

mantra 10G2

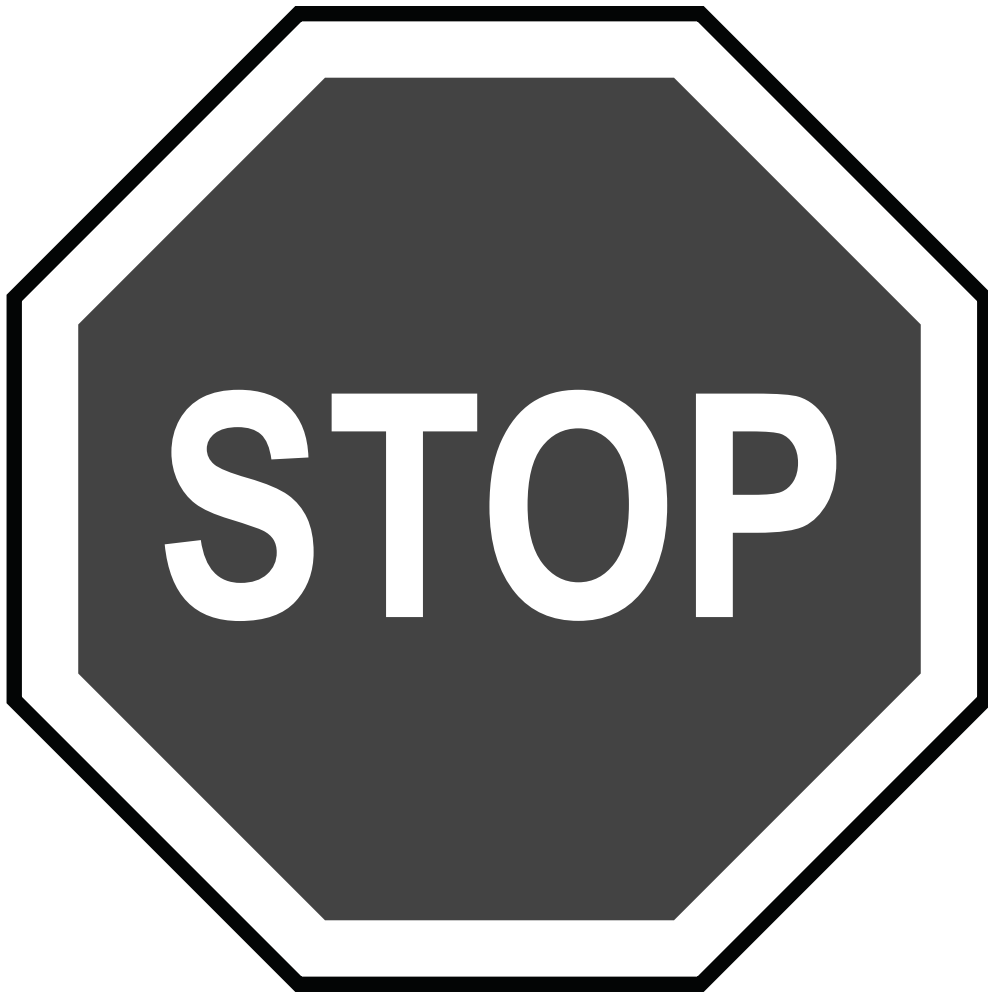
6S RAMPower



DESIGNED BY
Giuseppe Tompazini

SUPER
PNP
Instruction Manual

FLEX
INNOVATIONS
www.flexinnovations.com



BEFORE CONTINUING WITH THIS INSTRUCTION MANUAL OR ASSEMBLY OF YOUR MAMBA 10 G2, PLEASE VISIT OUR WIKI SUPPORT SITE FOR THE LATEST PRODUCT UPDATES , FEATURE CHANGES, MANUAL ADDENDUMS AND FIRMWARE CHANGES FOR BOTH YOUR MAMBA 10 G2 AND THE INSTALLED AURA 8 ADVANCED FLIGHT CONTROL SYSTEM.

**wiki.flexinnovations.com/wiki/Mamba10
wiki.flexinnovations.com/wiki/Aura**

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INTRODUCTION

More Power. More Flight Time. More Fun!

They say you can't have it all. We've broken the rules and redefined the standard in high-performance 10-class aircraft. No more dreaming, you really do get it all! More Power. More Flight Time. More Fun!

Designed by renowned biplane designer, F3A and 3D Aerobatic World Champion Quique Somenzini, the Mamba series of biplanes have been some of the most popular and highest-performing 3D aerobatic aircraft of all time. The Mamba 10 G2 takes that proven performance and track record to the next level. From the craziest of XA, to the smoothest 3D and precision, the Mamba 10 G2 bundles explosive power with longer flight times in a package that remains lightweight so you can get the most from it.

- Extreme 3D and XA performance while remaining lightweight and friendly at slower speeds
- New 6S (22.2V) Li-Po power system for more power and more flight time
- (6) High-Voltage DS17HV servos installed, which provide incredible torque and speed for a more connected feel on the sticks
- Designed by renowned biplane designer, Quique Somenzini
- Aura 8 Advanced Flight Control System enhances the flight without ever feeling intrusive.(It's more than a gyro!)
- Flex 12 x 5e light weight wood propeller provides excellent thrust and fast throttle response
- Crow (airbrakes) is configured by default and adds additional fun. No mixing in the transmitter is required!
- Shark Teeth leading edges provide better aileron control and help reduce tip stalls and wing rock in high-alpha flight
- Innovative Plywood Sub-Frame with easily removable battery tray
- Potenza 20-3D 600Kv motor is optimized for 6S Li-Pos and XA/3D aerobatics
- ZTW 50A ESC with 7.4V/5A BEC
- Custom control horns for optimized throw and precision
- One piece upper and lower wings
- Factory applied trim scheme

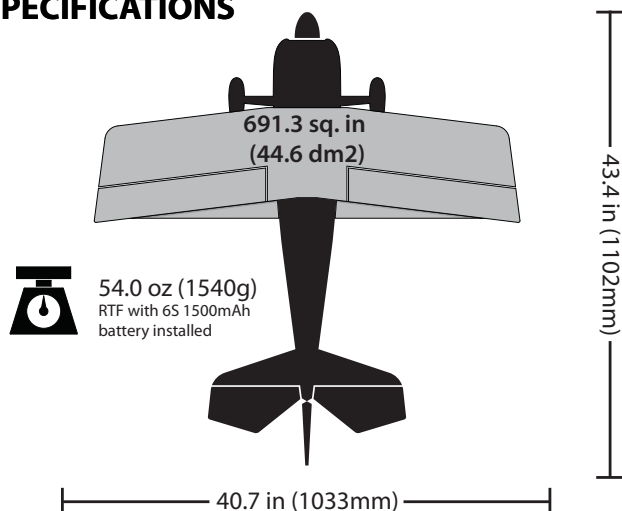
INCLUDES

- Mamba 10 G2 assembled airframe with decals applied
- Aura 8 Advanced Flight Control System (programmed and ready to use)
- Potenza 20-3D 600Kv Brushless Motor
- 50A ZTW ESC with 7.4V SBEC
- (6) Potenza DS17HV Servos

REQUIRES

- 7+ Channel computer transmitter
- 6S 1300mAh - 1500mAh 45C+ Li-Po Battery
- 5+ Channel Serial-Capable receiver
- 6S Li-Po capable battery charger

SPECIFICATIONS



Recommended battery – 1300-1500mAh 6S 45C+ Li-Po

REPLACEMENT PARTS LISTING

FPM427001	Mamba 10 G2 Fuselage
FPM327002	Mamba 10 Wing Set w/Struts
FPM327003	Mamba 10 Tail Set
FPM327004	Mamba 10 Hatch Set
FPM327005	Mamba 10 Landing gear set
FPM327006	Mamba 10 Stab and Cabane Tube Set
FPM427007	Mamba 10 G2 Pushrod set
FPM427008	Mamba 10 G2 Red Decal Set
FPM327010	Mamba 10 Spinner, 50mm
FPM427011	Mamba 10 G2 Hardware Set
FPM427012	Mamba 10 G2 Removable Battery Tray
FPM427013	Mamba 10 G2 Battery Tray Thumb Screw
FPZPM10203D	Potenza 20 600 Kv BL Motor
ZTW50AM10G2	ZTW 50A ESC w/7.4V SBEC
FPZDS17HV	Potenza DS17 HV Digital Servo
FPZAURA08ZZM10G2	Aura 8 for Mamba 10 G2
FPMPF1205EW	Flex Innovations 12x5 Wood 2 Blade Propeller for Electric

OPTIONAL ITEMS

FPZB15006S45	Potenza 6S 1500mAh 45C Li-Po Battery
FPZB15006S100	Potenza 6S 1500mAh 100C Li-Po Battery
ISDTD2	ISDT D2 200W AC/DC Charger
FPZA1010	Potenza Digital Battery Analyzer
FUTT6K	Futaba T6K Transmitter with R3006SB Rx Mode 2
FUTR2001SB	Futaba R2001SB SFHSS SBus
SPM9745	Spektrum DSMX Remote RX
SPM4651T	Spektrum DSMX SRXL2 Serial Receiver with Telemetry

COMPLETION ITEMS

INSTALLED!		Potenza 20-3D 600 Kv Brushless Outrunner Motor (FPZM10203D)
INSTALLED!		ZTW 50A ESC with 7.4V/5A SBEC (ZTW50AM10G2)
INSTALLED!		Potenza DS17 High Voltage Digital Servo (FPZDS17HV)
INSTALLED!		Aura 8 Advanced Flight Control System (FPZAURA08)
INCLUDED!		Flex 12 x 5E Wood Propeller
NEEDED TO COMPLETE		6S 1500mAh 22.2V 45C Li-Po (FPZB15006S45) 6S 22.2V 1300-1500mAh 45C+ Li-Po
NEEDED TO COMPLETE		7+ Channel Computer Transmitter
NEEDED TO COMPLETE		Serial-Capable Receiver

BATTERY CHARGING GUIDELINES

! WARNING

FOLLOW ALL INSTRUCTIONS PROVIDED BY YOUR BATTERY AND CHARGER MANUFACTURER. FAILURE TO COMPLY CAN RESULT IN FIRE.

The assembly of the Mamba 10 G2 can be accomplished in less than **one hour**. Prior to assembling the airplane, it is advisable to charge your battery so that you are ready to begin setup upon completion of the assembly of your model.

We recommend the use of an advanced Li-Po balancing charger, such as the ISDT D2 200W Multi Chemistry AC/DC balancing charger for your batteries to get the maximum performance and lifespan from them.

Our airplanes are designed around our Potenza batteries and we recommend the Potenza 6S 1500mAh 45C Li-Po in the Mamba 10 G2 based on our extensive testing and development. This battery features an EC3 connector, so no soldering is required for use in your Mamba 10 G2.

All are available online at www.flexinnovations.com and your local Flex Innovations retailer.

SPECIAL LANGUAGE DEFINITIONS

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

- NOTICE:** Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.
- CAUTION:** Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.
- WARNING:** Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of serious injury.

WARNING

AGES 14+

This product is not intended for use by children under 14 years without direct adult supervision.

ATTENTION

Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to assemble or operate the product correctly can result in damage to the product, personal property, and cause serious or fatal injury.

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Flex Innovations, LLC. For up-to-date product literature, please visit our website at www.flexinnovations.com and click on the Mamba 10 G2 and Aura 8 product pages.

IMPORTANT INFORMATION REGARDING WARRANTY

Please read our Warranty and Liability Limitations section before building this product. 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.

SAFETY WARNINGS AND PRECAUTIONS

Protect yourself and others by following these basic safety guidelines.

1. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.
2. This model is not a toy, rather it is a sophisticated hobby product and must be operated with caution and common sense. This product requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or other property.
3. This model must be assembled according to these instructions. Do not alter or modify the model outside of these instructions provided by Flex Innovations, LLC, as doing so may render it unsafe and/or un-flyable. It is your responsibility to ensure the airworthiness of the model.
4. Inspect and check for the correct operation of the model and all its components before every flight.
5. If you are not an experienced pilot or have not flown a high-performance model before, it is recommended that you seek assistance from an experienced pilot in your R/C club for your first flights. If you're not a member of a club, the Academy of Model Aeronautics (AMA) has information about clubs in your area whose membership includes experienced pilots.
6. Keep the propeller area clear from such items such as loose clothing, jewelry, long hair, or tools as they can become entangled. Keep your hands and body parts away from the propeller as injury can occur.
7. Never fly in visible moisture or submerge the airplane or any of its electronic components in water. Permanent damage to electronic components may occur, or corrosion of components may lead to intermittent failures.

LOW VOLTAGE CUTOFF

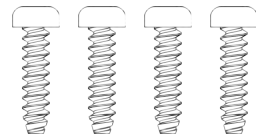
Li-Po batteries have a nominal (rated) voltage of 3.7v per cell, and fully charged, reach 4.2v per cell. Batteries are designed to be discharged below the nominal voltage, however, if they are discharged below 3.0v per cell, damage will occur and the pack will lose capacity. For best long term battery life, set a timer and land after a time that leaves approximately 15% of the battery's capacity remaining.

Low voltage cutoff is a feature that is built into the ZTW 50A ESC that is designed to protect the connected battery from being discharged too far and causing permanent damage to the cells. Circuitry within the ESC will automatically detect when the input voltage from the battery pack reaches below 3.0V per cell (average) and will remove power to the motor, but still deliver power to the servos so that a safe landing may be made. If the motor begins to lose power rapidly during flight, the LVC has sensed that the total voltage of the pack has dropped below 3.0V per cell average, and the airplane should be landed immediately.

MAIN LANDING GEAR INSTALLATION

Required Tools and Fasteners: #2 Phillips Screwdriver, (4) M3x12 self-tapping Phillips head cap screws

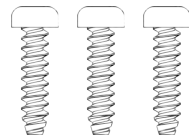
1. Insert the landing gear assembly into the slot in the bottom of the fuselage. The gear will sweep forward.
2. Install the cover plate over the landing gear slot and secure with (4) M3x12 self-tapping Phillips head cap screws.



TAILWHEEL INSTALLATION

Required Tools and Fasteners: #2 Phillips Screwdriver, (3) M3x12 self-tapping Phillips head cap screws

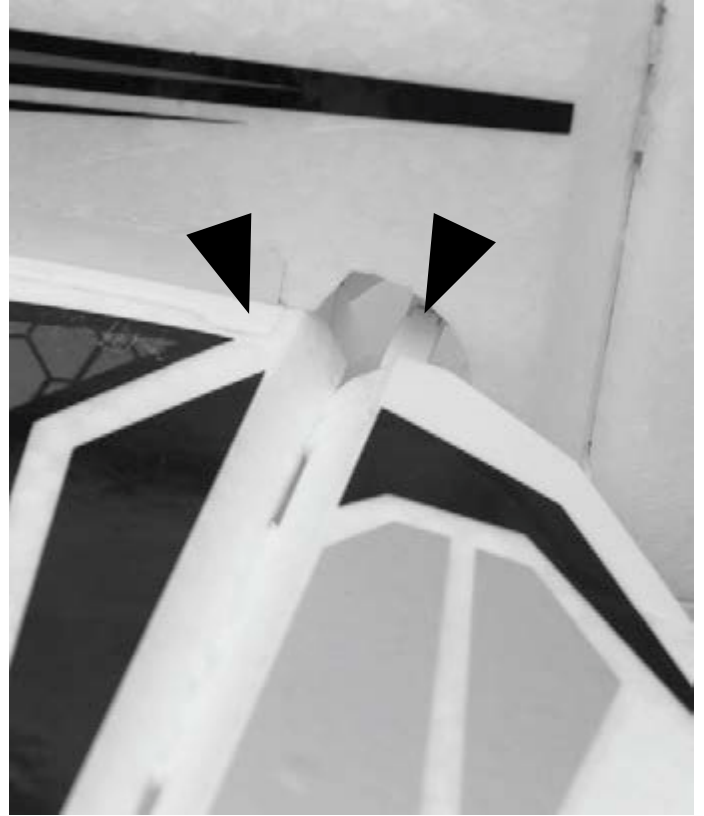
1. Insert the tailwheel assembly so that it sweeps backwards in the slot of the bottom of the rudder.
2. Install the cover plate over the tailwheel slot and secure with (3) M3x12 self-tapping Phillips head cap screws.



HORIZONTAL STABILIZER INSTALLATION

Required Tools and Fasteners: #1 Phillips Screwdriver, Needle Nose pliers, Clear Tape (4 strips)

1. Insert the horizontal stabilizer tube into the fuselage and roughly center.
2. Slide the left and right stabilizer halves onto the tube. Ensure that the control horn orients towards the belly of the airplane and that the elevator joiner tabs are properly indexed. **Do not force the stabilizer into place.**
3. Apply 4 pieces of clear tape to the joint between the stabilizer and the plastic mounts. Be sure to apply tape to both the top and bottom.
4. Disassemble the ball link from the elevator pushrod and re-assemble it in the inside hole of the elevator control horn (do not use thread locker).



AURA 8 AFCS

The Aura 8 AFCS (Advanced Flight Control System) comes programmed and pre-installed in your Mamba 10 G2, making setup a breeze. This highly-refined 3-axis gyro makes the Mamba 10 G2 fly like it is a larger aircraft and in less wind. Thanks to the Aura's advanced implementation, it not only enhances the flying experience, but it never interferes with the pilot's control.

The Aura 8 AFCS comes configured with Flight Modes (dual rates, expos and gyro settings) set by the Flex Innovations team, and offers a great starting point for most pilots. Since these are already configured for you in the Aura, there is no need to set up dual rates or expos in your transmitter. Simply follow the Transmitter Configuration Guide in this manual for complete details on the transmitter programming required for the Mamba 10 G2 and Aura 8 AFCS.

Visit wiki.flexinnovations.com/wiki/Aura for the latest Aura-related product information and updates.

Description of Pre-Loaded Aura Flight Modes

Mode 1 (Sport): Gains are low and tuned for high speed aerobatics. Rates are low, and exponential is tuned for comfortable flight.

Mode 2 (High Speed 3D): Gains are moderate and tuned for high speed 3D flight. Rates are maximum and exponential is tuned for comfortable flight.

Mode 3 (Slow Speed 3D): Gains are highest and tuned for slow speed 3D flight only. Rates are maximum and exponential is tuned for comfortable flight.

Gyro oscillation will occur at mid to high speeds. Do NOT fly at mid to high speeds in this Flight Mode.

NOTE - Rudder stick movement will also move ailerons and elevator. This is NORMAL and is the pre-programmed mixing.

Each of the modes has been tuned by our team to offer a solid start. Because tastes in control feel are unique, if changes in rate and expo are needed adjustments should be made through Aura. Changes on gain value may only be made through the Aura.

TRANSMITTER SETUP



WARNING

DO NOT ATTEMPT RADIO SETUP WITH PROPELLER INSTALLED. INADVERTENT POWER UP COULD CAUSE DEATH OR SERIOUS INJURY

The included Aura 8 is designed to work seamlessly with all popular transmitter and receiver brands, however, transmitter setup is significantly different than when setting up a model without Aura.

When programming your transmitter, start with a new and freshly reset model memory. **Make ONLY the changes shown in the Transmitter Configuration Guide.**

Transmitter Configuration Guide

	Spektrum, Futaba, JR ¹ & Graupner	FrSky	Jeti (EX-Bus)
Wing/Tail Type	1 Aileron, 1 Elevator, 1 Rudder	1 Aileron, 1 Elevator, 1 Rudder	1 Aileron, 1 Elevator, 1 Rudder
End Points (Travel Adjust or ATV)	Ail/Ele/Rud – 125%	Ail/Ele/Rud – 100%	Aileron/Ele/Rud – 100%
	Thro/CH5/CH6 – 100%	Thro/CH5/CH6 – 84%	Thro/CH5/CH6 – 80%
Reversing	Not Allowed ²		
Sub-Trim	Verify at Zero, NOT ALLOWED		
Trim Levers	Verify at Zero		
CH5 (Gear) – Flight Mode	Assign to a 3 Position Switch		
CH6 (Aux 1) – Crow	Assign to a 2 Position Switch		
CH7 (Aux 2) – Gyro Kill	Assign to a 2 Position Switch		
Timer ³	For your first flight, set to 4:00		

¹ JR customers should use JR XBUS Mode A, and follow the chart above. This is the preferred JR DMSS connection to Aura.

² If you are using a Futaba transmitter, please note that some Futaba transmitters have the throttle set to reversed by default. We recommend that you leave the reversing set to the defaults and reverse it if needed after testing. **NOTE: do all throttle testing with the prop removed!**

³ This time is a safe starting point for most pilots. This aircraft can typically fly anywhere between 4 and 6 minutes (with 6S 1500mAh Li-Po), depending on an individual's flying style.

The Mamba 10 G2 has an incredibly high roll rate. If you are a newer pilot, or after flying feel that the roll rate is too high, you can reduce the aileron end points (travel adjust, or ATV) in your transmitter by around 20%.

FOR CUSTOMERS USING TRANSMITTERS OTHER THAN WHAT IS LISTED IN THE CHART ABOVE, PLEASE VISIT OUR WIKI PAGE FOR INSTRUCTIONS SPECIFIC TO YOUR TRANSMITTER AND RECEIVER BRAND

HITEC – wiki.flexinnovations.com/wiki/Aura/HitecSbusUse

CONNECTING BATTERY/ARMING ESC

Observe the following procedures to safely power up your model after it has been bound. **Ensure propeller is removed unless this sequence is followed to power up before flight.**

1. Turn on the transmitter. **Lower the throttle stick AND throttle trim** to their lowest settings. Be sure to wait for your transmitter to indicate it the radio signal is being broadcast before proceeding

If a battery is connected to the ESC with the throttle fully open on the transmitter, the ESC will enter programming mode. If this occurs, simply disconnect the battery, lower the throttle and reconnect the battery.

2. Ensure the aileron, elevator and rudder gimbals are centered.
3. With the airplane on a solid surface, connect the battery to the ESC and wait. The ESC will make the motor emit a series of audible tones during its initialization process.
4. The ESC will make the motor emit a short, final tone sequence indicating that the ESC is now armed and that the motor will spin in response to throttle stick movement.



WARNING

When making adjustments to linkages, transmitter settings, or the Aura 8 flight control system, remove the propeller to guard against accidental spool up.



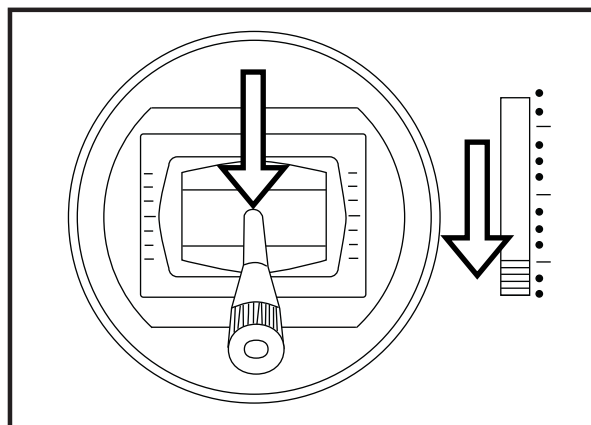
CAUTION

Always connect the battery when the throttle stick and throttle trim are in the idle/cut-off position.



WARNING

Hold aircraft securely when connecting the battery before flight. Always ensure that the propeller is clear of any and all objects as they may become entangled.



RECEIVER INSTALLATION/SERVO CONNECTIONS

Choosing a Receiver

Aura will auto-detect modern serial receiver connections. For use in the Mamba 10 G2, only a serial receiver connection or a Spektrum Remote Receiver can be used. Below are a few examples of serial receivers that can be used with the Aura 8. This is not a complete list of compatible receivers, rather a short list to assist in your receiver selection.

Spektrum Remote Receiver(s) - SPM9645, SPM9745 (QTY: 1 or 2)

Spektrum SRXL - SPMAR8010T, SPMAR9030T

Spektrum SRXL2 - SPM4651T, SPM4650

Futaba S.Bus - Futaba R7008SB, R2001SB, R6202SBW

Hitec S.Bus - Optima SL, Maxima SL

FrSky S.Bus - RX4R, RX6R

Graupner HoTT (Sum D of 8) - GR12L, GR16L

JR XBus (Mode A & Mode B) - RG012BX, RG613BX, RG821BX

Jeti EX-Bus - REX10, R9 EX, REX6

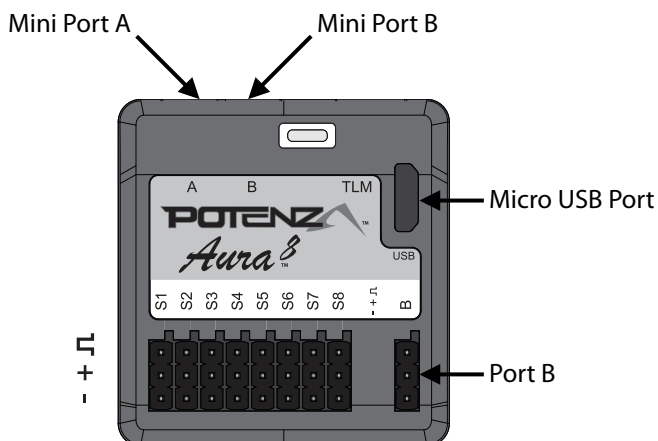
A PPM (8CH, negative shift, approximately 22ms/frame) receiver may also be connected into Port 'B', however Aura will not auto-detect and setup must be performed through the Aura Config Tool (Windows Application).

DEFAULT AURA CONNECTIONS

- S1 - Throttle
- S2 - Bottom Left Aileron
- S3 - Top Left Aileron
- S4 - Bottom Right Aileron
- S5 - Top Right Aileron
- S6 - Elevator
- S7 - Rudder
- S8 - (Empty)

Port B - Serial Receiver Input

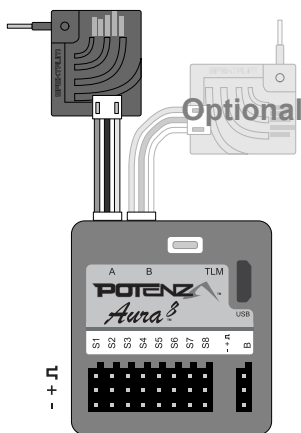
Mini Port A&B - Spektrum Remote Receiver Inputs



CONNECTING YOUR RECEIVER TO AURA

Spektrum Remote Receivers

If using a Spektrum Remote Receiver, connect it to Aura Mini Port A using the cable provided with your receiver. You can also choose to add a second remote receiver to Aura Mini Port B for added redundancy.



Binding Your Receiver

1. With the transmitter and aircraft powered OFF, place a bind plug into Aura Port S8.
2. Power on the aircraft. Your remote receiver should flash rapidly, indicating it is in bind mode.
3. Bind your transmitter to the remote receiver per your transmitter manufacturer's instructions. This is typically done by pressing and holding the bind button on your Spektrum transmitter while powering it on.
4. Verify the receiver is bound by looking at the LED on the Remote Receiver. This is typically indicated by a solid orange LED on Spektrum Remote Receivers.
5. Remove the bind plug from Aura Port S8.

Aura 8 Auto-Detect

Once your receiver is bound, powered, and connected to the Aura, the Aura will begin the Auto-Detect process to learn what type of receiver you are using and set itself up for that specific system. Auto-Detect is indicated by a series of sweeping LEDs of various colors. After Auto-Detect is completed, verify that Aura is on and receiving data from your receiver by looking at the LEDs on the Aura.

Ready-To-Fly:

Solid Orange LED: Aura On and Calibrated

Solid Green LED: Aura receiving Valid receiver data



Possible Errors:

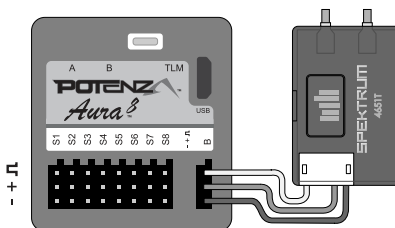
Flashing Orange LED: Aura Moved During Power Up

No Green LED: Aura NOT receiving receiver data



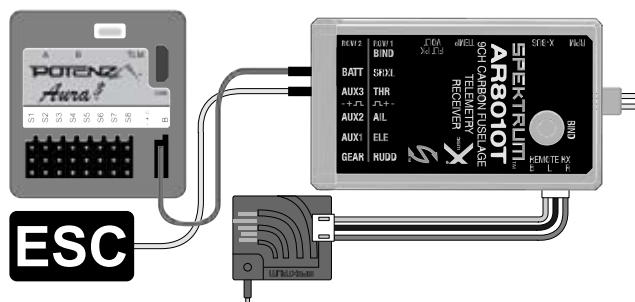
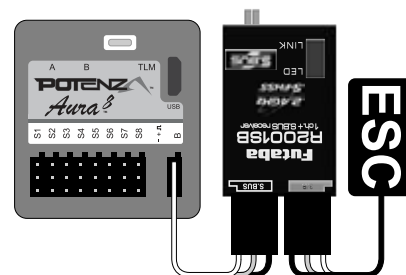
Serial Receivers

If using a standard serial receiver, connect the provided male to male cable to your receiver's serial port. Connect the other end of the cable to Aura Port B noting proper polarity.



Note: The Spektrum 4651T receiver requires the use of a different cable to connect to Aura. The cable is included with the receiver when it is purchased directly from Flex Innovations. You can also purchase the cable itself at flexinnovations.com (FPZA1039).

Note: If you are using Futaba S.Bus, be sure to use the proper S.Bus port in your receiver. DO NOT use the S.Bus2 port, as it is not supported for use with the Aura 8. Refer to your manufacturer's instructions for proper S.Bus use.



Note: When using Spektrum SRXL to connect to the Aura, always connect the remote receivers to the Spektrum receiver, NOT to the Aura.

Binding Your Receiver

Bind your receiver to your transmitter per your receiver and transmitter manufacturer's instructions.

ESC THROTTLE CALIBRATION

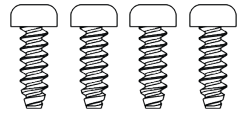
In order to map the full range of the ESC output to your throttle stick motion you will have to preform an ESC throttle calibration. **NOTE: Execute ESC throttle calibration with the propeller and spinner removed.**

1. Power on your transmitter, DISABLE any throttle hold or throttle kill switches, completely lower the throttle trim and set the stick to full throttle.
2. Connect the flight pack to your Mamba 10 G2.
3. Listen for the tones coming from the ESC through the motor, after about 2 seconds you should hear two tones.
4. Pull your throttle stick back to idle.
5. Listen for the ESC arming tones from the motor.

The ESC throttle range has now been properly calibrated, and is stored in the ESC's memory until it is calibrated again. You can repeat this process as many times as necessary.

MAIN WING INSTALLATION

Required Tools and Fasteners: #1 & #2 Phillips Screwdrivers, (4) M2x6mm self-tapping Phillips head screws, (1) M3x70mm machine Phillips head screw, (8) M3x12mm self-tapping Phillips head screws

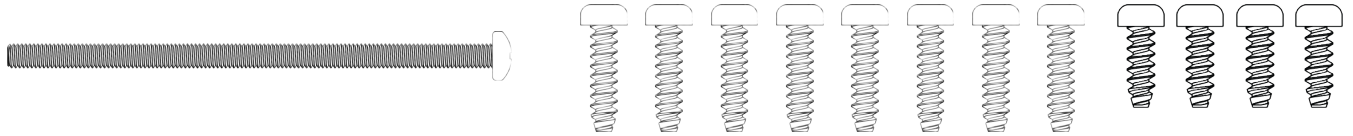


1. Locate the (4) cabane struts, fuselage, and top wing. Dry fit the cabane struts into the molded mounts in the wing and fuselage to ensure proper fitment and alignment. The longer rods are the rear cabane struts, the shorter rods are the front cabane struts.
2. Rotate the cabane to align the screw holes in the cabane and cabane mount and secure to the upper mounts in the top wing with (4) M2x6mm screws. Insert the interplane struts in the lower mounts on the fuselage and mark the depth that each strut inserts into the mount.
3. Remove the wing and wrap low-tack masking tape around the strut on the line marked in Step 2. Using medium (150) grit sandpaper, roughen the lower portion of each cabane strut. Remove tape and clean struts and inside of the fuselage mounts with isopropyl alcohol.
4. Glue cabane struts into the lower mounts on the fuselage with 15-minute epoxy. **FULLY SEAT CABANE STRUTS INTO THE LOWER MOUNTS ON THE FUSELAGE AND ENSURE THEY REMAIN SEATED.** Clean excess epoxy prior to curing.
5. Once the epoxy has fully cured, unscrew the top wing from the cabane struts and temporarily place it to the side.
6. Locate the bottom wing and the (2) interplane struts.
7. Attach the interplane struts to the bottom wing using (4) M3x12mm Phillips head cap screws. While the struts are directional and will only fit one way, ensure that the logo is oriented outwards and on the bottom side of the strut, oriented upright.



MAIN WING INSTALLATION (CONTINUED)

8. There are two servo extensions coming out of the bottom of the fuselage, one for each aileron servo. Connect the aileron servo leads to these extensions. Be sure to connect the left wing servo to the extension labeled AIL L, and right wing servo to the extension labeled AIL R, then gently guide them inside the fuselage while mating the bottom wing to the fuselage
9. Attach the bottom wing to the fuselage with (1) M3x70mm Phillips screw.
10. Re-attach the top wing to the cabane using the (4) M2x6mm Phillips self-tapping screws removed in Step 5.
11. Connect the upper wing servos to the servo extensions provided for this, Be sure to connect the left wing servo to the extension labeled AIL L, and right wing servo to the extension labeled AIL R.
12. Attach the top wing to the interplane struts using (4) M3x12mm Phillips self-tapping screws.

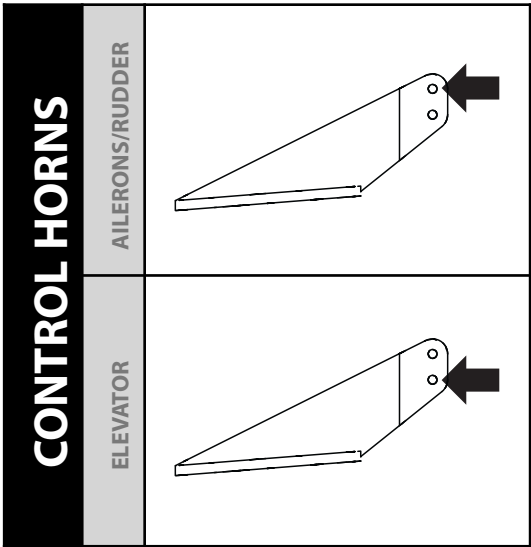
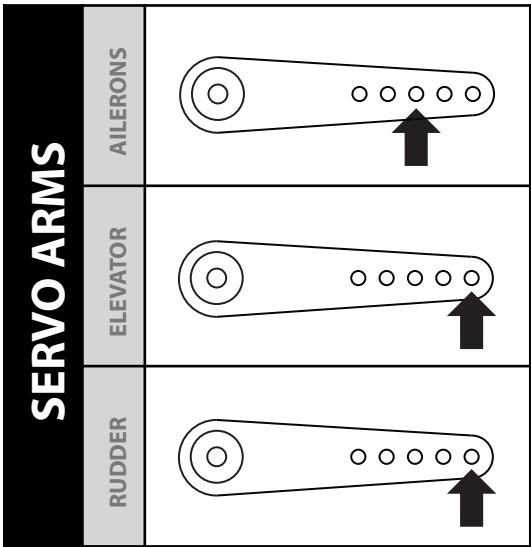


LINKAGE SETUP

Mechanically adjust the control linkages so that the surfaces are neutral with zero trim and zero sub-trim. Final trim adjustments may be required during flight. For more information on flight trimming, please refer to the trimming section located on page 17 of this manual.

At the servo, the stock linkage attachment is a Z-bend located in the outermost hole in the servo arm for the rudder and elevator, and the center hole for the ailerons.

At the control horn, the Ailerons use clevises and the Rudder and Elevator use ball links. The stock attachment for the Ailerons and Rudder is located in the outermost hole, and in the innermost hole for the Elevator.



 NOTICE

The DS17HV servos installed in your Mamba 10 G2 are high quality, digital servos with metal gear train and ultra-fine gear mesh. This fine resolution and high tooth count output shaft means that the servo arms pre-installed on the servos may inadvertently be misaligned, yet appear properly installed. It is critical to ensure the positive, perpendicular orientation of the arm to the case to ensure that the travel of the servos is even from side to side at extreme throws, particularly on the rudder servo.

CROW (AIR BRAKES)

Crow is activated using channel 6 from your transmitter, and is mixed so that when you advance the throttle to full, the crow is returned to neutral.

Futaba users that plug the ESC into their receiver directly may need to adjust the mixing in the Aura to get it to properly function. Please visit the Wiki page for more details.

wiki.flexinnovations.com/wiki/Mamba10

CONTROL DIRECTION TEST

Refer to the chart below to determine the proper control surface directions.

If controls are reversed, DO NOT REVERSE CONTROLS IN YOUR TRANSMITTER OR IN THE AURA CONFIG TOOL. Email us at support@flexinnovations.com for corrective action. Note that BOTH the Transmitter Control Direction Test AND the Flight Controller Sensor Direction Test MUST BE PASSED! IF EITHER ONE DOES NOT PASS, DO NOT FLY!

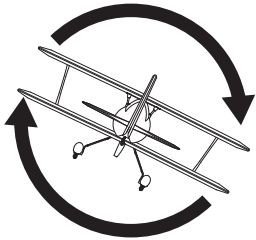
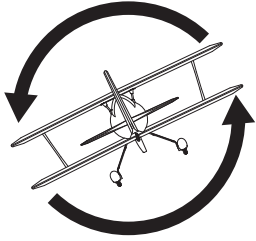
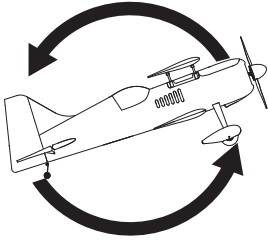
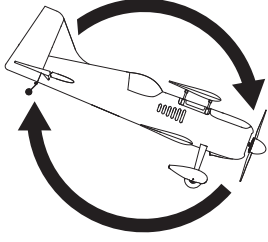
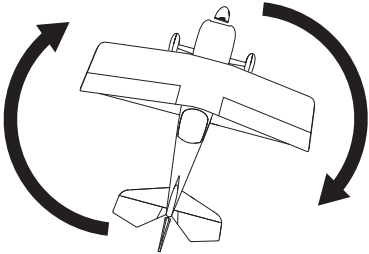
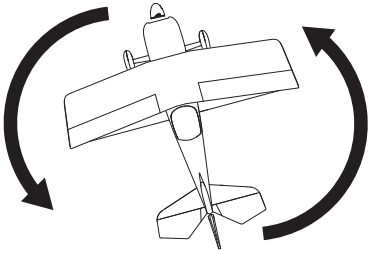
NOTE: There is pre-configured rudder to aileron and rudder to elevator mixing programmed into the Aura. Simultaneous movement of these control surfaces with rudder input is intentional and completely **NORMAL**.

	Transmitter Command	Proper Control Surface Deflection
AILERON	Stick Left	
	Stick Right	
ELEVATOR	Stick Forward	
	Stick Aft	
RUDDER	Stick Left	
	Stick Right	

FLIGHT CONTROL SENSOR DIRECTION TEST

Perform a test of the gyro system to verify the corrections made for a given movement are correct. **If any of the tests do not result in the correct reaction from the airplane's gyro system, DO NOT FLY THE AIRPLANE, and contact us via email at support@flexinnovations.com**

The flight control system activates with RF broadcast. Perform these tests in Mode 3 (higher gain) for better visibility and then in Mode 2, and any other modes that have gyro gains assigned. (By default, Mode 1 has no gain assigned). Control surface deflections are exaggerated in the pictures below for clarity. Please note that the control surfaces will move **ONLY** while the aircraft is being **ROTATED**.

	Aircraft Movement	Proper Control Surface Deflection
AILERON		
		
ELEVATOR		
		
RUDDER		
		

PROPELLER/SPINNER INSTALLATION

Required Tools and Fasteners: #2 Phillips Screwdriver, 13mm Box Wrench, 2mm Hex Driver, (4) M2x8 Socket Head Cap Screws, M3x6mm machine screw

1. Place the prop adapter on the motor. Ensure that it is fully seated.
2. Apply a small amount of blue threadlock to each of the (4) M2x8 socket head cap screws, and secure the prop adapter to the motor using a 2mm hex driver.
3. Install the propeller with the convex surface facing forward. The propeller size numbers are printed on the front face of the prop and should orient forward.
4. Slide the prop washer on the prop adapter with the widest face aft, followed by the propeller nut. Tighten the propeller nut fully.
5. Slide the spinner over the prop and prop shaft and secure it using the M3X6mm machine screw.



NOTICE

Spin the motor over by hand to ensure that the prop and spinner spin smoothly and true after installation.



BATTERY INSTALLATION

In order to achieve the correct CG in the Mamba 10 G2 the flight battery needs to be placed behind the hatch opening. In order to facilitate this a removable battery tray has been provided.

1. Push the spring-loaded battery latch tab back to release the battery hatch. Lift the hatch away from the fuselage, starting at the front.
2. Remove the battery tray by loosening the thumb screw. Slide the tray forward as you gently lift the tray away from the fuselage.
3. Install an adhesive-backed hook strip to the battery tray, and an adhesive-backed loop strip to the battery.
4. Place the battery on the tray, and secure it in place with the hook and loop strap provided.
5. Re-install the tray into the battery compartment by aligning the rear tabs on the tray with the appropriate slots in the fuselage sub-frame. Once seated in place, secure the tray to the sub-frame using the thumb screw.
6. Reinstall the hatch, and confirm that the latch has positively engaged.



CAUTION

Always keep limbs clear from the propeller when the battery is connected. After the ESC arms, the propeller will rotate when the throttle is moved. Unlike an internal combustion engine, electric motors apply more voltage to counteract resistance, therefore any object that is entangled in the propeller will be severely damaged before the motor will stop



WARNING

When making adjustments to linkages, transmitter settings, or the Aura 8 flight control system, remove the propeller to guard against accidental spool up.

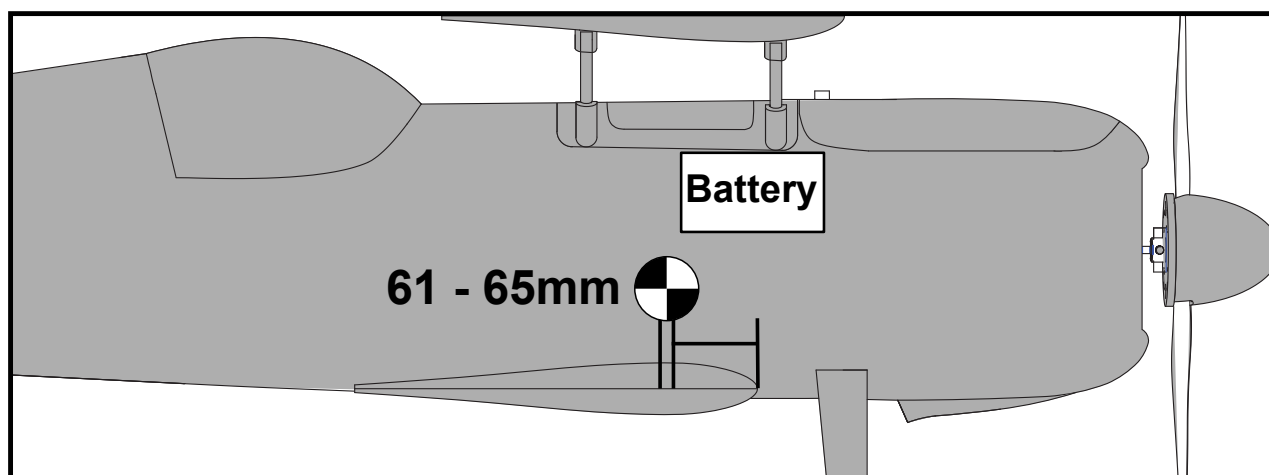
CENTER OF GRAVITY

The center of gravity for the Mamba 10 G2 is located **2-13/32 to 2-9/16 inches (61 to 65mm) AFT** of the **LEADING EDGE** of the **BOTTOM WING**, and is measured by lifting the completed aircraft upright, with all components installed, by the bottom wing. This measurement was determined from many test flights by designer and many time world aerobatic champion, Quique Somenzini. Lift the airplane from the underside of the wing to check the CG.

Setting the center of gravity is one of the most important steps for successful flight, particularly with a new airplane. The Mamba is a high-performance airplane with large control surface throws, and a high thrust to weight ratio. These two factors combined make it a very enjoyable aircraft to fly, but if the center of gravity is not within an acceptable range, it will make the airplane difficult, if not impossible, to control.

NOTICE

The CG measurement should be made with the completed airframe with all components (batteries, servos, receiver, linkages, screws, bolts, hardware, etc.) installed. Failure to do so will result in inaccurate measurement.



PRE-FLIGHT CHECKLIST

To help ensure a successful first flight, as well as many flights after, perform a few simple pre-flight checks to be sure the aircraft is ready to fly:

1. Verify all control surfaces are properly hinged and are in good working order. Pinch a control surface between your thumb and forefinger and stabilize the wing with your other hand. Give the control surface a good pull away from the wing. The control surface should not come unhinged from the wing. Be sure to avoid over-stressing the part as an aggressive pull may cause the control surface to come un-hinged even though it was hinged properly. If hinging is loose, **DO NOT FLY!** Apply thin CA to the loose side(s) of the hinged to re-secure.
2. Verify that all hardware and other aircraft parts are properly secured, including those connections that require blue thread lock. This includes hardware and parts installed by the factory.
3. Verify your battery is fully charged and in good condition. Avoid using batteries with swollen cells, or batteries that do not charge back to their full capacity.
4. Verify the C.G. is in the proper location and the battery is secured in place.
5. Ensure the Aura is on and functioning properly. Power on your transmitter, followed by the aircraft. Ensure the Aura is calibrated properly and receiving a valid radio source (solid orange+solid green LEDs).
6. Verify transmitter stick inputs result in the proper control surface movements (reference page 13) and the Aura flight modes work properly.
7. Verify aircraft movement results in proper Aura sensor corrections (reference page 14).
8. Verify the motor and ESC function properly. Point the aircraft in a safe direction. Hold the airframe firmly, smoothly advance the throttle to full and back to idle. Listen and watch for any odd or unusual behavior for the motor or speed controller.

AMA SAFETY CODE

When flying your aircraft, we recommend following the guidelines set by the Academy of Model Aeronautics (AMA). You can find their safety handbooks as well as more information on the AMA at their website, located at the address below:

www.modelaircraft.org



FLYING YOUR MAMBA 10 G2

Selecting a Flying Site

Selecting a flying site is critical to a successful flight. Airplanes require a lot more room than other R/C products, therefore, a neighborhood or parking lot is less than ideal. A large open field with short grass and generous overfly area are the best candidates if no AMA field is available in your area. Know your overfly area - ensure that there are no houses, playgrounds, or other buildings that may be damaged if the airplane were to crash.



Takeoff

Taxi or place the aircraft on the runway centerline, with the nose into the wind. Select Flight Mode 1, verify the gyro kill switch is set to the gyro on position and set the throttle trim so that the motor spins smoothly at its lowest RPM without stopping. Smoothly advance to full throttle while maintaining directional control with the rudder and slight back pressure on the elevator. The airplane should lift off gently before the throttle is fully open. Fly in Flight Mode 1 until the aircraft is fully trimmed (see special trimming instructions), and you are comfortable with its handling, then explore the other modes as desired.

Flying

Altitude is your friend on the first flight. Briskly climb to a safe altitude and trim the airplane out. The airplane should fly straight and level at 1/2 to 3/4 power with no hands on the transmitter. Try some basic maneuvers, and slowly progress into the airplane's flight envelope as you become more comfortable with the airplane's flight qualities and perfect your setup. Note: If at any time, such as after gain adjustments, you experience unexpected control system inputs or oscillations, use the gyro kill switch (CH7, Aux2) to turn the gyro off, land and troubleshoot the issue.

Landing

Be mindful of your flight time and allow adequate battery reserve for a couple of go-arounds, if necessary, on the first few flights. Select Flight Mode 1 and slow the airplane and align with the runway, into the wind. The airplane should descend smoothly in this configuration with proper airspeed. Once you are close to the ground, gradually close the throttle fully and begin to smoothly apply up elevator as required to arrest descent and the airplane should gently touch down with a short roll out.



CAUTION

USE CAUTION WHEN FLYING YOUR MAMBA 10 G2 IN MODE 3 AT HIGH AIRSPEEDS. DOING SO CAN INDUCE CONTROL SURFACE OSCILLATIONS AND MAY CAUSE A CRASH.

Trimming

The first several flights on your new Mamba 10 G2 should be dedicated to trimming and setup. Fly the airplane at 2/3 power in any Flight Mode you are comfortable flying in, and trim for level flight. **DO NOT CHANGE FLIGHT MODES. Land, adjust linkages or execute Quick Trim (see below) and return the trim and/or sub-trim to zero and fly again. Repeat process until the airplane flies hands off, straight and level.**

Transmitter trim or sub-trim will cause trim shifts when different flight modes are selected. To eliminate this trim shift, the model should be mechanically trimmed, or Aura "Quick Trim" may be used instead.

Aura Quick Trim

The Aura 8 features a Quick Trim Mode that eliminates the need for mechanical linkage adjustments during test flights. Aura will learn the trim values from your transmitter, and apply them to the control surfaces at power up when enabling quick trim mode.

NOTE: Quick Trim can also be used BEFORE flying to make small changes to center the control surfaces before flight.

1. Fly the airplane in your preferred Flight Mode at 2/3 power. Trim the aircraft with the transmitter trimmers and land. **DO NOT CHANGE FLIGHT MODES.**
2. Power off the Mamba 10 G2. Insert a bind plug into Aura Port S3 (you will need to remove the servo lead that is currently in S3). Check the transmitter is on and re-power the Aura to enter Quick Trim.
3. Wait 5 seconds for the Aura to completely initialize. Confirm Quick Trim mode is active by checking the Blue LED is slowly flashing.
4. Remove the bind plug from Aura Port S3 to save your trim settings. Re-install the servo that was previously removed into port S3. Removing the bind plug stores the current trims in the Aura. The Blue LED will flash quickly after control surface trim values are stored. While the trim values are stored in Aura, they are not applied to the control surface(s) until the Aura is re-powered.
5. Remove power from the Mamba 10 G2 and center all control surface trims on the transmitter.
6. Re-power the Mamba 10 G2. The control surfaces should be unchanged even though the trim has been centered on the transmitter.
7. Switch between other Flight Modes to ensure you do not see any changes in trim.

NOTE: QUICK TRIM MAY BE REPEATED AS NEEDED FOR FINE TUNING, OR IF CHANGES TO THE AIRCRAFT ARE MADE.

NOTE: ENSURE AILERON/ELEVATOR/RUDDER SUB-TRIMS ARE ZERO **BEFORE** FLYING FOR QUICK TRIM PROCESS

OPTIONAL WHEEL PANT REMOVAL

For flyers that want the lightest possible setup, or that fly off of rough/unimproved fields, the wheel pants on the Mamba 10 G2 are designed to be removable. Two additional wheel collars have been provided in the hardware bag to retain the wheels after the wheel pants are removed.

Required Tools and Fasteners: #2 Phillips Screwdriver, 1.5mm hex driver, (2) wheel collars

1. Invert the airplane and locate the two wheel pant retaining screws and remove them. Slide the wheel pants and tires off of the axles.
2. Remove the wheel from the wheel pant and reinstall on the axle.
3. Slide the wheel collar onto the axle with the shoulder (offset) side towards the wheel. Tighten the set screw on the wheel collar.

TIP: reinstall the wheel pant retaining collar and screws to prevent losing parts in case you wish to reinstall them.

TIP: use blue thread locker on the wheel collar set screw for added security.



AIRFRAME REPAIRS

The Mamba 10 G2 is molded from durable EPO foam and is repairable with most adhesives. Similar to building and repairing wood or composite airplanes, the correct glue for a given application is critical to the repair holding and not breaking again. For major repairs, such as a broken fuselage, epoxy is preferred because it allows time to correct any misalignment. For smaller repairs, such as a cracked control surface or small chunk of material missing from the airframe, regular CA is very effective. The use of odorless (foam safe) CA is not required and not recommended on EPO foam aircraft because it takes a longer period of time to cure than regular CA and the bond tends to be weaker.

NOTE: Avoid the use of CA accelerant in repairs. It can damage paint and will weaken the bond of the glue. If CA accelerant is used, be mindful of the locations of CA to prevent premature bonding of parts, or bonding a hand or clamp to the airframe.

If a part is damaged too badly to be repaired, please refer to the table on page 3 for a complete listing of spare airframe parts.

NOTICE: If a crash is imminent, fully reduce the throttle to prevent further damage to the power system and reduce energy to lessen impact damage. Never allow the propeller to contact the ground under power, even idle.

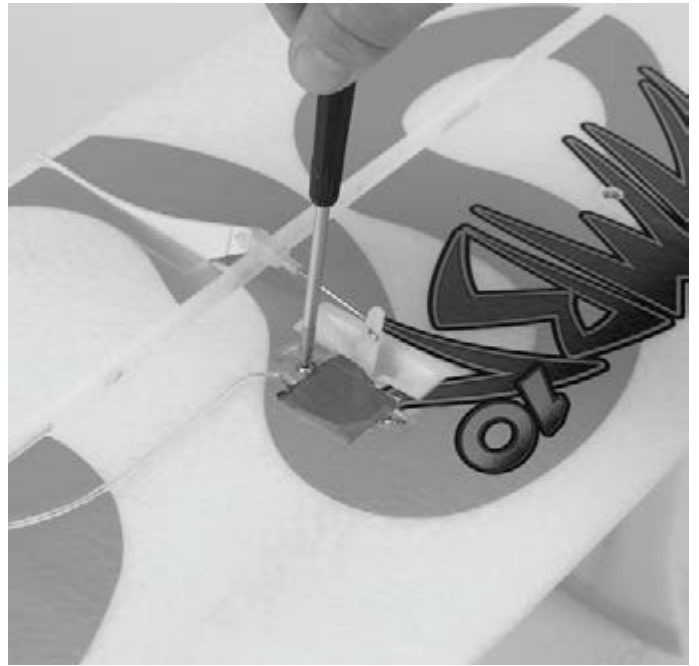
CRASH DAMAGE IS NOT COVERED UNDER ANY PRODUCT WARRANTY.

Avoid keeping the airplane in direct sunlight when not flying. Excessive heat can damage the airplane's structure and UV damage can permanently discolor decals.

REPLACING AILERON SERVOS

Required Tools and Fasteners: #1 Phillips Screwdriver

1. Unplug the servo from the receiver.
2. Unscrew the servo arm from the servo and remove the servo arm.
3. Unscrew the two mounting screws located at each end of the servo and remove.

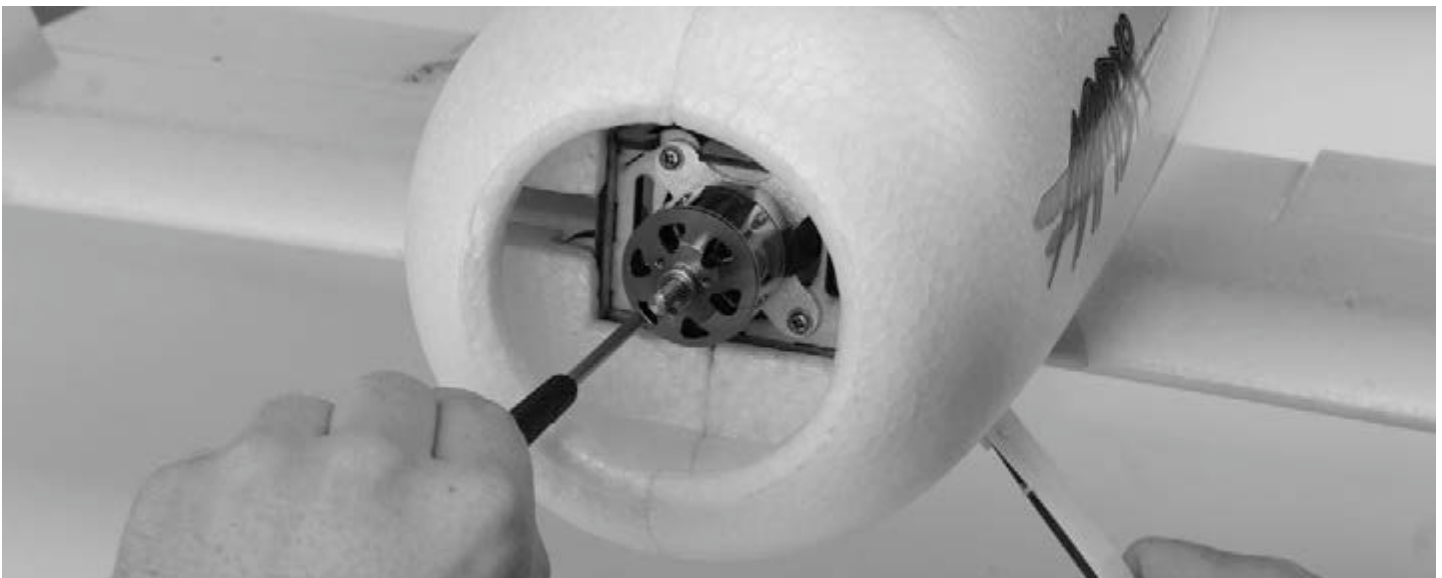


TIP: Plug a spare extension lead into the servo when removing to make it easier to route the lead of the replacement servo when installing it.

SERVICING THE POWER SYSTEM

Required Tools and Fasteners: #2 Phillips Screwdriver, 13mm box wrench

1. Remove the propeller and spinner assembly from the motor.
2. Remove the (4) bolts holding the motor to the firewall using a #1 Phillips screwdriver. Disconnect the motor from the ESC.
3. To remove the ESC, simply unplug its lead from the receiver or Aura and the output leads from the motor.



AIRCRAFT TROUBLESHOOTING GUIDE

Should you encounter any abnormal situations with your Mamba 10 G2, refer to the table below to determine the probable cause and a recommended solution for the issue.

If the required solution does not rectify the problem, please contact product support at support@flexinnovations.com for further assistance.



NOTICE

Unless specifically required, ALWAYS troubleshoot the airplane with the propeller removed.

DISCREPANCY	PROBABLE CAUSE	RECOMMENDED SOLUTION
Motor non-responsive (no ESC initialization tones audible)	Throttle not at idle and/or throttle trim too high	Lower throttle stick and trim completely. If problem persists, ensure that the sub-trim and travel adjust are properly set in the radio's programming
	Motor disconnected from ESC	Ensure plugs are fully seated. Check battery and/or plugs for damage and replace any damaged components found - DO NOT ATTEMPT REPAIR
Motor non-responsive (throttle calibration tones received)	Throttle channel is reversed	Reverse throttle channel in radio programming
Motor turns in the wrong direction	The three motor wires are connected incorrectly to the ESC	Swap any TWO motor wires
Reduced flight time or aircraft underpowered	Battery not fully charged	Ensure battery is fully charged prior to installing in aircraft
	Propeller installed backwards	Install propeller so that the convex side faces forward (tractor configuration)
	Battery is too weak or damaged	Remove battery from service completely and replace with a different battery
	Ambient temperature is too cold	Ensure battery packs are adequately warm (70°F/21°C) before flight
	Battery capacity too small for intended use	Replace battery with one of proper capacity and discharge capacity
	ESC reaching preset LVC (low-voltage cutoff)	Recharge flight battery or reduce flight time
	Battery's discharge rating may be too small	Replace battery with one with higher 'C' rating
Excessive propeller noise and/or vibration	Damaged spinner and/or propeller, collet, or motor	Replace damaged components - DO NOT ATTEMPT REPAIR
	Propeller is not balanced	Balance or replace the propeller
	Prop nut is loose	Tighten prop nut with appropriate-sized wrench
	Spinner is not fully in place or tightened	Loosen the spinner bolt, adjust as required, retighten spinner bolt
	Propeller nut or propeller adapter threads not cut straight	Replace propeller nut or propeller shaft - DO NOT ATTEMPT REPAIR
Control surfaces nonresponsive	Airframe or control linkage system damage	Examine airframe for damage, repair as required; inspect control linkage system (servo, pushrod, control horn) for damaged components and replace as required
	Wire damaged or connector loose	Examine wires and connections, replace as necessary
	Transmitter bound incorrectly, incorrect active model memory, incorrect Aura data input configuration, incorrect Aura transmitter settings	Consult radio manual for proper binding and model selection instructions
	Battery voltage too low	Use volt meter to check battery; recharge or replace as necessary
	Battery disconnected from ESC	Check that the EC3 plugs are fully seated
	BEC (battery elimination circuit) damaged	Replace ESC - DO NOT ATTEMPT REPAIR
	Damaged Servo	Replace Servo - DO NOT ATTEMPT REPAIR
Failed control direction test	Incorrect Aura 8 or Transmitter Setting - DO NOT FLY!	Reference transmitter and receiver sections of this manual. Refer to control surface direction chart and transmitter setup; adjust appropriate settings as required. Check Mamba 10 G2 and Aura wiki web pages for additional information. If no solution is found, contact customer support at support@flexinnovations.com
Failed Sensor Direction Test	Aura 8 is not mounted in the proper orientation	Mount Aura in the proper orientation
	Aura 8 settings incorrect	Reference the transmitter and receiver sections of this manual. If no is solution is found, contact customer support at support@flexinnovations.com
Control surface oscillation	Exceeding maximum airspeed for configuration	Reduce airspeed
	Gains too high for aircraft/flight configuration	Refer to Aura 8 manual to decrease desired control surface gain
	Propeller/spinner not balanced	Balance or replace propeller and/or spinner
	Motor vibration	Inspect motor mounting bolts and re-tighten as necessary
	Loose Aura 8 mounting	Re-align and secure the Aura 8 to the aircraft
	Control linkage slop	Examine control system and repair or replace worn components
	Improper transmitter setup	Refer to Aura 8 manual to correctly configure transmitter
	Damaged propeller or spinner	Replace damaged component- DO NOT ATTEMPT REPAIR
	Improperly set master gain	Ensure master gain is set for proper gain value
Trim changes between flight modes	Trims are not properly zeroed	Readjust control linkage and re-center trims in radio
	Sub-trim is not properly zeroed	Remove sub-trim; adjust the servo arm or clevis to achieve proper geometry
	Transmitter is not properly calibrated (aileron/elevator/rudder are not neutral with sticks centered; reference transmitter monitor	Calibrate transmitter (reference manufacturer's instructions, or return to manufacturer for calibration
Gyro doesn't respond to aircraft movements	Gyro kill switch not setup on transmitter	Follow the transmitter configuration guide, assign CH7/Aux2 to a two-position switch
	Gyro kill switch in off position	Move the gyro kill switch to the on position

LIMITED WARRANTY

Warranty Coverage

Flex Innovations, LLC. and its authorized resellers ("Flex") warrant to the original purchaser that the product purchased (the "Product") it will be free from defects in materials and workmanship at the date of purchase.

Outside of Coverage

This warranty is not transferable and does not cover:

- (a) Products with more than 45 days after purchased date.
- (b) Damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance
- (c) Modification of or to any part of the Product.
- (d) Product not compliant with applicable technical regulations.
- (e) Shipping damage.
- (f) Cosmetic damage

OTHER THAN THE EXPRESS WARRANTY ABOVE, FLEX MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Solution

Flex's sole obligation and purchaser's sole and exclusive remedy shall be that Flex will, at its option, either (i) service, or (ii) replace, any Product determined by Flex to be defective. Flex reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Flex. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability

FLEX SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF FLEX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Further, in no event shall the liability of Flex exceed the individual price of the Product on which liability is asserted. As Flex has no control over use, setup, 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 the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law

These terms are governed by Florida law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. FLEX RESERVES THE RIGHT TO MODIFY THIS WARRANTY AT ANY TIME WITHOUT PRIOR NOTICE.

Questions & Assistance

Visit www.flexinnovations.com/flex-dealers for customer support in your region.

Inspection or Services

If this Product needs to be inspected or serviced and is compliant in the region you live and use the Product in, please contact your regional Flex authorized reseller. Pack the Product securely using a shipping carton. Please note that original boxes needs to be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Flex is not responsible for merchandise until it arrives and is accepted at our facility.

Warranty Requirements

For Warranty consideration, you must include your original sales receipt verifying the proof of purchase date. Provided warranty conditions have been met, your Product will be replaced free of charge. Shipping charges are as follow: to Flex by customer, Flex out it is by Flex. Service or replacement decisions are at the sole discretion of Flex.

COMPLIANCE INFORMATION FOR THE EUROPEAN UNION

 Declaration of Conformity (In accordance with ISO/IEC 17050-1)

Product(s): Mamba 10 G2 Super PNP
Item Number(s): FPM4270A

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the EMC Directive 2004/108/EC.

EN 55022: 2010+AC: 2011

EN 55024: 2010

EN 61000-3-2: 2006+A2:2009

EN 61000-3-3: 2013

EN 61000-6-3: 2007/A1:2011

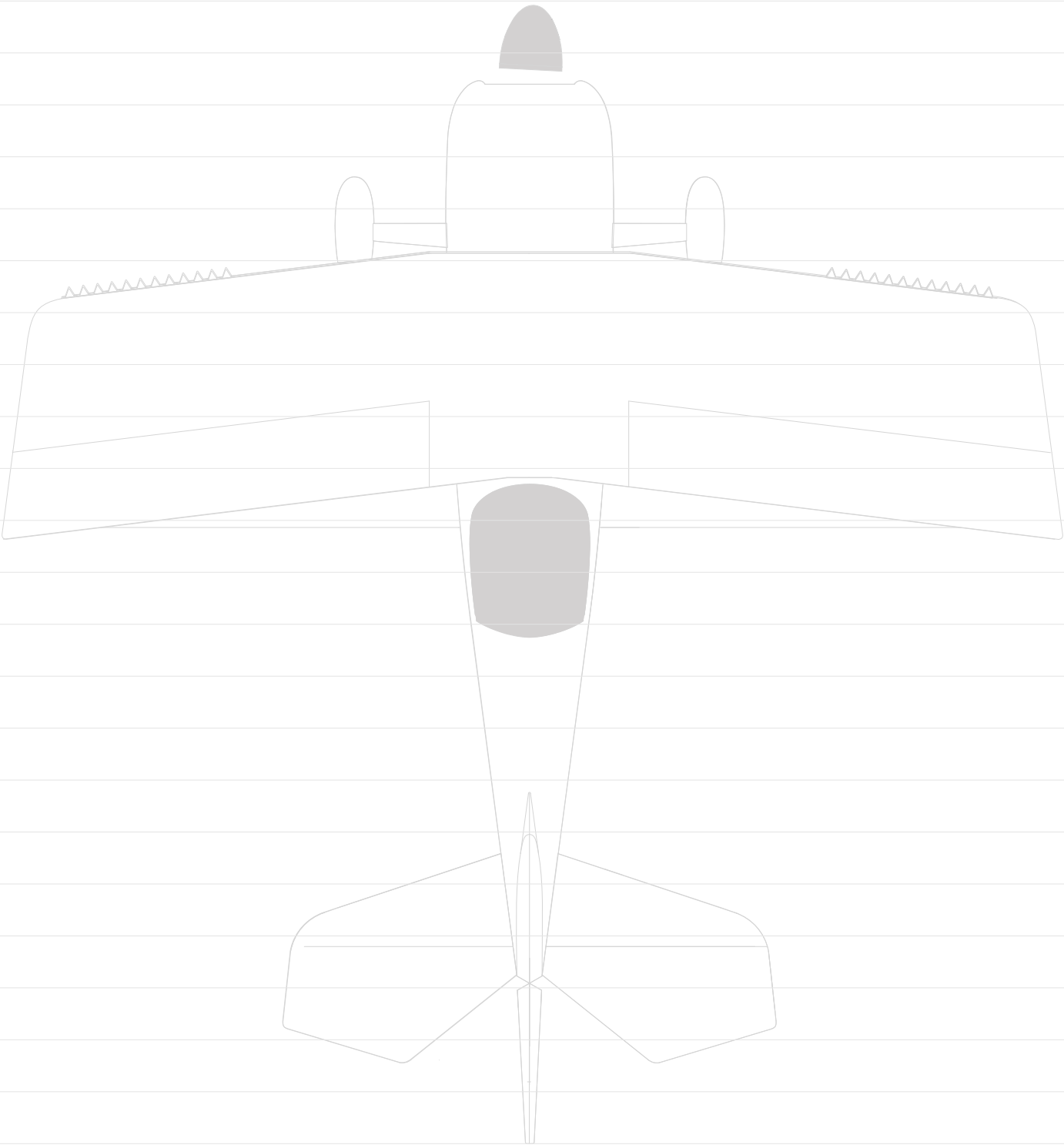
EN 61000-6-1: 2007



Instructions for disposal of WEEE by users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collections point for the recycling of waste and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where to drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

Building and Flying Notes





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