HANDBOOK ASSEMBLY USE AND MAINTAINANCE

MP1 V2 RC PARAMOTOR KIT

MIM PARAMODELS

MIM paramodels di Ivan Appoloni - ITALY
P.IVA / VAT NUMBER : 03709370245
CELL. +39 340 8047972

Congratulations on purchasing a MIM paramodels creation. The product you have just purchased is the result of years of research and passion, it has been made with the utmost care and will allow you to reproduce the flying style and most of the maneuvers that can be performed with a real paraglider.

MIM paramodels ® *is the first Italian company specialized exclusively in the study, design and construction of radio-controlled paragliders on a small scale.*

Thanks to ***MIM paramodels ®*** *many people all over the world have found the right way to approach the fantastic world of radio controlled paragliding."*
A radio-controlled paraglider, as I conceived it, is a faithful reproduction of a real paraglider.

It is a tool that will allow you to experience the thrill of flying a paraglider and to perform all the maneuvers exactly as in reality.
I will continue to develop this passion-driven project with the aim of bringing to a smaller scale the experience accumulated in over 20 years of practicing this sport at a professional level.
Ivan Appoloni

MIM PARAMODELS

DEDICATED TO THOSE WHO HAVE ALWAYS SUPPORTED ME, MY FATHER MARIANO, `THAT I WILL CARRY FOREVER FOREVER IN MY HEART AND MY MOTHER" MARIKA "THAT CONTINUES TO GIVE ME AN ESSENTIAL SUPPORT FOR THE DEVELOPMENT OF THESE PROJECTS ...

SAFETY RULES - *The use of MIM products must take place only after having read, understood, accepted the conditions listed below:*

Before each use of the MIM paramodels products, the user undertakes to:

• subscribe an insurance policy in course of validity adequate to the practice of modeling and recognized in the country of use.
• Know and comply with all the safety regulations of the country and the place where you are using the product.
• Use MIM paramodels products only in areas dedicated to the practice of rc modeling.
•Use the product only in weather conditions suitable for safe use.
• Having perfectly understood how to assemble and use the product and to contact, in case of questions, the manufacturer MIM paramodels to clarify any doubts before use.
• Learn about the inherent risks associated with rc modeling practice and accept these risks before using MIM paramodels products, taking all precautions to minimize them.
• Take all responsibility for any damage to people, things, animals resulting from the use of the MIM paramodels products.
•Take charge of the maintenance of MIM paramodels products in a state of perfect efficiency, carrying out all the necessary checks before and after each use. The checks include in an indicative and non-limiting manner: screw tightening, battery charger, radio equipment efficiency, lack of knots, lack of cracks, lack of signs of wear or failure deriving from prolonged use or previous crashes.
•Do not disclose defamatory material before contacting the MIM paramodels assistance service. Any unfounded action clearly aimed at discrediting or damaging the image of MIM paramodels without first requesting and using the assistance service will be prosecuted.

WARRANTY

1. *Any damage caused by incorrect use is not covered by the warranty, in which case the cost of spare parts and shipping costs will be charged to the end user.*
2. *The warranty right must be exercised by written notification within 2 weeks of the appearance of the defect and in any case within a period of 6 months from the date of receipt of the product.*
3. *The reporting of any manufacturing defects must be sent by email to MIM paramodels and documented with photos or videos that are sufficiently clear in order to take advantage of the warranty.*
4. *The manufacturer MIM paramodels undertakes to respond to requests for assistance in a maximum time of 10 working days. Any delays in assistance times due to documented causes of force majeure are not to be considered as a violation of this point.*

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REVISION : 20210602

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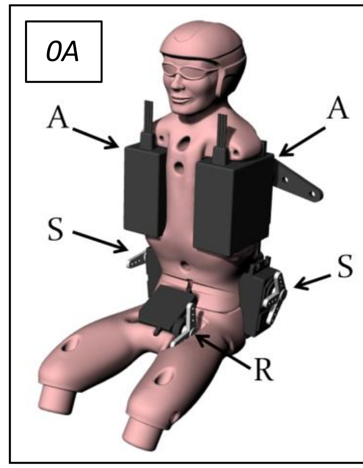
PRODUCT DESCRIPTION AND POSSIBLE CONFIGURATIONS :

the MP1 V2 paramotor kit produced by MIM paramodels is the ideal kit for rc paramotors with sails between 2 and 3 meters in wingspan. This paramotor kit is the result of a long development and has seen the implementation of many improvements over the years.
The most advanced 3D modeling softwares and the latest 3D printing techniques were used for the design and development of the MIM MP1 V2 paramotor kit.

Three different configurations are possible:
MP1-A (Arms): *use of two servos to control the arms independently.*
MP1-AS (Arms-Speed system): *in addition to the two servos version A, it is possible to mount an additional two servos to control the speed system. This function, just like in reality, allows you to vary the angle of attack of the glider during flight, varying its speed and adapting the trim of the glider to all conditions.*
MP1-ASR (Arms-Speed-Reserve): *the ASR version completes the picture with the insertion of a fifth servo suitable for releasing an emergency parachute that can be used in all dangerous situations or even just for fun and simulation.*



CONTENTS OF THE KIT:
MP1 ARF NO ELECTRO: *KIT NOT ASSEMBLED WITHOUT ELECTRONICS*
MP1 RTF: *COMPLETE KIT ASSEMBLED AND TESTED IN FLIGHT*

NR	COMPONENTE	Q.TA'	ARF NO ELECTRO	RTF
1	FRAME WITH PROTECTIVE CAGE	1	V	V
2	FRAME AND ENGINE SCREW KIT	1	V	V
3	PILOT BODY + PILOT SUITE + ARMS	1	V	V
4	PILOT SCREW PACKAGE	1	V	V
5	ELECTRICAL TIGHTS VARIOUS DIMENSIONS	1	V	V
6	STANDARD MP1 BRUSHLESS MOTOR	1	X	V
7	STANDARD MP1 SPEED CONTROLLER	1	X	V
8	METAL GEAR ARMS SERVOS	2	X	V
9	SPEED SYSTEM SERVO CONTROLS + SPEED KIT (SAIL ACCELERATOR)	2	OPTIONAL	OPTIONAL
10	EMERGENCY PARACHUTE SERVO	1	OPTIONAL	OPTIONAL
11	TRASMITTER AND RECEIVER	1	OPTIONAL	OPTIONAL
12	MIM PARAMODELS RADIO MIXER	1	OPTIONAL	OPTIONAL
13	EMERGENCY PARACHUTE KIT	1	OPTIONAL	OPTIONAL
14	10 X 4,7 CCW SLOW FLYER PLASTIC PROPELLER	1	V	V
15	MP1 V2 HARNESS	1	V	V
16	BALLAST 3 X 150 Gr	3	V	V
17	ASSEMBLY AND TESTING SERVICE	1	X	V

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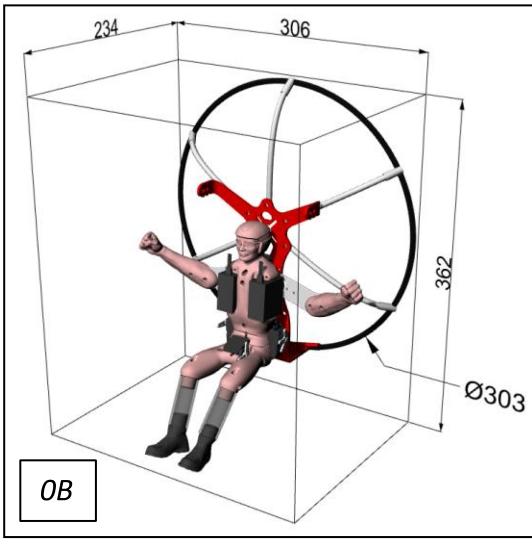
PRODUCT TECHNICAL DATA:

KIT SCALE: 1: 6
WEIGHT COMPLETE KIT WITHOUT BATTERY: 1250 Gr +/- 20 Gr
TYPE OF SAIL: 2.1 / 3 MT
TYPE OF USE: RECREATIONAL FLIGHT, THERMAL FLIGHT, ACRO (WITH SPECIFIC MOTORIZATION)
MAXIMUM PROPELLER DIMENSIONS: MAX DIAMETER 10 INCHES (25.4 mm)
Nr of . RADIO CHANNELS:

- *2 CHANNELS FOR ARMS (MIXED) - SERVOS "A"*
- *1 ENGINE CHANNEL*
- *1 SPEED SYSTEM CHANNEL (OPTIONAL) - "S" SERVOS*
- *1 EMERGENCY PARACHUTE CHANNEL (OPTIONAL) - SERVO "R"*

MAXIMUM BATTERY SIZE 130 x 45 x 25 mm
RECOMMENDED BATTERY TYPE: Lipo 3S 2600-3300 mAh

BATTERY AND REMOTE CONTROL NOT INCLUDED



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KIT PARAMOTORE RC MIM paramodels MP1 V2 : INDICATIVE SETUP	
FLIGHT STYLE	**SUGGESTED SPARE PARTS**
RECREATIONAL PARAMOTOR FLYING (MIM PARAMODELS STANDARD SETUP)	MOTOR : BRUSHLESS 1400/1500 KV 3S-4S 400/550 Watt SPEED CONTROLLER : 40 / 50 Amp con BEC 3-5 Amp 5 Volts PROPELLER : 9 x 6 / 10 x 4,7 SLOW FLYER PLASTICA ARMS SERVOS : Ingranaggi Metallo 10-15 Kg x cm / **40,7 X 19,7 X 42,9 (L x W x H)** TOTAL WEIGHT (PARAMOTOR + BATTERY) : 1700 Gr (**)
ACROBATIC PARAMOOTR FLYING(*)	MOTOR : BRUSHLESS 1400/1500 KV 3S-4S 400/550 Watt SPEED CONTROLLER : 60 / 70 Amp con BEC 5 Amp 5,5 Volts PROPELLER : 9 x 6 / 10 x 4,7 SLOW FLYER CARBON FIBER (*) ARMS SERVOS : metal Gear 15-20 Kg x cm TOTAL WEIGHT (PARAMOTOR + BATTERY) : 2000 Gr (**)
SPEED SYSTEM SERVOS(OPT)	SERVOS: Metal Gear min 5 Kg x cm **28x14x29.8 (L x W x H) mm**
RESERVE PARACHUTE SERVO (OPT)	SERVO: Metal Gear min 2 Kg x cm **32 x 11.5 x 24 (L x W x H) mm**

(*) PAY ATTENTION: USE OF OVERPOWERED MOTORIZATION AND CARBON FIBER PROPELLERS INCREASE THE RISK OF INJURIES - MIM PARAMODELS SUPPLIES ABOVE DATAS WITH PURELY INDICATIVE PURPOSES BUT DISCOURAGE USERS FROM USING THIS SETUP. **THE MANUFACTURER MIM PARAMODELS WILL NOT BE RESPONSABILE FOR DAMAGES OR INJURIS TO PEOPLE, THINGS OR ANIMALS COMING FROM USE OF ITS PRODUTS.**
(**) FOR CORRECT TOTAL WING LOAD ALWAYS REFER TO DATA SHEET SUPPLIED BYWING MANUFACTURER

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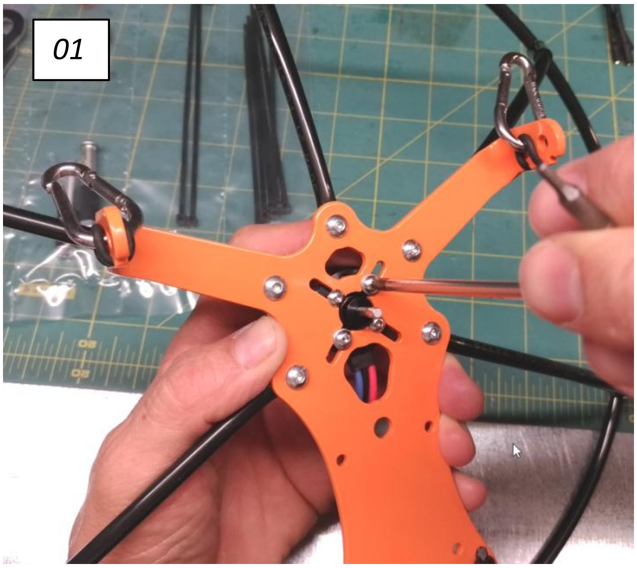
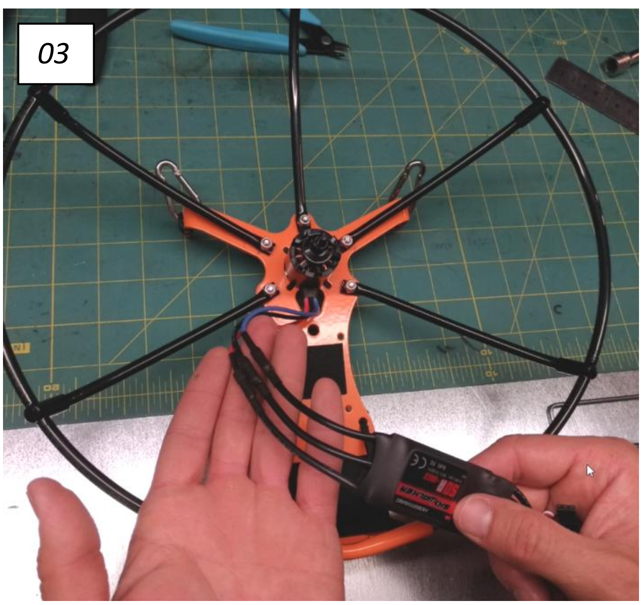
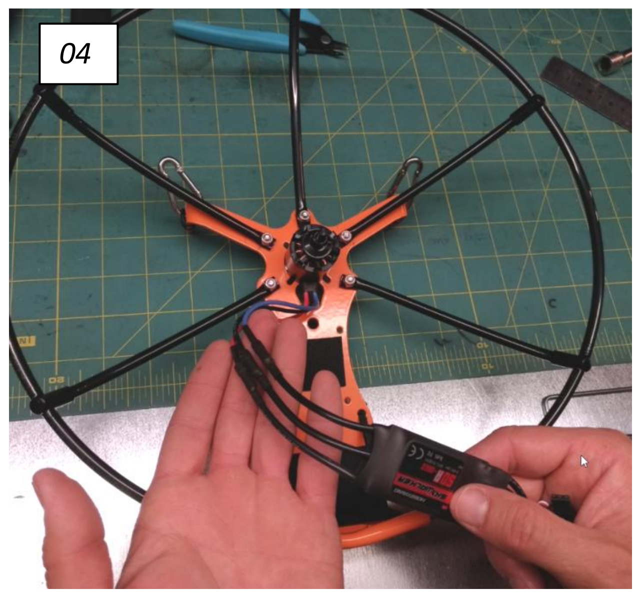
FRAME ASSEMBLY:







- 01 - USE 4 M3 SCREWS **(NR 1)** TO FIX THE MOTOR TO THE FRAME
- 02 - CORRECT FIXING - MAKE SURE THAT THE MOTOR SHAFT RUN FREELY WITHOUT TOUCHING ON SCREWS OR FRAME.
- 03 - CONNECT THE SPEED CONTROLLER TO THE ENGINE
- 04 - CONNECT THE SPEED CONTROLLER TO THE RECEIVER, POWER UP AND CHECK CORRECT TOWARDS MOTOR ROTATION WITH REFERENCE TO THE USED PROPELLER (SEE APPENDIX 1 FOR CORRECT PROPELLER ASSEMBLY)

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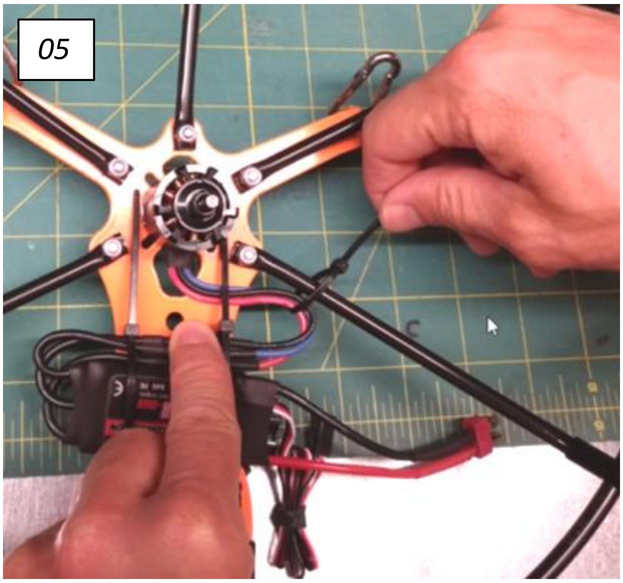

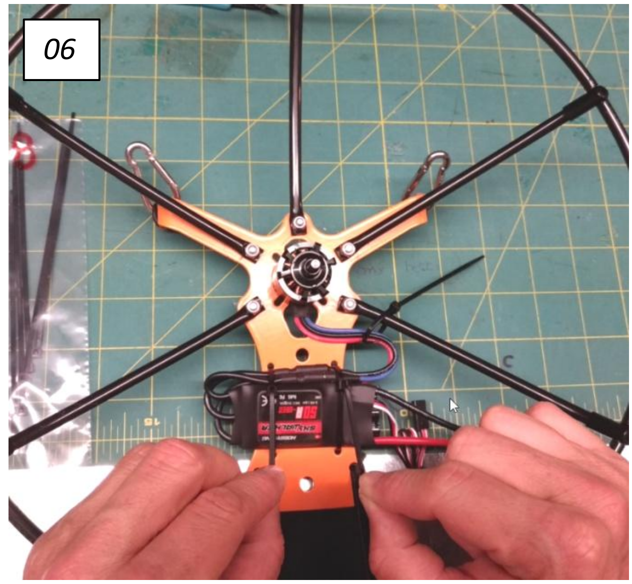

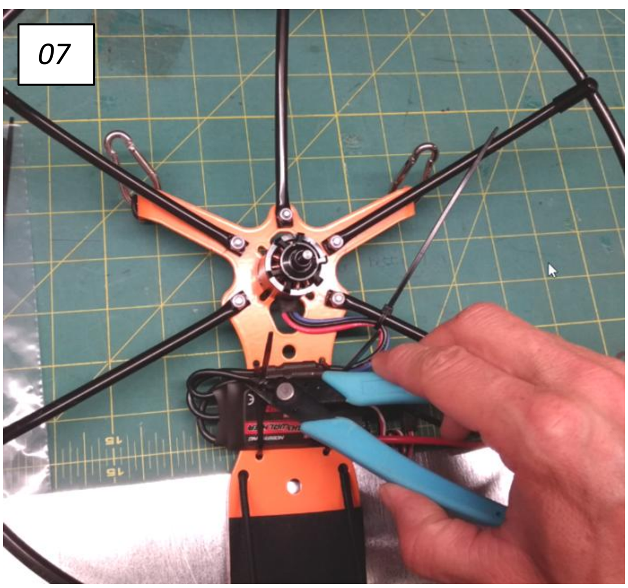

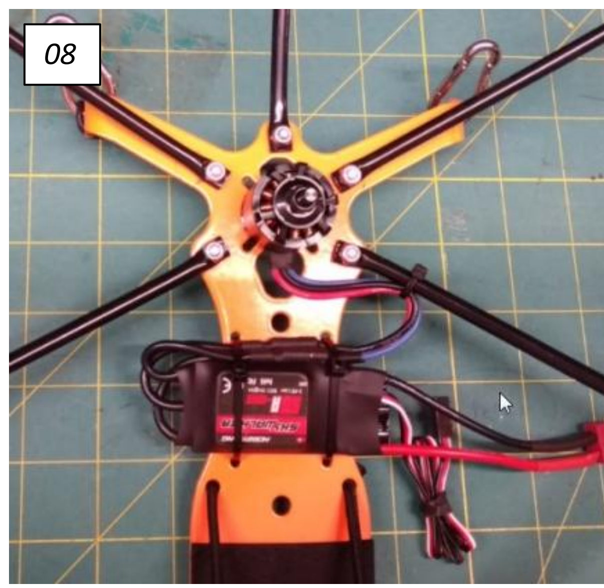

- 05 - PREASSEMBLE THE SPEED CONTROLLER TO THE FRAME USING THE SUPPLIED BANDS (NR 2)
- 06 - TIGHTEN THE CLAMPS MAKE SURE THAT THE REGULATOR IS WELL CENTERED AND FIXED
- 07 - CUT THE EXCESS BANDS PART
- 08 – SPEED CONTROLLER CORRECT FIXING - AFTER FIXING THE REGULATOR THE SPEED CONTROLLER MUST BE SECURELY ATTACHED TO THE FRAME.

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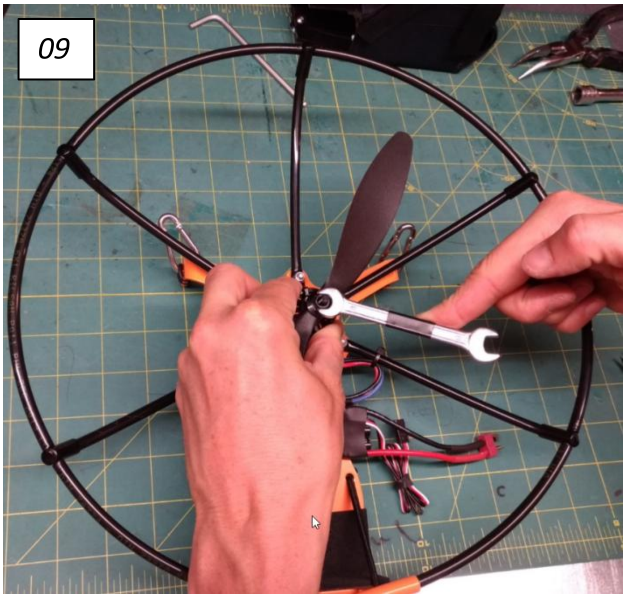

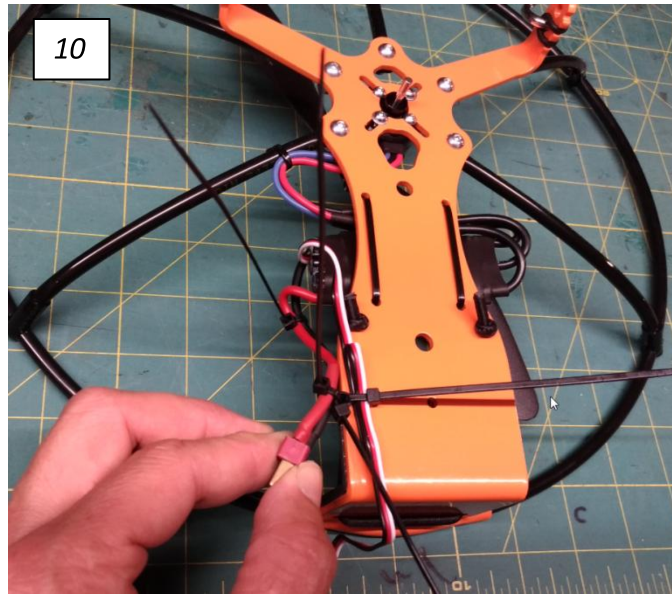

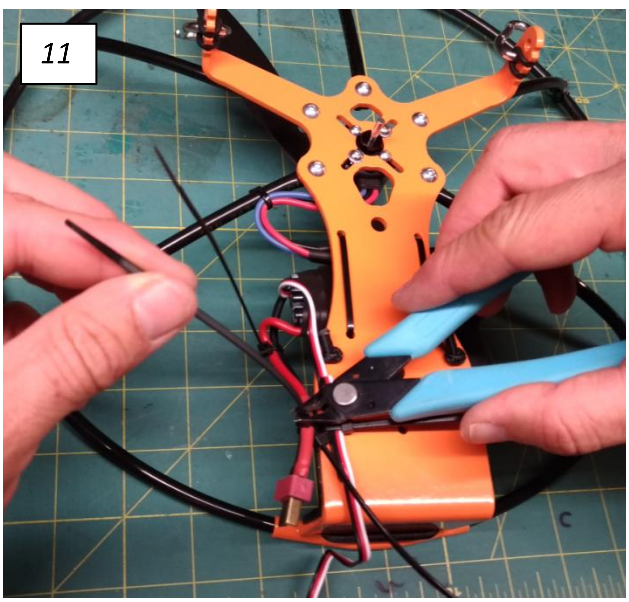

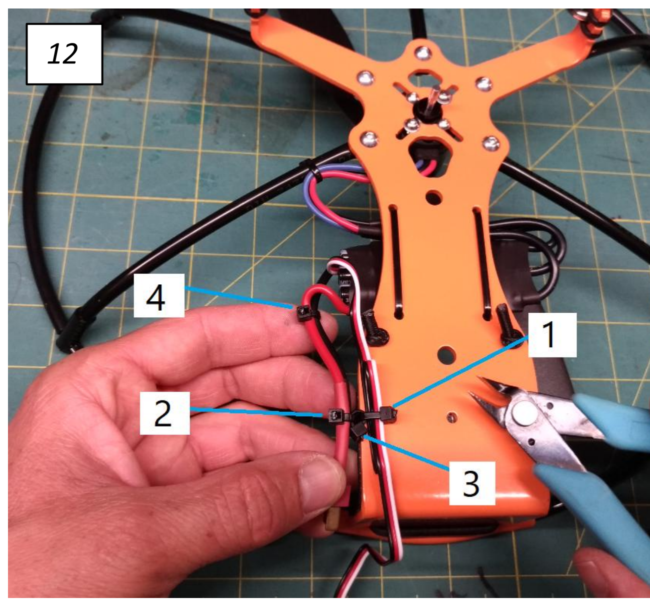

- 09 - ASSEMBLE AND FIX THE PROPELLER - **VERY IMPORTANT**: SEE APPENDIX 1 FOR PROPER PROPELLER ASSEMBLY)
- 10 - PREASSEMBLE THE CLAMPS AS IN THE PHOTO (10-11-12) TO FIX THE POWER SUPPLY CABLE TO THE FRAME AND TIGHTEN THE CLAMPS.
  (CLAMP ASSEMBLY ORDER WITH REFERENCE TO PHOTO 12: (1-2-4-3)
- 11 - CUT THE EXCESS BANDS.
- 12 - APPEARANCE OF THE PROPERLY WIRED MODEL.

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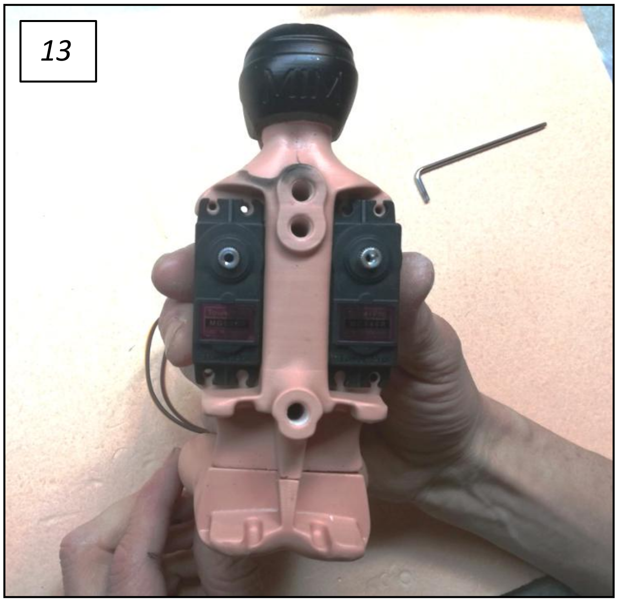
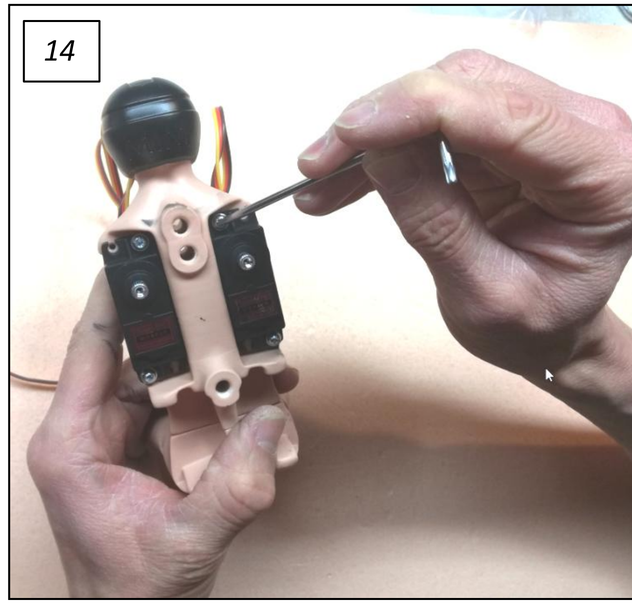
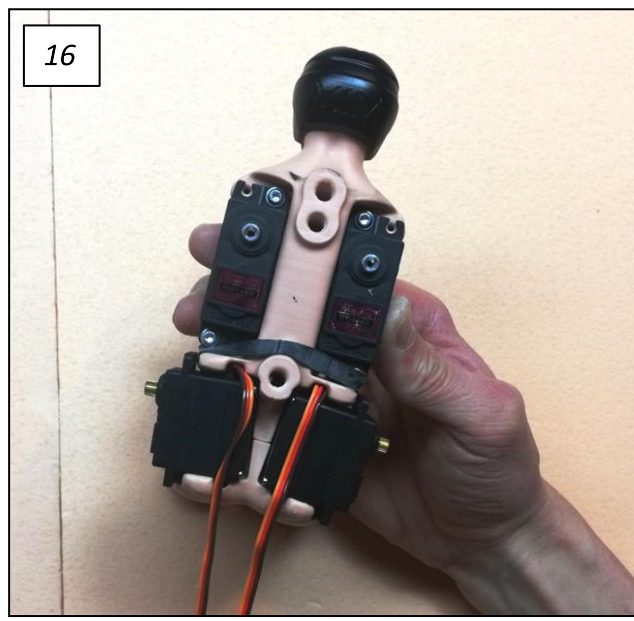
PILOT ASSEMBLY :







- 13 - PLACE THE ARM SERVOS **(NR. 3)** IN THE APPROPRIATE SEAT - UPWARD ROTATION AXIS
- 14 - FIX EACH SERVO WITH 2 SELF-FORMING SCREWS **(NR. 4)**
  IMPORTANT: HAND SCREW - **DO NOT USE EXCESSIVE TORQUE / FORCE TO NOT DAMAGE AND THE HOLE DRILLED IN THE PLASTIC**
- 15 - PUT ELASTIC BAND AROUND THE BELLY TO KEEP THE ARMS SERVO CABLES IN POSITION
- 16 - POSITION THE SPEED SYSTEM SERVOS **(NR. 5)** IN THE DEDICATED HOUSING , ROTATION AXES MUST BE PLACED UPWARD

NOTE: FOR MAXIMUM DIMENSIONS YOU NEED SEE TABLE PAGE 5

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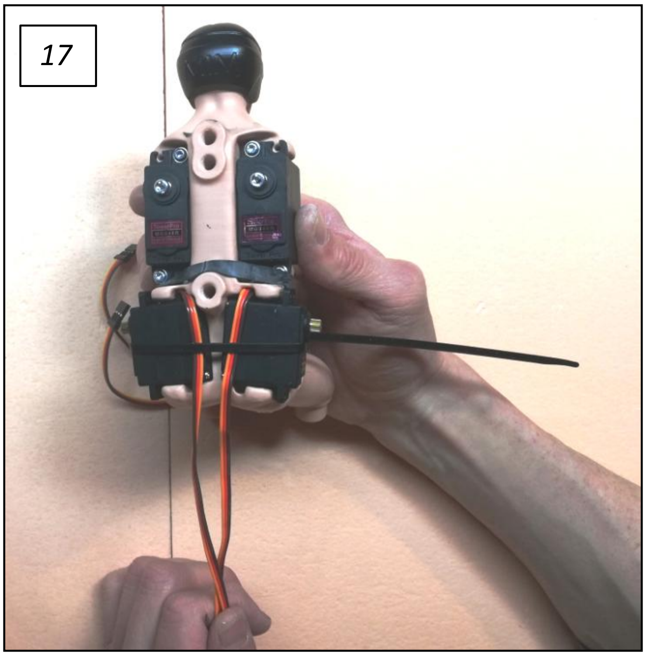

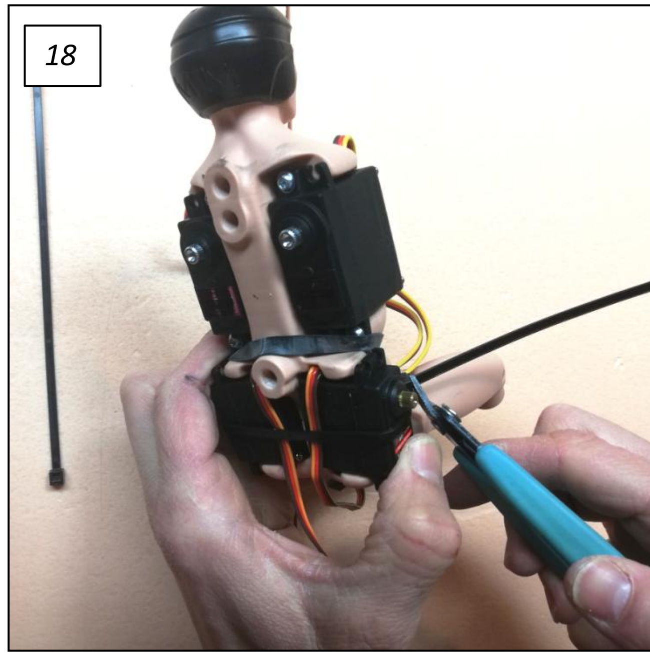

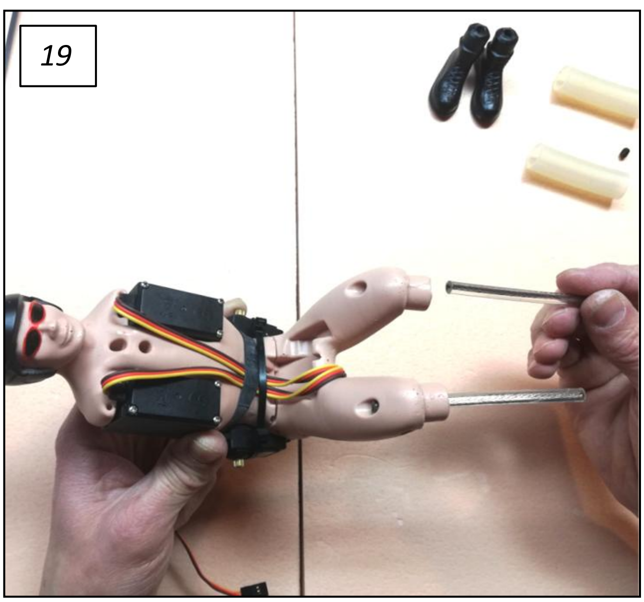

- 17 - FIX THE SPEED SYSTEM SERVOS WITH SPECIAL BIG CLAMPS **(NO. 6)**
- 18 - TIGHTEN THE CLAMPS AND CUT THE EXCESS PART
- 19 - INSERT STEEL CABLES **(NR. 7)** LEGS IN THE KNEE AREA
- 20 - BLOCK THE CABLES WITH THE APPROPRIATE GRAINS- **IMPORTANT: TIGHTEN BY HAND WITHOUT USING EXCESSIVE TORQUE / FORCE NOT TO DAMAGE THE THREAD MADE IN THE PLASTIC.**

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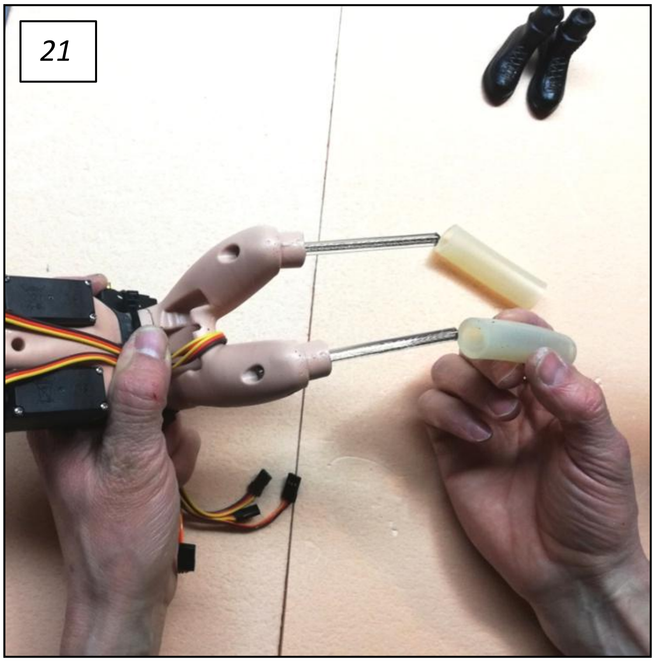

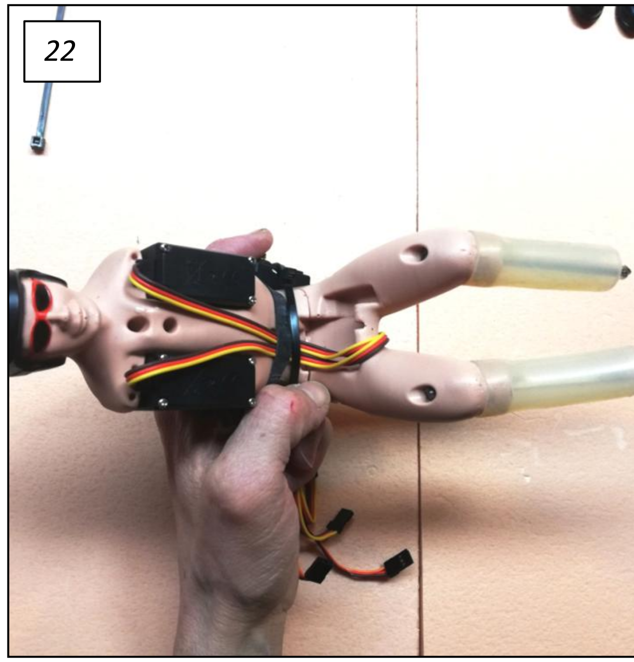

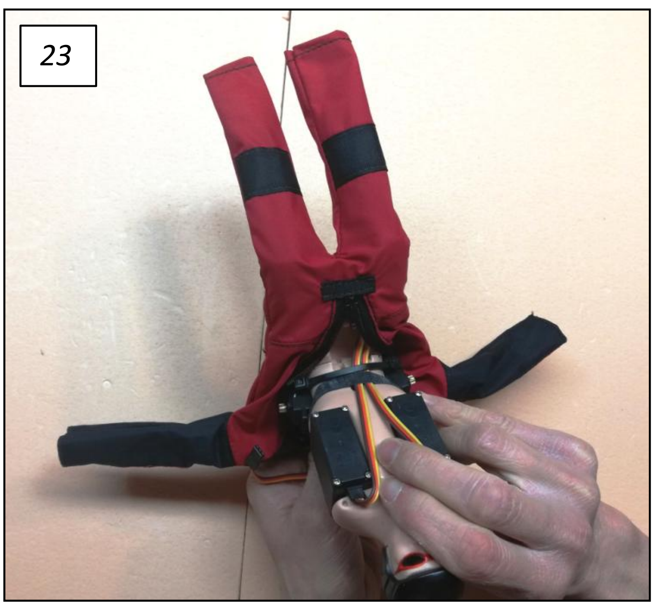

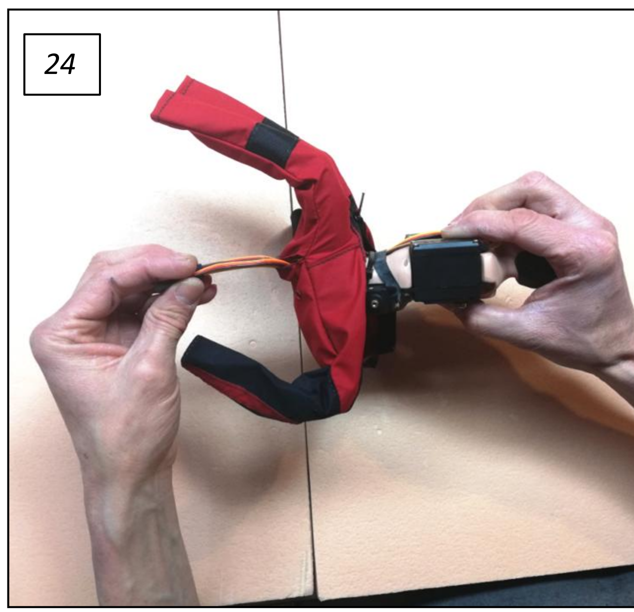

- 21/22 - INSERT SILICONE HOSES **(NO. 8)** ON THE RIGHT AND LEFT KNEE
- 23 - INSERT THE SUIT FROM THE LEGS
- 24 - PASS ALL THE SERVED CABLES THROUGH THE SUITABLE HOLE IN THE HIPS AREA LEFT RIDER

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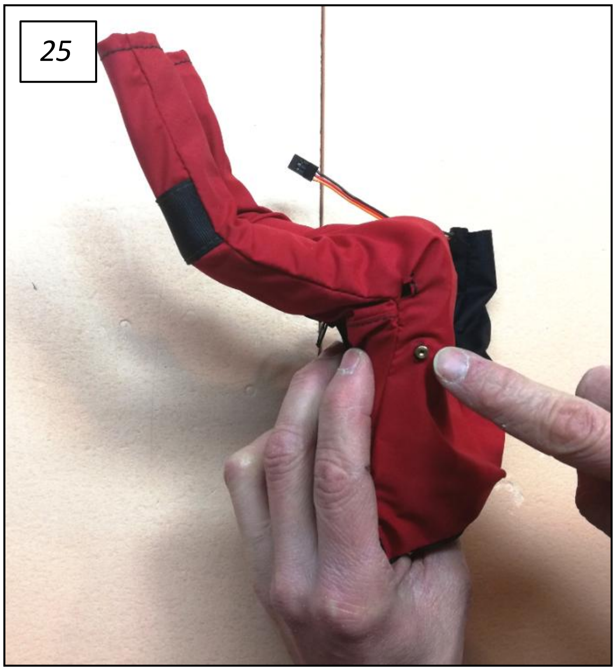

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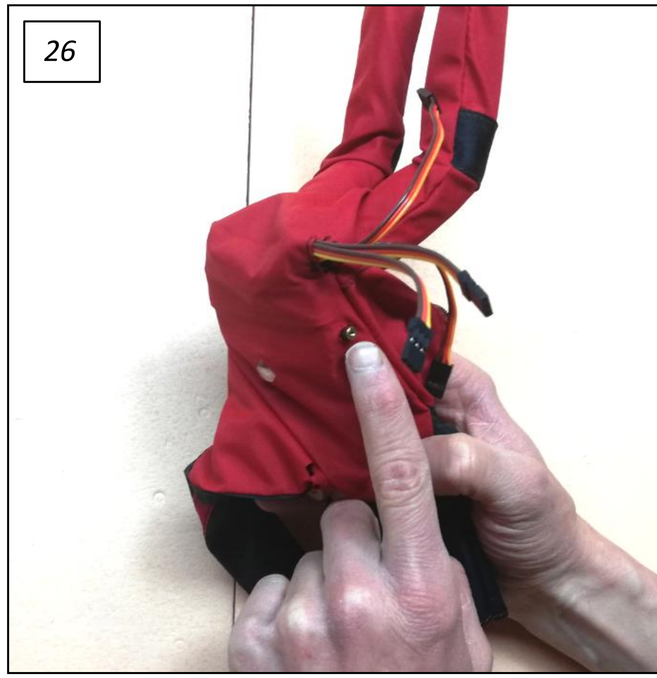

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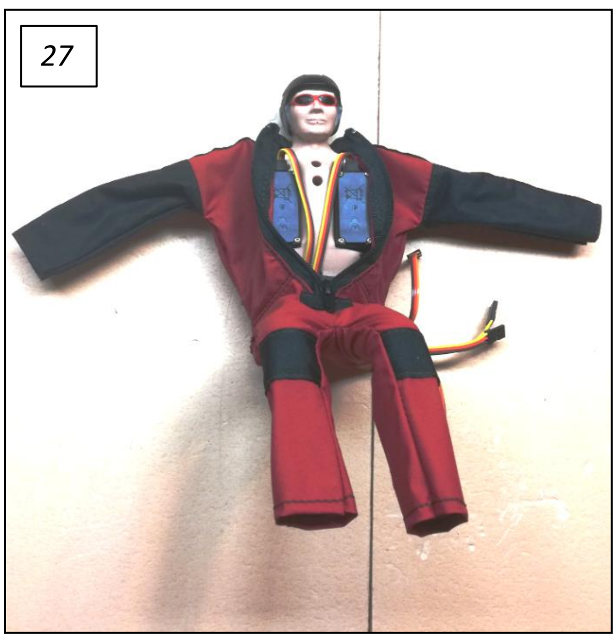

•25/26 - INSERT THE AXIS OF THE SPEED SERVOS IN THE SPECIAL HOLES OBTAINED IN THE RIGHT AND LEFT SIDE SUIT

• 27 - CORRECT APPEARANCE

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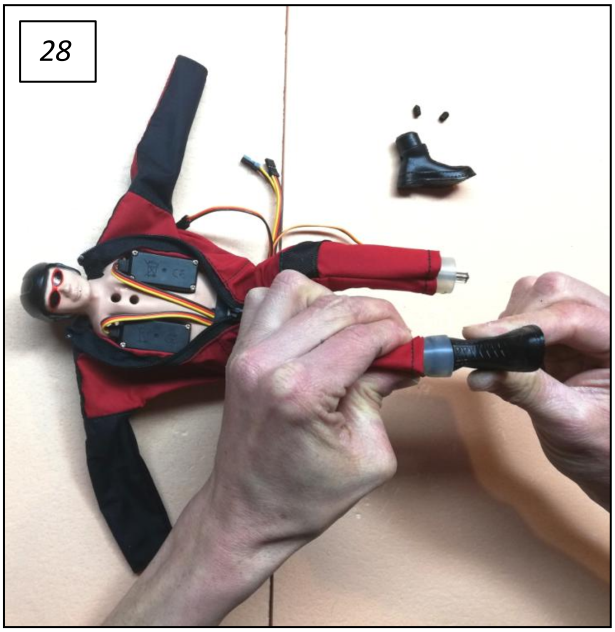

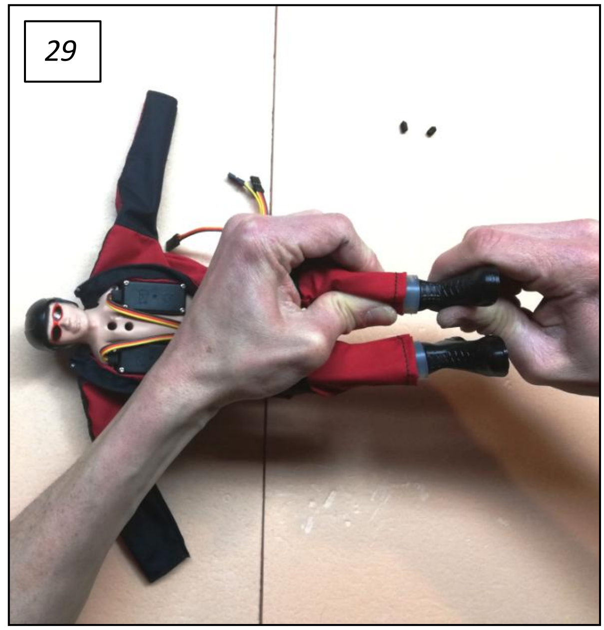

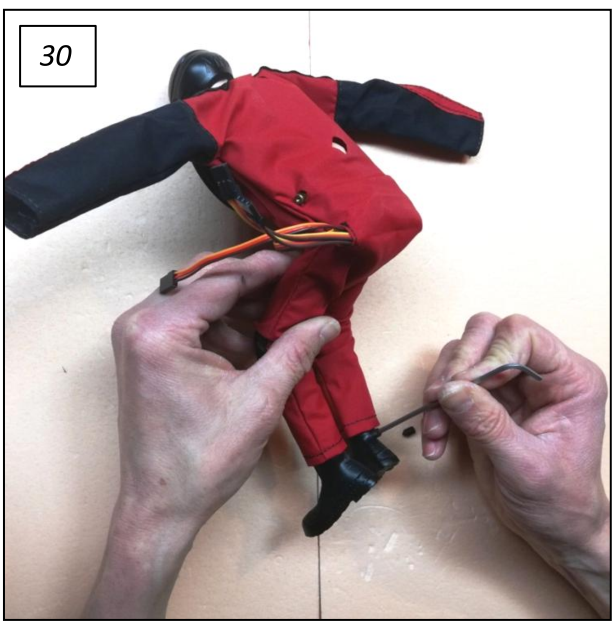

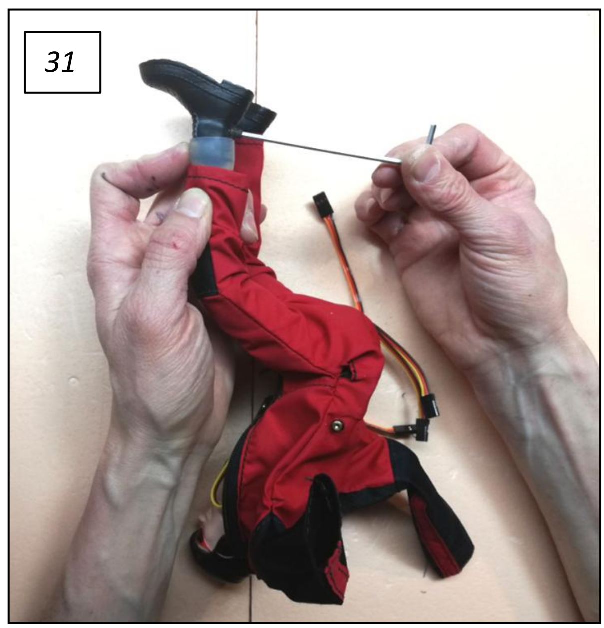

- 28/29 - INSERT RIGHT AND LEFT BOOTS **- IMPORTANT: HOLD THE STEEL CABLE BY PRESSING STRONGLY THE SILICONE IN THE CALF AREA TO PREVENT IT FROM ROTATING**
- 30/31 - LOCK THE BOOTS BY TIGHTENING THE REAR HEADLESS BOLT BY HAND
  IMPORTANT: DO NOT USE EXCESSIVE TORQUE / FORCE SO AS NOT TO DAMAGE THE THREAD MADE FROM PLASTIC

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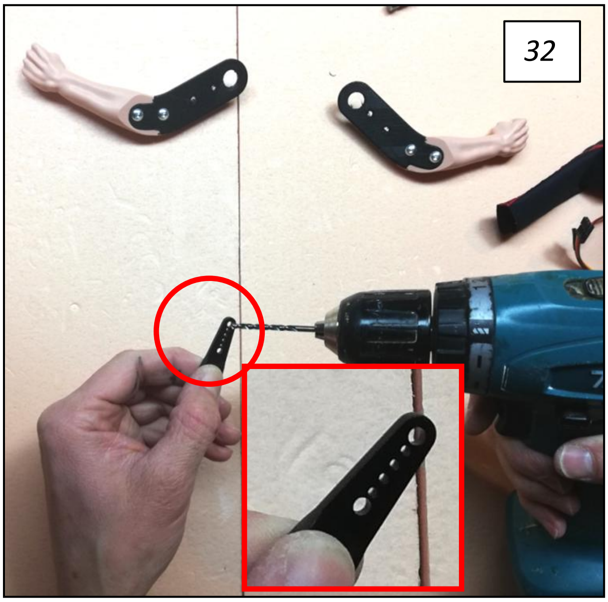

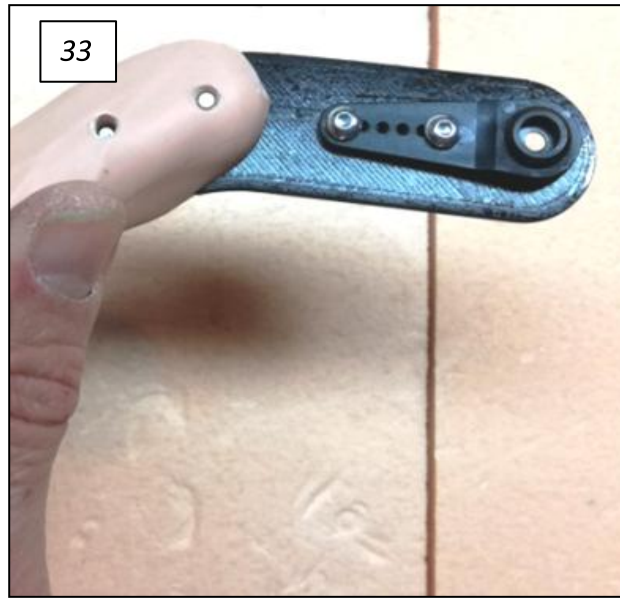

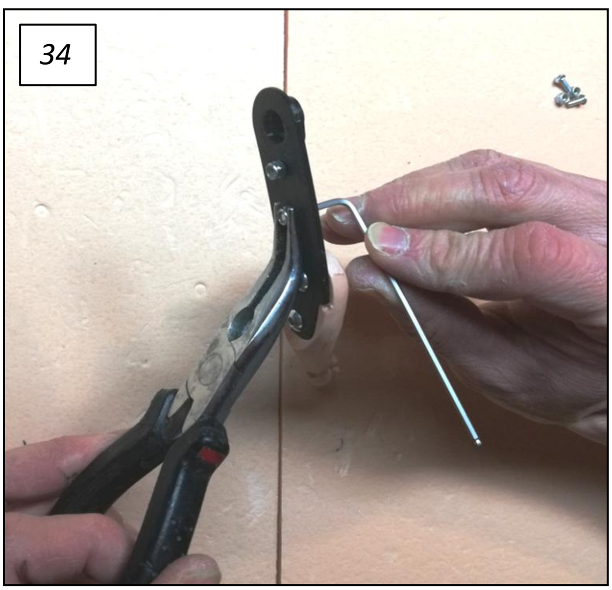

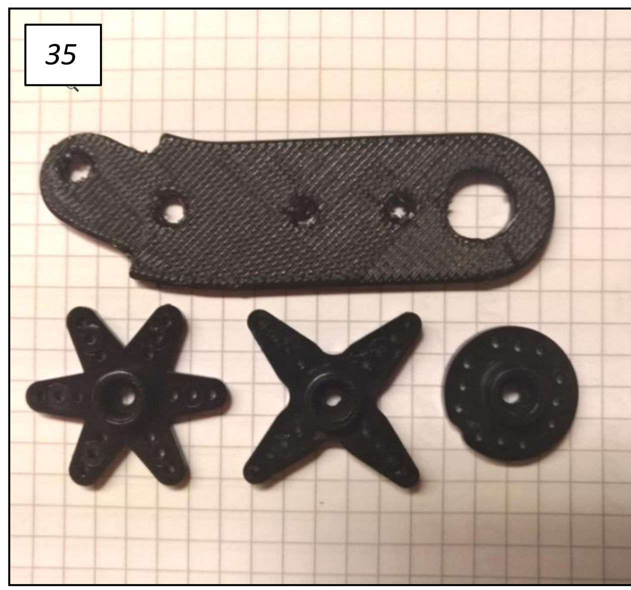

- 32 - DRILL 3 mm HOLES IN TO THE SERVO BRACKETS
- 33 - INSERT 2 + 2 M3 SCREWS **(NR.1)** WITH SELF-LOCKING NUT **(NR.1)** - SCREW HEAD ON SIDE BRACKET SIDE
- 34 - TIGHTEN THE NUTS
- 35 - IN THE CASE OF BRACKETS WITH DIFFERENT FORMS , IDENTIFY THE MOST SUITABLE AREA ON WHICH MAKING THE FIXING HOLES

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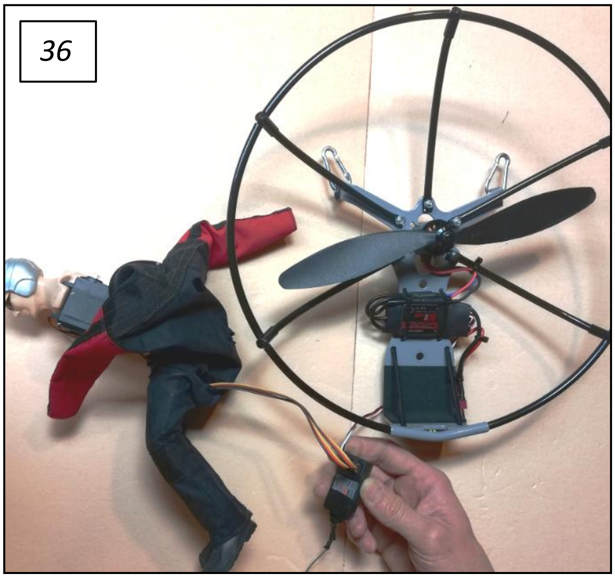
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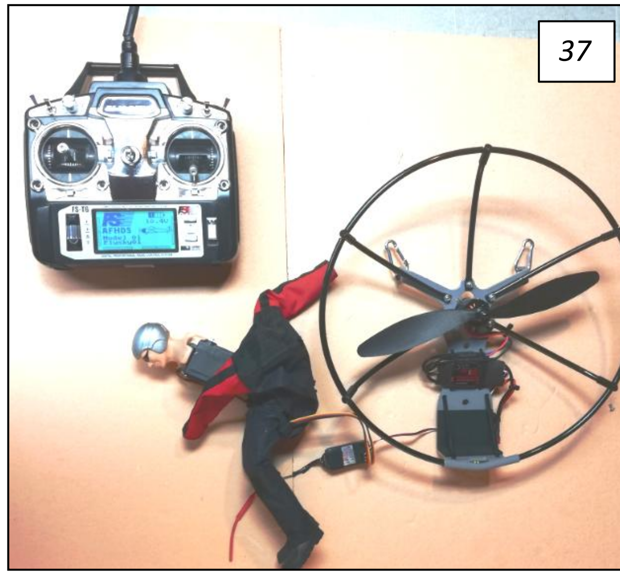
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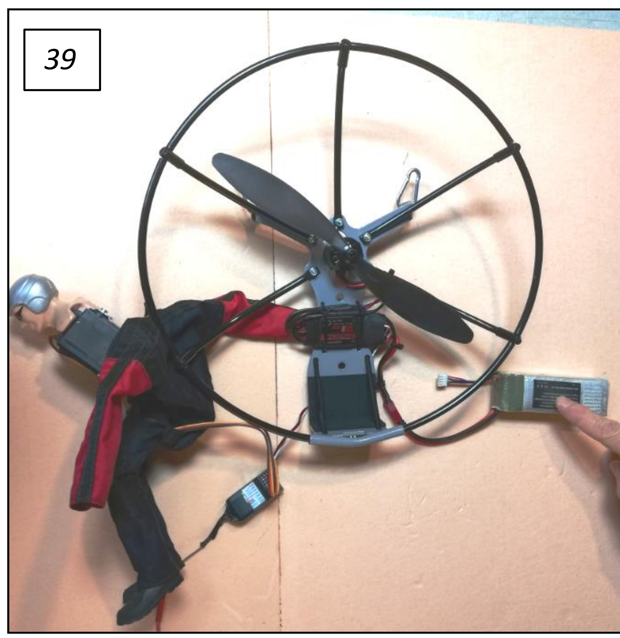
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- 36 - CONNECT ARM SERVOS TO THE RADIO OR PARAMIXER CHANNELS DEDICATED TO THEM
- 37/38 - TURN ON THE TRANSMITTER AND SET THE TRIM AND SUBTRIM ON ALL THE USED CHANNELS TO ZERO
- 39 - CONNECT BATTERY TO BRING SERVOS IN THE CENTER POSITION THEN TURN OFF RECEIVER AND TRASMITTER

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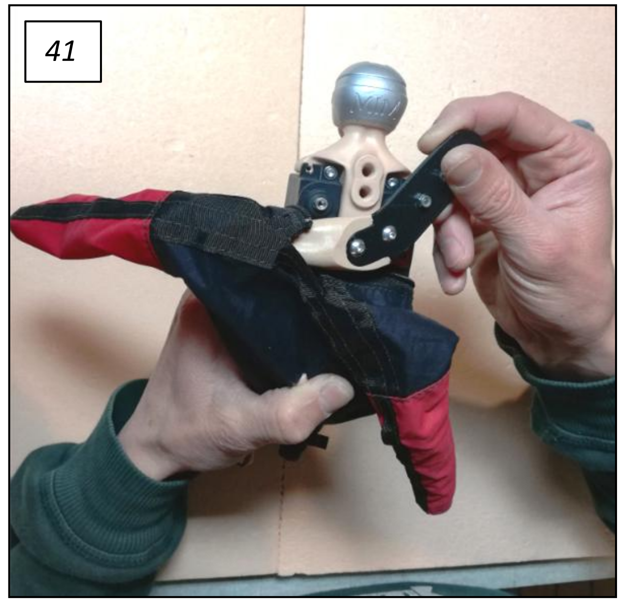

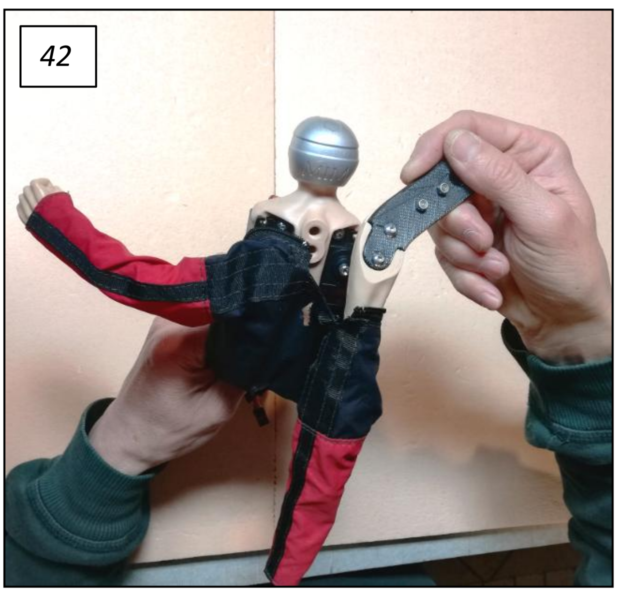

- 40 - DISCONNECT SERVO CONNECTORS FOR GREATER FREEDOM OF MOVEMENT
- 41 - INSERT LEFT ARM ON SLEEVE AND MOUNT IT ON THE SERVO WITHOUT MOVING THE SERVO
  THE HAND PALM MUST BE AT THE HEIGHT OF THE PILOT CHIN.
- 42 - INSERT RIGHT ARM AND ASSEMBLE IT AS DONE FOR THE LEFT WITHOUT MOVING THE SERVO
  THE POSITION MUST BE AS SYMMETRICAL AS POSSIBLE
- 43 – GENTLY LOWER THE ARMS AND LOWER THE SUIT

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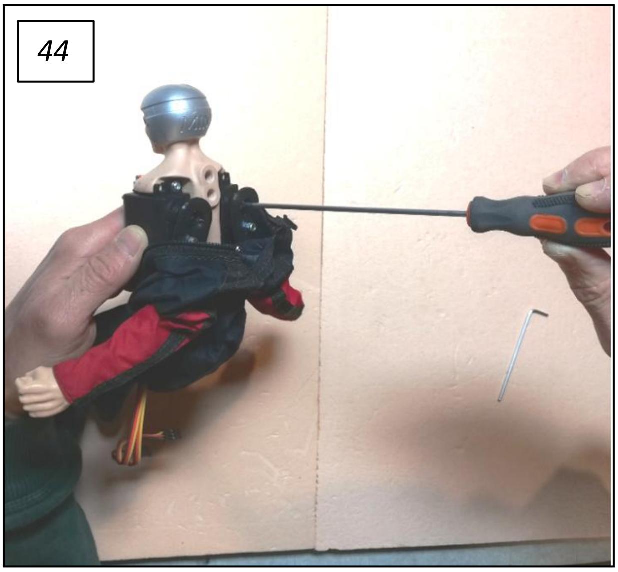

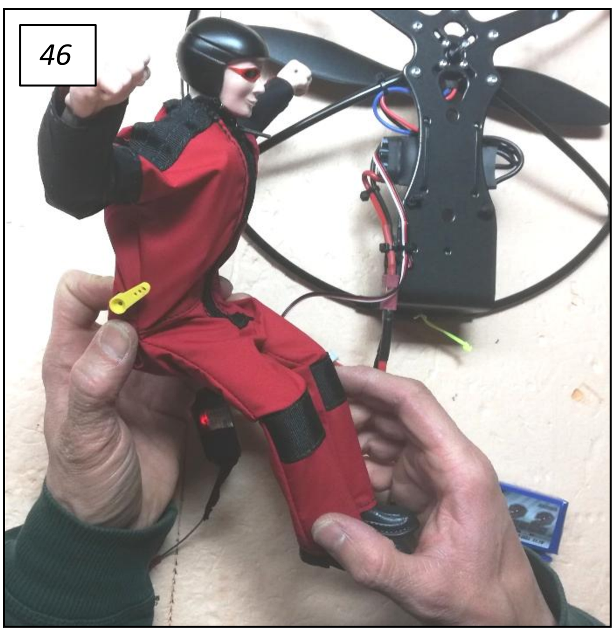

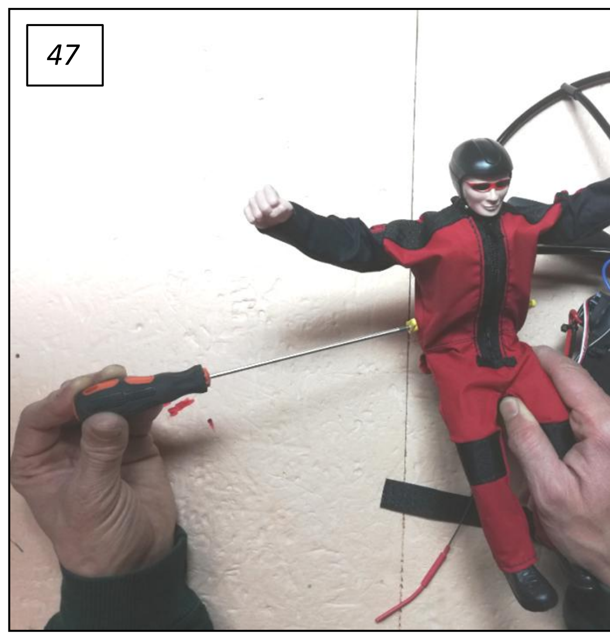

- 44 - FIX THE BRACKETS TO THE SERVOS USING THE APPROPRIATE SCREWS
- 45 - PUT ON THE SUIT AND WEAR IT TO THE PILOT
- 46 - POSITION THE RIGHT AND LEFT SPEED SYSTEM SERVO BRACKETS AS SHOWN
- 47 - FIX THE RIGHT AND LEFT SPEED SYSTEM BRACKETS WITH SPECIAL SCREWS (IF NECESSARY UNSCREW AND REPOSITION THEM CORRECTLY LATER DURING PROGRAMMING TRANSMITTER)

VERY IMPORTANT: ALWAYS CHECK THE FREE MOVEMENT OF THE SERVANTS, NECESSARY CONDITION TO PREVENT OVERLOADING AND DAMAGE TO THE SERVOS

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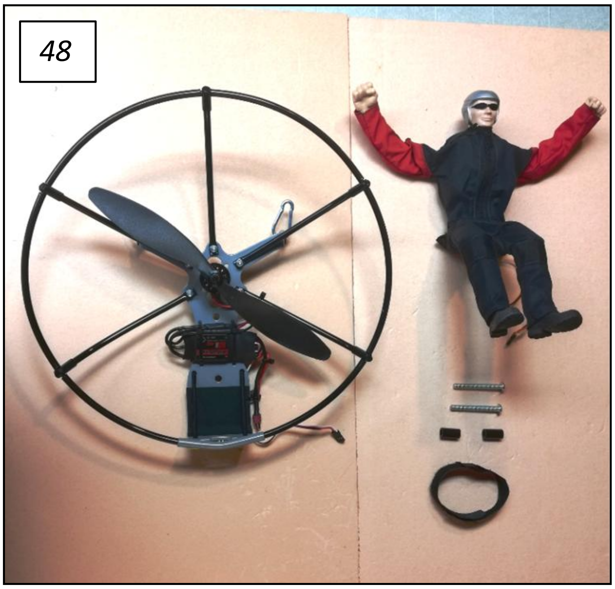
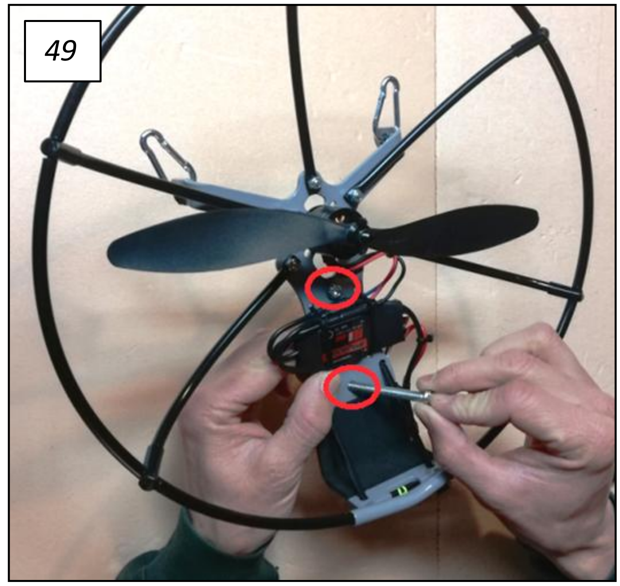
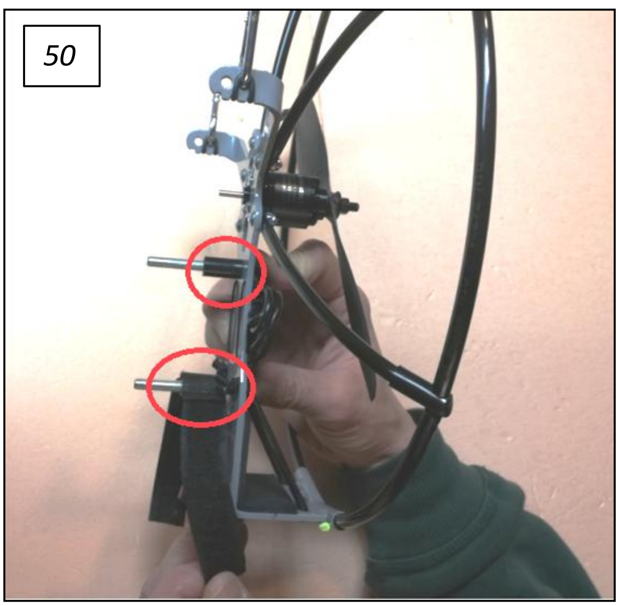
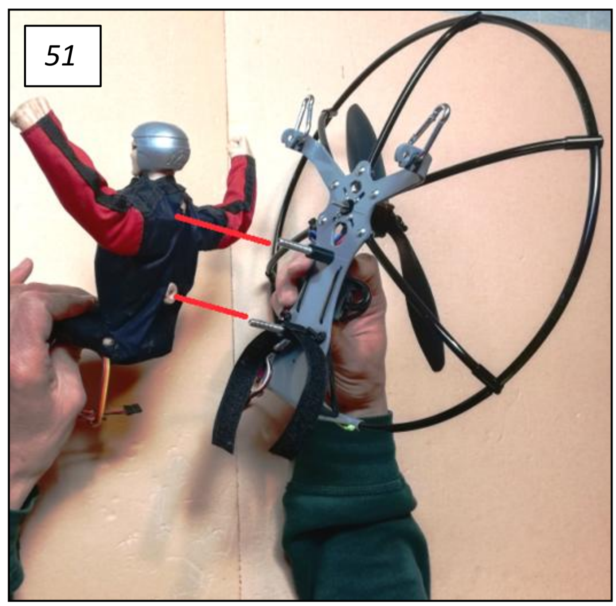
ASSEMBLY OF THE PILOT ON A PARAMOTOR FRAME :









- 48 - ASSEMBLED OMETTO + FRAME + M6 PILOT SCREWS **(NR9)** + SPACERS **(NR. 10)**
- 49 - INSERT SCREWS (NR9) INTO THE FRAME HOLES
- 50 - INSERT SPACERS IN THE PROJECTING PART OF THE FRAME
  (SPACERS WITHOUT VELCRO ON HIGH HOLE / SPACER WITH VELCRO LOW HOLE)
- 51 - PRE-SCREW THE FRAME TO THE PILOT BODY **BY HAND (DO NOT USE EXCESSIVE FORCE TO DO NOT DAMAGE THE PLASTIC THREAD)**

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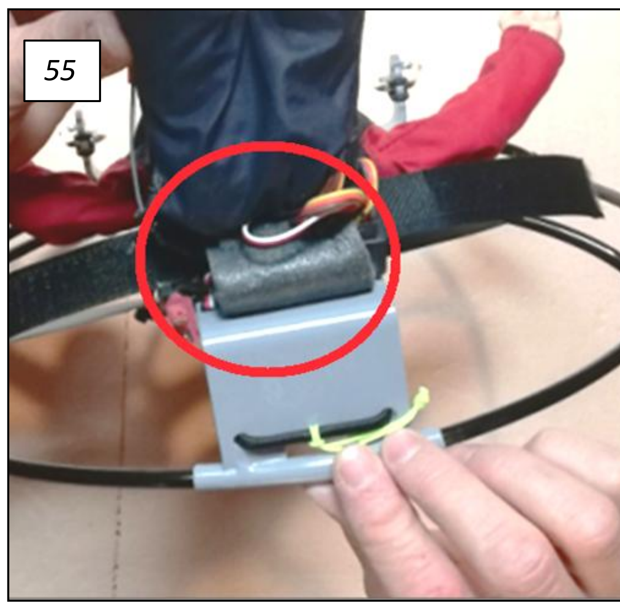

- 52 - TIGHTEN THE SCREWS BY HAND MAKE SURE THEY ARE CORRECTLY INSERTED, THEN FIX WITH THE APPROPRIATE TOOL WITHOUT USING EXCESSIVE FORCE TO NOT DAMAGE THE PLASTIC THREAD
- 53 - CONNECT THE RECEIVER AND ENSURE CORRECT OPERATION (*)
  IMPORTANT NOTE: DURING THE RADIO TESTS, REMOVE THE PROPELLER
- 54 - AFTER PROGRAMMING IS COMPLETED, WRAP THE RECEIVER IN THE SPECIAL SPONGE AND SECURE IT BEHIND THE PILOT BACK
- 55 - CORRECT POSITIONING OF THE RECEIVER

(*): (FOR PROGRAMMING SEE PAGE 23-26-27)

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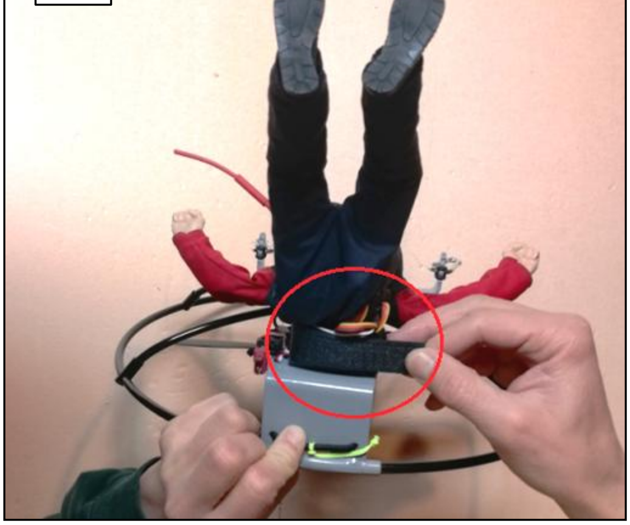
56



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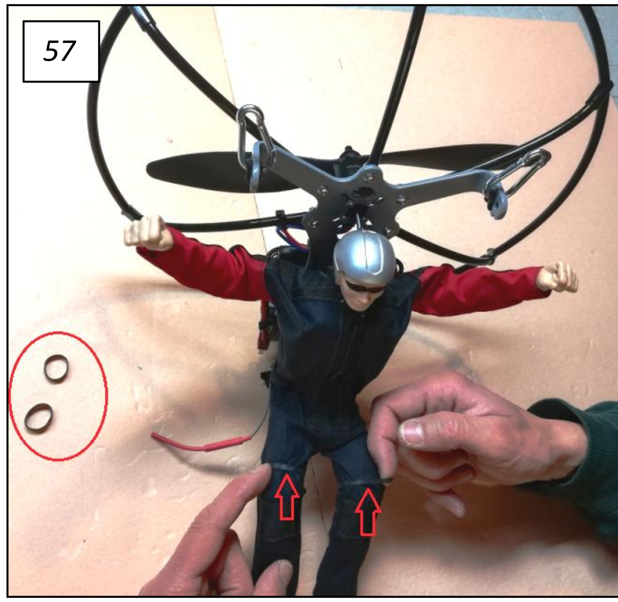

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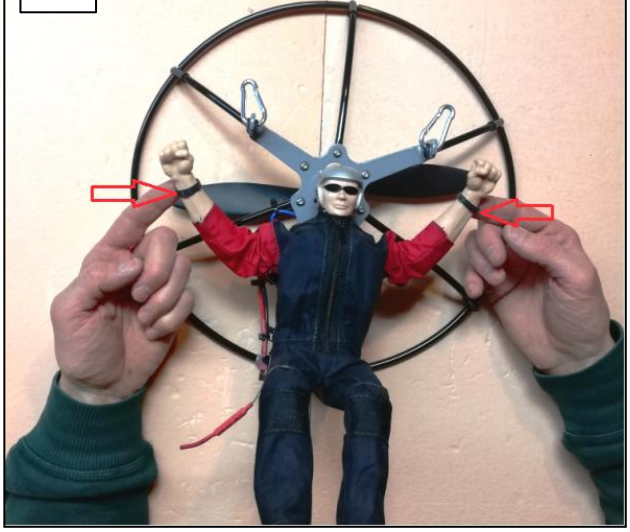

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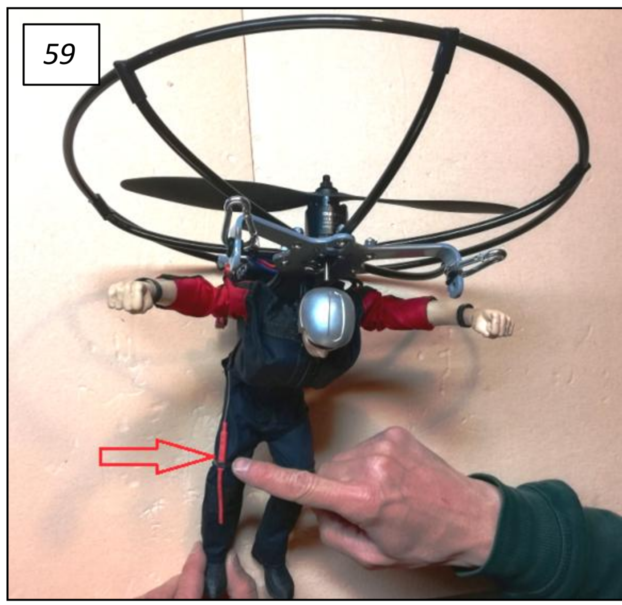

- 56 - FIX THE RECEIVER WITH A SPECIAL VELCRO
- 57 - INSTALL SMALL ELASTICS BANDS AROUND THE RIGHT AND LEFT PILOT LEGS
- 58 - INSTALL SMALL ELASTIC BANDS AROUND THE RIGHT AND LEFT PILOT FOREARMS
- 59 - SECURING THE ANTENNA TO THE THIGH USING ELASTICS IN POINT 57

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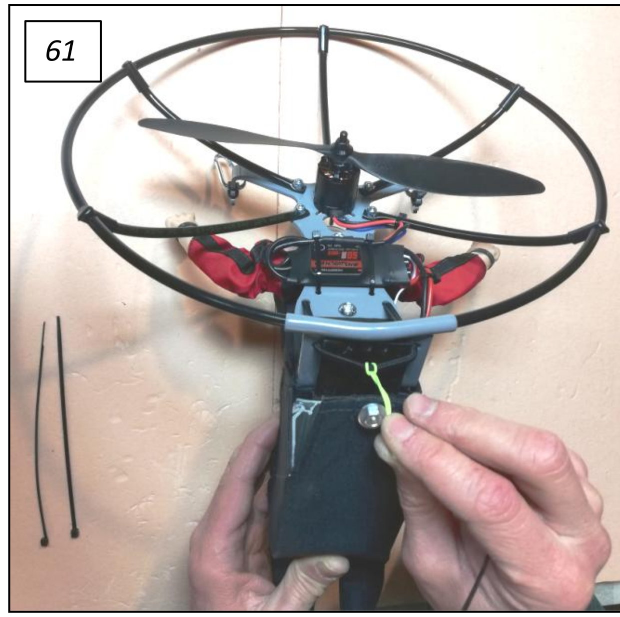

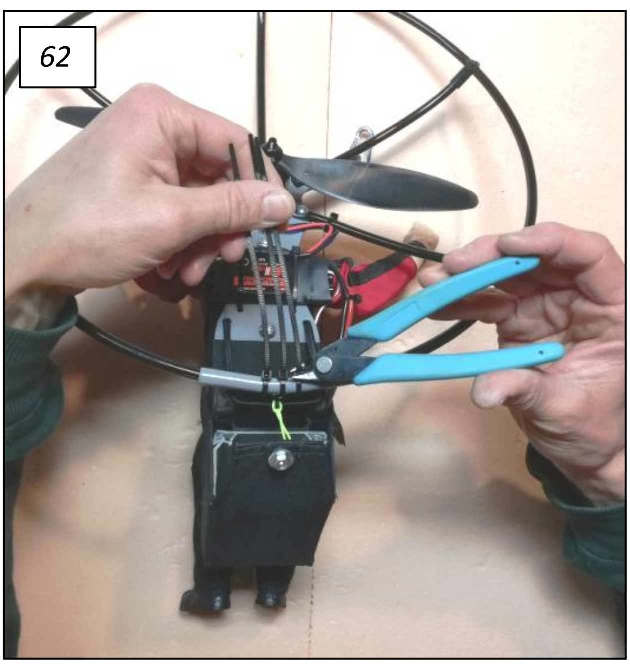

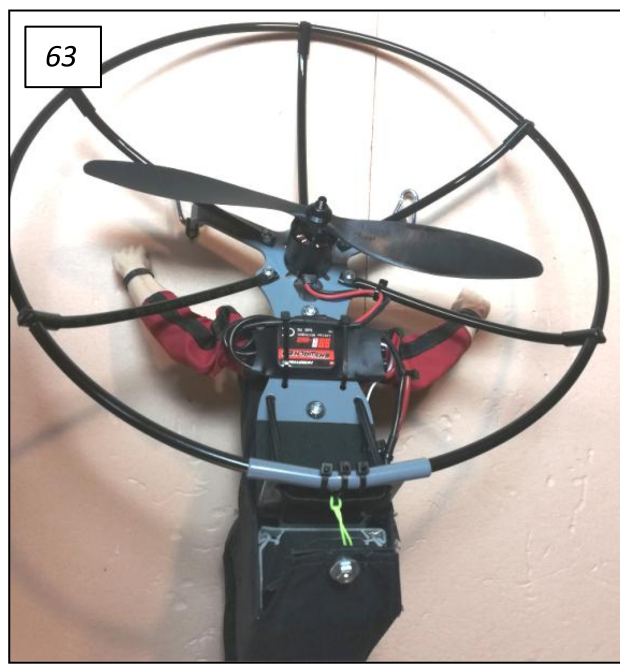

- 60 - ENGINE GUARD PILOT WITH ENGINE GUARD AND HARNESS + 3 CLAMPS **(NR2)**
- 61 - PUT THE HARNESS UNDER THE ELASTIC
- 62 - SECURE THE HARNESS TO THE FRAME USING THE 3 CLAMPS **(NR2)** THEN CUT THE CLAMP IN EXCESS
- 63 - CORRECT APPEARANCE

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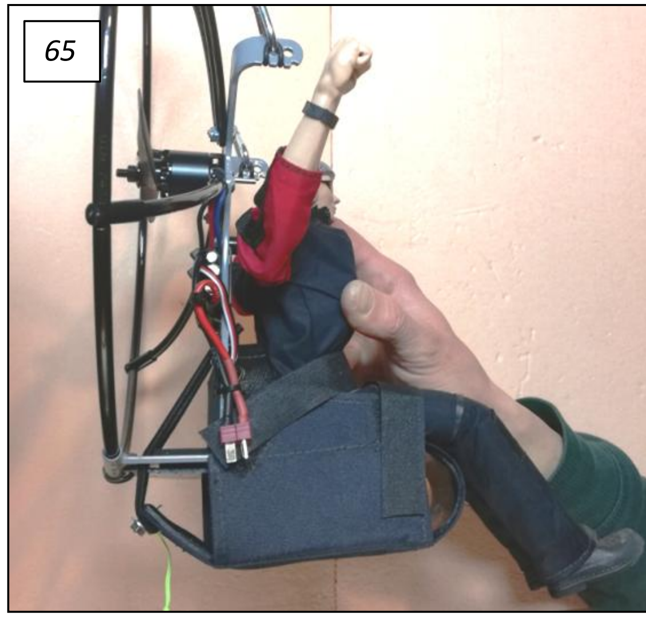

- 64 - FIX THE HARNESS TO THE PILOT - **TIGHTEN THE VELCROS VERY WELL**
- 65 - APPEARANCE OF THE CORRECTLY ASSEMBLED HARNESS.

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SUGGESTED TRASMITTER PROGRAMMING:

the following programming is one of the possible ways, not necessarily the only one. what is reported is purely indicative and can be varied according to user preferences.

RECOMMENDED MODES: MODE1 OR MODE4 (FIG.66) WITH AILERONS AND ELEVATOR MIXED WITH ELEVON MODE.
KEEPING THE AILEROS CONTROL SEPARATE FROM THE TURN (AILERON) HAS THE FOLLOWING ADVANTAGES:

1. ALLOWS THE MODEL TO BE PILOTED WITH ONE HAND ONLY, BEING THE MOTOR (THROTTLE) AND TURN (AILERON) COMMANDED BY THE SAME STICK.
2. ALLOWS TO PERFECTLY CONTROL THE SAIL EVEN DURING THE LAUNCH PHASE WHEN THE HAND USED TO LAUNCH THE MODEL IS NOT STILL Leaning ON THE RADIO.
3. REDUCES PENDULATIONS AND ERRORS BY KEEPING THE CABRA PICCHIA COMMAND DIVIDED BY THE AILERONS

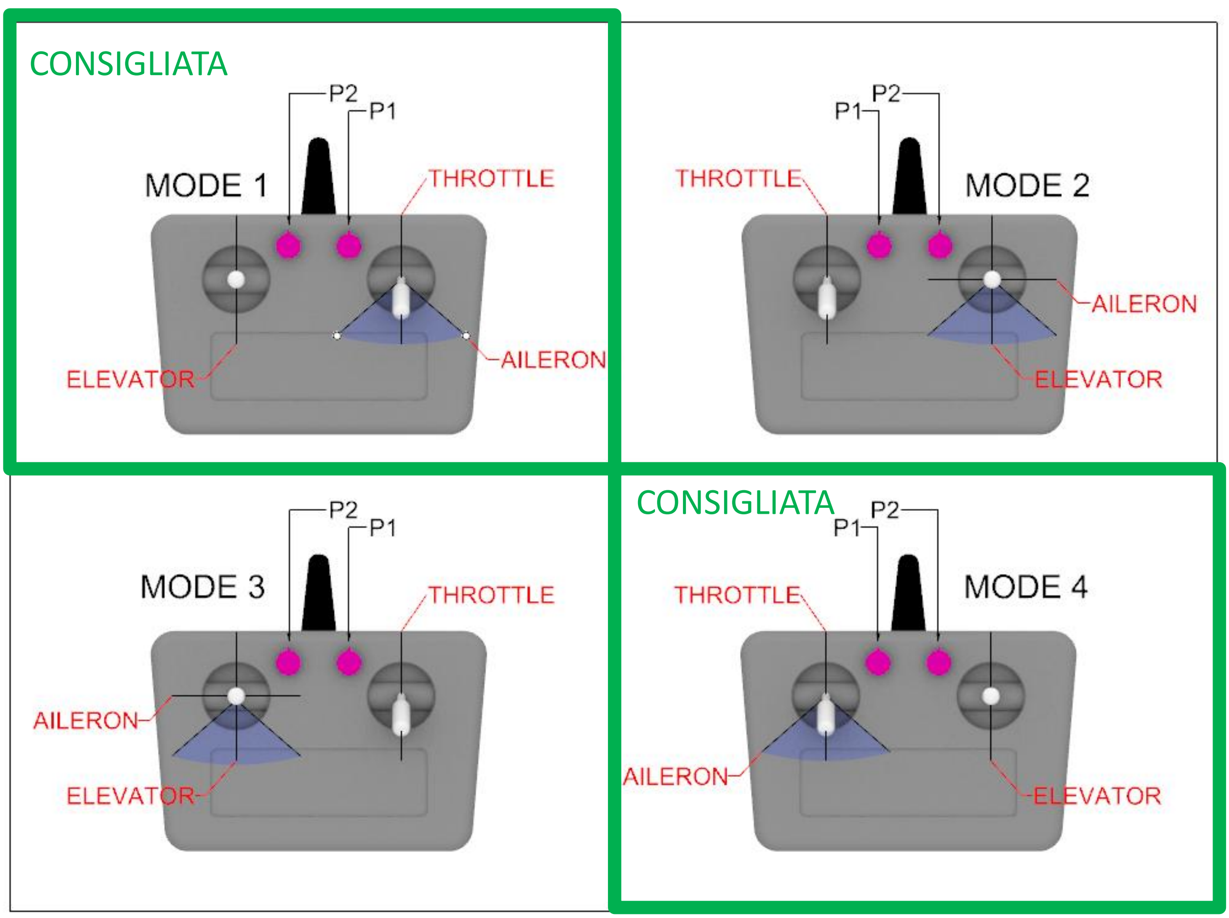

FIG. 66

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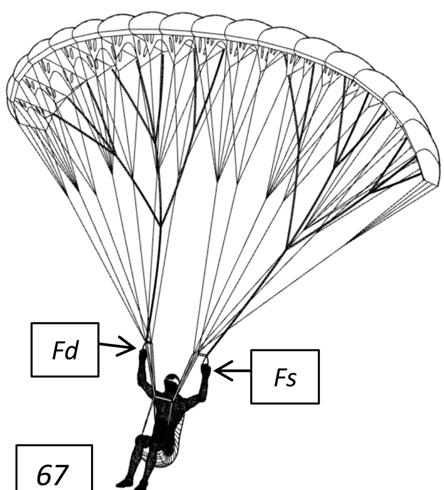
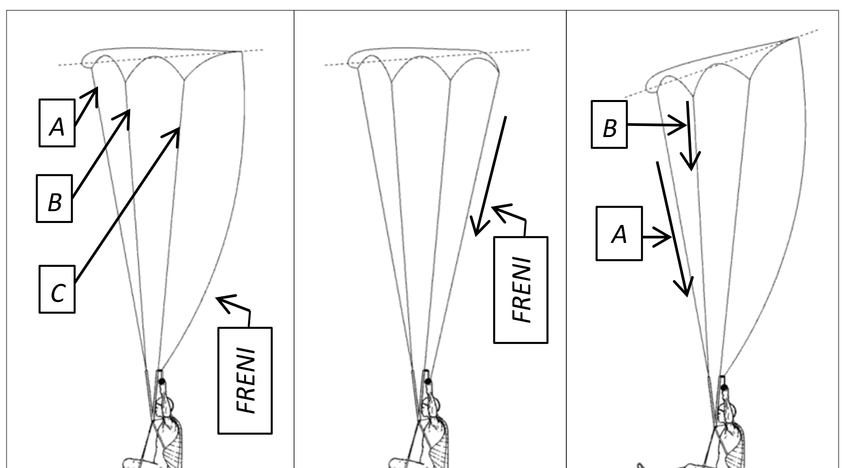
REAL PARAGLIDER STRUCTURE AND COMMANDS EXPLANATION:

A paraglider (Pic. 67), once inflated, takes the form of a wing with its own airfoil.
A properly loaded paraglider wing is able to glide with a certain glide angle.
The weight of the pilot is supported by a set of lines connected to the front part of the wing, arranged in 2 or more rows of lines and with progressive name A, B, C ... (Pic.68)
There are then two groups of ropes connected to the trailing edge called RIGHT BRAKE (Fd) and LEFT BRAKE (Fs); the traction of the brakes causes a lowering of the trailing edge (Pic. 69) with a consequent change in the shape of the airfoil. More than a braking action, the brakes have the primary effect of increasing the coefficient of lift of the profile, especially in the first part of the useful travel.
The pull of the Fd alone produces a right turn, vice versa **the pull of the Fs** only produces a left turn
Excessive traction of a single brake produces a screw or spiral with a noticeable loss of altitude.
Moderate traction from both brakes produces a reduction in horizontal speed and sink rate, which is useful in thermals or to reduce fuel consumption during level flight with little engine.
A deep pull of both brakes produces an extreme reduction in speed to stall, which is useful **only** on landing or sometimes necessary in flight to re-establish the correct attitude of the wing after any loss of control.



67



68 69 70

Speed System: The speed system (SS) is a device normally connected to lines A and B which, when operated via a pedal, reduces their length (Pic. 70) with a consequent reduction in the angle of attack and an increase in horizontal and vertical speed. of the sail.
The S.S. it is useful during motorized flight especially with high power output thanks to the reduction of stall risk. The use of the speeed system is also very useful in both cases, that is, with or without an engine, when it is necessary to better penetrate into the wind.
VERY IMPORTANT: the use of the speed system, especially with the engine off, significantly increases the risk of the wing deflection and collapse, so this tool should be used far from the ground and with great caution.
In case of wing collapse with SS activated, the first thing to do is to release the SS and on afterwards act on the brakes to recover the normal flight attitude.

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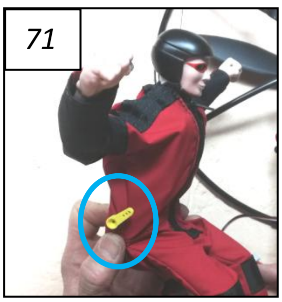
RC PARAMOTOR COMMANDS:

Similarly to the real world, the KIT MP1 (73) is also equipped with independent movable arms connected to the respective brakes (1, 2).

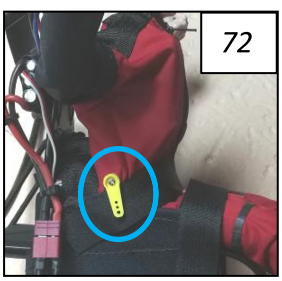
In addition, 2 miniserves (3) housed on the right and left side of the pilot body and connected to risers A and B allow the speed system to be activated to vary the attitude of the glider during flight.

The kit has a specific frame equipped with a brushless electric motor with relative propeller (4) designed to replicate motorized flight (paramotor) and capable of imparting a horizontal thrust forward to the pilot unit useful for bringing it up even in absence of updrafts.

1. RIGHT BRAKE (Fd)
2. LEFT BRAKE (Fs)
3. SPEED SYSTEM:
4. ENGINE:



RIGHT AND LEFT SERVOS UP : SPEED SYSTEM NOT ACTIVATED



RIGHT AND LEFT SERVOS DOWN : SPEED SYSTEM ACTIVATED

<u>By applying little throttle</u>, you can reduce the sink rate or maintain level flight (at the same altitude).

<u>By applying a greater amount of engine</u> the model will start to climb, the greater the thrust of the engine and the greater the rate of climb. Excessive thrust can lead to stalling of the glider or can, if maintained, be used to perform spectacular (BUT DANGEROUS) loops.

IMPORTANT: in NON-ACROBATIC recreational flight, the application of the engine and controls must be done gradually to avoid excessive oscillations and involuntary stalls.

<u>REFERENCE PHOTO 73: VERY IMPORTANT: ALWAYS CHECK THE FREE MOVEMENT OF THE 1-2-3 SERVERS, NECESSARY CONDITION TO PREVENT THE SERVO FROM BURNING</u>

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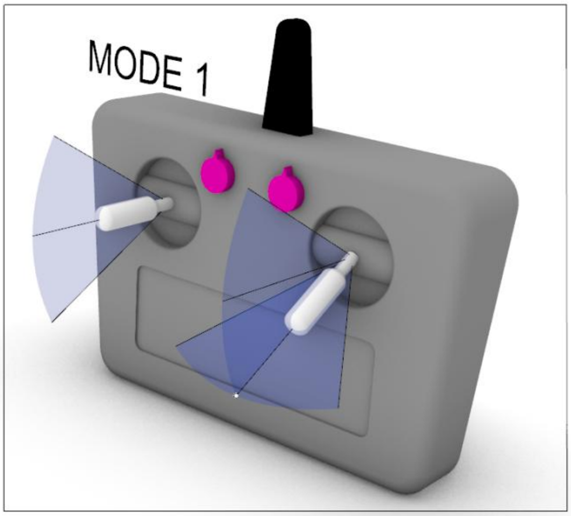
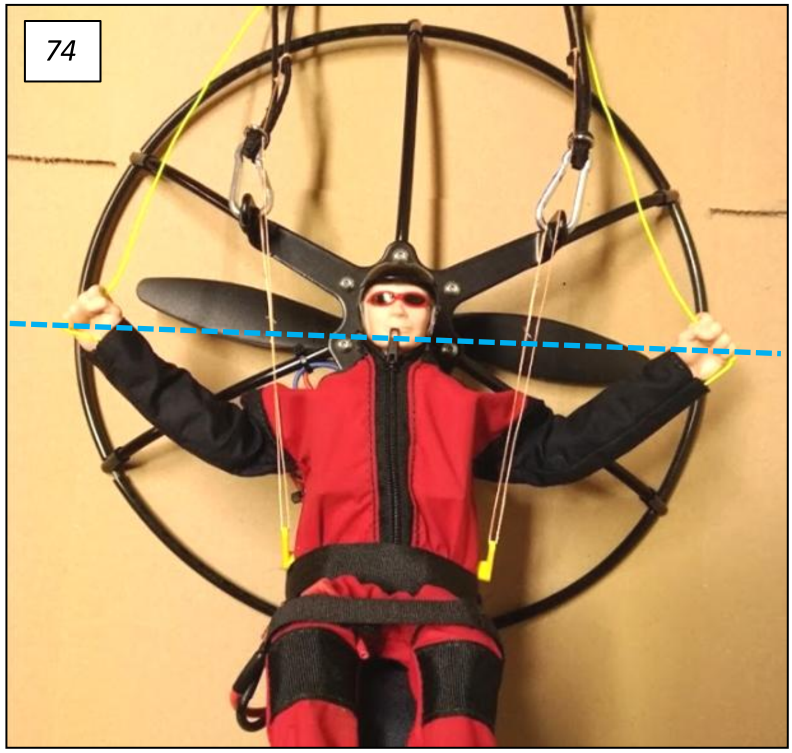
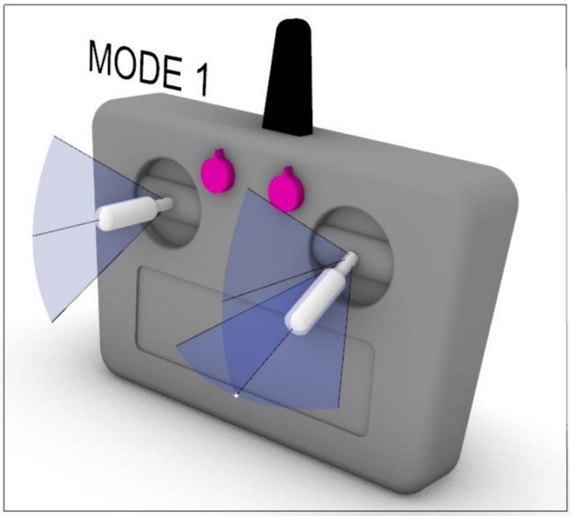
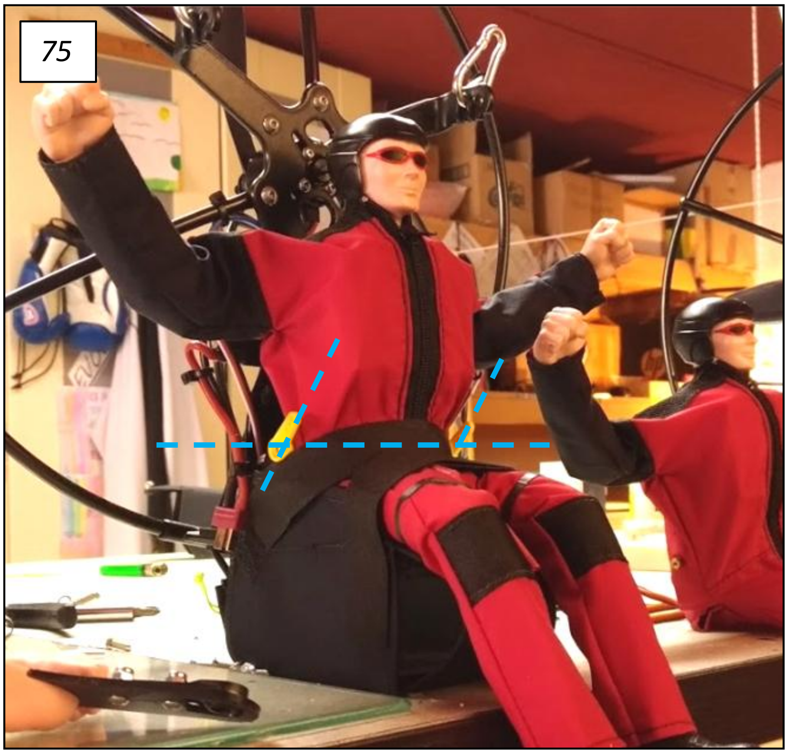
REST POSITION ARMS AND SPEED SYSTEM.





CORRECT REST POSITION OF THE ARMS WITH STICK IN THE CENTER = WITHOUT ANY ACTION ON THE STICKS





CORRECT REST POSITION OF THE SPEED SYSTEM SERVERS WITH STICK IN THE CENTER = WITHOUT ANY ACTION ON THE STICKS

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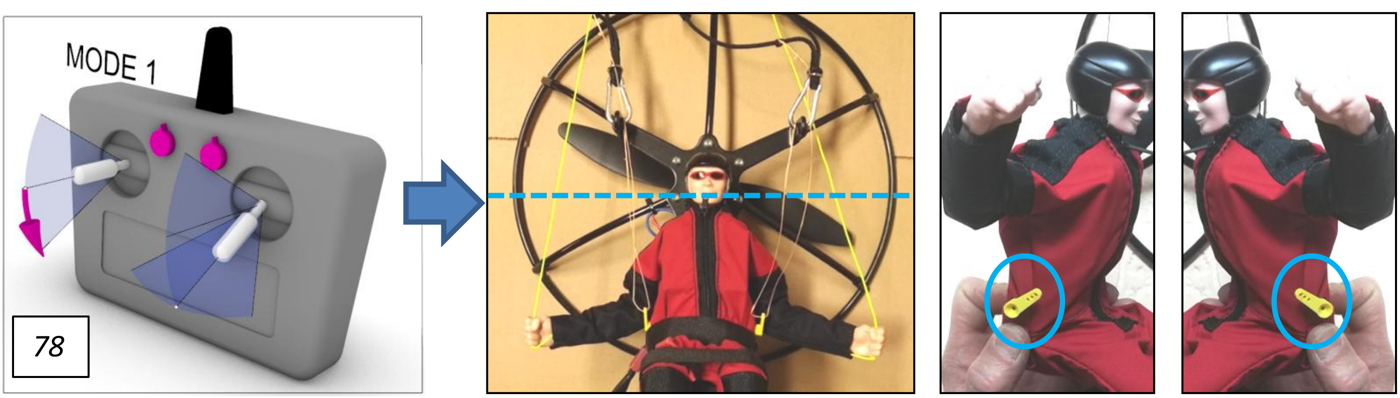
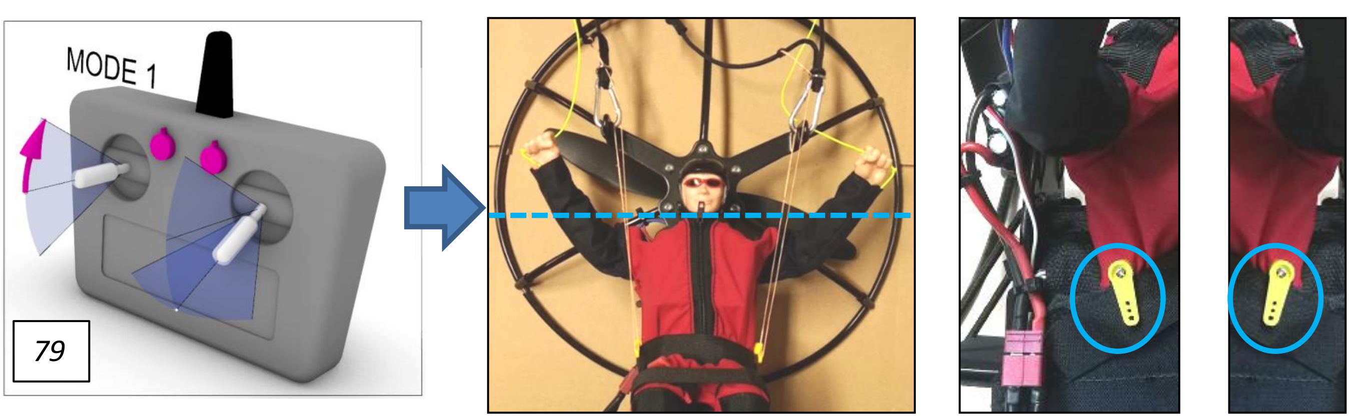
MIX MODE 1 LOGIC - SEE APPENDIX 2 FOR STROKE DETAILS

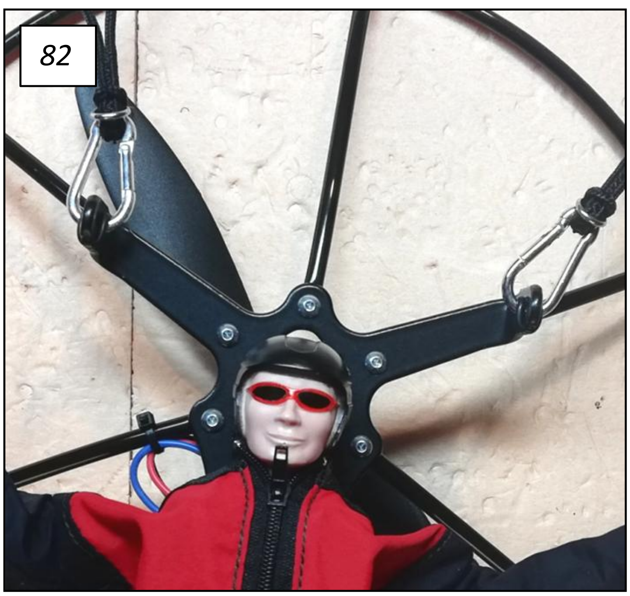




CONNECTION OF THE WING TO THE PARAMOTOR:


80


81


82


83

- 80 - PUT THE RIGHT RISER ON THE RIGHT CARABINER - MAKE SURE THAT THE METAL RING IS IN ON THE FRONT SIDE
- 81 - TIGHTEN THE RISER BY SLIDING THE LARKS HEAD KNOT
- 82 - REPEAT THE SAME ON THE LEFT BRICK
- 83 - APPEARANCE OF THE CORRECTLY ASSEMBLED AND TIGHTENED SUSPENDER

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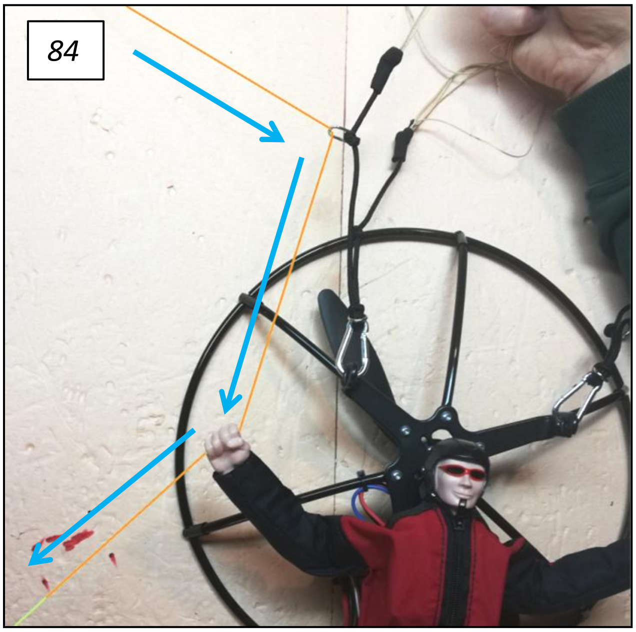
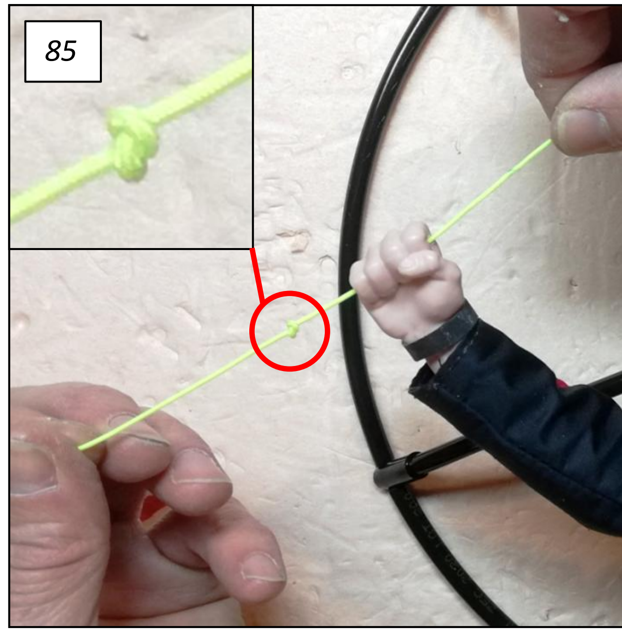
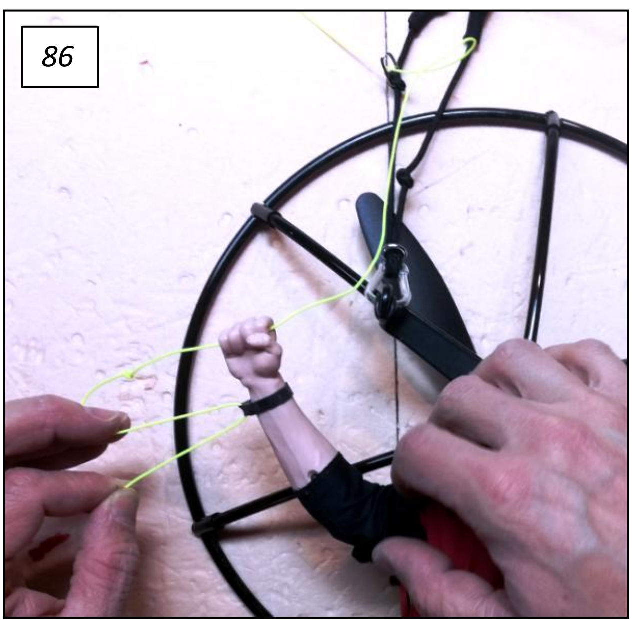
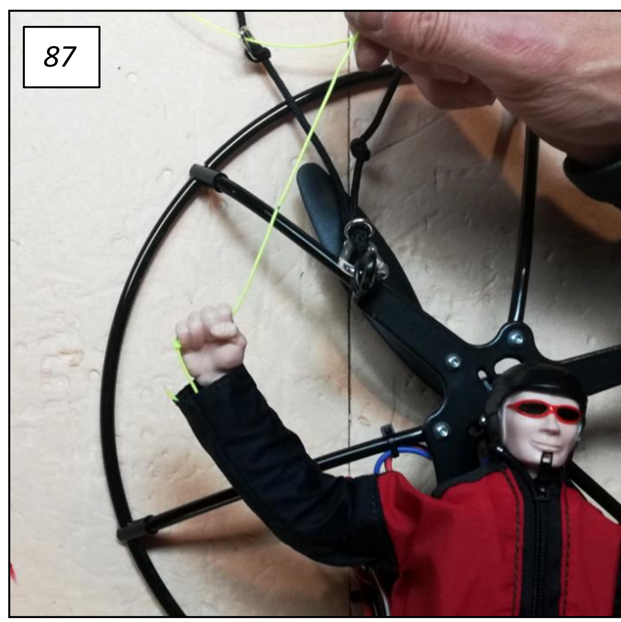
BRAKE LINES ASSEMBLY:









- 84 - INSERT THE Fd LINE INSIDE THE RIGHT METAL RING AND THEN IN THE RIGHT HAND HOLE
- 85 - MAKE A KNOT IN CORRESPONDENCE WITH THE SIGN WITHOUT TIGHTENING IT EXCESSIVELY
- 86 - RAISE THE SLEEVE AND PASS THE EXCESS BRAKE CABLE INSIDE THE ARMS ELASTIC BAND THEN SLIDE THE ELASTIC UPWARD TO FIT THE CABLE IN EXCESS INSIDE AT THE SLEEVE THUS TO PREVENT IT FROM HIT THE PROPELLER.
- 87 - LOWER THE SLEEVE AND REPEAT THE SAME PROCEDURE ON THE LEFT ARM

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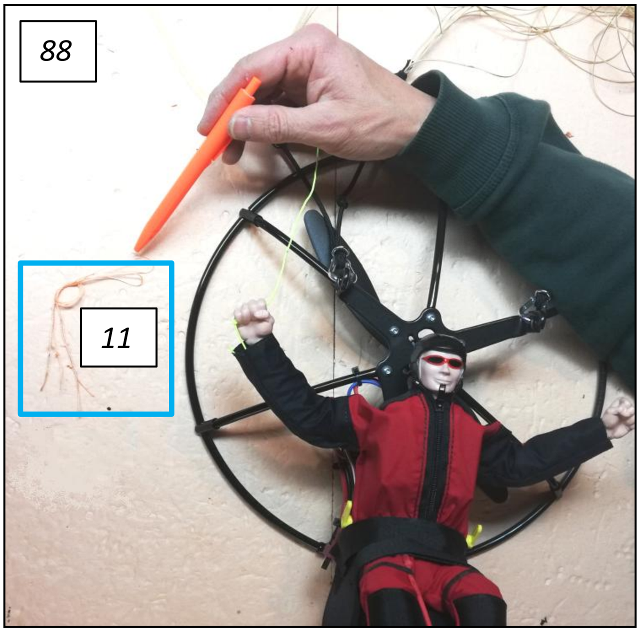
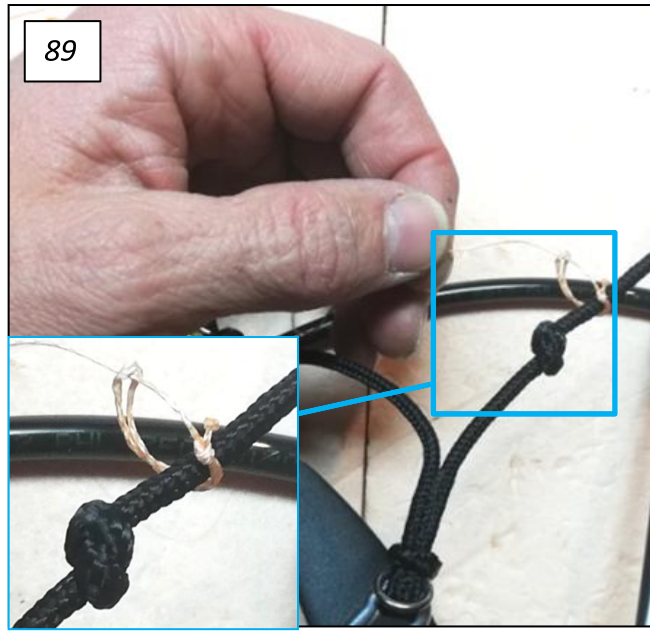
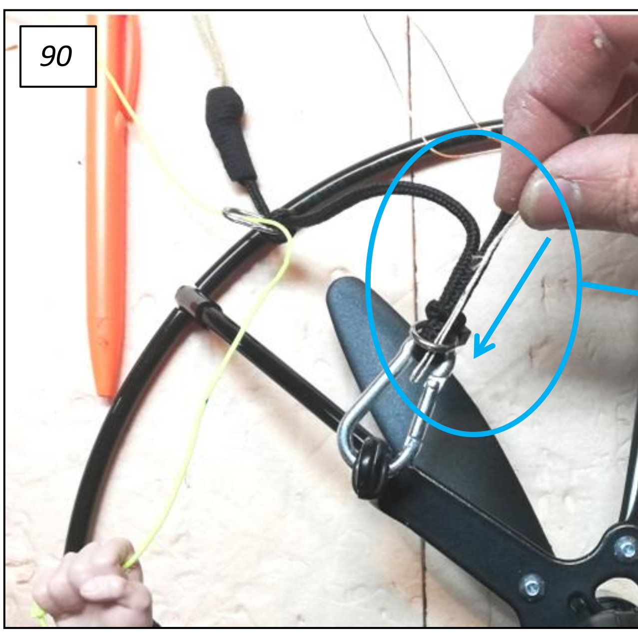
SPEED SYSTEM CONNECTION:







- 88 - SPEED SYSTEM CORDS (APPROXIMATE LENGTH 400 mm) WITH SLOTS AT THE ENDS
- 89 - ATTACH WITH "WOLF MOUTH" KNOT SPEED SYSTEM CORD ON "A" RIGHT BRACKET IN THE AREA ABOVE THE NODE
- 90 - INSERT THE FREE END OF THE CORD AT POINT 89 INSIDE THE RIGHT SUSPENDER RING
- 91 - CORRECT CABLE PASSAGE (FRONT RING TO SNAP - FREE CORD

REPEAT POINTS 89,90,91 ON THE LEFT SLEEVE

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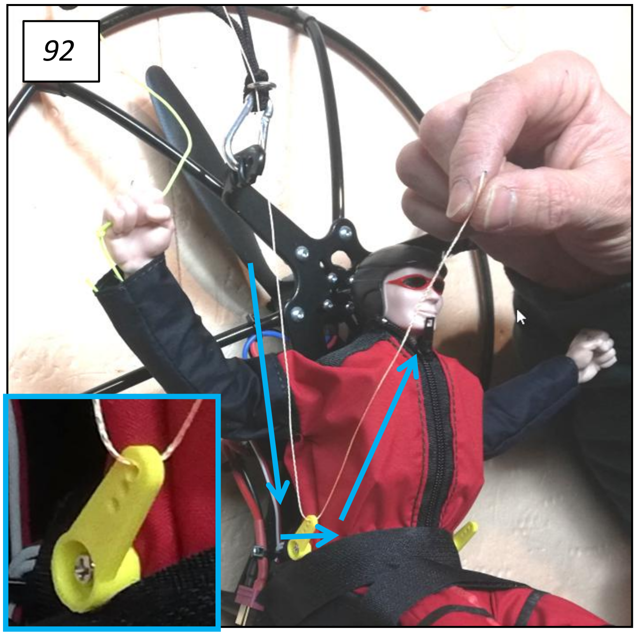

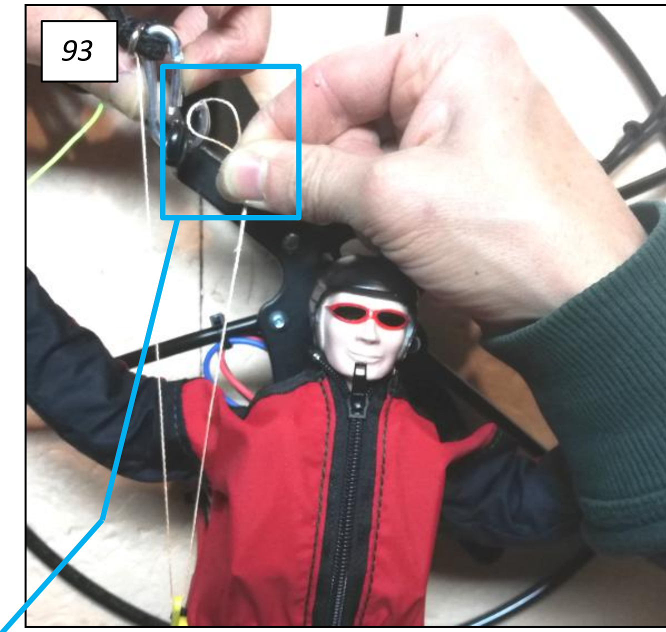

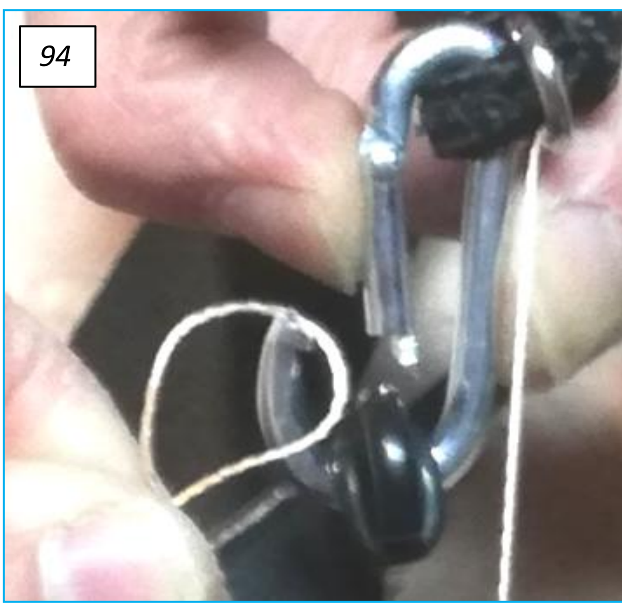

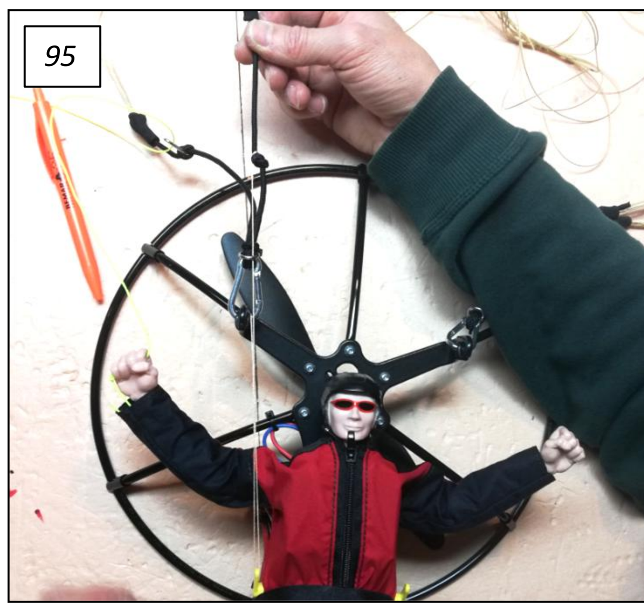

- 92 - PUT THE RIGHT SPEED SYSTEM LINE INSIDE THE RIGHT SPEED SERVO BRACKET HOLE
- 93 - TIGHTEN THE CORD AND ATTACH THE FREE END TO THE RIGHT CARABINER
- 94 - REPEAT THE SAME ON THE LEFT SIDE
- 95 - APPEARANCE OF THE CORRECTLY ASSEMBLED AND TIGHTENED RISER - THE SPEED CORD, WHEN THE A A RISER ARE PULLED MUST HAVE MINIMUM CLEARANCE.

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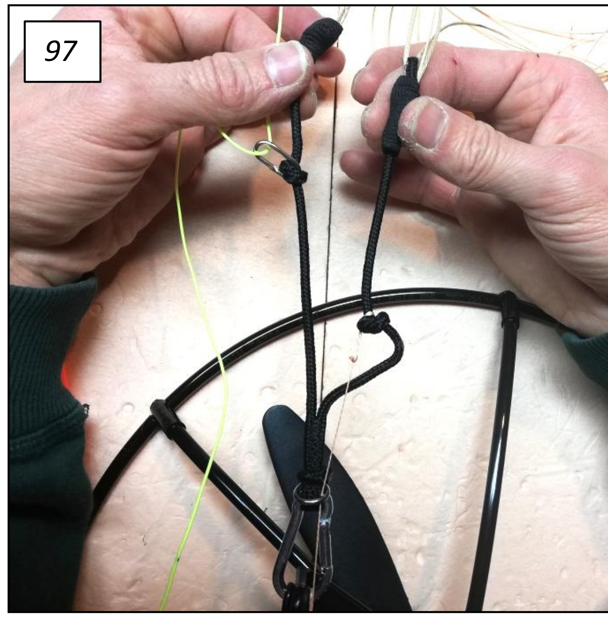
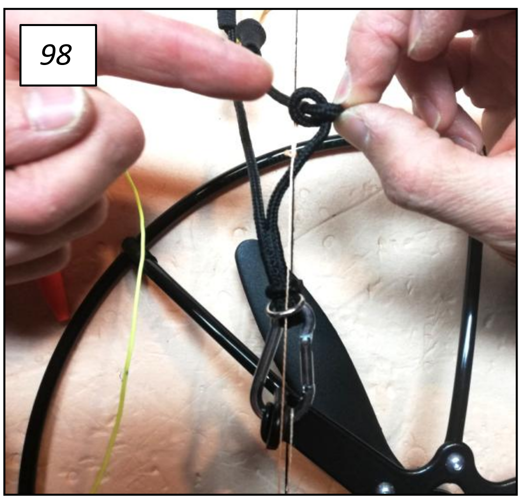
SPEED SYSTEM ADJUSTMENT:

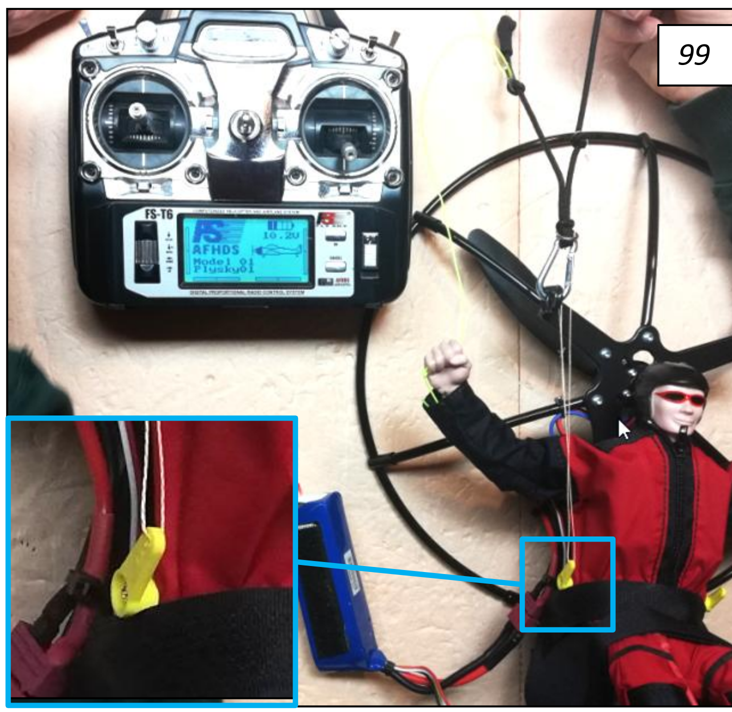
96



97



98



99

- 96 - EXAMPLE OF SPEED SYSTEM LINE TOO LONG : THE LINE IS SLACKED WHEN A RISER IS PULLED UPWARD
- 97 - EXAMPLE OF SPEED SYSTEM LINE TOO SHORT : THE LINE IS TENSE WHEN A RISER IS PULLED UPWARD
- 98 - IF NECESSARY TO ADJUST CORRECT LENGTH, LOOSEN THE KNOT ON THE A RISER AND PLACE IT AT THE CORRECT LENGTH (99) THEN TIGHTEN THE KNOT AGAIN.
- 99 - APPEARANCE OF THE CORRECTLY ASSEMBLED SLEEVE, MINIMUM SLACK ON SPEED SYSTEM LINE

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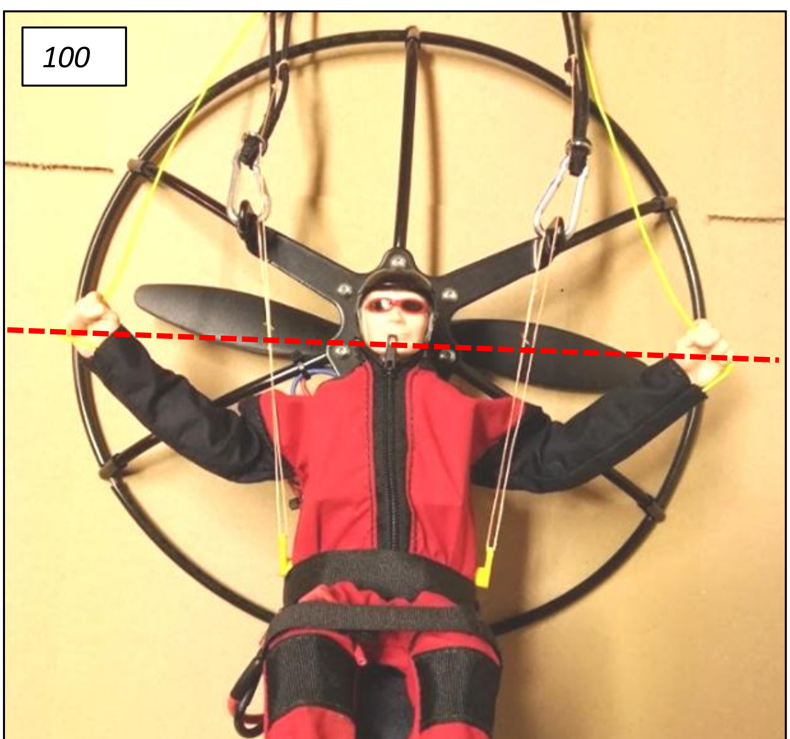
PILOTING ADVICES AND BRAKES ADJUSTMENT :

Proper handling is done by applying smooth, progressive stick inputs and applying throttle gradually. The paraglider, thanks to its pendulum effect, has a self-stable behavior, therefore it is useless if not harmful to try to continually correct any oscillations especially if you do not have the necessary experience.
THE FIRST RULE FOR BEGINNERS is therefore to act little on the sticks and "let" the glider fly by itself.
Another very useful advice is to reduce the servo travel (EPA) in order not to make possible piloting errors due to overcorrection.

CORRECT BRAKE ADJUSTMENT: With no stick action and therefore with arms rest position (Pic. 100) the glider's brakes should have a minimum pull equal to about 2cm of traction (Pic. 101).
The wing in this configuration should inflate easily while maintaining optimum spanwise tension and generating some traction and lift once vertical is reached.
Once launched, the glider should proceed in a straight line with no tendency to stall (fall backwards from the glider) and without closing the ends (ears). The turn should be possible in both directions in a progressive and modular way.
A slight tendency of the model to veer to the left under the engine is normal when using counterclockwise (CCW) propellers, it is also normal to have a tendency in the opposite direction using hourly (CW) propellers.
It is very advisable to raise your arms and, in the case of a model equipped with a speed system, tap the wing lightly using the speed system, when a large amount of engine is applied.
In the event of collapses of the wing or loss of control, the engine must always be switched off.
<u>RECOVERY IN STRONG WIND: To re-enter easily in the event of strong wind, the ENGINE MUST BE REDUCED to minimum and the level flight maintained against the wind, the speed system must also be used, if installed.</u>



100

101

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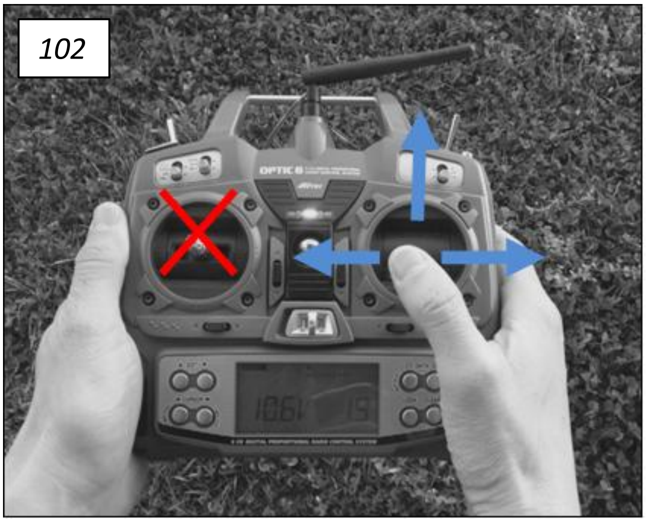
SUGGESTED TRASMITTER USE

During the first flights it is advisable to use only the Throttle (engine) and tack (Pic. 102) control, THEREFORE THE DEPTH CONTROL WILL NOT BE USED, necessary to slow down and stall the glider if necessary.
This simple trick will avoid serious mistakes due to lack of experience (involuntary stalls, over corrections, confusion on commands).

102



__BEGINNERS__

__NOTE 1:__ THIS ADVICE IS VALID FOR BEGINNERS WITH NO EXPERIENCE OF PILOTING ON REMOTE-CONTROLLED MODELS BUT IT CAN BE VERY USEFUL ALSO FOR EXPERIENCED MODELERS WITH NO EXPERIENCE ON PARAGLIDING FLIGHT

__NOTE 2:__ THE USE OF THE ELEVATOR CONTROL IN THIS CASE IS ONLY PERMITTED DURING LANDING TO ALLOW THE SAIL TO BE STALLED.

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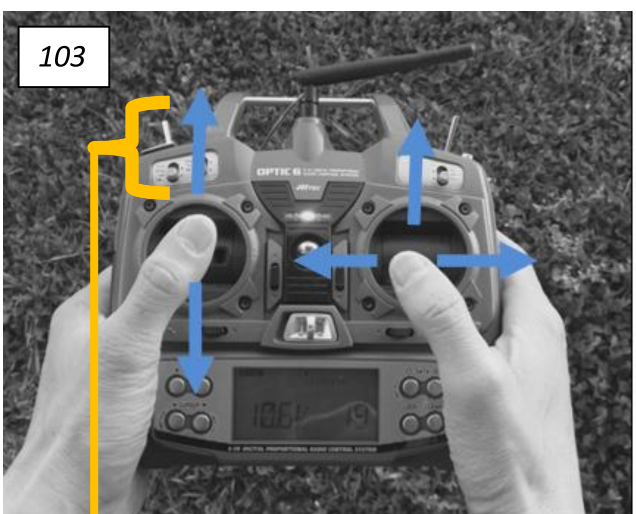

__EXPERTS__

ONCE THE NECESSARY EXPERIENCE HAS BEEN ACQUIRED, YOU CAN BEGIN ACTIVELY USING THE ELEVATOR CONTROL EVEN IN FLIGHT.

__SPEED SYSTEM FOR BEGINNERS__

TO BE USED WITH CAUTION SINCE THE TRACTION OF THE SPEED SYSTEM INCREASES THE RISK OF WING COLLAPSES

HOWEVER, USING THE SPEED SYSTEM CAN BE A USEFUL TOOL FOR BEGINNERS WHEN YOU WANT TO APPLY MAXIMUM POWER , HIS THANKS TO THE REDUCTION OF THE SAIL STALL TENDENCY

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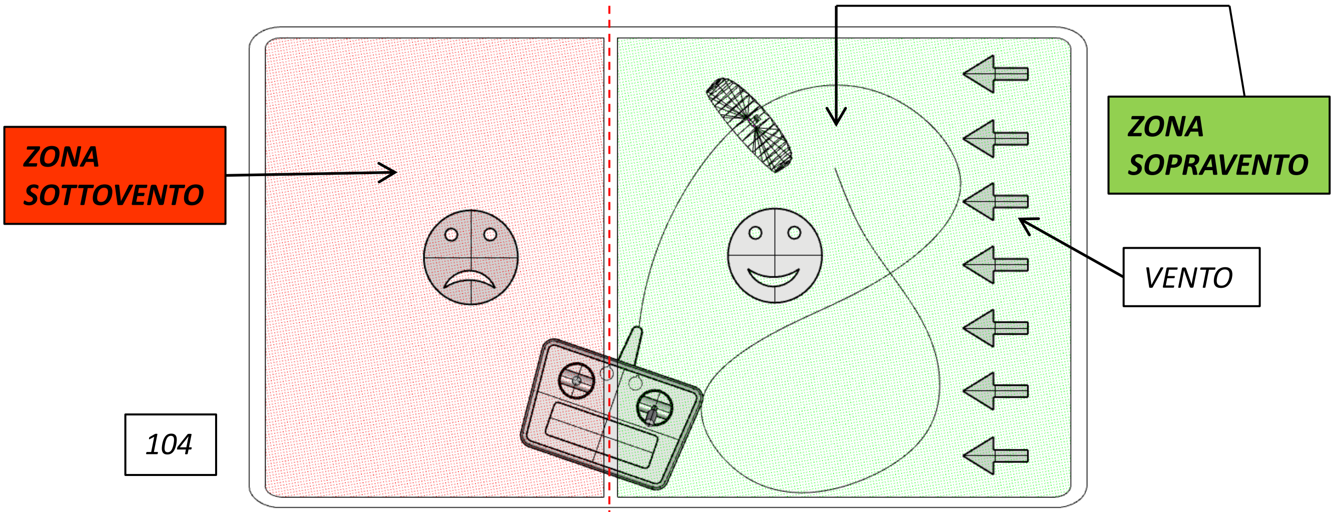
MAIDEN FLIGHT: AREA SUITABLE FOR FLIGHT

The MIM paramodels are suitable for use in low wind and low turbulent conditions. The model can be used both on slopes and plains as long as it is in areas suitable for flying.

SAFETY ZONE - UPWIND FLIGHT

On the flatlands as on a slope, if in the presence of wind, it is always advisable to fly upwind in the so called "safety zone" (GREEN AREA Pic.104). Flying downwind (RED AREA Pic. 105) can make it very hard if not impossible to make it back to the field if the wind picks up.



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SAIL PREPRATION ON THE GROUND :

1. Arrange the sail on the ground in a "HORSESHOE" shape (Pic.105)
2. Position yourself perfectly against the wind and centered within respect to the sail, check the efficiency of the entire system and then prepare for launch

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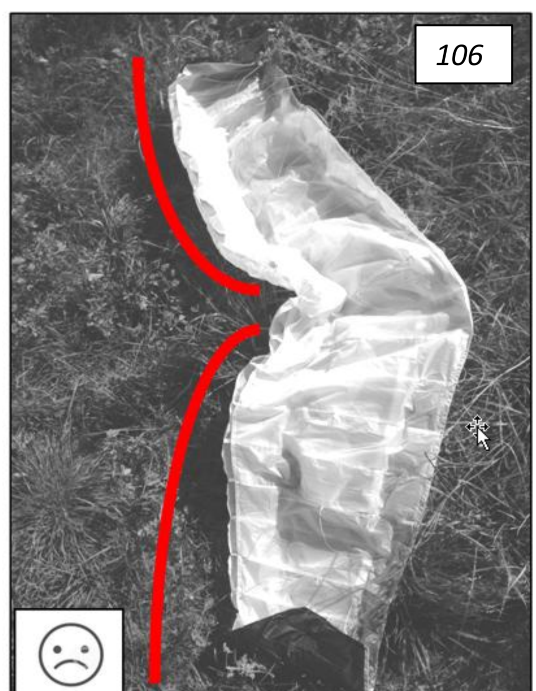

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INFLATION AND LAUNCH :

Turn on the radio, turn on the receiver, make the necessary pre-flight checks then prepare for launch. Wait for a light front breeze, check airspace, then inflate and launch the wing with a firm tug as shown below (Pics. 106, 107, 108, 109, 110, 111, 112, 113)


107


108


109


110


111


112


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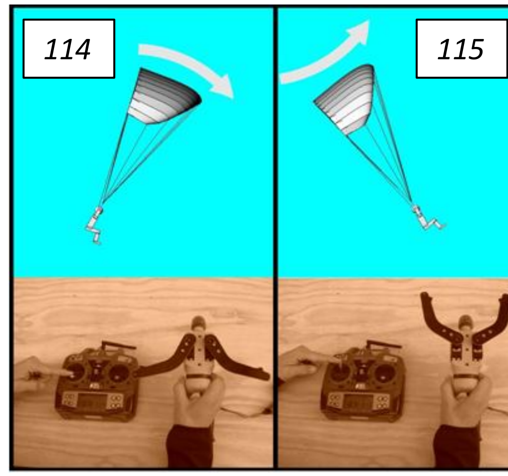
PITCH CONTROL

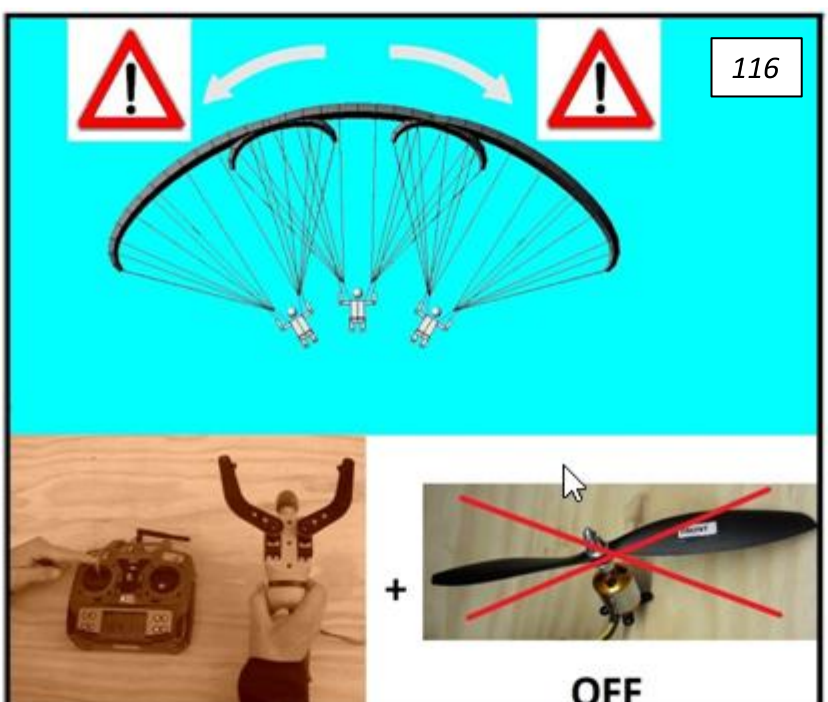
In paragliding, as in sail planes, it is advisable to try to find an ideal flight attitude at any time in order to optimize performance (efficiency), reduce consumption and reduce the risk of loss of control.
Pitch control and dumping can be done using the brakes in a combined and dynamic way following the rules shown in Pic. 114 and 115 and in the table below
The aim is to keep the wing as long as possible on the pilot's vertical by applying the following logic:

SITUATION	SUGGESTED INPUTS
WING BEHING PILOT PIC 114	1-RAISE BOTH ARMS 2-ACTIVATE SPEED SYSTEM 3-REDUCE OR TURN OFF MOTOR
WING IN FRONT OF THE PILOT - PIC 115	1-LOWER BOTH ARMS TO SLOW DOWN WING 2-RELEASE SPEED SYSTEM



ROLL CONTROL (RIGHT AND LEFT PENDULUM

If there are any oscillations around the roll axis, it is advisable to raise the arms and turn off the engine and let the model recover on its own (Pic. 116).



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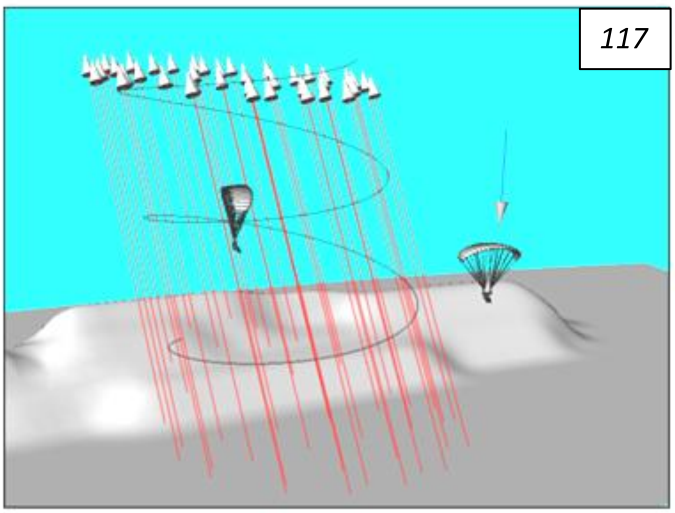
INTRODUCTION TO THERMAL FLYING

THERMAL: column of hot air that rises at a certain speed (Pic. 117). The rate of climb of a thermal is measured in meters / sec. To be able to gain altitude with the engine off thanks to a thermal, it must have a climb speed higher than the sink rate of the glider. TO MAKE FULLY ADVANTAGE OF A THERMAL, YOU MUST STAY AS MUCH AS POSSIBLE IN THE AREA OF STRONG ASCENDANCE (CORE OF THE THERMAL). TO DO THIS YOU CAN MAKE CIRCULAR TURNS (360 °) OR "8" IF YOU ARE CLOSE TO THE SLOPE.

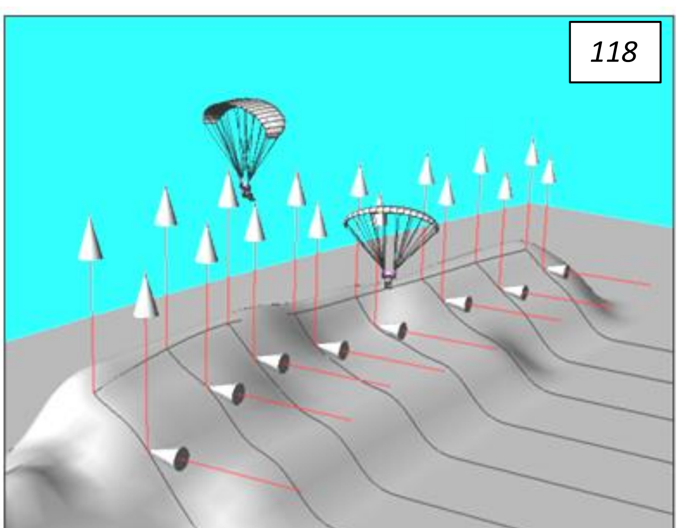
There are no written rules, each thermal has its own shape and only practice will allow you to take full advantage of each thermal by adapting the turning radius and trajectory according to the shape of the thermal.



Example of a thermal that "detaches" away from the slope - this type of thermal is usually exploited with 360 ° circular turns.
In windy conditions the thermal will move in the wind direction as shown in the figure (leeway).
The rider on the right in the photo is out of the thermal and is therefore destined to descend.
The LH pilot is inside the ascending column and gains altitude while remaining inside the thermal.

INTRODUCTION TO RIDGE SOARING FLYING

The other type of lift known as "dynamic ridge soaring " is created as a result of the mechanical action generated by the wind hitting a slope or a sufficiently high obstacle (Pic.118), of adequate shape and ORIENTED IN THE RIGHT WAY WITH RESPECT TO THE WIND DIRECTION.



Dynamic flight example:

IDEAL CONDITIONS FOR DYNAMIC FLIGHT:

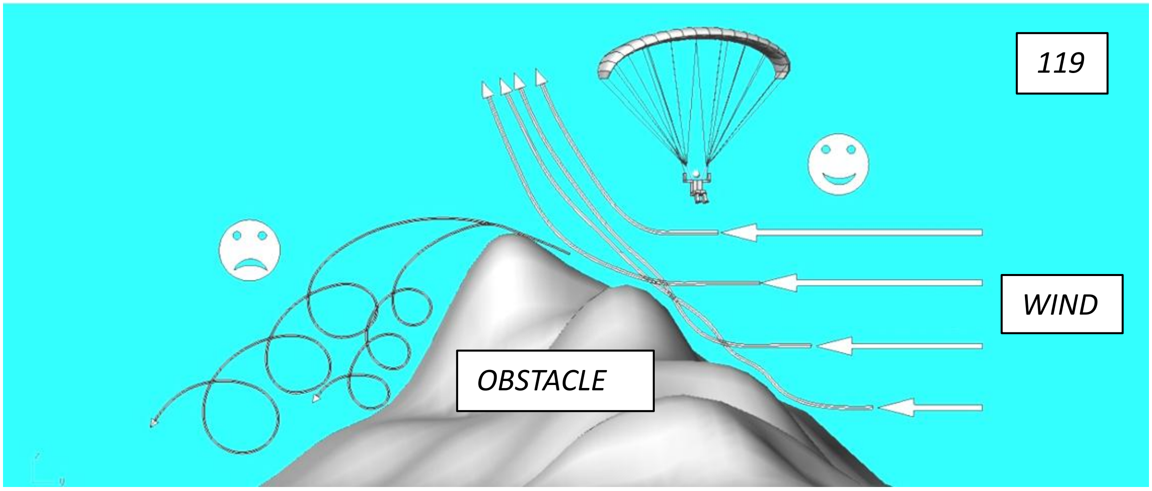
Wind 15-20 Km / h Wind perpendicular to the slope

Slope with sufficient slope (minimum 30 °)

Lack of obstacles (trees, buildings) placed in front of the flight area - each obstacle generates turbulence, nullifying the effect of slope dynamics

TURBOLENCE / WAKE TURBOLENCE AND ROTORS :

The greatest enemy during paragliding flight is the turbulence or rotor generated downwind of all obstacles hit by the wind (Pic. 119)



Examples of Objects (OBSTACLES) that can generate rotor:
•Buildings
•Trees or rows of trees
•Other aircraft flying in front of us or in the vicinity

IMPORTANT: COMMON ERRORS:

Flying in strong winds is better: **FALSE !!!!** (Ideal wind from 0 to 10 Km / h)
If the wind is too strong I can fly the model in areas sheltered from the wind (example behind tall buildings and / or rows of trees): **FALSE !!!!!**
It is enough that there is wind for there to be DYNAMIC: **FALSE !!!!!** It is not enough that there is a wind
tense the wind have the right direction with respect to the slope or be perfectly front (wind in face). Any deviation from this condition determines:

1. REDUCTION OF SLOPE DYNAMICS (LESS ASCEND)
2. INCREASE IN TURBULENCE GENERATED BY OBSTACLES ON THE SIDES) OVERWIND OF THE TAKE-OFF AREA

TABLE RECOMMENDED WINDS:

Level of experience	Wind speed	Indicative total weight (no wing)
Beginner	0-10 km/h	SEE WING MANUAL
Beginner/intermediate	10 -18 km/h	
Expert	18 - 25 km/h	

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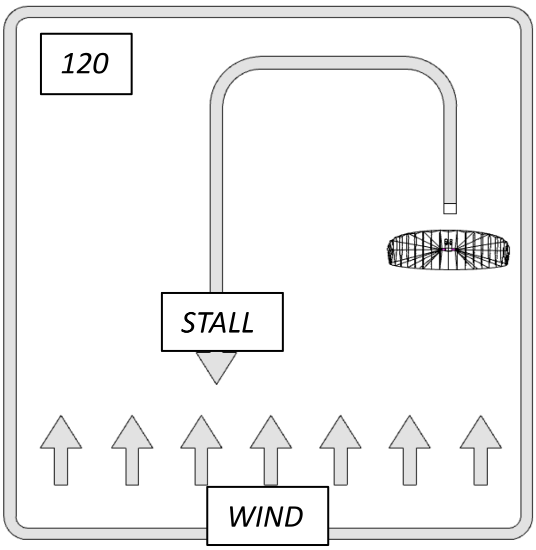
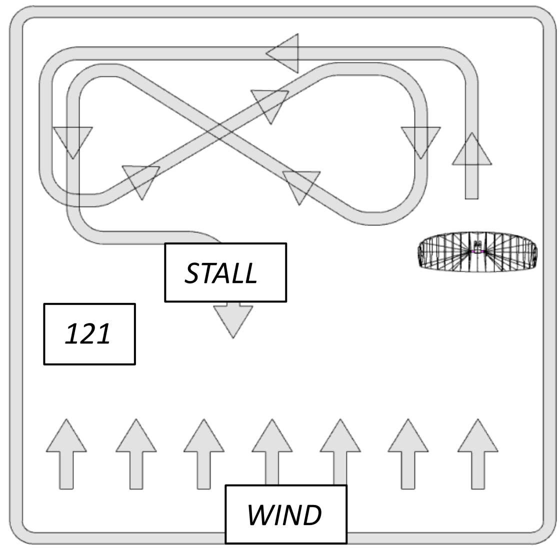
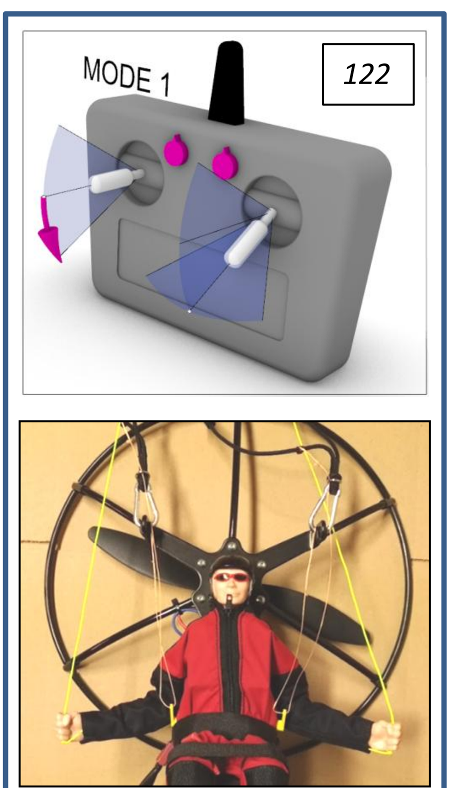
LANDING TECHNIQUE AND“TOP LANDING”

MAIN STEPS FOR CORRECT LANDING:

1. Height loss with a "C" (Pic 120) or "8" (Pic 121) path with **turns always in to the wind**
2. final straight glide into the wind (120).
3. Slowing down of the glider at 1m from the ground and flair(100% traction retained until contact with the soil) - (122-123)







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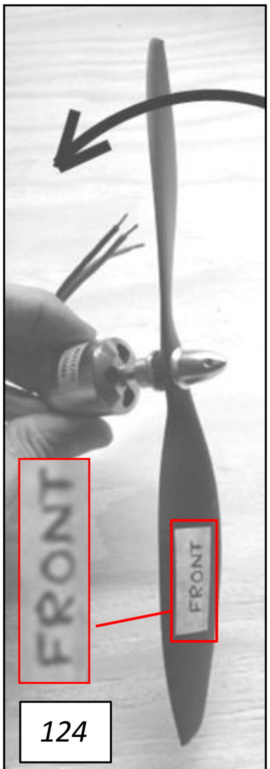
APPENDIX 1: PROPELLER REPLACEMENT

Each Elica has a front side (FRONT) and a rear side (BACK), it is very important to respect this orientation.

IMPORTANT: USING THE MODEL WITH A PROPELLER MOUNTED IN THE OPPOSITE WILL BARELY ALLOW THE FLIGHT TO BE LEVELED AND WILL DAMAGE THE ENGINE



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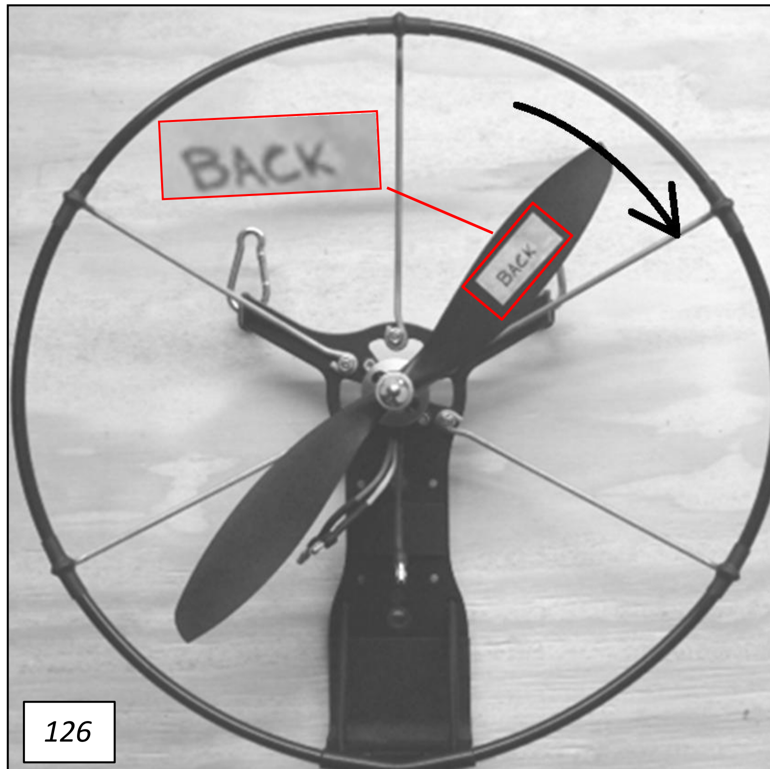
AIRPLANE



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PARAMOTOR

APPENDIX 2 : RECOMMENDED RADIO SETTINGS DETAILS

ENGINE BLOCK: For safety reasons, it is highly recommended to use a radio switch to which you can assign the "engine block" that is, the inability to start the engine even by using the throttle stick. This rule is very useful to avoid accidentally turning on the motor during all pre-flight phases.

EXPONENTIAL: in order to avoid overcorrections and consequent swings, the use of the exponential is NOT RECOMMENDED. A linear type response appears to be the most suitable for use with para.

EPA: A high travel of the servos and therefore of the arms and the speed system is necessary to reach extreme configurations. As a rule, we recommend the use of reduced EPAs for pilots with little experience and the transition to high EPAs only after having earned the necessary experience.

For recommended approximate travel, see page 43

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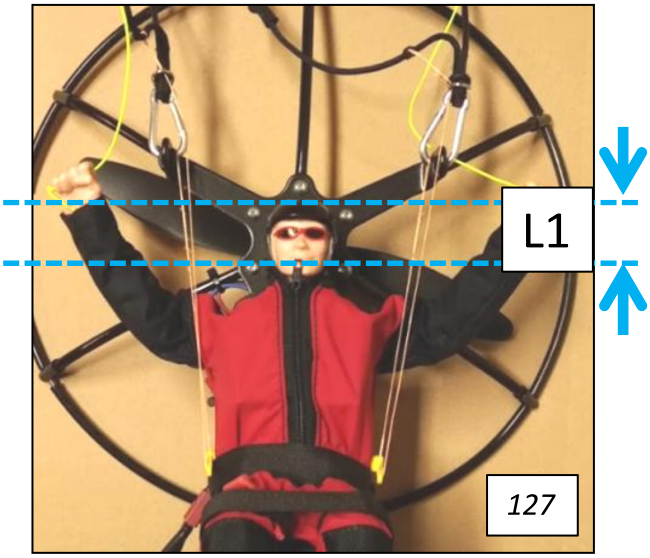
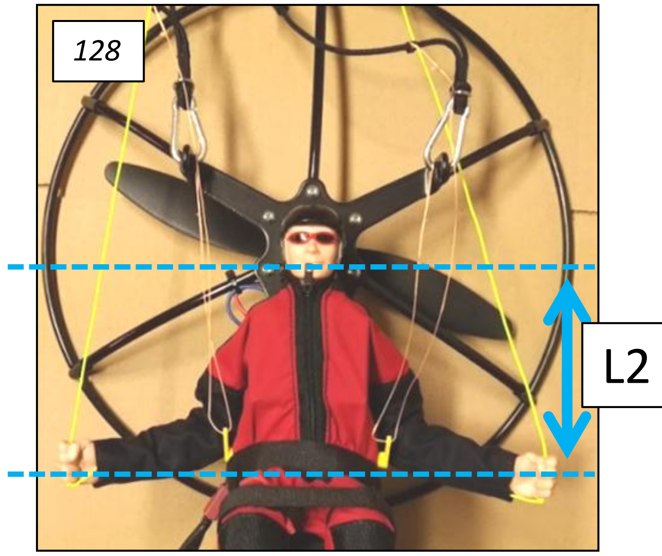
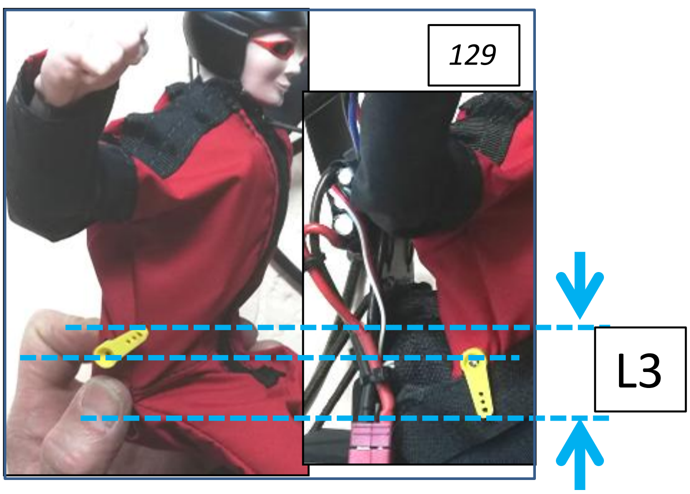
APPENDIX 3 : SUGGESTED SERVOS TRAVEL :







LIVELLO DI ESPERIENZA	EPA L1 (*)	EPA L2	L3
BEGINNER	min 10% max 30%	min 40% max 60%	50% (**)
INTERMEDIATE	min 20% max 30%	min 70% max 100%	75% (**)
EXPERT	min 30% max 40%	min 100% max 120%	100% (**)

(*) if using commercial paramixer this value will be most of cases always 0%
(**) this percentage refer to the max travel range allowed by risers or suggested by wing's manufacturer

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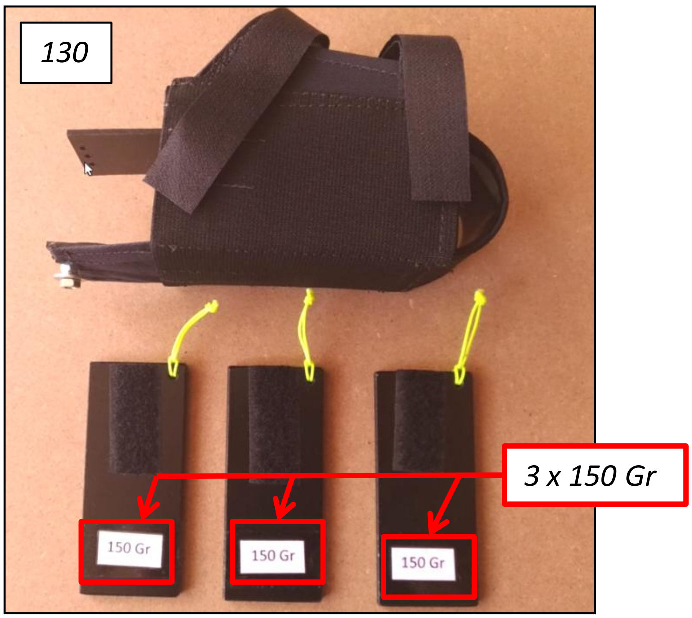
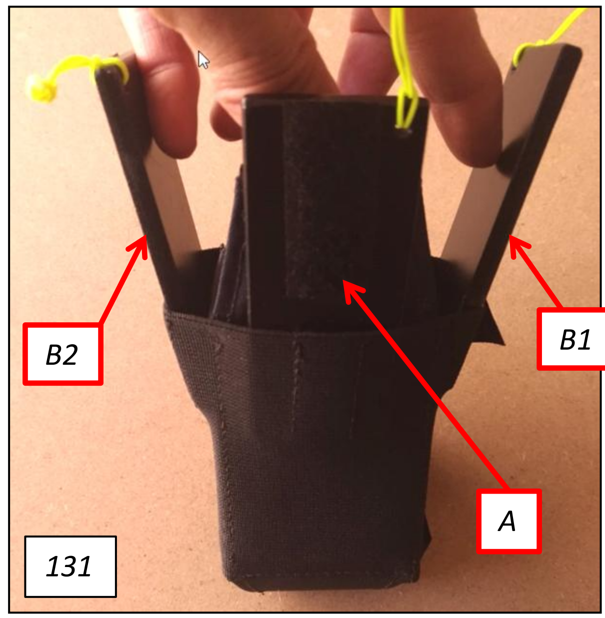
APPENDIX 4: HARNESS WITH BALLAST INSTALLATION

PURPOSE OF BALLAST:
In rc paragliding it is essential to adapt the wing loading to the wind conditions.
The greater the wing load, the greater the speed of the vehicle; Correct wing loading is necessary to give the glider enough speed to advance into the wind so that it can re-enter the landing zone even starting from the leeward zone (see page 35)

The MP1 V2 Kit is supplied with a new harness equipped with modular ballast pockets.
To install the new harness, refer to page 21 of this manual.

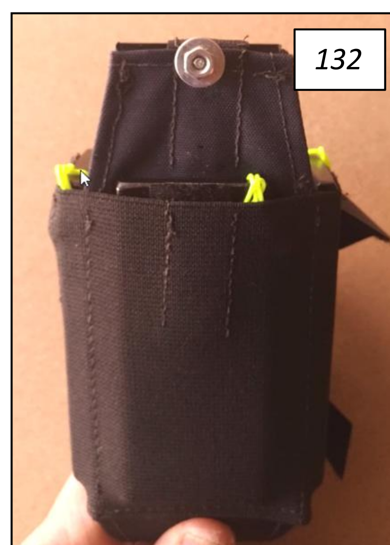
BALLAST HARNESS: the kit is equipped with 3 weights of 150 gr / pc. The quantity of installed ballast can therefore be: 150-300-450 Gr





BALLAST INSERTION ORDER:
- BALLAST 150 Gr: 1 WEIGHT ON POCKET "A"
- BALLAST 300 Gr: 2 WEIGHTS, 1 ON POCKET "B1" AND 1 ON "B2"
- BALLAST 450 Gr: 3 WEIGHTS, 1 FOR EACH POCKET (A, B1, B2)

VERY IMPORTANT: fully insert the weights into the dedicated weights Pockets and make sure that the safety velcro is facing the outside in order to avoid accidental exit of the weights.



Pic. 132: correct insertion of ballasts.
Insert the yellow laces inside the pockets and use them only to facilitate the extraction of the weights when this is necessary

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APPENDIX 4: HARNESS WITH BALLAST INSTALLATION

ESTIMATED PARAMODEL CORRECT LOAD:

Always use great caution when evaluating conditions. In very strong winds it is not advisable to fly.
In windy conditions but still considered suitable for flight, use one of the following methods to estimate the amount of ballast to be used.

METHOD 1: measure the maximum gust speed with the aid of an anemometer and refer to the wind / wing load tables provided by the supplier usually when buying an RC paraglider thus to decide the recommended total weight and then vary the amount of ballast to be used.

METHOD 2: estimate the wind conditions, if deemed suitable for flight load the maximum ballast and carry out a short flight with a loop path. Evaluate the ground speed (speed of the model with respect to the ground) when flying in upwind.
If the speed is too high, gradually reduce the amount of ballast. In the case of variable conditions with sudden gusts, opt for a wing loading (and therefore for a quantity of ballast) slightly higher than necessary.

Do not exceed the maximum wing loading recommended by the wing manufacturer, in order not to cause the wing to behave very violently in case of unusual maneuvers.

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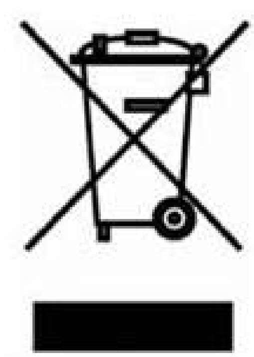

Ci riserviamo il diritto di apportare modifiche tecniche al seguente manuale e ai nostri prodotti , non si assumono responsabilità per errori di stampa.

MIM paramodels di Ivan Appoloni
STREET :via Martiri della liberta` 50
CITTA' / CITY : Caltrano (VI)
CAP / ZIP : 36030
STATO / COUNTRY : ITALY
COD. FISC. / NIN : PPLVNI77C04L157M
P.IVA / VAT NUMBER : 03709370245
CELL. +39 340 8047972

Sito/web site www.rcparagliding.com
Email : rcdream697@gmail.com