



**Turbinas y Compresores JetsXoel, S.L.**

**Poligono industrial AGranxa, Rúa D, Paralela3, Edificio CIE, Nave 9**

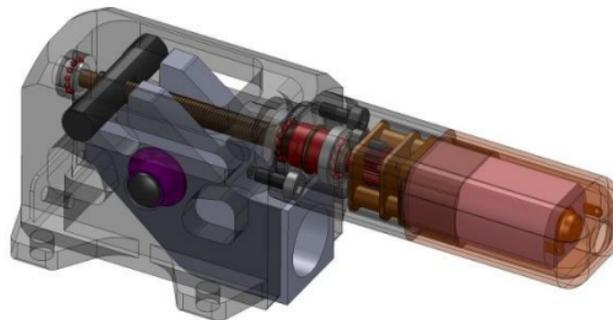
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**INSTRUCTION MANUAL**



## **Retracts installation, operation, and maintenance**

Congratulations on the purchase of your new electric retracts system.

Electron are dedicated to the design and production of electric retracts to the highest standards of quality and reliability to bring you the customer the very latest next generation designs.

### **ER-40&50 Evo features**

Size Retract	Retraction angle (degree)	Trunion hole	Weight one retract	Max plane weight	Cicle time	Garantee stall torque
ER-40	90, 100	5,6,8,10,11,12, 12.7mm (1/2")	140gr	17kg	About 3.5sec	25kgxcm
ER-50	90, 100	6,8,10,11,12,12.7mm (1/2")	280gr	30kg	About 3.5sec	50kgxcm

### **Installation:**

Installation is relatively simple. The Retracts have a standar clamping , and its installation is similar to any standard retract. An advantage of the electric retract, is that the installation of complex valves and air circuits are unnecessary. The Retracts are supplied with 1m long cable which is directly connected to the control unit. If the cable is not long enough, can be extended, respecting the correct polarity.

### **Operation:**

The operation of retracts, is the best quality of electric retracts. You will notice the advantage of not having to compress air before each flight, and you will forget the leaks...

The battery recommended to power the retracts is a 2S Lipo. With 900mAh battery you will have power enough during more than 10

flights. If you choose another battery, you must keep in mind that the battery must not exceed 10V.

If you need move one retract for mount your plane, you will can connect the battery (2S LiPo) direct to the retract. You will can invert the polarity to move it in two sense.

Electron retracts control units, detect the finals of cycles by the increase of current. All Evo retracts are equipped with internal absorbers for compensate this high current and torque, to save the gear boxes. Is important to keep the absorbers in good condition.

Special software in our control units, help to keep all absorption power of the absorbers.

**You will can hear a small noise at finals of cycles. Don´t worry, it is a small unload, to liberate the absorbers and maintain it free by long time periods, for proper conservation.**

### **Maintenance:**

Like any mechanical system, it requires minimal maintenance to ensure long product life.

Below is the recommended maintenance, and repair procedure if the retract was suffers damages after hard landings or any incident.

Electron retracts has designed very compact systems for need a low maintenance. The spindle system are made in auto lubricate materials, and all “delicate” parts are very protected by the high strength 7075 aluminium black main body.

Is advisable keep the spindle clean and lubricated, specially if your plane flies on unpaved runways.

## Retracts Trouble shooting

Problems	Solutions
The retract make noise, but doesn't move	-Disassembled the gear motor and check the gear boxes. Probably any gear have broken tooth. Change it. Page 5
The retract don't move, and don't make any noise	-Sure it is properly connected and battery charged - Some extent damaged? - Disassembled the gear motor, and test it with directly 6-10V battery, maybe has an internal damaged. Change it Page 5
My retract loss torque and have not power enough to lift up my strut	-Please, clean the spindle, bearings, and lube it -Test the gear motor and change it if necessary

After a hard landing, my retract don't runs well	-sure that the spindle and high strength carbon steel cart are not twisted. Change it if necessary. Page 5
After a hard landing, my retract have play or trunion breaks	-Guide bushings and trunion have damages. Change it Page 6
Retract don't reach 90° when it lifting	-Check the trunion screws, if it is unscrewed can collidingwith the frame.
Different sense retraction between retracts	-Please check the correct polarity connection
Rudder servo runs when nose retract is up	-Check the correct polarity connection

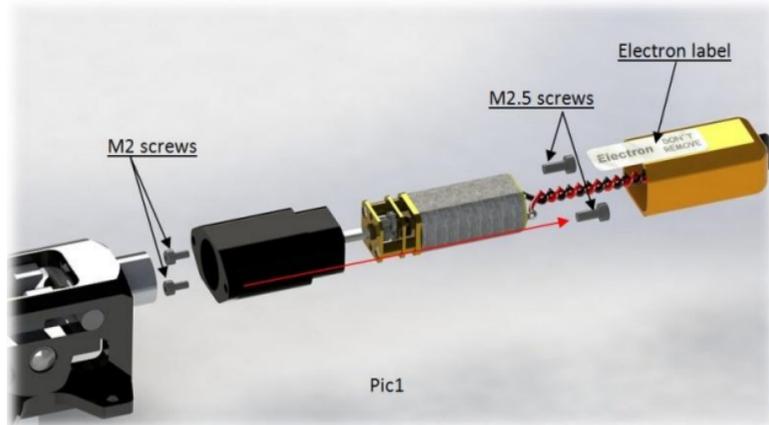
## Procedure to disassemble and change parts:

Pic1 shows how disassemble the gear motor to change it. Are three steps:

Step1: Remove electron labels

Step2: Remove M2.5 screws, located on the sides of gear motor

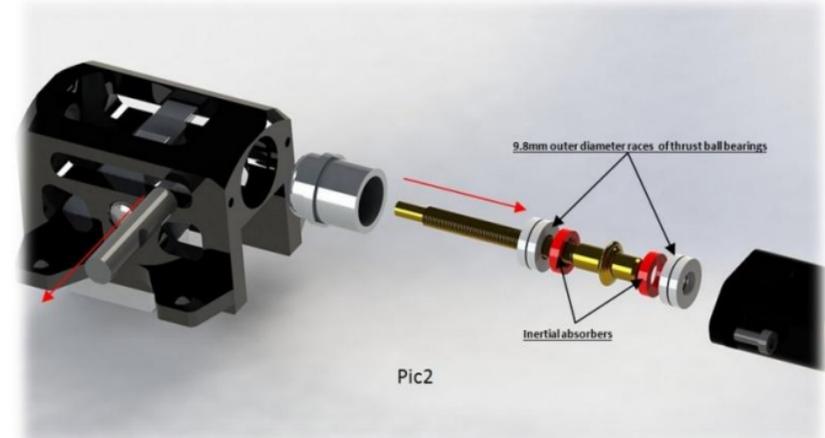
Step3: Remove M2 screws, located in the front of gear motor



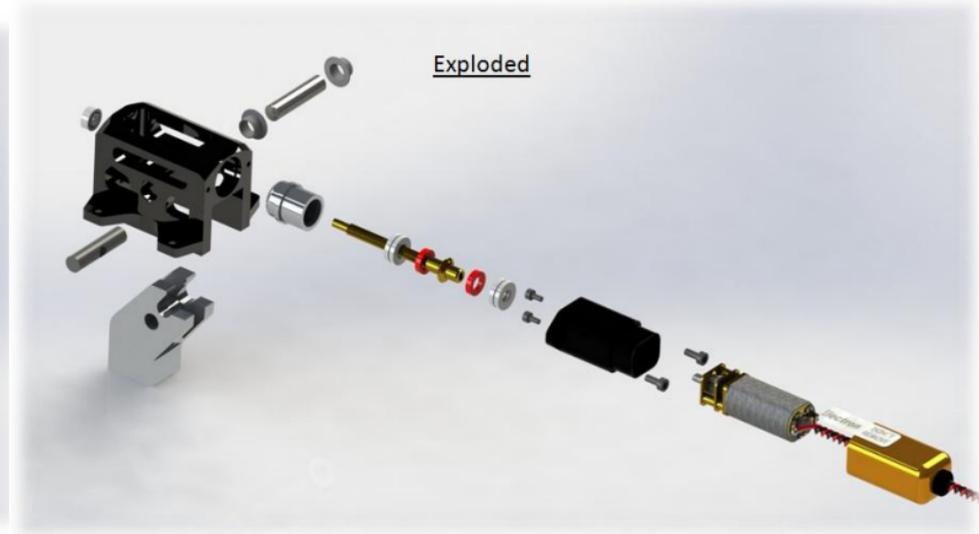
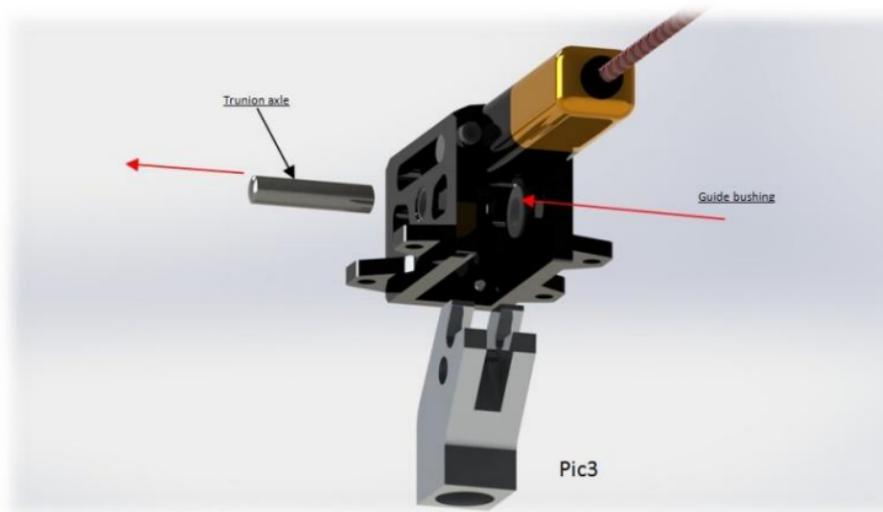
Pic2 shows how remove the spindle system.

Once disassembled the engine (Pic1), you can unscrew the spindle, and remove it with axial bearings and absorbers. The spindle cart can remove by a side of main body once the spindle is removed as shows the pic2.

Be careful not to change the order of bearing races. The bearing races, have different diameters, to allow the correct rotation of spindle. The smaller outer diameter (9.8mm) must be located in the ring absorber sides as shows the Pic2.



Pic 3 shows how remove the trunion and bushings. First, you need remove the trunion axle. You can extract it, gently tapping. Never hot the system! After remove the trunion, you will can take off the bushings pushing them from the main body sides.



## Brakes/wheels features

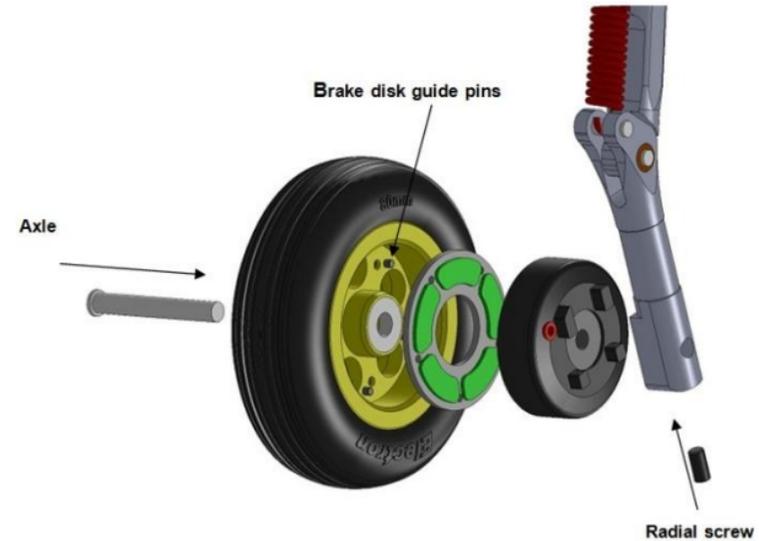
Size wheel (diameter Wheel)	Axle diameter	Weight (complete Wheel)	Electric power consumption (full brake)	Electromagnet antirrotation pins
80mm 3"	5,6,6.35mm (1/4")	190gr	1A per wheel	10 or 12mm, 1/8" or 1/2"

### Brakes installation, operation, and maintenance

Electron magnetic brakes have gone a long development process to achieve a high quality product. Electron have used high-tech materials, to achieve a proportionate effect and low current consumption.

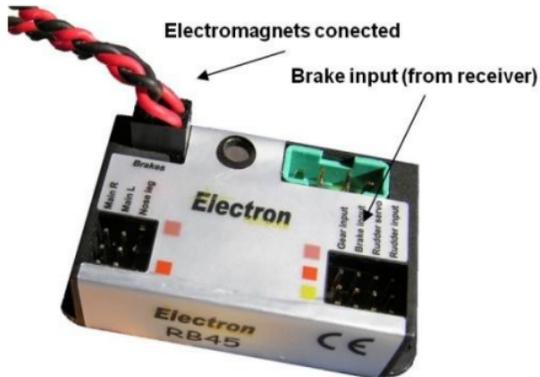
#### Installation:

Installation is simple. The brake disk must be guide by five pins inside wheel. 5 pins must insert into the holes of the disc. Green segments on the disc must be on the electromagnet side. Electromagnet is guide by the wheel axle, and normally it is fixed in the leg by radial screw.



### Connect to control unit:

Electromagnets have installed a standard 50cm servo wire to connect the control unit, but it can be prolonged. You must use a good conditions connector or make a good welding. The polarity can be reversed without affecting the operation of the system. You must connect it in the brakes plugs in the corner of control unit, how it is showed in the pic. Central terminals is not used. Only the sides, and it is not necessary to respect the polarity. Follow the RB45 or RS-200 instructions manual, in programming process to achieve a good proportional effect.



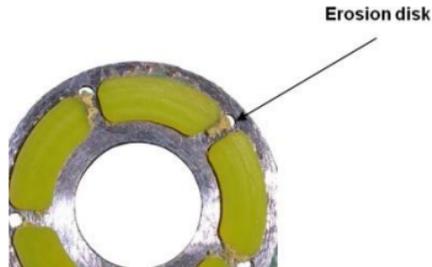
### Operation and Maintenance:

Electron brakes have big advantages over pneumatic brakes. Thanks to a long period of development, the electron team, has achieved a very smooth, high braking torque and low consumption. Now you can stop your model easily and accurately without worrying pressurize your tank before each flight.

System performance increases as the disc wears. There comes a time that the red colour of the surface is deleted. At this time, it is advisable to change the brake disk to keep the electromagnet in good conditions.



It is advisable to keep clean the grooves of brake disk and the friction surface of the electromagnet, to maintain proper system operation.



### Brakes trouble shooting

When down the retracts, the brake activates and deactivates after few seconds	-Reprogram control unit
One brake don't runs	-check the correct connection to the control unit
braking power is different between the two wheels	-Brake discs are worn, change it in both wheels

## Warranty:

**Electron Retracts warrants this product against, design defects, manufacturing , or materials for 2 years.**

**Note:** The warranty excludes damage from misuse of systems, or damage caused by reasons outside the manufacturing.