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DE RUYMBEKE sarl
20-22 Bd BOURRE, 13008 MARSEILLE - FRANCE
email : contact@bionic-rctoys.com
website : www.bionic-rctoys.com

14+

This is not a toy



INSTRUCTION MANUAL

THANK YOU FOR PURCHASING



THE FIRST BIONIC BIRD !

CRYSTAL BIRD

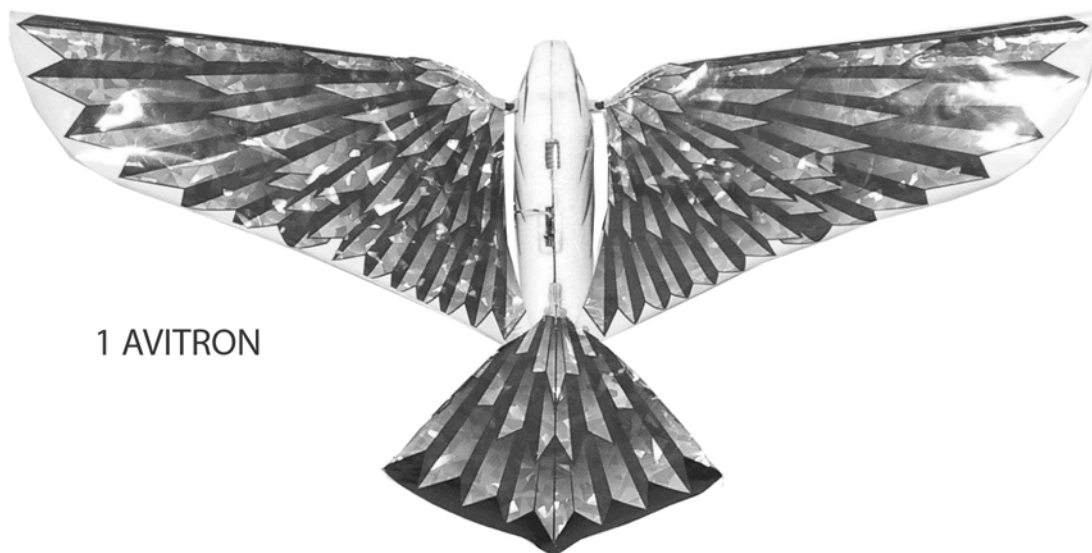
- Ultra light weight 8.35 g
- Very powerful motor with aluminium heat sink
- Range up to 100 yards
- WIFI connection 2.4 GHz with auto-detection
- Extremely precise power control (128 steps)
- Sharp & immediate directional control for aerial stunts
- Electronic protection against motor heating and battery damage
- Flies up to 1 mile in a single flight
- Up to 75 charges on one set of 6 batteries
- Hybrid Lithium Polymer battery included
- Controller auto power-off (battery saving)
- Adjustable tail angle for fast or slow flights
- Up to 6 min flight , at full power, on a single charge
- Turbo charging system : 12 min
- Multi-frequency system / Auto-channel-selection (6 players at same time)



WARRANTY : This product is warranted by DE RUYMBEKE LTD against defects in material and workmanship under normal use for thirty (30) days from the date of purchase (Keep your purchase receipt).

For any questions regarding this product, please contact our customer service by email at :
contact@bionic-rctoys.com

PARTS INCLUDED :



1 AVITRON



1 spare pair of wings



1 controller



1 aluminum pre-cut tape

BATTERIES :

- Avitron (onboard) : 40 mAh Li-Polymer (20C,800mA) - included
- Controller : 6AA, 1.5 volts - NOT INCLUDED

PATENT :

FRANCE 0855430 du 5/08/08

PCT FR2009/051560 DU 05/08/09

WARNING :

This product complies with the following standard and complies with FCC part 15 (2008) ; R&TTE 2008 (EN300440-2 . EN301489-1 . EN301489-3) ; DEEE (WEEE) directive 2002/96/EC.

FCC ID : XTR301142A

FCC ID : XTR301142B

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions :

- 1- This device may not cause harmful interference, and
- 2- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- * Reorient or relocate the receiving antenna.
- * Increase the separation between the equipment and receiver.
- * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help.

Warning : Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



Users should keep and retain this manual for future reference.

Keep the packaging since it contains important information.
Keep name and address.

SAFETY PRECAUTIONS :

Not suitable for children under 36 months, small parts may be swallowed.

Do not play next to an animal or a person.

Do not use near electrical lines or during a storm.

Do not fly AVITRON near electrical lines, trees, buildings and any other obstacles.

Keep away from water.

Never fly or follow AVITRON in the streets.

Keep AVITRON away from face and eye.

Never put your fingers close to AVITRON when it moves.

Always use the transmitter charger included in this equipment.

Always place the transmitter on the "OFF" position when not flying.



Niet geschikt voor kinderen onder de 36 maanden, bevat kleine onderdelen.
Aanwezigheid van kleine onderdelen die ingeslikt zouden kunnen worden.
Naam en adres om te bewaren.



Nicht geeignet für Kinder unter 3 Jahren, weil es kleine Teile enthält.
Das Spiel enthält Teile, die verschluckt werden können.
Name und Anschrift bitte aufbewahren.



Non appropriato per bambini con meno di 36 mesi perché contiene piccolini pezzi.
Presenza d'elementi suscettibili d'essere ingeriti.
Nome e indirizzo da conservare.



Presença de elementos susceptíveis de serem ingeridos não é conveniente
para crianças com idade inferior a 36 meses, porque contém peças pequenas.
Conservar o nome e o endereço.



No conviene a los niños menores de 36 meses.
Contiene pequeñas piezas que podrían ingerirse
Conserve el nombre y la dirección.

BATTERY CAUTIONS :

Works with 6 AA/LR6 1.5V batteries (not included)

Works with 1 rechargeable LI-PO (lithium Polymer) battery and 1 2.4 GHz transmitter (included).

Only batteries of the same or equivalent type as recommended are to be used ;
do not mix old and new batteries, different types of batteries (standard carbon
zinc, alkaline or rechargeable) or rechargeable batteries of different capacity.

Rechargeable batteries are only to be charged by an adult.

Respect the correct polarity (-) or (+)

Do not try to recharge non-rechargeable batteries.

Do not throw the batteries into the fire.

Replace all batteries of the same type/brand at the same time.

The supply terminals are not to be short-circuited.

Remove exhausted batteries from the AVITRON.

Batteries are only to be replaced by an adult.

Only use the battery charger provided with the box to charge the Li-poly battery in AVITRON.

WEEE :

When this appliance is out of use, please remove all batteries and dispose of them separately. Bring electrical appliances to the local collecting points for waste electrical and electronic equipment.

Do not throw in domestic refuse.



WARNING :

CHOKING HAZARD- Small Parts
Not for children under 3 years.

PRODUCT SPECIFICITIES :

Length :	6,69"
Wingspan :	12.90"
Weight :	8.35 g
Radio :	2 channels
Battery not included :	6 AA batteries
Rechargeable battery pack :	Li-poly 40mAh
Charger :	Included in controller
Flight Duration :	6 min (Single charge)
Charge time :	12 min
Range :	up to 100 yards
Frequency :	2.4 GHz - Multifrequency
Number of sub-frequencies (players at same time) :	6
Unloaded motor speed :	53,000 RPM
Full loaded motor speed :	35,000 RPM
Wing flapping speed :	up to 17 flaps/sec.
Wing amplitude :	55°
Ratio weight/wing area :	3.22 g/dm ²
Maximum static thrust :	9 g
Skill level :	Beginner

INSTRUCTION MANUAL

I - UNPACKING YOUR AVITRON :

Avitron wings are fragile be careful not to bend, break or tear them when unpacking. Use caution when unpacking.

II - INSTALLING BATTERIES IN THE TRANSMITTER :



Figure 1



Figure 2

III - CHARGING AVITRON FOR ITS FIRST USE :

1) Open the charging adapter on the transmitter. Turn on the power of the transmitter by pushing on the star button.

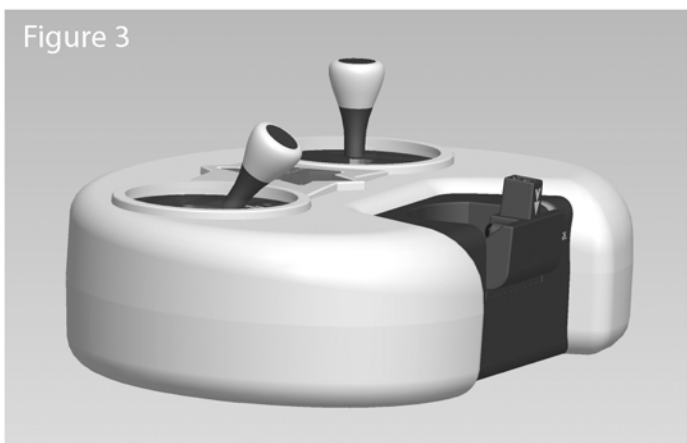


Figure 3

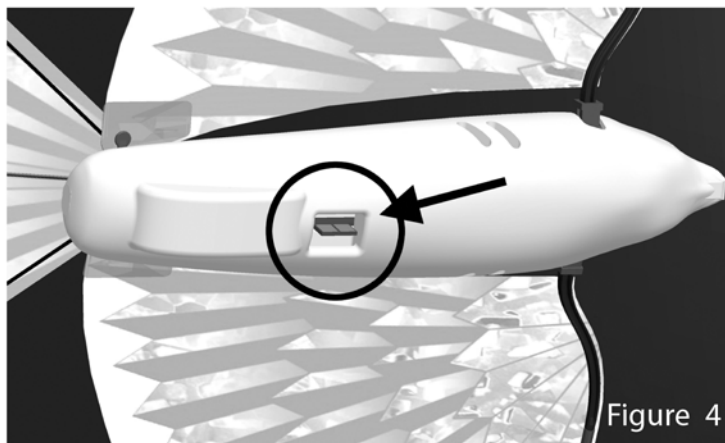


Figure 4

2) Insert AVITRON into the charging slot of the transmitter. Be careful to insert Avitron in the right direction as shown. (Figure 5)

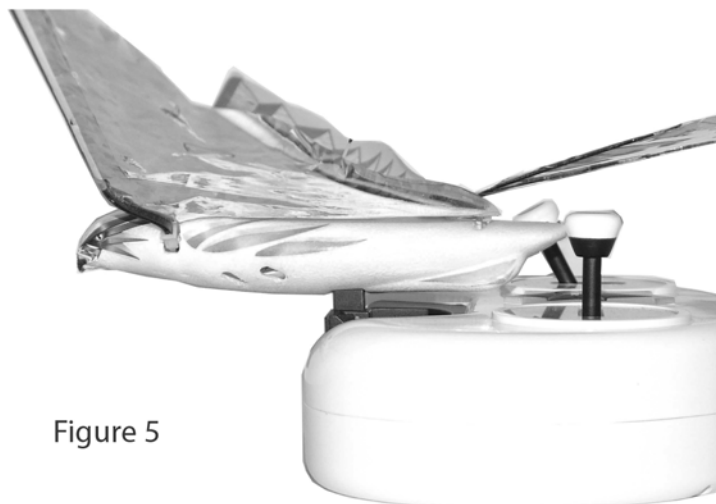


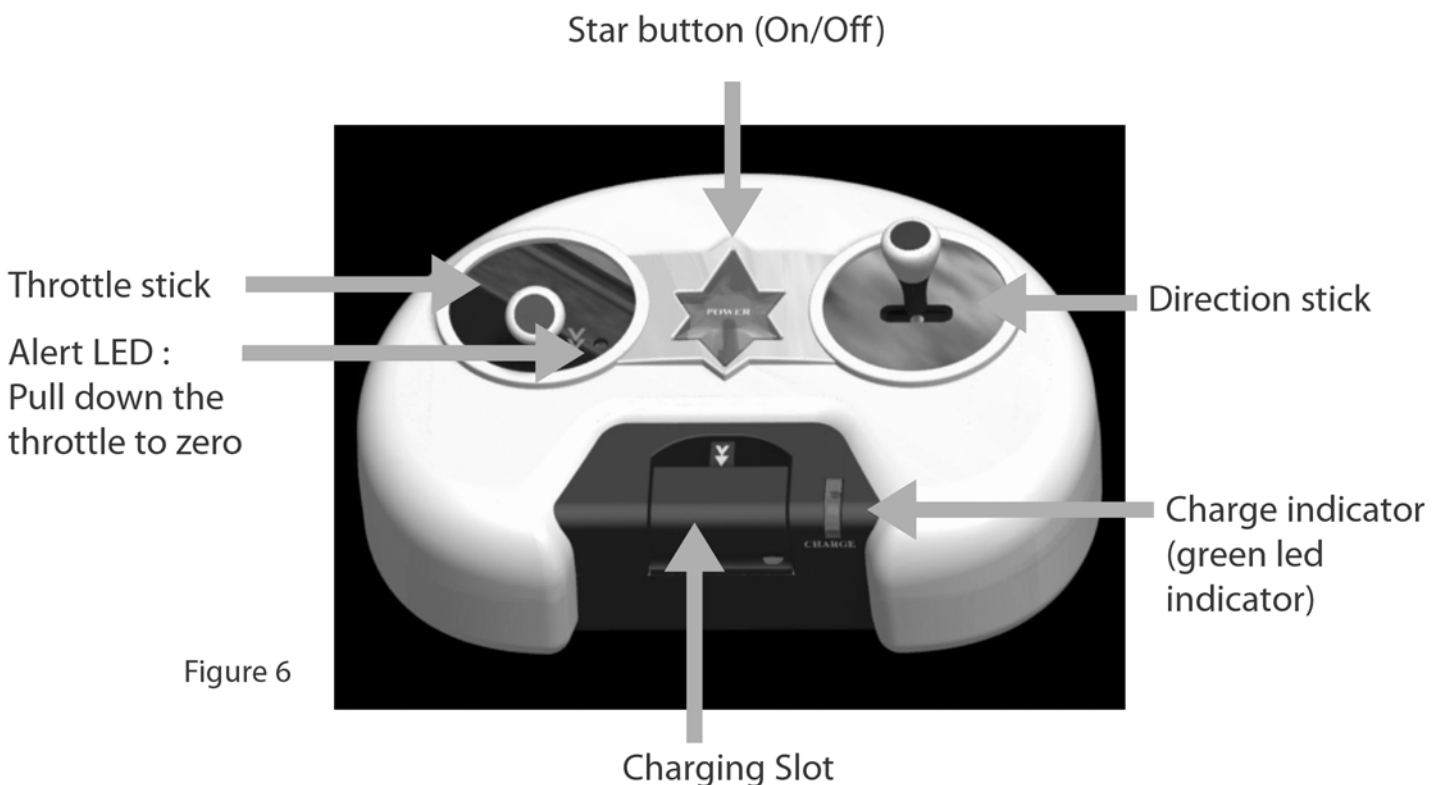
Figure 5

The LED indicator (green light) is flashing and the star button turns off: AVTRON is charging.

- 3) When the LED indicator (green light) stops flashing and the light remains green, AVITRON is fully charged.
- 4) Then take your AVITRON off and close the charging slot. The star button will light ON.
- You are ready to fly your AVITRON !**

NOTE : It is not compulsory to turn the AVITRON off prior to charging, if it is connected to its controller. (constant LED). You can go on flying immediately after the bird is fully charged, without starting up the bird again. However, the charge duration is longer in that case (16 min instead of 12 min when bird is off). If the batteries become weak during the charging process (the power button will flash rapidly and the charge light will turn off, the charging has now stopped. YOU MUST NOW REPLACE THE BATTERIES (see instructions above) and repeat the process of charging the Avitron.

IV - TRANSMITTER FUNCTIONS :



Left stick : throttle stick : push the throttle stick up to gain power and raise the flight of the bird.

Right stick : direction stick -push momentarily left or right. avoid oversteering.

Automatic power-off function :

If not in use for 15min, the transmitter will turn itself off (saving battery power). Just push the star button to turn it on.

Transmitter batteries life span : if the star button starts flashing, you should replace the batteries.

Warning : ensure that the + and - polarities match the illustrations inside the battery compartment (Figure 2).

Note: If transmitter batteries become weak during bird charging process, charging will be stopped and the AVITRON will not be fully charged. It is impossible to recharge the bird without replacing the batteries.

The control of the bird is effective until the very end of the flight.

V - FLYING YOUR AVITRON :

A - Turn ON the AVITRON (switch is located on top of body).



Figure 7

Turn the transmitter ON and leave the throttle stick in the lowest position. Then the bird and transmitter LED indicators will synchronize in the same color (red if you're the only player). They are connected. If the throttle stick is not in its lowest position the alert red LED will blink and you must pull it back to its lowest position to activate the transmitter (Figure 7).

B - Adjusting the Tail :

The tail angle is adjustable (5 notches), making possible to adjust the speed of the Avitron. To change the notch, just push or pull on the base of the tail.

* For indoor flights, in a confined space, or for slow flights: set the tail in a high position (using the slots from 3 to 5, starting from the bottom, among the 5 possible positions). (see figure 8)

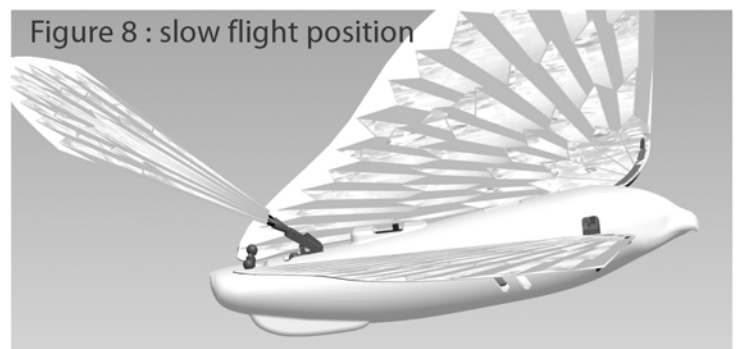


Figure 8 : slow flight position

* For outdoor flights, in a big space or for fast flights: adjust the tail in a low position (using the slot 1 or 2). (See figure 9)

When picking up the bird after landing, always check that the tail hasn't moved to another notch. If so, set it back again.

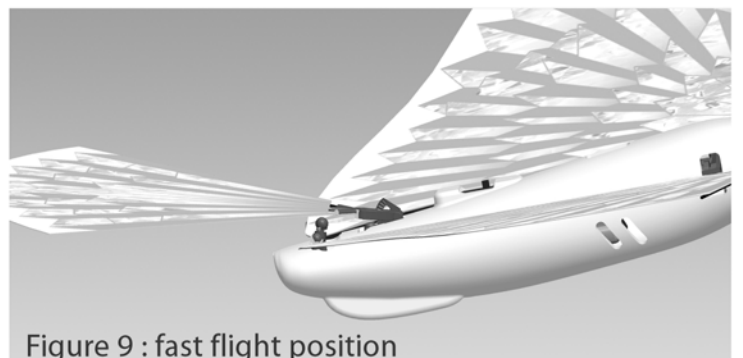


Figure 9 : fast flight position

C - Flying the AVITRON :

* Launching : Push the throttle stick $\frac{3}{4}$ of the way up. Always point the AVITRON facing the wind, launch the bird from your hand with a gentle horizontal toss. Let it gain some altitude before trying any turns. If it flies downward, you can try with the tail one notch higher.

* Gliding flight : To make Avitron glide : gain altitude, reduce speed and get the bird flying straight, then cut the throttle

* Out of range : If Avitron flies out of range of the transmitter, just get closer to the bird and it will connect again immediately. But, if the bird remains out of range for more than 2 min it will then turn to sleep mode, so be careful to reconnect within this time limit.

* Emergency landing : If you need to land Avitron quickly (in a risky situation), turn right or left to maximum and cut throttle, then release the direction stick. The AVITRON will nosedive towards the ground. Generally, doing tight turns will cause the AVITRON to descend. It is a good way to control its flight.

Warning : do not keep the direction stick at maximum on one side for a long time, even when the bird is not flying because it could cause the steering micro-motor to overheat.

* End of flight : When the AVITRON flight becomes less powerful it is time to recharge it (see above). When the LiPO battery inside bird is 95% empty, the LED indicator on the Avitron body will start flashing quickly and the power to the wings will be cut by half; then you have only 10 seconds to land the AVITRON. After these 10 seconds the bird will stop flapping and you must recharge it.

* Sleep mode : If you do not use Avitron for 16 min (or after 2 out of range, or if the controller is turned off), it will automatically go into sleep mode (slow flashing light) even if the battery is not weak.

You'll have to turn your Avitron off and on, and then restart the transmitter, in order to play again.

D - Battery protection :

The electronic protection on the LI-PO battery prevents it from irreversible damage. It operates (by cutting off the power) in the following 2 cases :

- A short-circuit

- When the battery discharges below 2.5 Volts.

This happens inevitably when you forget to switch off your Avitron, and the battery keeps on discharging slowly for hours. Then, the body LED will switch off (even though the power switch is still ON). You just need to charge Avitron again to reactivate the battery. During charge, the bird LED will start lighting again)

Warning : if AVITRON doesn't light up, whatever the switch position, try to charge it. (probably the battery protection system has been activated)

E - Motor protection :

If the wings get blocked by an object while the throttle is at its maximum, the over-heating protection device of the motor will cut off the power automatically. In order to reactivate AVITRON, push the throttle back to lowest position.

F - Loss of connection :

The AVITRON allows several persons to fly at same time in the same place. Thanks to a connection process between the bird and the controller which synchronizes frequencies at the start.

If either the AVITRON or the controller is switched off while already connected together, or if you lose the connection for any the reason, you must re-start both devices (controller and AVITRON) to get them connected again.

LED INDICATORS TABLE

CONTROLLER	POWER button	No light	OFF position or bird in charge	
		Green/red alternating flash	Not yet connected to the bird	Turn the bird ON
		Green or red constant light	Connected to the bird *	Ready to fly *
		Green or red flashing light	Used batteries	Replace the batteries
		<i>* If the bird LED is flashing or not the same color as the controller LED, you must re-start the controller.</i>		
CONTROLLER	Charge control LED	Flashing green	Bird charging	
		Constant green	Bird is fully charged	
CONTROLLER	Alert LED	Flashing red	Controller not activated	Pull the throttle back to zero
BIRD	Green / Red LED	Alternative green/red flash	Not connected to controller	Turn the controller ON **
		Red or green constant light	Connected to the controller	Ready to fly
		Green or red fast flashing	Low battery	Charge the AVITRON
		Green or red slow flashing	Sleep mode	Turn off then on the AVITRON
		No light but power ON	Battery protection process	Put the AVITRON back to charge
	<i>** if the controller is already ON (red or green constant light), you must re-start the controller.</i>			

G - Adjusting the wings :

Normally, the AVITRON you purchased has already been balanced in the factory. If while flying (without wind or indoors), you notice the following unbalanced flight :

- the direction stick is in middle position but the bird turns left or right in small circles, or

- it seems that the bird turns more easily to one side than to the other,

You will have to trim the wings. Several pieces of aluminum tape is supplied with your Avitron.

If the bird tends to turn to the left, add some weight to the right wing : Take one of the aluminum tape pieces and stick it near the tip of the right wing, close to the wing structure.

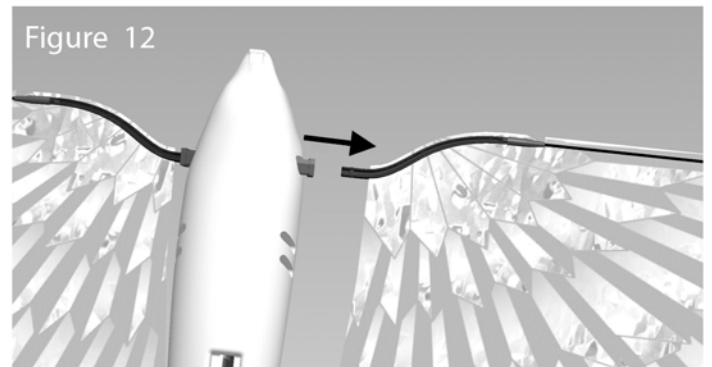
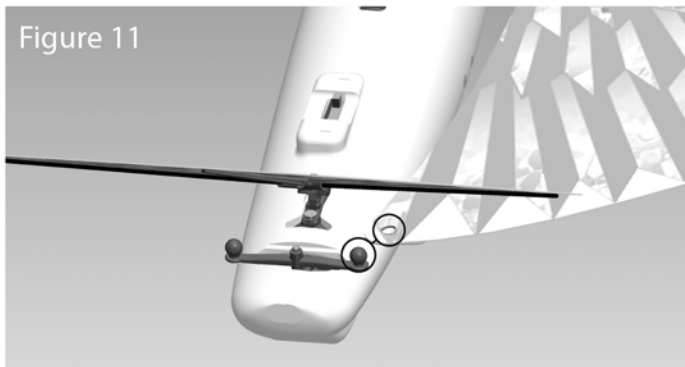


If the bird tends to turn to the right, add some weight to the left wing : Take one of the aluminum tape pieces and stick it near the tip of the left wing, close to the wing structure. See Figure 10.

Note : After adjusting the tail to a different notch, it may be necessary to readjust the tape.

H - Replacing the wings :

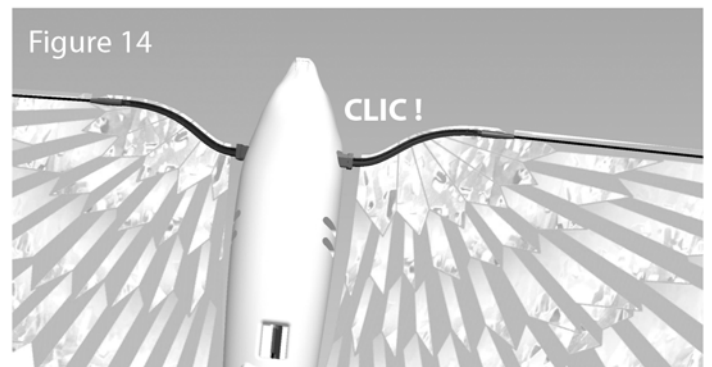
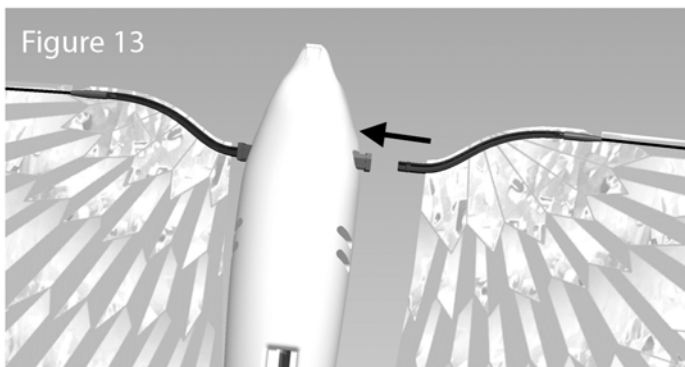
If a wing is broken, you can replace it with the spare set of wings included in the box. Lift the tail to the maximum notch. Pinch one side of the wing, at the back of the wing where the wing is clipped to the round knob, and take it off the knob (as shown on picture 11). Then detach the front of the wing like so hold the wing structure firmly and pull it out so that it comes out the slot (Figure 12). It is not necessary to change both wings, when just one is broken.



Take the new wing and ensure to select the right wing for the right side of the bird and the left wing for the left side of the bird.

Start by inserting the wing structure in the slot, you should hear a "clik" which means that the wings is correctly inserted (Figure 14).

Clip the back of the wing to the round knob, underneath the tail (Figure 11).



I - Replacement of other parts :

If ever the foam body or other parts were destroyed, please feel free to contact our customer's service at : contact@bionic-rctoys.com to get replacement parts or information on the product.

WARNING : To preserve the Li-poly battery as long as possible, we suggest that you NEVER let the bird discharge completely, when not in use. Charge the bird a few minutes and turn it OFF before putting it away.

J - Flying several AVITRONs at the same time (auto-detection) :

You can fly up to 6 AVITRON at the same time! To achieve these simultaneous flights, you need to follow this procedure :

- * Make sure that every bird and radio-controller is switched off.
- * Switch on the first AVITRON (LED light flashes red/green), then the first controller. Then the LEDs of controller and bird will synchronise (LED light red). They are connected.
- * Switch on the second AVITRON (LED light flashes red/green), then the second controller. Then the LEDs of controller and bird will synchronise (LED light green). They are connected.
- * Switch on the third AVITRON (LED light flashes red/green), then the third controller. Then the LEDs of controller and bird will synchronise (LED light red). They are connected.

And repeat the same up to the sixth.

Each bird is now connected to its own controller and can be flown separately.

If, when flying AVITRONs simultaneously, any device (bird or controller) happens to switch off, repeat the above procedure (only for the bird and controller that were disconnected) to get them connected again: first turn off the bird and controller, and then turn them back on again.

If one player stops flying for a while, it's suggested he switch off his controller and his bird to prevent from unexpected connection. Generally never leave your bird or controller ON with the LED flashing (not connected) while a multi-player flight is taking place.

How does the MULTIFREQUENCY system work ?

There are 6 different frequency channels, numbered from 1 to 6.

The bird and the controller need to use the same channel to be connected ; When you turn on a controller, it scans every channel from 1 to 6, in order and choose the first that is free (not used by another controller).

When you turn on a bird, it scans every channel from 1 to 6 in order. If it detects a controller free of connection (flashing LED), it will choose this channel, send a signal to this controller and the color LEDs will synchronise, from that point the controller will send a permanent signal saying that it is connected.

In any other case (when the controller is already connected or there is no controller), the bird goes to the next channel. And the process will go on until the bird finds a free controller.

If a controller and a bird are connected together and then the bird is suddenly switched off, the controller doesn't receive any signal, but it remains in the same state, on its own channel, still sending signal as if connected. No other bird will be then able to connect with this controller. So, you must re-start this controller so that it can look for a new channel and connect with a new bird.

If a controller and a bird are connected and we turn off the controller, the controller sends a signal to the bird to go into sleep mode, so that this bird cannot be controlled incidentally by another controller. You must then also in that case re-start the bird to reset.