SLOW STICK
遙控電動飛機
R/C ELECTRIC AIRCRAFT

Slow Stick

SPECIFICATIONS
規格及諸元

GW/SLOWSTICK

|					
Length	(全長)	: 954 mm (37.6 in.)	Propeller	(螺旋槳)	: EP1047 / EP1180 / EP1060
Wing Span	(翼展)	: 1176 mm (46.3 in.)	Battery Required	(電池規格)	: 2/3AA270~400mAh / AA600mAh/7.2V
Wing Area	(主翼面積)	: 32.64 dm² (505.9 sq. in.)	Servo	(伺服機)	: PICO / NARO / MINI
Flying Weight	(全備重量)	: 405~440 g (14.3~15.5 oz.)	Receiver	(接收機)	: R4N II / R6N II
Wing Loading	(翼面荷重)	: 12.4~13.5 g/dm² (4~4.4 oz./sq.ft.)	Speed Controller	(電子變速器)	: ICS-300 / ICS-400 above 以上
Power System	(動力系統)	: EPS150C / EPS300C / EPS400C/EDP400	Radio Required	(遙控裝置)	: 2~4 channel radio (4動作以上遙控器)

CONTENTS OF KIT(PARTS LIST)

01. Fuselage Boom .... x1 pce.
02. Push Rod .... x2 pcs.
03. Removable Gasset .... x2 pcs.
04. Screw .... x4 pcs.
05. Double Adhesive Tape .... x1 pce.
06. Wing .... x1 pce.
07. Horizontal Stabilizer and Vertical Fin .... x1 pce.
08. Spinner .... x1 pce.
09. Fiber Glass Spar (3 x 480 mm) .... x2 pcs.
10. Fiber Glass Spar (3 x 218 mm) .... x2 pcs.
11. Main Landing Gear .... x1 pce.
12. Ultra-Light Wheel Rim (76.2 mm dia.) .... x2 pcs.
13. Ultra-Light Wheel Rim (25.4 mm dia.) .... x1 pce.
14. Servo Mounting Screws .... x4 pcs.
15. Tail Dragger .... x1 pce.
16. Alumium Tube for Dihedral .... x2 pcs.
17. Power System EPS150C or EPS300C or EPS400C ...... x1 pce.
18. Propeller EP1047 or EP1180 or EP1060 ...... x1 pce.
19. Plastic Parts Frame "A" .... x1 set
20. Plastic Parts Frame "D" .... x1 set
21. Rubber Band .... x12 pcs.
22. GWS Glue .... x1 pce.
23. Slow Stick Decal .... x1 pce.
24. GWS Decal .... x1 pce.
25. Double Adhesive Sponge Tape .... x4 pcs.

套件內容

01. Slow Stick 機身 .... x1 pce.
02. 推拉桿 .... x2 pcs.
03. 墊片 .... x2 pcs.
04. 螺絲 .... x4 pcs.
05. 雙面膠 .... x1 pce.
06. Slow Stick 主翼 .... x1 pce.
07. 水平垂直翼組 .... x1 pce.
08. 機頭罩 .... x1 pce.
09. 玻璃纖維棒 (3 x 480 mm) .... x2 pcs.
10. 玻璃纖維棒 (3 x 218 mm) .... x2 pcs.
11. 主輪架 .... x1 pce.
12. 輪子 (76.2 mm dia.) .... x2 pcs.
13. 輪子(25.4 mm dia.) .... x1 pce.
14. 固定伺服機螺絲 .... x4 pcs.
15. 尾輪架 .... x1 pce.
16. 鋁管 .... x2 pcs.
17. 動力系統 EPS150C 或EPS300C 或 EPS400C ..... x1 pce.
18. 螺旋槳 EP1047 或 EP1180 或 EP1060 .... x1 pce.
19. 零件 "A" 組 .... x1 set
20. 零件 "D" 組 .... x1 set
21. 橡皮筋 .... x12 pcs.
22. GWS 膠水 .... x1 pce.
23. Slow Stick 貼紙 .... x1 pce.
24. GWS 貼紙 .... x1 pce.
25. 泡綿式雙面膠 .... x4 pcs.
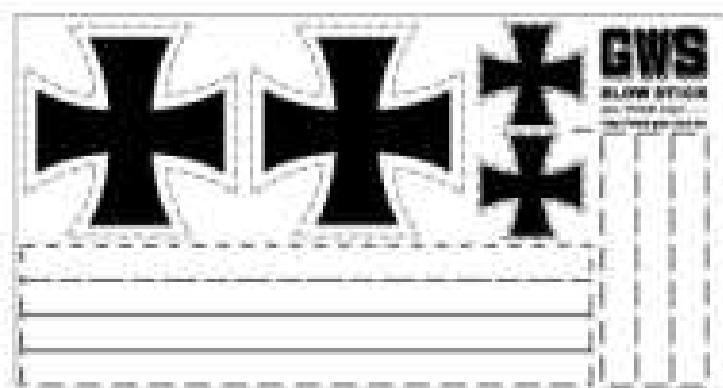
PYPOP-1027——
Slow Stick Decal
貼紙 x 1 pce.

PYPOP-1003——
GWS Decal
貼紙 x 1 pce.

PYINS-1056-—-A-
Slow Stick
說明書一本
Instruction Manual
x 1 pce.

SLOW STICK

Remark:

please note that some plastic parts on the frames are not used for this airplane, as these frames A are designed to use on other airplanes as well. Please consult the instruction manual for more details.

GW/SLOW-STICK-AS1

PMCHSA1006------
Fuselage Boom 機身鋁管
10 x 10 x 800 x 1 pce.

PMSPC-1012------
Removable Gasset
10 x 90 mm 墊片 x 2 pcs.

PXTSAF-4S-1710--
TS1M1.7 x 10 Screw
螺絲 x 4 pcs.

PYPOP-1032------
Double Adhesive Tape 雙面膠帶
220 x 10 mm x 1 pce.

PTMEW-1012------
Push Rod 推拉桿 x 2 pcs.

PMHOD-1005------
Fiber Glass Spar 玻璃纖維棒
(3 x 480 mm) x 2 pcs.

PMHOD-1006------
Fiber Glass Spar 玻璃纖維棒
(3 x 218 mm) x 2 pcs.

GW/SLOW-STICK-AS2

PHWIN-1010--R-M-
Wing 主翼 x 1 pce.

PHWIN-1010--R-T-
Horizontal Stabilizer and
Vertical fin 水平與垂直尾翼
x 1 pce.

GW/P-STICK-AS5
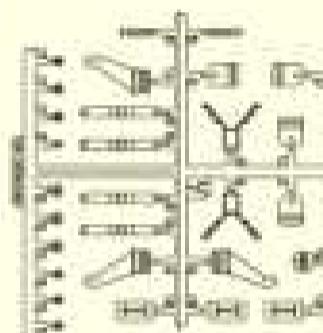
PMSPC-1001------
Plastic Parts Frame "A"
塑膠配件 A x 1 set

PTCUS-1016------
Double Adhesive
Sponge
Tape x 4 pcs.
泡棉雙面膠4個

8SRBD-1001------
Rubber Band
橡皮筋 x 12 pcs.

8SADHP1002------
GWS Glue 專用膠水
x 1 pce.

GW/SLOW-STICK-AS3
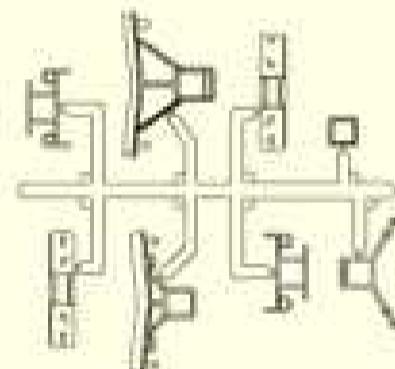
PHFUS-1008------
Plastic Parts Frame"D" 零件 x 1 set
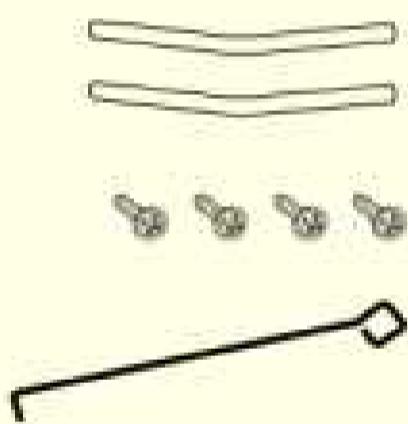
PMHOD-1007----1--
Aluminum Tube For Dihedral
SS280 鋁管支架 x 2 pcs.

PXTPAF-4J-1490R--
Servo Mounting Screws
固定伺服機螺絲 x 4 pcs.

PTMEWA1009----T-
∅1.2 mm Tail Dragger
尾輪架 X 1 pce.

PTMEWA1009----M-
Main Landing Gear
∅ 2 mm 主輪架 x 1 pce.
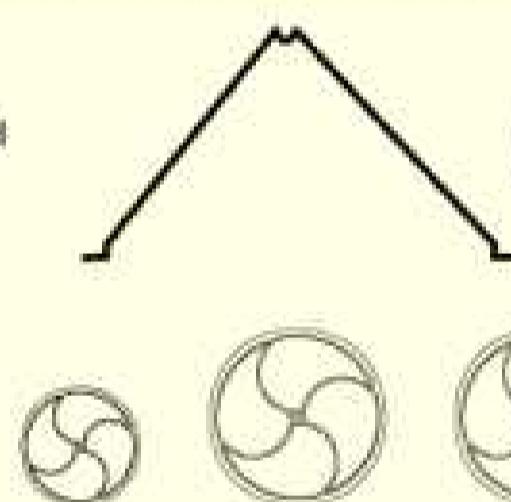
PHTYRP1005--D1--
Ultra-Light wheel Rim 輪子
(25.4 mm dia.) (1") x 1 pce.

PHTYRP1008--D2--
Ultra-Light wheel Rim 輪子
(76.2 mm dia) (3") x 2 pcs.

GW/SLOW-STICK-AS150

PTPROA1047---1--
Propeller 螺旋槳 x 1 pce.
EP1047 橙色

AA5MEPS------6C1
EPS-150C-CS-BB 組合 x 1 pce.

PHSPIR100125D--
Spinner 機頭罩 25 m x 1 pce.

GW/SLOW-STICK-AS4B

PTPROA1180------
Propeller 螺旋槳 x 1 pce.
EP1180 橙色

AA5MEPS------3D1
EPS-300C-D-BB 組合 x 1 pce.

PHSPIR100125D--
Spinner 機頭罩 25 m x 1 pce.

GW/FAS4-EPS400-01

PTPROA1060---1--
Propeller 螺旋槳 x 1 pce.
EP1060 橙色

AA5MEPS------4D-
EPS-400-D 組合 x 1 pce.

PHSPIR1011------
Spinner 機頭罩 (12"~6") x 1 pce.

在組裝前需準備的工具：
To assemble this airplane, you will need to prepare some tools.

TOOLS AND ITEMS
所需工具及耗材

美工刀
Cutter Knife

尖嘴鉗
Pliers

斜口鉗
Nippers

起子組
Screwdriver

剪刀
Scissors

For removable tail units, you will need a eletric drill and hacksaw and 1 mm drill bit.

電鑽
Eletric Drill
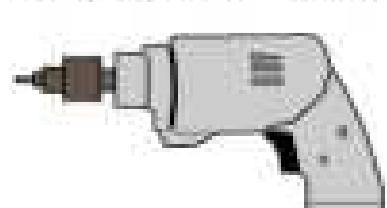
手鑽組
Drill

弓形鋸
Hacksaw

SLOW STICK
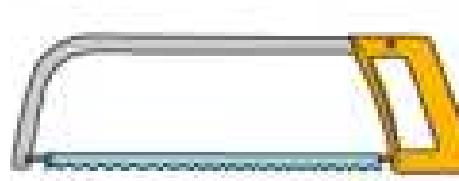
RADIO CONTROL SYSTEM
飛行前所必要之裝備

4 動作發射機
Channel Transmitter

GWS PICO (NARO MICRO or MINI) Series Servos
伺服機系列

Quick Charger
快速充電器

Charger
快速充電器

7.2V 2/3AA
270~400mAh
or "AA" 600mAh
(Ni-Cd 鎳鎘)
or (Ni-MH 鎳氫)

GWS R-4P II / R-6N II
R-6H II / R-R8M
FM Receiver 接收機

電子變速器
Electronic Speed Controller
ICS-100 / ICS-300 / ICS-400
above 以上

PREPARING TAIL SECTION FOR INSTALLATION
尾 翼 的 組 裝

1.

2.

3.

Detail A

OPPOSITE SIDE

RUDDER

VERTICAL STABILIZER

OR

OR

ELEVATOR

HORIZONTAL STABILIZER

FRONT

TAPE HINGE

Detail A
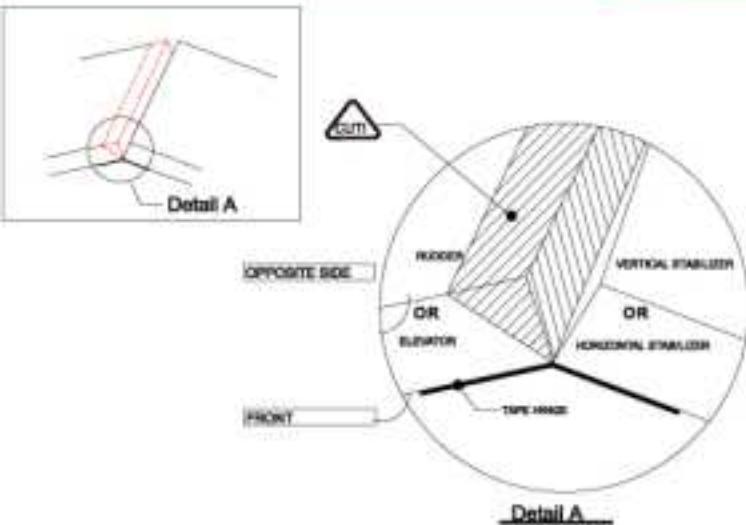
1. Take the horizontal stabilizer and elevator from the box, and on the elevator leading edge, sand or cut a 40° angle on one side, then lay them on a flat surface and use the clear plastic tape on the opposite side to join the elevator and stabilizer, the tape will be the hinge for the elevator. (Pic.1,2,3)

● 使用長貼紙，黏貼於水平尾翼的正面(注意正反面)。(圖.1)
● 將多餘部分切除。(圖.2)
● 在舵面上切出四十度的角度。(圖.3)

SLOW STICK
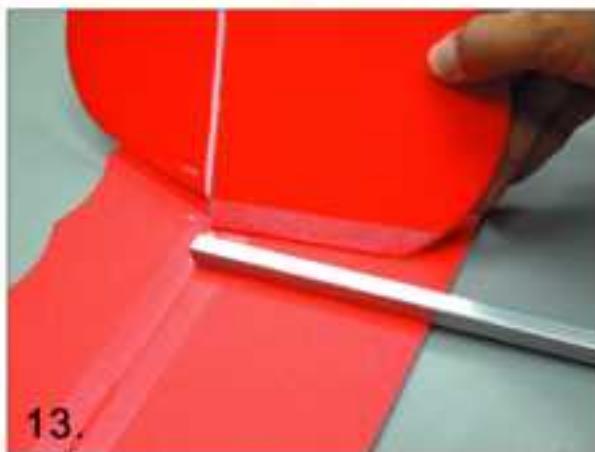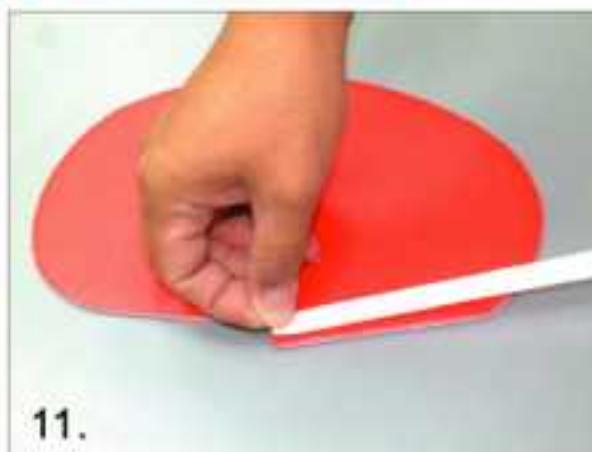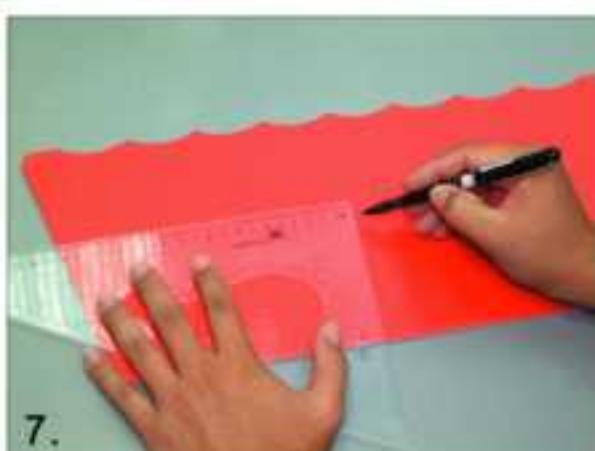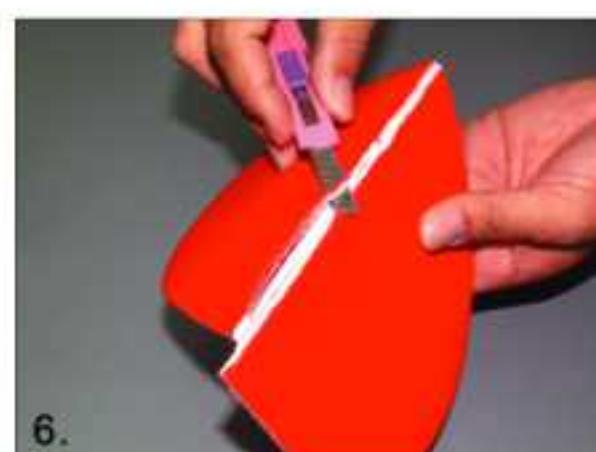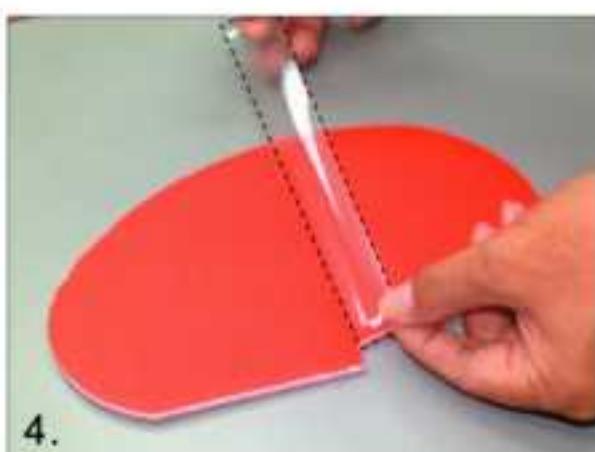
2. Take the vertical stabilizer and rudder from the box and on the rudder leading edge, sand or cut a 40° angle on one side then lay them on a flat surface and use the clear plastic tape on the opposite side to join the rudder and stabilizer, the tape will be the hinge for the elevator. (Pic.4,5,6)

3. On the horizontal stabilizer along the hinge line measure 8 1/8" to find the center line and draw a 90° from the hinge line across the horizontal stabilizer. (Pic.7)

4. Take the double adhesive tape from the box and measure and cut a piece of 4 1/4" long, now peel the paper from one side of the tape and apply it to the center line of the horizontal stabilizer. (Pic.8,9)

5. Now peel the paper from the double adhesive tape on the horizontal stabilizer get the aluminum fuselage and carefully install it on the stabilizer. (Pic.10)

6. Apply double adhesive tape to the bottom edge of the vertical stabilizer and trim the excess, now apply the stabilizer to the end of fuselage. (Pic.11,12,13)

- 使用短貼紙，黏貼於垂直尾翼的正面(注意正反面)。(圖.4)
- 將多餘部分切除。(圖.5)
- 在舵面上切出四十五度的角度。(圖.6)
- 在切線20.6公分處劃上與切線垂直之中心線。(圖.7)
- 將雙面膠黏貼於正面中心線上。(圖.8)
- 將多餘部分切除。(圖.9)
- 將水平安定面與機身結合。(圖.10)
- 在垂直安定面下緣貼上雙面膠帶。(圖.11)
- 將多餘部分切除。(圖.12)
- 將垂直安定面與機身結合。(圖.13)

DISASSEMBLED TAIL INSTALLATION
尾翼的組裝
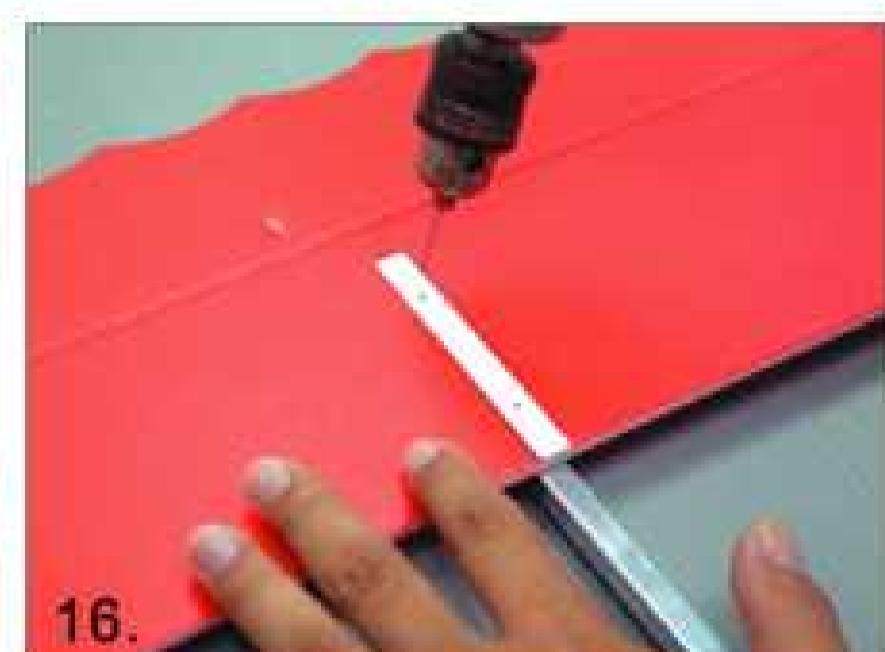
1. Use GWS glue to bond the white gussets to the horizontal and vertical stabilizers. (Pic.14,15) Use a 1 mm drill bit and drill the four holes for the screws to hold the horizontal and vertical stabilizers and install the screws. (Pic.16,17,18,19)

- 將固定片用保利龍膠黏貼於水平尾翼下方。（圖.14）
- 第二片黏貼於垂直下緣。（圖.15）
- 使用1mm電鑽於方管鑽孔。（注意方管尾端須貼近水平尾翼折線處.圖.16）。
- 鎖上螺絲。（圖.17）
- 在垂直尾翼固定片上鑽孔。（圖.18）
- 鎖上螺絲。（圖.19）

DISASSEMBLED TAIL SET
尾翼的組裝

1. Using hacksaw, cut the fuselage tube in two parts. (Pic.20)
2. Install the tube connecter. (Part # 6) To join the two pieces of the tube, be sure to keep the joined point in the middle of the connector. (Pic.21)
3. Use electric drill and 1 mm bit to drill a hole on each side of connector and tube as shown in the picture above. (Pic.22)
4. Use 1.4 x 10 mm tap screw to secure the connector to tube. (Pic.23)

- 用鋸子將機身尾部鋸開。（圖.20）
- 將鋸開的鋁製機身套入塑膠的連接器中。（圖.21）
- 用電鑽鑽個1mm的孔。（圖.22）
- 鎖上1.4x10mm的自攻螺絲固定。（圖.23）

FUSELAGE & WING ASSEMBLY

機 身 與 機 翼 的 組 裝

24.

25.

26.

27.

28.

29.

30.

31.

32.

33.
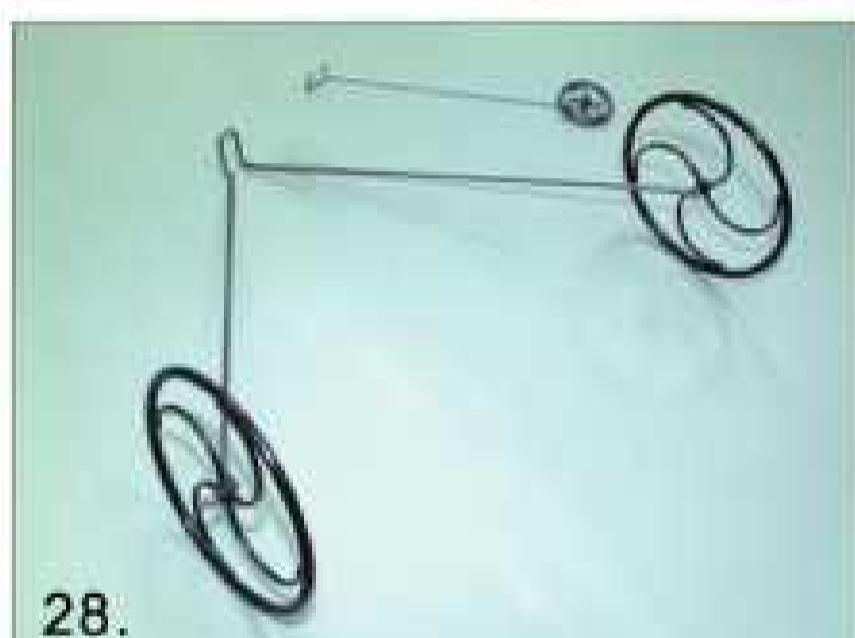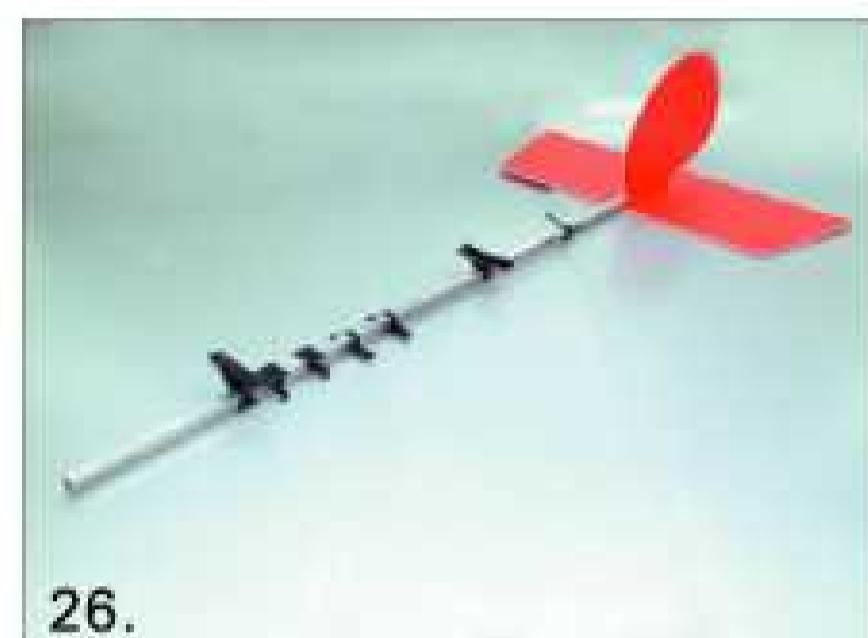
1. Using a cutting nipper, cut off the plastic parts from the plastic parts frame "D". (Pic.24)
2. Cut off the plastic parts from frame "D", one at a time and install them in the order and orientation shown. (Pic.25,26)
3. Install the wheels on the main landing gear, secure using parts "A-3". (Pic.27)
4. Install the wheel on the tail wheel support, secure using parts "A-4". (Pic.28)
5. Connect the mail landing gear to part 1. (Pic.29)
6. Connect the tail wheel to part 5. (Pic.30)
7. Now the Slow Stick will stand by it's self. (Pic.31)
8. Use GWS glue or a small screw to secure the motor to the fuselage. (Pic.32)
9. Correct installation of power system. (Pic.32)

● 使用斜口鉗剪下零件組D之零件。（圖.24,25）
● 請依正確順序將零件放入機身桿。（請參考圖26）
● 將輪子裝入輪架，並用尖嘴鉗固定零件A-3，
　以防輪子脫落。（圖.27）
● 完成圖。（圖.28）。

● 將主輪架裝入零件1。（圖.29）
● 將尾輪架裝入零件5。（圖.30）
● 完成圖。（圖.31）
● 在裝上動力組前，塗上適量膠水。（圖.32）
● 槳和零件間的距離需適當。（圖.33）

FUSELAGE & WING ASSEMBLY
機 身 與 機 翼 的 組 裝


34.

35.

36.

37.

38.

39.

40.

41.

42.
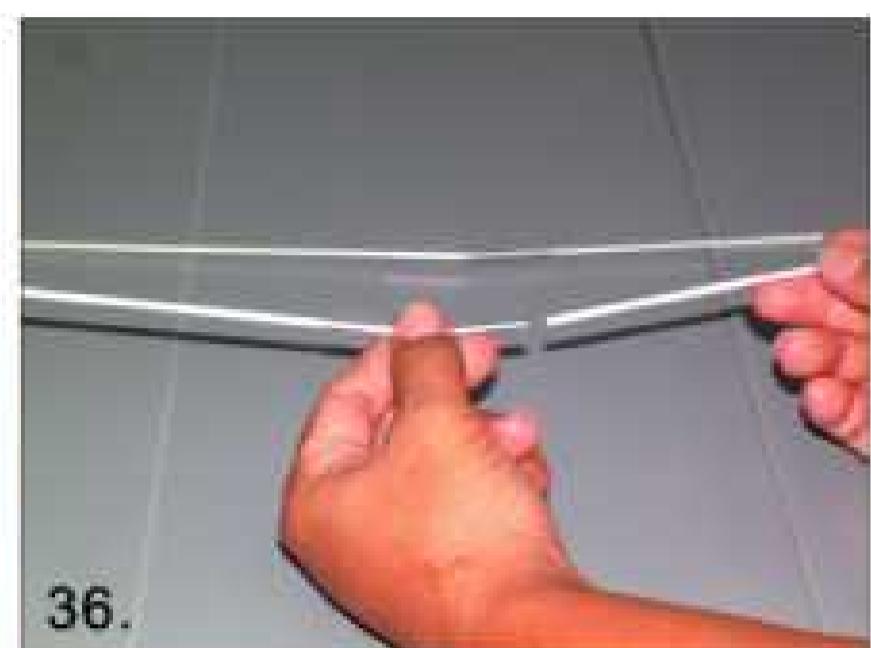
10. Open the wing (it's folded in two) and join the center part with a long piece of clear tape, making sure to get the biggest dihedral possible and trim the excess tape (Pic.34,35)

12. Join the fiber glass rods using the aluminum tubes. (Pic.36)

13. Use the short clear tape to secure the short fiber glass rod to the trailing edge of the wing (Pic.37) Use the long clear tape to secure the short fiber glass rod to the leading edge of the wing (Pic.38)

14. Use pliers to connect the control horn to the push pull rods. (Pic.39)
15. Insert the control horns on the rudder and elevator. (Pic.40)
16. The tail assembly should now look like the photo. (Pic.41)
17. Install the speed control, receiver, servos and battery. (Pic.42)

- 將主翼折成最大上反角並貼上膠帶。(圖.34)
- 剪掉多餘的膠帶。(圖.35)
- 透過鋁管將玻纖棒連接起來。(圖.36)
- 使用短貼紙將短玻纖棒固定於後緣。(圖.37)
- 使用長貼紙將長玻纖棒固定於前緣。(圖.38)
- 使用尖嘴鉗將固定舵角片與推拉桿。(圖.39)
- 套上水平、垂直翼上的舵角片。(圖.40)
- 尾部完成圖。(圖.41)
- 伺服器擺臂與推拉桿結合。(圖.42)

BALANCE LOCATION
重 心 位 置 與 調 整

43.

44.

45.

95~105(mm)
C.G.
46.
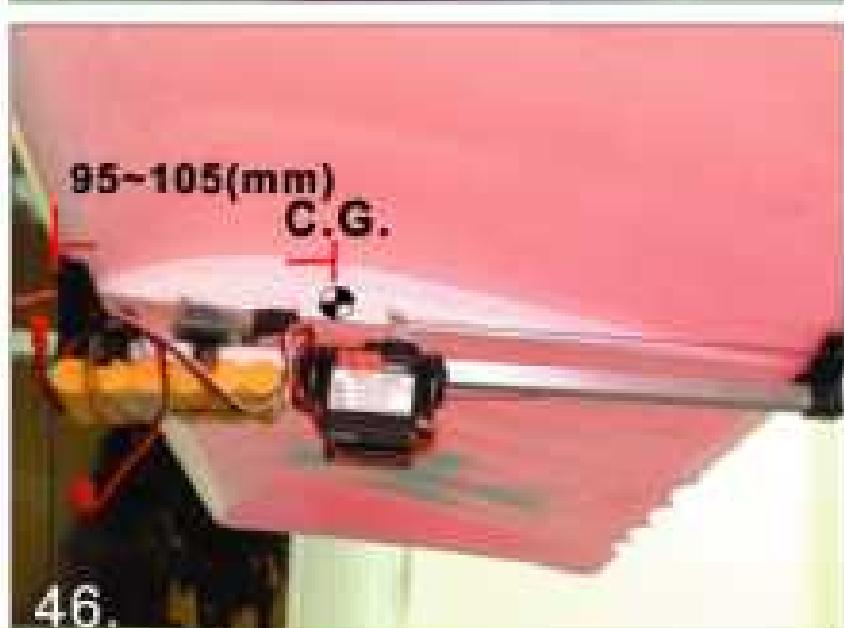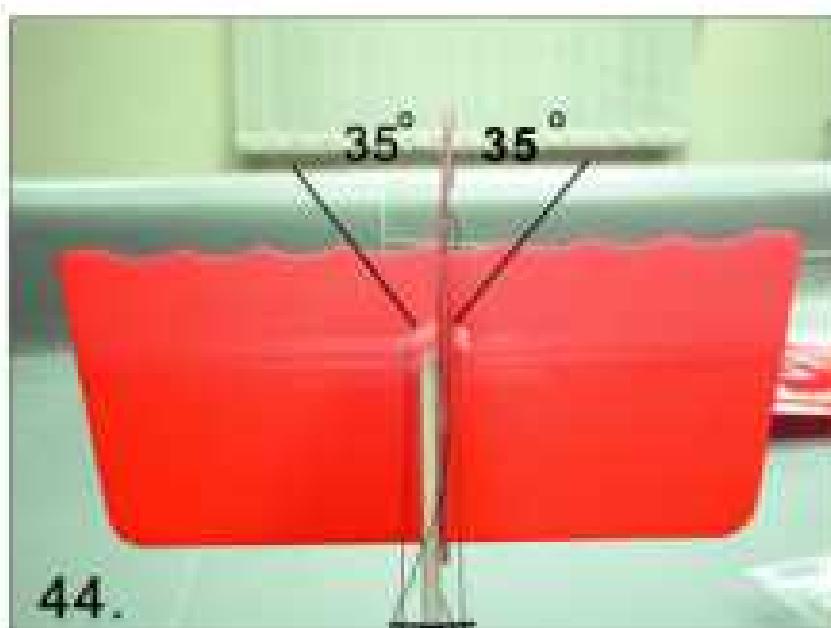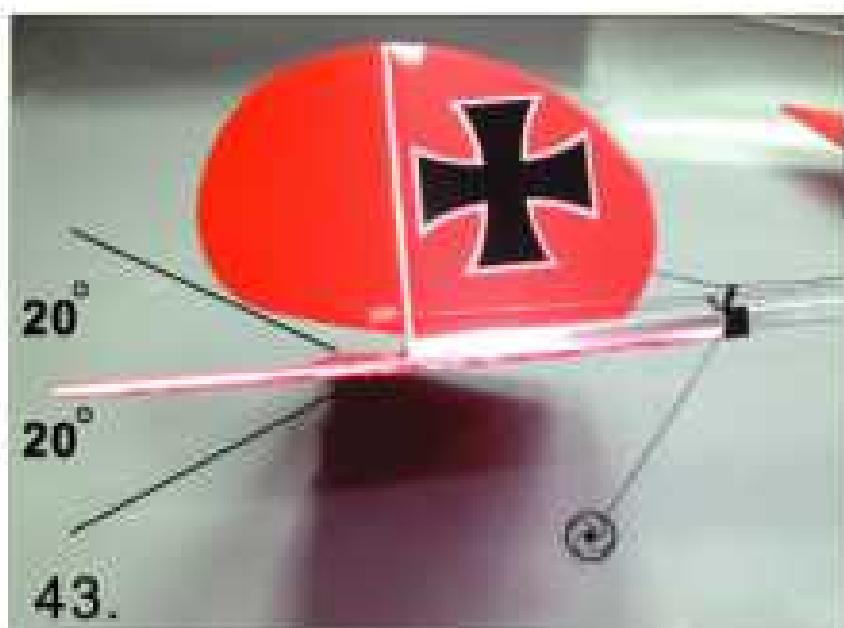
1. Adjust the elevator travel to 25° up and 20° down. (Pic.43)
2. Adjust the rudder travel to 35° both sides. (Pic.44)
3. Use multiple rubber bands to connect the wing to the fuselage. (Pic.45)
4. After the radio system is installed and the control travel has been set Adjust the CENTER OF GRAVITY (CG) By moving the battery mount and the servo mount forward or back until the plane balances at approximately 4 1/8" (105 mm) from the leading edge of the wing with the EPS150C or EPS300C power system.

For the EDP-400/EPS400 power system adjust the CG to approximately 3 3/4" (95mm) from the leading edge, you must move the wing forward or backward to achieve final balance. (Pic.46)

● 將昇降舵角度調整在上下各20°~25°。(圖.43)
● 將方向舵角度調整在左右各35°。(圖.44)
● 把兩條橡皮筋結合在一起，固定主翼和機身。(圖.45)
● 飛機重心如圖所標示。(圖.46)

RADIO GEAR INSTALLATION WIRING AND CONNECTION
發射機(遙控器)功能說明與調整設定

(GWS/JR/SANWA) RADIO SYSTEM 遙控系統

Ch1. Throttle 油門 (Electronic Speed Controller 電子變速器)
Ch2. Aileron 副翼
Ch3. Elevator 升降舵
Ch4. Rudder 方向舵 (Nose Steering 鼻輪轉向)

A.

(Futaba / Hitec) RADIO SYSTEM 遙控系統

Ch1. Aileron 副翼
Ch2. Elevator 升降舵
Ch3. Throttle 油門 (Electronic Speed Controller 電子變速器)
Ch4. Rudder 方向舵 (Nose Steering 鼻輪轉向)

B.
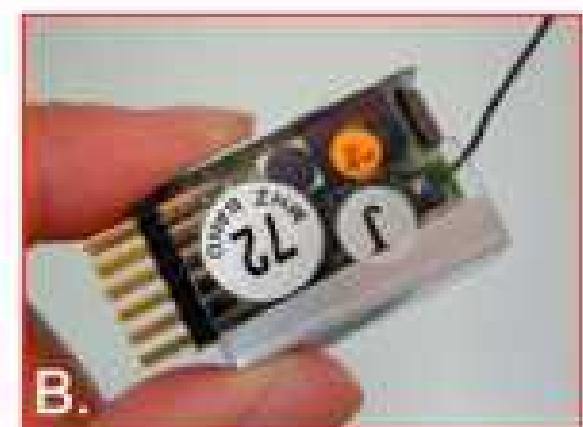
● Crystal installation. (Pic. A,B)
● 接線晶體的組裝。(圖. A,B)

SLOW STICK

Electric Accessories Wire Installation Diagram 參考線路配件圖：

CAUTION: Before installation, please read this instruction carefully. Please follow the above showing wire diagram to connect the wire and be sure the servos are in neutral position. When you are testing the servos, please do not connect motor wire and be sure to turn on transmitter first.

注意事項：（1）安裝前請先詳閱各元件使用說明。
　　　　　（2）安裝前請先依以上配置線路將伺服機中立點規正。
　　　　　（3）安裝伺服機測試前,請先不要接動力組電源,並請先開發射機電源,再接通接收機電源。

Indoor Power System
(動力系統)
EPS-150C / 300C / 400C
EDP-400C

Electronic Speed Controller
(電子變速器)
ICS-100 / ICS300 / ICS-400 above

2/3AA 270~400mAhor AA 600mAh 7.2V
(Ni-Cd)(鎳鎘) or (Ni-MH)(鎳氫)

GWS Battery
電池

紅線(+)
Red Wire(+)

Black Wire(-)
黑線(-)

GWS PICO Series Servos
RUDDER (方向舵) (GWS NARO/MICRO/MINI)

Propeller (螺旋槳)
EP-1280, EP-1180
EP-7035

Receiver (接收機)
R4P II / R6N II/ R6H II

GWS PICO Series Servos
ELEVATOR (升降舵) (GWS NARO/MICRO/MINI)

GLIDER VERSION ASSEMBLY
滑翔機版組裝設定
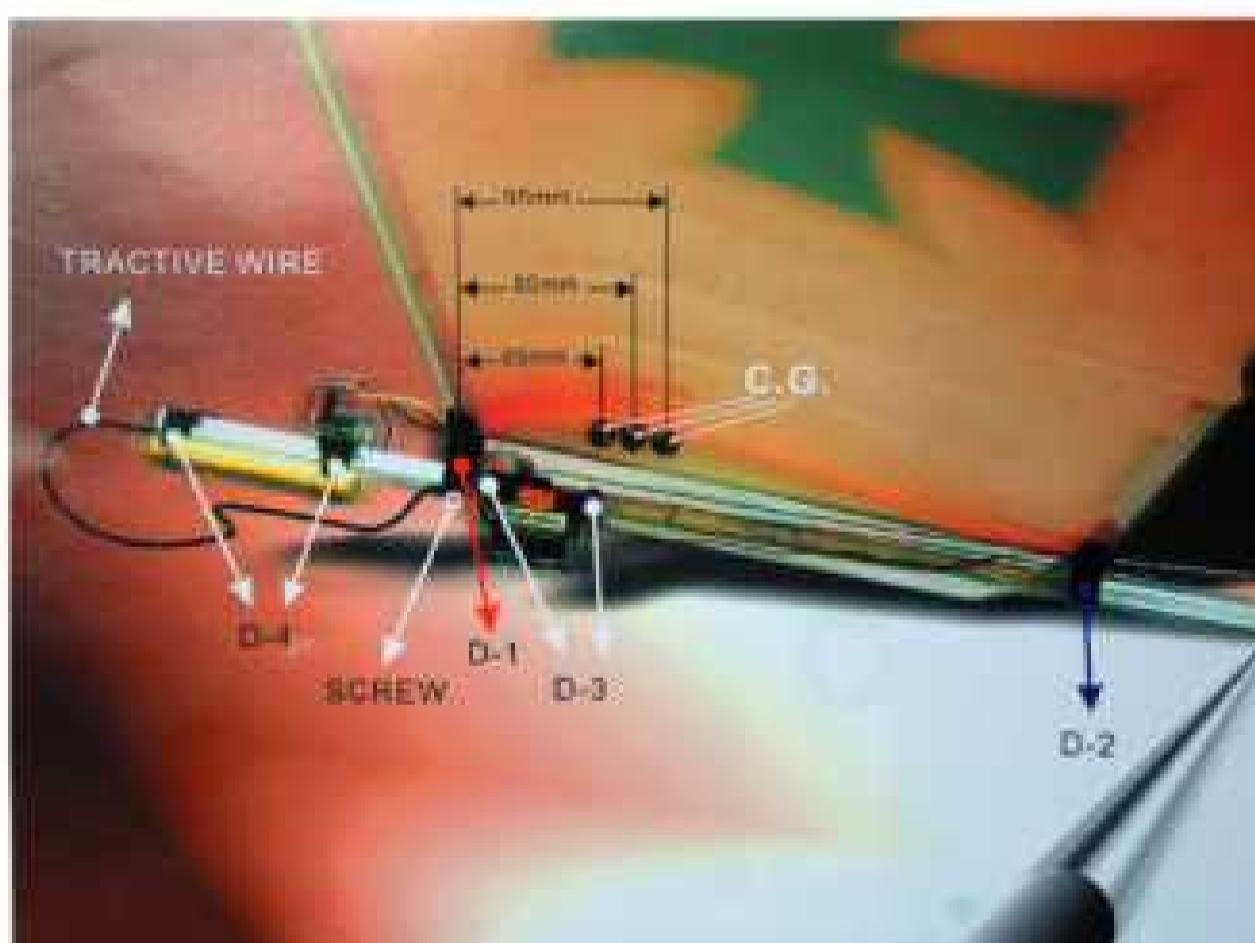
1. For the correct placement of parts, please refer to the scheme shown on the picture.
   Note : Do not cut anything from the push rod! You will need full length of the push rod.
2. Balance and battery pack location.
   a. You will need to move the C.G. position at 65 mm from the leading edge of main wing in strong wind.
   b. You may move the C.G. position at 80 mm from the leading edge of main wing in moderate breeze.
   c. We recommend that you will need to move the C.G. position at 95 mm from the leading edge, in gentle breeze.
   Note : The C.G. is very critical and it is important that you check and confirm the location for yourself before flying. Battery and other parts may affect this position.
3. We highly recommend GWS 4.8~6.0V AA 600 mAh Ni-Cd or Ni-MH battery.
   CAUTION! To prevent battery and equipment being damaged, do not use the power supply more than 6V.
4. You will need to fix the tractive wire with screws when you are launching your airplane by rope or elastic rubber band traction.

RADIO SETTING
遙 控 器 的 設 定

MODE 2
- The right side stick of the transmitter (elevator and aileron)
- The left side stick of the transmitter (throttle and nose steering)
ELEVATOR TEST
- Pull the stick backward, the elevator should flip up (pull-up).
- Push the stick forward, the elevator should flip down (pushing down).
- When the stick is in neutral, the elevator should return to neutral position.
AILERON TEST
- Move the stick to right, the right side aileron should flip up and the left side aileron should flip down.
- Move the stick to left, the right side aileron should flip down and the left side aileron should flip up.
- When the stick is in neutral, the two ailerons should return to neutral position.
THROTTLE TEST
- Pull the stick all the way backward and the trimmer at the 1/3 position, wait for 2 seconds.
- Slowly push the stick forward and the power system starts to run. Now push the throttle all the way forward and the motor should run at full throttle.
- Pull the stick all the way backward and the motor should stop.

MODE 1
- The right side stick of the transmitter (throttle and aileron)
- The left side stick of the transmitter (elevator and nose steering)
- If the control fin or throttle moves in the wrong direction, please switch the reverse on the transmitter.

模式一 (歐亞規格)
- 發射機右側操縱桿之功能爲：副翼和油門。
- 發射機左側操縱桿之功能爲：升降舵和方向舵(包含轉向輪)。
(副翼測試)：
- 操縱桿往右邊移動，飛機右邊的副翼應往上擺動，而左邊副翼向下擺動。
- 操縱桿往左邊移動，飛機右邊的副翼應向下擺動，而左邊副翼往上擺動。
- 操縱桿回到中立點時，兩邊的副翼應該都回到原來的位置。
(油門測試)：
- 操縱桿往後拉到底，微調於1/3的位置，等待2秒鐘。
- 慢慢的將操縱桿往前推，動力系統開始運轉。之後再推到最前方，動力系統達到最高轉速。
- 再將操縱桿往後拉到底，動力系統應該完全停止轉動。
(升降舵測試)：
- 操縱桿往後拉，升降舵應往上擺動。
- 操縱桿往前推，升降舵應向下擺動。
- 操縱桿回到中立點時，升降舵應該回到原來的位置。

模式二 (美規)
- 發射機右側操縱桿之功能爲：副翼和升降舵。
- 如果控制舵面或是油門動作不在正確的方向，請使用發射機上的正逆轉開關來校正。
- 發射機左側操縱桿之功能爲：油門和方向舵(包含轉向輪)。

(SUGGEST CONTROL THROW SETTING) 各 舵 面 行 程 大 小

(1)Elevator 升降舵

(2)Aileron 副翼

(3)Rudder 方向舵

SLOW STICK
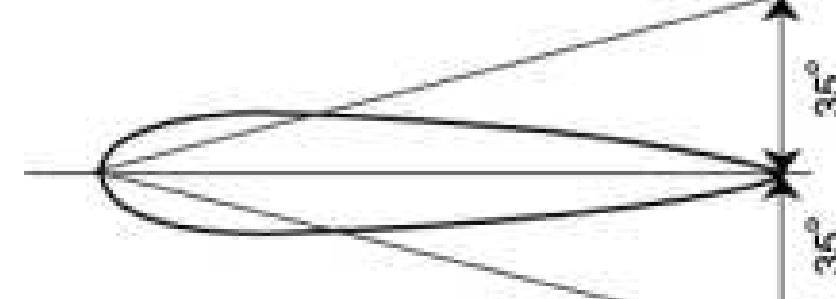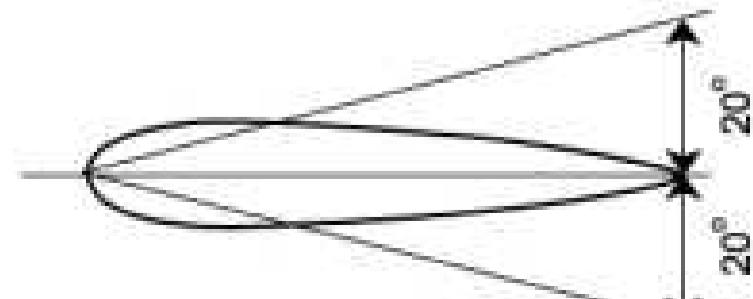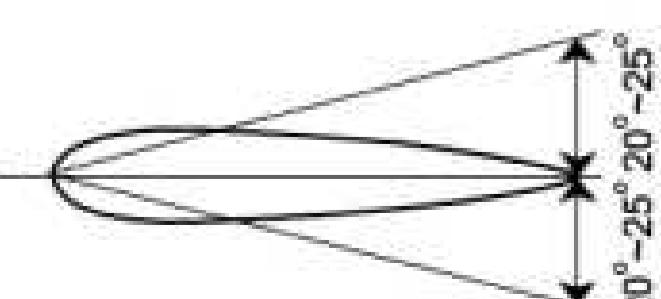
CAUTION:

1. It is best for you to fly your plane in a large open place.
2. Do not fly around restricted locations like airports, military bases, etc.
3. You will need to range check for the transmitter to be sure you will not experience any interference (If you are flying with other RC modeler at a field, do not turn on your transmitter until you are certain that no one else is using your channel)
4. Always turn on the transmitter first then turn on the receiver. Shut off the receiver first before turning off the transmitter.
5. If you are only a beginner to the radio control model flying, do not attempt to fly your model without any assistance or advice from advanced expert flyers.
6. Please refer to this instruction guide carefully and thoroughly before assembling equipment kits. Different power units and servos combination will lead to various flight performance. Remember the lighter the better.
7. Watch the wind direction.

Wind Direction

TAKE OFF

1. Apply full throttle to speed up the airplane against the wind.
2. Keep the tracking straight using the tail steering during the take-off.
3. Apply just a touch of up-elevator when the model reaches sufficient takeoff speed and the model lifts smoothly into the air.
4. Make the turn when the model is at a high altitude. Then the trim all control surfaces to achieve the level flight.

Wind Direction
LANDING

1. Gradually reduce the throttle during the final pattern for speed down the airplane.
2. Slightly touch up-elevator to maintain a smooth ratio of the descending process. Do not apply too much up-elevator otherwise the plane may go into a stall.
3. Make a final turn against the wind and heading to the runway.
4. When the altitude approximately 30cm from the ground, pull a little more up-elevator and let the airplane nose-up and touch- down.