# ElyQ – Vision 90 Competition

| INSTRUCTIONS | SPECIFICATION |
|---|---|
| **FEATURES**<br>1. Notable slim profile and innovative light weight design<br>2. Main Rotor head with **FMS** (Flybar Moving System) for faster and dynamic response and/or new ElyQ **FBL** Main Rotor Head<br>3. Double configuration in CCPM management: **DSD** (Direct Servo Drive) and/or **BELLCRANK** (Push & Pull)<br>4. **+ / -13°** collective/cyclic pitch range for all advanced 3D performances<br>5. Heavy duty tail with angular bearings<br>6. Clutch, Ultralight Fan and Bell ensure perfect alignment and smooth movement<br>7. New Governor/Limiter sensor mount (optional)<br>8. Forward mounted tail servo<br>9. Radiotray designed for easy electronic gear installation and service<br>10. Fuel Tank Capacity 645cc<br>11. Torque Tube driven tail<br>12. Solid and strong frames made by pure 2mm carbon fiber<br>13. Hyper engine cooling system for max efficient cooling and power<br>14. Professional Painted fiberglass canopy included<br>15. Module1 Delrin 100AL gears<br>16. Ultralight 4mm Flybar Paddles (18gr) for faster cyclic effects<br>17. Weight in flight (w/o fuel) is 4.100Kg | **TECHNICAL DATA**<br>Length: **1340mm**<br>Height: **400mm**<br>Main frames: **Pure 2mm CF**<br>Main rotor head diameter: **1560 to 1620mm**<br>Main blades length: **690 to 720mm**<br>Tail rotor diameter: **282mm**<br>Main gear drive. **115T M1**<br>Autorotation Tail gear drive: **104T M1**<br>Engine pinion gear: **14T M1**<br>Drive gear ratio: **8.214:1:4.521**<br>Fuel Tank Capacity: **645cc**<br>4mm Flybar Paddles: **18gr**<br>Weight without gears: **2.950gr**<br>**Accessories**<br>• ElyQ V90c Kit<br>Radio transmitter and electronic equipment required for assembly:<br>• ElyQ multioutput Voltage Regulator<br>• Digital servo for CCPM system<br>• Head lock Gyro + dedicated servo<br>• Governor/Limiter<br>• Transmitter (7-channel or more, helicopter system)<br>• Receiver (7-channel or more)<br>• Receiver battery pack<br>• Standard throttle servo<br>• 690/720 Carbon fiber blades<br>• Engine starter<br>• Dial pitch gauge<br>• Fuel pump<br>• Engine fuel<br>• 90 ElyQ Muffler<br>• 91 Engine for helicopter |

## Tips and tricks.

**Some suggestions to make faster and easier your ElyQ V90c assembling**

***In this document, it will be considered some of the total assembling operations***

# ElyQ – Vision 90 Competition

**All the other steps are well described in the instruction manual provided by ElyQ in the kit.**

- **BOX**



**Separated sold boxes for different Main Rotor Heads – FB (FlyBarred) – FBL (FlyBarLess)**


**Separated inner solid boxes contain all the parts**

# ElyQ – Vision 90 Competition




**All the transparent plastic bags are referred to the instruction manual (located in the box)**


***Please, even if those pictures will help you to make everything more clear, before start assembling, read carefully the instruction manual.***

- **CARBON FRAMES**

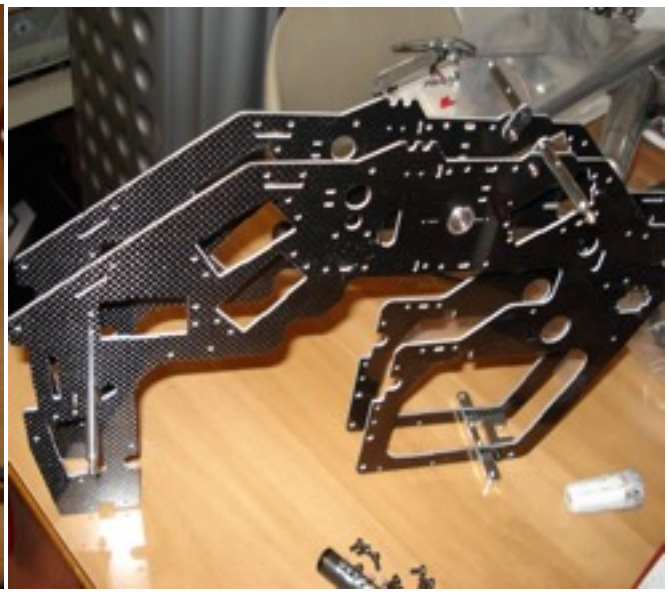
**The material used for Main Frames, Support Frames, Side Plates, Frame Braces, is all PURE 2mm CARBON FIBER.**

**SUGGESTION: Use a little drop of cyano on the bearing flange in order to ensure its face perfectly to the carbon frame hole**

**IT IS WARMLY RECOMMENDED TO USE BLU LOCTITE FOR ALL THE SCREWS BOLT ON METAL PARTS**

- ## CANOPY MOUNTING

**The first step is assemble the 4 Canopy Mountings. You have two different mount lengths. The shorter fit in the rear part of the frames**



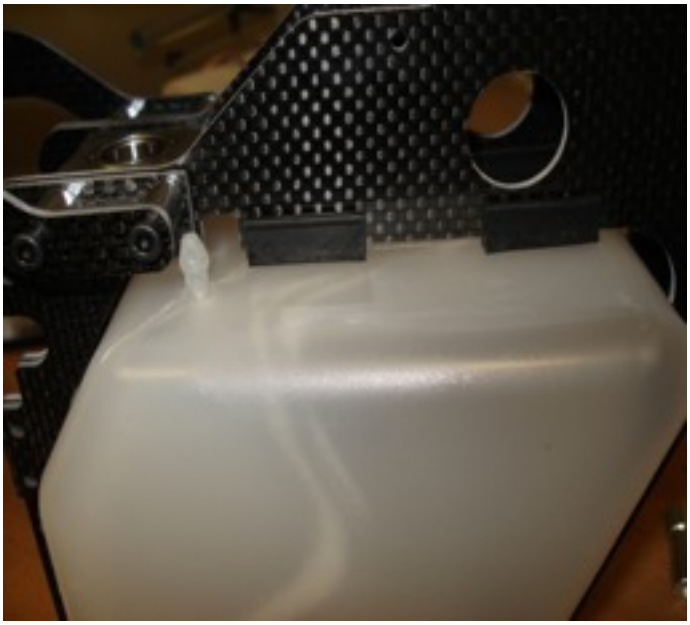
**Than you can position the third bearing block with the carbon frame support. In this area, use the medium frame spacer and 3x10mm screws. The longer spacers fit in the front**

- **FUEL TANK**

**Next step: Put inside the fuel tank. Make a right pressure on the upper squared area and push it between the frames**

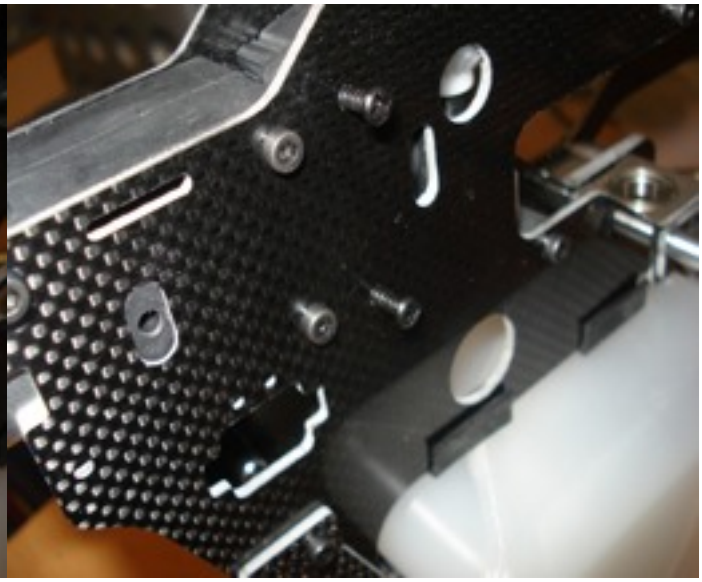
**If you like to make perfect edges, use a cutter (suggested length is 1,5mm to 1,7mm). After you have fitted the fuel tank rubber seals in the upper part of the tank, you can use a wrench to help in positioning the last pieces of rubber**

**This is the final result**



- **TAIL CASE**

**The tail case is preassembled. Insert the hexagonal spacers in the plastic tail boom mount and put the assy in the frames**

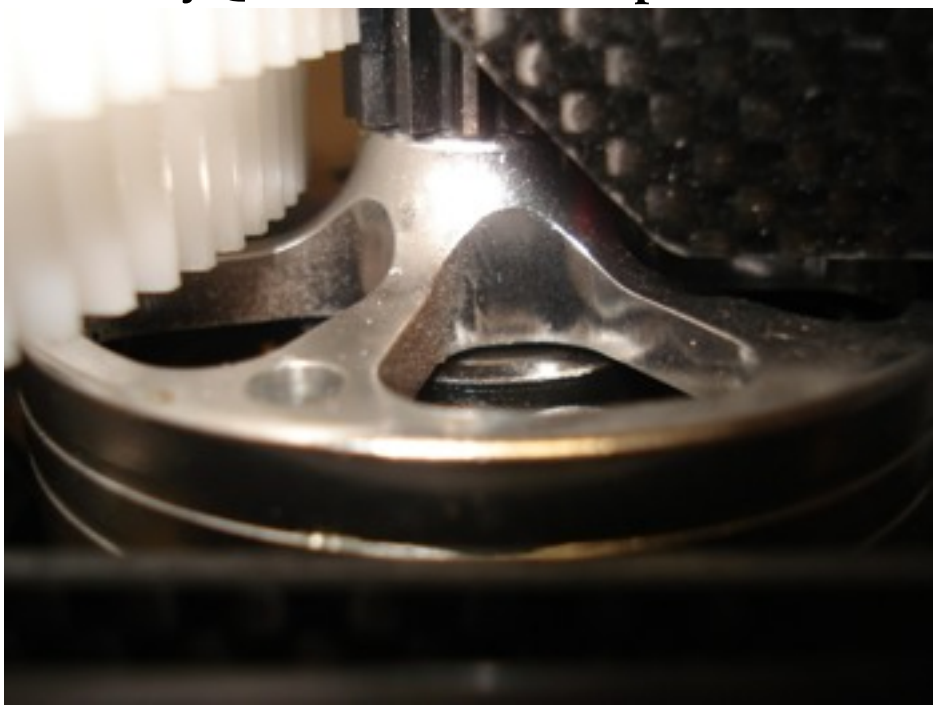


**Use the 3x10mm screws included in the bag. You can also use the self tapping screw. This will help you to center the case perfectly with the main frames. Don not tight now, because later you will fit the tail boom**

- **CLUTCH BELL ASSY**

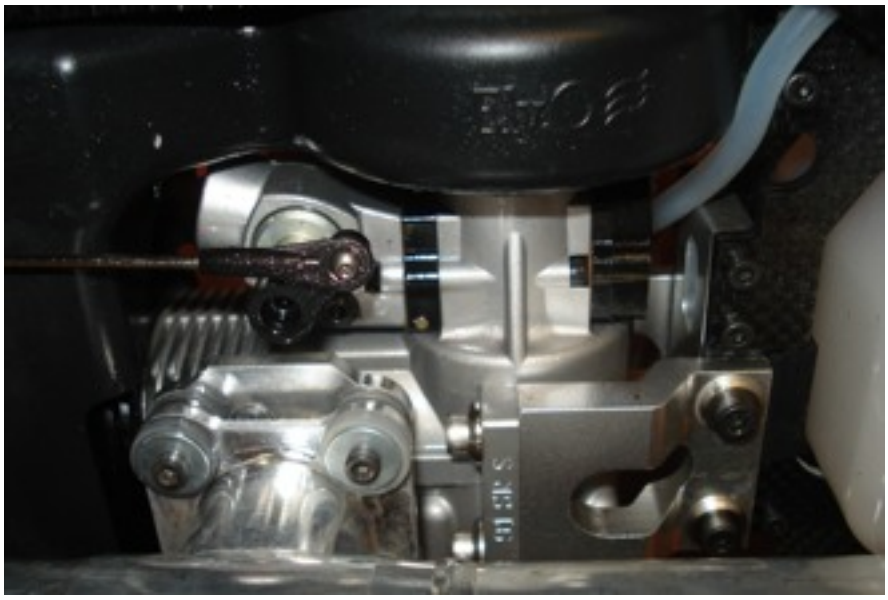
**After you have properly glued the liner in the clutch bell, you can fit the total starter shaft assy and hexagonal starter. Use the M3x8mm Socket screws to fasten the bearing blocks on the main frames**

**After you have fitted the engine, before to tight its screws, it is suggested to leave a gap of 1 – 1,5mm between the clutch and bell (see picture)**



- **ENGINE MOUNT**

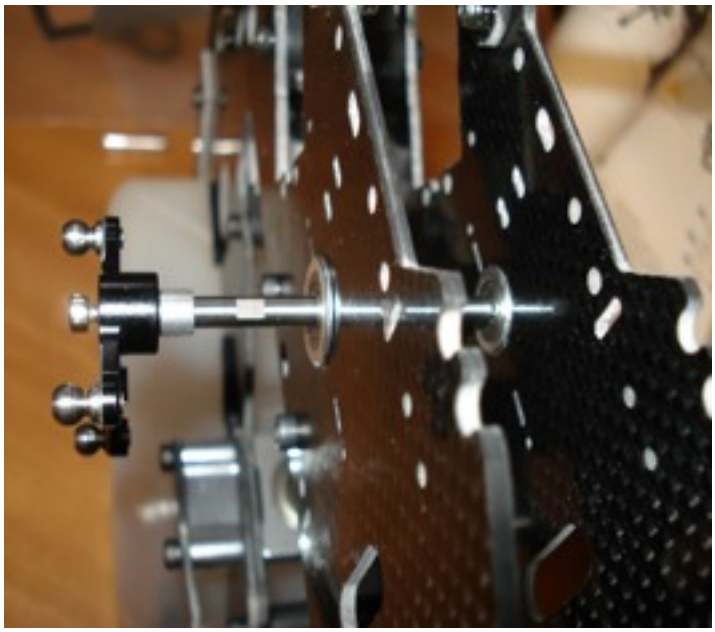
**When you assemble the engine mounts, you will find 4 flat washers. If you run YS Engines, you must use these washers between the socket screws head and the engine crankcase to reduce the total length of the 4x16mm socket screws**

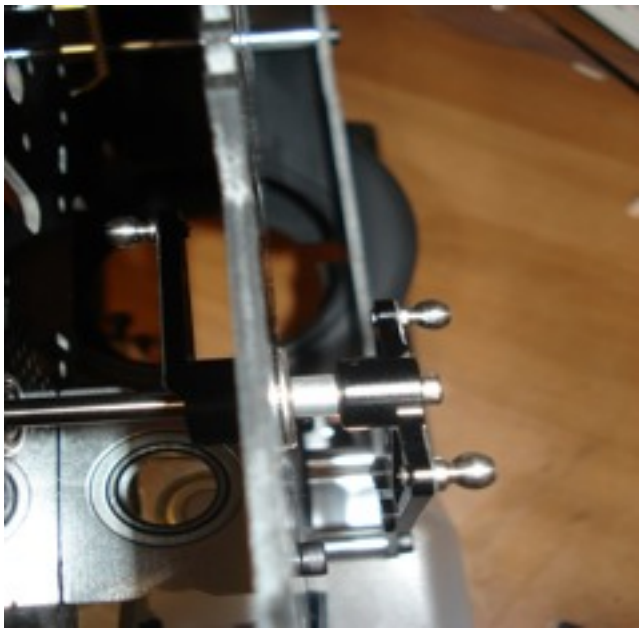


- **SERVO CONFIGURATIONS**

**The V90c is the only RC helicopter model able to fly in 2 different set up for CCPM management.**

**The DSD System (DIRECT SERVO DRIVE) optional for very 3D hard lovers and the Bell Crank System (Push & Pull), originally included the kit**



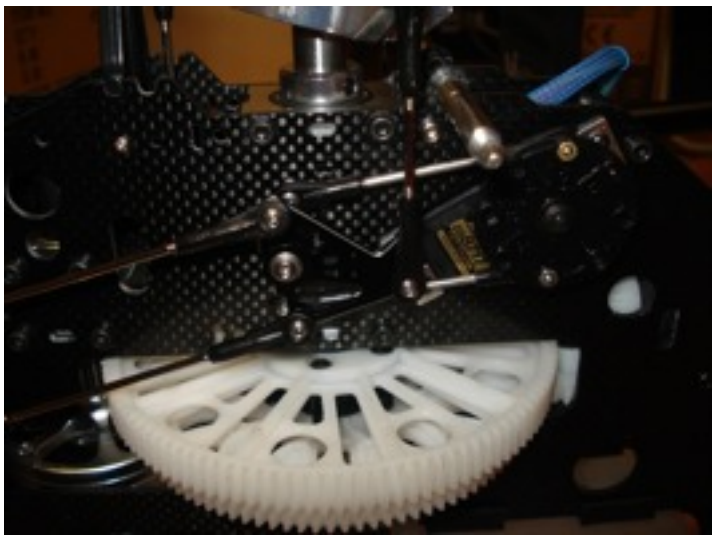


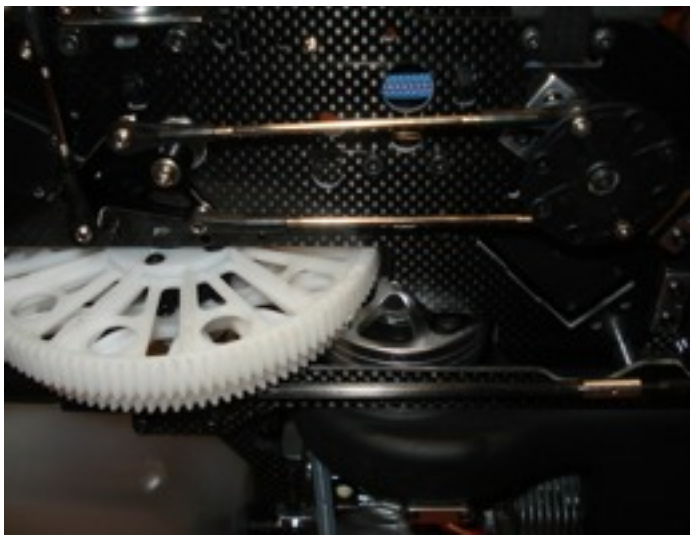
**Make sure that the ELEVATOR LEVER B is surfacing on the inner bearing (see picture)**

**On each bell crank, there are appropriated holes that will help you during the CCPM setup. Please use a 1,5mm tool, in order to align them perfectly with the corresponded holes on the main frames and find your perfect swashplate geometry**

**At the end of the bell cranks and servo links installation, outside of the main carbon frames, you will have this presentation**

**Left side (muffler side)** **Right side (RPM sensor mount side)**





- **ONE WAY BEARING ASSY**

**A special innovative Ely.Q one way bearing allows a perfect grip during all flight conditions**

**The one way bearing is preassembled. It is highly recommended to lube the assy before flight, using a high performance grease**


- **TAIL SUPPORT ROD ASSY**

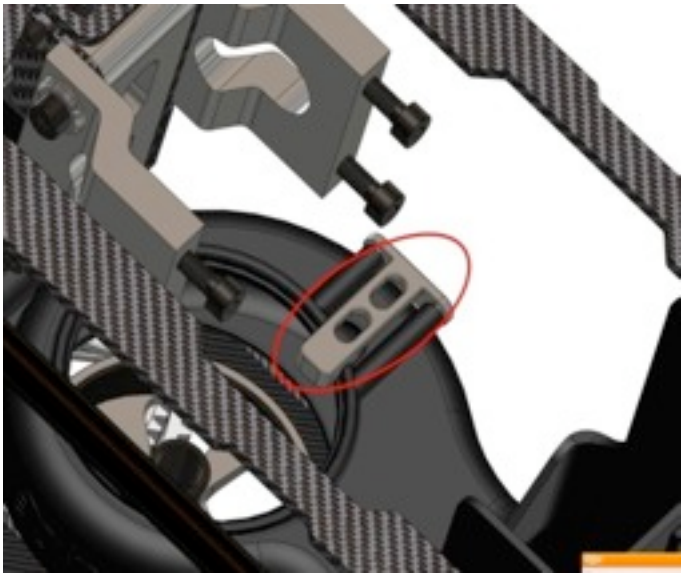
**IT IS VERY IMPORTANT A CORRECT TAIL BOOM SUPPORT ASSEMBLING, IN ORDER TO PREVENT TAIL VIBRATIONS AND BOOM STRIKES**

**After you have lightly grinded the tail carbon rod end, cover that area with some epoxy; put the metal rod end over the carbon rod and while the epoxy is becoming hard, make a 1,50 - 1,75mm hole**

**Now you can use the 2x10mm screw provided in the kit, and after the glue is hardened, you will get a perfect and solid result**

- **FAN CONVEYOR**

**The new Ely.Q engine fan conveyor has got an innovative system to fit in a common engine RPM controller sensor**

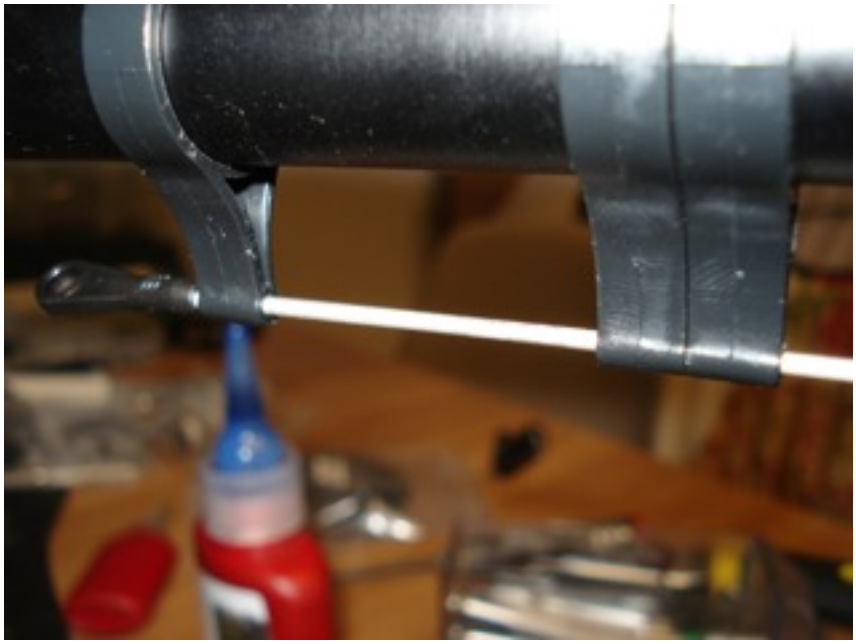


**You can position the RPM sensor with its suggested face towards the magnet, fixing initially with a drop of cyano. This will allow you to hold the sensor well steady while you prepare the epoxy. After you have glued all together, use a heat shrink tube. In order to ensure all the parts perfectly, waiting for the epoxy hardening, you can also use a common zip tie**

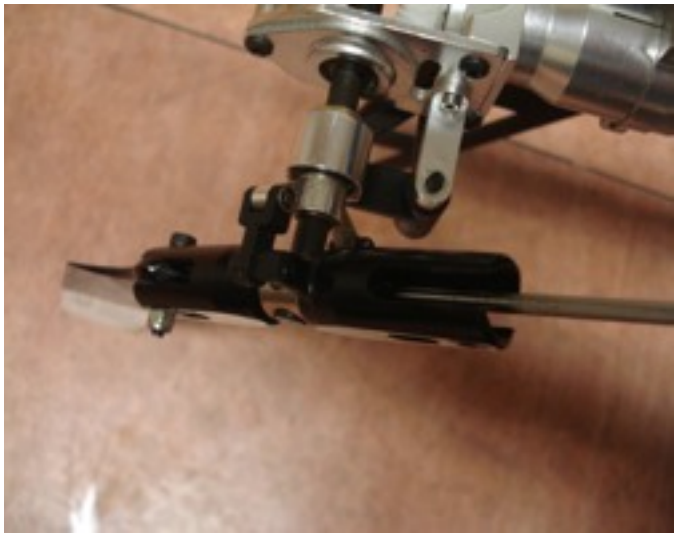
**This aluminum sensor mount is optional, but it will allow you to understand how is comfortable to leave the RPM sensor in the same position every time you need to remove the engine**

- **TAIL ROTOR GUIDE**

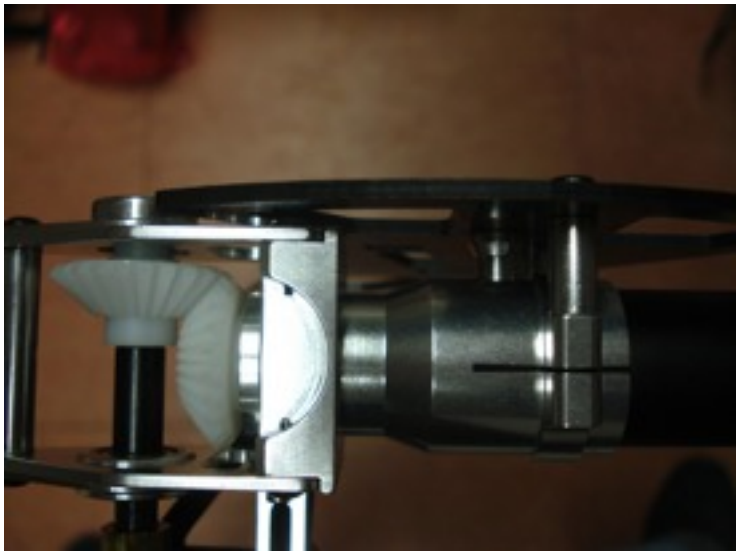
**While you set the tail servo rod in the control guide, please do not enlarge the guide holes. You only have to fasten the rod inside the 3 guides**



**RECOMMENDATION: Even if the tail box is preassembled, please make a general check for all the screws and eventually, if requested, use Loctite properly**



**The V90c tail shaft has been completely redesigned: the outside part of the shaft has an overall reinforced 6mm diameter**

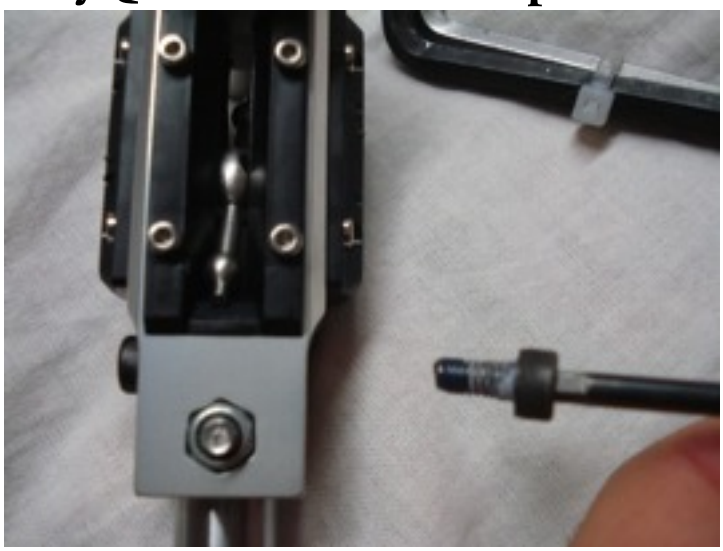


- **MAIN ROTOR HEAD – FB (Flybarred)**

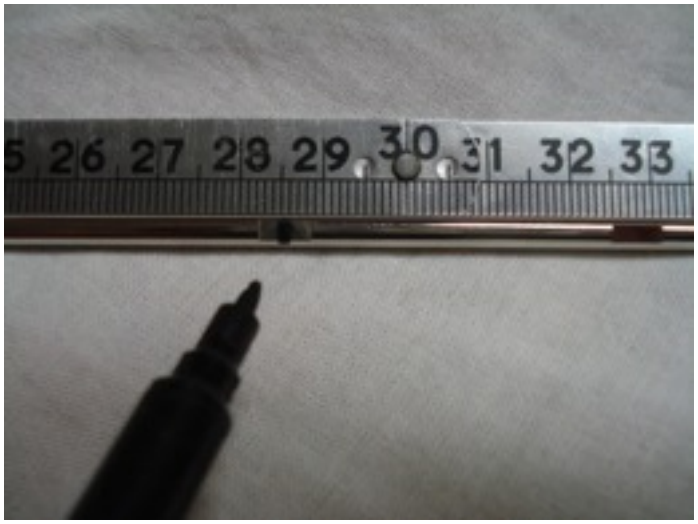
**RECOMMENDATION: Even if the Main Hub Guides are preassembled, please make a general check for all the screws and eventually, if requested, use Loctite properly**

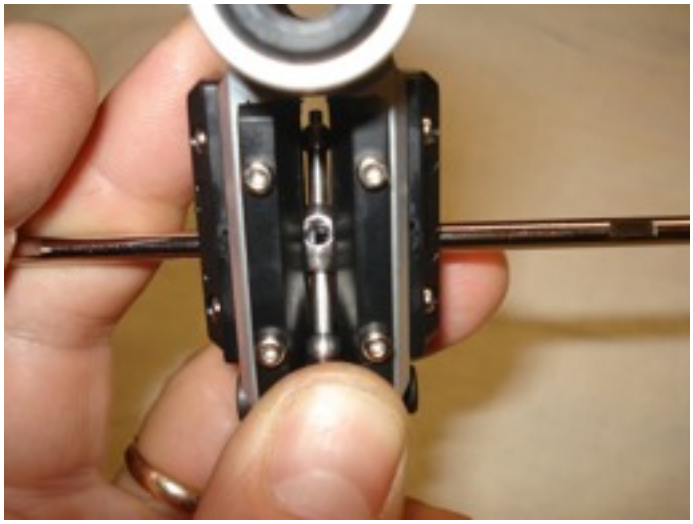
**After you have found the perfect center between the Main Shaft and the Main Hub, it is suggested to fasten the M4x20mm socket screw. Use a normal hexagonal tool to make it tight. This will allow the reach a perfect alignment**

**Secondary, you can tight the other M4x8mm socket screws**

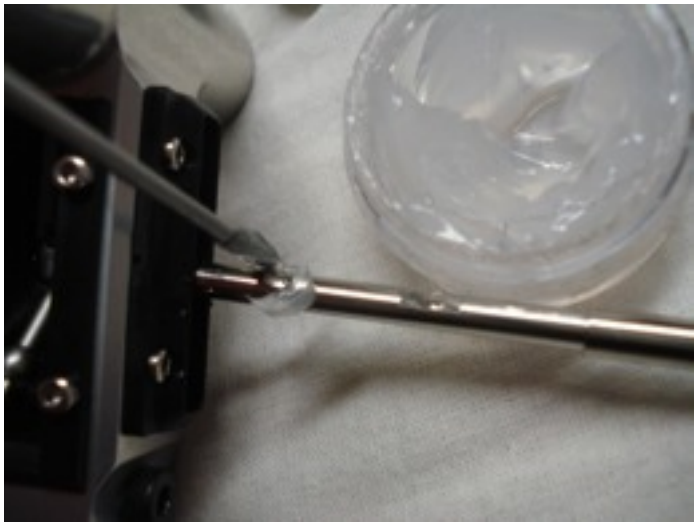


**In the middle point of the 570mm Flybar, make a mark that will be used to center the bar in the Seesaw Lever**



**Use a good grease to lube the circular movements of the collars around the flybar. The flybar collars are provided with 2 different lenghts: the shorter (inner flybar collar) has to be fitted in the plastic guide and will have its free movement. The longer (outside flybar collar) fits outside and it will allow a differentiated Control Flybar movement during flight**

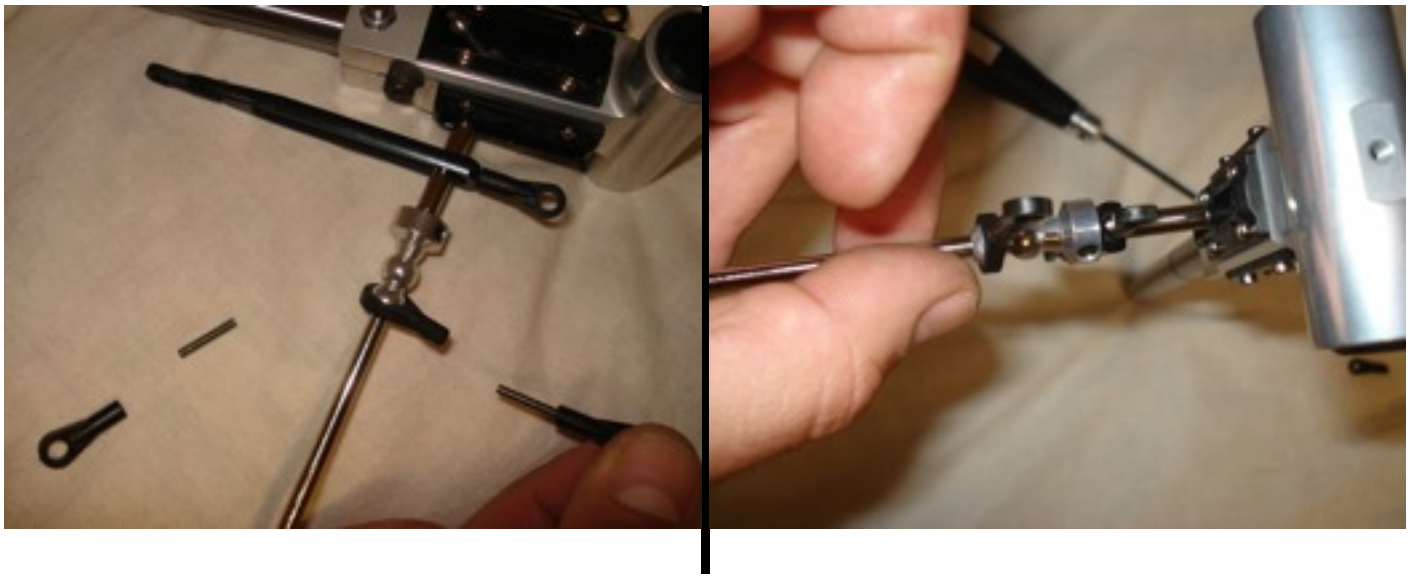


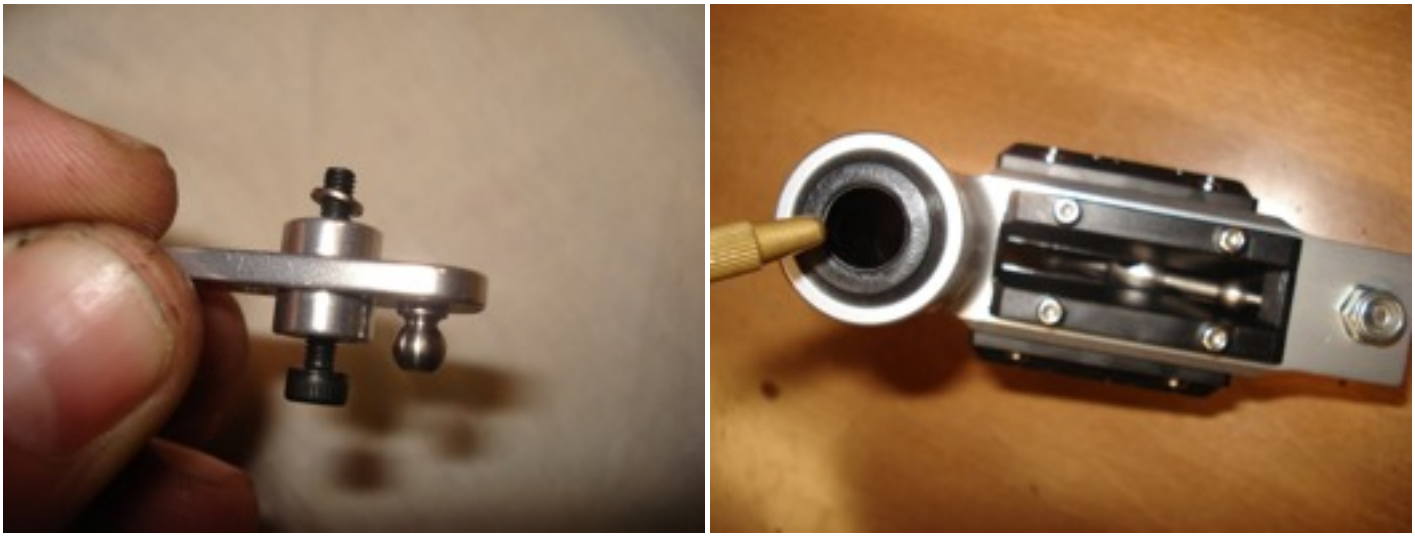
**<u>A very important operation to do is to leave a space (free play) of about 1 – 1,3mm between the Flybar Control Rod and the Flybar Collar</u> (see picture)**

**The edge of the Flybar Control Rod must coincide with inner edge of the flat area on the Flybar (to the main hub, where you tight the set screw M4x4mm)**

**IT IS VERY IMPORTANT A CORRECT PLASTIC LINK MONTAGE: THIS WILL PREVENT EVENTUAL POP OFF THE LINKS DURING FLIGHTS.**

**REMEMBER TO KEEP THE PLASTIC LINK ALWAYS WITH ELYQ LOGO OUTSIDE**





**Use normal lube oil or vaseline. This will help you to put the spindle into the Head Dumpers**

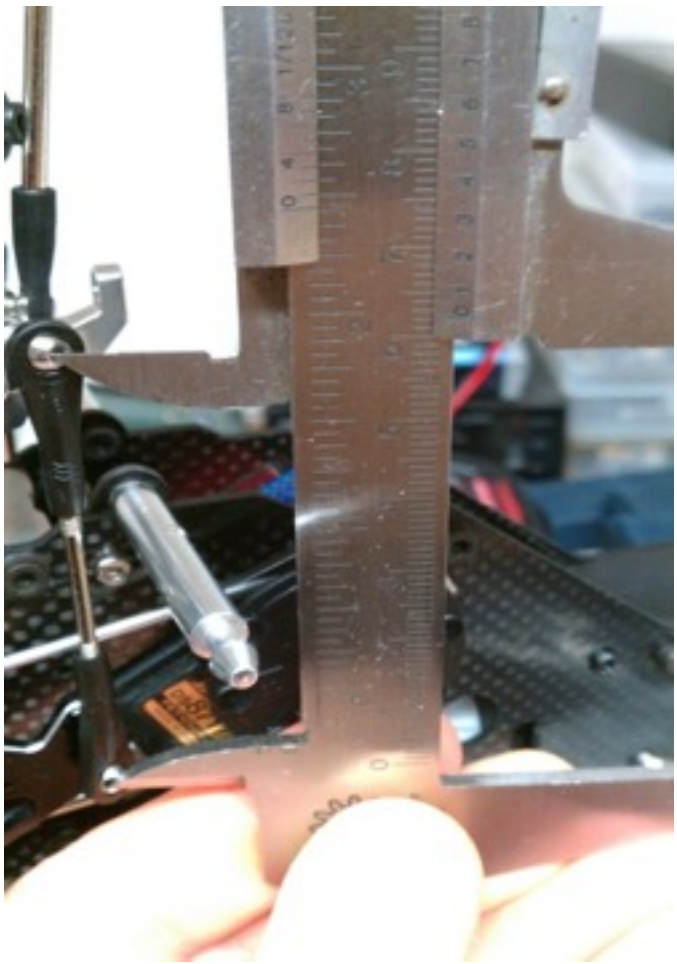
**KEEP THE PLASTIC LINK ALWAYS WITH ELYQ LOGO OUTSIDE**

- **MAIN ROTOR HEAD – FBL (Flybarless)**

# ElyQ – Vision 90 Competition

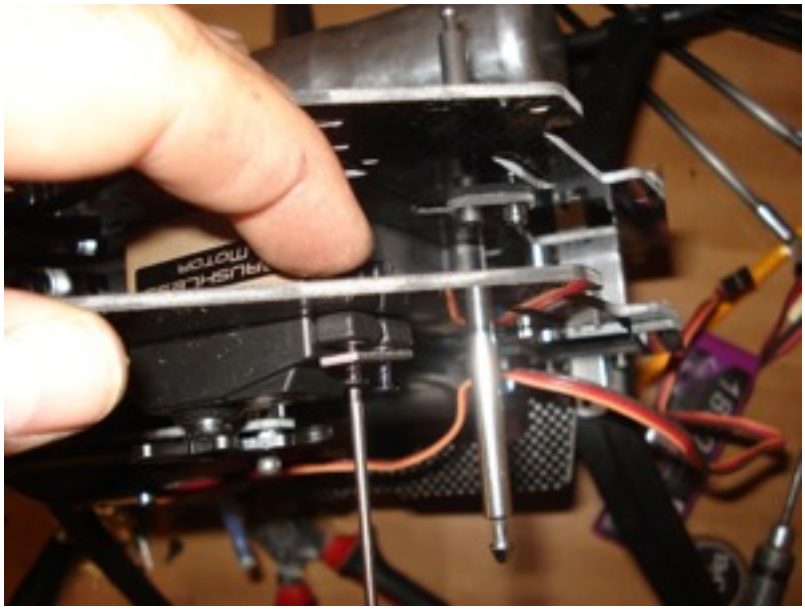

# ElyQ – Vision 90 Competition

**When you fly a FBL system according to its setup - usually you need to reach more degrees (for example 13deg on cyclic and pitch). To make this, you need to adjust the swashplate and pitch links. Please take these lengths in consideration of the center of the ball (according to the V90c instruction manual). The new length is going to be from 59,675mm to 62mm for the swashplate links, and 90mm for the pitch links.**

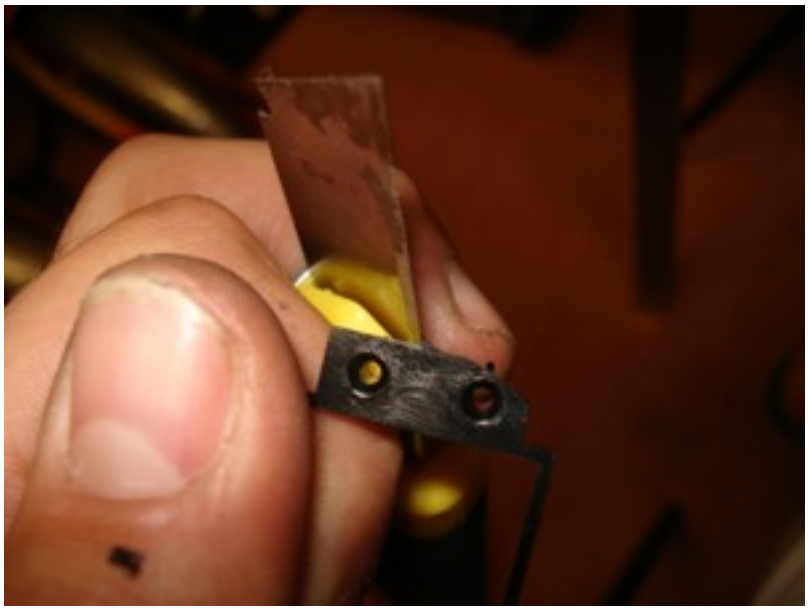


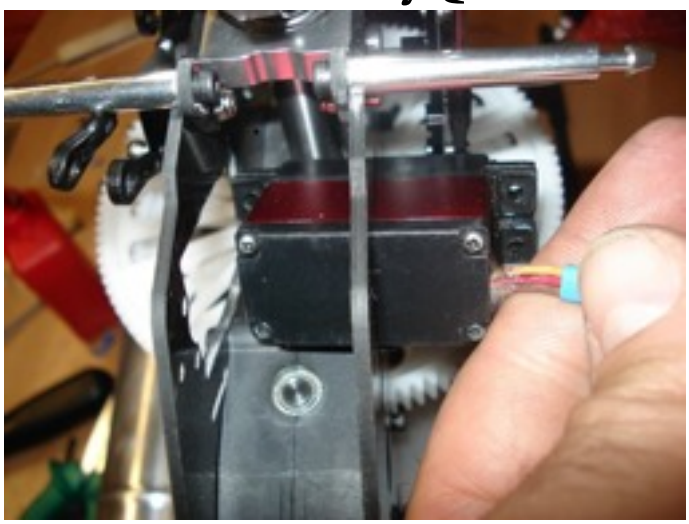
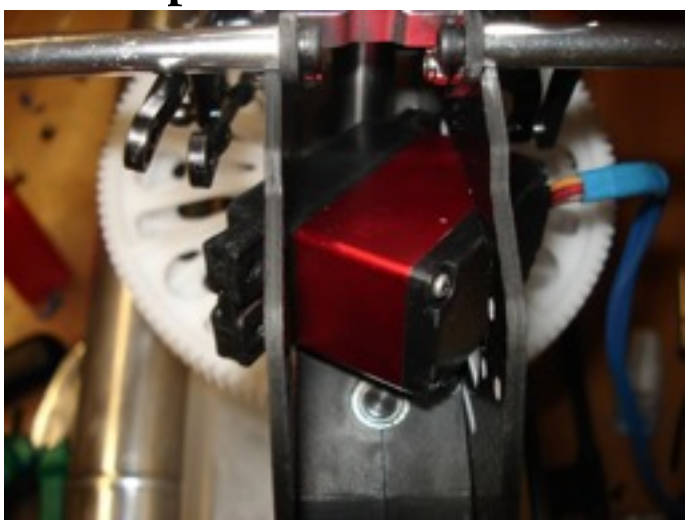
- **SERVO INSTALLATION**

**When you have to set the tail servos, please do this without the radiotray. In this way, you will work better and easily**

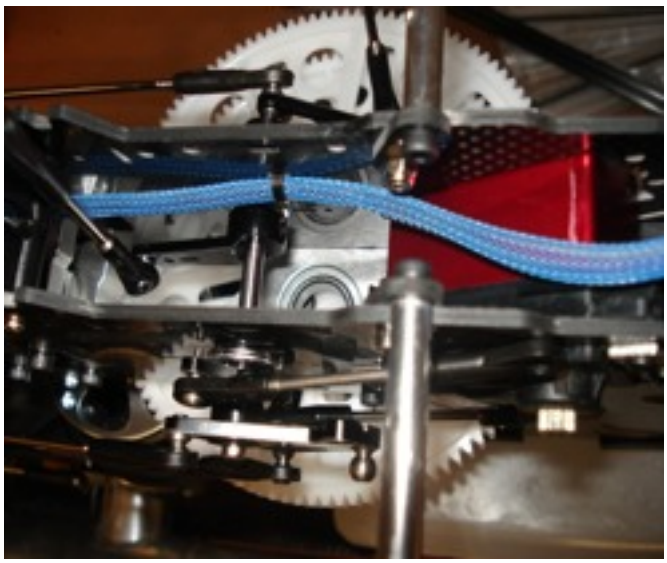


**When you set the throttle servo, you will find a little interaction between the plastic servo mount and the carbon breakout tab (that has been reinforced). Use a cutter and remove a little piece of plastic (see picture)**

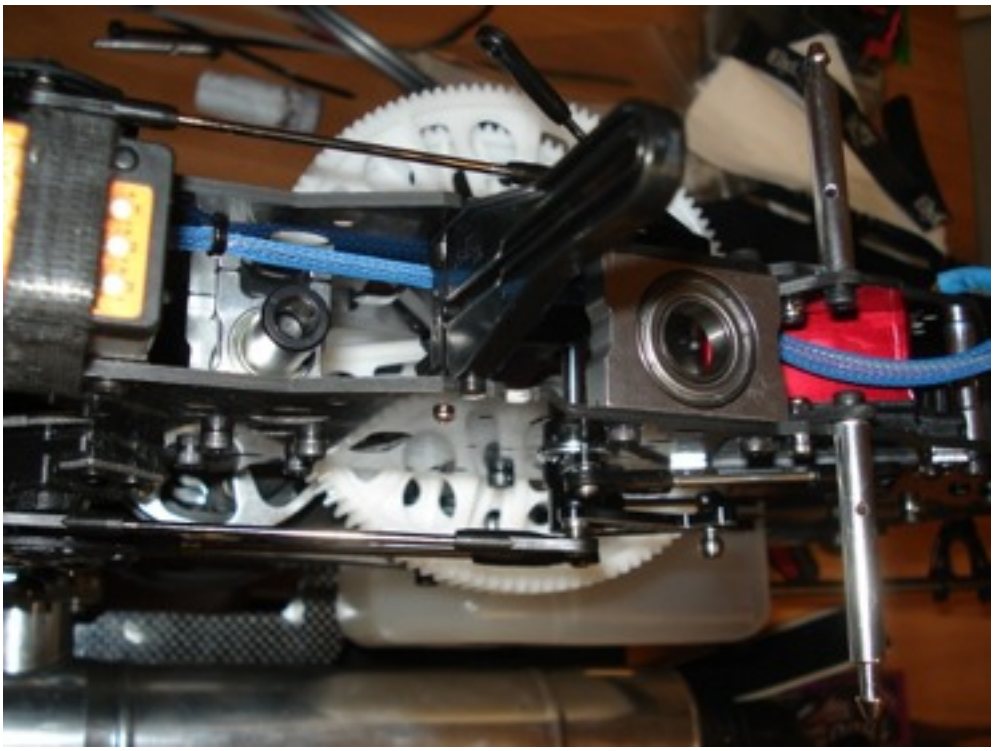


**After the elevator servo has been set, you can use dedicated holes in the frames to fix the cable in the best way (see picture). As you can see, there is no main shaft bearing block. We suggest you to screw it after this operation**




**The next picture will show you the final work …**



**Equipped with FBL unit** **Equipped with FB Main Rotor Head and Gyro unit**

# ElyQ – Vision 90 Competition