calima

robbe Modellsport

PNP-version No.: 2640

ARF-version No.: 2639

Instructions and User Manual

www.robbe.com

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 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.
- Ensure adequate air circulation.
- Never reach into the turning circle of the propeller during start-up Risk of injury

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 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 scams 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.

CONFORMITY

Modellbau Lindinger GmbH 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.

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.

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.

DISCLAIMER

Modellbau Lindinger GmbH 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.

DISTRIBUTOR

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PREFACE

Congratulations on your purchase of the new CALIMA. The CALIMA is a allround motorglider with a dynamic flight envelope. It can be flown within in a broad speed range. There are various ways of constructing the model, depending on your preferences. Therefore the solutions stated in this manual should only be considered as recommendations. For the most parts, the PNP (plug and play) version is already prefabricated. The ARF version (almost ready to fly) requires modeling experience and basic technical knowledge in construction. Thus there are different ways to achieve a model with good flight skills. This is why most alternatives are in fact explained in the manual but not necessary shown in the pictures. 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.
- To fly in the model, you should choose a day with as little wind as possible
- A large, flat meadow without obstacles (trees, fences power lines etc.) is suitable for the first flights.
- Carry out another functional test of the drive 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, linkage, etc. are firmly seated.
- For the hand start a helper should be present, who can transport the model with not too little thrust into the air.
- The start usually takes place against the wind
- Do not stall the model near the ground
- Do not initiate tight bends in the immediate vicinity of the ground.
- Check the reactions of the model to the rudder deflections. If necessary, the rashes after landing
- to increase or decrease the size accordingly.
- The minimum flight speed must be at an adequate safety altitude.
- Initiate the landing with sufficient speed

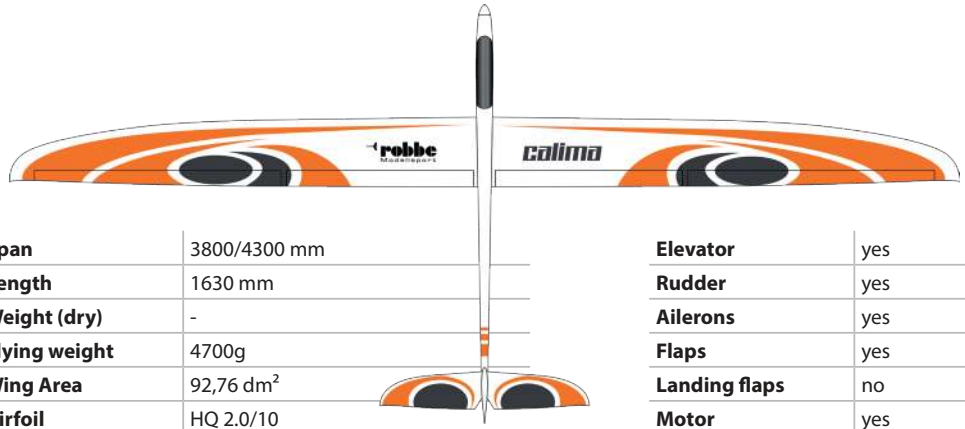
SAFETY INSTRUCTIONS FOR RECHARGEABLE BATTERIES

- 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 to pressure
- 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
- Do not associate leaked electrolyte with 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.

TECHNICAL DATA



Span	3800/4300 mm
Length	1630 mm
Weight (dry)	-
Flying weight	4700g
Wing Area	92,76 dm²
Airfoil	HQ 2.0/10
C.G.	100-115mm behind the leading edge

Elevator	yes
Rudder	yes
Ailerons	yes
Flaps	yes
Landing flaps	no
Motor	yes

BOX CONTENT / NEEDED ACCESSORIES

	ARF	PNP
Motor	not included	RO-POWER TORQUE 4226-570 (included)
ESC	not included	RoControl 80A (not included)
Battery	not included	4-5S 4000mAh (not included)
Servo ELE	not included	1xFS-270MG (included)
Servo RUD	not included	1xFS-270MG (included)
Servo AILE	not included	2xFS-270MG (included)
Servo FLAP	not included	2xFS-270MG (included)
Servo LANDING FLAP	not included	No
Servo cable	not included	2x30cm for flaps, 2x120cm for aileron one-sided (included)
Landing gear	not included	No
MULITlock	not included	Yes (included)
MPX plugs	not included	Yes (included)
Adhesives	not included	UHU Por (not included)
Epoxy resin	not included	Yes (not included)
Locking screw	not included	Yes (not included)
Velcro strap	not included	Yes (not included)
Spinner	not included	Alu Turbo Spinner 45mm (included)
Propeller	not included	14x8" (included) (recommended for 5S operation)
TX	min. 5 channels (not included)	min. 5 channels (not included)
RX	min. 7 channels (not included)	min. 7 channels (not included)

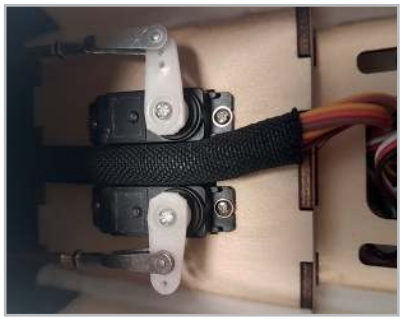
FUSELAGE

01

ARF

First install the motor on the motor mount by two M3x6 Allen screws. Make sure that the screws are tight and secure them with screw locking adhesive. A loose motor can lead to a crash and cause personal injury and damage to property!

02



ARF

The servos must be placed into the designated wooden frame by already put in neutral position. The servo arm has to be fixed in 90° position.

03

ARF PNP

The rudder and elevator linkage are pre-built. It just has to be adjusted in its lenght.

04

ARF

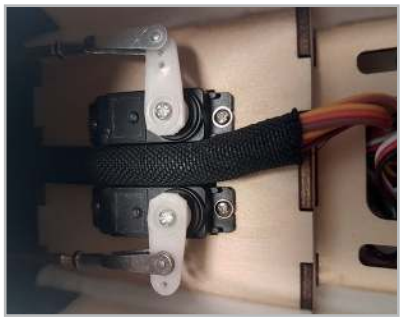
The elevator linkage will be installed and adjusted also at 90° servo position and neutral pivot arm.
Daraus ergibt sich auch die Gesamtlänge des Gestänges.
Lock the linkage with locking nuts.

05

ARF

Sand the rudder control horn well and glue into the rudder by using epoxy resin.

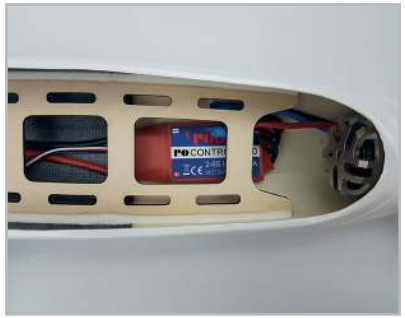
06



ARF

Then clip the linkage to the servo and rudder horn and adjust the linkage by the clevis to achieve a neutral rudder at 90° servo arm. Lock the linkage with locking nuts.

07



ARF PNP

Connect the ESC to the motor and install it under the wooden tray in the front by velcro stripe. Check the running direction of the motor already now and replace if necessary two of the three cables.

08

ARF PNP

Make sure the cables are clean and can not drag on the motor.

09

ARF PNP

The battery will be fixed by a velcro loop on the front battery tray. To avoid slipping the battery, a strip of Velcro should also be glued to the wooden board under the battery. For later adjustment of the center of gravity, this can vary in its position. Only after the exact determination of the center of gravity you make a mark on the battery and the board.

10

ARF PNP

The receiver has its place in the rear of the wooden tray and should be fixed by velcro. You can already plug in all servo plugs according to their assignment.

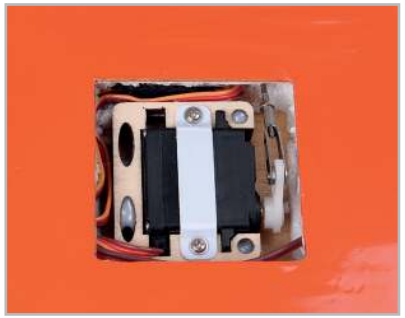
11

ARF PNP

Mount the propeller center section with propeller blades on the motor shaft. Pay attention to a firm but sensitive tightening of the nut. This is an aluminum thread! After that you can fix the spinner cap. Improperly mounted propellers can lead to a crash and cause personal injury and damage to property! Take particular care during installation!

WINGS

12

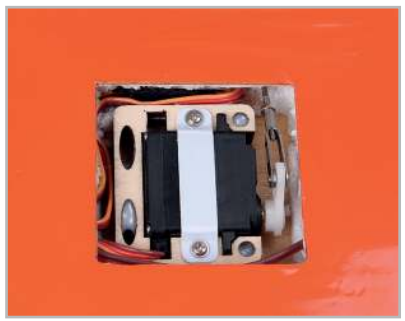


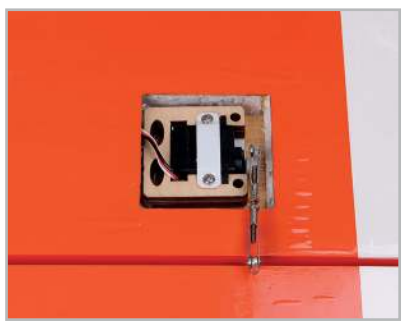
ARF

First of all, install the servos in the servo slot. The servo cables are pulled through the openings with a wire. The green 6-pin MPX connector system should be used as the connection to the fuselage.

Then make the aileron linkage from the M2,5 threaded parts and clevises (the shorter of the two rods). Hook the aileron linkage into the rudder and servo horns (outer servo). Pay attention again to the neutral position of the rudder with a right-angled servo horn and adjust this if necessary at the clevises. Fix the threads with screw locking lacquer.

13





ARF

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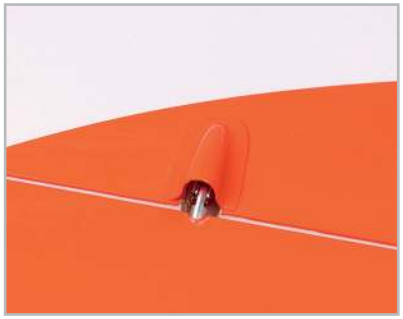
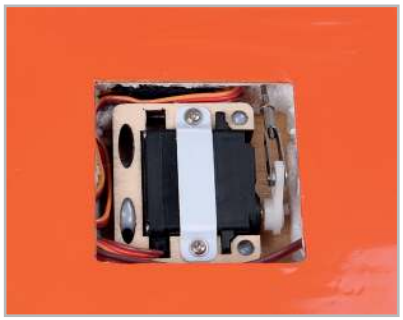
14

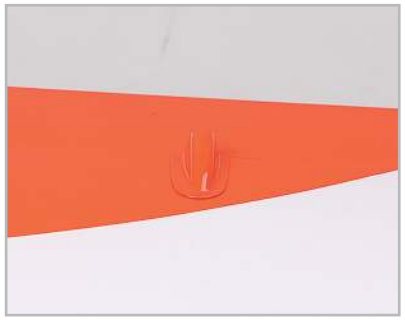




ARF

The linkage of the flaps is realized by a crossover connection of M2,5 parts through the surface of the wing. Therefore the rod must initially be connected to the bottom side of the flap servo and routed through the upper side of the wing in order to be connected with the flap`s rudder horn. If the servo horn is positioned in a right-angle (neutral position), the deflection of the flap should read approximately 15mm downwards.

16



ARF

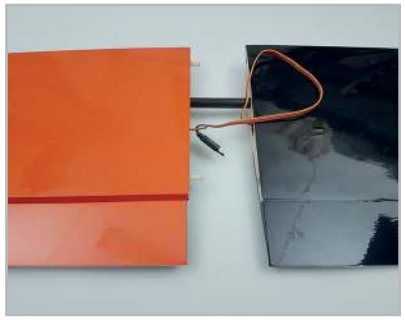
Glue the servo and rod covers only after all electronic adjustments with UHU-Por or clear tape. So the linkage can still be fine-tuned.

15

ARF PNP

We recommend to glue inner and outer wing part together by using epoxy. Pay attention to the correct orientation during curing process.

17



ARF PNP

Pay attention to a proper cable guide. Stash the excessive length of the leads away in the wing.

18

ARF PNP

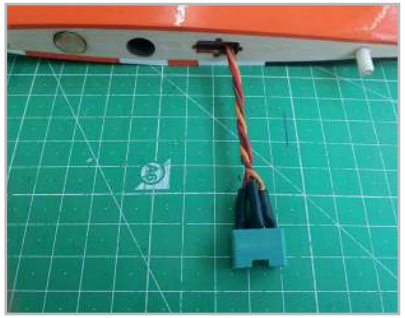
Attach the winglets or tiplets (the longer ones) to the outer wing now. Here a fuse with transparent adhesive tape is sufficient to switch between both versions of the winglets. However, we recommend to glue the longer Tiplets to the wing so that the plug does not break out in the wing when the landing is rough or the like.

19

ARF

Optional ARF: Because of the plywood-reinforced root ribs, the installation of a multilock system and the firm gluing of the electrical wing connection is possible (see PNP version).

20

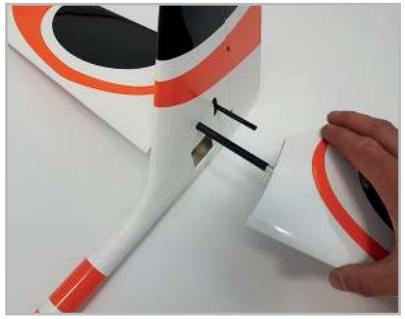


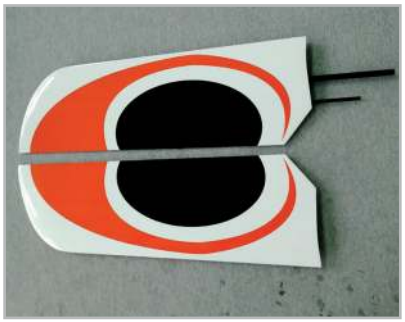
ARF PNP

Expert tip: The root ribs of the two wing parts have cutouts for MPX plugs. With a little work, you can install the servo or socket cable of the respective wing half using the MPX connector.
If the adhesive tape is not sufficient, you can easily install smaller surface connectors in the root ribs. (no MPX Multilock´s - these are too strong for this)

ELEVATOR

21





ARF

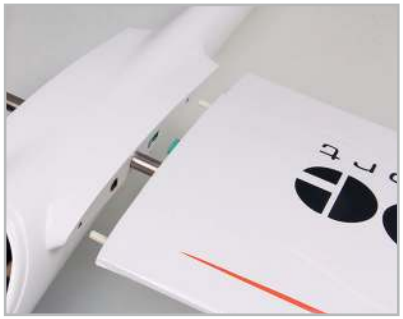
First insert the main connector with the magnet into the elevator rudder half where the counter magnet is already mounted and attach two spacer rings. Then thread the connectors through the openings in the fuselage and the lever and attach two rings again. Now glue the second half of the elevator in the large opening and put it on the carbon connectors. After the glue has hardened, you can simply remove the elevator by separating the magnets.

ARF PNP

First place two spacer rings on the main connector, then pass both through the openings in the fuselage and lever. Then put again two of the rings on the connector, then the second half of the elevator. The fixing is done by two adhesive magnets already glued in. If necessary, the clearance must be adjusted with additional spacers.

INSTALLATION AND TUNING PROCESS

22



ARF PNP

Insert both parts of the wing onto the wing connector and connect the plugs of the wing servos. Use M4 Allen socket screws to connect the wing with the fuselage.

23

ARF

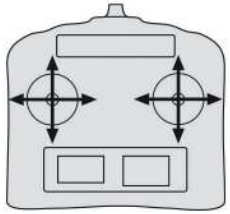
Make sure that no wires are stuck between the fuselage and the wing. For securing the wing connection, a transparent strip of adhesive tape is sufficient.

24

PNP

Attach the wings up to the Multilock and then lock the pin with a short strong jerk. To unlock, use the red wedge and drive it between the fuselage and the wing.

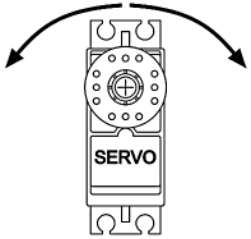
25



ARF PNP

Turn your transmitter and receiver on. Make sure that the correct model is adjusted on the memory of your transmitter. If possible, try to adjust all rods mechanically.

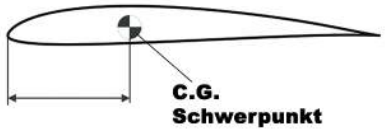
26



ARF PNP

The next step is to check the running direction and travel ways of the servos. Therefore please note the grid below.

27



ARF PNP

The center of gravity is 100-115mm behind the leading edge. For beginner-compatible flight behavior, first set the center of gravity to 110mm. For faster all-rounder behavior, the center of gravity can slowly be moved further back. Depending on the battery used, it may be necessary to add lead in the nose to reach the center of gravity. This is in no way a disadvantage, but is due to the modern lightweight drives sometimes required.

CONTROL THROWS

Function	Normal	Speed	Thermal	Landing
Elevator	12mm above/below	1-2mm above		3mm below
Rudder	32mm left/right			
Ailerons	20mm above, 14mm below	1mm above	2mm below	20mm above (or max.)
Flaps		2mm above	3mm below	34mm below (or max.)

ENDING

Now look for a day with suitable weather conditions for the first flight. With the mentioned settings you will be spared bad surprises. We recommend, at least on the first flight, to make the start with a starting helper. Enjoy your new model aircraft and „always happy landings!".

SPARE PARTS

Spare Part	item Number
Fuselage Calima ARF w/o elektronic	263901
Wing set Calima ARF w/o servos	263902
Canopy Calima	263903
Wings+stabilizer joiner Calima	263904
Stabilizer Calima ARF	263905

FOR YOUR NOTES

FOR YOUR NOTES

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