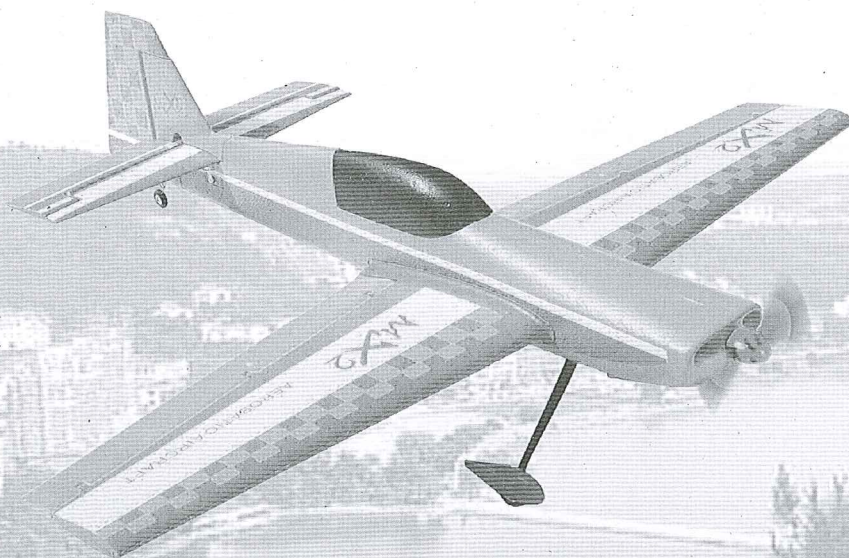


MX2

AEROBATIC AIRCRAFT



ST MODEL

SAFETY PRECAUTIONS

- ★ This electric R/C model plane is not a toy.
- ★ Assemble the plane according to the instructions. Do not alter or modify the model. If you make any modifications, you will void your warranty.
- ★ Children under 12 years old must use it accompanied by an adult.
- ★ Test the operation of the model before each flight to insure that all equipment is operating properly, and that the model remains structurally sound.
- ★ Fly only on calm days (with wind speeds less than 5 mph) and in large open areas free of trees, people, buildings or any other obstacles.

REMEMBER: Take your time and follow the instructions to end up with a well-built model that is durable and easy to fly.

SPECIFICATIONS

Length: 1106mm / 43.5 in
 Wingspan: 1210mm / 47.6 in
 Wing Area: 27.3dm² / 423.2 in²
 Flying Weight: 960g / 33.8 oz
 Wing Load: 35.16g/dm² / 11.5 oz/ft²
 Power System: Brushless motor, 1800mAh Li-Po battery
 Propeller: 13 inX4 in
 Radio Required: 4CH Receiver, 4 X Micro Servos

GLOSSARY

Aileron: Controls Roll (right / left).

Elevator: Controls Pitch (up / down).

Rudder: Controls Yaw (right / left direction).

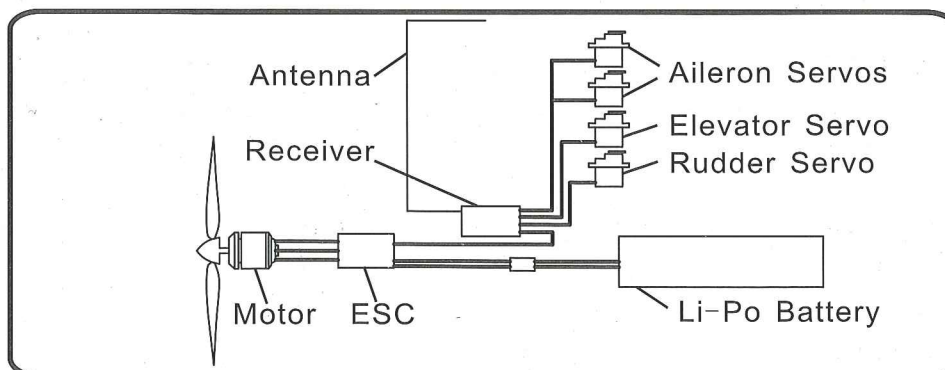
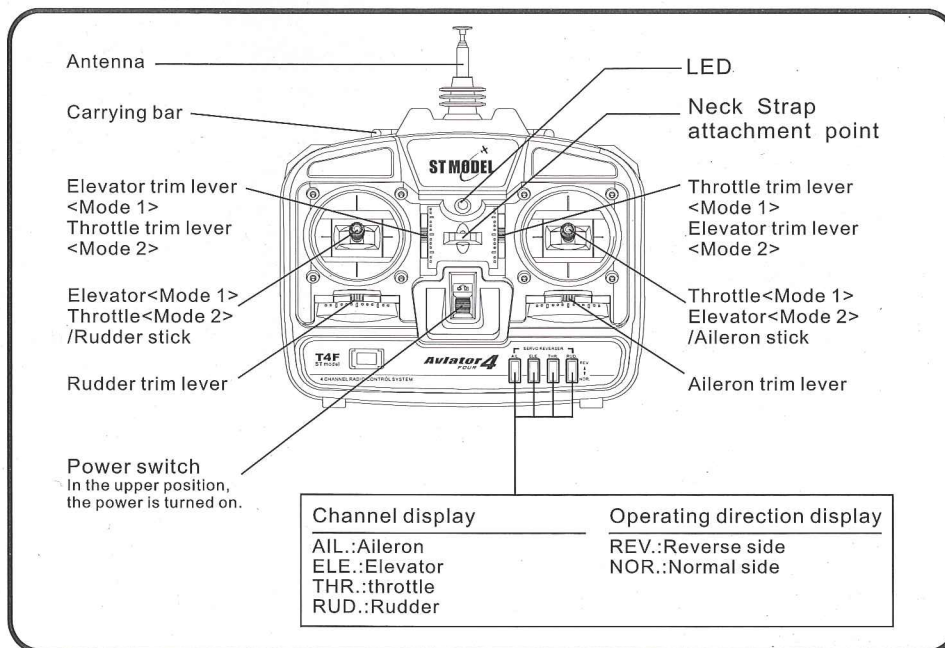
Receiver: Provides input to the control surfaces and ESC.

Power System – ESC (Electronic Speed Control): Controls the speed of the motor.

Motor: Rotates the prop to provide thrust.

Transmitter (TX): The hand-held unit that sends the signal to the receiver. Moving the sticks control direction, climb/descent, roll and motor speed.

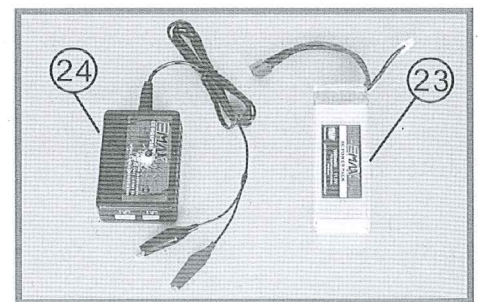
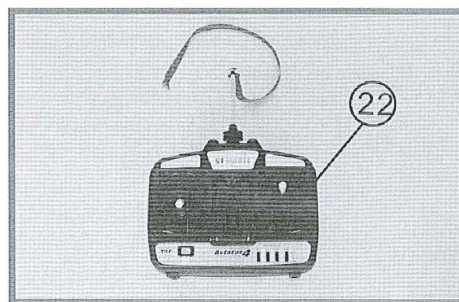
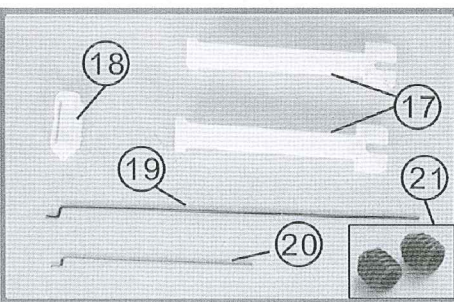
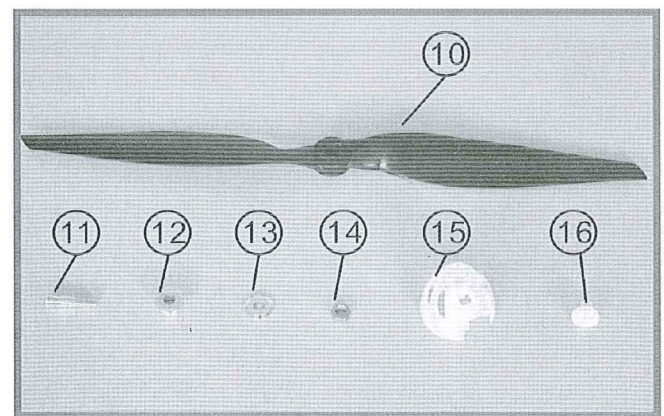
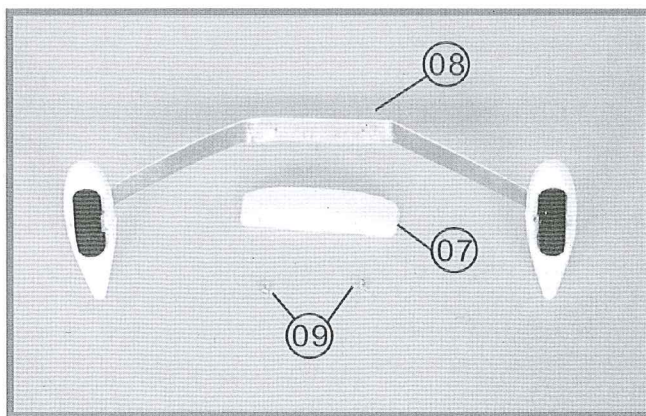
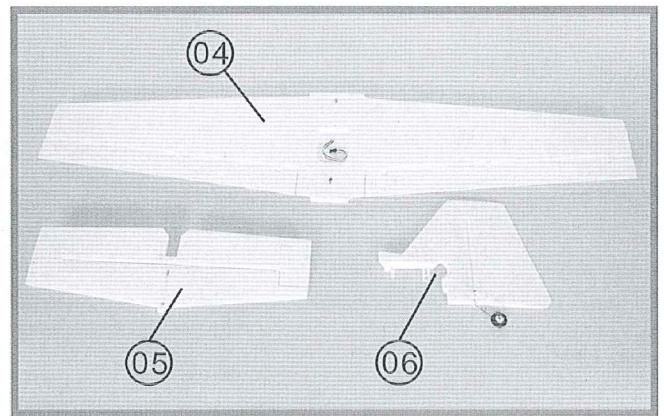
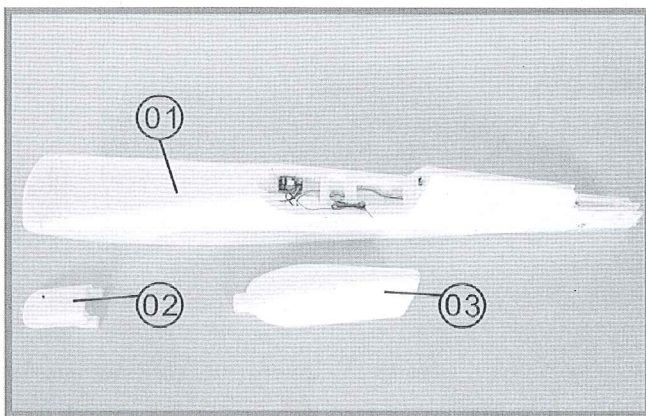
Li-Po battery: Rechargeable batteries which are used to power the airplane. Li-Po batteries are lighter and smaller than most other types of rechargeable batteries.



CONTENTS OF KIT

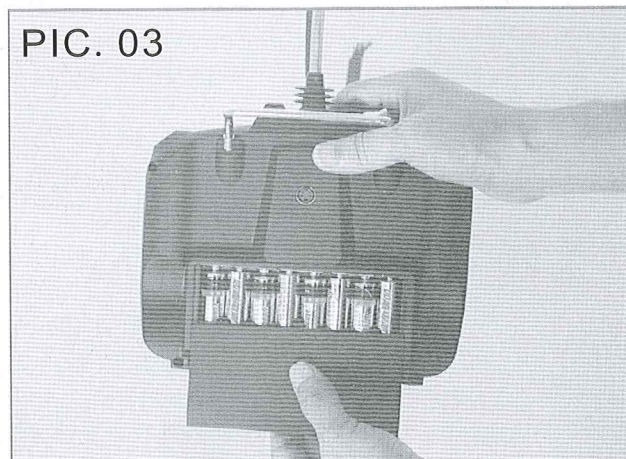
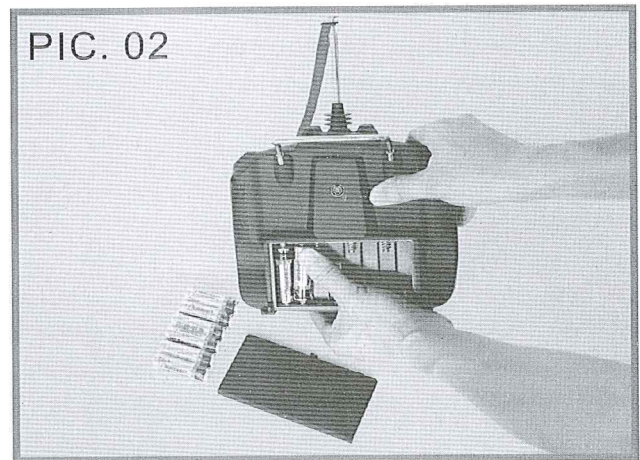
- 01、Fuselage.....X1
- 02、Battery Hatch.....X1
- 03、CanopyX1
- 04、Main Wing.....X1
- 05、Horizontal Stabilizer.....X1
- 06、Fin.....X1
- 07、Landing Gear Plate.....X1
- 08、Landing Gear.....X1
- 09、Screw.....X2
- 10、Propeller.....X1
- 11、Propeller AdapterX1
- 12、Propeller Adapter Retainer•X1

- 13、Washer.....X1
- 14、Nut.....X1
- 15、Spinner.....X1
- 16、Spinner Fastener.....X1
- 17、Wing Bolt.....X2
- 18、Tail Wing Bolt.....X1
- 19、Push Rod for RudderX1
- 20、Push Rod for Elevator.....X1
- 21、Hex Socket Set Screw.....X2
- 22、Transmitter.....X1
- 23、Battery Pack.....X1
- 24、ChargerX1



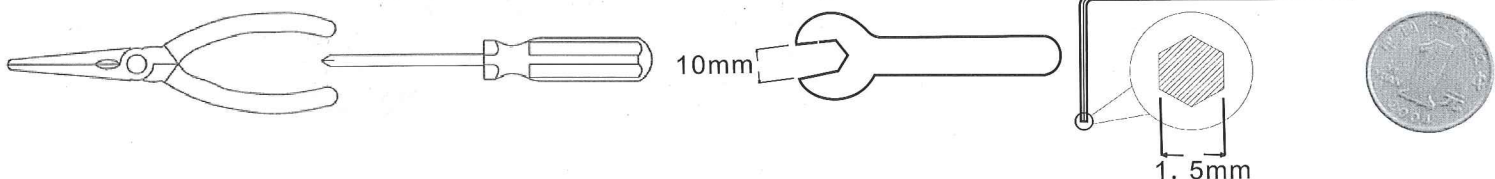
PREPARE THE TRANSMITTER

- 1、 Locate the transmitter, making sure the antenna is tightened "clockwise" (PIC.01) .
- 2、 The transmitter requires eight alkaline "AA" batteries. To install the batteries, remove the battery hatch by sliding it down and inserting them into place (PIC.02) . Be sure to follow the polarity diagram inside the battery compartment. Reinstall the battery hatch (PIC.03) .
CAUTION: 1.Do not use rechargeable (NiCd & NiMh) batteries.
 2.Do not mix old and new batteries.
 3.Do not mix alkaline and standard (carbon-zinc) batteries.
- 3、 Switch the transmitter on and check the LED on the front of the transmitter (PIC.04) . If the green LED is on, it is safe to fly. If the red LED is flashing, install fresh batteries. Also check to make sure that the batteries are installed correctly.
- 4、 Switch the transmitter off and stand by for later use.



ASSEMBLY INSTRUCTION

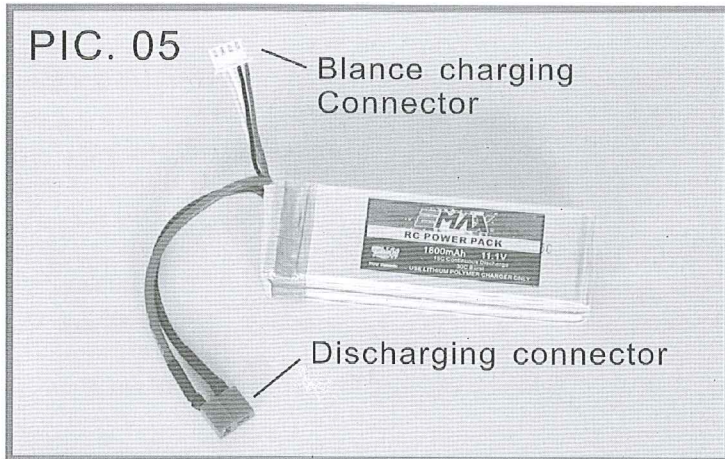
Tools and accessories which might be needed during assembly:
 Pliers, Screwdriver, Wrench; Hex wrench; Coin



CHARGE THE BATTERY

The MX-2 is equipped with a Li-Po battery (PIC.05) and a Li-Po battery cell balancing charger (PIC.06). The Li-Po battery has two connectors; one is for cell balance charging and the other is for discharging. The charger has a barrel connector with alligator clips for DC input voltage and two output sockets for balance charging. One of the outputs is for a 2-cell Li-Po battery pack and the other for a 3-cell Li-Po battery pack.

- CAUTION:**
1. Only charge the Li-Po battery with a Li-Po battery cell balance charger.
 2. This is a lithium polymer battery charger. Do not charge other types of batteries.
 3. Do not charge 2-cell and 3-cell LiPo battery packs at the same time.



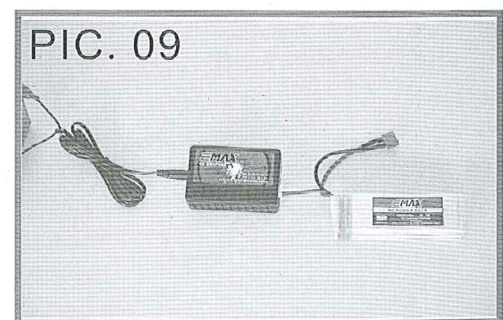
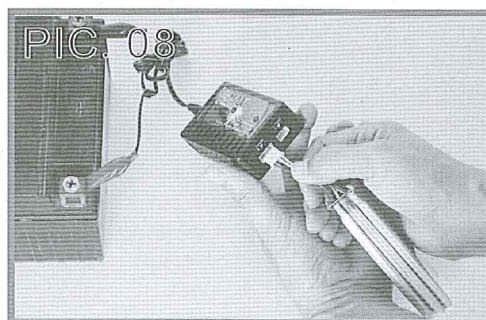
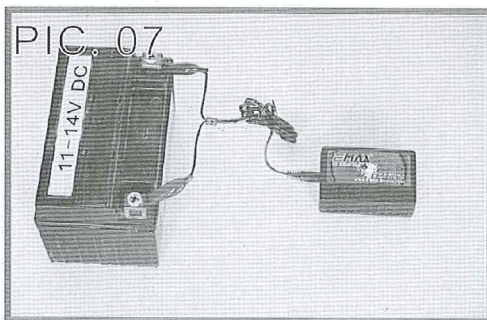
1. Connect the charger to the 11-14V DC power supply and observe the red LED is on (PIC.07); Ensure the current capacity of the power supply is 1A or higher.

CAUTION: 1. Before charging, remove the battery pack from the MX-2;

2. During the charging process, keep the charger in a normal temperature area and away from any source of ignition. Do not cover the charger or battery pack with carpet, clothes or anything else. Air circulation is necessary for proper cooling.
2. Plug the balance connector of the battery pack to the four-pin output socket of the charger (PIC.08). Be careful - the battery will plug in only one way. Do not force the plugs; Observe the green LED is on solid (PIC.09).

NOTICE: Please connect the charger to the power source before connecting the battery pack..

3. **IMPORTANT!** Never leave a charging battery unattended. Please stop the charging operation if the charger appears to be performing abnormally. Please stop charging immediately if the battery temperature rises rapidly.
4. When the battery pack is fully charged, the green LED will turn off.

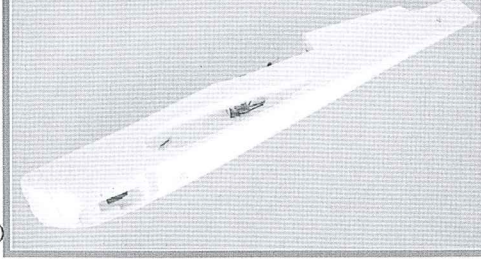


INSTALL THE FUSELAGE

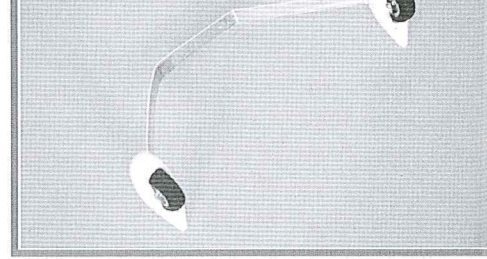
1、Parts for install in the fuselage

- (1).Fuselage (PIC.10)
- (2).Landing Gear (PIC.11)
- (3).Screw ×2 (PIC.12)
- (4).Landing Gear Plate (PIC.13)
- (5).Propeller (PIC.14)
- (6).Spinner and Fastener (PIC.14)
- (7).Propeller Adapter Module (PIC.14)

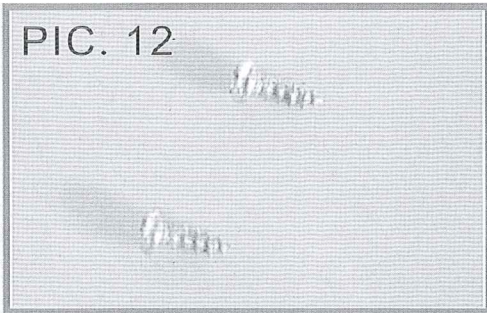
PIC. 10



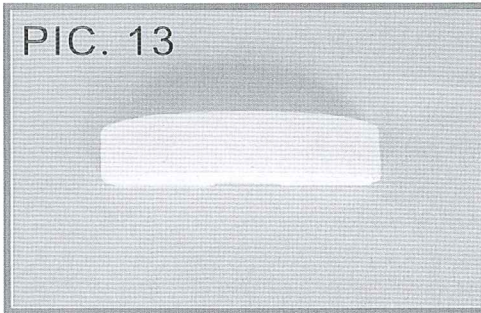
PIC. 11



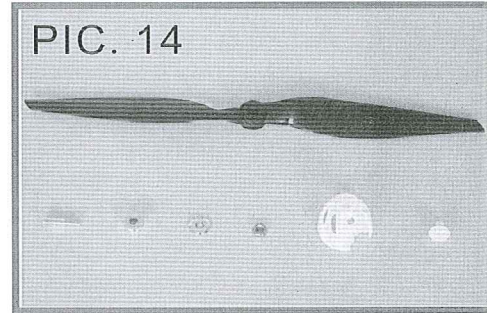
PIC. 12



PIC. 13

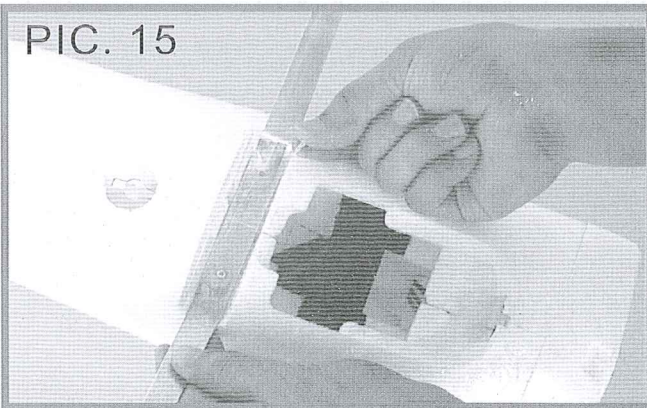


PIC. 14

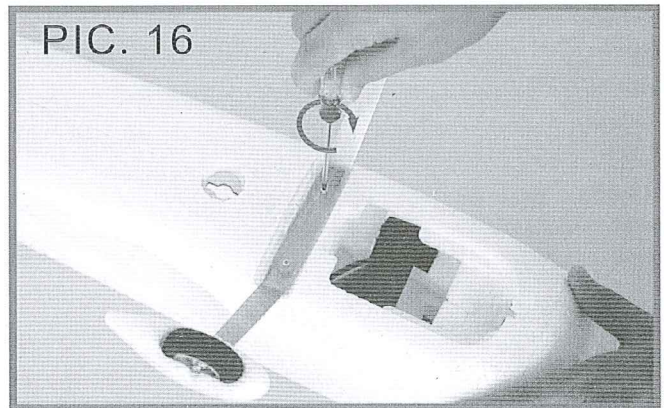


- 2、Secure the landing gear to the fuselage with the screws (PIC.15) ; Tighten the screws with a screwdriver to avoid the landing gear loosening (PIC.16) .

PIC. 15

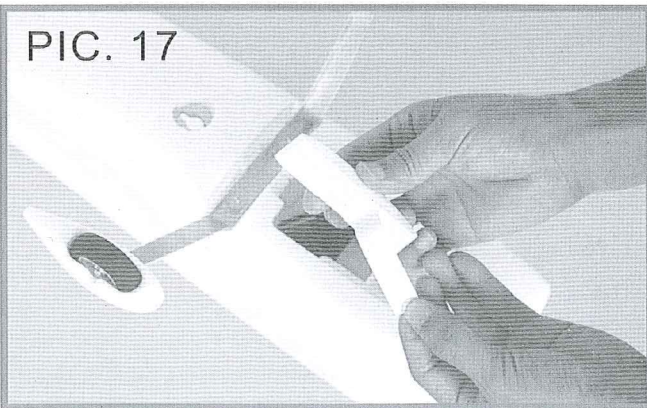


PIC. 16

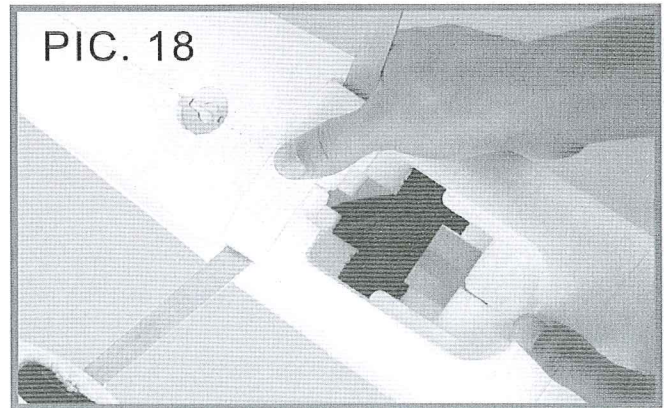


- 3、Apply double-sided tape to attach the landing gear plate in place as shown in the photo below. (PIC.17、PIC18)

PIC. 17



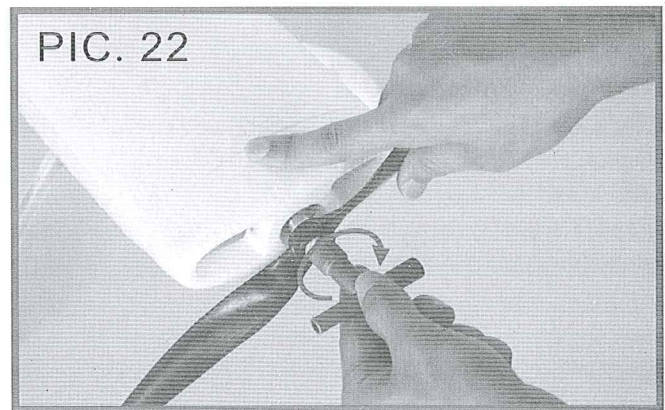
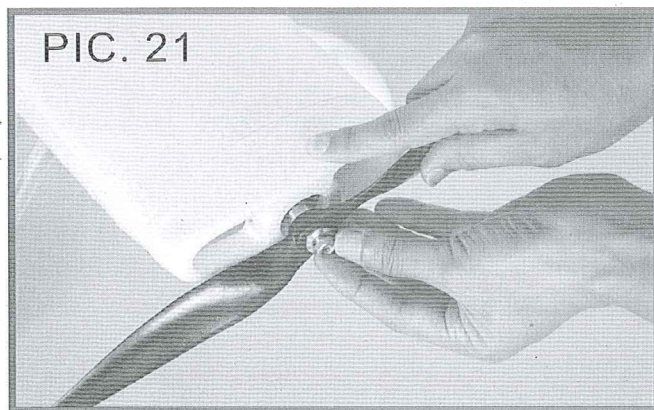
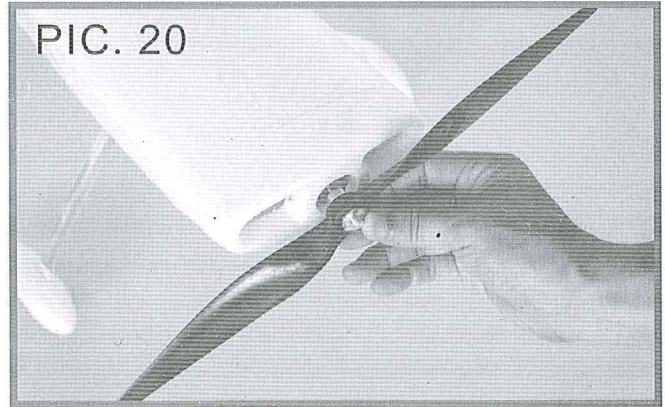
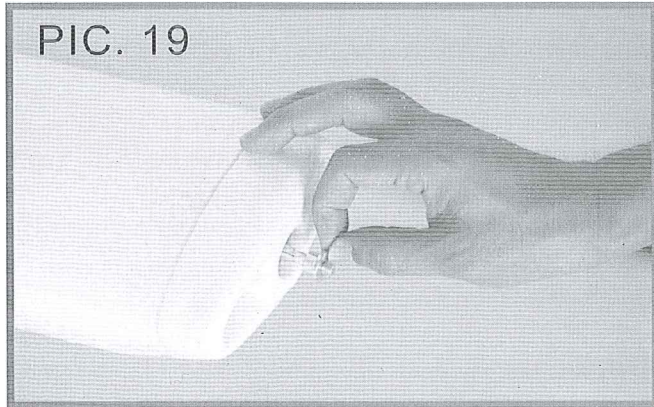
PIC. 18



- 4、(1).Slide the prop adapter over the motor shaft. Slide the prop adapter retainer over the prop adapter (PIC.19) .

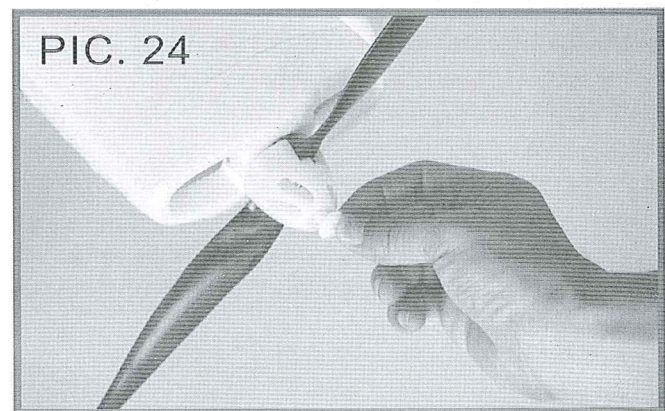
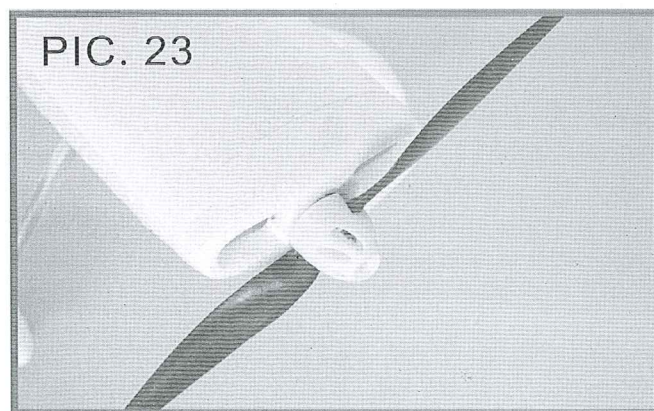
NOTE: The hole through the prop adapter retainer is beveled. The side with the larger hole goes on first.

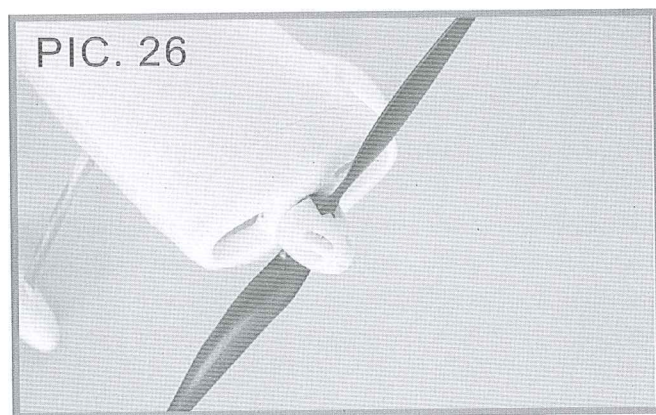
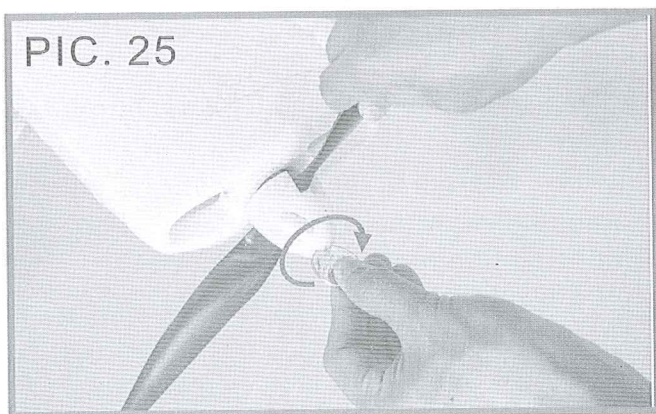
- (2).Slide the propeller onto the prop adapter (PIC.20) . The front of the prop has "A-1" lettering molded into it. Secure the propeller to the prop adapter with the prop washer and prop nut (PIC.21) . Make sure the prop is securely attached to the motor shaft (PIC.22)



- 5、(1). Assemble the spinner and fastener onto the prop adapter (PIC.23、PIC.24) .

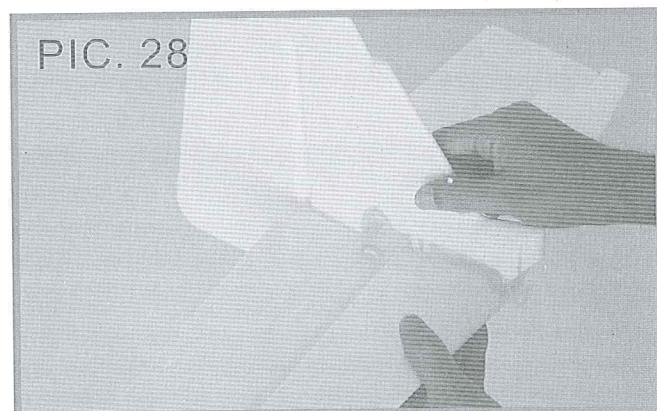
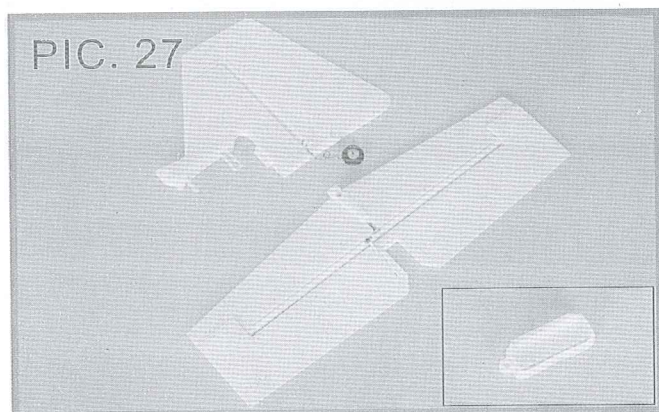
- (2).Tighten the spinner fastener clockwise using a screwdriver or coin to make sure it will not loosen (PIC.25、PIC.26) .



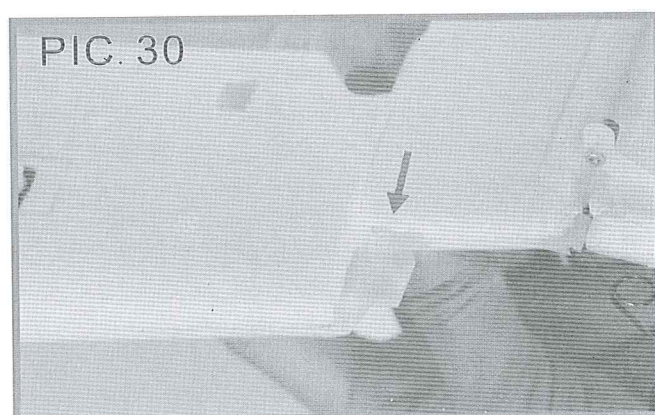
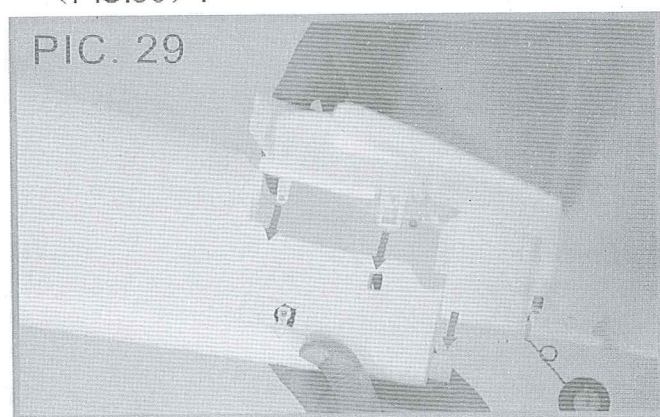


INSTALL THE TAIL WING

- 1、 Locate the horizontal stabilizer and fin. Locate the tail wing bolt (PIC.27) .
- 2、 Attach the fin onto the horizontal stabilizer (PIC.28) .



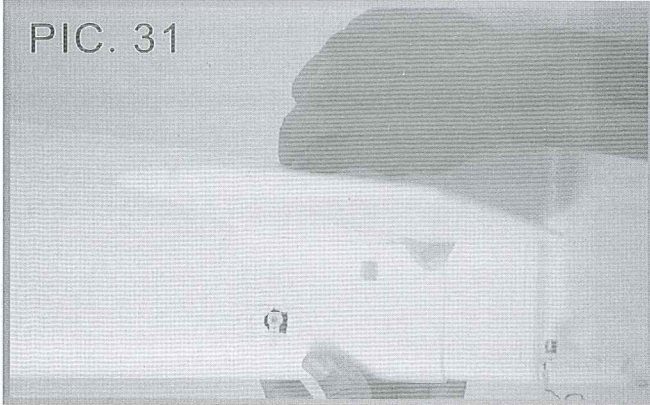
- 3、 Carefully insert the two shafts of the stabilizer/fin combination through the holes in the rear part of fuselage (PIC.29) .
- 4、 Fit the fixing sleeve at the bottom of fin to the slide at the rear of the fuselage assembly. (PIC.30) .



- 5、 Push the stabilizer/fin combination down till you hear a "click" (PIC.31) .
- 6、 Insert the tail wing bolt into the hole at the rear of the fuselage to make sure the tail wing will not loosen (PIC.32、 PIC.33) . **Be careful** -the tail wing bolt will insert in only one way and do not force it.

- 7、 Attach the long push rod to the rudder and the short one to the elevator (PIC.34) .

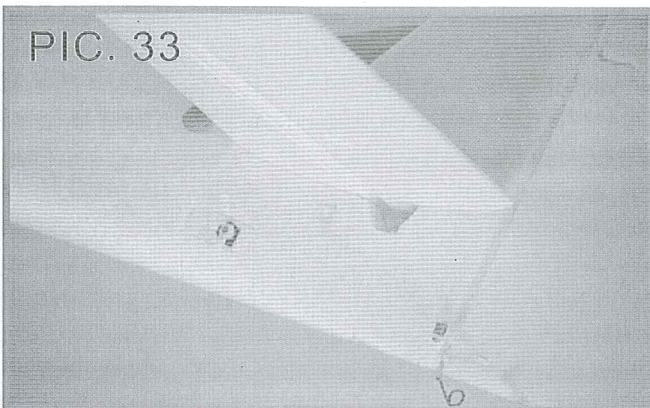
PIC. 31



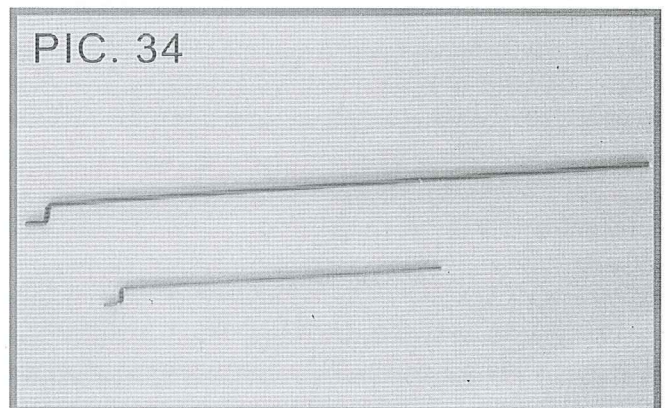
PIC. 32



PIC. 33

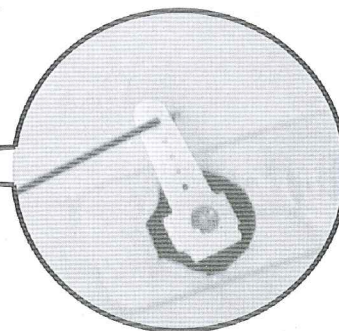
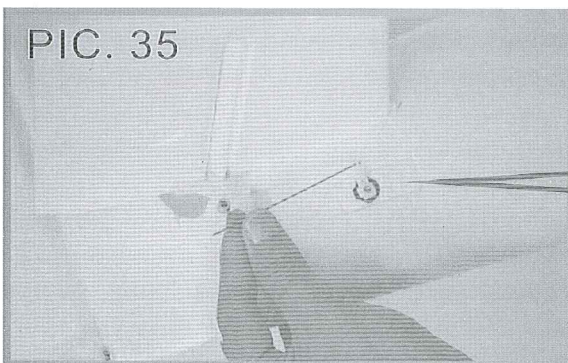


PIC. 34

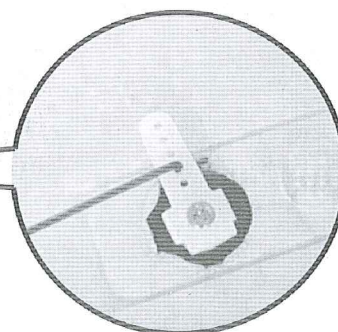
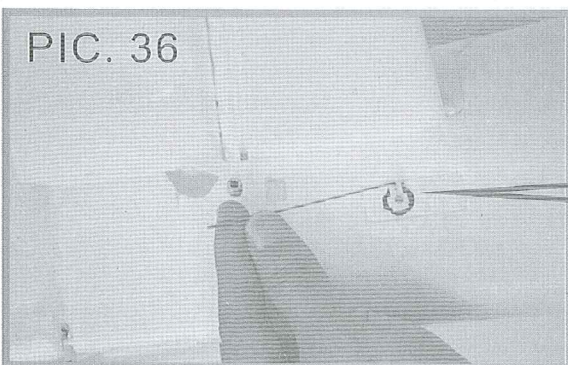


- 8、 Put the "Z" end of pushrod through the holes of servo horn. Choose suitable holes according to actual control requirements. The outer holes give control surfaces larger moving angles and the inner holes in the servo arms give smaller moving angles (PIC.35、 PIC.36) .

PIC. 35

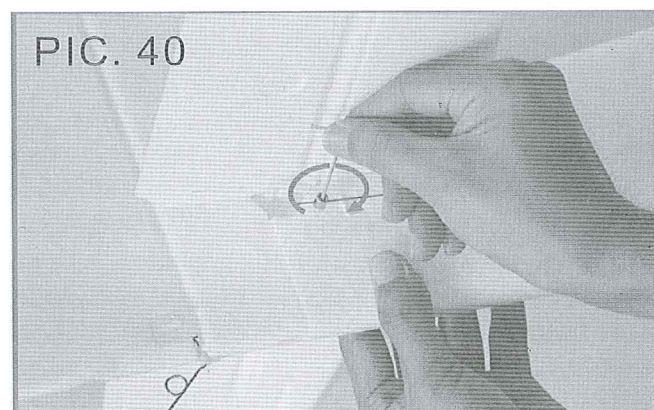
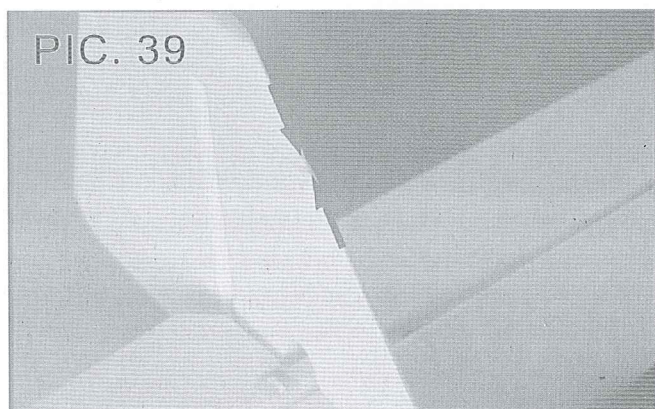
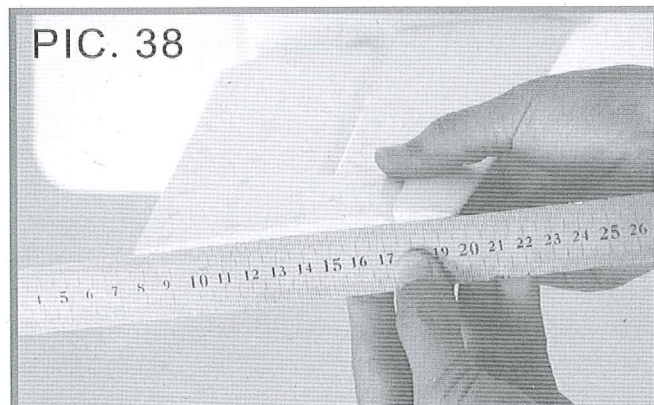
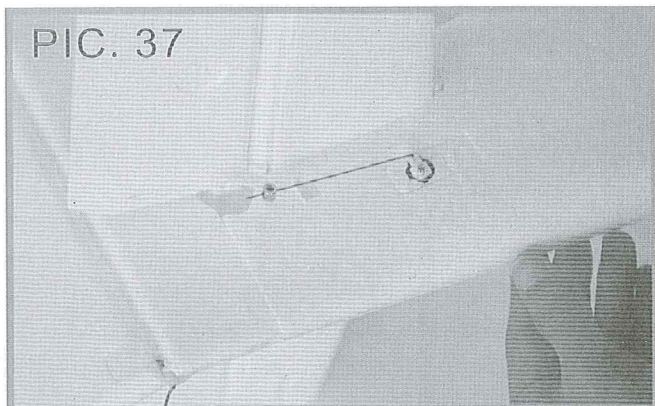


PIC. 36



- 9、 Put the other end of pushrod through the adjuster on the rudder/elevator horn (PIC.37) . Confirm that the rudder and elevator are in their neutral positions using a straight edge (PIC.38、 PIC.39) adjusting the length of the pushrod as necessary. Tighten the screw with the hex wrench to avoid loosening (PIC.40) .

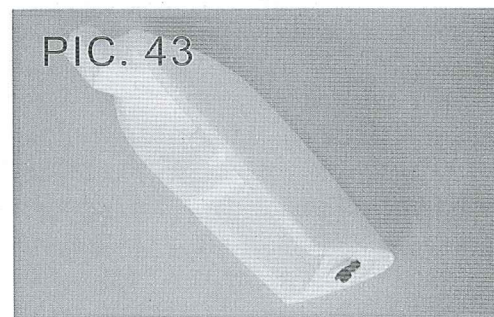
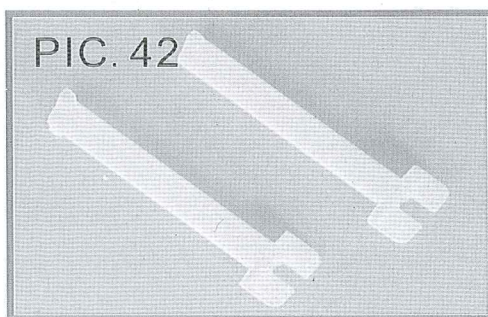
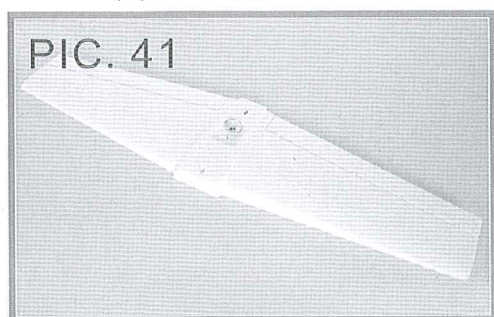
NOTE: If the pushrod loosens, control of the model may be lost and a crash may result.



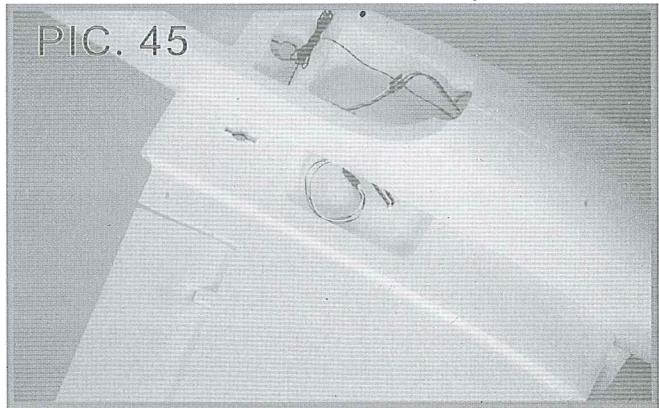
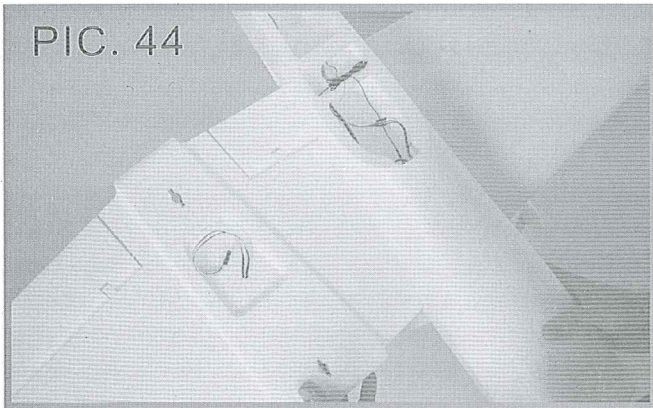
INSTALL THE MAIN WING

- 1、 Locate the accessories for installing the main wing:

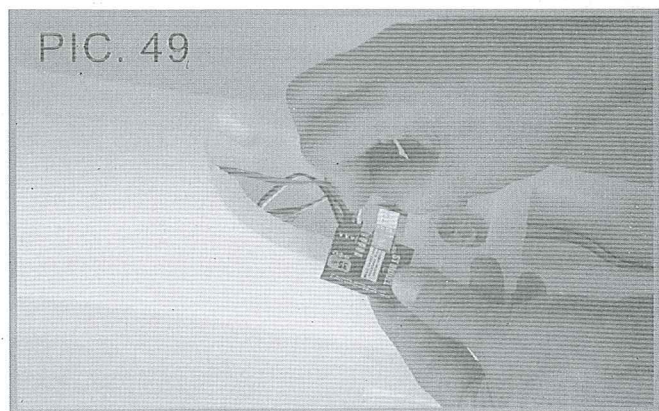
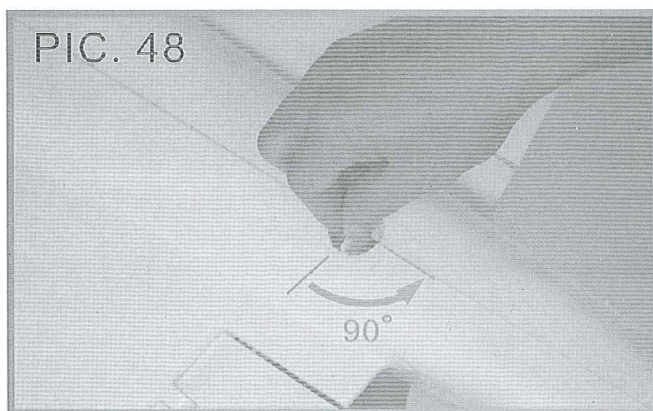
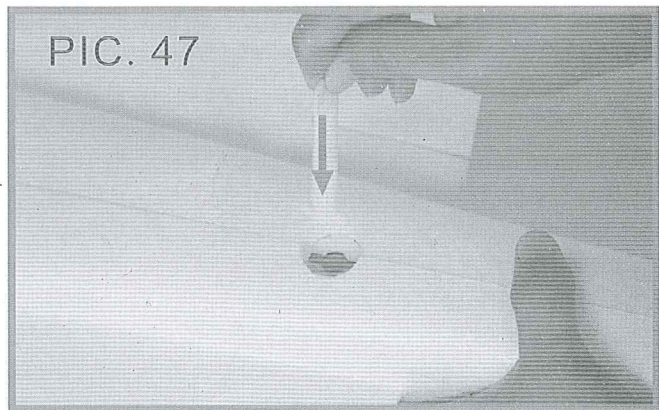
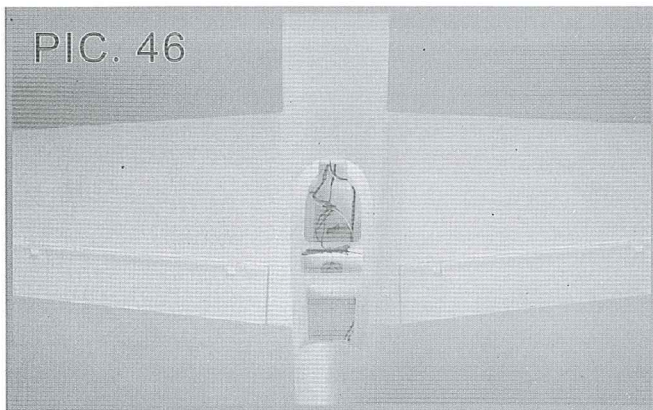
- (1).Main Wing (PIC.41)
- (2).Wing Bolt X 2 (PIC.42)
- (3).Canopy (PIC.43)



- 2、 Keep the side of the wing with the servo wire upward and insert the wing into fuselage (PIC.44) .
- 3、 Coil the aileron servo wire and hold in the recessed pocket during insertion as indicated in the photo below to avoid damage to the wire or the fuselage. (PIC.45) .

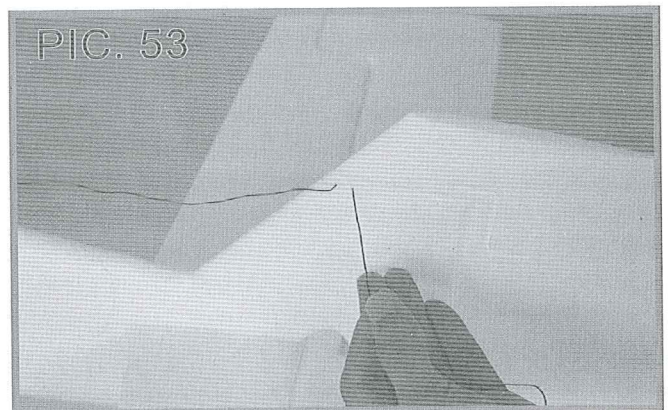
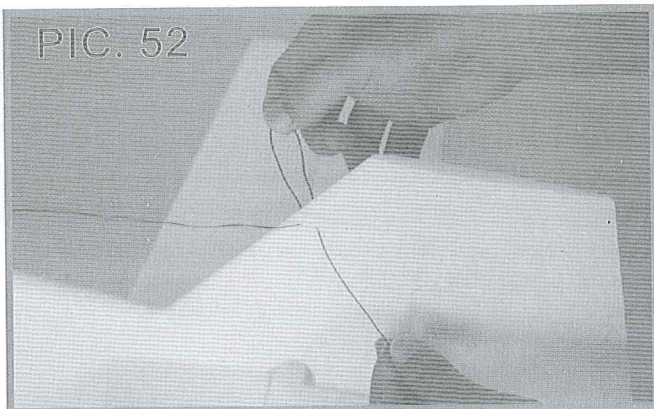
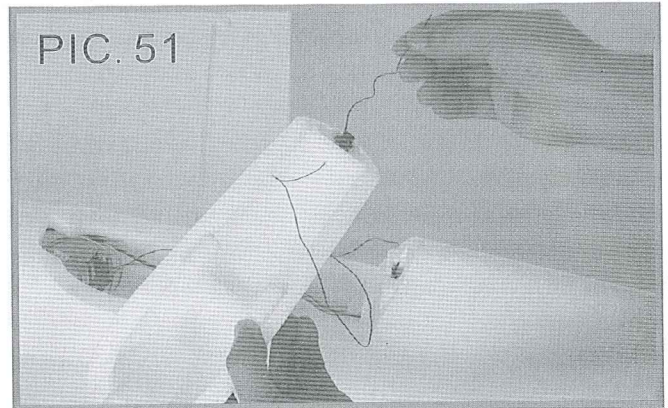
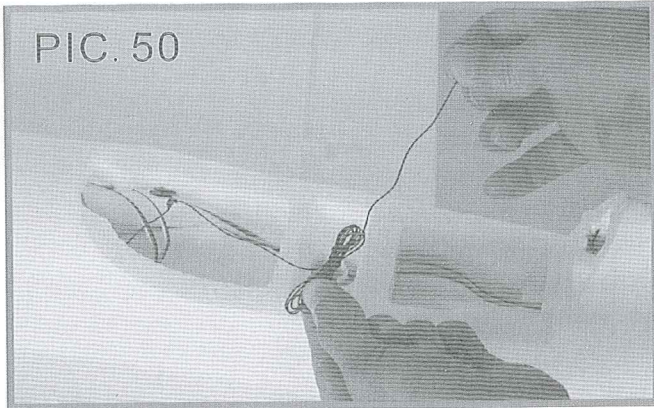


- 4、 Fit the main wing in position (the center of the main wing coincides with the center line of fuselage (PIC.46) .
- 5、 (1).Insert the two wing bolts through the two holes on the bottom of the fuselage. Ensure that the bolts reach the bottom (PIC.47) .
(2).Secure the wing assembly with the two bolts by turning each bolt 90°. Ensure that each bolt has locked in place and is holding the wing assembly in place. (PIC.48) .
- 6、 Connect the aileron servo wire to the receiver in the cockpit (PIC.49) .

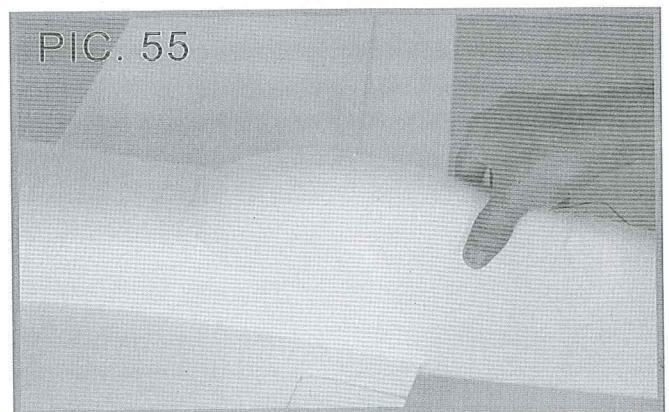
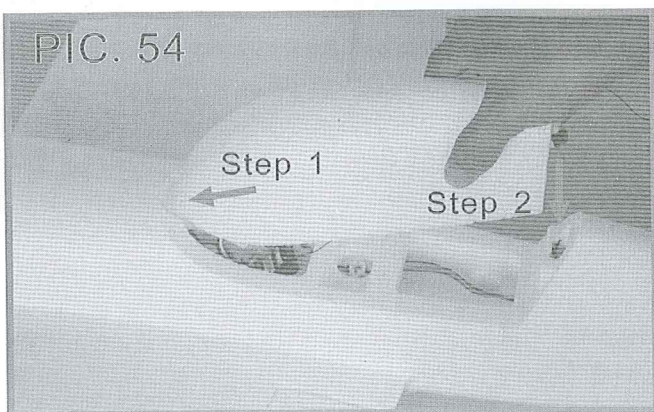


- 7、Untie the receiver antenna (PIC.50) . Route it through the hole behind the canopy from inside to outside (PIC.51) and then through the two holes on the fin as shown in the picture below (PIC.52、PIC.53) .

CAUTION: Do not pull hard on the antenna wire to avoid damage to the antenna and other parts.



- 8、Test fit the canopy to the fuselage (PIC.54) . Make sure the canopy is secured in place; otherwise it will fall off during the flight (PIC55) .



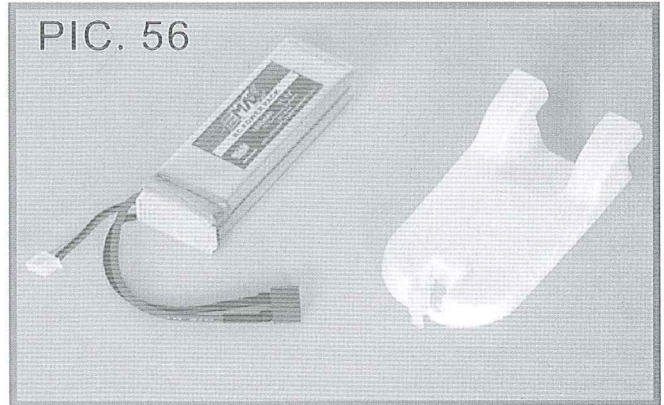
INSTALL THE BATTERY

1. Locate the battery and battery hatch (PIC.56) .
2. Switch on the transmitter (PIC.57) . Attach the battery connector to the power plug of the fuselage (PIC.58) . The ESC will respond with a one or two beeps.

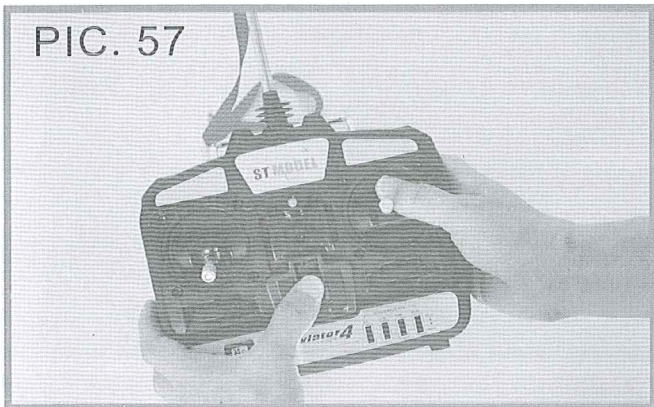
CAUTION: The ESC is now armed and the propeller will turn if the throttle stick on the transmitter is moved, possibly resulting in damage or injury.

Place the battery in place as shown in the photo below (PIC.59、PIC.60) .

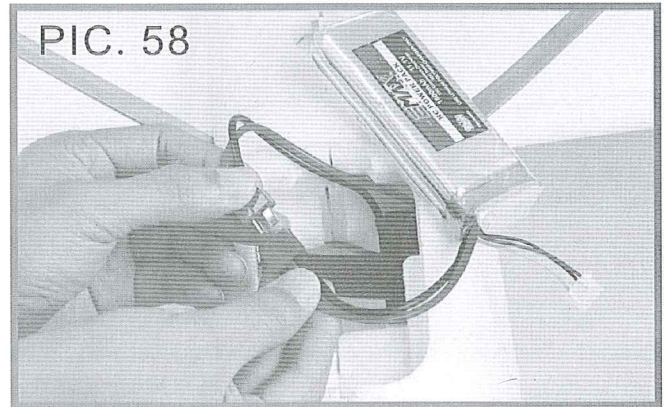
PIC. 56



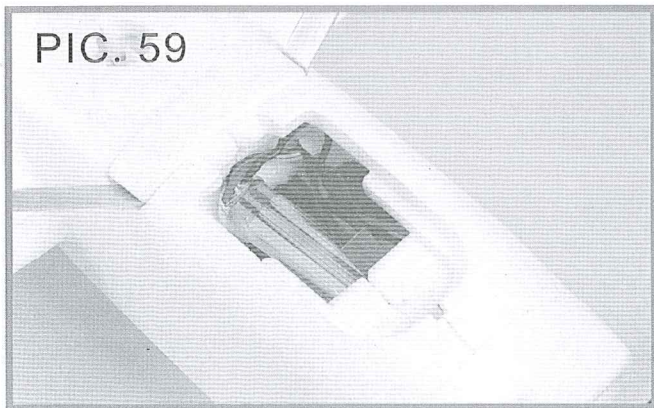
PIC. 57



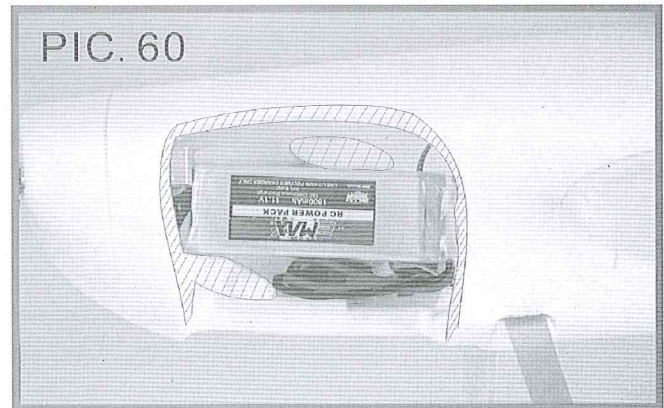
PIC. 58



PIC. 59



PIC. 60

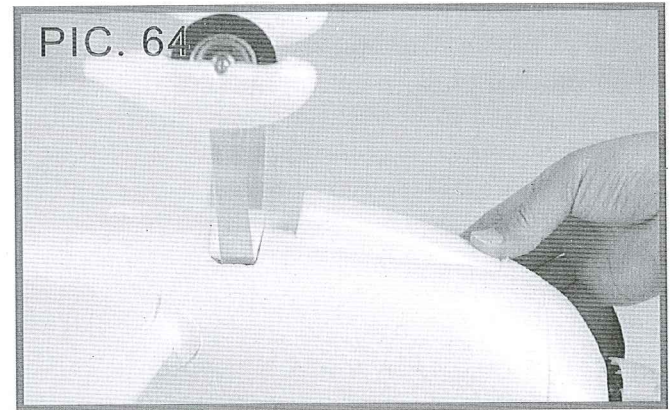
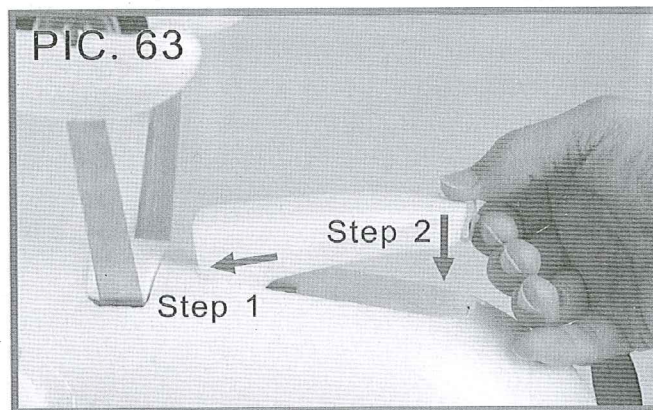
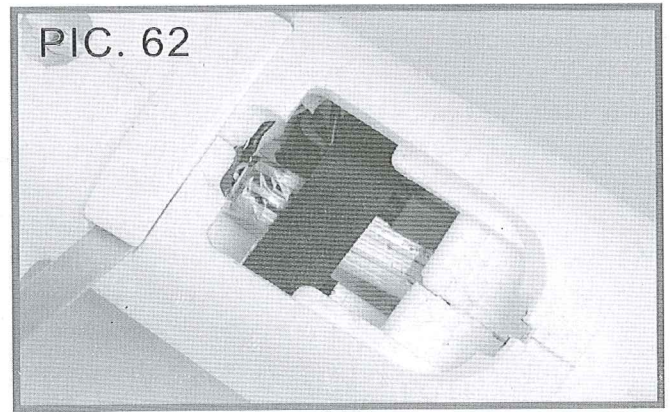
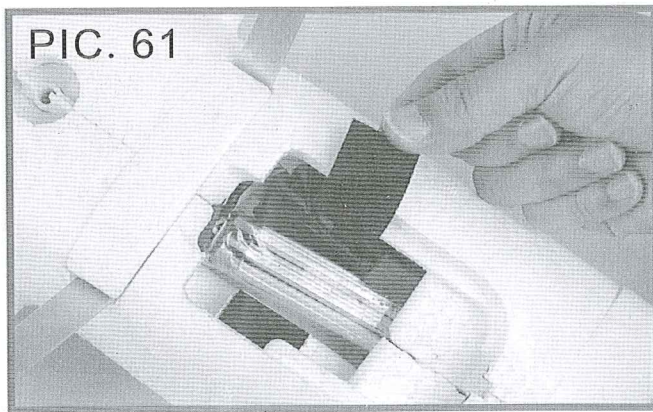


3. Secure the battery with the hook and loop strap (PIC.61、PIC.62) .

NOTE:

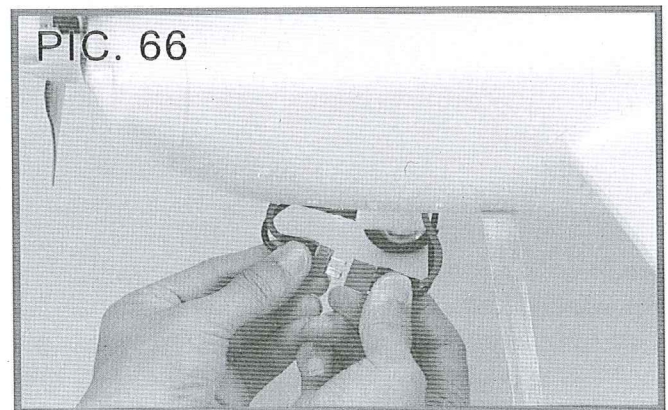
- (1).Before connecting the battery, make sure the LED on the transmitter is on.
- (2).Fit the battery in its place as shown. Otherwise the CG position will be changed due to the movement of the battery.

4. Test fit the battery hatch into the fuselage (PIC.63、PIC.64) . It is important to make sure the battery hatch is attached tightly to avoid falling off during flight.



TEST THE RADIO CONTROL SYSTEM

- 1、 Make sure the transmitter is switched on. Adjust all the trim levers to their neutral positions (PIC.65) .
- 2、 According to the following instructions, verify or set the power system (ESC) propeller brake function (PIC.66) .



NOTE: The MX2 RTF packaging includes a power system (ESC) with a propeller brake function, which can be programmed to make the propeller stop rotating, reducing wind resistance during glide when the throttle is cut off for landing.

- (1). ① Ensure that the throttle control stick is fully backward (to its lowest position).

Note: If the battery is connected to the plane at this time, disconnect it for 5 seconds.

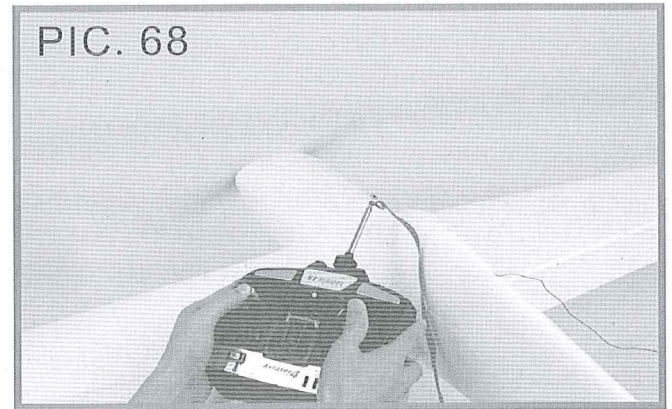
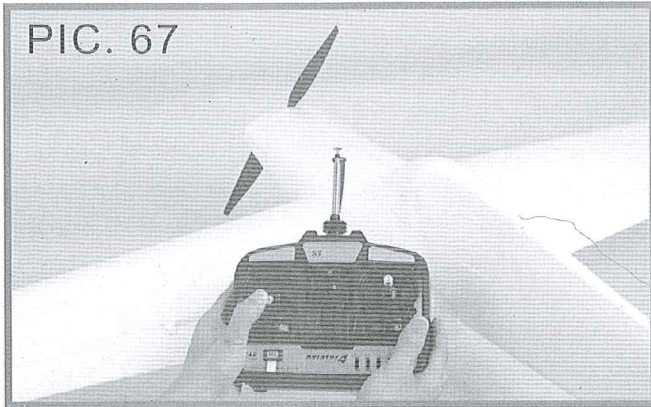
- ② Connect the battery to the plane's electronics. The power system (ESC) will immediately respond and remind the user if the propeller brake is "off" (single beep) or "on" (two beeps)
- ③ If there is one single "beep", the propeller brake is off. The propeller will free-wheel or continue to spin from air flow, even with the throttle stick in the off position. This causes drag and reduces the plane's ability to maintain glide speed during landings. •
- ④ If there are two beeps, the propeller brake is on and the propeller will come to a stop quickly when the throttle stick is in the off or down position, reducing drag.
- (2). The brake mode can be toggled to "on" or "off" as desired. To switch (toggle) the brake to the opposite mode, begin with the battery disconnected from the plane's electronics:
 - ① Turn the transmitter on and move the throttle control stick forward to the full throttle position. When the power is connected to the plane's electronics, the ESC will enter its programming mode..
 - ② Connect the battery to the plane's electronics. Wait for 5 seconds
 - ③ If the ESC responds with two beeps – "brake on", pull the throttle control stick down to the lowest throttle position. The ESC responds again with two beeps, indicating that the propeller brake is on and the ESC is now armed and ready to turn the propeller..
 - ④ If there is a single beep, disconnect the battery and wait 5 seconds, leaving the transmitter on and the throttle stick in the full throttle position.
 - ⑤ Re-connect the battery and wait 5 seconds. There should be 2 beeps indicating that the ESC has been reprogrammed to the "brake" on mode.
 - ‡ Move the throttle stick to its lowest position. The ESC should respond again with two beeps, confirming that the propeller brake system has been set on and that the ESC is now armed and ready to turn the propeller.
- (3). To switch from operating with propeller brake mode "on" to propeller brake mode "off" begin as in step (2) above, entering the ESC programming mode..
 - ① Connect the battery to the plane's power system.
 - ② If after 5 seconds, the power system responds with a single beep, pull the throttle to the lowest position.
 - ③ If there are two beeps, disconnect the battery, wait 5 seconds and reconnect the battery.
 - ④ The ESC should now respond with a single beep.
 - ⑤ Reduce the throttle to its lowest position. The ESC should again respond with a single beep, indicating that the propeller brake is now off and that the ESC is now armed and ready to turn the propeller.

3. Test the power system:

- (1). The transmitter should now be on, throttle in its lowest position, and the plane's power system (ESC) has confirmed that the propeller brake is either "on" or "off". The propeller should not be turning. If the propeller is turning slowly, ensure that the throttle control stick is in its fully off (backward) position. Ensure that the propeller stops completely; If not, move the throttle control trim lever backward (PIC.67) .
- (2). Move the throttle control stick forward slowly. The propeller should rotate gradually faster as the throttle stick is moved further forward. (PIC.68) .

NOTE: If the propeller doesn't react with increasing throttle, please ensure that the battery is fully charged, the connections are correct (positive and negative) and that the connections are well made with no broken wires. Also ensure that the ESC has confirmed the propeller brake mode (either on or off) when the battery was connected.

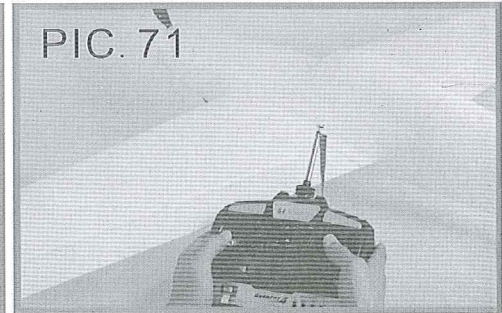
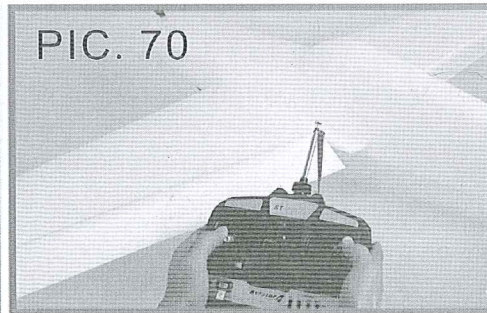
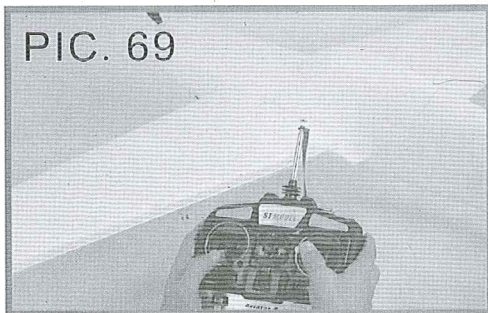
WARNING: Keep everything clear of the propeller once the battery is plugged in. Do not try to stop the propeller by hand or anything else.



4. Test the aileron:

- (1). Move the aileron control stick to the left; the left aileron moves up and the right aileron moves down (PIC.69) .
- (2). Move the stick to the right; the left aileron moves down and the right aileron moves up (PIC.70) .
- (3). Release the aileron stick (stick returns to its neutral position); the ailerons return to their neutral positions (PIC.71) .

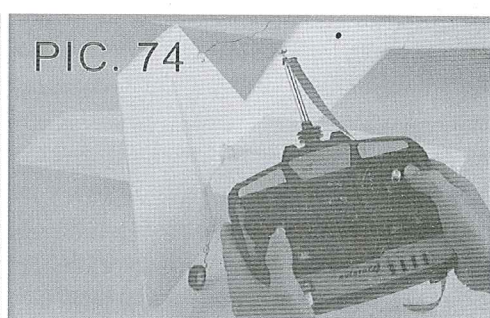
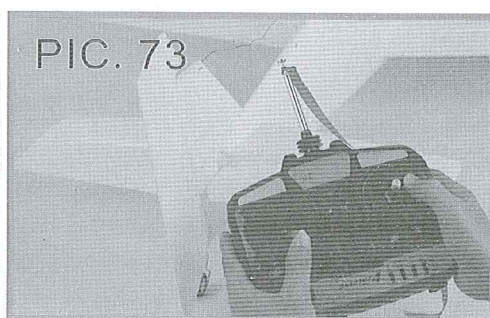
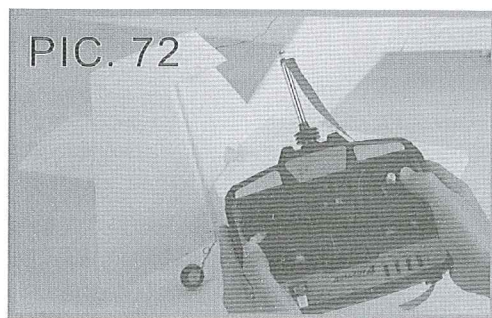
NOTE: If the movements of the ailerons are in the opposite directions, please access the aileron reversing switch on the transmitter and move to the opposite position.



5. Test the rudder:

- (1). Move the rudder control stick to the left, the rudder moves to the left (viewed from the rear of the plane) (PIC.72) .
- (2). Move the stick to the right, the rudder moves to the right (PIC.73) .
- (3). Release the rudder stick (stick returns to its neutral position); the rudder returns its neutral position (PIC.74) .

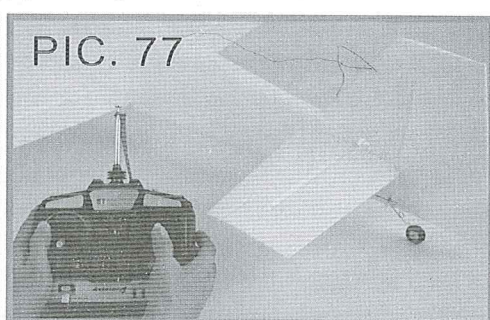
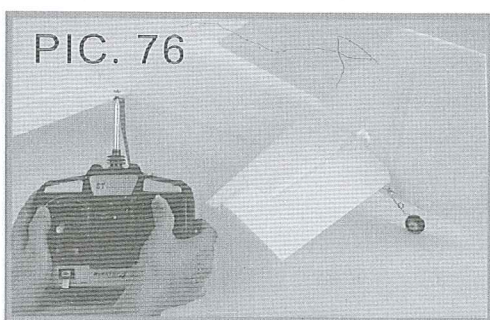
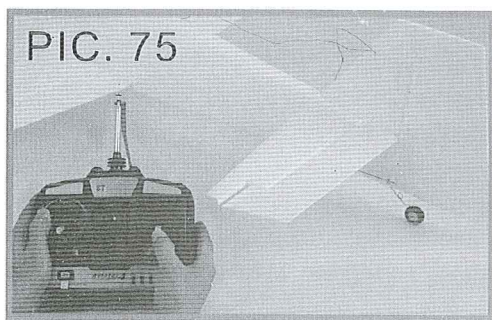
NOTE: If the movements of the rudder are in the opposite directions, please access the rudder reversing switch on the transmitter and move to the opposite position.



6、 Test the elevator:

- (1).Move the elevator control stick backward; the elevator moves upward (PIC.75) .
- (2).Move the stick forward; the elevator moves downward (PIC.76) .
- (3).Release the elevator (stick returns to its neutral position); the elevator returns its neutral position (PIC.77) .

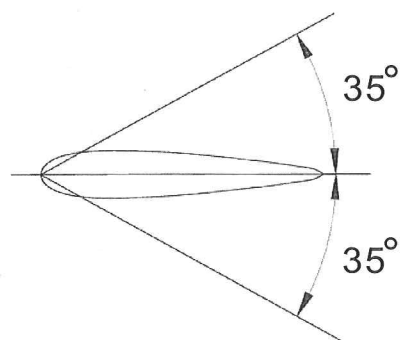
NOTE: If the movements of the elevator are in the opposite directions, please access the elevator reversing switch on the transmitter and move to the opposite position.



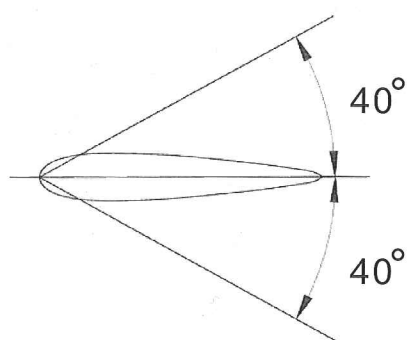
7、 Movement of all control surfaces:

- (1).Aileron (PIC.78)
- (2).Rudder (PIC.79)
- (3).Elevator (PIC.80)

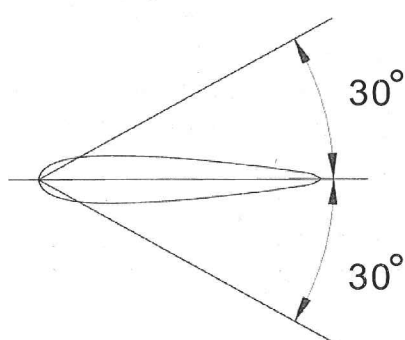
PIC. 78



PIC. 79

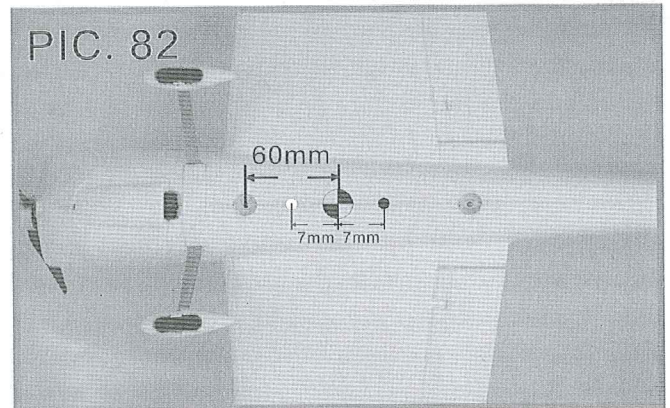
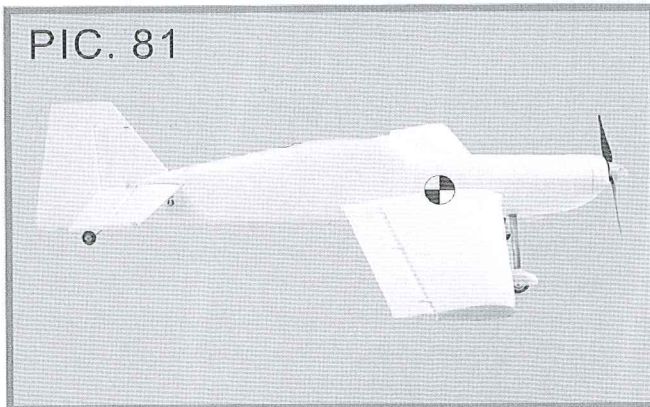


PIC. 80



CG (Center of Gravity) POSITION

- 1、 The standard CG is positioned 60mm (approx. 2-3/8") behind the wing bolt (PIC.81、 PIC.82) .



- 2、 The effect of CG: If the CG is moved forward, the flying performance is more stable; if the CG is moved rearward, the flying performance is more sensitive.
NOTE: The movement of the CG should not exceed $\pm 7\text{mm}$ (approx. 1/4"); otherwise, it will have an effect on flying performance and may cause a crash!
- 3、 We recommend only use the battery pack intended for MX2, or battery packs having the same weight and performance characteristics. If the battery pack or other accessories have been changed, please adjust the CG position according to the information above.

PRECAUTIONS BEFORE FLIGHT

- 1、 Choose a large open area free of trees, power lines, people, railway, road, parking lot, buildings or any other obstacles.
- 2、 Do not fly in aviation control areas or military bases, etc.
- 3、 Make sure no one is using the same radio frequency that you are on
- 4、 Always turn on the receiver after turning on the transmitter to avoid the radio interference.
- 5、 MX2 is for the modelers who want to upgrade to a more complex RC plane. We highly recommend that first time flyers get experienced, knowledgeable help from experienced RC pilots for flight test.
- 6、 Choose and use correct power, battery and radio systems. The incorrect modifications and matching will shorten the life or damage the accessories.
- 7、 Pay attention to the wind direction.

TAKING OFF AND LANDING

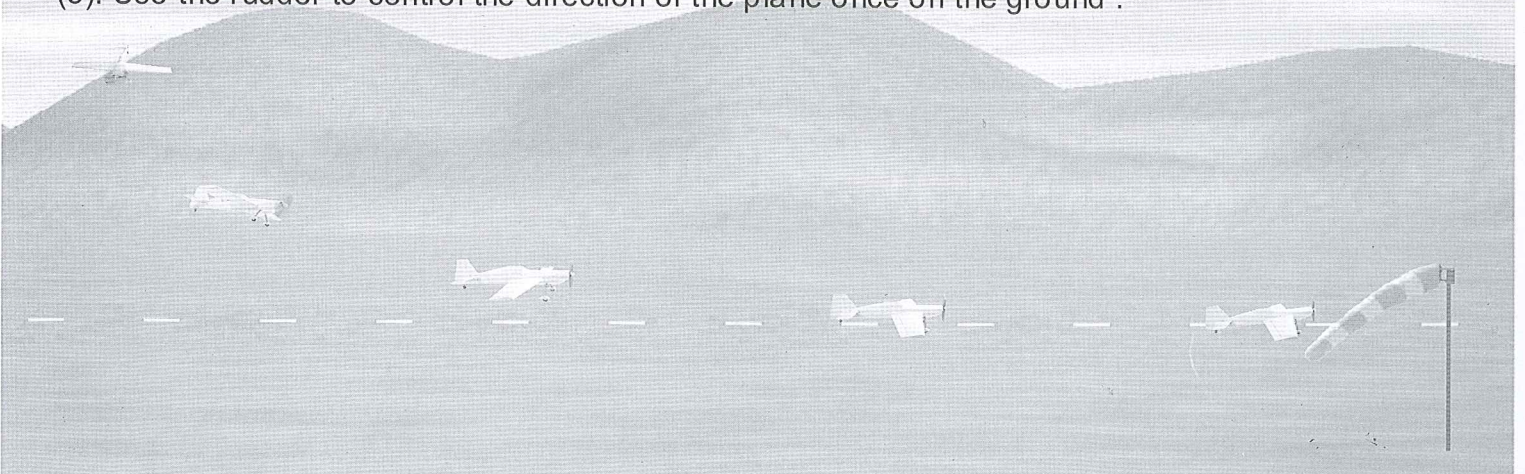
1. Taking off:

- (1). Position the plane with its nose into the wind. Advance the throttle smoothly, allowing the plane to accelerate to flying speed.
- (2). Keep the plane tracking straight by adjusting rudder during take-off.
- (3). Apply just a touch of up-elevator when the plane reaches sufficient takeoff speed and the model should lift smoothly into the air.
- (4). Climb to a safe altitude to perform turns.
- (5). Check all the control surfaces and adjust the transmitter trim levers as needed to allow straight and level flight without having to continuously apply control corrections.



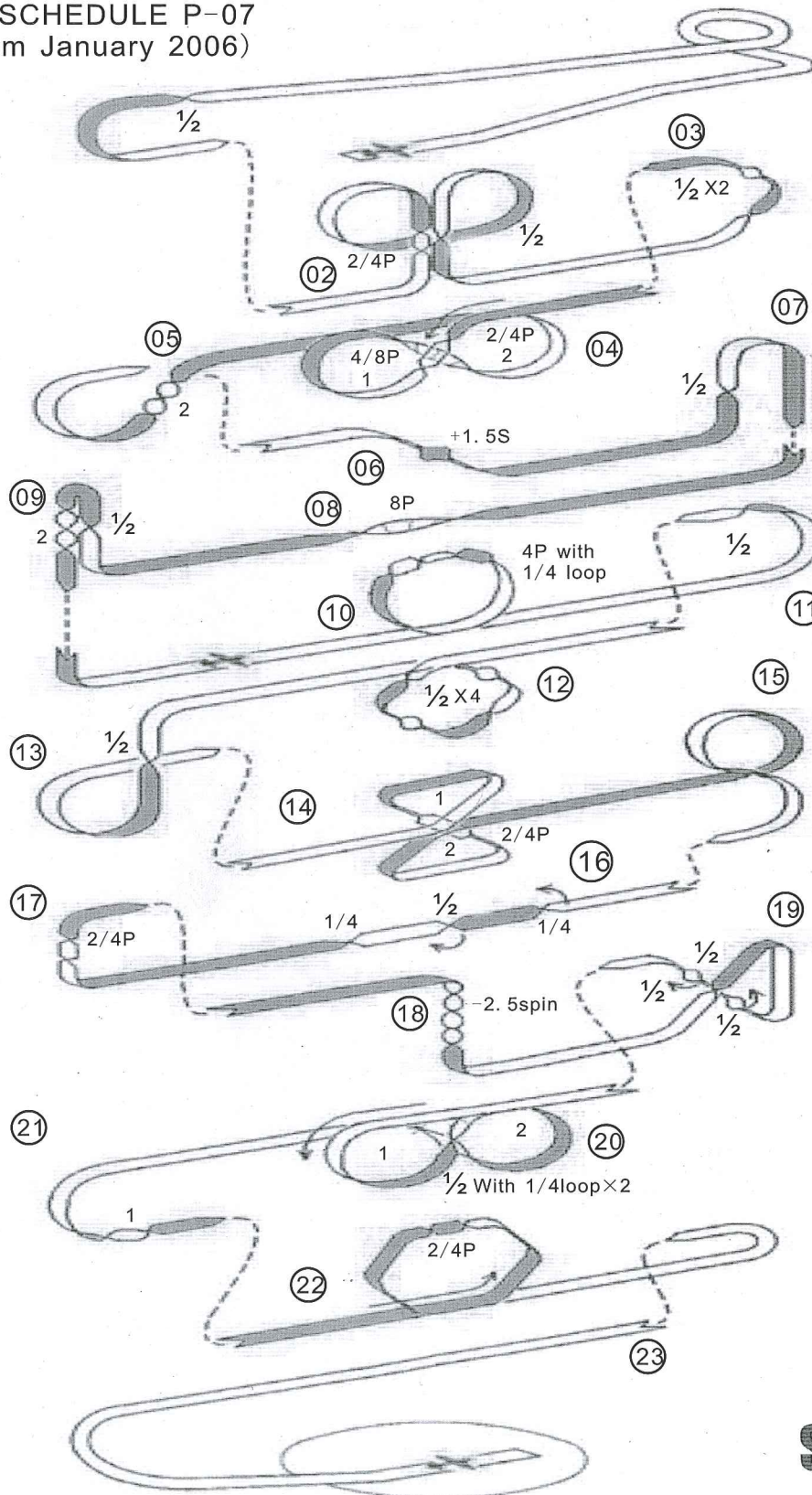
2. Landing:

- (1). Gradually reduce the throttle to slow down the airplane during the downwind and base leg landing approach pattern.
- (2). Maintain a smooth descending glide ratio and sufficient glide speed. Do not apply too much up-elevator as the plane will slow down too much and stall.
- (3). Make the final landing approach turn into the wind, maintaining glide speed and lined up with the runway.
- (4). When the altitude approximately 30cm (1 ft.) from the ground, begin to pull back gently on the elevator control stick, applying a little more up-elevator. The airplane should nose-up slightly and touch-down.
- (5). Use the rudder to control the direction of the plane once on the ground.



ADDENDUM

Experienced modelers can practice according to the path below:
 PRELIMINARY SCHEDULE P-07
 (from January 2006)



WE HOPE YOU ENJOY YOUR FLYING!

ST MODEL

[Http://www.sheng-teng.com](http://www.sheng-teng.com)
 E-mial:shengteng@263.net.cn

ST MODEL MX2

ST Models MX-2 – Instruction Addendum

This addendum relates to the specification of this model as supplied in the UK, some amendments to the printed instructions and additional information on the setup for Sports & 3D flying.

Specification

The version of the MX-2 is supplied without transmitter, receiver, battery or charger. These items can be purchased from your local model shop. Ripmax recommends the Impulse 3S 2500mAh 20C Li-Po battery. It will need to be fitted with a female 'Deans' type connector wired in the correct polarity. To charge this battery, there are several chargers in the Pro-Peak range. Please choose one that can charge Li-Po batteries and has balancing facilities (Cavalier, Gallant and Sigma II etc).

The propeller fitted has been changed to a 12 x 5 so that torque is reduced. This improves stability and response in vertical hovering and general flight. Performance is not compromised.

The aileron servos now have separate plugs and a Y-lead to allow you to program individual ailerons via your computer radio if you wish.

Instruction amendment

The information given about the transmitter, receiver, battery and charger is for general guidance. These items are not supplied as standard.

Page 9

PIC 33 – For 3D flying. The rudder pushrod should be installed in the second to outer servo arm hole. For sports flying, it should go in the middle hole.

PIC 35 – This position for the pushrod is for 3D flying

PIC 36 – This position for the pushrod is for sports flying

The pushrod swivel connectors are pre-installed at the factory in the correct hole in the surface horns for sports flying. For 3D, they should be moved to the middle hole on rudder and elevator.

Page 11

The aileron servo cables now have individual plugs and a separate y-lead. You can use a single aileron channel and the Y-lead or two aileron channels without the Y-Lead.

Page 17

Please refer to the following information regarding control movement setup. It replaces the information in PIC 78, 79 and 80

Sports

Aileron 35mm Up & Down
(-30% Exponential recommended)

Elevator 35mm Up & Down
(-25% Exponential recommended)

Rudder 65mm Left & Right
(-20% Exponential recommended)

3D

Aileron 40mm Up & 35mm Down
(-20% Exponential recommended)

Elevator 60mm Up & Down
(-30% Exponential recommended)

Rudder 90mm Left & Right
(-20% Exponential recommended)

Special 3D Note - Ailerons must be on separate channels and mixed together.

Program 10mm up on both ailerons mixed with up elevator plus 10mm down on both ailerons mixed with down elevator. This mix is essential for the 'parachute' descent manoeuvre or you will get wing rocking at extreme elevator inputs

Happy and Safe Flying.