



robbe 2581 Air Trainer 140 V2 Mit Flight Controller User Manual

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PNP-Version №: 2581
Air Trainer 140 V2
INSTRUCTIONS AND USER MANUAL

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PREFACE

Dear customer,

Congratulations on your choice of a factory-assembled model aircraft from the robbe Modell sport range. Many thanks for placing your trust in us. The model can be ready for the air when you have completed just a few simple procedures. Please read right through these instructions and the separate information sheets before attempting to assemble and fly the model, as this will make it much easier to complete the tasks required. Please study the illustrations and the brief instructions to obtain a clear understanding of the individual stages of construction. All parts must be trial-fitted "dry" (without glue) before you reach for the glue. Assign the individual components to the various stages of assembly. The servos are already installed, connected to the control surfaces, and fitted with extension leads. All directions, such as "right-hand", are as seen from the tail of the model, looking forward. We constantly strive to update our products to reflect the latest developments. You can find details of technical improvements, updates and revised documentation on the Internet by calling up the appropriate product description at our website: www.robbe.com.

PLEASE READ THIS MANUAL CAREFULLY BEFORE YOU START ASSEMBLING THE MODEL.

FLIGHT INSTRUCTIONS

- Before the first flight, observe the instructions in the „Safety Instructions“ section.
- When flying the model, you should choose a day with as little wind as possible
- A large, flat area without obstacles (trees, fences power lines etc.) is suitable for the first flights.
- Please carry out a functional test of the drive train / power set and remote control.
- After assembling the model on the airfield, check once again that all model components such as wing, tail units, wing mounts, engine, linkages, etc. are firmly and properly fastened.
- For a hand start a helper should be present, who can throw the model with enough thrust into the air.
- The start usually takes place against the wind.
- Do not stall the model near the ground
- Do not initiate tight turns in the immediate vicinity of the ground.
- Check the reactions of the model to the rudder deflections. If necessary, adjust after landing to increase or decrease the deflections accordingly.

- The minimum flight speed must be at an adequate safety altitude.
- Initiate the landing with sufficient speed

GENERAL INFORMATION

- The model is designed for the components specified by us. Unless otherwise stated, servos and other electronic components are designed for standard supply voltage. Recommended cell count for Lipo batteries also refers to standard Lipos voltage of 3.7V per cell. If you use other servos, a different motor and controller, batteries, or propellers, please make sure they fit first. In the event of deviations, corrections and adjustments must be made by yourself.
- Before starting construction, always put the servos into neutral. To do this, switch on the remote control and move the joysticks and trim buttons (save the one for the throttle) to the middle position. Connect the servos to the corresponding outputs of the receiver and supply them with a suitable power source. Please observe the connection diagram and the operating instructions of the remote control system manufacturer.
- Do not leave your model in the blazing sun or in your vehicle for long periods of time. Too high temperatures can lead to deformation/distortion of plastic parts or blistering of covering foils.
- Before the first flight, check the wing symmetry, tail unit and fuselage. All parts of the model should have the same spacing from the left and right wing or tail plane to the centre of the fuselage or the same angle.
- If necessary, rebalance the propellers if vibrations are noticeable when the motor is running up.
- Bubble formation in the covering foils normal to a certain extent due to temperature and humidity differences and can be easily eliminated with a foil iron or hairdryer.
- For models in shell construction („full GFRP/CFRP“), burrs may occur at the seams due to the production process. Carefully remove them with fine sandpaper or a file.

GENERAL SAFETY INFORMATION

- Be sure to read the safety instructions carefully before operating your model.
- Always follow the procedures and settings recommended in the instructions.
- If you are using remote-controlled model aircraft, helicopters, cars or ships for the first time, we recommend that you ask an experienced model pilot for help.
- Remote-controlled models are not toys in the usual sense and may only be used and operated by young people under 14 years of age under the supervision of adults.
- Their construction and operation requires technical understanding, careful craftsmanship and safety-conscious behaviour.
- Mistakes or negligence during construction, flying or driving can result in considerable damage to property or personal injury.
- Since the manufacturer and seller have no influence on the proper construction/assembly and operation of the models, these risks are expressly pointed out and any liability is excluded.
- Propellers on aircraft and all moving parts in general pose a constant risk of injury. Avoid touching such parts at all costs.
- Note that motors and controllers can reach high temperatures during operation. Avoid touching such parts at all costs.
- Never stay in the danger area of rotating parts with electric motors with connected drive battery.
- Overcharging or incorrect charging can cause the batteries to explode. Make sure the polarity is correct.

- Protect your equipment and Models from dust, dirt and moisture. Do not expose the equipment to excessive heat, cold or vibration.
- Use only recommended chargers and charge your batteries only up to the specified charging time. Always check your equipment for damage and replace defects with original spare parts.
- Do not use equipment that has been damaged or got wet due to a fall, even if it is dry again! Either have it checked by your specialist dealer or in the Robbe Service or have it replaced. Hidden faults can occur due to wetness or a crash, which lead to a functional failure after a short operating time.
- Only the components and accessories recommended by us may be used.
- Do not make any changes to the remote control which are not described in these instructions.

SAFETY NOTE FOR MODEL OPERATION

Attention, danger of injury!

- Always keep a safe distance from your model aircraft.
- Never fly over spectators, other pilots or yourself.
- Always perform flight figures in a direction away from the pilot or spectators.
- Never endanger people or animals.
- Never fly near power lines or residential areas.
- Do not operate your model near locks or public shipping.
- Do not operate your model on public roads, motorways, paths and squares, etc., but only in approved locations.
- Do not operate the model in thunderstorms.
- Before each flight, check your remote control system for sufficient function and range.
- After flying, remove all batteries from the model.

Do not „aim“ the transmitter antenna at the model during operation. In this direction, the transmitter has the lowest radiation. The best position of the antenna is to the side of the model.

Use of devices with image and/or sound recording function:

If you equip your model with a video or image recording device (e.g. FPV cameras, action cams etc.) or the model is already equipped with such a device at the factory, please note that you could violate the privacy of one or more persons by using the recording function. An overflight or driving on private ground without the appropriate permission of the owner or approaching private ground can also be regarded as an invasion of privacy. You, as the operator of the model, are solely and fully responsible for your actions. In particular, all applicable legal requirements must be observed, which can be found in the roof associations or the relevant authorities. Failure to comply can result in substantial penalties.

SAFETY INSTRUCTIONS FOR CONTROLLERS

- Observe the technical data of the controller.
- Observe the polarity of all connection cables.
- Avoid short circuits at all costs.
- Install or package the regulator so that it cannot come into contact with grease, oil or water.
- Effective interference suppression measures on the electric motor with, for example, interference suppression capacitors
- Ensure adequate air circulation.

- Never reach into the turning circle of the propeller during start-up Risk of injury

Dealing with model aircraft and vehicles requires technical understanding and a high level of safety awareness. Incorrect assembly, incorrect adjustment, improper use or the like can lead to personal injury or damage to property. Sudden starting of connected motors can lead to injuries due to rotating parts such as propellers. Always stay away from these rotating parts when the power source is connected. All drive components should be safely and securely mounted during a function test. Use is only permitted within the scope of the technical specification and only for RC hobby applications. Before use, check that the speed controller is compatible with your drive motor or power source. Never operate the speed controller (correct speed controller) with external power supply units. Speed controllers should always be protected from dust, moisture, vibration and other mechanical stresses. Even splash-proof or waterproof equipment should not be permanently exposed to moisture or moisture. High operating temperatures or poor cooling should be avoided. The recommended temperature range should be approximately between -5°C and +50°C. Ensure proper connection and do not cause reverse polarity which would permanently damage the speed controller. Never disconnect the device from the motor or battery during operation. Use high-quality plug systems with sufficient load capacity. Avoid strong bending or tensile stress on the connecting cables. After termination of flight or driving operation, disconnect the battery to prevent deep discharge of the battery. This would cause permanent damage. For the BEC version of the controller, check that the BEC power of the device is sufficient for the servos used. Speed controllers should be installed as far away as possible from other remote control components. We recommend carrying out a range test before operation. We recommend regular checking of the controller for function and externally visible damage. Do not continue operating the controller if you notice any damage. The connection cables must not be extended. This can lead to unwanted malfunctions. Despite existing safety and protective devices of the device, damage may occur which is not covered by warranty. The warranty also expires if changes are made to the device.

Important information:

The receiver system is powered by the built-in BEC system of the controller.

For commissioning, always move the throttle stick to the „Motor off“ position and switch on the transmitter. Only then connect the battery. To switch off always disconnect the connection battery motor controller, first then turn off the transmitter. During the functional test, move the servos of the rudders to neutral position with the remote control (stick and trimming lever on the transmitter to the middle position). Please make sure to leave the throttle stick in the lowest position so that the engine does not start. For all work on to the parts of the remote control, motor or controller, follow the instructions supplied with the units. Also read the instructions of the battery and the charger carefully before commissioning. Check the engine mounting bolts in the fuselage regularly for tightness.

SAFETY INSTRUCTIONS FOR RECHARGEABLE BATTERIES

- Do not immerse the battery in water or other liquids.
- Do not heat, throw into fire or microwave.
- Do not short-circuit or charge with reversed polarity
- Do not expose, deform or throw the battery
- Do not solder directly on the battery
- Do not change or open the battery
- Only charge the battery with suitable chargers, never connect it directly to a power supply unit.
- Never charge or discharge the battery or charger on a flammable surface.
- Never leave the battery unattended during charging or discharging processes.
- Never charge or discharge the battery in direct sunlight or near heaters or fire.
- Do not use the battery in places subject to high static discharge.

All this can cause the battery to be damaged, explode or even catch fire!

- Keep the battery away from children
- Keep leaked electrolyte away from fire, as it is highly flammable and may ignite.
- The electrolyte liquid should not get into the eyes, if it does, rinse immediately with plenty of clear water and

then see a doctor.

- The electrolyte liquid can also escape from clothes and other objects with a lot of water or washed off.
- Observe the safety instructions of the battery manufacturer and the charger manufacturer.

WARRANTY

Our articles are equipped with the legally required 24 months warranty. Should you wish to assert a justified warranty claim, always contact your dealer, who is responsible for the warranty and the processing. During this time, any functional defects that may occur, as well as manufacturing or other problems, will be rectified. Material defects corrected by us free of charge. Further claims, e.g. for consequential damages, are excluded. The transport to us must be free, the return transport to you is also free. Freight collect shipments cannot be accepted. We cannot accept liability for transport damage and loss of your consignment. We recommend appropriate insurance.

To process your warranty claims, the following requirements must be met:

- Attach the proof of purchase (receipt) to your shipment.
- The units have been operated in accordance with the operating instructions.
- Only recommended power sources and original robbe accessories have been used.
- There is no moisture damage, external interference, reverse polarity, overloading or mechanical damage.
- Attach relevant information for finding the fault or defect.

DISCLAIMER

Robbe Modell sport cannot monitor compliance with the assembly and operating instructions or the conditions and methods for installation, operation, use and maintenance of the model components. Therefore, we accept no liability for losses, damage or costs arising from or in any way connected with incorrect use and operation. To the extent permitted by law, the obligation to pay damages, irrespective of the legal grounds, shall be limited directly to the invoice value of the claims arising from the event causing the damage.

INSURANCE

Ground-based models are usually covered by personal liability insurance. Additional insurance or extension is required for aircraft models. Check your insurance policy (private liability) and take out suitable insurance if necessary.

CONFORMITY

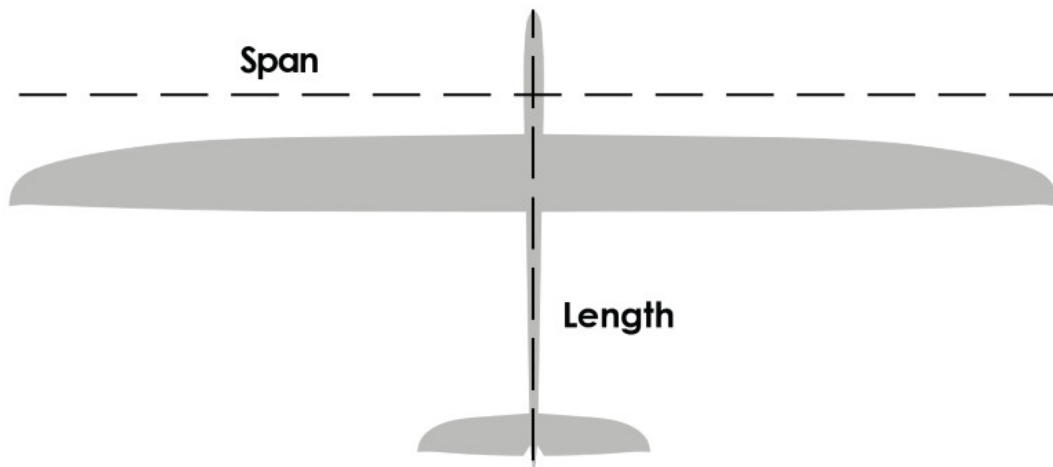
CE Robbe Modell sport hereby declares that this device complies with the essential requirements and other relevant regulations of the corresponding CE directives. The original declaration of conformity can be found on the Internet at www.robbe.com, in the detailed product view of the respective device description or on request. This product can be operated in all EU countries.

DISPOSAL



This symbol means that small electrical and electronic devices must be disposed of at the end of their useful life, separated from the household refuse. Dispose of the device at your local municipal collection point or recycling centre. This applies to all countries of the European Union and other European countries with a separate collection system.

TECHNICAL DATA



Span	1400 mm	Elevator	yes
Length	1130 mm	Rudder	yes
Weight (dry) approx.	–	Ailerons	yes
Flying weight approx.	1500 g	Flaps	no
Wing Area	36,75 dm ²	Landing flaps	no
Airfoil	–	Motor	yes
C.G.	75 – 90 mm behind the leading edge	Landing Gear	no





Radio control system:

2.4 GHz band radio control system with six or more channels.

Essential items not included in the kit:

1 3S1P flight battery, 11.1V / 2300 mAh 20C	№ 7362
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Accessories:

Flight battery charger	–
Charge lead, XT-connector	№ 46020

Please refer to the main robbe catalogue for further details of battery chargers, tools and aids to building
www.robbe.com

Notes regarding the radio control system:

For this model you require a radio control system with at least four channels.
 The receiving system is powered by the speed controller's integral BEC system.
 Servo leads with differing colour codes are used in the model:

Signal: white / orange

Positive wire: red / red

Negative wire: black / brown

Please bear this in mind when connecting or extending the leads. Before you check the model's working systems, set the control surfaces to neutral from the transmitter (transmitter sticks and trims central).

Before flying the model always move the throttle stick to the "motor stopped" position before switching the transmitter on. Only then connect the flight battery. To switch off, first disconnect the flight pack from the speed controller, and only then switch the transmitter off. When installing or setting up the receiving system components, including the speed controller and motor, be sure to read and observe the instructions supplied with them. You should also read right through the instructions and safety information supplied with the battery pack and charger before using these items for the first time.

Painting the model, applying the decals:

This model is supplied with decals already applied. No painting is required.

Replacement parts:	
Order No	Description
25810001	Air Trainer 140 V2 fuselage
25810002	Air Trainer 140 V2 wings
25810003	Air Trainer 140 V2 tailplane
25810004	Air Trainer 40 V2 fin
25810005	Air Trainer 140 V2 undercarriage
25810006	Air Trainer 140 V2 cowl
25810007	Air Trainer 140 V2 propeller
25810008	Air Trainer 140 V2 wing joiner
25810009	Air Trainer 140 V2 spinner
25810010	Air Trainer 140 V2 BL motor
25810011	Air Trainer 140 V2 BL speed controller
25810012	Air Trainer 140 V2 Battery cover
25810013	Air Trainer 140 V2 Prop driver
25810014	Air Trainer 140 V2 Servo 9g
25810015	Air Trainer 140 V2 Servo 17g
25810016	Air Trainer 140 V2 Decal set
25810017	Air Trainer 140 V2 Wing joiner (KS)
25810018	Air Trainer 140 V2 Tail landing gear



INFO

CAUTION! carry out this work with care, as it is essential for safe operation at a later date. Incorrect installation can lead to personal injury and damage to property.

ASSEMBLY TAIL UNIT



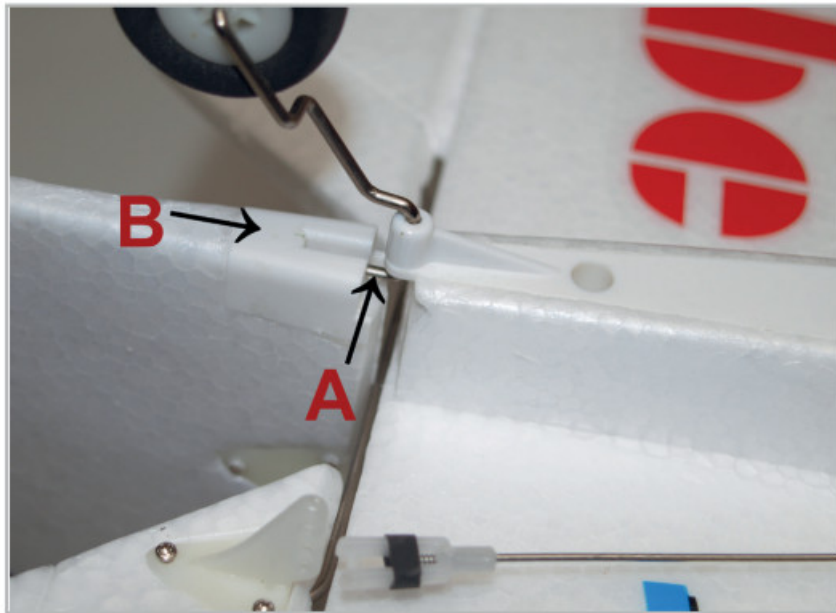
1. **PNP**

The picture shows the parts required to install the fin and tail plane.



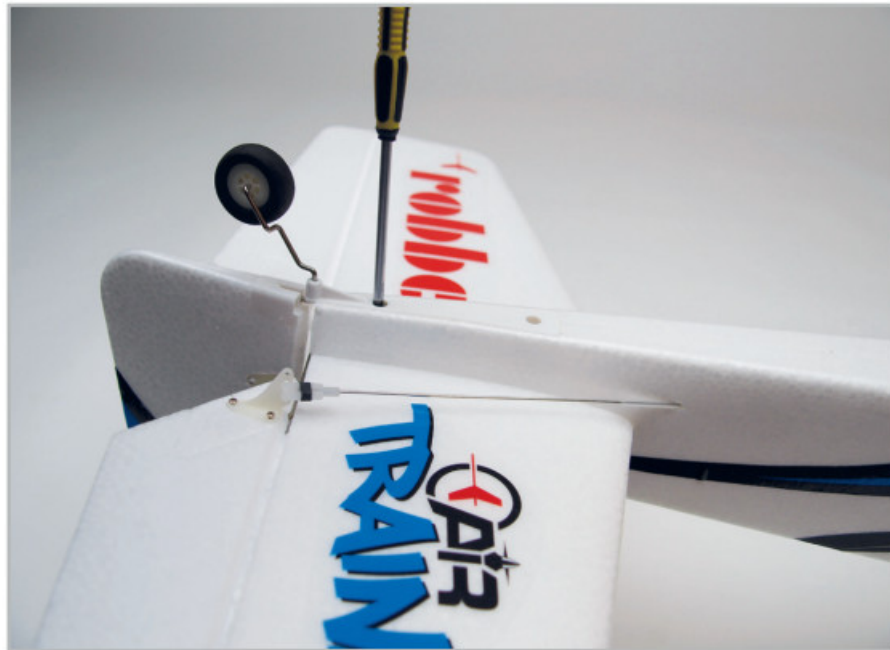
2. **PNP**

Slide the tail plane into the slot in the tail end of the fuselage. Ensure that the holes for the elevator horn are on the left-hand side of the fuselage. Push the fin into the fuselage from the top. Screw the clevises onto the threaded end of the elevator and rudder pushrods.



3. **PNP**

Turn the prepared assembly on its back, and position the tailwheel unit as shown. Note that the tailwheel steering arm „A“ must engage in the driver „B“ mounted on the rudder.



4. **PNP**

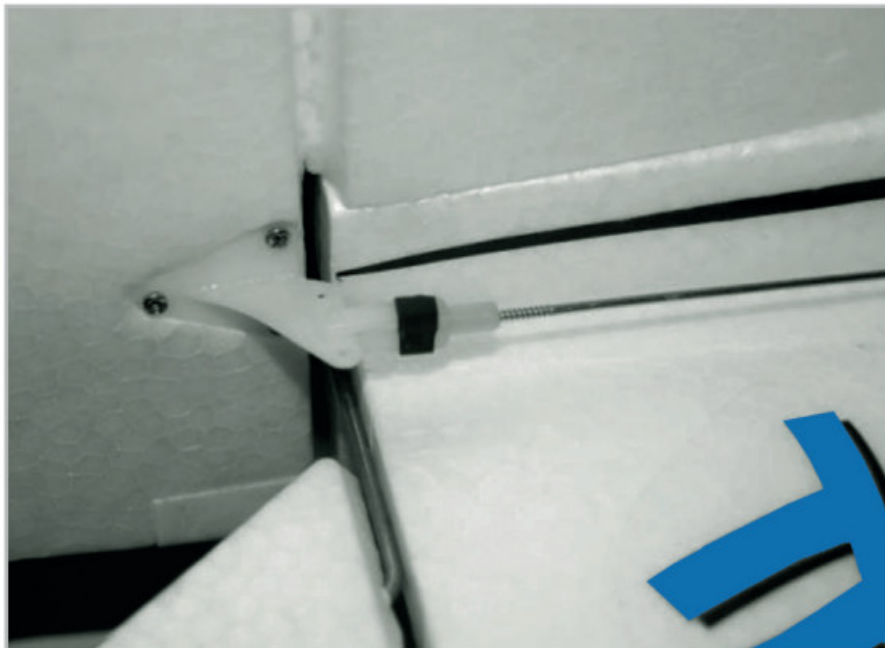
Screw the complete tail assembly to the fuselage as shown.

Attach the horn and spreader plate to the elevator, working on the underside.



5. **PNP**

Locate the clevis attached to the pushrod, connect it to the horn, and push a retaining ring over the clevis to secure it (see picture).



6. **PNP**

Attach the horn and spreader plate to the rudder, working on the right-hand side. Locate the clevis attached to the pushrod, connect it to the rudder horn, and push a retaining ring over the clevis to secure it (see picture).

LANDING GEAR ASSEMBLY



7. PNP

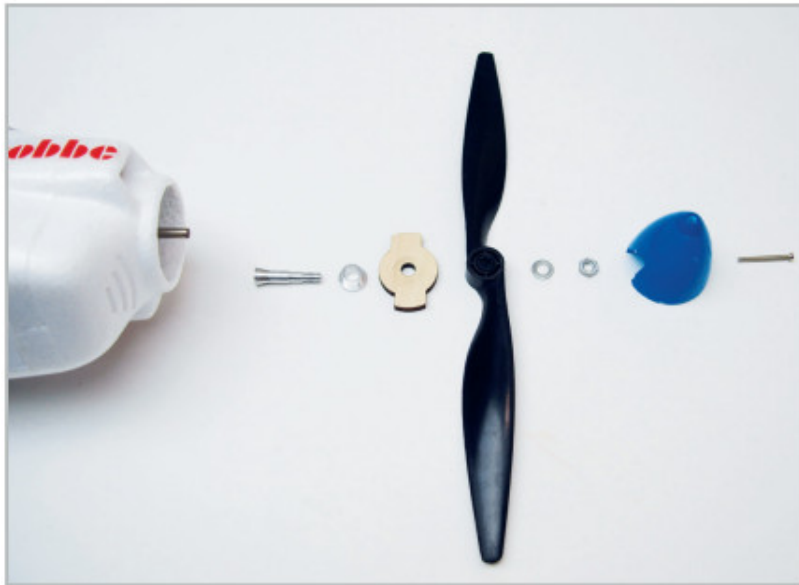
The picture shows the parts required to install the undercarriage.



8. PNP

Screw the two undercarriage units to the mounting plate on the underside of the fuselage using the four retaining screws supplied.

MOUNTING PROPELLER



9. **PNP**

Locate the parts required to assemble the propeller and spinner and place them ready.



10. **PNP**

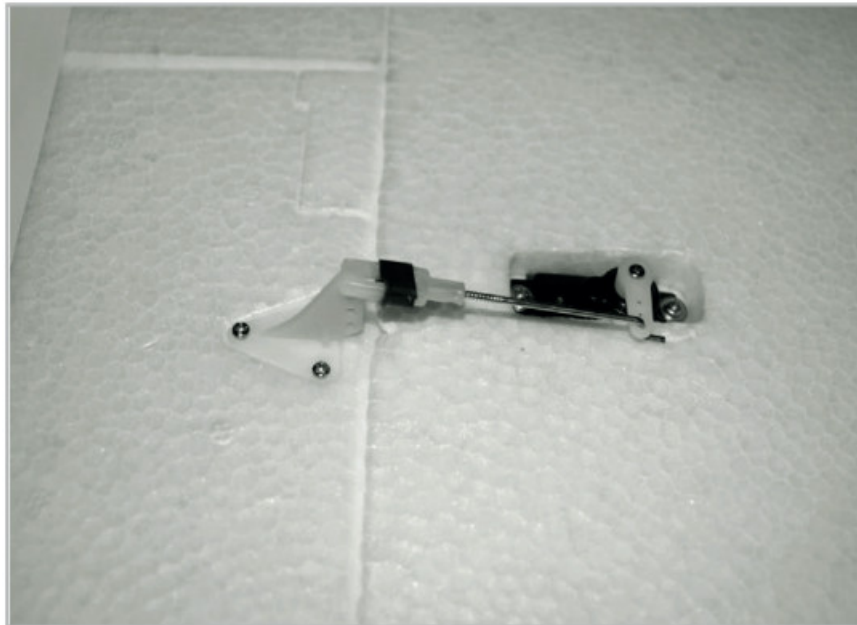
The illustration shows the propeller, propeller driver and spinner backplate already assembled.



11. **PNP**

Finally screw the spinner to the propeller driver (see illustration).

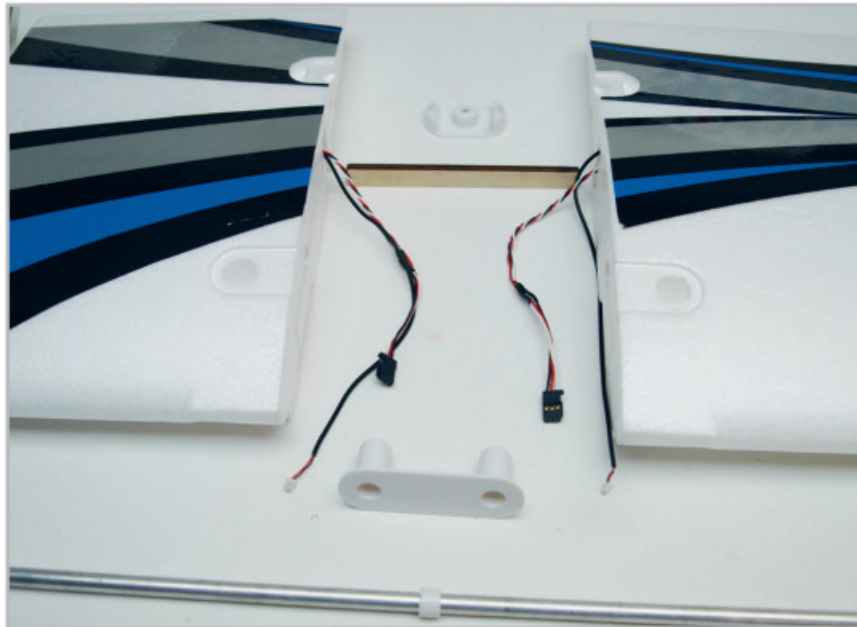
AILERON LINKAGE



12. **PNP**

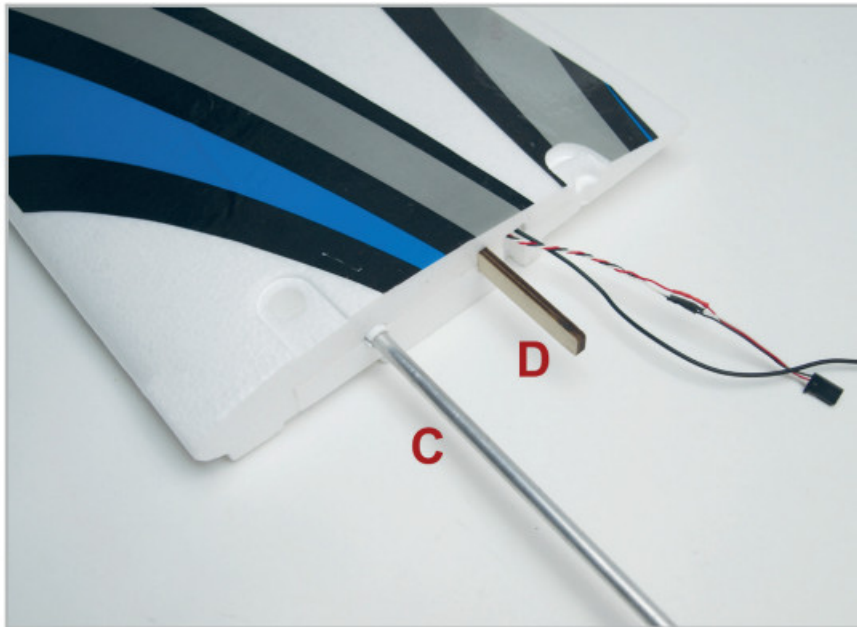
Attach the horn and spreader plate to one aileron, working from the underside. Screw the clevis (with retaining ring) onto the threaded pushrod. Connect the pushrod to the servo output arm first, and then to the aileron horn. Repeat the procedure with the second wing panel.

WING ASSEMBLY



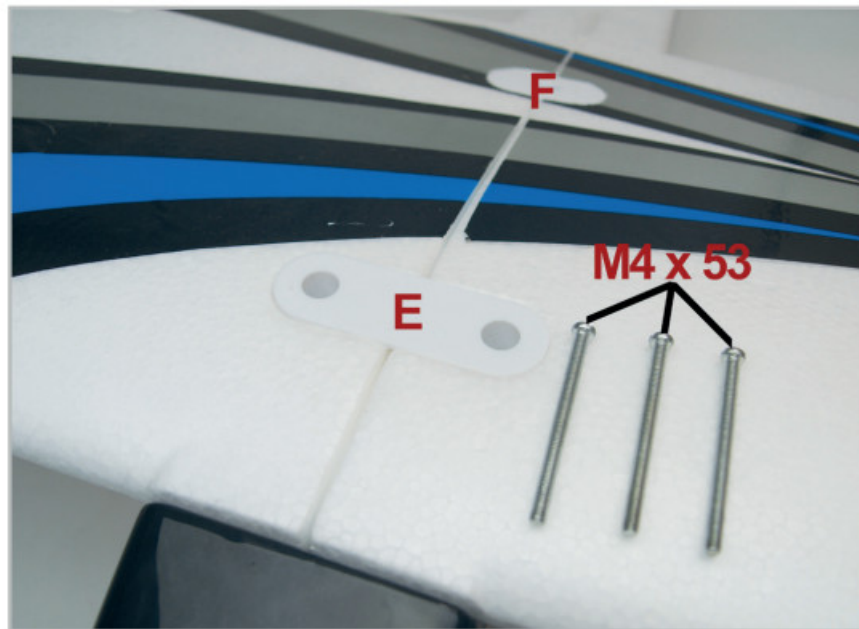
13. PNP

The picture shows the parts required to assemble the wings.



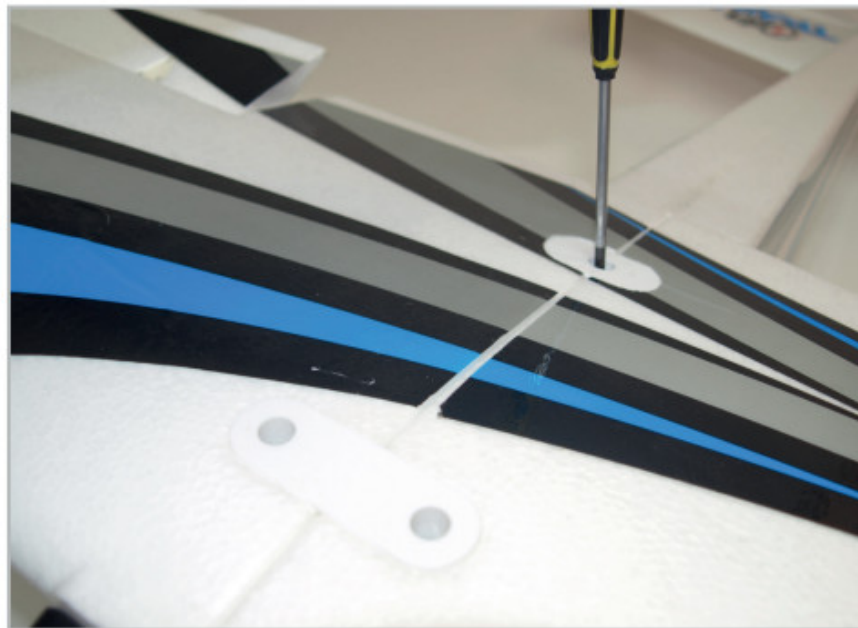
14. PNP

Slide the main spar „C“ and the plywood reinforcement „D“ into the wing.



15. **PNP**

Push the two wing panels together, then cautiously press the two joiner lugs „E“ and „F“ into the slots in the wing.



16. **PNP**

Fix the wing to the fuselage using the four M4 x 53 screws, as shown in the illustration.



17. PNP

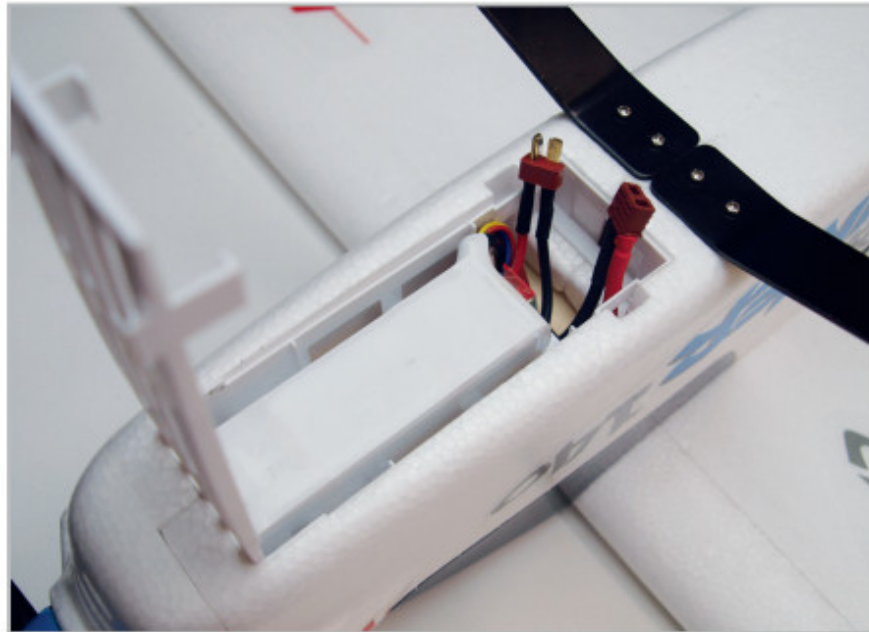
The battery compartment is opened by disengaging the latch „K“ and squeezing the two lugs „L“ together. We recommend that you stick two strips of „hook“ tape to the bottom of the compartment.



18. PNP

Stick the „loop“ tape to the flight battery.

BATTERY PLACEMENT



19. **PNP**

Place the battery in the compartment, and press it firmly into place: the hook-tape and loop-tape prevent the battery shifting in flight.

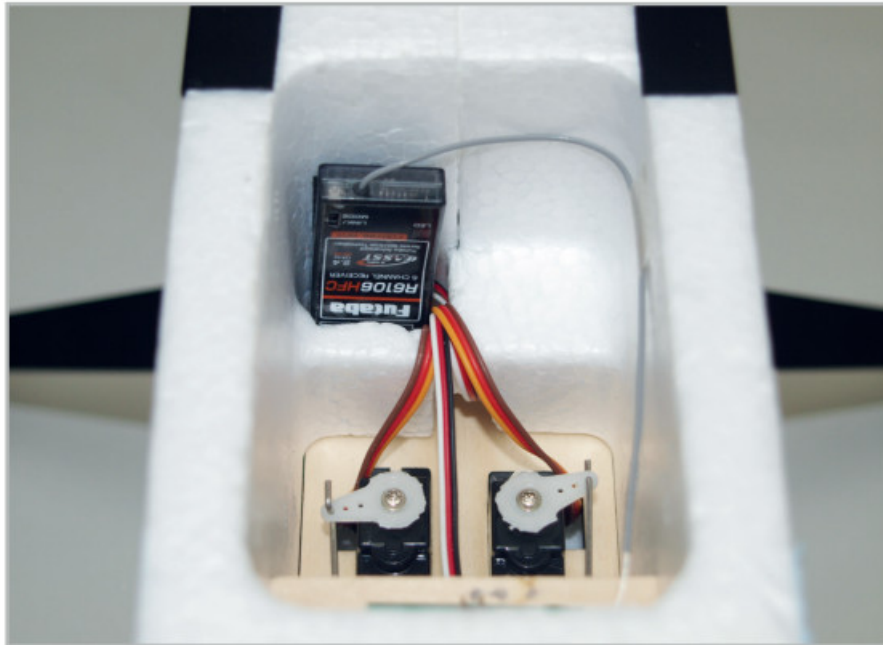
Do not connect the battery to the speed controller at this stage!



20. **PNP**

Close the battery compartment, and use the latch „K“ to hold the cover closed.

RC CONNECTION

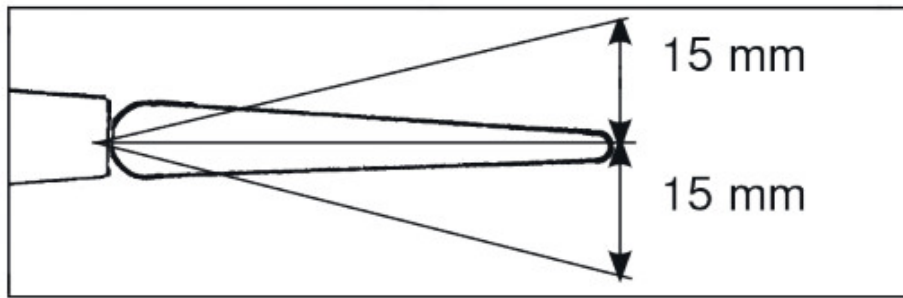


21. **PNP**

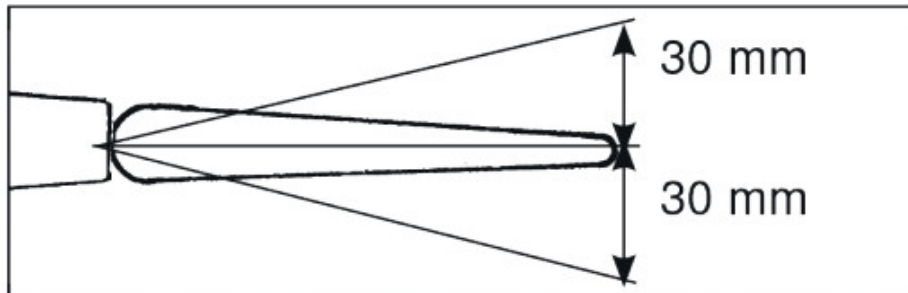
- Please refer to the radio control system instructions before tackling the next stage.
- Connect the servos to the appropriate receiver sockets.
- Connect the speed controller.
- Position the receiver as shown, and fix it in place with hook and-loop tape to prevent it shifting.
- Deploy the receiver aerial as recommended in the RC system instructions.
- Move the throttle stick to the „Motor off“ position, then switch the transmitter on.
- Open the battery compartment and connect the flight battery.
- Program the Stop and Full-Throttle positions of the speed controller as described in the instructions supplied with the unit.

CONTROL SURFACES TRAVELS

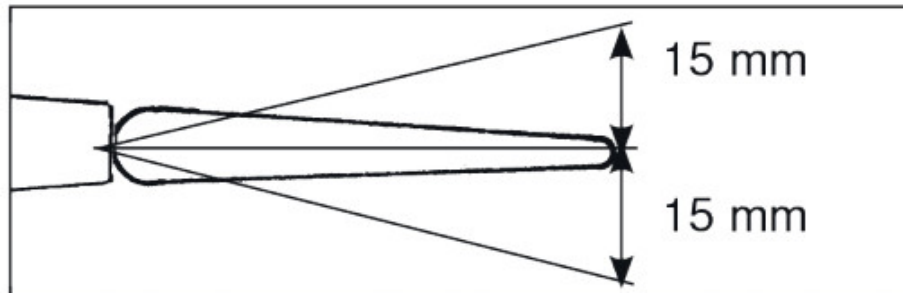
Aileron



Rudder



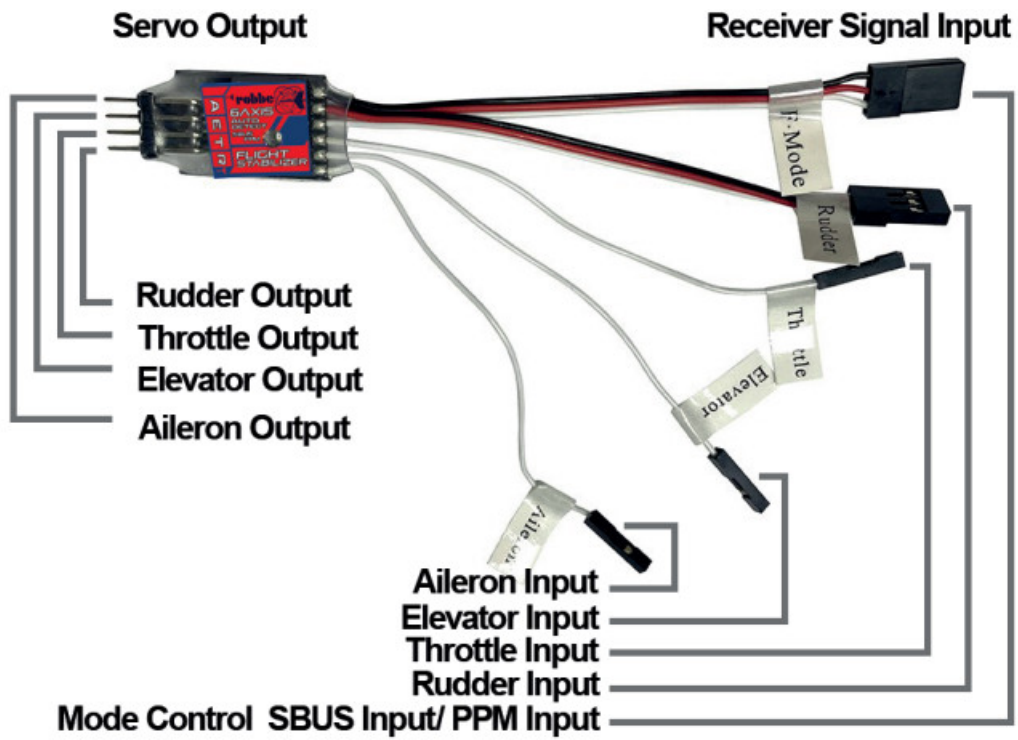
Elevator



22. PNP

- The control surfaces travels are measured at the inboard end of the control surface.
 - The stated control throws are just a guide for the first few flights.
- You will probably need to adjust the actual settings to suit your individual flying style.
- The Expo settings should also be adjusted to suit your own preference.

SCHEMATIC OPERATION OF THE FLIGHT CONTROLLER RUDDER ACTION:



Caution: this graphic only shows the countersteering of the flight controller to movements of the flight model! The flight controller tries to countersteer according to the graphic.


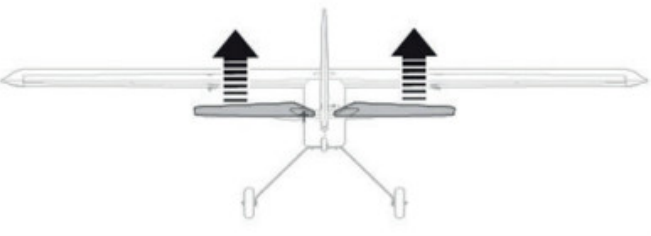
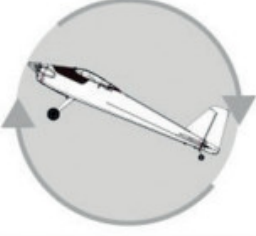
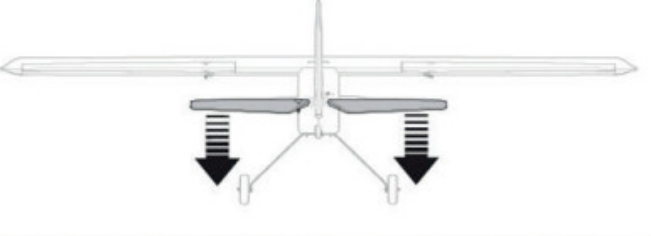
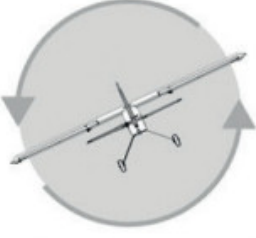
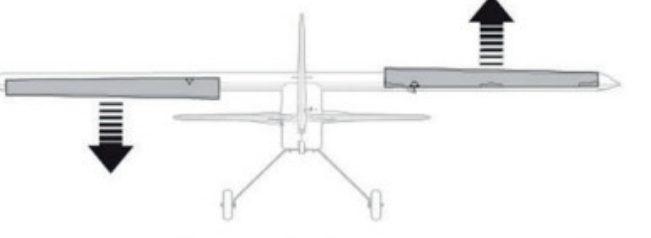
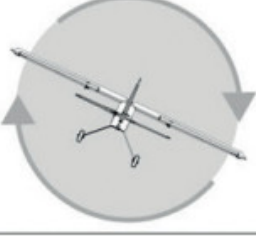
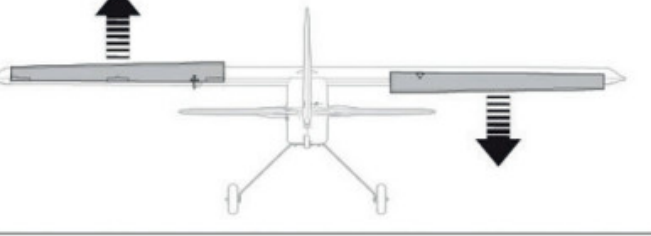

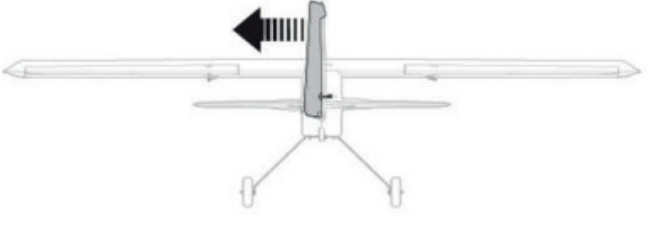
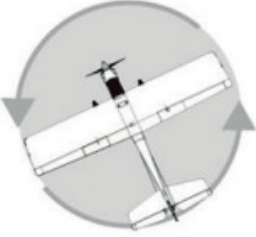
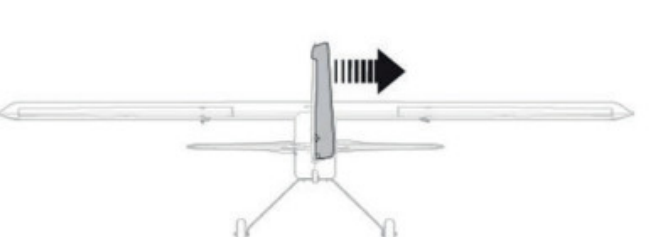
	Aircraft Movement	Flight controller- Reaction
Elevator		
		
Aileron		
		
Rudder		
		

Fig. 22, checking the working systems

- Check the channel assignment at the receiver, and if necessary swap the plugs as necessary.
- Set the transmitter sticks and trims to centre.
- The control surfaces should now also be at centre (neutral). Adjust the clevises if necessary.

- Carry out fine corrections at the transmitter.

Check the direction of rotation of the servos.

- Stand behind the model. – When you move the rudder stick to the right, the rudder should also deflect to the right.
- Pull the elevator stick back towards you, and the rear edge of the elevator should rise.
- Moving the aileron stick to the right, you MUST check that the trailing edge of the right aileron rises, the left aileron should go down.
- If any function works the wrong way round, correct it using the servo reverse facility on your transmitter.
- Set the control surface travels to the stated values, referring to the radio control system instructions.

Checking the power system

- Hold the model in such a way that the propeller is free to rotate. Caution: Whenever you are working on the power system (for installation, set-up or maintenance) keep well clear of the rotational plane of the propeller – injury hazard.
- Check the direction of rotation of the motor: the propeller must turn anti-clockwise when viewed from the front. If this is not the case, swap over any two of the three connecting wires between the motor and the speed controller.
- After landing, and after every test-run, always disconnect the flight battery from the speed controller first, then switch the transmitter off.

Lighting system (navigation lights)

- The lighting is connected to the free channel outputs of the receiver, so it is always on and cannot be switched by remote control.
- The lighting system uses LEDs, whose minimal current drain has no effect on flight times.

Balancing the model

- Mark the Centre of Gravity – „C.G.“ – on both sides of the fuselage at a point 75 – 90 mm from the wing leading edge at the fuselage.
- Support the model at the marked points and allow it to hang freely. Ideally the model will now balance level, with the nose inclined slightly down.
- Adjust the position of the flight battery if necessary.
- Mark the battery location in the fuselage, so that you can be confident of replacing it in the same position after removing it.

Test-flying, flying notes

- Read the sections in the Safety Notes entitled “Routine preflight checks” and “Flying the model” before attempting to fly the model for the first time.
- For your initial test-flights please wait for a day with no more than a gentle breeze.

- A good flying site consists of a large, flat, open grassy field, devoid of trees, fences, high-tension overhead cables etc.
- Repeat the check of all the working systems.
- The model is capable of taking off from a hard surface as well as being hand-launched.
- The model must always be launched directly into any wind.
- If a suitably smooth runway is available, we recommend a ground takeoff.
- Carry out a series of taxi tests to become accustomed to the model's ground handling and response to the control surfaces.
- With the nose pointing straight into wind, apply full-throttle and allow the model to pick up speed. Once it is moving at an adequate speed, apply up-elevator brief to lift off.
- Ask an experienced modelling friend to hand-launch the aircraft for you. He should be capable of giving the model a reasonably strong, flat launch.
- With the motor running at full-throttle, give the aeroplane a firm launch directly into any breeze, with the fuselage and wings level. Keep the model flying straight and level at first; don't initiate a turn while it is still close to the ground.
- Adjust the control surface trims if necessary, so that the model flies straight with a reasonable rate of climb "hands off".
- Check the model's response to control commands. You may need to increase or reduce the travels after the landing to suit your personal preference.
- Check the aero plane's stalling speed at a safe height.
- Keep the model's speed well above the stall for the landing approach.
- If you needed to adjust the trims during the test-flight, correct the length of the appropriate pushrod once the model is back on the ground, then return the transmitter trims to centre so that full trim travel is available to both sides of neutral for subsequent flights.

Description – ECO Line 40A speed controller:

1. Low voltage protection / Overheating protection / Transmitter signal monitor.
2. 3 Start-up modes: Normal / Soft / Super-soft, compatible with fixed-wing model aircraft and helicopters.
3. Throttle travel can be adjusted to suit any radio control system.
4. Smooth, linear, accurate throttle response.
5. Maximum motor speed: 210,000 rpm (2-pole motor), 70,000 rpm (6-pole motor), 35,000 rpm (12-pole motor).

Specification – ECO Line 40A speed controller:

Continuous current: 40 A

Maximum current: 55 A (max. 10 sec.)

BEC mode: Linear

BEC power: 5 V / 3 A

BEC capacity:

2S LiPo: 5 servos

3S LiPo: 4 servos

Cell-count, LiPo: 2S – 3S

NiMH: 5 – 9

Dimensions (L x W x H): 68 x 25 x 8 mm

Weight: 35 g

Programmable settings:

1. Brake: Active / Disabled
2. Battery type: LiPo / NiMH
3. Low voltage protection (cut-off mode): Soft cut-off (incremental power reduction) / Cut-off (immediate motor stop)
4. Low voltage cut-off voltage: Low / Medium / High 1) In the case of Lithium batteries the cell count is calculated automatically. Low / Medium / High cut-off voltage for each cell is: 2.85 V / 3.15 V / 3.3V.
In the case of NiMH batteries Low / Medium / High cut-off voltage is: 0% / 50% / 65% of initial voltage (e.g. nominal battery voltage); 0% means low-voltage protection is disabled.
5. Start mode: Normal / Soft / Super-Soft (300ms / 1.5s / 3s) Normal mode is suitable for any type of model aircraft. Soft or super-soft mode is suitable for model helicopters. The initial motor start in Soft and Super-Soft mode is slower: it takes 1.5 seconds for soft-start, and 3 seconds for super-soft start, measured from the initial stick movement to „full-throttle“. If throttle is reduced to zero (throttle stick „fully back“), and is moved again within three seconds of the initial stick movement (throttle stick to full-throttle position) the repeated throttle opening is temporarily carried out in Normal mode in order to avoid a crash caused by too slow a response to throttle. This special function is particularly important in aerobatics, where fast throttle response is required.
6. Timing: Low / Medium / High (3.75° / 15° / 26.25°) In general terms the low setting is a good choice for most electric motors. Higher timing can be selected for increased motor speed.

The speed controller in use

IMPORTANT! Since the throttle travel is not the same for all radio control systems, it is necessary to calibrate the throttle travel before flying the model.

Adjusting throttle travel: (the throttle travel should be readjusted if you change the radio control system)

- A) Switch the transmitter on, and move the throttle stick to „full-throttle“.
- B) Connect the battery to the speed controller and wait about two seconds.
- C) You should hear a "beep-beep" sound; this confirms the fullthrottle setting.
- D) Move the throttle stick to the „fully back“ (Idle) position; you should hear several "beeps" which indicate the number of cells in the battery.
- E) You should hear a long "beep" to confirm the Idle end-point of the throttle stick.

Normal procedure prior to flying:

- A) Move throttle stick to „fully back“, switch transmitter on.
- B) Connect battery to speed controller; the special “♪123” sound indicates power supply OK.
- C) You should hear several “beeps” to indicate the cell-count of the Lithium battery.
- D) You will hear a long „beep—“ after the self-test.
- E) Move the throttle stick forward to start the motor.

Protective functions:

1. Start-up error protection:

If the motor does not start within two seconds of the throttle stick's movement, the speed controller shuts off the throttle function. If this should happen, it is ESSENTIAL to return the throttle stick to the „fully back“ (Idle) position.

2. Overheating protection:

If the temperature of the speed controller rises above 110°C, the speed controller reduces power.

3. Loss of transmitter signal:

The speed controller reduces power if the transmitter signal fails for one second. If the signal loss continues for two seconds, the controller shuts off power.

Warning sounds, trouble-shooting

Problem	Possible cause	Remedy
When switched on, the motor does not work; no audible beeps are emitted	Incorrect connection between speed controller and battery.	Check the connection; replace the connectors. Check the voltage of the battery.
When switched on, the motor does not work; the following warning sound is emitted: "Beep-beep-, beep- beep-, beep-beep-" (there is a one-second interval between the "beep-beep" signals)	Input voltage not normal; i.e. too high or too low.	Check transmitter and receiver. Check the cable between the speed controller and the receiver.
When switched on, the motor does not work; the following warning sound is emitted: "Beep-, beep-, beep-" (there is a two-second interval between "beeps")	Throttle signal not correct.	Move the throttle stick to the „fully back" position.
When switched on, the motor does not work; the following warning sound is emitted: "Beep-, beep-, beep-" (there is a 0.25-second interval between "beeps")	Throttle stick not at the „fully back" position.	Set the throttle channel to the correct direction.

Programming the speed controller using the transmitter (four steps):

Note: Please ensure that the throttle stick is at the Idle position (fully back), and that throttle travel is set to 100%.

1. Start programming mode

- 1) Switch transmitter on, move throttle stick to full-throttle, connect battery to speed controller.
- 2) Wait two seconds: you should hear a "beep- beep-" sound.
- 3) Wait a further five seconds; you should hear a special "56712" sound.
This confirms the start of programming mode.

2. Select the programming point:

When programming mode commences, you will hear a looped sequence of eight sounds. Moving the throttle stick to the neutral position within three seconds of hearing a particular sound selects the corresponding point.

1. "beep"	Brake	(1 brief beep)
2. "beep-beep"	Battery type	(2 brief beeps)
3. "beep-beep-beep"	Low voltage	(3 brief beeps)
4. "beep-beep-beep-beep"	Cut-off voltage	(4 brief beeps)
5. "beep—"	Start mode	(1 long beep)
6. "beep—beep"	Timing	(1 long, 1 brief)
7. "beep—beep-beep"	Reset to default	(1 long, 2 brief)
8. "beep—beep—"	Quit	(2 long beeps)

3. Setting the programming point (value):

You will hear a looped sequence of different sounds. Move the throttle stick to „full-throttle“ in order to set the value. You will then hear a special „1515“ sound which confirms and stores your selection. (Moving the throttle stick to full-throttle returns you to Step 2, and you can then select the next point. Moving the throttle stick within two seconds quits programming mode.)

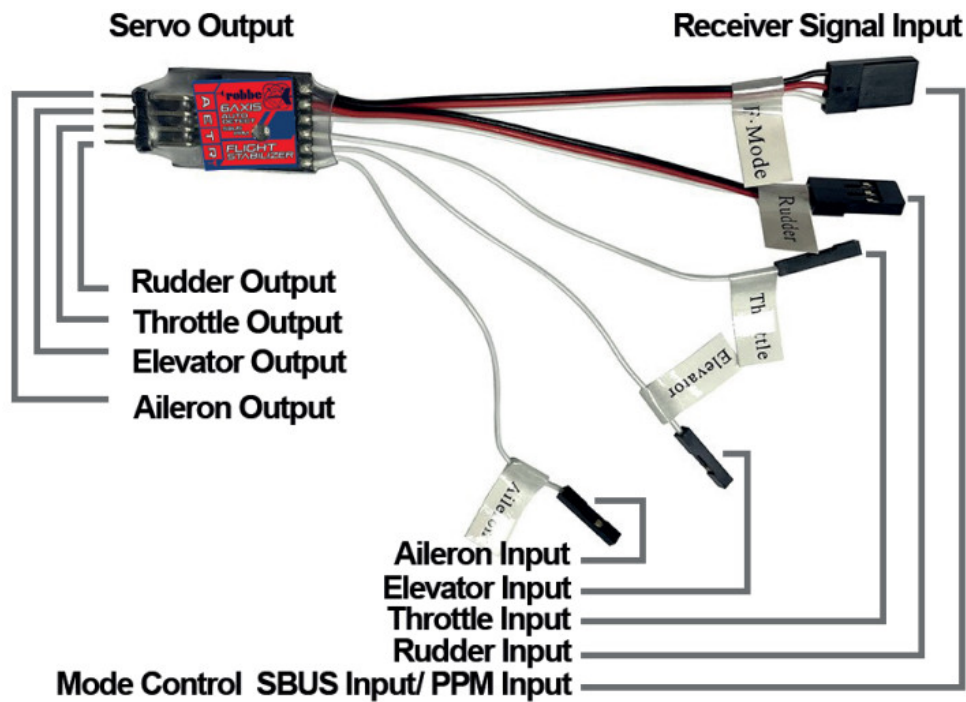
Programming points	"Beep" (1 brief beep)	"Beep-Beep" (2 brief beeps)	"Beep-Beep-Beep" (3 brief beeps)
Brake	Off	On	
Battery type	Lipo	NiMH	
Cut-off	Soft-Cut	Cut-Off	
Cut-off threshold	Low	Medium	High
Start mode	Normal	Soft	Super soft
Timing	Low	Medium	High

4. End of programming

There are two methods of quitting programming mode:

1. In Step 3 after the special "1515" beep move the throttle stick to the „fully back“ position within two seconds.
2. In Step 2 after the "Beep—Beep—" sound (e.g. Point #8), move the throttle stick to the „fully back“ position within three seconds.

EELECTRONIC FLIGHT CONTROLLER (ATTITUDE STABILIZATION ELECTRONICS/GYRO)



Flight Controller Introduction:

- Flight controller is designed with 32-bit high-speed processor and highprecision digital 6-axis gyro. Flight controller is adjusted to the fixed flight technical parameters for the specific aircraft, which will reduce the trouble or difficulty for the users to adjust the fight controller.
- Support the PWM&PPM&SBUS signal output of receiver
- Support two modes: self-stabilization and stabilization by switching 2 or 3 segments on the 5 channel transmitter.

Flight Controller Signal Input:

- PWM input & aileron input& elevator input& throttle input & rudder input are connected to the corresponding signal channel of the receiver respectively, and mode input is connected to a channel of 2 or 3 segment switches.
- PPM Input: Connect the PPM input wire to a receiver which can support PPM. The output signal sequence of PPM receiver must be : 1. aileron, 2. elevator, 3. throttle, 4.Rudder, 5.mode switch.
- SBUS Input: Connect the SBUS input wire to a receiver which can support SBUS. The output signal sequence of SBUS receiver must be : 1. aileron, 2. elevator, 3. throttle, 4. Rudder,5. mode switch.

Usage of the fight controller and movement of the airplane:

When power on, please put the flight controller in a horizontal place and fix the flight controller, then the flight controller will be under the correction status.

At the beginning, the LED indicator flashes for 3-6 seconds quickly, then the quick flash will be finished. After the correction of the flight controller, the aileron& elevator & rudder will move back and forth 3 time respectively in a short time. It means the whole correction of the flight controller is finished.

1. When the correction is finished, the data of the gyro dose not output. At this time, you can observe whether the controlling surfaces of the aileron& rudder & elevator are in the neutral, or you can also trim the control surfaces to the neutral. If there is a big adjustment, it is better to re-power on the flight controller after the adjustment is finished.

2. When the correction is completed, the data of gyro is still not outputting.

At this time, you only need to push the throttle stick to 25%, there will be gyro output. This is to help users to make the trim and observe whether the control surfaces are in neutral position.

3. LED off indicates that no receiver signal is received.

4. LED flashing slowly indicates that the receiver signal is normal and, in the stabilization, mode

5. The LED solid indicates that the signal of the receiver is normal and in the self-stabilization mode.

Flight Controller Function:

1. Self-stabilization mode: when you do not control the aircraft, the aircraft automatically returns to the level flight action. When you control the airplane, the flight controller will prevent the aircraft to fly to a certain angle, which will make your flight to be easy.

2. In stabilization mode: the gyro helps the airplane to be stable. When you control the aircraft, the gyro does not intervene you're controlling. When you do not control the aircraft, the gyro will work and keep the aircraft to be stable flight. While the plane is power on, testing the self-stabilization mode manually, the correction angle is very small for horizontal and vertical wings, not much obvious than the aileron's correction. angle. (the response for horizontal and vertical wings is not much obvious than the aileron)

DISTRIBUTOR

Robbe Modell sport

Industriestraße 10

4565 Inzersdorf Im Kremstal

Austria

Phone: +43(0)7582/81313-0

Mail: info@robbe.com

UID No.: ATU69266037

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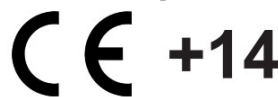
Contact your Dealer or:

Robbe Modell sport, Industriestraße 10,

4565 Inzersdorf Im Kremstal

service@robbe.com, +43(0)7582-81313-0

www.robbe.com



Documents / Resources

	<p>robbe 2581 Air Trainer 140 V2 Mit Flight Controller [pdf] User Manual</p> <p>2581 Air Trainer 140 V2 Mit Flight Controller, 2581, Air Trainer 140 V2 Mit Flight Controller, Train er 140 V2 Mit Flight Controller, Mit Flight Controller, Flight Controller, Air Trainer 2581, Air Train er Flight Controller</p>
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References

-  [Robbe Modellsport - Offizielle Markenwebsite und Shop](#)
- [User Manual](#)

Manuals+