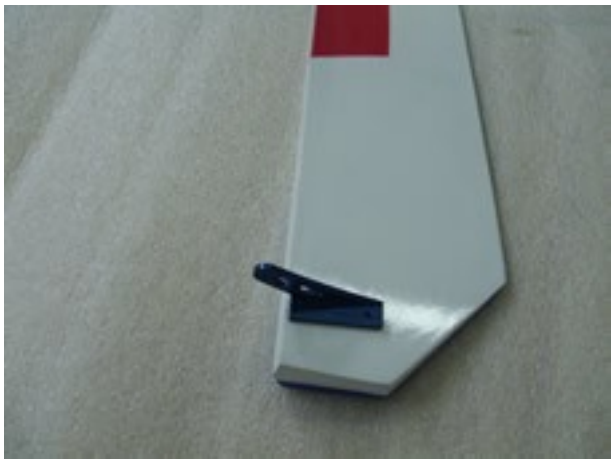
Picture 8

11. Installing the servos elevators

You can mount two little servos or the “Kato System”, as your choice. Cut whit a Dremel or razor saw the holes for the servos for the elevators on the rear sides of the fuselage and reinforce with plywood for the servo screws. Check the position of the control horn on the elevator and align the servo with him for free movement of the push rod. (see picture 9)

Picture 9

The control horn must be installed in the apposite area (see drawings) on the elevator with two self tapping screw not supplied in the kit.(see picture 10)



Picture 10

For install the nylon flat hinges, with a Dremel enlarge the slot already on the stab and the elevators. Glue the hinges with epoxy. Always use a very small amount of petroleum jelly or wax on the pin for allow free movement of the hinge.

12. Tail wheel

Align the tail wheel and install with two self tapping screw not supplied in the kit. (see picture 11)

Picture 11

13. Rudder

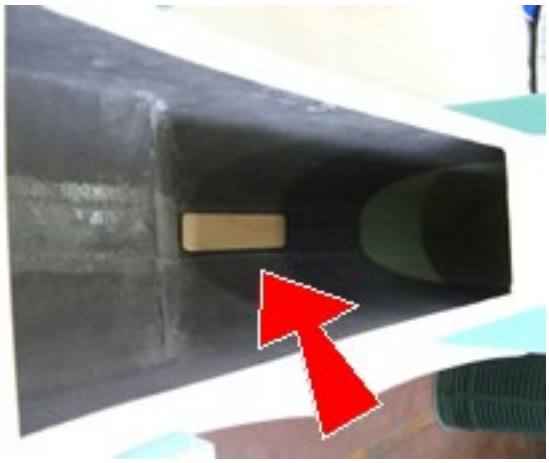
For install the nylon flat hinges, with a Dremel enlarge the slot already on the rudder and the fuselage. Glue the hinges with epoxy. Always use a very small amount of petroleum jelly or wax on the pin for allow free movement of the hinge.

The carbon fiber control horn must be installed in the apposite space on the rudder with two self tapping screw not supplied in the kit. (see picture 12)

Picture 12

14. "T" Canalyzer – <u>Optional</u>

The CPLR "T" Canalyzer is an optional accessoire (it is included in Oxalys Gold Kit). Hold the TC in position by biadesive tape. Find the right mounting position and mark the edge of TC aon the fuselage with a pencil. Hold the plywood inside the fuselage in position (corresponding with marks). Drill three 1 mm holes from the top of the fuselage. Apply the TC in the right position on the fuselage, hold it. Re-drill the holes from the plywood plate. Insert the self tapping screws (included in TC kit). (see picture 13)



Picture 13

SET UP FOR FLIGHT

Balancing the model.
Is VERY IMPORTANT have the right position of the C.G. (Center of the Gravity) in every Remote Control air model. Any slight difference could make the model out of your control, and cause serious damage or injury. The placement must be done with the model fully assembled with all component installed and the fuel thank empty. The recommend CG is at _____ CM. from the leading edge. If necessary ad stick weight and/or move the receiver battery until the correct balance is achieved. Make sure that the receiver battery is properly fixed without any possibility of travel inside the fuselage.
Do not attempt to fly until you are sure to achieve the correct C.G.!
Check the movement of the control surfaces.
Is very important that you follow the Instruction Manual provided in your radio equipment.
With the transmitter and receiver ON, center the trim. Make all necessary adjustment with the servos arms to center the arms. Also make sure that the control surfaces is at 0 degrees, and if necessary adjust the clevis position until you reach the right position.
Check that the radio stick movement for the right control. If necessary use the servo reverse program/switch.

Set the control throws.
As a F3A capable plane, the control throws are at the discretion of the pilot. Keep in mind that the more throw you have on the control surfaces, the more sensitive and difficult to control the model.
We suggest for the first flight to set the control surfaces throw at a reasonable low rate, and subsequently increase to meet your flying style once you've become familiarized and comfortable with the plane.
About the throttle, the maximum travel of the stick must correspond at to full open and full close of the butterfly of the carburettor, with the trim level in down position.

PRE FLIGHT AT THE FIELD

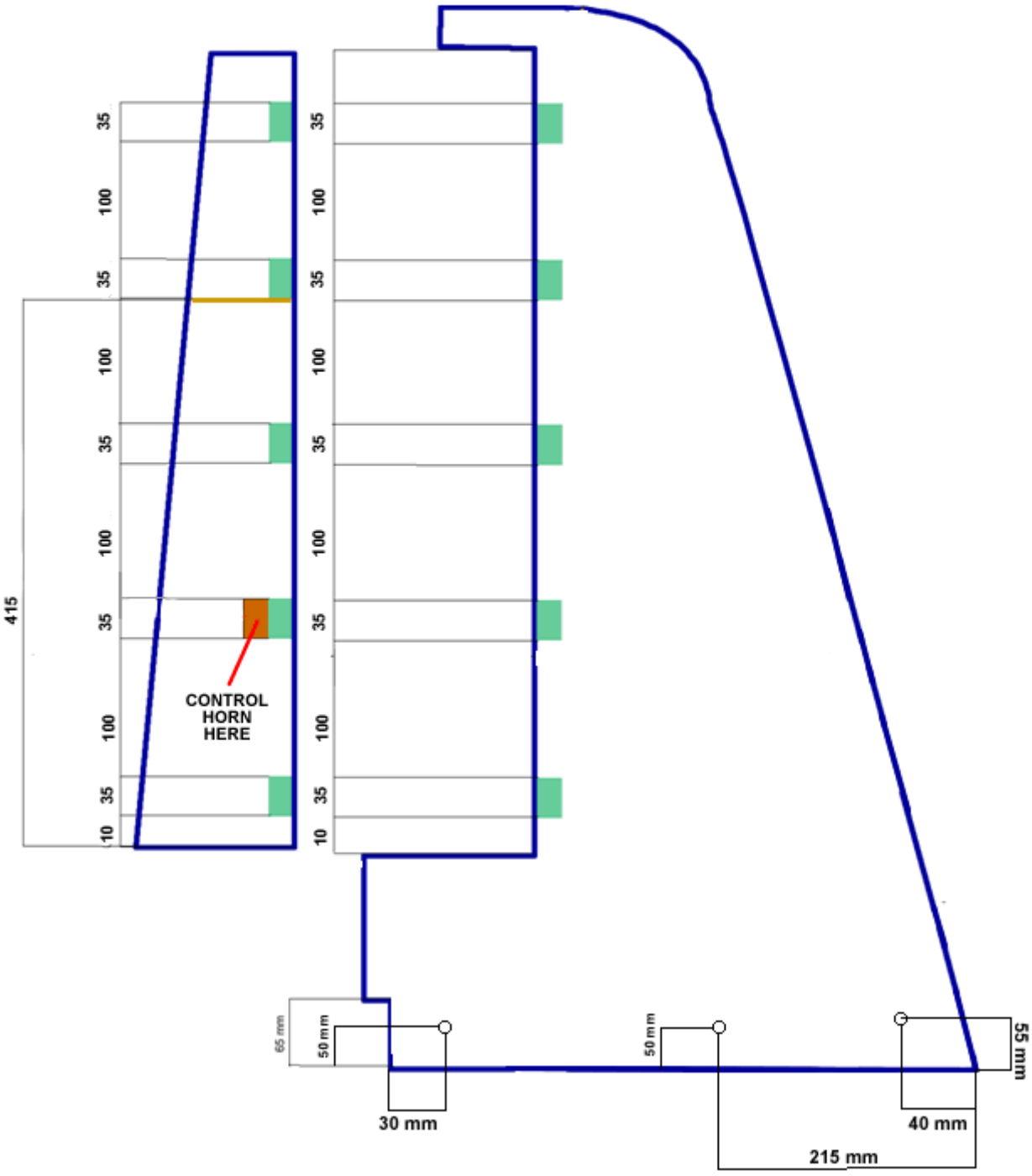
Is VERY IMPORTANT that before each flight session you make sure to:
1. Charged the battery of the transmitter an receiver as recommend in your Instruction Manual of your radio equipment.
2. Use a balanced and correctly installed propeller.
3. Make sure to perform a range check of your radio as described in the Instruction Manual of your radio equipment. It doesn't meet the necessary range, don't fly!
4. Double check that all control move in the correct directions with the recommend travel and free.
5. Set your engine as recommend in the Instruction Manual provided with the engine.

If you encounter difficulty in any construction step, or for any questions, we are glad to assist you.
Please contact tscomposite@tssoccoop.com

HAVE A GOOD FLIGHTS AND HAPPY LANDINGS!!

Oxalys Evolution

WING and AILERON - DIMENSIONS AND REFERENCIES -



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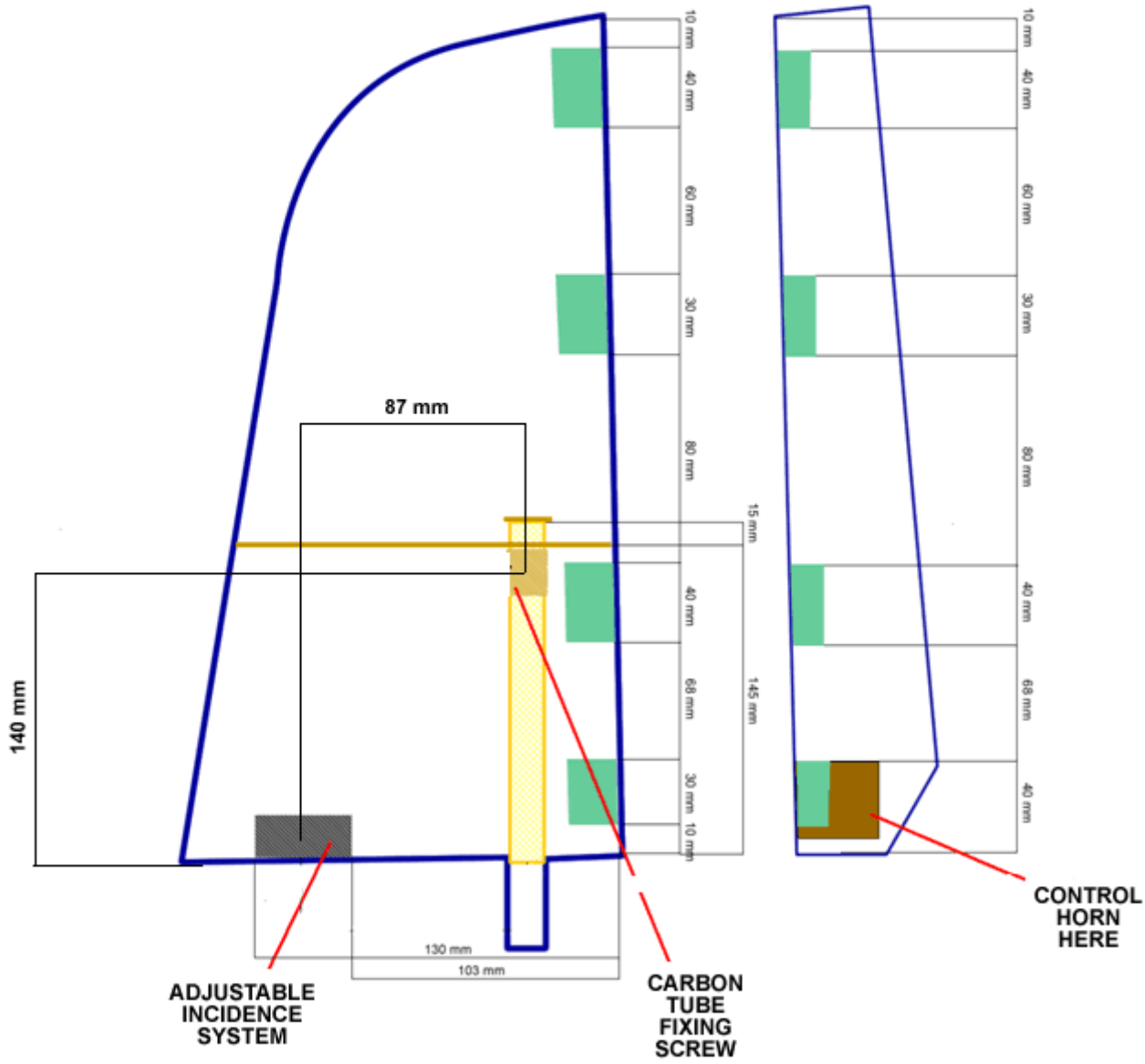
STABILIZER and ELEVATOR - DIMENSIONS AND REFERENCIES



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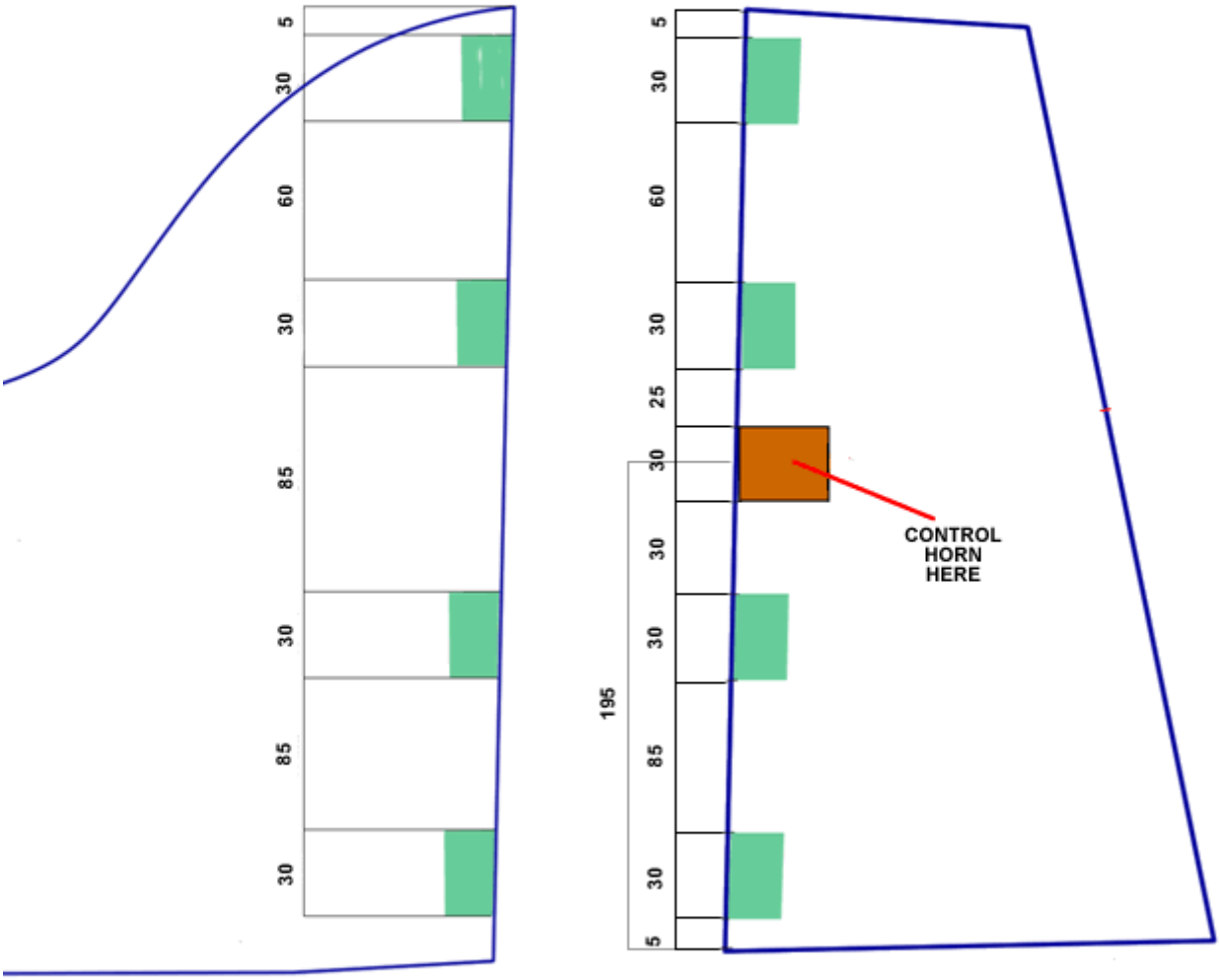
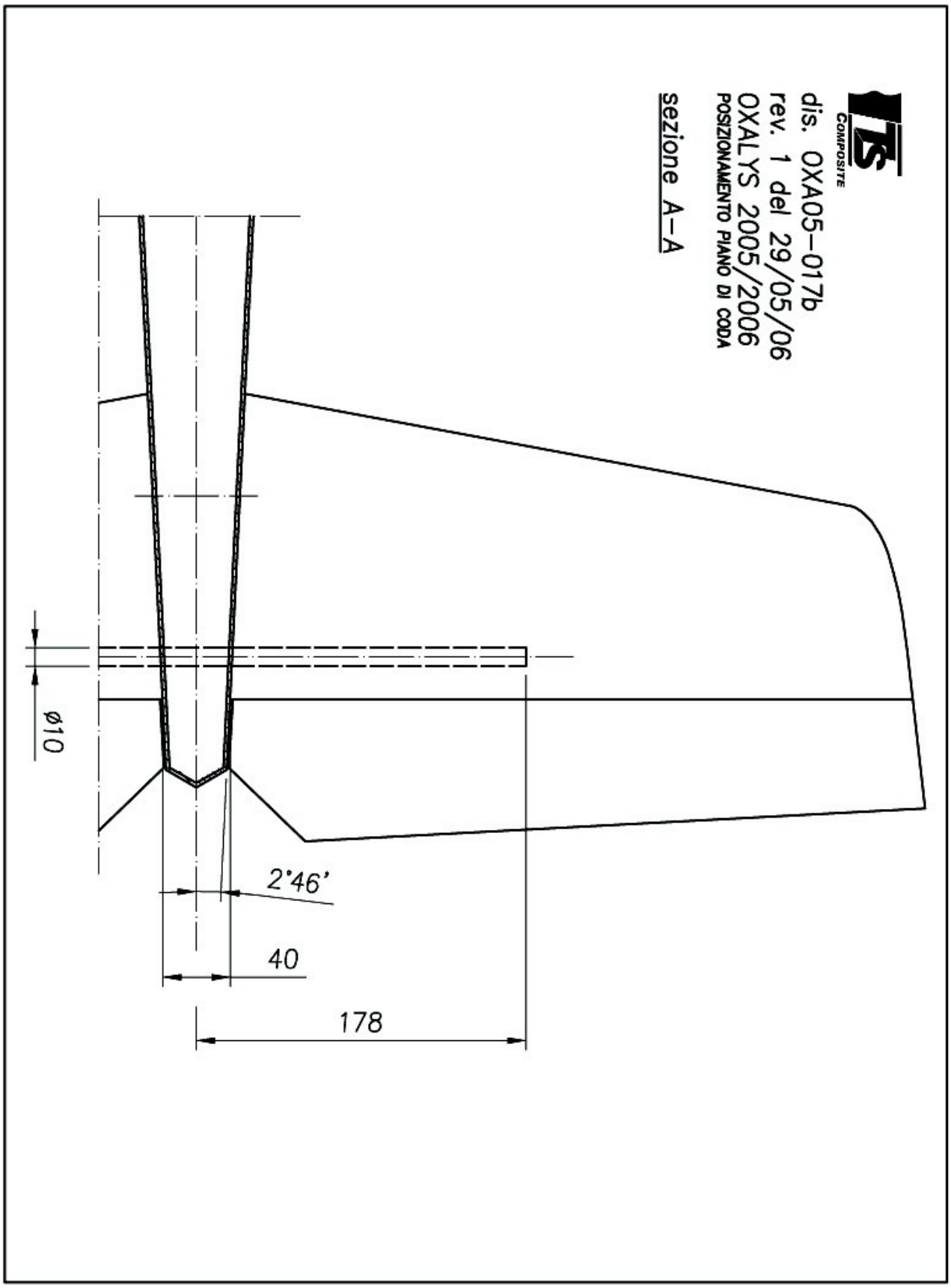
TAIL and RUDDER - DIMENSIONS AND REFERENCIES -




COMPOSITE
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POSIZIONAMENTO PIANO DI CODA
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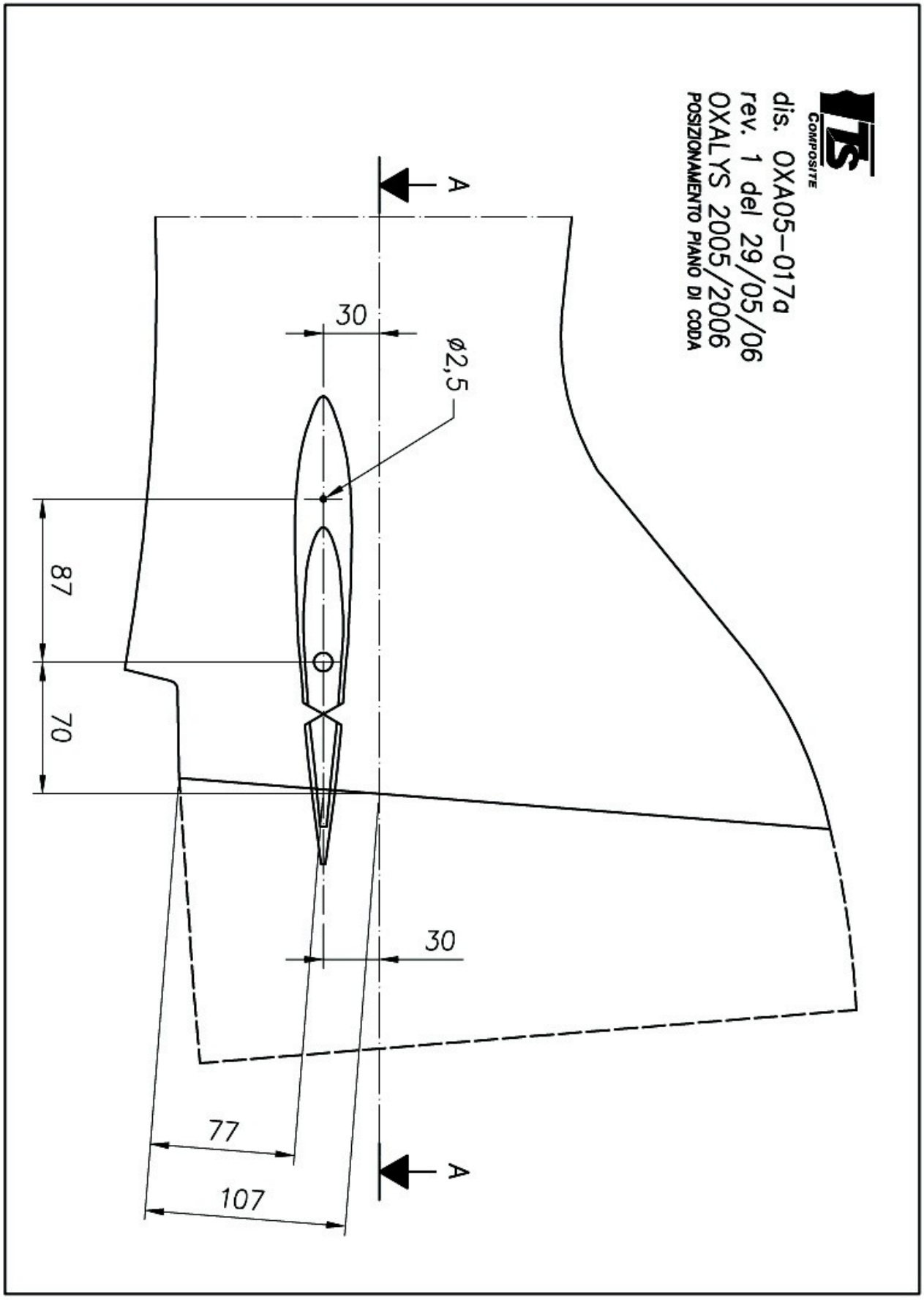
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POSIZIONAMENTO PIANO DI CODA
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