

TREX 800E PRO DFC

INSTRUCTION MANUAL

使用說明書

RH80E10XT
RH80E12XT

ALIGN

Pure extreme **3D**
ultimate edition
純粹暴力3D血統



Contents	
1	INTRODUCTION 前言
1~2	SAFETY NOTES 安全注意事項
3	EQUIPMENT REQUIRED FOR ASSEMBLY 自備設備
3	PACKAGE ILLUSTRATION 包裝說明
4	MODEL STANDARD EQUIPMENT DIFFERENCE 標準配備版本說明
5	SAFETY CHECK BEFORE FLYING 飛行前安全檢查重要事項
6~16	ASSEMBLY SECTION 組裝說明
17	EQUIPMENT INSTALLATION 各項設備配置圖
18	BATTERY INSTALLATION ILLUSTRATION 電池安裝示意圖
18	ESC INSTALLATION 無刷調速器安裝
19	CANOPY ASSEMBLY 機頭罩安裝
20	ELECTRIC EQUIPMENT ILLUSTRATION 電子設備建議配置圖示
20~21	MICROBEAST PLUS FLYBARLESS MANUAL 無平衡翼系統使用說明
22	SERVO SETTING AND ADJUSTMENT 伺服器設定調整
22	ADJUSTMENTS FOR GYRO AND TAIL NEUTRAL SETTING 陀螺儀與尾翼中立點設定調整
23	PITCH AND THROTTLE SETTING 主旋翼螺距與油門設定
24	POWER COLLOCATION REFERENCE 原裝動力數據參考表
24	HOBBY WING PLATINUM HV 200A BRUSHLESS ESC 無刷調速器使用說明
26~28	FLIGHT ADJUSTMENT AND SETTING 飛行動作調整與設定
29	TROUBLESHOOTING 飛行中狀況排除



BEASTX

MICROBEAST PLUS
6-AXIS MEMS SENSOR SYSTEM FOR RC-MODELS


Thank you for purchasing Align products. Please read the manual carefully before installing and be sure to retain the manual for future reference. All pictures shown are for illustration purpose only. Actual product may vary due to product enhancement. Specifications, contents of parts and availability are subject to change, ALIGN RC is not responsible for inadvertent errors in this publications.

承蒙閣下選用亞拓遙控世界系列產品，謹表謝意。使用前，請務必詳閱本說明書，相信一定能夠給您帶來相當大的幫助，也請您妥善保管這本說明書，以做為日後參考。本公司將不對此印刷物之異動負責，也無法主動通知消費者任何更新或異動。所有圖片僅用於展示目的。產品可能因改良而有些不同。本說明書內記載的材質、規格或零件包裝之內容物如有異動，請依亞拓官網公告為主。

Thank you for buying Align products. The T-REX 800E PRO DFC helicopter is special edition for extreme 3D flight, as same as other TREX sibling, full featured Helicopter R/C model capable of all forms of rotary flight. Please read the manual carefully before assembling the model, and follow all precautions and recommendations located within the manual. Be sure to retain the manual for future reference, routine maintenance, and tuning. The T-REX 800E PRO DFC is a new product developed by ALIGN. It features the best design available on the Micro-Heli market to date, providing flying stability for beginners, full aerobatic capability for advanced fliers, and unsurpassed reliability for customer support.

感謝您選購亞拓產品，為了讓您容易方便的使用 T-REX 800E PRO DFC 直昇機，請您詳細的閱讀完本說明書之後再進行組裝以及操作這台直昇機，同時請您妥善的保存這本說明書，作為日後進行調整以及維修的參考。T-REX 800E PRO DFC 是由亞拓自行研發的新產品，不論是需求飛行穩定性的初學者或是追求性能的飛行愛好者，T-REX 800E PRO DFC 將是您最佳的選擇。

WARNING LABEL LEGEND 標誌代表涵義

	FORBIDDEN 禁止	Do not attempt under any circumstances. 在任何禁止的環境下，請勿嘗試操作。
	WARNING 警告	Mishandling due to failure to follow these instructions may result in damage or injury. 因為疏忽這些操作說明，而使用錯誤可能造成財產損失或嚴重傷害。
	CAUTION 注意	Mishandling due to failure to follow these instructions may result in danger. 因為疏忽這些操作說明，而使用錯誤可能造成危險。

IMPORTANT NOTES 重要聲明

R/C helicopters, including the T-REX 800E PRO DFC are not toys. R/C helicopter utilize various high-tech products and technologies to provide superior performance. Improper use of this product can result in serious injury or even death. Please read this manual carefully before using and make sure to be conscious of your own personal safety and the safety of others and your environment when operating all ALIGN products. Manufacturer and seller assume no liability for the operation or the use of this product. This product is intended for use only by adults with experience flying remote control helicopters at a legal flying field. After the sale of this product we cannot maintain any control over its operation or usage.

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

T-REX 800E PRO DFC 遙控直昇機並非玩具，它是結合了許多高科技產品所設計出來的休閒用品，所以商品的使用不當或不熟悉都可能會造成嚴重傷害甚至死亡。使用之前請務必詳讀本說明書，勿輕忽並注意自身安全。注意！任何遙控直昇機的使用，製造商和經銷商無法對使用者於零件使用的損耗異常或損壞不當所發生之意外負任何責任，本產品是提供給有操作過模型直昇機經驗的成人或有相當技術的人員在旁指導於當地合法遙控飛行場飛行，以確保安全無虞下操作使用，產品售出後本公司將不負任何操作和使用模型上的任何性能與安全責任。

做為本產品的使用者，您，是唯一對於您自己操作的環境及行為負全部的責任之人。

We recommend that you obtain the assistance of an experienced pilot before attempting to fly our products for the first time. A local expert is the best way to properly assemble, setup, and fly your model for the first time. The T-REX 800E PRO DFC requires a certain degree of skill to operate, and is a consumer item. Any damage or dissatisfaction as a result of accidents or modifications are not covered by any warrantee and cannot be returned for repair or replacement. Please contact our distributors for free technical consultation and parts at discounted rates when you experience problems during operation or maintenance. As Align Corporation Limited has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

模型商品屬於需高操作技術且為消耗性之商品，如經拆裝使用後，會造成不等情況零件損耗，任何使用情況所造成商品不良或不滿意，將無法於保固條件內更換新品或退貨，如遇有使用操作維修問題，本公司全省分公司或代理商將提供技術指導、特備零件供應服務。對使用者的不當使用、設定、組裝、修改、或操作不良所造成的破壞或傷害，本公司無法控制及負責。任何使用、設定、組裝、修改、或操作不良所造成的破壞、意外或傷害，使用者應承擔全部責任。

SAFETY NOTES 安全注意事項



- Fly only in safe areas, away from other people. Do not operate R/C aircraft within the vicinity of homes or crowds of people. R/C aircraft are prone to accidents, failures, and crashes due to a variety of reasons including, lack of maintenance, pilot error, and radio interference. Pilots are responsible for their actions and damage or injury occurring during the operation or as a result of R/C aircraft models.
- Prior to every flight, carefully check rotorhead spindle shaft screws and tail blade grip screws, linkage balls and screws, ensure they are firmly secured.
- 遙控模型飛機、直昇機屬高危險性商品，飛行時務必遠離人群，人為組裝不當或機件損壞、電子控制設備不良，以及操控上的不熟悉、都有可能導致飛行失控損傷等不可預期的意外，請飛行者務必注意飛行安全，並需了解自負疏忽所造成任何意外之責任。
- 每趟飛行前須仔細檢查，主旋翼夾座鎖能螺絲、尾旋翼夾座螺絲，以及機身各部位球頭、螺絲，確實上鎖觀察才能升空飛行。



LOCATE AN APPROPRIATE LOCATION 遠離障礙物及人群

R/C helicopters fly at high speed, thus posing a certain degree of potential danger. Choose a legal flying field consisting of flat, smooth ground without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others and your model. For the first practice, please choose a legal flying field. Do not fly your model in inclement weather, such as rain, wind, snow or darkness.

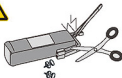
真蕩飛機飛行時具有一定的速度，相對的也潛在著危險性，機體的選擇也相對的重要，請嚴守當地法規到合法遙控飛行場地飛行。務必選擇在空曠合法專屬飛行場地，並必須注意周圍有行人、高樓、建築物、高壓電線、樹木等等，避免操控的不當造成自己與他人財產的損壞。請勿在下雨、打雷等惡劣天氣下操作，以確保本身及機體的安全。



NOTE ON LITHIUM POLYMER BATTERIES 鋰聚電池注意事項

Lithium Polymer batteries are significantly more volatile than alkaline or Ni-Cd/Ni-MH batteries used in RC applications. All manufacturer's instructions and warnings must be followed closely. Mishandling of Li-Po batteries can result in fire. Always follow the manufacturer's instructions when disposing of Lithium Polymer batteries.

鋰聚電池跟一般在RC使用的鹼性電池、鎳鎘電池、鎳氫電池比較起來是相對危險的。請嚴格遵守鋰聚電池說明書之使用注意事項，不恰當使用鋰聚電池，可能造成火災並損及生命財產安全，切勿大意！



PREVENT MOISTURE 遠離潮濕環境

R/C models are composed of many precision electrical components. It is critical to keep the model and associated equipment away from moisture and other contaminants. The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash. Do not operate or expose to rain or moisture.

真蕩機內部也是由許多精密的電子零件組成，所以必須絕對的防止潮濕或水氣，避免在浴室或雨天時使用，防止水氣進入機身內部而導致機件及電子零件故障而引發不可預期的意外！



PROPER OPERATION 勿不當使用本產品

Please use the replacement of parts on the manual to ensure the safety of instructors. This product is for R/C model, so do not use for other purpose.

請勿自行改造加工，任何的升級改裝或維修，請使用亞拓產品目錄中的零件，以確保結構的安全。請勿超越產品限界內操作，請勿過載使用，並勿用於安全、法令外其它非法用途。



OBTAIN THE ASSISTANCE OF AN EXPERIENCED PILOT 避免獨自操控

Before turning on your model and transmitter, check to make sure no one else is operating on the same frequency. Frequency interference can cause your model, or other models to crash. The guidance provided by an experienced pilot will be invaluable for the assembly, tuning, trimming, and actual first flight or unforeseen danger may happen. (Recommend you to practice with computer-based flight simulator.)

至飛機飛行前，需確認是否有相同頻率的同好正進行飛行，因為同頻相同速率的發射器都導致自己與他人立即墜于墜等意外危險。遙控飛機操控技巧在學習初期有著一定的難度，建議盡量避免獨自操作飛行，能有經驗的人在一旁指導，才可以讓操控人員，否則將可能造成不可預期的意外發生。(動線電腦模擬器及老手指導是入門必要的選擇)



SAFE OPERATION 安全操作

Make sure to always be aware to keep your eyes and body away from blades rotation. Do not attempt to grab or make contact with the helicopter while the main blades are in motion. During take-off, landing, and flight, be sure to keep the helicopter away from all obstacles. Operators must stand at least 10 meters away from the helicopter. Never take your eyes off the model or leave it unattended while it is turned on, and immediately turn off the model and transmitter when you have landed the model. Operate this unit within your ability, do not fly under tired condition, improper operation may cause in danger, and always to avoid injury caused by loose parts due to improper assembly or any unforeseen dangers.

請隨時注意，無論在任何時候，都不能將運轉中的旋翼對著眼睛，嚴禁用手抓取運行中的直昇機，當主旋翼轉動後，或起飛/降落時，務必遠離障礙物，站立位置必須距離10公尺以上，不可在視線範圍外進行飛行，降陸後也請馬上關掉遙控器及遙控器電源，操作適合自身體能需要，一定機控技術及能力，避免因人為組裝不當造成零件鬆動，而引發不可預期的財物及人員損壞，並請衡量自身情況，過於疲勞、精神不佳或不會操作，都可能引誘不可預期的意外發生。



ALWAYS BE AWARE OF THE ROTATING BLADES 遠離旋轉中零件

During the operation of the helicopter, the main rotor and tail rotor will be spinning at a high rate of speed. The blades are capable of inflicting serious bodily injury and damage to the environment. Be conscious of your actions, and careful to keep your face, eyes, hands, and loose clothing away from the blades. Always fly the model a safe distance from yourself and others, as well as surrounding objects.

直昇機主旋翼與尾旋翼運轉時會以高轉速下運行，在高轉速下的旋翼會造成自己與他人在身體上或環境上的嚴重損傷，請勿觸及運轉中的主旋翼與尾旋翼，並保持安全距離以避造成危險及損壞。








KEEP AWAY FROM HEAT 遠離熱源

R/C models are made of various forms of plastic. Plastic is very susceptible to damage or deformation due to extreme heat and cold climate. Make sure not to store the model near any source of heat such as an oven, or heater. It is best to store the model indoors, in a climate-controlled, room temperature environment.











遙控飛機多半是以 PA 纖維或聚乙稀、電子商品為主要材質，因此要盡量遠離熱源、日曬，以避免因高溫而變形甚至熔毀損壞的可能。



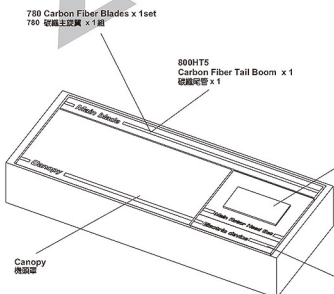
RADIO TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY 自備遙控及電子設備

  <p>Transmitter (6-channel or more, Helicopter system) 發射器 (六動以上直升機模式遙控器)</p>	  <p>or</p>  <p>Receiver(6-channel or more) 接收器 (六動以上)</p> <p>Remote Receiver 衛星天線</p>
  <p>or</p>  <p>Intelligent Balance Charger RCC-6CX 智慧型分壓充電器 RCC-6CX</p> <p>RCC-300 Intelligent Battery Charger RCC-300 智慧型充電器</p>	  <p>or</p>  <p>22.2V 6S 4500-5200mAh Li-Po Battery x 2 pcs 22.2V 6S 4500-5200mAh Li-Po 電池 x 2</p> <p>Receiver Battery 7.4V 2S 1900-2300mAh Li-Po x 1 pcs 接收器電池 7.4V 2S 1900-2300mAh Li-Po x 1</p>

ADDITIONAL TOOLS REQUIRED FOR ASSEMBLY 自備工具

 <p>[H70118] Swashplate Leveler 十字橫板正器</p>	 <p>[HET80001] AP800 Digital Pitch Gauge AP800 數位傾角規</p>	 <p>[HETMT901] Multi-function Tester 多功能測計</p>				
 <p>Phillips Screw Driver 十字螺絲起子 φ 3.0/ φ 1.8mm</p>	 <p>Cutter Knife 刀子</p>	 <p>Hexagon Screw Driver 六角螺絲起子 3mm/2.5mm/ 2mm/1.5mm</p>	 <p>Needle Nose Pliers 尖嘴鉗</p>	 <p>Oil 潤滑油</p>	 <p>CA Glue 瞬間膠</p>	 <p>Grease 潤滑油</p>

PACKAGE ILLUSTRATION 包裝說明



780 Carbon Fiber Blades x 1set
780 碳纖維皮翼 x 1 組


800HTS Carbon Fiber Tail Boom x 1
碳纖維尾管 x 1

Canopy
機頭罩

Optional Equipment 選購品

- Microbeast PLUS Flybarless System x 1 無平衡翼系統 x 1
- DS835M High Voltage Brushless Servo x 1 DS835M 高電壓無刷伺服器 x 1
- DS830M High Voltage Brushless Servo x 3 DS830M 高電壓無刷伺服器 x 3
- Hobby Wing Platinum HV 200A Brushless ESC x 1 Hobby Wing Platinum HV 200A 無刷调速器 x 1
- RCM-BL850MX (490KV/4535) Motor x 1 RCM-BL850MX (490KV/4535) 無刷馬達 x 1

Quick Finder
零件快速碼






















There are many versions of T-REX 800E PRO DFC for your choice. The Super Combo includes additional electronics and other equipment. The Instruction Manual will refer to the T-REX 800E PRO DFC Super Combo. You may purchase any additional items referenced in the instruction manual or any spare parts for other 800E PRO DFC version by referring to more product information in this manual.
















T-REX 800E PRO DFC系列商品有多種版本可作為選擇，除標準配備會因您購買的商品版本而有些微不同，在組裝、設定上都是一致的，在此我們以 Super Combo作為操作範例，您也可依照書面上的商品資訊來增添其他選購商品。



T-REX 800E PRO DFC SUPER COMBO STANDARD EQUIPMENT T-REX 800E PRO DFC SUPER COMBO 標準配備 [RH80E10XT]

 800HC2	 800FLH1	 800HB6	 700HB11A	 800HB8
 700HB13	 700HB14	 800HT1	 800HT8	 800HG1
 800HT5 Carbon Fiber Tail Boom x1 碳纖維尾管 X 1	 Repair Towel x 1 維修桌巾 X 1	 850MX Brushless Motor (490KV/4535) x 1 850MX 無刷馬達 (490KV/4535) x 1	 M4x4 Set Screw x 2 M4x4 止洩螺絲 x 2 Motor Slant Thread Pinion Gear 12T x 1 馬達斜齒輪 12T x 1	 Microbeast PLUS Flybarless System x 1 無平衡翼系統 x 1
 DS830M High Voltage Brushless Servo x 3 DS830M 高電壓無刷伺服器 x 3	 DS835M High Voltage Brushless Servo x 1 DS835M 高電壓無刷伺服器 x 1	 Platinum HV 200A Brushless ESC x 1 200A 無刷调速器 x 1	 800FLH4 780 Carbon Fiber Blades x 1set 780 碳纖維主旋翼 x 1組	

T-REX 800E PRO DFC KIT STANDARD EQUIPMENT T-REX 800E PRO DFC KIT 標準配備 [RH80E12XT]

 800HC2	 800FLH1	 800HB6	 700HB11A	 800HB8
 700HB13	 700HB14	 Repair Towel x 1 維修桌巾 X 1	 800HT1	 800HT8
 800HT5 Carbon Fiber Tail Boom x 1 碳纖維尾管 X 1	 800HG1	 850MX Brushless Motor (490KV/4535) x 1 850MX 無刷馬達 (490KV/4535) x 1	 M4x4 Set Screw x 2 M4x4 止洩螺絲 x 2 Motor Slant Thread Pinion Gear 12T x 1 馬達斜齒輪 12T x 1	 800FLH4 780 Carbon Fiber Blades x 1set 780 碳纖維主旋翼 x 1組

CAREFULLY INSPECT BEFORE REAL FLIGHT 請嚴格執行飛行前之檢查義務

- Before flying, please check to make sure no one else is operating on the same frequency for the safety.
- Before flight, please check if the batteries of transmitter and receiver are enough for the flight.
- Before turn on the transmitter, please check if the throttle stick is in the lowest position. IDLE switch is OFF.
- When turn off the unit, please follow the power on/off procedure. Power ON- Please turn on the transmitter first, and then turn on receiver. Power OFF- Please turn off the receiver first and then turn off the transmitter. Improper procedure may cause out of control, so please to have this correct habit.
- Before operation, check every movement is smooth and directions are correct. Carefully inspect servos for interference and broken gear.
- Check for missing or loose screws and nuts. See if there is any cracked and incomplete assembly of parts. Carefully check main rotor blades and rotor holders. Broken and premature failures of parts possibly cause a dangerous situation.
- Check all ball links to avoid excess play and replace as needed. Failure to do so will result in poor flight stability.
- Check if the battery and power plug are fastened. Vibration and violent flight may cause the plug loose and result in out of control.
- 每次飛行前應先確認所使用的頻率是否會干擾他人，以確保自身與他人的安全。
- 每次飛行前請確定您發射器與接收器電池的電量是在足夠飛行的狀態。
- 開機前請確認油门桿桿是否位於最低點，熄火降落開關，定速開關 (IDLE) 是否於關閉位置。
- 開機時必須遵守電源開機的程序，開機時應先開啟發射器後，再開啟接收器電源；關機時應先關閉接收器後，再關閉發射器電源。不正確的開關程序可能會造成失控的現象，影響自身與他人的安全，請養成正確的操作。
- 開機前請先確定直昇機的各個動作是否順暢，及方向是否正確，並檢查伺服器的動作是否有干涉或磨損的情形，使用故障的伺服器將導致不可預期的危險。
- 飛行前請確認沒有缺少或鬆脫的螺絲與螺帽，確認沒有組裝不完整或損毀的零件，仔細檢查主旋翼是否有損壞，特別是接近主旋翼夾座的部位。損壞或組裝不完整的零件不僅影響飛行，更會造成不可預期的危險。注意：每次飛行前的安全檢查、保養、及更換損耗零件，請確實嚴格執行以確保安全。
- 檢查所有的連桿頭是否有鬆脫的情形，過鬆的連桿頭應先更新，否則將造成直昇機無法操控的危險。
- 確認電池及電源接頭是否固定牢靠，飛行中的震動或激烈的飛行，可能造成電源接頭鬆脫而造成失控的危險。

When you see the marks as below, please use relative glue or grease to ensure flying safety.

標有以下符號之組裝步驟，請配合上膠或上油，以確保鎖劑對零件使用之可靠度。



- CA : Apply small amount of CA Glue to fix.
瞬結膠：使用適量瞬結膠固定
- R48 : Apply small amount of Anaerobic Retainer to fix.
缺氣膠：使用適量缺氣膠固定
- T43 : Apply small amount of Thread Lock to fix.
螺絲膠：使用適量螺絲膠
- OIL : Add small amount of OIL.
潤滑油：添加適量潤滑油
- Grease : Add small amount of Grease.
潤滑油：添加適量潤滑油

When assembling ball links, make sure the "A" character faces outside.

各項塑膠製連桿扣接時，"A"字請朝外。



Keep plastic parts away from heat.
塑膠零件避免接近熱源。



CA Glue
瞬結膠



Anaerobic Retainer
缺氣膠



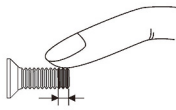
Thread Lock
螺絲膠



Grease
潤滑油



Oil
潤滑油



T43 Glue width : approx. 1mm
T43上膠寬度約 1mm

1. Anaerobic Retainer (R48) is green penetrating threadlocker and is used to fix the metal tube before assembly at temperatures up to +180°C.
2. Thread Lock (T43) is blue low strength threadlocker and is applied to the small screw (threads) or metal parts before assembly to prevent loosening. Ensure to apply only a small amount and wipe surplus off. When disassembling, recommend to heat the metal joint about 15 Seconds.
3. Grease is kind of lubricant additive which is applied to the one-way bearings or thrust bearing.

◎Based on parts physical attributes, please apply small amount of the relative glue or grease according to prevent any parts damage or loosening or unexpected danger happened.

1. 缺氣膠 (R48) 為綠色高強度快速固化的缺氣膠，適合於金屬管狀固定用，可耐高溫至 180°C。
2. 螺絲膠 (T43) 為藍色低強度螺絲膠，適合小型螺絲；使用於金屬內外件或膠合螺絲時，請務必適量使用，必要時請用手去除去多餘膠量，故拆卸時可於金屬接合部位熱烙約 15 秒。
3. 潤滑油 (Grease) 為膏狀潤滑油，適用於單向軸承或止推軸承。

◎上述各類膠(油)請依零件屬性需求自行準備並斟酌其用量，以達到最佳組裝狀態，避免因使用不當造成零件損壞或不可預期的意外發生。

800FLH1



Thrust Bearing
止推軸承 (φ 10.2x φ 18x5.5mm) x 2



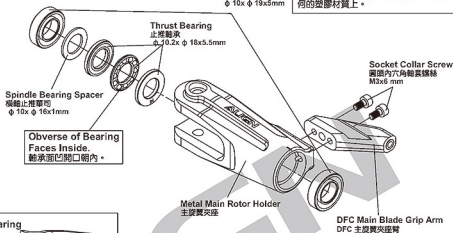
Bearing
軸承 (φ 10x φ 19x5mm) x 4



Spindle Bearing Spacer
橫軸止推墊圈 (φ 10x φ 16x1mm) x 2



Socket Collar Screw
圓頭內六角軸蓋螺絲 (M3x6mm) x 4



Apply a small amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用適量T43 (螺絲膠)。

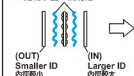
CAUTION
注意

Original manufacturer packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

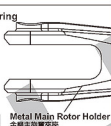
原裝零件出廠包裝如果是組裝品，請需再確認各標貼是否鎖緊上膠。請注意 T43 不可塗在任何的塑膠材質上。

CAUTION
注意

Apply Grease on Thrust Bearing
止推軸承塗上潤滑油



THRUST BEARING 止推軸承



Metal Main Rotor Holder
金屬主旋翼夾座

CAUTION
注意

Thrust bearing and washer for radial bearing are wear items; therefore, it is recommended to inspect after every 20 flights and replaced as necessary. For flights with high headspeed, the inspection interval should be reduced to ensure flight safety.

止推軸承及橫軸墊圈屬於飛行消耗品，建議每 20 趟定期檢查及更換，高主旋翼轉速飛行時，請縮短定期檢查之趟數，以確保飛行安全。

800FLH1



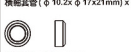
Spindle Bearing Spacer
橫軸止推墊圈 (φ 10x φ 16x1mm) x 2



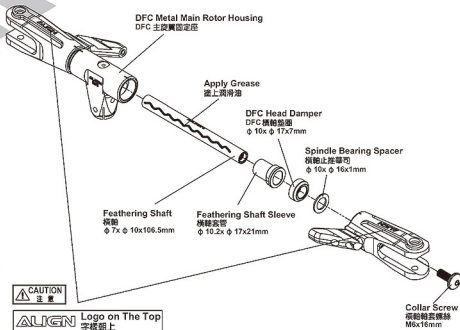
Collar Screw
橫軸蓋螺絲 (M6x16mm) x 2



Feathering Shaft Sleeve
橫軸套管 (φ 10.2x φ 17x21mm) x 2



DFC Head Damper
DFC 橫軸墊圈 (φ 10x φ 17x7mm) x 2



CAUTION
注意

ALIGN Logo on The Top
字樣朝上

Collar Screw
橫軸蓋螺絲
M6x16mm

800FLH5



Linkage Ball D (M3x3.5)
球頭D (M3x3.5) (φ 5x9.3mm) x 2



Linkage Ball B (M3x4)
球頭B (M3x4) (φ 5x12mm) x 2



Long Linkage Ball (M3x4)
導板長球頭 (M3x4) (φ 5x29mm) x 1



Original manufacturer packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原裝零件出廠包裝如果是組裝品，請確認每顆螺絲是否鎖緊上膠。

800FLH1



Bearing
軸承 (φ 3x φ 7x3mm) x 4



Main Rotor Griplinkage Bearing Sleeve
主旋翼連桿軸承套 (φ 3x φ 4.8x9.1mm) x 2



Socket Screw
圓頭內六角軸套螺絲 (M3x24mm) x 2



Washer
華司 (φ 3x φ 4.8x0.3mm) x 2



DFC Linkage Rod(A)
DFC 連桿 A (M3x29.3mm) x 2

700FLH8A



Socket Screw
圓頭內六角螺絲 (M4x8mm) x 2



Socket Collar Screw
圓頭內六角軸套螺絲 (M4x24mm) x 1



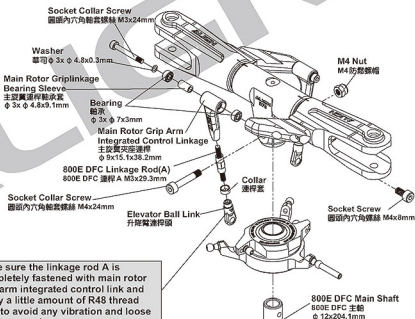
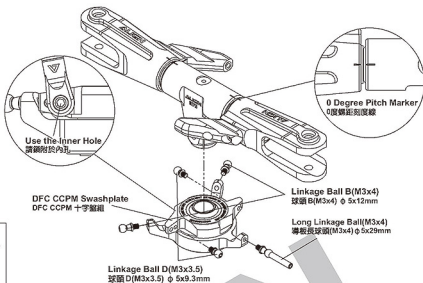
M4 Nut
M4 防鬆鎖帽 x 1

Already assembled by Factory. Before flying, please check if the screws are fixed with glue.
原裝組裝完成品，每一次飛行前請先確認螺絲是否已上膠不會鬆動。



You may adjust the length of ball link when tracking is off while flight.
若飛行中有變態情形，可適當調整連桿球頭長短改善。

Apply a small amount of T43 thread lock when fixing a metal part.
鎖絲鎖用於金屬件請使用適量 T43 (鎖絲膠)。



Make sure the linkage rod A is completely fastened with main rotor grip arm integrated control link and apply a little amount of R48 thread lock to avoid any vibration and loose fitted during flight and cause it breaks.
連桿 A 鎖入主旋翼夾座連桿須鎖緊並使用適量 R48 固定，避免飛行中的震動及鬆動，嚴重可能導致飛行中斷裂。

700FLH8A

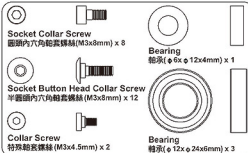


Elevator Ball Link
升降翼連桿頭 x 2

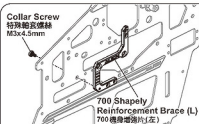
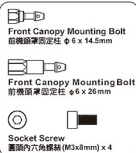


Collar
連桿套 x 2

800HB8



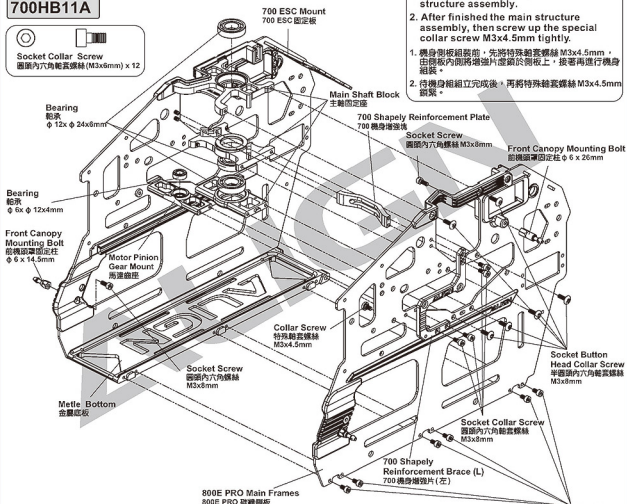
800HB7



- Before assemble the main structure, please roughly bolt the special collar screw M3x4.5mm inside the main frame, and then go into next process of main structure assembly.
- After finished the main structure assembly, then screw up the special collar screw M3x4.5mm tightly.

- 機身側板組裝前，先將特殊鉸套螺絲 M3x4.5mm，由側板內側將增強片虛鎖於側板上，接著再進行機身組裝。
- 待機身組立完成後，再將特殊鉸套螺絲 M3x4.5mm 鎖緊。

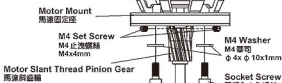
700HB11A



700HZ11



Make sure the motor mount is fully fastened before fasten the motor pinion gear mount.
先將馬達固定座鎖緊固定後，再將馬達齒座鎖緊。



Motor
馬達

Apply a small amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用適量 T43 (螺絲鎖)。



Original product packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

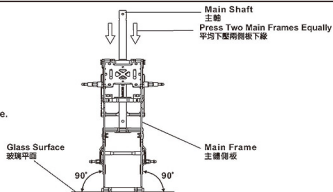
原裝零件出廠包裝如果是組裝品，請再確認各螺絲是否裝上鎖。請注意 T43 不可塗在任何的塑膠材質上。

**Main frame assembly key point :**

First do not fully tighten the screws of main frames and put two bearings through the main shaft to check if the movements are smooth. The bottom bracket must be firmly touched the level table top (glass surface) ; please keep the smooth movements on main shaft and level bottom bracket, then slowly tighten the screws. This assembly can help for the power and flight performance.

機身隔板組立重點：

隔板螺絲先不完全鎖緊，放入主軸貫穿二顆軸承確認上下移動必需滑順，主軸底板必須與水平桌面（玻璃平面）確實緊貼；請保持主軸滑順與底板水平桌面後慢慢鎖緊螺絲。正確剛板的組裝對動力與飛行性能有顯著幫助。

**700HB13**

Socket Button Head Self Tapping Screw
半透頭內六角自攻螺絲(T3x12mm) x 2

800HB7

Socket Collar Screw
圓頭內六角軸套螺絲(M3x6mm) x 6

Socket Screw
圓頭內六角螺絲(M3x20mm) x 2

700HB11A

Socket Screw
圓頭內六角螺絲(M3x10mm) x 4

700HG2A

M3 Washer
M3華司(φ3xφ8x1mm) x 4

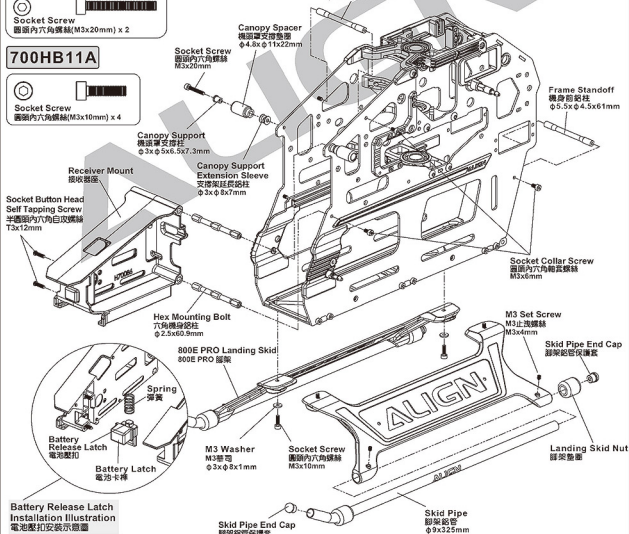
M3 Set Screw
M3止咬螺絲(M3x4mm) x 4

Apply a small amount of T43 thread lock when fixing a metal part.
螺絲鎖固於金屬件請使用適量T43(螺絲鎖)。



Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原廠零件出廠包裝如果是組裝品，請再確認各螺絲是否鎖緊上膠，請注意 T43 不可塗在任何的塑膠材質上。



Battery Release Latch Installation Illustration
電池壓扣安裝示意圖

700HZ9

Linkage Ball C
球頭 C(M2.5x3.5)(ϕ 5x8.5mm) x 1

Linkage Ball C
球頭 C(M2.5x4)(ϕ 5x12mm) x 3

700HB12

Socket Button Head Screw
半圓頭內六角螺絲 (M2.5x10mm) x 6

Apply a small amount of T43 thread lock when fixing a metal part.
鎖絲劑用於金屬件請使用適量 T43 (鎖絲膠)。

CAUTION
注意

Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原裝零件出廠包裝如果是組裝品，請再確認各螺絲是否綁緊上膠。請注意 T43 不可塗在任何的塑膠材質上。

DS830M High Voltage Brushless Servo
DS830M 高電壓無刷伺服器
Optional Equipment
選購品

CF Servo Plate
破爛伺服器墊片

Collar
銅套



D6FF Metal Servo Arm
D6FF 金屬伺服臂

Linkage Ball C
球頭 C(M2.5x3.5) ϕ 5x8.5mm

Socket Button Head Screw
半圓頭內六角螺絲 M2.5x10mm

Collar
銅套

DS830M High Voltage Brushless Servo
DS830M 高電壓無刷伺服器

Optional Equipment
選購品

Linkage Ball C
球頭 C(M2.5x4) ϕ 5x12mm

CF Servo Plate
破爛伺服器墊片

D6FF Metal Servo Arm
D6FF 金屬伺服臂



Socket Button Head Screw
半圓頭內六角白克螺絲 T2.6x12mm

D6FF Metal Servo Arm
D6FF 金屬伺服臂

Socket Button Head Screw
半圓頭內六角螺絲 M2.5x10mm



Linkage Ball C
球頭 C(M2.5x4) ϕ 5x12mm

CF Servo Plate
破爛伺服器墊片

Collar
銅套

DS830M High Voltage Brushless Servo
DS830M 高電壓無刷伺服器
Optional Equipment
選購品

- DS830M High Voltage Brushless Servo :
- 1.1520 μ s Standard Band / 1520 μ s 寬頻系統
 - 2.Stall Torque/輸出扭力 : 22.0kg.cm(7.4V)
23.0kg.cm(8.4V)
 - 3.Motion Speed/動作速度 : 0.060sec/60° (7.4V)
0.055sec/60° (8.4V)
 - 4.Dimension/尺寸 : 40 x 20 x 39mm
 - 5.Weight/重量 : 80g

800HB8



Collar Screw
特殊軸套螺絲 (M3x6.5mm) x 2

700HZ9



Linkage Ball C (M2x4)
球頭C (M2x4) (φ5x3mm) x 1



M2 Nut
M2螺帽 x 1

700HB13



Socket Button Head Screw
半圓頭內六角螺絲 (M2.5x10mm) x 4



Socket Button Head Screw
半圓頭內六角螺絲 (M2.5x6mm) x 4

700HZ11



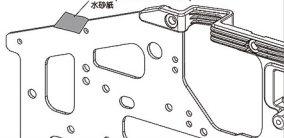
Washer
華司 (φ6xφ9x0.6mm) x 1

Recommend sanding the marked position as below illustration with a waterproof abrasive paper (#800-1000) to avoid the wires of electric parts to be cut.

建議於下面色塊標示處，使用#800-1000水砂紙打磨，可防止電子設備電線被割破。

Waterproof Abrasive Paper

水砂紙



CAUTION 注意

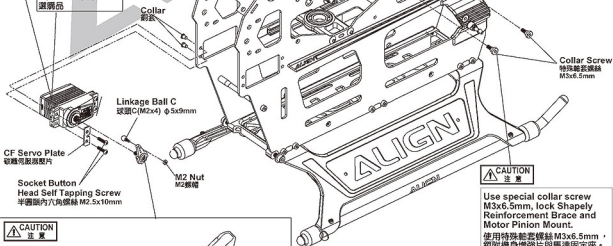
1. While assembling the motor mount, please make sure to properly loose M4 Set screw on 12T motor gear first, after fully fasten the motor mount with the motor pinion, then fasten back the M4 Set screw completely.
2. Make sure the motor mount is fully fastened before fasten the motor pinion gear mount.

1. 安裝馬達座時，請先將 12T 馬達齒主齒的 M4x4mm 止洩螺絲適當放鬆，當馬達固定座和馬達齒齒固定鎖好後，再將馬達止洩螺絲鎖緊。
2. 將馬達固定座鎖緊固定後，再將馬達齒座鎖緊。

- DS835M High Voltage Brushless Servo :
1. 1520 μs Standard Band / 1520 μs 寬頻系統
 2. Stall Torque / 輸出扭力 : 10.0kg.cm (8.4V)
12.5kg.cm (8.4V)
 3. Motion Speed / 動作速度 : 0.03sec/60° (7.4V)
0.028sec/60° (8.4V)
 4. Dimension / 尺寸 : 40 x 20 x 39.1mm
 5. Weight / 重量 : 72g

DS835M High Voltage
Brushless Servo
DS835M 高壓無刷電動機

Option Equipment
選購品



Apply a small amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用適量 T43 (鎖絲膠)。

CAUTION 注意

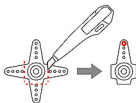
Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原裝零件出版包裝如果是組裝品，請確認再確認各螺絲是否鎖緊上鎖，請注意 T43 不可塗在任何的塑膠材質上。

CAUTION 注意

Please trim away the other servo horns, and fasten linkage ball on the outer hole.

請先將原附十字舵角片切除多餘的另三邊，並將球頭鎖附於最外孔。

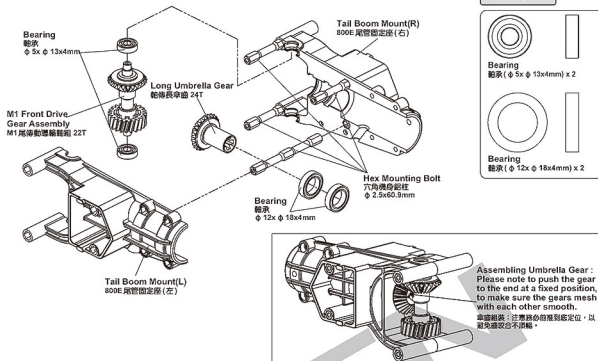


CAUTION 注意

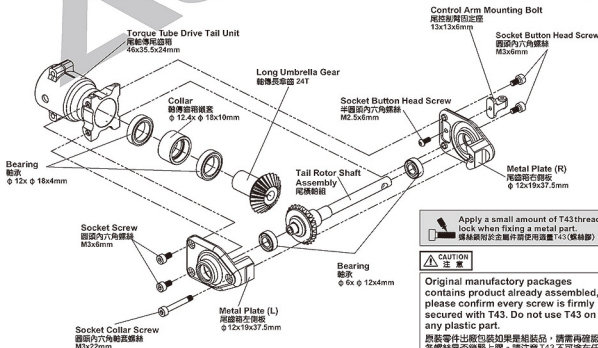
Use special collar screw M3x6.5mm, lock Shapely Reinforcement Brace and Motor Pinion Mount.

使用特殊軸套螺絲 M3x6.5mm，鎖附機身增強片與馬達齒座。

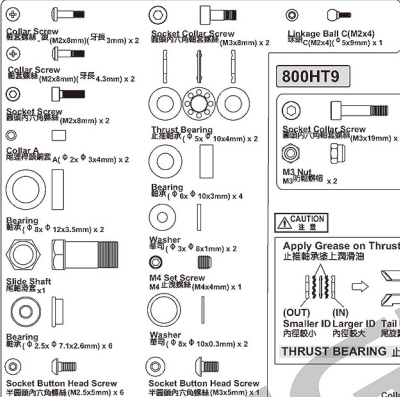
800HT1



800HT8



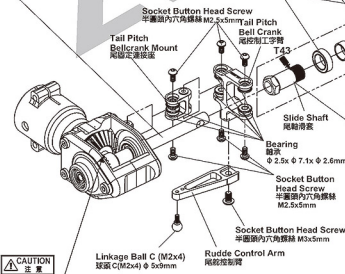
800HT8



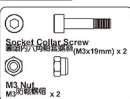
Please tighten M2x8mm collar screw firmly but not over tightened. Over tighten the screw will cause the operation of control link unsmoothly.
 鎖附 M2x8mm 軸套螺絲請使用適當力道，過度鎖緊會造成尾座控制桿轉動不順。



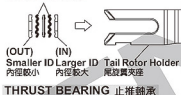
Aim tail rotor hub at the concave of tail rotor shaft and fix it, please apply a little glue on the set screw.
 尾座鋼 T 型座與尾槳軸的凹型對準上，請確認止退螺絲上膠。



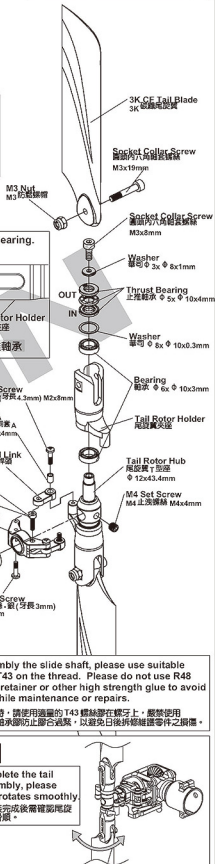
800HT9



Apply Grease on Thrust Bearing.
 止推軸承塗上潤滑油



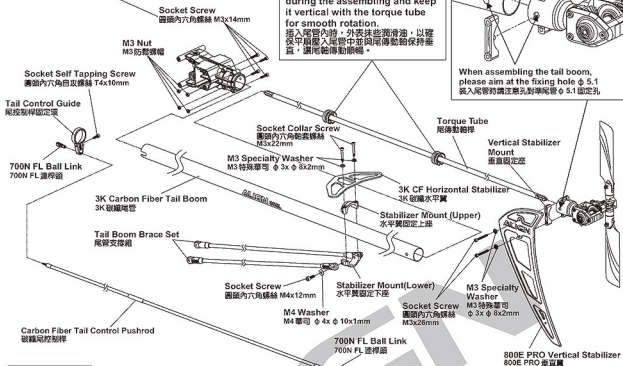
Apply a small amount of T43 thread lock when fixing a metal part.
 螺絲鎖附於金屬件請使用少量 T43 (螺絲膠)。



Already assembled by factory, please note to check again.
已組裝完成，請務必自行再檢查。

When assembling into the tail boom, please apply some oil on the surface, to make it smooth during the assembling and keep it vertical with the torque tube for smooth rotation.
插入尾管內時，外表抹些潤滑油，以確保平滑順入尾管中並與尾傳動軸保持垂直，讓尾傳動軸順暢。

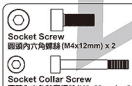
When assembling the tail boom, please aim at the fixing hole $\phi 5.1$ 插入尾管時請注意孔對準尾管 $\phi 5.1$ 固定孔。



700NT1A



800HT4A

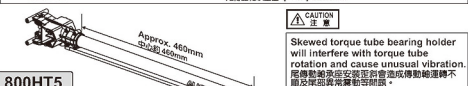
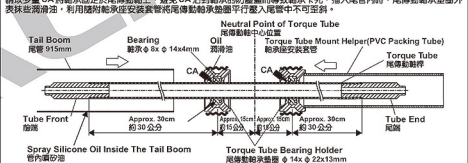


800HT8



TIP TO FIX THE TORQUE TUBE 傳動軸軸承固定位置

Please apply some CA glue to fix bearing on the torque tube, avoid CA glue from the dust or may cause the bearing stuck. When assembling into the tail boom, please apply some oil and use the attached torque tube mount helper to press the bearing holder of the torque tube into the tail boom horizontally.
請以少量CA將軸承固定於尾傳動軸上，避免CA達到軸承的防護層而導致軸承卡死，插入尾管內時，尾傳動軸承墊圈外表抹些潤滑油，利用隨附軸承安裝套將尾傳動軸承墊圈平行壓入尾管中不可歪斜。



800HT5



800HT6



CAUTION 注意

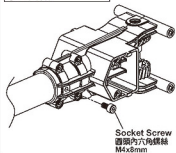
After moving the tail control rod adjustment sleeve to recommended position, glue the sleeve to carbon tail control rod with instant glue.
尾控制桿固定環調整至建議位置後，再將尾控制桿固定環套與破繭尾桿按接面以速凝膠固定。

Apply a small amount of T43 thread lock when fixing a metal part.
 螺絲鎖附於金屬件請使用適量T43(螺絲膠)

700HB12

Socket Button Head Screw
 半圓頭內六角螺絲 (M3x14mm) x 2

Tail Boom Fixing Screw 尾管固定螺絲



DFC Metal Anti Rotation Bracket
 DFC 十字翼傳板

Socket Button Head Collar Screw
 半圓頭內六角輪套螺絲
 M3x8mm

Socket Button Head Screw
 半圓頭內六角螺絲 M3x14mm

M4 Washer
 M4 華冠
 $\phi 4 \times \phi 10 \times 1 \text{mm}$

Socket Screw
 圓頭內六角螺絲 M4x14mm

700NT1A

Socket Screw
 圓頭內六角螺絲 (M4x8mm) x 1

Socket Button Head Collar Screw
 半圓頭內六角輪套螺絲 (M3x8mm) x 8

700HB11A

Socket Screw
 圓頭內六角螺絲 (M4x14mm) x 2

M4 Washer
 M4 華冠 ($\phi 4 \times \phi 10 \times 1 \text{mm}$) x 2

700HB14

Bearing
 軸承 ($\phi 15 \times \phi 21 \times 4 \text{mm}$) x 2

One-way Bearing
 單向軸承 ($\phi 15 \times \phi 23 \times 11 \text{mm}$) x 1

Spacer
 700 墊向薄片
 $\phi 18 \times \phi 22.7 \times 0.7 \text{mm}$ x 1

Socket Screw
 圓頭內六角螺絲 (M2.5x8mm) x 6

Socket Screw
 圓頭內六角螺絲 M3x8mm

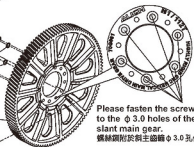
Washer
 華冠 $\phi 3 \times \phi 4.8 \times 0.6 \text{mm}$ x 6

CNC Slant Thread
 Main Drive Gear
 CNC 斜主齒 112T

One-way Bearing Cover
 單向軸承上蓋
 $\phi 21 \times \phi 15.8 \times 26 \text{mm}$

Washer
 華冠 $\phi 5 \times \phi 4.8 \times 0.6 \text{mm}$ x 6

Socket Screw
 圓頭內六角螺絲 (M3x8mm) x 6



One-way Bearing Shaft
 單向軸承外殼
 $\phi 12 \times \phi 15 \times 41.5 \text{mm}$

Spacer
 700 墊向薄片
 $\phi 18 \times \phi 22.7 \times 0.7 \text{mm}$

Bearing
 軸承 $\phi 15 \times \phi 21 \times 4 \text{mm}$

One-way Bearing
 單向軸承 $\phi 15 \times \phi 23 \times 11 \text{mm}$

Please note the direction of bearing.
 請注意軸承方向

One-way Bearing Collar
 單向軸承外環
 $\phi 6 \times \phi 23 \times 11.6 \text{mm}$

Apply Grease
 塗上潤滑油

One-way Bearing Mount
 單向軸承下座
 $\phi 21 \times \phi 6.5 \times 33.1 \text{mm}$

M1 Autorotation
 Tail Drive Gear Set
 M1 尾驅動主齒組 104T

Socket Screw
 圓頭內六角螺絲
 M2.5x8mm

CAUTION 注意

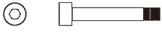
Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.
 原裝零件出廠包裝如果是組裝品，請再確認各螺絲是否鎖緊上膠。

Before tightening the screw, please rotate the bearing and check the concentricity of the bearing in order to have the screw firmly secured, to avoid the bearing stuck or heavy load at one side and cause slip.

上緊螺絲前需試轉動滾動軸承同心度良好後，才能將螺絲平均鎖緊，以避免造成卡死或單向重負載可能產生的打滑。

700FLH8A

Main Blade Fixing Screw 鎖主旋翼用螺絲



Socket Collar Screw 鎖頭內六角軸套螺絲 (M5x32mm) x 2



M5 Nut M5 防鬆螺帽 x 2

When tightening the main blade fixing screw, please tighten it firmly, but not over tighten, or it may cause the damage of main blade holder and result in danger.

鎖主旋翼螺絲時請注意適當緊度即可，過緊可能導致主旋翼夾座受損，飛行意外發生。

Socket Collar Screw 鎖頭內六角軸套螺絲 M5x32mm

800HB5



Socket Collar Screw 鎖頭內六角軸套螺絲 (M4x27mm) x 1



M4 Nut M4 防鬆螺帽 x 1

800FLZ1



Elevator Ball Link 升降桿連桿頭 x 4



Collar 連桿套 x 4



DFC Linkage Rod(B) DFC 連桿 B (M3x47mm) x 2

780 Carbon Fiber Blades 780 碳纖維主旋翼

DFC Linkage Rod(B) DFC 連桿 B M3x47mm

Collar 連桿套

Elevator Ball Link 升降桿連桿頭

Standard Equipment:

Main Shaft Spacer(1)
標準品：主軸墊片 (1) $\phi 12 \times \phi 16 \times 1 \text{mm}$

Spare part: Main Shaft Spacer(1.2)
Main Shaft Spacer(0.8)
Main Shaft Spacer(0.5)

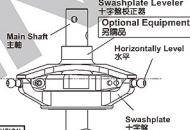
備品：主軸墊片 (1.2) $\phi 12 \times \phi 16 \times 1.2 \text{mm}$
主軸墊片 (0.8) $\phi 12 \times \phi 16 \times 0.8 \text{mm}$
主軸墊片 (0.5) $\phi 12 \times \phi 16 \times 0.5 \text{mm}$

Linkage Rod(B)
Approx. 63.2mm x 3
連桿B約 $\phi 3.2 \text{mm} \times 3$

47mm

32.6mm

[H70118] Swashplate Leveler 十字撥校正器



While using Flybarless system, please use the swashplate leveler to calibrate swashplate. Adjust the length of servo linkage rod to make sure the swashplate is leveled before start setting up to ensure the gyro provides the best performance.

使用無平衡系統，請務必使用十字撥調整器校正十字盤，調整伺服連桿長度，確保十字盤達到水平狀態，再進行基本機組設定，這樣才能確保飛行性能達到最佳效果。

M1 Slant Thread Main Drive Gear Set M1 斜主齒輪組



Socket Collar Screw 鎖頭內六角軸套螺絲 M4x27mm

M4 Nut M4 防鬆螺帽

The lower edge of main gear need to be lined up with lower edge of pinion gear. This will ensure smooth meshing, and avoid interference between pinion's base and main gear which can lead to unusual wear.

馬達齒下緣必須與主齒輪下緣水平對齊，如此才能確保齒輪咬合順暢，避免馬達主齒輪與新安裝主齒輪產生異常干涉磨損。



Washer 碟墊片 $\phi 6 \times \phi 9 \times 0.6 \text{mm}$

Apply a small amount of T43 thread lock when fixing a metal part.
螺絲鎖附於金屬件時請使用適量 T43 (螺絲鎖)。



Original manufacturer packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原裝零件出廠包裝如果是組裝品，請再確認各螺絲是否鎖緊上膠。請注意 T43 不可塗在任何的塑膠材質上。

MOUNTING ORIENTATION OF MICROBEAST PLUS MICROBEAST PLUS 的安裝方向



Please visit Align download area to get the completed instruction manual at Align website.

更多詳細的設定操作說明請至官網下載專屬下載。
<http://www.align.com.tw/beastx/>

Microbeast PLUS provides 8 different direction choices can be installed on any position of helicopter.

Microbeast PLUS 提供 8 種不同方向選擇，可以安裝在機體的任何一個位置。

THE COLOR OF THE STATUS-LED SHOWS THE CURRENTLY SELECTED ORIENTATION:
LED 指示燈狀態顯示安裝方向：



Status LED Off*
Status-LED 燈熄滅*



Status LED Flashing Purple
Status-LED 燈
紫色閃爍



Status LED Purple
Status-LED 燈
紫色



Status LED Flashing Red
Status-LED 燈
紅色閃爍



Status LED Red
Status-LED 燈
紅色



Status LED Flashing Blue
Status-LED 燈
藍色閃爍



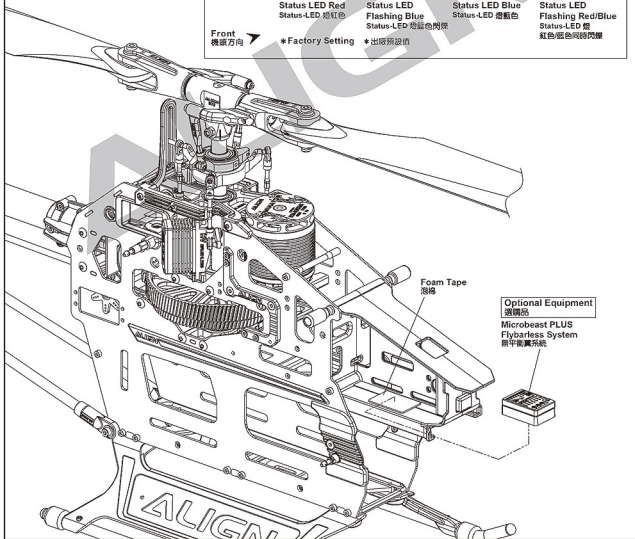
Status LED Blue
Status-LED 燈
藍色



Status LED Flashing Red/Blue
Status-LED 燈
紅色藍色同時閃爍

Front
機頭方向

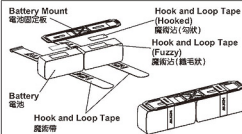
* Factory Setting * 出廠預設值





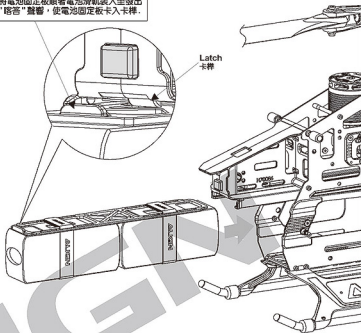
Please fix the 2 batteries on the battery mount evenly.

2顆電池請平均固定於電池板上。



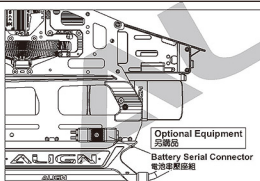
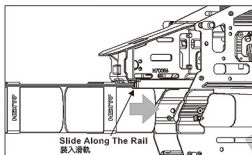
Slide the battery mounting plate along the rail until a "click" is heard to make sure the battery mounting plate is latched.

將電池固定板順著電池滑軌裝入至發出“喀嗒”聲響，使電池固定板卡入卡榫。

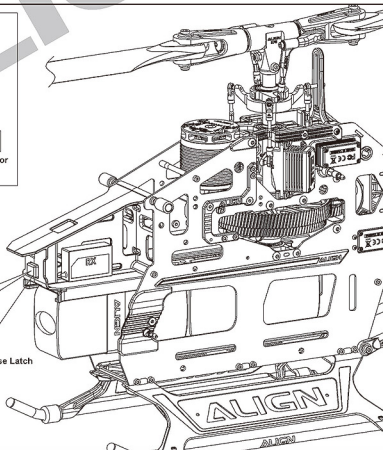
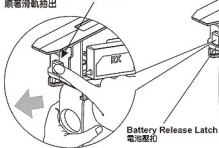


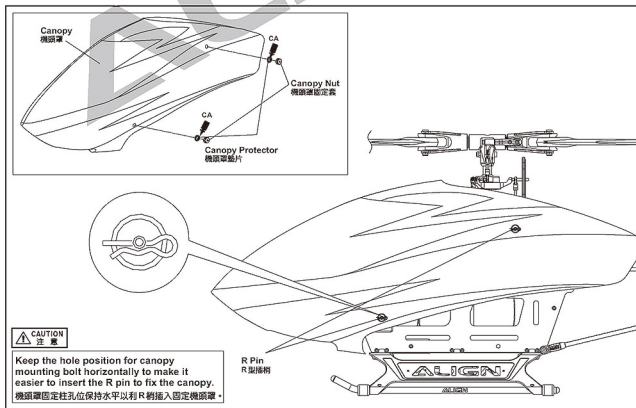
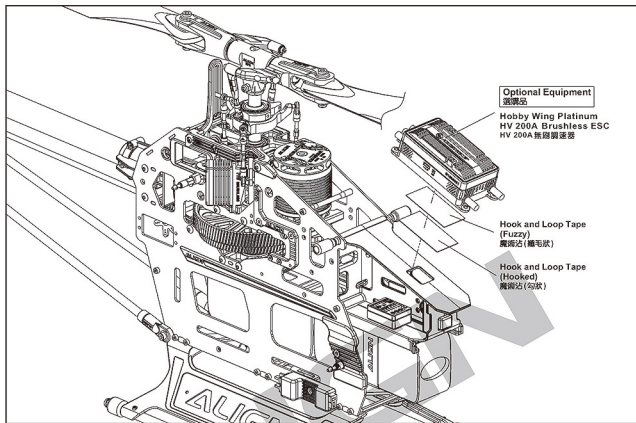
INSERT THE BATTERY FROM THE FRONT

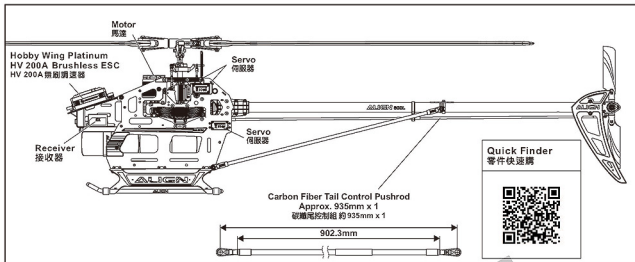
電池從前方置入



Press this latch to allow the battery to slide out along the rail.
電池抽出前請先將電池壓扣往內壓，順著滑軌抽出。







MICROBEAST PLUS FLYBARLESS MANUAL

無平衡翼系統使用說明

ALIGN helicopter must equip with Flybarless System, please refer to ALIGN Helicopter standard equipment for flight and setup instruction in this manual.

ALIGN helicopter 須搭配無平衡翼系統，請使用 ALIGN 直升機標準配件與飛行操作、設定指示。

USER NOTICE 使用注意事項



1. If assembling and operating the helicopter without using ALIGN standard equipment, including electronic equipment & blades...etc, please make sure there is a sufficiently large and stable power supply to your helicopter. If any abnormal voltage or insufficient power supply, suggest to upgrade the flybarless system to MICROBEAST PLUS HD (Optional) for better power back up.
 2. Please refer to BEASTX MICROBEAST PLUS/HD website for MICROBEAST PLUS/HD assembly and setup instruction.
 3. Any over use, incorrect setup, assembly, modification or misuse will lead to abnormal voltage, electronic devices damage, structural interference, and insufficient power supply. Make sure to carefully check every assembly and setup refer to the manual instruction prior to every flight to prevent any unforeseen danger.
1. 安裝、操控您的直升機時，如非使用 ALIGN 標準配件 (含電子配件、主旋翼等)，請務必確定您的供電系統有足夠的供電能力，如發現電壓異常、供電不足，建議您升級使用 MICROBEAST PLUS HD 無平衡翼系統 (選配)，以能確保充足、穩定的接收器電壓。
 2. MICROBEAST PLUS/HD 使用、設定、接線，請參照 BEASTX MICROBEAST PLUS/HD 官方說明。
 3. 任何電子配件、零件的設定、組裝、修改或操作不良所造成的電壓異常、電子零件損壞，即可能造成供電不穩定等問題，每趟飛行前須注意仔細檢查，防止機件及電子零件故障而引發不可預期的意外。

MANUAL LINK 設定操作連結

MICROBEAST PLUS Flybarless System is the V4.2 version out of the factory, please feel at ease using it. You can also link to BEASTX MICROBEAST PLUS/HD website to get the latest version and the latest news. And please refer to MICROBEAST PLUS V3.2.x and V4.1.5 instruction manual for operating and setting.

MICROBEAST PLUS 無平衡翼系統，出廠時主程式為 V4.2 版本，您也可以連結至 BEASTX MICROBEAST PLUS/HD 官網查詢，隨時更新最新版本及各項最新訊息。操作設定請同時參照 V3.2.x 版及 V4.2 版使用說明書。



Please visit Align download area to get the completed instruction manual at Align website.

更多詳細的設定操作說明請至官網下載專區下載。
<http://www.align.com.tw/beastx/>



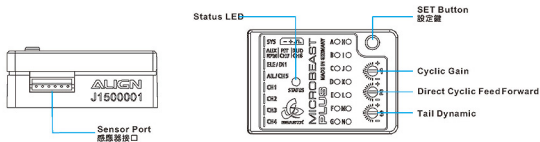
MICROBEAST PLUS

FLYBARLESS SYSTEM PCB FOR MICROBEAST PLUS

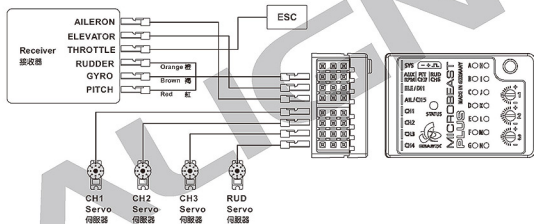
Optional Equipment
選購品

PARTS IDENTIFICATION 各部位名稱

MICROBEAST PLUS FLYBARLESS SYSTEM 無平衡翼系統



MICROBEAST PLUS FLYBARLESS SYSTEM WIRING DIAGRAM 無平衡翼系統接線示意圖



For detail connectivity, please scan QR Code then follow MICROBEAST PLUS manual.

詳細接線方式，請掃描QR Code連結至MICROBEAST PLUS說明書。



MICROBEAST PLUS HD Flybarless System (Optional) MICROBEAST PLUS HD 無平衡翼系統 (選配)



Optional Equipment
選購品

If assembling and operating the helicopter without using ALIGN standard equipment, including electronic equipment & blades...etc, please make sure there is a sufficiently large and stable power supply to your helicopter. If there is any abnormal voltage or insufficient power supply, suggest to upgrade the flybarless system to MICROBEAST PLUS HD (Optional) for better power backup. Please refer to BEASTX website for MICROBEAST PLUS HD assembly and setup instruction.

安裝、操作您的直升機時，如不使用ALIGN標準配件(含電子配件、主旋翼等)，請務必確定您的供電系統有足夠的供電能力，如發現電壓異常、供電不足，建議您升級使用MICROBEAST PLUS HD無平衡翼系統(選配)，以確保充足、穩定的接收器電源。MICROBEAST PLUS HD使用、設定、接線，請參照MICROBEAST PLUS HD官方說明。

To set this option is to turn on the transmitter and connect to BEC power.

Note: For the safety, please do not connect ESC to the brushless motor before the setting in order to prevent any accident caused by the motor running during the setting.

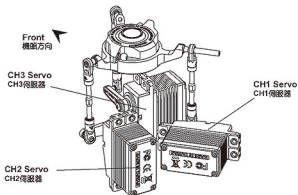
此項設定只適用於發射器，接上BEC電源即可進行操作。

注意：為了安全起見，設定前請先不要將解刷調速器與無刷馬達三條線接上，以免調整時啟動馬達而發生危險。

SERVO CONFIGURATION 伺服器配置

Following the servo configuration diagram on right, plug the servos to Gyro.

請依照右圖標示的伺服機名稱，將伺服機接到陀螺儀。



ADJUSTMENTS FOR GYRO AND TAIL NEUTRAL SETTING

陀螺儀與尾翼中立點設定調整

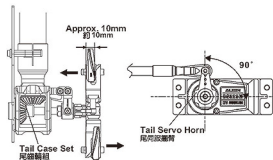
Turn off Revolution mixing (VMX) mode on the transmitter, then set the gain switch on the transmitter and the gyro to non-head lock mode, or disable gain completely. After setting the transmitter, connect the helicopter power and proceed with rudder neutral point setting. **Note:** When connecting to the helicopter power, please do not touch tail rudder stick and the helicopter, wait for 3 seconds for gyro to enable, and the rudder servo horn should be 90 degrees to the tail servo. Tail pitch slider should be half way on the tail output shaft. This will be the standard rudder neutral point. After completing this setting, set the gain switch back to heading lock mode, with gain at around 70%.

發射器內陀螺儀設定請關閉根據定模式，並將發射器上的感度開關與陀螺儀切至“非鎖定模式”或將感度開關關閉。發射器設定完成後接上面機電源，即可進行尾舵中立點設定。注意：當接上面機電源時請勿碰動尾舵搖桿或磁鐵機體，待3秒陀螺儀開機完成後，尾向舵臂需與尾向伺服器約成90度，尾舵翼控制組須正確置於尾橫軸中間位置，即為標準尾舵中立點設定，設定完成後，切換至“鎖定模式”，感度設約70%左右。

TAIL NEUTRAL SETTING 尾中立點設定

After the gyro is enable and under non-head lock mode, correct setting position of tail servo and tail pitch assembly is as photo. If the tail pitch assembly is not in the middle position, please adjust the length of rudder control rod to trim.

陀螺儀開機後，在非鎖定模式下，尾向伺服器與尾Pitch控制組正確擺置位置。若尾Pitch控制組未置中時請調整尾舵控制桿的長度來修正。

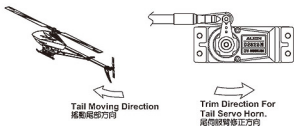


HEAD LOCK DIRECTION SETTING OF GYRO

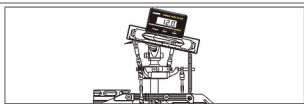
陀螺儀鎖定方向設定

To check the head lock direction of gyro is to move the tail clockwise and the tail servo horn will be trimmed counterclockwise. If it trims in the reverse direction, please switch the gyro to "REVERSE".

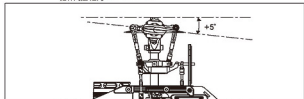
陀螺儀鎖定方向確認，當手搖尾部順時鐘擺動，尾向舵臂應逆時鐘修正，反向時請切換陀螺儀上“鎖定反向”開關修正。



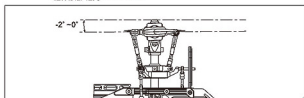
GENERAL FLIGHT 一般飛行模式



Stick Position at High/Throttle 100%/Pitch+12°
搖桿高速/油門100%/Pitch+12°

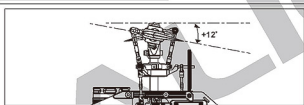


Stick Position at Hovering/Throttle 70%/Pitch+5°
搖桿停懸/油門70%/Pitch+5°

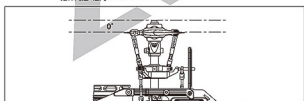


Stick Position at Low/Throttle 0%/Pitch-2~0°
搖桿低速/油門0%/Pitch-2~0°

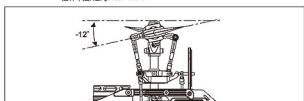
3D FLIGHT 3D特技飛行模式



Stick Position at High/Throttle 100%/Pitch+12°
搖桿高速/油門100%/Pitch+12°



Stick Position at Middle/Throttle 90%/Pitch 0°
搖桿中速/油門90%/Pitch 0°



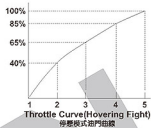
Stick Position at Low/Throttle 100%/Pitch-12°
搖桿低速/油門100%/Pitch-12°



1. Pitch range : Approx. ± 15 degrees.
 2. If the pitch is set too high, it will result in shorter flight duration and poor motor performance.
 3. Setting the throttle to provide a higher speed is preferable to increasing the pitch too high.
1. 螺距 (Pitch) 總行程約 $\pm 15^\circ$
 2. 過大螺距設定，會導致動力與飛行時間降低。
 3. 動力提升以較高轉速的設定方式，優於螺距更大的設定。

GENERAL FLIGHT 一般飛行模式

Throttle 油門	Pitch 螺距
5 100% High Speed 100% 高速	+12°
4 85%	
3 60%~65% Hovering 60%~65% 停懸	+5°
2 40%	
1 0% Low Speed 0% 低速	0°~2°

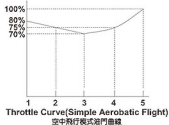


PITCH AND ROTATION SPEED PITCH 與轉速關係

TIP: It is recommended to use a lower pitch setting when using higher RPM/Head speed. This will allow for better power.
搭配要領: 如果使用較高轉速馬達動力建議搭配調低 Pitch，將獲得較佳動力效能。

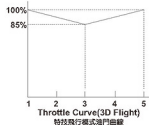
IDLE 1: SPORT FLIGHT

Throttle 油門	Pitch 螺距
5 100%	+10~+12°
4 75%	
3 70%	+5°
2 75%	
1 80%	-5°



IDLE 2: 3D FLIGHT

Throttle 油門	Pitch 螺距
5 100% High 100% 高	+12°
3 85% Middle 85% 中	0°
1 100% Low 100% 低	-12°



RCM-BL850MX (490KV/4535) MOTOR RCM-BL850MX (490KV/4535) 無刷馬達

Power and torque requirements of enthusiasts, the high output 850W motor was born in Align's R&D lab. With dramatic increase in torque and power output, capable of 5100 watts continuous power output and 11000 watts of burst power!

850W Motor has passed various thorough inspections made by our technical department, including motive testing, static testing, magnetic field testing, heat resistance and magnetic loss testing, running balance and vibration testing, noise testing, and many hours of actual loading and flying testing, etc. Align is proud to provide the latest innovations in RC Modeling to its consumers. Please enjoy your Align products safely.

亞拓特別針對玩家大動力、高扭力的需求，研發設計出極致動力而生的850MX馬達，動力輸出與扭力表現大幅提升，持續輸出功率達5100W，瞬間最大輸出功率可達11000W。本公司生產的高扭力高轉速850MX馬達，適用於RC電動滑翔，其高功率高效率輸出特性，適合電動飛機/電動滑翔機之高扭力高轉速驅動動力用途，速度控制可採本公司城市售價相無刷電子變速器，轉子採用高磁性材料並經過精裝而成，定子採用本廠NC自動繞線與高強度漆包線成型保護，耐高溫耐腐蝕，心軸採用高硬度高壽命軸及雙ZZ高速精密軸承設計，且經由亞拓獨立開發設計技術，使用壽命長、效率高、耐撞不易變形、低磁損、高效率850型無刷馬達。該項新產品已通過多項技術單位，實施精密嚴格檢驗、靜態、磁場特性、強磁耐高溫磁損、運轉平衡震動及噪音、真對實際飛行動態性能等全項嚴格檢測。

SPECIFICATION 尺寸規格

(Unit unit: mm)

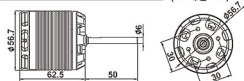


ILLUSTRATION 接線示意圖



KV	KV值	490KV(RPM/V)	Input Voltage	輸入電壓	12S
Stator Diameter	定子外徑	45 mm	Stator Thickness	定子高度	35mm
Stator Arms	矽鋼片槽數	12	Magnet Poles	磁鐵槽數	10
Max Continuous Current	最大持續電流	115A	Max Instantaneous Current	最大瞬間電流	250A(2sec)
Max Continuous Power	最大持續功率	5100W	Max Instantaneous Power	最大瞬間功率	11000W(2sec)
Dimension	尺寸	Shaft ϕ 6x56.7x112.5mm	Weight	重量	Approx. 570g

The motor rotates in different direction with different brand ESCs. If the wrong rotating direction happens, please switch any two cables to make the motor rotates in right direction.

由於各品牌電子變速器的馬達旋轉方向不應相同，若發生轉向錯誤時，請將馬達與電子變速器的接線任兩條對調即可。

HOBBY WING PLATINUM HV 200A BRUSHLESS SPEED CONTROLLER INSTRUCTION MANUAL

無刷調速器使用說明

ALIGN

PRODUCT FEATURES 產品特色

Optional Equipment
選購配件

Hobby Wing Platinum HV 200A Brushless ESC can be set up by ALIGN ASBOX Multifunction Programmer. So please scan QR code for ALIGN website start downloading for more information:

<http://www.align.com.tw/download-en/asbox/>

Hobby Wing Platinum HV 200A無刷調速器可透過ALIGN ASBOX多功能設定盒進入參數設定，請掃描QR Code連結亞拓網站下載相關資訊：<http://www.align.com.tw/download-en/asbox/>

- High performance microprocessor with a running frequency of up to 120 MHz for excellent motor speed-governing and super soft startup.
- Microprocessor powered by independent DC regulator has better anti-interference performance, which greatly reduces the risk of losing control.
- The maximum motor speed can reach 210,000 RPM (for 2pole motor), 70,000 RPM (for 6 pole motor) and 35,000 RPM (for 12 pole motor).
- Multiple flight modes: Fixed-wing, Helicopter (Linear Throttle), Helicopter (Elf Governor), Helicopter (Store Governor).
- Data logging records the standardized RPM, minimum voltage and maximum temperature of the flight.
- "Restart in auto function" can manually interrupt the auto rotation and quickly restart the motor to avoid crashes caused by incorrect operations.
- WIFI module (sold separately) for programming the ESC wirelessly with your smart phone (IOS or Android).
- Internal anti-spark circuitry effectively eliminates electric sparks produced when the ESC is powered on.
- Independent output port for RPM (that is: motor speed) signals. • Separate programming port for ESC parameters setup through ALIGN ASBOX Multifunction Programmer.
- Separate programming port for ESC programming or parameter setting.
- Multiple protections like thermal shutdown protection, overload protection, over-current protection, etc.
- BEC is separated from other circuits of the ESC, it may keep normal output even when MOSFET board of the ESC is burnt or breakdown.
- Online firmware upgrade via ALIGN ASBOX Multifunction Programmer or WIFI module.
- 使用運行頻率高達120MHz的高性能微處理器，相容多項應用馬達，具備優良的定速和緩啟動性能。
- 微處理器採用獨立的穩壓IC供電，具有更好的抗干擾能力，降低失控的可能性。
- 支持馬達最高轉速可達 210,000 RPM(2極馬達)、70,000RPM (6極馬達)、35,000RPM (12極馬達)。
- 具有“固定翼模式/直升機線性油門模式/直升機定速模式/直升機存儲定速模式”4種飛行模式。
- 具有飛行資料記錄功能，可記錄每次飛行的最低電壓、最高溫度資料、最大電流、標定轉速。
- 具有熄火降落保護功能，在保護時間內可手動中斷熄火降落過程並快速重新啟動馬達，避免因失控而墜機。
- 支援WIFI無線設定，透過手機端(蘋果&安卓)軟體即可完成所有參數設置(需要WIFI模組)。
- 內置防火花電路，有效消除上電瞬間產生的電火花。
- 具有轉速 (RPM) 訊號輸出介面。
- 具備獨立參數設定介面，用於連接多功能LCD專業程式設計ALIGN ASBOX多功能設定盒進行參數設定。
- 具備啟動保護、過壓保護、過負荷保護、電流保護等多重保護功能，有效延長電機使用壽命。
- BEC模組和電子調速器其他電路相互獨立，當電子調速器功率板出現損毀等故障時，最大限度保護BEC正常輸出，並恢復機庫。
- 支援線上讀取、設定電壓設定時，查看速度曲線BEC正常輸出模式下，升級電子調速器固件(需要ALIGN ASBOX多功能設定盒或WIFI模組)。

SPECIFICATIONS 產品規格

Model 型號	Main Applications 應用範圍	Input Voltage 輸入電壓	Cont./Peak Current 持續/瞬間電流	BEC Voltage BEC
Hobby Wing Platinum HV 200A	For 700-800 Class Helicopter (Propeller: 700-800mm) 700-800級電動直升機 (槳長: 700-800mm)	6-14S LiPo Battery (22.2V~51.8V) 6-12S 鋰電池 (22.2V~51.8V)	200A/300A	Switch-mode, 5V~8V Adjustable Voltage (Step: 0.1V), 10A/30A Cont./Peak Current 純變壓BEC, 輸出電壓5V~8V可調(調整幅度為0.1V每階), 輸出電流持續10A, 瞬間30A
	Throttle Signal/BEC Output & RPM Signal Transmission Wire 油門信號/BEC輸出&RPM信號傳輸線		Size/Weight 尺寸/重量	Separate Programming Port 獨立參數程式設計介面
	White/Red/Black: Throttle Signal Wire ; Red/Brown/Yellow: BEC Output & RPM Signal Transmission Wire 白、紅、黑三色線為油門信號線; 紅、棕、黃三色線為BEC輸出及RPM信號傳輸線		106x50x36mm/325g	For connecting ALIGN ASBOX Multifunction Programmer, WiFi module, or cooling fan. 用於連接ALIGN ASBOX多功能設定盒或WiFi模組, 可為輔助散熱風扇供電

USER GUIDE 使用說明書



The default throttle range of this ESC is from 1100 μ s to 1940 μ s, so you need to re-calibrate the throttle range when the first time you use this ESC or after you replace the transmitter.

電子调速器的油門行程出廠預設值為1100 μ s~1940 μ s, 當首次使用電子调速器或者更換其他遙控器使用時, 均應重新設定油門行程。

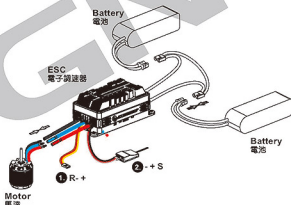
I. Connections 接線示意圖

- RPM Signal Wire (Yellow) & BEC Output Wire (Red/Brown): plug it into the RPM input channel on the flybarless system. (This wire can be used for providing RPM signal data when using external speed-governing device, plug it into the battery channel or any unoccupied channel on the receiver. (For better BEC power supply, we recommend plugging this wire into the battery channel or any unoccupied channel on FBL system if the FBL system is permitted.

- Throttle Signal Wire (White/Red/Black): plug it into the throttle channel on the receiver or the corresponding channel on the FBL system, such as RX B channel on the VBAR system. For which channel you should plug it in, it depends on what kind of receiver and FBL system you use. The White wire is for transmitting throttle signals, the Red & Black cables are parallelly connected in the BEC output wire, which means BEC voltage output wire and ground cable.

- RPM信號線(黃)及BEC輸出線(紅、棕): 插入無平衡翼系統轉速輸入通道; (當使用外部定速時, 可使用RPM信號線提供轉速信號輸入, 這線將外的BEC輸出線插入接收機電池專用通道或在空閒通道。(為獲得更好的BEC供電效果, 在無平衡翼系統允許的情況下, 建議將BEC線插入無平衡翼系統的電池專用通道或在空閒通道。)

- 油門信號線(白、紅、黑): 插入接收機油門通道或無平衡翼系統對應通道, 如VBAR系統的RX B通道, 依接收機類型及無平衡翼系統類型而定。其中白線用於傳送油門信號, 而紅線和棕線分別並聯在內部BEC的輸出線(即BEC電壓輸出線和地線)。



II. Throttle Range Calibration 油門行程標準操作方式



During the ESC/Radio calibration, please set the throttle curve to NORMAL and ensure the corresponding throttle amounts to the maximum throttle endpoint and the minimum throttle endpoint on your transmitter are respectively 100% and 0%.

進行油門行程校準時, 請將油門曲線設置為NORMAL, 並確保遙控器油門最高點對應的油門值為100%, 油門最低點對應的油門值為0%。

- Turn on the transmitter and move the throttle stick to the top position.
開啟遙控器, 將油門打到最高點
- Connect the ESC to a battery. The motor will emit " > 123" indicating the ESC is powered on normally.
電子调速器接電池, 馬達鳴叫" > 123"提示音, 表示供電正常
- 5 seconds later, the motor will emit two short beeps indicating the maximum throttle position has been successfully calibrated and accepted.
等待5秒, 馬達發出"嗶-嗶"雙短鳴音, 表示油門最高點校準成功
- Move the throttle stick to the bottom position. 1 second later, a short beep will emit indicating the minimum throttle position has been accepted.
將油門搖杆推到最低, 等待1秒, "嗶"一聲提示音, 油門最低點校準成功
- The ESC will keep beeping indicating the number of LiPo cells you have plugged in. (A long beep represents 5, a short beep represents 1. E.g. The ESC will beep two long beeps and two short beeps to indicate a 12S LiPo pack.
馬達將繼續鳴叫提示當前程電池數(長音嗶一表示5, 短音嗶一表示1, 例如: 12S鋰電池將鳴叫"嗶-嗶-嗶-嗶")
- The motor will keep a long beep to indicate the calibration is completed, the power system is ready to go.
馬達鳴叫"長音嗶"代表校準成功, 系統準備就緒, 可隨時起飛

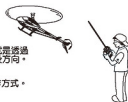
PLEASE PRACTICE SIMULATION FLIGHT BEFORE REAL FLYING 飛行前請先熟練電腦模擬飛行

A safe and effective practice method is to use the transmitter flying on the computer through simulator software sold on the market. Do a simulation flight until you familiarize your fingers with the movements of the rudders, and keep practicing until the fingers move naturally.

1. Place the helicopter in a clear open field (Make sure the power OFF) and the tail of helicopter point to yourself.
2. Practice to operate the throttle stick (as below illustration) and repeat practicing "Throttle high/low", "Aileron left/right", "Rudder left/right", and "Elevator up/down".
3. The simulation flight practice is very important, please keep practicing until the fingers move naturally when you hear operation orders being call out.

在還沒瞭解直升機各動作的操作方式前，嚴禁實機飛行，請先進行電腦模擬飛行的練習，一種最有效、最安全的練習方式，就是透過市面販售的模擬軟體，以遙控器在電腦上模擬飛行，熟悉各種方向的操縱，並不斷的重複，直到手指可熟練的控制各個動作及方向。

1. 將直升機放在空曠的地方(確認電源為關閉)，並將直升機的機尾對準自己。
2. 練習操作遙控器的各搖桿(各動作的操作方式如下圖)，並反覆練習油門高/低、副翼左/右、升降舵前/後及方向舵左/右操作方式。
3. 模擬飛行的練習相當重要，請重複練習直到不需思索，手指能自然隨著喊出的指令移動控制。



Mode 1	Mode 2	Illustration 圖示	
		Move Left 左移 Rotate Left 左翻	Move Right 右移 Rotate Right 右翻
		Fly Forward 前進 Forward Rotate 前翻	Fly Backward 後退 Backward Rotate 後翻
		Ascend 上升 Descent 下降	
		Turn Right 右旋 Turn Left 左旋	

FLIGHT ADJUSTMENT AND NOTICE 飛行調整與注意



- ⊙ Check if the screws are firmly tightened.
- ⊙ Check if the transmitter and receivers are fully charged.
- ⊙ 再次確認→螺絲是否鎖緊?
- ⊙ 發射器和接收器電池是否足額。



If there are other radio control aircraft at the field, make sure to check their frequencies and tell them what frequency you are using. Frequency interference can cause your model, or other models to crash and increase the risk of danger. 假使飛行場有其他遙控飛機，請確認牠們的頻率，並告知他們您正在使用的頻率，相同的頻率會造成干擾導致失控和大大地增加風險。

STARTING AND STOPPING THE MOTOR 啟動和停止馬達



First check to make sure no one else is operating on the same frequency. Then place the throttle stick at lowest position and turn on the transmitter. 首先確認附近沒有其他相同頻率的機，然後打開發射器將油門搖桿推到底部。

- Check the movement.
- 動作確認



ON! Step1
First turn on the transmitter.
先開發射器

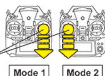


ON! Step2
Connect to the helicopter power
接上直升機電源



Check if the throttle stick is set at the lowest position. 確認油門搖桿是在最低的位置。

- ⊙ Are the rudders moving according to the controls?
- ⊙ Follow the transmitter's instruction manual to do a range test.
- ⊙ 方向舵是否隨著控制方向移動?
- ⊙ 根據發射器說明書進行距離測試。



Mode 1 Mode 2

OFF! Step3
Reverse the above orders to turn off.
關閉電源時請依上述操作動作反執行。



This procedure is best performed on soft surfaces such as grass. The use of rubber skid stopper is recommended on hard surface to prevent vibration feedback from the ground to Gyro, resulting in over-corrections.

將直升機置於柔軟地面上，建議硬地起飛腳架裝上避震墊圈。避免升空前腳架與過硬的地面震動太大反饋至機身上的Gyro，影響無平衡翼系統升空前過度修正。

Rubber Skid Stoppers
Installed
裝上避震墊圈



CAUTION
注意

If swashplate should tilt prior to lift off, do not try to manually trim the swashplate level. This is due to vibration feedback to the Gyro, and will disappear once helicopter lifts off the ground. If manual trim is applied, helicopter will tilt immediately after liftoff.

直升機離地前，十字盤可能因Gyro受震動的反應，使十字盤有傾斜的情形，此時請勿刻意將十字盤修正為水平狀態，此現象只要離地升空時立即解除，可平穩升空；若刻意將十字盤修正為水平時，反而會造成感應器過度修正，一離地即會往修正方向的危險。

MAIN ROTOR ADJUSTMENTS 主旋翼雙槳平衡調整

1. Before adjusting, apply a red piece of tape on one blade, or paint a red stripe with a marker or paint to identify on blade.
2. Raise the throttle stick slowly and stop just before the helicopter lifts-off ground. Look at the spinning blades from the side of the helicopter.

3. Look at the path of the rotor carefully. If the two blades rotate in the same path, it does not need to adjustment. If one blade is higher or lower than the other blade, adjust the tracking immediately.

- 調整前先在其中一支主旋翼的翼端，貼上有顏色的貼紙或畫上顏色記號，方便雙槳調整辨識。
- 慢慢的推起油門搖桿到離地並且停止，在飛機離地前，從飛機側邊觀察主旋翼轉動。
- 仔細觀察旋翼軌跡(假如兩支旋翼移動都是相同軌跡，則不需要調整;可是如果一支旋翼較高或較低產生“雙槳”的情形時，則必須立刻調整軌跡)。

- When rotating, the blade with higher path means the pitch is too big. Please shorten DFC ball link for regular trim.
 - When rotating, the blade with lower path means the pitch too is small. Please lengthen DFC ball link for regular trim.
- 旋翼轉動時較高軌跡的主旋翼表示螺距(PITCH)過大，請調短DFC連接桿修正。
 - 旋翼轉動時較低軌跡的主旋翼表示螺距(PITCH)過小，請調長DFC連接桿修正。

CAUTION
注意

Tracking adjustment is very dangerous, so please keep away from the helicopter at a distance of at least 10m.

調整軌跡非常危險，請於距離飛機最少10公尺的距離。

Incorrect tracking may cause vibrations. Please repeat adjusting the tracking to make sure the rotor is correctly aligned. After tracking adjustment, please check the pitch angle is approx. $+5\sim 6^\circ$ when hovering.

不正確的旋翼軌跡會導致震動，請不斷重複調整軌跡，使旋翼軌跡精準正確。
在調整軌跡後，確認一下Pitch角度在停旋時應為大約 $+5\sim 6^\circ$ 。

Color Mark 有標示記號的主旋翼



FLIGHT ADJUSTMENT AND NOTICE 飛行調整與注意

FORBIDDEN
禁止



Ⓢ Do not attempt to grab or make contact with the helicopter while the main blades are in motion and keep your eyes away from the helicopter. During take-off, landing, and flight, be sure to keep the helicopter away from all obstacles. Operators must stand at least 10 meters away from the helicopter to avoid injury caused by loose parts due to improper assembly or any unforeseen dangers.

Ⓢ 嚴禁用手抓取運行中的直升機，並禁止將直升機對著眼睛，當主旋翼轉動後，或起飛/試飛時，務必遠離障礙物，站立位置必需距離10公尺以上，避免因人為組裝不當造成零件脫落，而引發不可預期的財物及人員損傷。

CAUTION
注意

- Ⓢ Make sure that no one or obstructions in the vicinity.
- Ⓢ For flying safety, please carefully check if every movement and directions are correct when hovering.
- Ⓢ 確認鄰近地區沒有人和障礙物。
- Ⓢ 為了飛行安全，您必須先確認停機時各項操控動作是否正常。

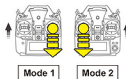
CAUTION
注意

Do not attempt to fly until you have some experiences with the operation of helicopter.
嚴禁無熟練操控飛行經驗者操控飛行。

STEP 1 THROTTLE CONTROL PRACTICE 油門控制練習

- ⊙ When the helicopter begins to lift-off the ground, slowly reduce the throttle to bring the helicopter back down. Keep practicing this action until you control the throttle smoothly.

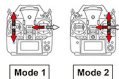
⊙ 當直昇機開始離地時，慢慢降低油門將飛機降下。• 持續練習飛機從地面上升和下降直到您覺得油門控制很順。



STEP 2 AILERON AND ELEVATOR CONTROL PRACTICE 副翼和升降控制練習

1. Raise the throttle stick slowly.
2. Move the helicopter in any direction back, forward, left and right, slowly move the aileron and elevator sticks in the opposite direction to fly back to its original position.

1. 慢慢升起油門搖桿。
2. 使直昇機依指示：移動向後/向前/向左/向右，慢慢的反向移動副翼和升降搖桿並將直昇機開回到原來位置。



⊙ If the nose of the helicopter moves, please lower the throttle stick and land the helicopter. Then move your position diagonally behind the helicopter 10M and continue practicing.

⊙ If the helicopter flies too far away from you, please land the helicopter and move your position behind 10M and continue practicing.

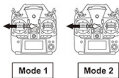
⊙ 當直昇機機頭偏移時，請降低油門並且降落，然後移動自己的位置到直昇機的正後方10公尺再繼續練習。

⊙ 假如直昇機飛離你太遠，請先降落直昇機，並到直昇機後10公尺再繼續練習。

STEP 3 RUDDER CONTROL PRACTICING 方向舵操作練習

1. Slowly raise the throttle stick.
2. Move the nose of the helicopter to right or left, and then slowly move the rudder stick in the opposite direction to fly back to its original position.

1. 慢慢升起油門搖桿。
2. 將直昇機機頭移動左或右，然後慢慢反向移動方向舵搖桿並將直昇機飛回原本位置。



STEP 4

After you are familiar with all actions from STEP1 to 3, draw a circle on the ground and practice within the circle to increase your accuracy.

當你覺得 STEP1~3 動作熟悉了，在地上畫個圓圈並在這個圓圈的範圍內練習飛行，以增加你操控的準確度。

⊙ You can draw a smaller circle when you get more familiar with the actions.

⊙ 當你更加習慣操作動作，你可以畫更小的圓圈。



STEP 5 DIRECTION CHANGE AND HOVERING PRACTICE 改變直昇機方向和練習停旋

After you are familiar with STEP1 to 4, stand at side of the helicopter and continue practicing STEP1 to 4. Then repeat the STEP1 to 4 by standing right in front of the helicopter.

當你覺得STEP1~4動作熟悉了，站在面對直昇機側邊並繼續練習STEP1~4。之後，站在直昇機機頭右邊重複步驟練習。



	Problem 狀 况	Cause 原 因	Solution 對 策
Blade Tracking 雙槳平衡	Tracking is off 雙槳	Pitch linkage rods are not even length PITCH連桿長度調整不平均	Adjust length of DFC ball link. 調整DFC連桿球頭長度
Hover 停懸	Headspeed too low 主旋翼轉速偏低	Excessive pitch 主旋翼的PITCH偏高	Adjust DFC ball link to reduce pitch by 4 to 5 degrees. Hovering headspeed should be around 1700-1800RPM. 調整DFC連桿球頭低Pitch約+4-5度 (停懸時主旋翼轉速為約1700-1800RPM)
		Hovering throttle curve is too low 停懸點油門曲線過低	Increase throttle curve at hovering point on transmitter (around 60%) 調高停懸點油門曲線(約60%)
	Headspeed too high 主旋翼轉速偏高	Not enough pitch 主旋翼的PITCH偏低	Adjust DFC ball link to increase pitch by 4 to 5 degrees. Hovering headspeed should be around 1700-1800RPM. 調整DFC連桿球頭高Pitch約+4-5度 (停懸時主旋翼轉速為約1700-1800RPM)
		Hovering throttle curve is too high 停懸點油門曲線過高	Decrease throttle curve at hovering point on transmitter (around 60%) 調低停懸點油門曲線(約60%)
Rudder Response 尾舵反應	Drifting of tail occurs during hovering, or delay of rudder response when centering rudder stick. 停懸時尾翼向某一邊偏移，或發動方向舵並回零到中立點時，尾翼產生延遲，無法停駐在所控制位置上。	Rudder neutral point improperly set 尾中立點設定不當	Reset rudder neutral point 重設尾中立點
		Rudder gyro gain too low 尾舵陀螺儀感度偏低	Increase rudder gyro gain 增加尾舵陀螺儀感度
	Tail oscillates (hunting, or wags) at hover or full throttle 停懸或全油門時尾翼左右來回搖擺。	Rudder gyro gain too high 尾舵陀螺儀感度偏高	Reduce rudder gyro gain 降低尾舵陀螺儀感度

If above solution does not resolve your issues, please check with experienced pilots or contact your Align dealer.

※在徵完以上調整後，仍然無法改善情況時，應立即停止飛行並向有經驗的飛手諮詢或連絡您的經銷商。

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Specifications & Equipment/規格配備:

Length/機身長:1490mm

Height/機身高:402mm

Main Blade Length/主旋翼長:780mm

Main Rotor Diameter/主旋翼直徑:1740mm

Tail Rotor Diameter/尾旋翼直徑:301mm

Motor Drive Gear/馬達齒輪:12T

Main Drive Gear/主齒輪:112T

Autorotation Tail Drive Gear/尾驅動主齒:104T

Tail Drive Gear/尾翼傳動齒:22T

Drive Gear Ratio/齒輪傳動比:9.33 : 1 : 4.73

Flying Weight(Without battery)/全配重(不含電池):Approx. 4100g

