全自動衛星導航植保直昇機

DEMETER E1

INSTRUCTION MANUAL

使用說明書

RHE1E01XT

大容量
高載重 智能、精準、高效

A13 GST
高性能遙控器

RADIO CONTROL SYSTEM

High Load Capacity
Huge Capacity

Intelligent/ Precise/ High Efficiency

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。

TABLE OF CONTENTS 目錄

Thank you for buying ALIGN Products. For further usage and assembling, please read DEMETER E1 Agricultural Helicopter instruction manual carefully. Be sure to retain the manual for future reference, routine maintenance, and tuning.

感謝您選購亞拓產品，為了讓您容易方便的使用DEMETER E1全自動衛星導航植保直昇機，請您詳細的閱讀完這本說明書之後再進行組裝以及操作，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。

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

- **DEMETER E1 Agricultural Helicopter is not toy. This model utilizes 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 ALIGN products.**
- **We recommend that you obtain the assistance of an experienced pilot before attempting to fly our products. A local expert is the best way to properly assemble, setup, and fly your model. The Demeter E1 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.**
- **Fly only in safe areas, away from other people. Do not operate R/C aircraft within the vicinity of building 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 of a result of R/C aircraft models.**
- **Warning! Manufacturer and seller assume no liability for the operation or the use of this product. 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.

- DEMETER E1全自動衛星導航植保直昇機並非玩具，它是結合了許多高端科技產品所設計出來的專業用品，對商品的不熟悉或不當的使用都可能會造成嚴重傷害甚至死亡，切勿輕忽危險性，並必須注意自身安全，使用之前務必詳讀本說明書。
- 遙控模型屬於需具備高操作技術且為消耗性之商品，本產品是提供給有操作過模型直昇機經驗的成人，或有相當專業技術的人員在旁指導，於當地合法場地飛行，以確保在安全無虞下操作使用。如經拆裝使用後，會造成不等情況的零件損耗，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。產品售出後本公司將不負任何在操作和使用控制上的任何性能與安全責任。如遇有使用操作維修問題，本公司之分公司或代理商將提供技術指導、以及優惠零件供應服務。 任何使用、設定、組裝、修改、或操作不良所造成的破損、意外或傷害，使用者應承擔全部責任。
- 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，使用者務必注意飛行安全，並瞭解需自負疏忽所造成任何意外之責任。
- 注意！任何遙控模型的使用，製造商和經銷商是無法對使用者於零件使用的損耗異常或組裝不當所發生之意外負任何責任。

作為本產品的使用者，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。

FORBIDDEN 禁止 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 or proper 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.

直昇機飛行時具有一定的速度，相對的也潛在著危險性，場地的選擇也相對的重要，必需遵守當地法規到合法場地飛行。務必選擇在空曠合法專屬飛行場地，並同時注意周遭有沒有人、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。

WARNING 警告 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. Prior to every flight, carefully check rotorhead spindle shaft screws and tail blade grip screws, linkage balls and screws, ensure they are firmly secured.

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。請確認於產品限界內操作，請勿過載使用，並禁止用於安全與法令之外的其它非法用途。
每趟飛行前須仔細檢查，主旋翼夾座橫軸螺絲、尾旋翼夾座螺絲，以及機身各部位球頭、螺絲，確實上膠鎖緊才能升空飛行。

WARNING 警告 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.)

至飛行場飛行前，需確認是否有相同頻率的同好正進行飛行，因為開啟相同頻率的發射器將導致自己與他人立即干擾等意外危險。
遙控模型操控技巧在學習初期有著一定的難度，要盡量避免獨自操作飛行，需有經驗的人士在旁指導，才可以操控飛行，否則將可能造成不可預期的意外發生。（勤練電腦模擬器及老手指導是入門必要的選擇）

WARNING 警告 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 helicopter and parallel it with eyes 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／試飛時，務必遠離障礙物，站立位置必需距離10公尺以上，不可在視線範圍外進行飛行，降落後也請馬上關掉直昇機和遙控器電源。操作這台直昇機需要一定操控技術及能力，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，並請衡量自身情況，過於疲勞、精神不佳或不當操作，都可能引購不可預期的意外發生。

CAUTION 注意 ALWAYS BE AWARE OF THE ROTATING BLADES 遠離運轉中零件

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進行，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，
請勿觸摸運轉中的主旋翼與尾旋翼，並保持安全距離以避免造成危險及損壞。

CAUTION 注意 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; and keep the electrical components dry after cleaning. 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. Try not to operate or expose it to rain or moisture all the time.

遙控模型內部是由許多精密的電子零組件組成，必須防止潮濕及髒污，作業完畢後應即時擦乾並清潔，以確保機體的功能性及使用安全。請勿在下雨、打雷等惡劣天候下操作，避免因水氣及污垢進入機身內部，導致機件及電子零件故障而引發不可預期的意外！

CAUTION 注意 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 纖維或聚乙烯、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。

CAUTION 注意 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，可能造成火災並傷及生命財產安全，切勿大意！

EQUIPMENT REQUIRED FOR ASSEMBLY 自備設備

RCC-300
Battery Charger
RCC-300充電器

or
或

Intelligent Balance
Charger RCC-6CX
智慧型分壓充電器 RCC-6CX

11.1V 3S 2200mAh
Li-Po Battery x 1 purchase
11.1V 3S 2200mAh Li-Po 電池 x 1

22.2V 6S 6,000~10,000mAh
Li-Po Battery x 2 purchase
22.2V 6S 6,000~10,000mAh Li-Po 電池 x 2

Tablet or Mobile Phone
平板電腦或手機

- The Ap2 flight controller supports iOS V9.0 and higher ; Android V7.0 and higher.
- Considering the best working efficiency, the specifications of the tablet or mobile phone are recommended as follows: 4GB RAM, and more than 20GB ROM storage space; in order to keep the best and fast performace quality.
- The max. dimension of screen bracket is 240x169mm.
- AP2 飛行控制系統支援IOS版本9.0以上、Android版本7.0以上系統。
- 考量最佳使用效率，平板或手機的規格要求建議如下：搭配記憶體(RAM)4GB，以及儲存空間(ROM)20GB 以上；避免因平板或手機效能不足影響作業品質。
- 可相容平版手機最大尺寸為240x169mm

ADDITIONAL TOOLS REQUIRED FOR ASSEMBLY 自備工具

Philips Screw Driver
十字螺絲起子
ϕ 3.0/ ϕ 1.8mm

Cutter Knife
刀子

Hexagon Screw Driver
六角螺絲起子
3mm/2.5mm/
2mm/1.5mm

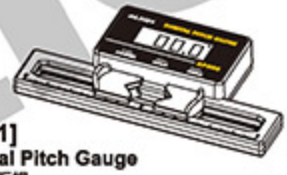
Needle Nose Pliers
尖嘴鉗

Oil
潤滑油

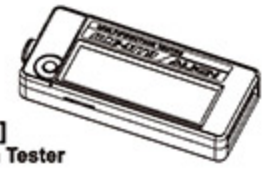
CA Glue
瞬間膠

Grease
潤滑油

[H70118]
Swashplate Leveler
十字盤校正器



[HET80001]
AP800 Digital Pitch Gauge
AP800 數位螺距規



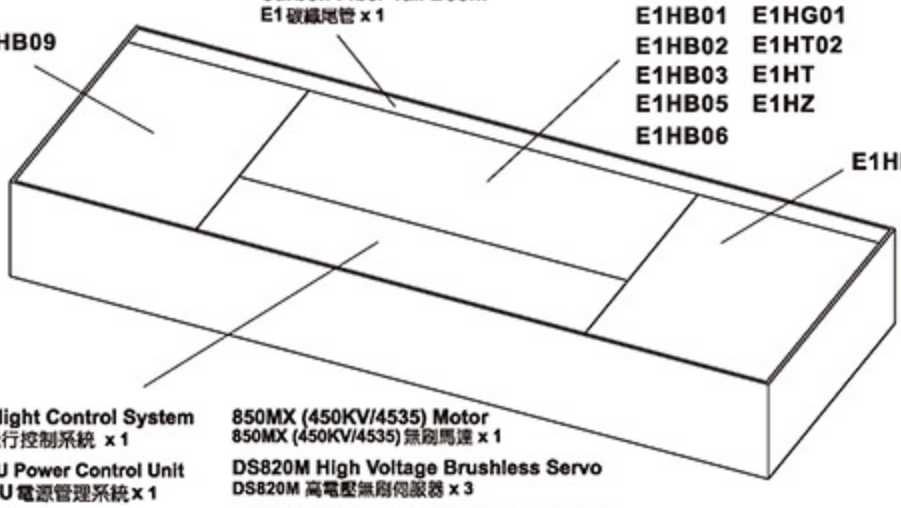
[HETMT901]
Multi-function Tester
多功能檢測計

PACKAGE ILLUSTRATION 包裝說明

990 Carbon Fiber Blades x 1set
990 碳纖主旋翼 x 1組

Carbon Fiber Tail Boom
E1 碳纖尾管 x 1

E1HB09



E1HB09

E1HH01 E1HB08
E1HH02 E1HB09
E1HB01 E1HG01
E1HB02 E1HT02
E1HB03 E1HT
E1HB05 E1HZ
E1HB06

Quick Finder
零件快速購

A13 GST Transmitter x1 set
A13GST 遙控器 x1組

AP2 Flight Control System
AP2 飛行控制系統 x 1

P2 CPU Power Control Unit
P2 PCU 電源管理系統 x 1

1080 DV x 1
植保機 1080 Dv 鏡頭組 x1

850MX (450KV/4535) Motor
850MX (450KV/4535) 無刷馬達 x 1

DS820M High Voltage Brushless Servo
DS820M 高電壓無刷伺服器 x 3

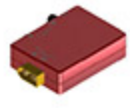
DS825M High Voltage Brushless Servo
DS825M 高電壓無刷伺服器 x 1

HV200A Waterproof Brushless ESC
HV 200A 防水無刷調速器 x 1

The TDEMETER E1 Combo includes additional electronics and other equipment. The Instruction Manual will refer to the DEMETER E1 Combo. You may purchase any additional items or spare parts referenced in the instruction manual.

DEMETER E1 系列商品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 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。

DEMETER E1 COMBO STANDARD EQUIPMENT DEMETER E1 COMBO標準配備 [RHE1E01XT]

 E1HC01	 E1HC01	 E1HH01	 E1HH02	 E1HB01	 E1HB02
 E1HB03	 E1HB05	 E1HB06	 E1HB08	 E1HB09	 E1HG01
 E1HT02	 E1HT03	 E1HZ	 990 Carbon Fiber 990 碳纖輕量化主旋翼	 DS820M Digital Servo 數位伺服器 x 3	 DS825M Digital Servo 數位伺服器 x 1
 AP2 Flight Control System AP2 飛行控制系統 x 1	 P2 Power Conterol Unit P2 PCU 電源管理系統 x 1	 850MX Brushless Motor (450KV/4535) 850MX 無刷馬達 x 1	 HV200A Waterproof Brushless ESC HV 200A 防水無刷調速器 x 1	 35A Brushless ESC 35A 無刷調速器 x 1	 12S Power Control Unit 12S 電源控制器 x 1
 1080 DV Camera 1080 DV 鏡頭組 x1	 VTD1 1080 HD Digital Video Transmitter VTD1 1080 高清數位圖傳 x 1	 Millimeter Wave Radar 毫米波雷達 x 1	 LED Headlight LED 頭燈燈 x 1	 Pump 泵浦 x 1	 A13 GST Transmitter A13 GST 遙控器組 x 1

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.
- When using 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，以確保您自身與他人的安全。
- 每次飛行前確定您發射器與接收器電池的電量是在足夠飛行的狀態。
- 開機前確認油門搖桿是否位於最低點，熄火降落開關，是否於關閉位置。
- 關機時必須遵守電源開關機的程序，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失控的現象，影響自身與他人的安全，請養成正確的習慣。
- 開機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崩齒的情形，使用故障的伺服器將導致不可預期的危險。
- 飛行前確認沒有缺少或鬆說的螺絲與螺帽，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說的情形，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說而造成失控的危險。

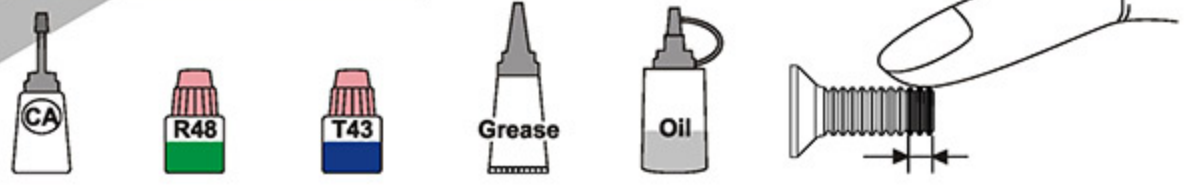
When you see the marks as below, please use relative glue or grease to ensure flying safety.
標有以下符號之組裝步驟，請配合上膠或上油，以確保鎖附零件使用之可靠度。

- CA ： Apply small amount of CA Glue to fix.
  瞬間膠：使用適量瞬間膠固定
- R48 ： Apply small amount of Anaerobic Retainer to fix.
  缺氧膠：使用適量缺氧膠固定
- 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.
各項塑膠製連桿頭扣接時，" A "字請朝外。

CAUTION 注意

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



CA Glue 瞬間膠 | Anaerobic Retainer 缺氧膠 | 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

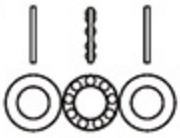
1. Anaerobic Retainer (R48)is green penetrating threadlocker and is used to fix the metal tube before assembly at temperatures up to +180˚C。
2. Thread Lock(T43) is blue low strength threadlocker and is applied to the small screw(threads) or metal parts before assembly to prevent loosening. Ensure to 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 accordingly to prevent any parts damage or loosening or unexpected danger happened.

1.缺氧膠 (R48) 為綠色高強度快速固化的缺氧膠，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；使用於金屬內外徑或膠合螺絲時，請務必適量使用，必要時請用手去除多餘膠量，欲拆卸時可於金屬接合部位熱烤約 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。

◎上述各類功能膠(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。

E1HH01



Thrust Bearing
止推軸承(ϕ10.2xϕ18x5.5mm) X 2

Bearing
軸承(ϕ10xϕ19x5mm) X 6

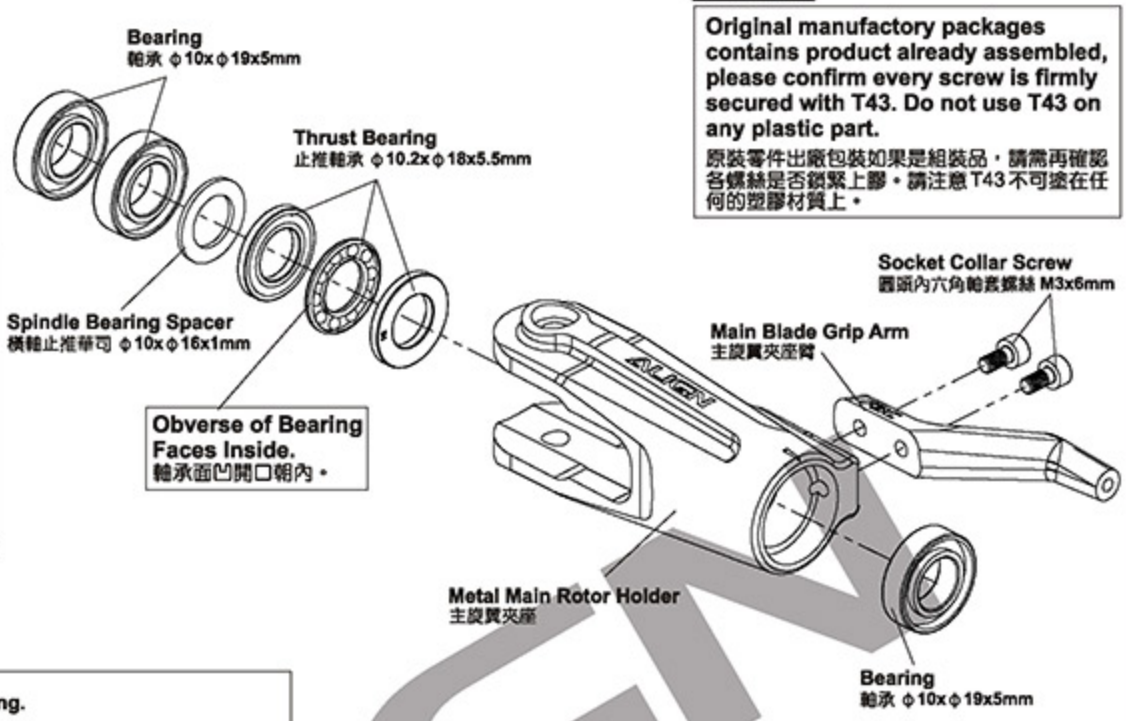
Spindle Bearing Spacer
橫軸止推華司(ϕ10xϕ16x1mm) X 2

Socket Collar Screw
圓頭內六角軸套螺絲(M3x6mm)x4

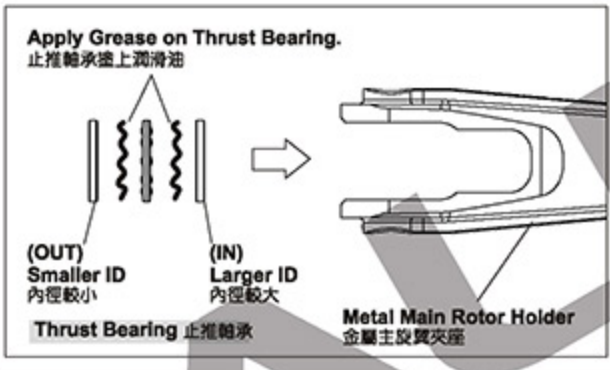
Apply a small amount of T43 thread lock when fixing a metal part.
螺絲頭附於金屬件請使用調整T43(螺絲膠)。

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，請需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。



CAUTION 注意



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。

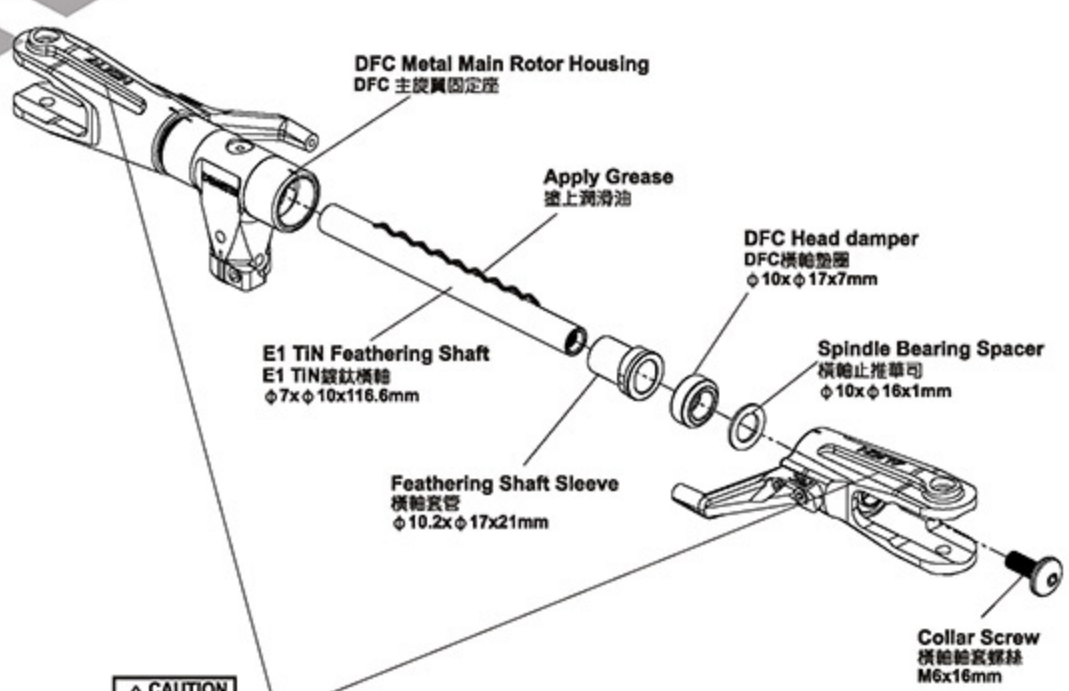
E1HH01

Spindle Bearing Spacer
橫軸止推華司(ϕ10xϕ16x1mm) X 2

Collar Screw
橫軸軸套螺絲(M6x16mm) X 2

Feathering Shaft Sleeve
橫軸套管(ϕ10.2xϕ17x21mm) X 2

DFC Head Damper
DFC橫軸墊圈(ϕ10xϕ17x7mm) X 2



CAUTION 注意

ALIGN Logo on The Top
字樣朝上

E1HH01

Bearing
軸承(φ3xφ7x3mm) x 4

Bearing
軸承(φ2xφ5x2.3mm) x 4

Washer
華司(φ3xφ4.8x0.3mm) x 2

Collar
擺臂軸承襯套(φ3xφ4.8x1.5mm) x 2

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)。

E1HH02

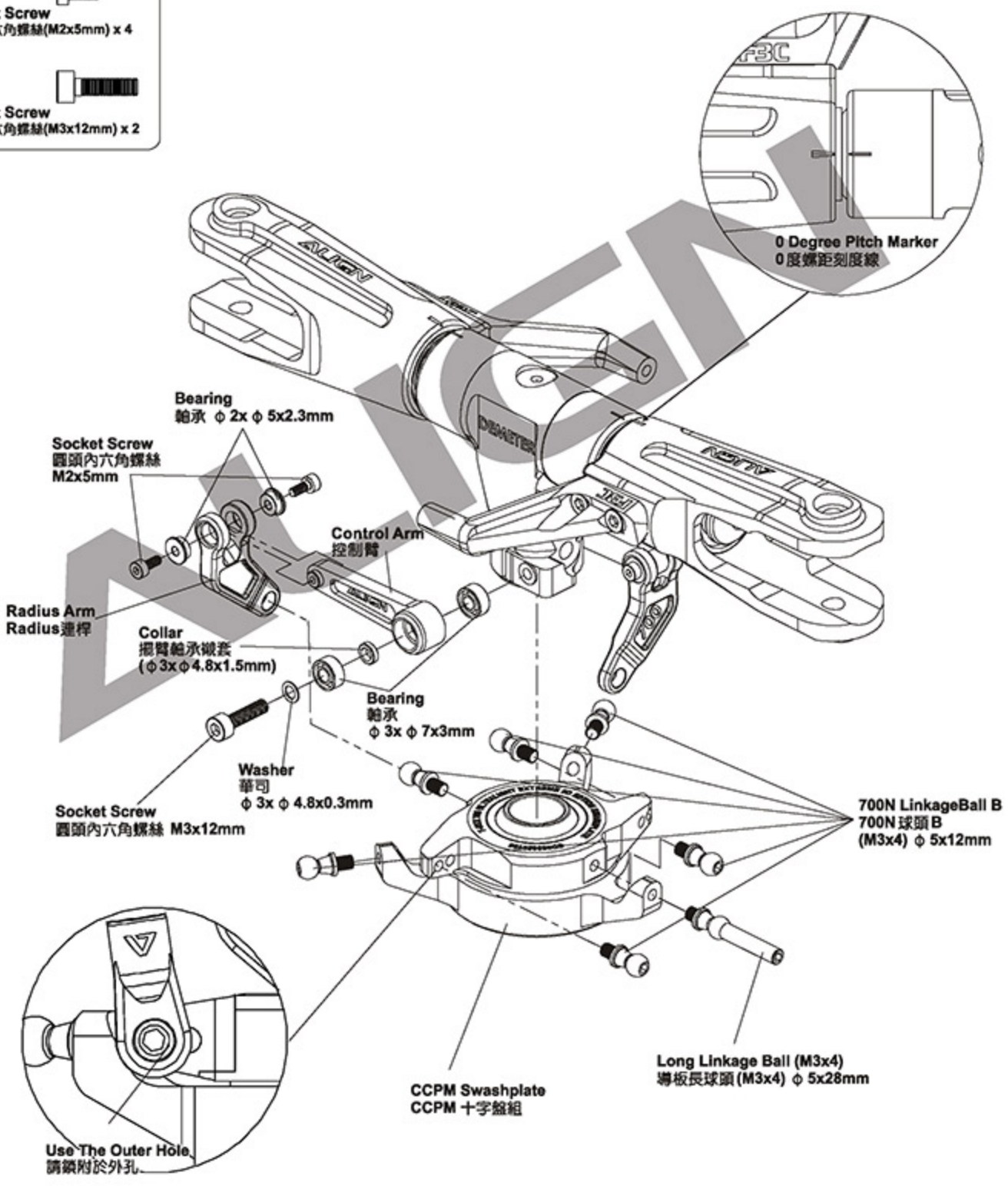
700N Linkage Ball B(M3x4)
700N 球頭B(M3x4)(φ 5x12mm) x 6

Long Linkage Ball (M3x4)
導板長球頭(M3x4) (φ 5x28mm) x 1

E1HH01A

Socket Screw
圓頭內六角螺絲(M2x5mm) x 4

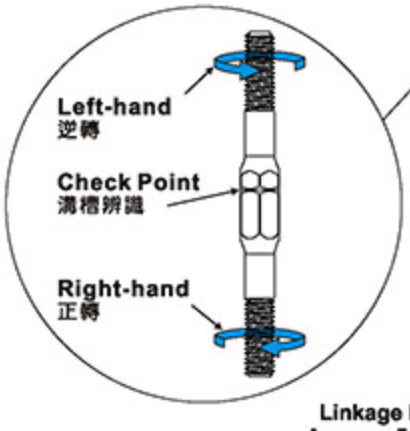
Socket Screw
圓頭內六角螺絲(M3x12mm) x 2



CAUTION 注意

For installation, make sure the "Check Point" is face upward, then use plier or wrench grasp the center of hexagonal rod to adjust its suitable length, turns clockwise to decrease the length, turns counter clockwise to increase the linkage length.

組裝時請將連桿中間有溝槽辨識端朝上，請使用尖嘴鉗或扳手轉動連桿中間六角柱部位調整適當長度，順時針轉動為調短連桿長度；逆時針轉動則為調長連桿長度。



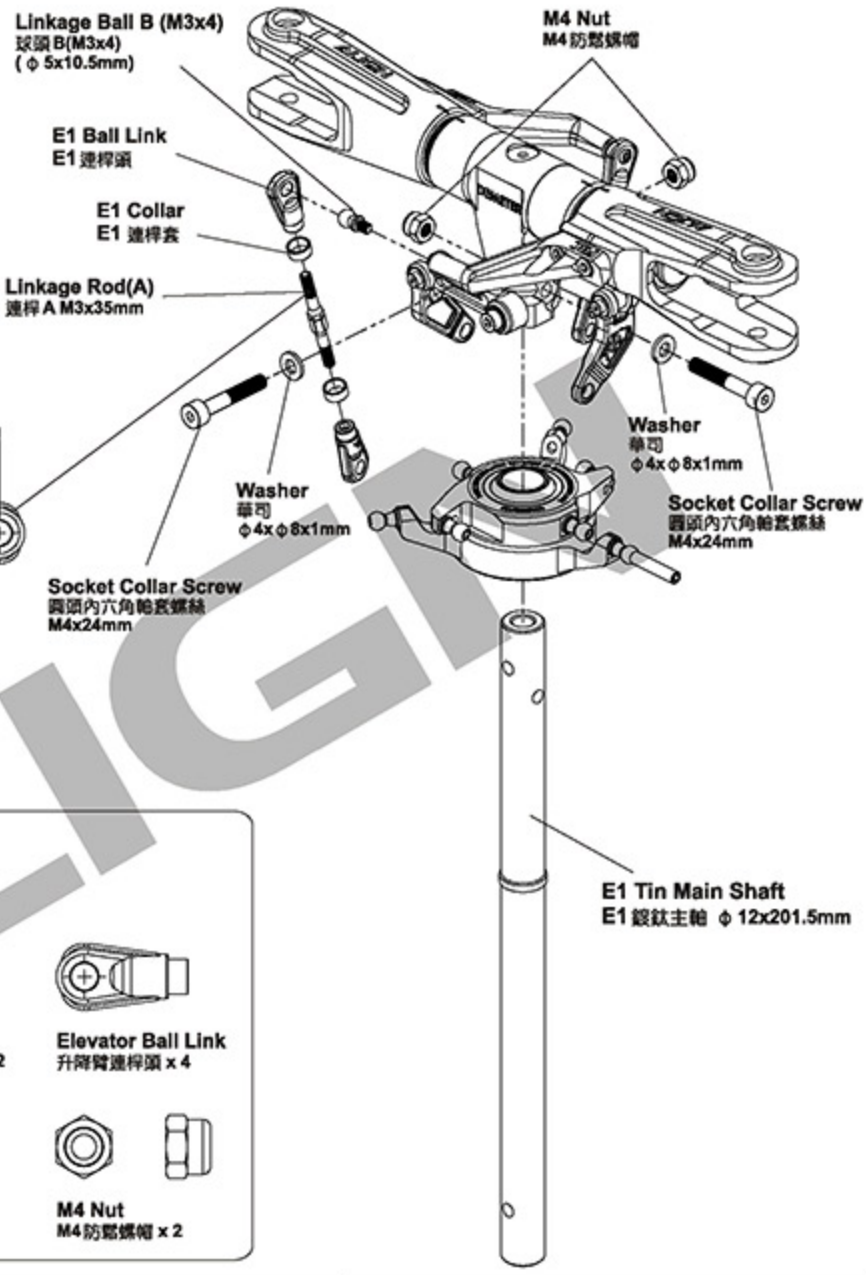
CAUTION 注意

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。

Apply a small amount of T43 thread lock when fixing a metal part.

螺絲鎖附於金屬件請使用調整T43(螺絲膠)。

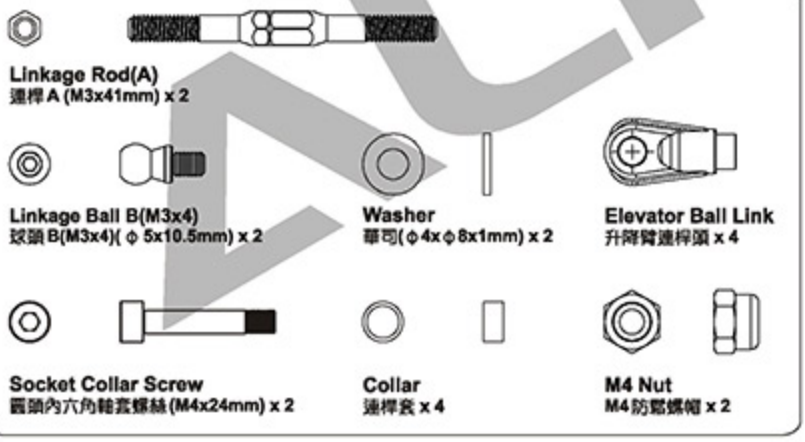


CAUTION 注意

You may adjust the length of ball link when tracking is off while in flight .

若飛行中有雙槳情形，可適當調整連桿頭長短改善。

E1HH01A

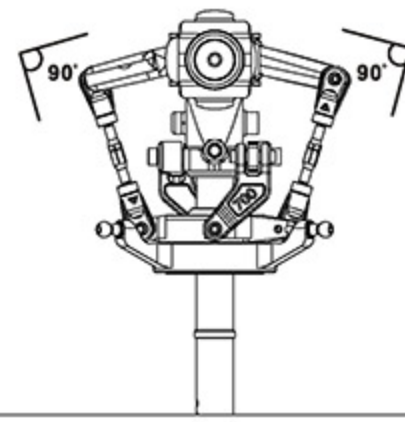


MAIN ROTOR GRIP ARM AND LINKAGE ROD

SYMMETRICAL PITCH, THE BEST PRECISION
動作螺距對稱，精準度更好

Main Rotor Grip Arm and Linkage Rod is at 90-degree angle symmetrically, allow to keep the best precise flight performance.

主旋翼連桿與夾座臂90度設計，使螺距動作成對稱比例，讓直昇機動作更精準無誤差。



700HB14

Spacer
單向墊片 ϕ 18x ϕ 22.7x0.7mmx 1

Bearing
軸承(ϕ 15x ϕ 21x4mm) x 2

One-way Bearing
單向軸承(ϕ 15x ϕ 23x11mm) 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) x 6

Please fasten the screws to the ϕ 3.0 holes of the slant main gear.
螺絲鎖附於斜主齒輪 ϕ 3.0 孔位

Socket Screw
圓頭內六角螺絲 M3x8mm

CNC Slant Thread Main Drive Gear
CNC 斜主齒輪 130T

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，請需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確認軸承同心度良好後，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。

Spacer
單向墊片
ϕ 18x ϕ 22.7x0.7mm

One-way Bearing Collar
單向軸承外環
ϕ 6x ϕ 23x11.6mm

One-way Bearing Shaft
單向軸承套
ϕ 12x ϕ 15x41.5mm

Apply Grease
塗上潤滑油

One-way Bearing Cover
單向軸承上蓋
ϕ 18x ϕ 40x15.8mm

Bearing
軸承
ϕ 15x ϕ 21x4mm

122T M1 Helical Autorotation Tail Drive Gear Set
122T M1 尾驅動斜齒組

One-way Bearing
單向軸承
ϕ 15x ϕ 23x11mm

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

Socket Screw
圓頭內六角螺絲 M2.5x8mm

One-way Bearing Mount
單向軸承下座
ϕ 19x39x6.5mm

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，請需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。

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

Socket Screw
圓頭內六角螺絲
M3x8mm

Socket Screw
圓頭內六角螺絲
M4x10mm

E1 Main Frame (R)
E1 碳纖側板(右)

E1 Canopy Mounting Bolt
E1 機頭罩固定柱

Back Plate Support
背板座支撐架

Shapely Reinforcement Plate
E1 機身增強片

E1NB03

Socket Screw
圓頭內六角螺絲 (M3x8mm) x 1

E1NB07

Socket Screw
圓頭內六角螺絲 (M4x10mm) x 4

CAUTION
注 意

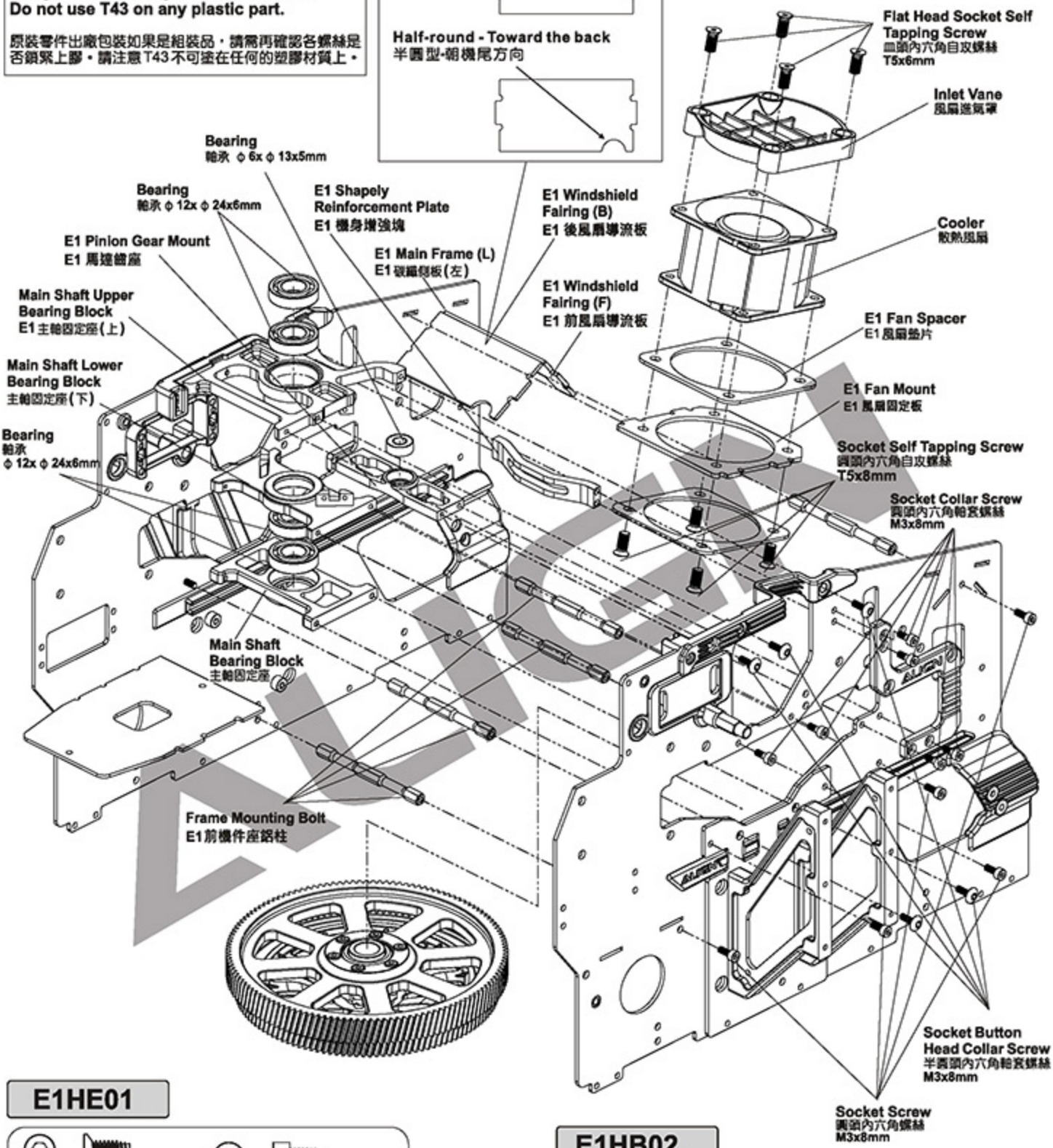
Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原裝零件出廠包裝如果是組裝品，請務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。

Square - Toward the front
方型-朝機頭方向

Half-round - Toward the back
半圓型-朝機尾方向

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)。



E1HE01

Flat Head Socket Self Tapping Screw
皿頭內自攻螺絲六角螺絲
(T5x6mm) x4

Socket Self Tapping Screw
圓頭內六自攻角螺絲
(T5x8mm) x4

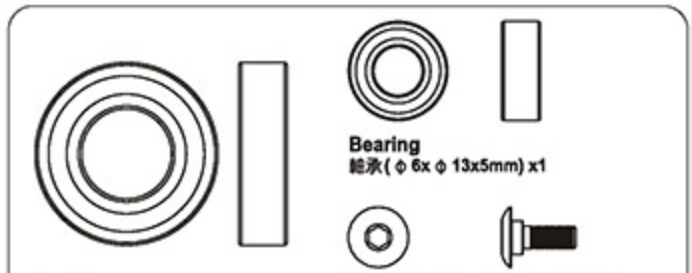
E1HB03

Socket Button Head Self Tapping screw
半圓頭內六角自攻螺絲
(T2.6x6mm) x 4

Socket Screw
圓頭內六角螺絲
(M3x8mm) x 10

Socket Collar Screw
圓頭內六角軸套螺絲
(M3x8mm) x 12

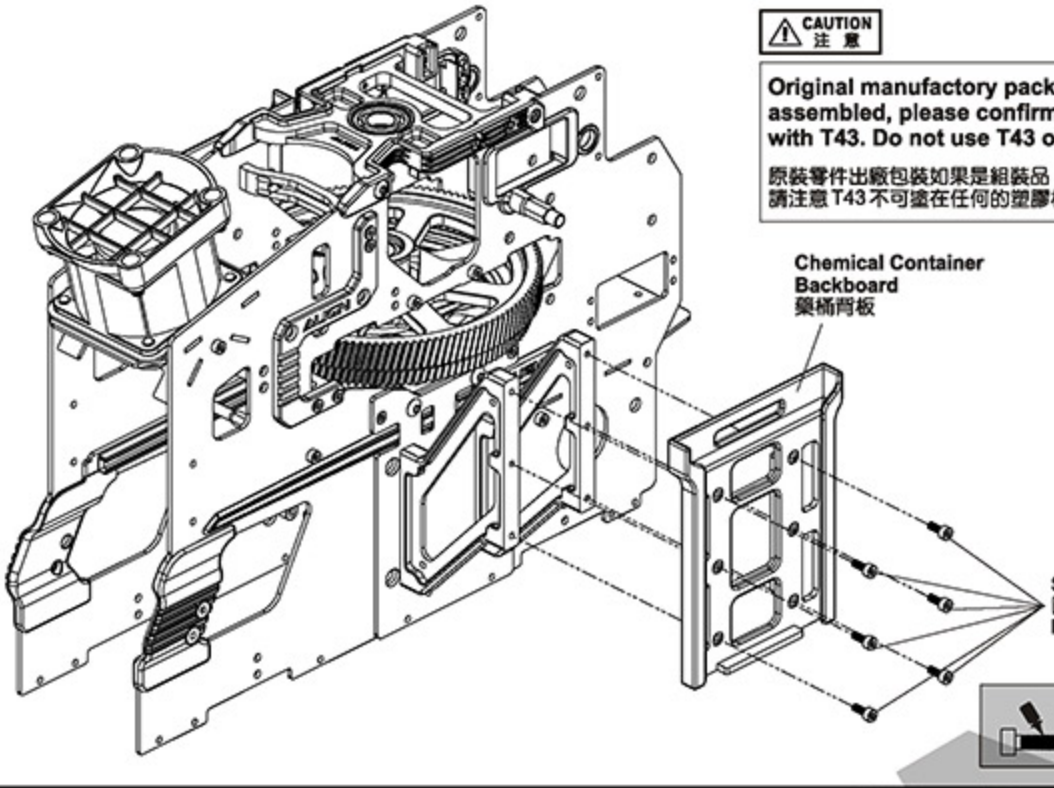
E1HB02



Bearing
軸承(ϕ 6x ϕ 13x5mm) x1

Bearing
軸承(ϕ 12x ϕ 24x6mm) x 4

Socket Button Head Collar Screw
半圓頭內六角軸套螺絲(M3x8mm) x10



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，請需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。

Chemical Container Backboard
藥桶背板

E1NB07

Socket Screw
圓頭內六角螺絲 (M3x8mm) x 6

Socket Screw
圓頭內六角螺絲
M3x8mm

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 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，請需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。

E1NG01

M4 Set Screw
M4 止洩螺絲 (M4x6mm) x 8

Socket Screw
圓頭內六角螺絲 (M3x22mm) x 8

Washer
華司 (ϕ 4x ϕ 8x1mm) x8

Pump
泵浦

Rubber Damper
避震墊圈

Bottom Plate
底板

Skid Cap
腳架鋁套

Socket Screw
圓頭內六角螺絲
M4x22mm

Skid Pipe End Cap
腳架鋁後保護套

Washer
華司
ϕ 4x ϕ 8x1mm

Landing Skid (F)
前腳架

Landing Skid Nut
腳架墊圈

Landing Skid
Y-Type Connector
腳架Y座

Landing Skid
T-Type Connector
腳架T座

Landing Skid Pipe
腳架管A

M4 Set Screw
M4 止洩螺絲
M4x6mm

M4 Set Screw
M4 止洩螺絲
M4x6mm

Skid Pipe
腳架鋁管

Skid Pipe Front Cap
腳架鋁前保護套

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)。

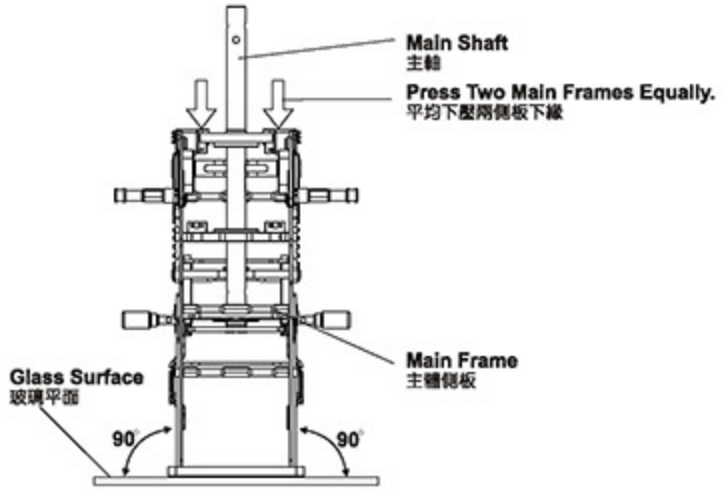
CAUTION 注意

Main frame assembly 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 improve power and flight performance.

機身側板組立重點：

側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，主體底板必須與水平桌面(玻璃平面)踏實緊貼；請保持主軸滑順與底板平行桌面後慢慢鎖緊螺絲。正確側板的組裝對動力與飛行性能有顯著幫助。



E1HB03

Socket Screw
圓頭內六角螺絲(M3x8mm) x 22

Socket Screw
圓頭內六角螺絲(M2.5x6mm) x 8

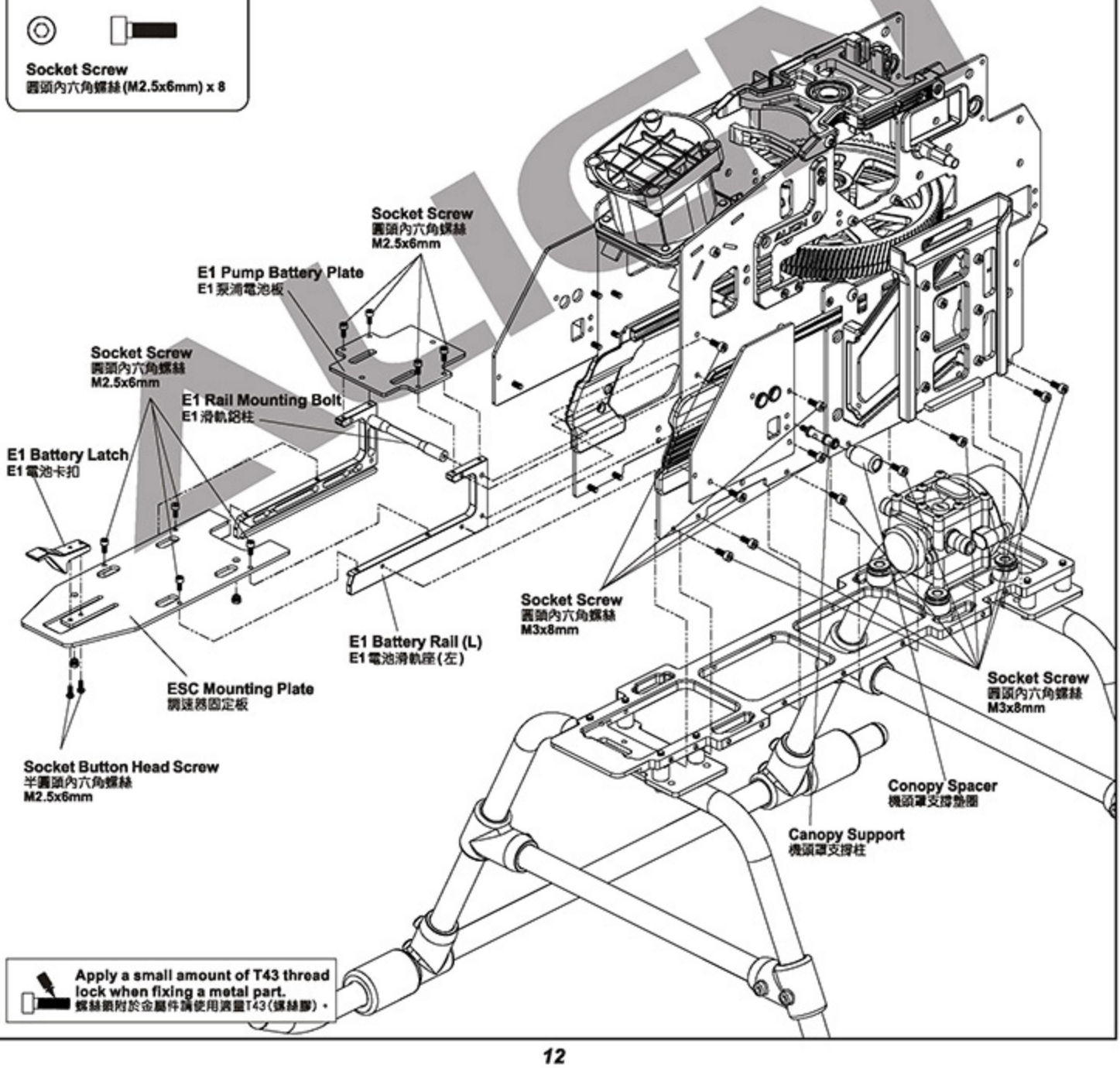
E1HB04

Socket Button Head Screw
半圓頭內六角螺絲(M2.5x6mm) x 2

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，請需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。



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)。

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

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

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，請需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。

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)。

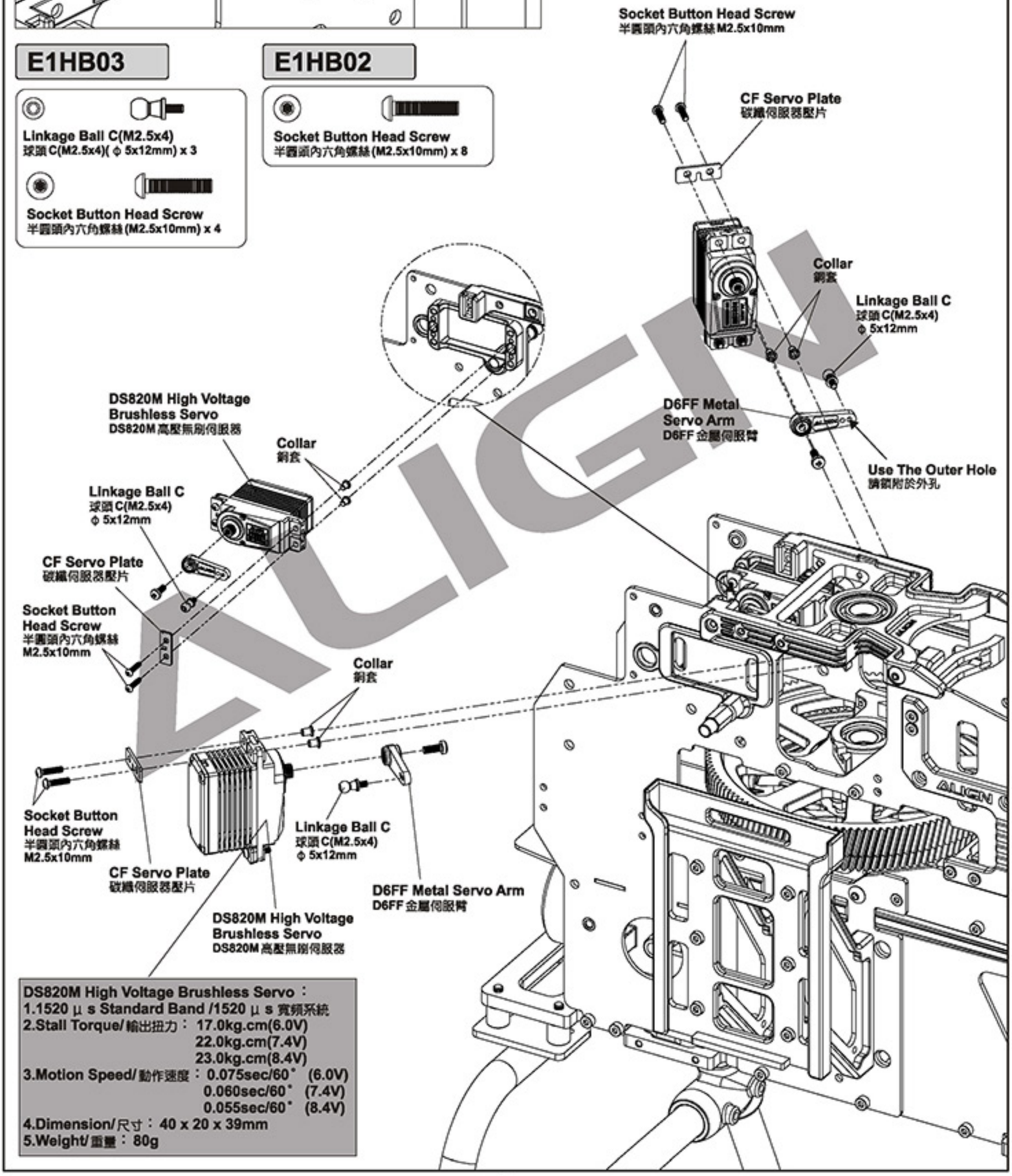
E1HB03

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

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

E1HB02

Socket Button Head Screw
半圓頭內六角螺絲 (M2.5x10mm) x 8



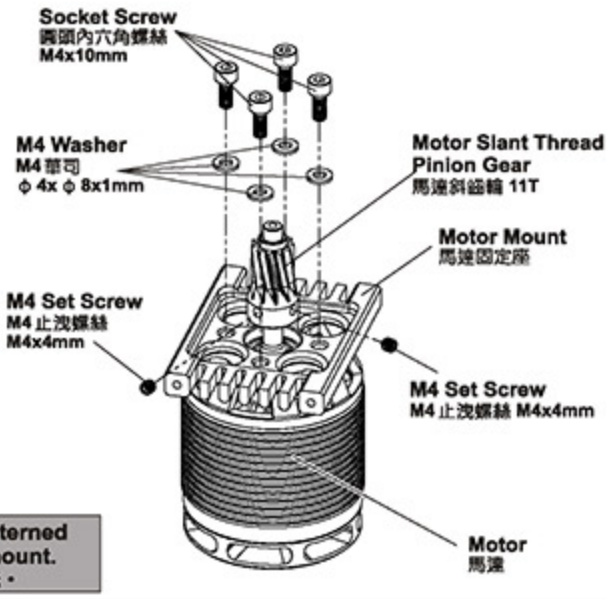
DS820M High Voltage Brushless Servo：
1.1520 μ s Standard Band /1520 μ s 寬頻系統
2.Stall Torque/輸出扭力： 17.0kg.cm(6.0V)
22.0kg.cm(7.4V)
23.0kg.cm(8.4V)
3.Motion Speed/動作速度： 0.075sec/60° (6.0V)
0.060sec/60° (7.4V)
0.055sec/60° (8.4V)
4.Dimension/尺寸： 40 x 20 x 39mm
5.Weight/重量： 80g

E1HZ01

Socket Screw
圓頭內六角螺絲 (M4x10mm) x 4

M4 Washer
M4華司 (ϕ 4x ϕ 8x1mm) x 4

M4 Set Screw
M4止洩螺絲 (M4x4mm) x 2



CAUTION 注意

Make sure the motor mount is fully fasterned before fastern 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。

E1HB03

Linkage Ball C(M2x4)
球頭C(M2x4)(ϕ5x9mm) x 1

M2 Nut
M2螺帽 x 1

Socket Button Head Self Tapping screw
半圓頭內六角自攻螺絲
(T2.6x14mm) x 4

Socket Button Head Self Tapping screw
半圓頭內六角自攻螺絲
(T2.6x6mm) x 4

CAUTION 注意

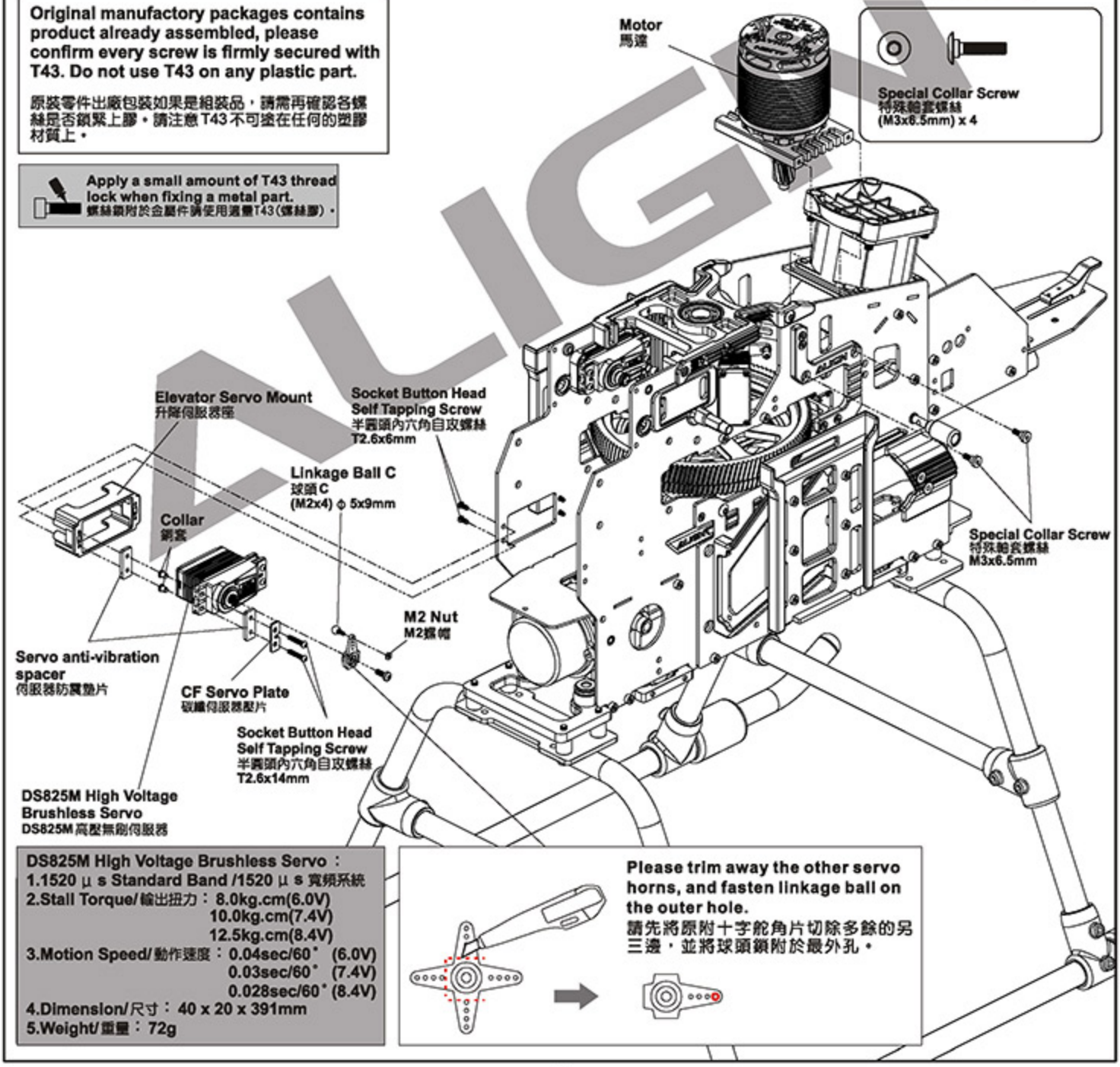
Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not use T43 on any plastic part.

原裝零件出廠包裝如果是組裝品，請需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。

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)。

E1HB02

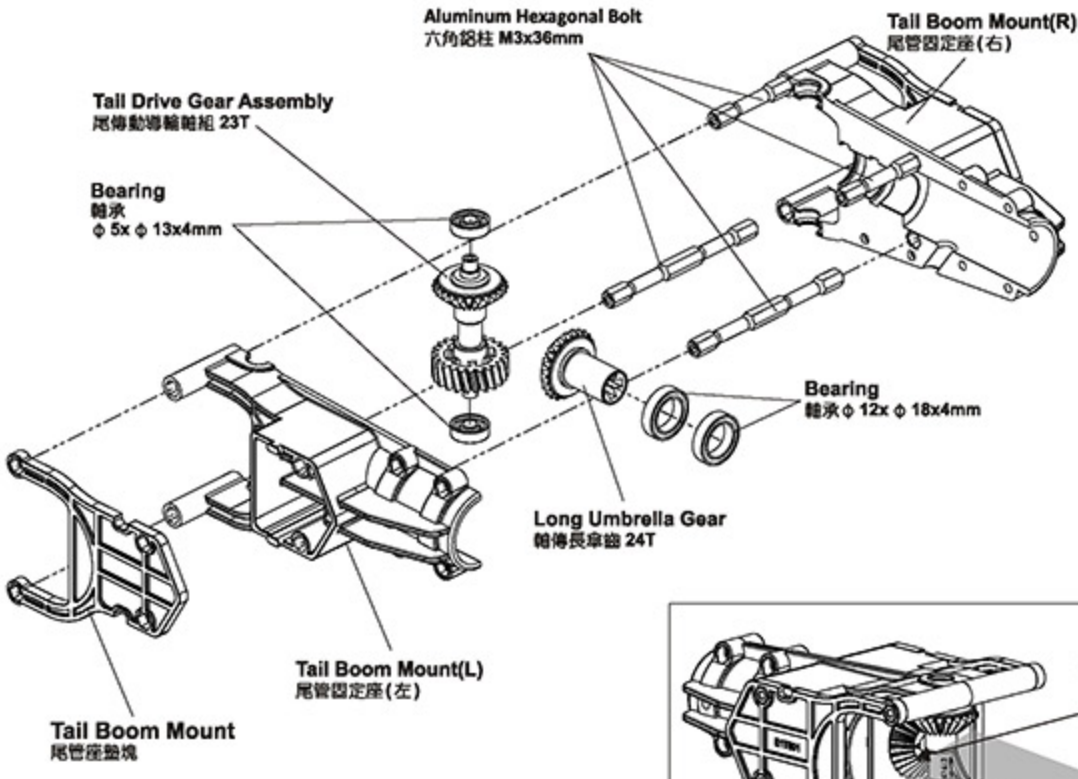
Special Collar Screw
特殊軸套螺絲
(M3x6.5mm) x 4

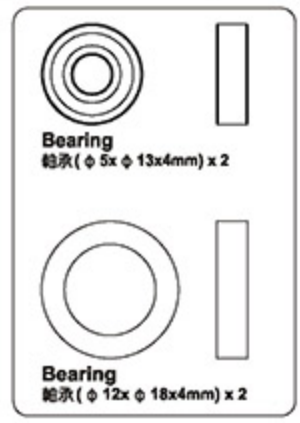


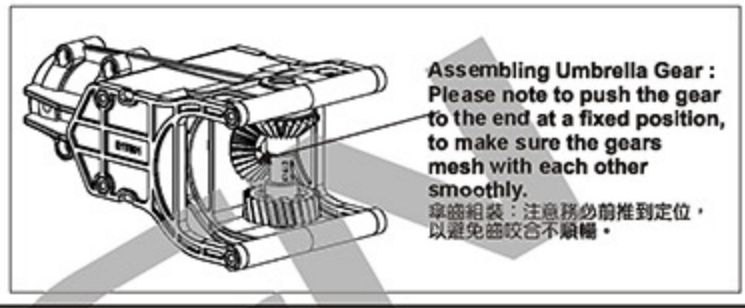
DS825M High Voltage Brushless Servo :
1.1520 μ s Standard Band /1520 μ s 寬頻系統
2.Stall Torque/輸出扭力： 8.0kg.cm(6.0V)
10.0kg.cm(7.4V)
12.5kg.cm(8.4V)
3.Motion Speed/動作速度： 0.04sec/60° (6.0V)
0.03sec/60° (7.4V)
0.028sec/60° (8.4V)
4.Dimension/尺寸： 40 x 20 x 391mm
5.Weight/重量： 72g

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。

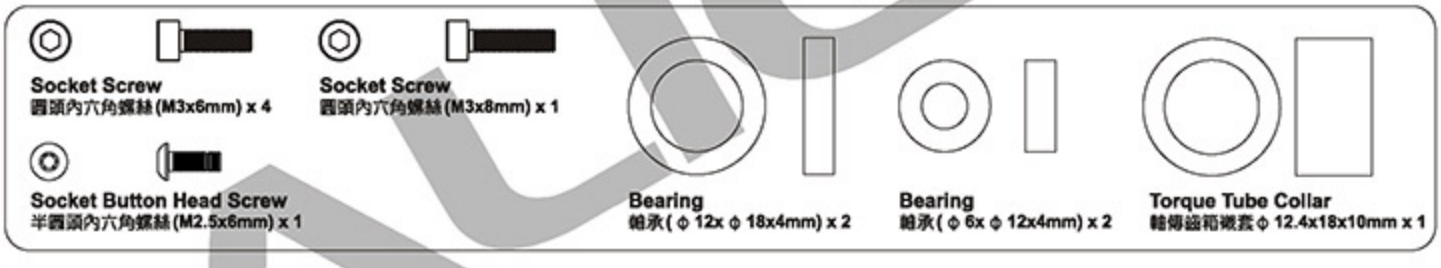
E1HT01

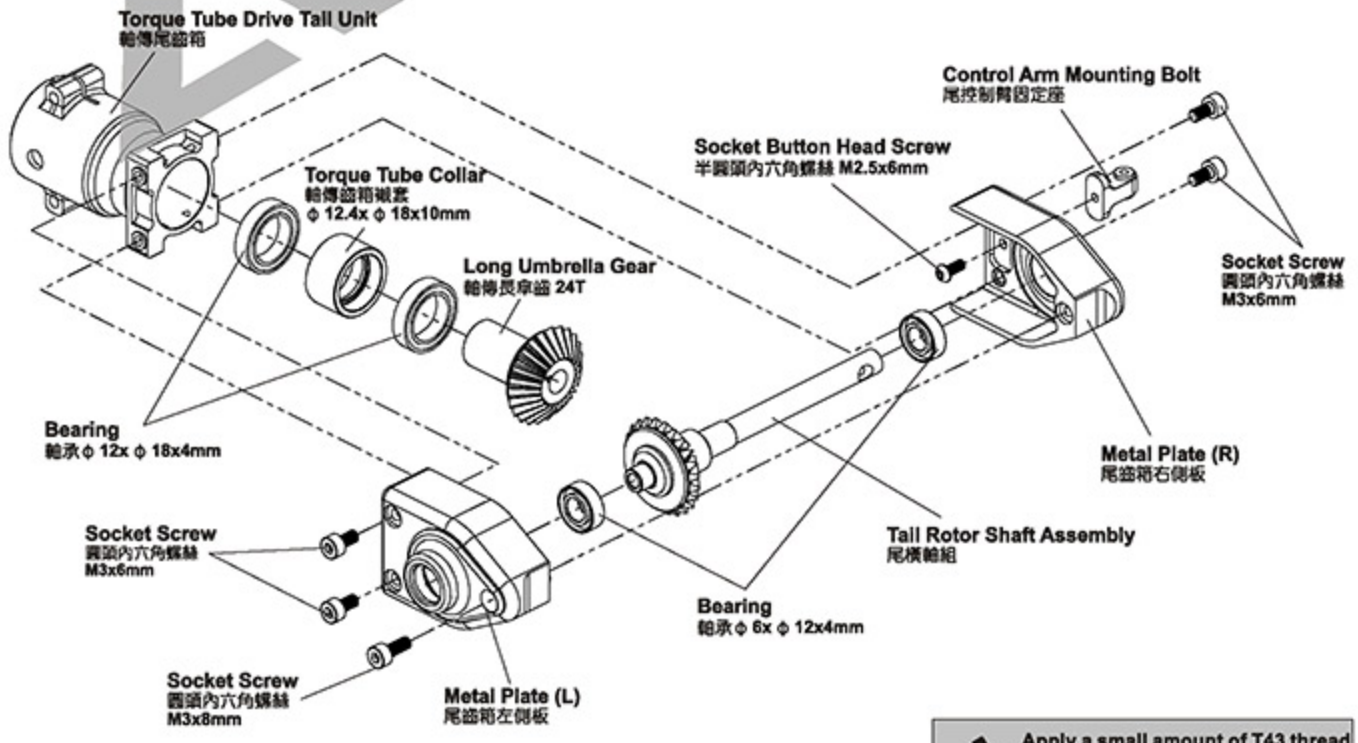






E1HT02





E1HT02

Collar Screw
軸套螺絲(M2x8mm)(牙長3mm) x 2

Socket Screw
圓頭內六角螺絲(M2x8mm) x 2

Socket Collar Screw
圓頭內六角軸套螺絲(M2.5x8mm) x 2

Socket Button Head Screw
半圓頭內六角螺絲(M4x8mm) x 2

Socket Button Head Screw
半圓頭內六角螺絲(M2.5x5mm) x 6

Socket Button Head Screw
半圓頭內六角螺絲(M3x5mm) x 1

Bearing
軸承(φ6x φ10x3mm) x 4

Washer
華司(φ4x φ8x1mm) x 2

Linkage Ball C(M3x3.5)
球頭C(M3x3.5)(φ5x8.5mm)x 1

M4 Set Screw
M4止洩螺絲(M4x4mm) x 1

Slide Shaft
尾軸滑套x1

Bearing
軸承(φ8x φ12x3.5mm) x 2

Thrust Bearing
止推軸承(φ6x φ12x4.5mm) x 2

Bearing
軸承(φ2.5x φ7.1x2..6mm) x 6

Collar
尾連桿頭鋼套(φ2.5x φ3.5x4mm) x 2

E1HT04

Socket Collar Screw
圓頭內六角軸套螺絲(M3x19mm) x 2

M3 Nut
M3防鬆螺帽 x 2

CAUTION 注意

The Metal Tail Rotor Holder is assembled at the factory, make sure to apply little thread lock on screws and tighten them back appropriately before starting to fly. Suggest to use torque wrench or torque lock for tightening screws with the torque value 5.0kg.cm.

尾旋翼夾座出廠為假組裝，螺絲必須使用適量螺絲膠重新鎖附，鎖附需注意適當緊度即可，建議搭配扭力或扭力機鎖附，扭力值為5.0kg.cm。

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

While assembly the slide shaft, please use suitable amount of T43 on the thread. Please do not use R48 or other high strength thread lock to avoid damages while maintenance or repairs.
組立尾軸滑套時，請使用適量的T43螺絲膠在螺牙上，嚴禁使用R48高膠合性軸承膠防止膠合過緊，以避免日後拆修維護零件之損傷。

THRUST BEARING止推軸承

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

(OUT) Smaller ID 內徑較小
(IN) Larger ID 內徑較大
Tail Rotor Holder 尾旋翼夾座

Assembling Umbrella Gear: Please note to push the gear to the end at a fixed position ,to make sure the gears mesh with each other smoothly.
傘齒組裝：注意務必前推到底定位，以避免齒咬合不順暢。

Socket Button Head Screw
半圓頭內六角螺絲
M2.5x5mm

Tail Pitch Bellcrank
尾控制工字臂

Slide Shaft
尾軸滑套

Bearing
軸承
φ8x φ12x3.5mm

T Type Arm
尾T型控制臂

Socket Collar Screw
圓頭內六角軸套螺絲
M2.5x8mm

Collar Screw
軸套螺絲(牙長3mm)
M2x8mm

T43

Control Link
尾控制連桿頭

Bearing Holder
尾翼控制軸承套

Collar
尾控制套墊圈

Tail Pitch Bellcrank Mount
尾固定連接座

Bearing
軸承
φ2.5x φ7.1x φ2.6mm

Rudder Control Arm
尾舵控制臂

Linkage Ball C
球頭C(M3x3.5)
φ5x8.5mm

Socket Button Head Screw
半圓頭內六角螺絲 M3x5mm

CAUTION 注意

Aim tail rotor hub at the concave of the tail rotor shaft and apply thread lock on the set screw. The tail rotor hub and screws are wear items, and thus should be inspected for replacement after every 100 flights. For flights with high head speed, the inspection interval should be reduced to ensure flight safety.
尾旋翼T型座器半尾橫軸的凹刻並鎖上，請確認止洩螺絲上膠，尾旋翼T型座和螺絲屬於飛行消耗品，建議每100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。

CAUTION 注意

Please tighten M2.5x8mm collar screw firmly but not over tightened. Over tighten the screw will cause the operation of control link to be tight.
鎖附M2.5x8mm軸套螺絲請使用適當力道，過度鎖緊會造成尾控制連桿頭轉動不順。

120 Carbon Fiber Tail Blades
120碳纖尾旋翼

Socket Collar Screw
圓頭內六角軸套螺絲
M3x19mm

M3 Nut
M3防鬆螺帽

Socket Button Head Screw
半圓頭內六角螺絲 M4x8mm

T43

Washer
華司φ4x φ8x1mm

Out

Thrust Bearing
止推軸承 φ6x φ12x4.5mm

IN

Bearing
軸承 φ6x φ10x3mm

Metal Tail Rotor Holder
尾旋翼夾座

Bearing
軸承 φ6x φ10x3mm

Tail Rotor Hub
尾旋翼T型座φ12.8x44.2mm

M4 Set Screw
M4止洩螺絲 M4x4mm

Collar
尾連桿頭鋼套
φ2.5x φ3.5x4mm

Socket Screw
圓頭內六角螺絲
(牙長4.5mm)M2.5x8mm

CAUTION 注意

After complete the tail rotor assembly, please check if it rotates smoothly.
尾旋翼組組裝完成後需確認尾旋翼夾座轉動滑順。

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

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，以確保平順壓入尾管中並與尾傳動軸保持垂直，讓尾軸傳動順暢。

Socket Screw
圓頭內六角螺絲
M3x14mm

M3 Nut
M3 防鬆螺帽

Torque Tube Bearing Holder
尾傳動軸承盤座

Socket Self Tapping Screw
圓頭內六角自攻螺絲
T4x10mm

Ball Link
連桿頭

Tail Control Guide
尾控制桿固定環

Socket Collar Screw
圓頭內六角軸套螺絲
M3x22mm

M3 Specialty Washer
M3 特殊華司
ϕ 3x ϕ 8x2mm

G1 Tail Boom
G1 碳纖尾管 1090mm

Stabilizer Mount (Upper)
水平翼固定上座

Torque Tube
尾傳動軸桿

Tail Rudder Control Rod
碳纖尾控制桿

Tail Boom Brace Set
尾管支撐組

Tail Control Guide
尾控制桿固定環套

Socket Screw
圓頭內六角螺絲
M4x12mm

Stabilizer Mount (Lower)
水平翼固定下座

M4 Washer
M4 華司
ϕ 4x ϕ 8x1mm

E1HT01

Socket Screw
圓頭內六角螺絲 (M3x14mm) x 4

M3 Nut
M3 防鬆螺帽 x 4

Before assembling, please wrap the tail boom with a scotch tape (Thickness 0.03~0.05mm) to avoid the mount slipping.
安裝前請先用透明膠帶(0.03~0.05mm厚)包覆尾管，可防止固定座滑動。

E1HT03

Socket Screw
圓頭內六角螺絲 (M4x12mm) x 2

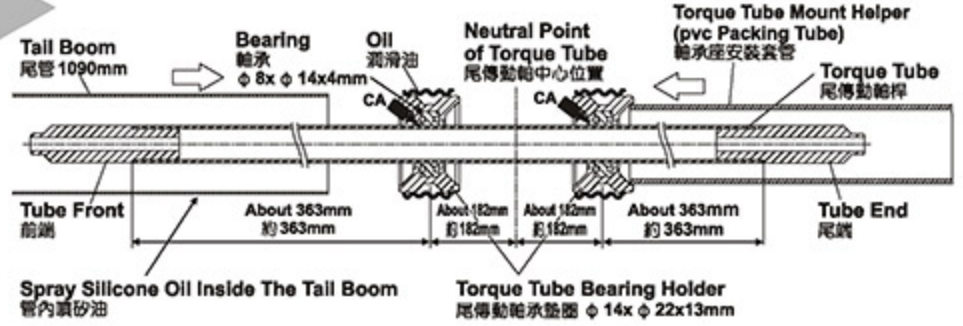
M4 Washer
M4 華司 (ϕ 4x ϕ 8x1mm) x 2

Socket Screw
圓頭內六角螺絲 (M3x20mm) x 2

M3 Specialty Washer
M3 特殊華司 (ϕ 3x ϕ 8x2mm) x 2

TIP TO FIX THE TORQUE TUBE 傳動軸軸承固定位要領

Please apply some CA glue to fix bearing on the torque tube, avoid CA glue from the bearing side 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 沾到軸承的防塵蓋而導致軸承卡死，插入尾管內時，尾傳動軸承盤座外表抹些潤滑油，利用隨附軸承座安裝套管將尾傳動軸承盤座平行壓入尾管中不可歪斜。



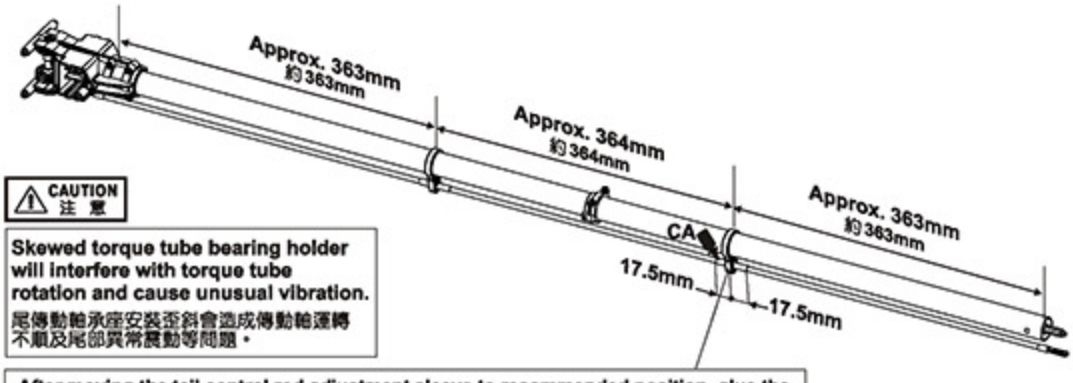
E1HT03

Socket Self Tapping Screw
圓頭內六角自攻螺絲
(T4x10mm) x2

700N FL Ball Links
700N FL 連桿頭 x 2

Tail Control Guide
700 碳纖尾控制桿套
(ϕ 2.6x ϕ 6x11mm)

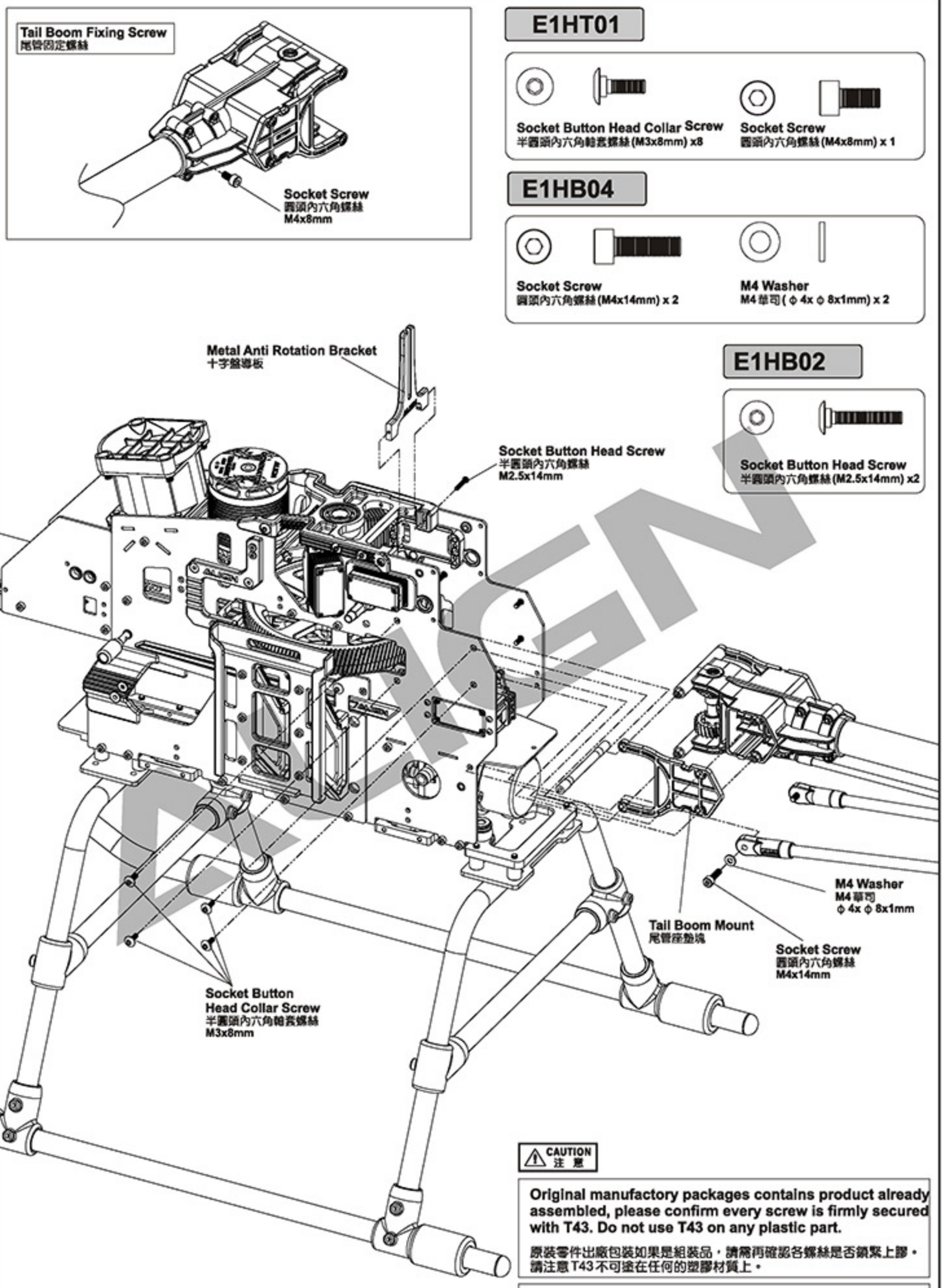
700 Linkage Rod(C)
700 連桿 C(ϕ 2.5x23mm)



CAUTION 注意

Skewed torque tube bearing holder will interfere with torque tube rotation and cause unusual vibration.
尾傳動軸承座安裝歪斜會造成傳動軸運轉不順及尾部異常震動等問題。

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碳纖尾控制桿接觸面以適量瞬間膠固定。


Tail Boom Fixing Screw
尾管固定螺絲
Socket Screw
圓頭內六角螺絲
M4x8mm
E1HT01
Socket Button Head Collar Screw
半圓頭內六角軸套螺絲 (M3x8mm) x8
Socket Screw
圓頭內六角螺絲 (M4x8mm) x 1
E1HB04
Socket Screw
圓頭內六角螺絲 (M4x14mm) x 2
M4 Washer
M4 華司 (ϕ 4x ϕ 8x1mm) x 2
E1HB02
Socket Button Head Screw
半圓頭內六角螺絲 (M2.5x14mm) x2
Metal Anti Rotation Bracket
十字盤導板
Socket Button Head Screw
半圓頭內六角螺絲
M2.5x14mm
M4 Washer
M4 華司
ϕ 4x ϕ 8x1mm
Tail Boom Mount
尾管座墊塊
Socket Screw
圓頭內六角螺絲
M4x14mm
Socket Button
Head Collar Screw
半圓頭內六角軸套螺絲
M3x8mm
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，請需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。
When tightening a screw to a plastic part, please tighten it firmly, but not over tightened, or they will strip.
螺絲鎖入塑膠件請務必注意，適當扭力鎖緊即可，而過緊的扭力可能會導致滑牙。
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)。

E1HZ05

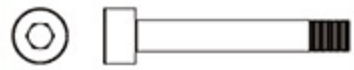
Elevator Ball Link
升降臂連桿頭 x 6

Collar
連桿套
(ϕ 6x ϕ 4.85x3mm) x 6

700X Linkage Rod (A)
700X 連桿 (A)(M3x41mm) x 3

E1HH01A

M5 Nut
M5 防鬆螺帽 x 2



Main Rotor Reinforced Screw
主旋翼強化螺絲 (M5x33mm) 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.

鎖緊主旋翼螺絲須注意適當緊度即可，過緊可能導致主旋翼夾座受損，飛行意外發生。

Must pull the main blades straight outward before mission flight. Only need well assemble the main blades right before flight.

植保機作業前必需進行主旋翼甩直動作，主旋翼可於作業前再進行組裝。

990 Carbon Fiber Blades
990 碳纖主旋翼

Socket Collar Screw
主旋翼強化螺絲
M5x33mm

Blade Clips
主旋翼夾片

M5 Nut
M5 防鬆螺帽

29.5mm

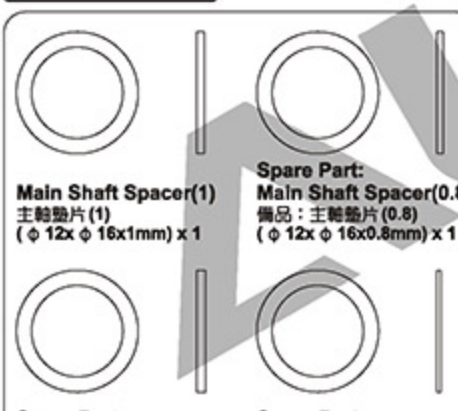
41mm

Linkage Rod(A)
Approx. 60mm
連桿 (A) 約 60mm

Standard Equipment : Main shaft spacer(1)
標準品：主軸墊片 (1)
ϕ 12x ϕ 16x1mm

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) ϕ 12x ϕ 16x1.2mm
主軸墊片 (0.8) ϕ 12x ϕ 16x0.8mm
主軸墊片 (0.5) ϕ 12x ϕ 16x0.5mm

E1HH02



Main Shaft Spacer(1)
主軸墊片 (1)
(ϕ 12x ϕ 16x1mm) x 1

Spare Part:
Main Shaft Spacer(0.8)
備品：主軸墊片 (0.8)
(ϕ 12x ϕ 16x0.8mm) x 1

Spare Part:
Main Shaft Spacer(1.2)
備品：主軸墊片 (1.2)
(ϕ 12x ϕ 16x1.2mm) x 1

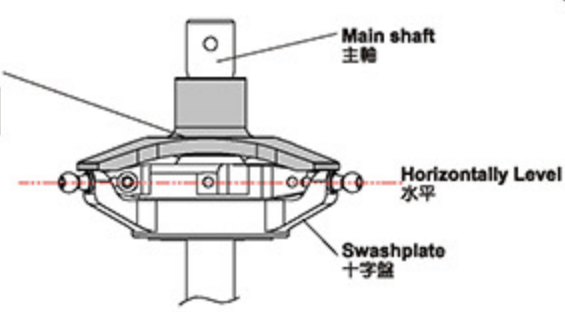
Spare Part:
Main Shaft Spacer(0.5)
備品：主軸墊片 (0.5)
(ϕ 12x ϕ 16x0.5mm) x 1

M4 Nut
M4 防鬆螺帽

Socket Screw
圓頭內六角輪套螺絲
M4x27mm

[H70118]
Swashplate Leveler
十字盤校正器

Optional Equipment
另購品



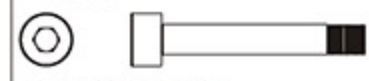
CAUTION 注意

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，請務必使用十字盤調整器校正十字盤，調整伺服器連桿長度，確保十字盤達到水平狀態，再進行基本機體設定，這樣才能確保飛行性能達到最佳效果。

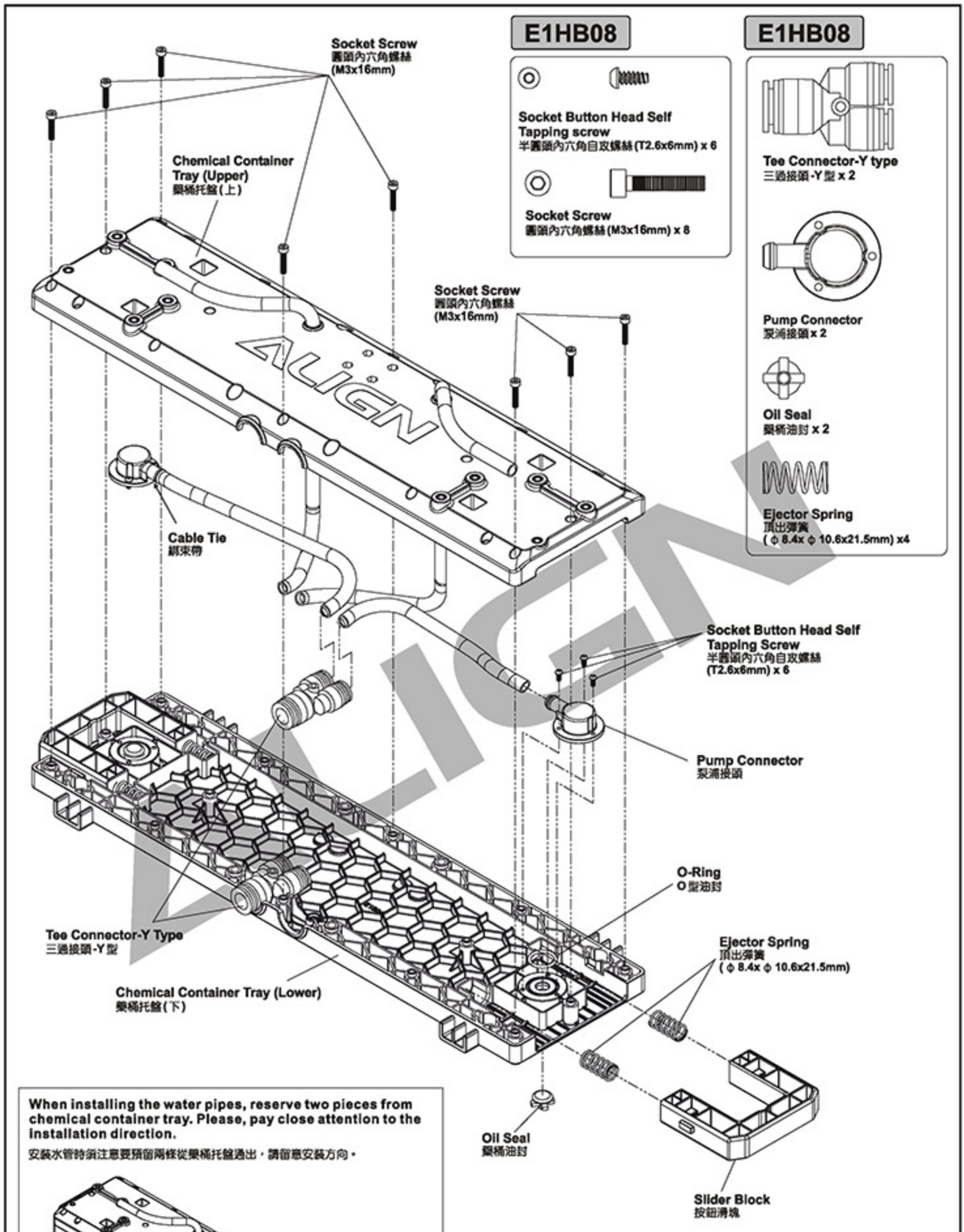
E1HB06

M4 Nut
M4 防鬆螺帽 x 1



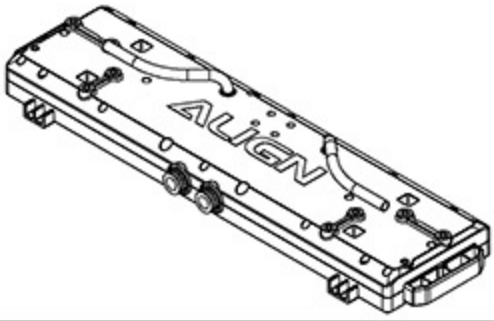
Socket Collar Screw
圓頭內六角輪套螺絲 (M4x27mm) x 1

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)。



When installing the water pipes, reserve two pieces from chemical container tray. Please, pay close attention to the installation direction.

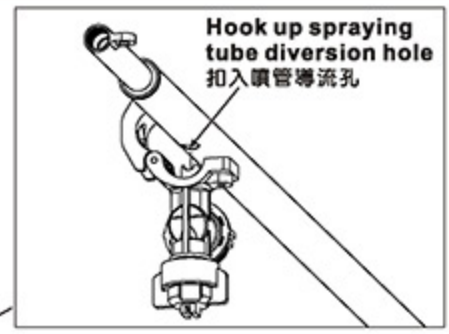
安裝水管時須注意要預留兩條從藥桶托盤過出，請留意安裝方向。

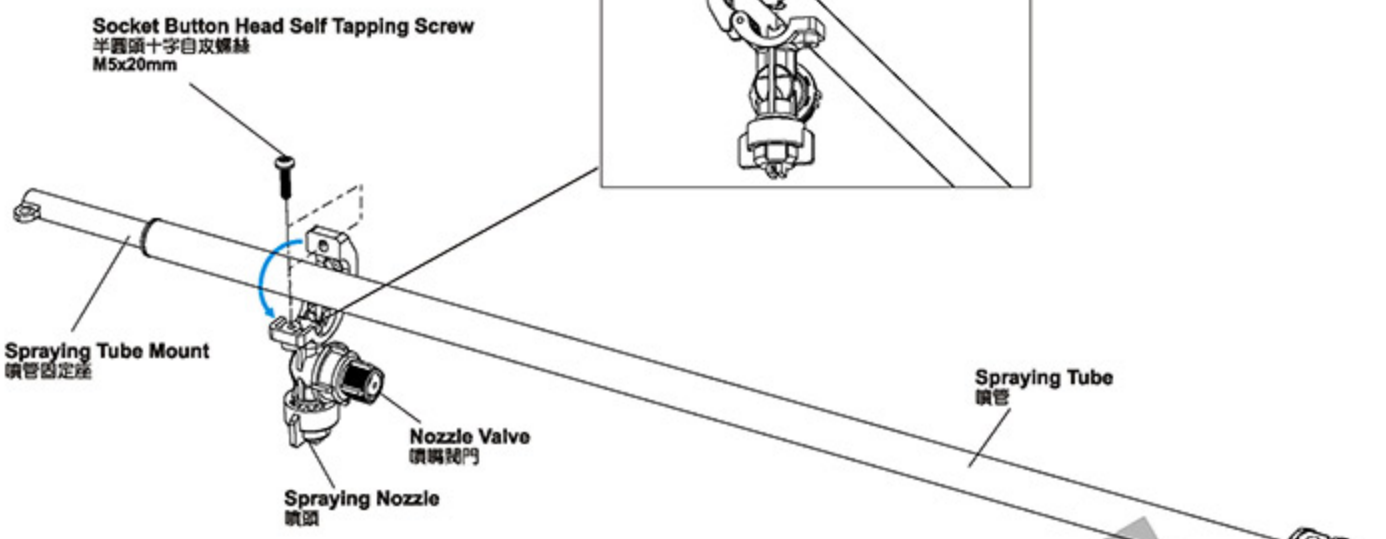


CAUTION 注 意

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，請需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。



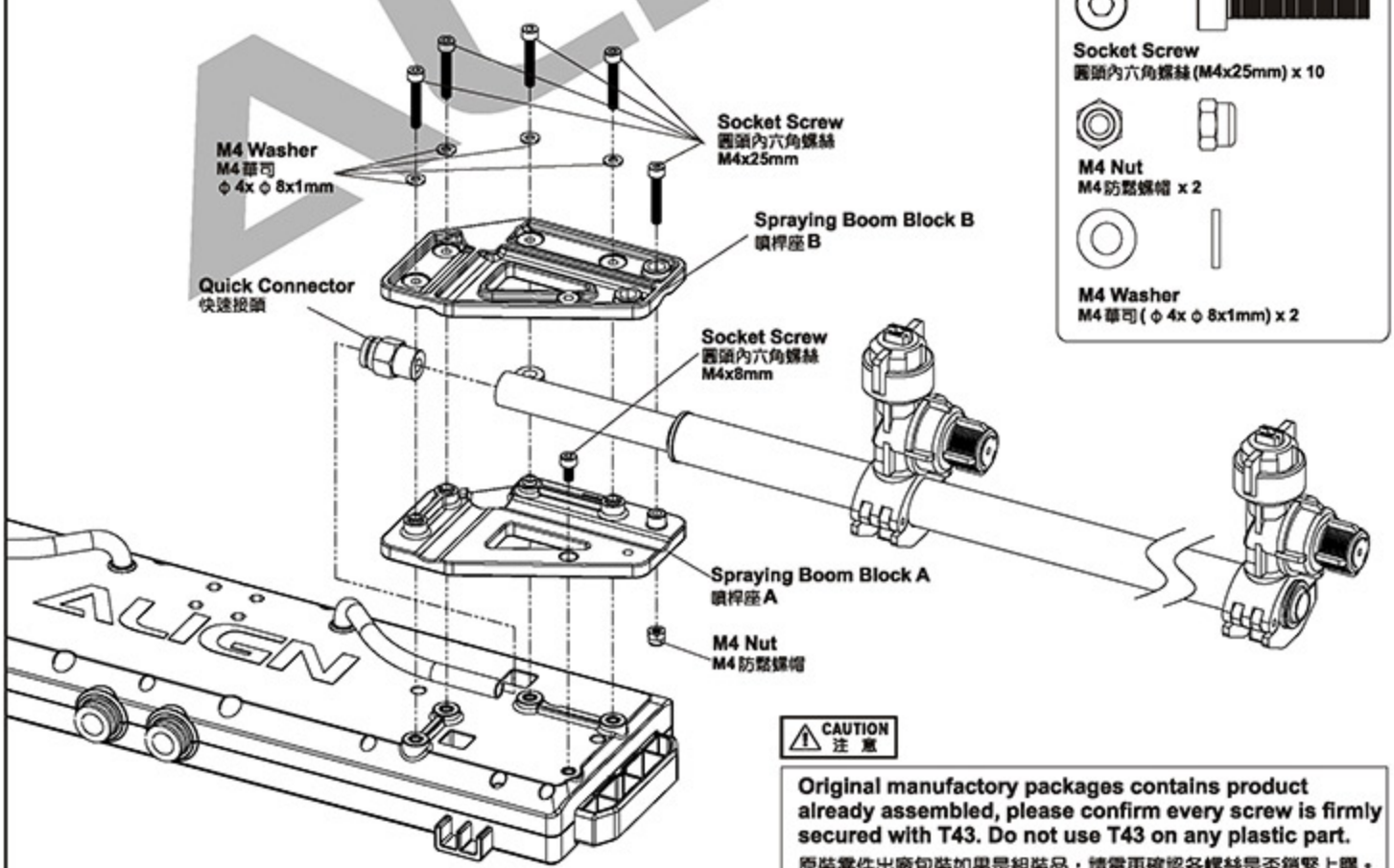


Two nozzles are located on the left and right sides. When installing be sure to direct the nozzle valve toward the outside. Nozzle clips are snapped into the spout orifices and secured with a semicircular cross tapping screw.

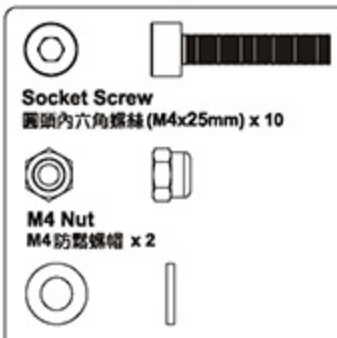
左右各有兩組噴頭，安裝時務必將噴嘴閥門朝向外側。
噴嘴夾打開扣入噴管導流孔，再以半圓頭十字自攻螺絲鎖緊。

E1HB08

Socket Button Head Self Tapping Screw
半圓頭十字自攻螺絲
(M5x20mm) x 2



E1HB08



Socket Screw
圓頭內六角螺絲 (M4x25mm) x 10

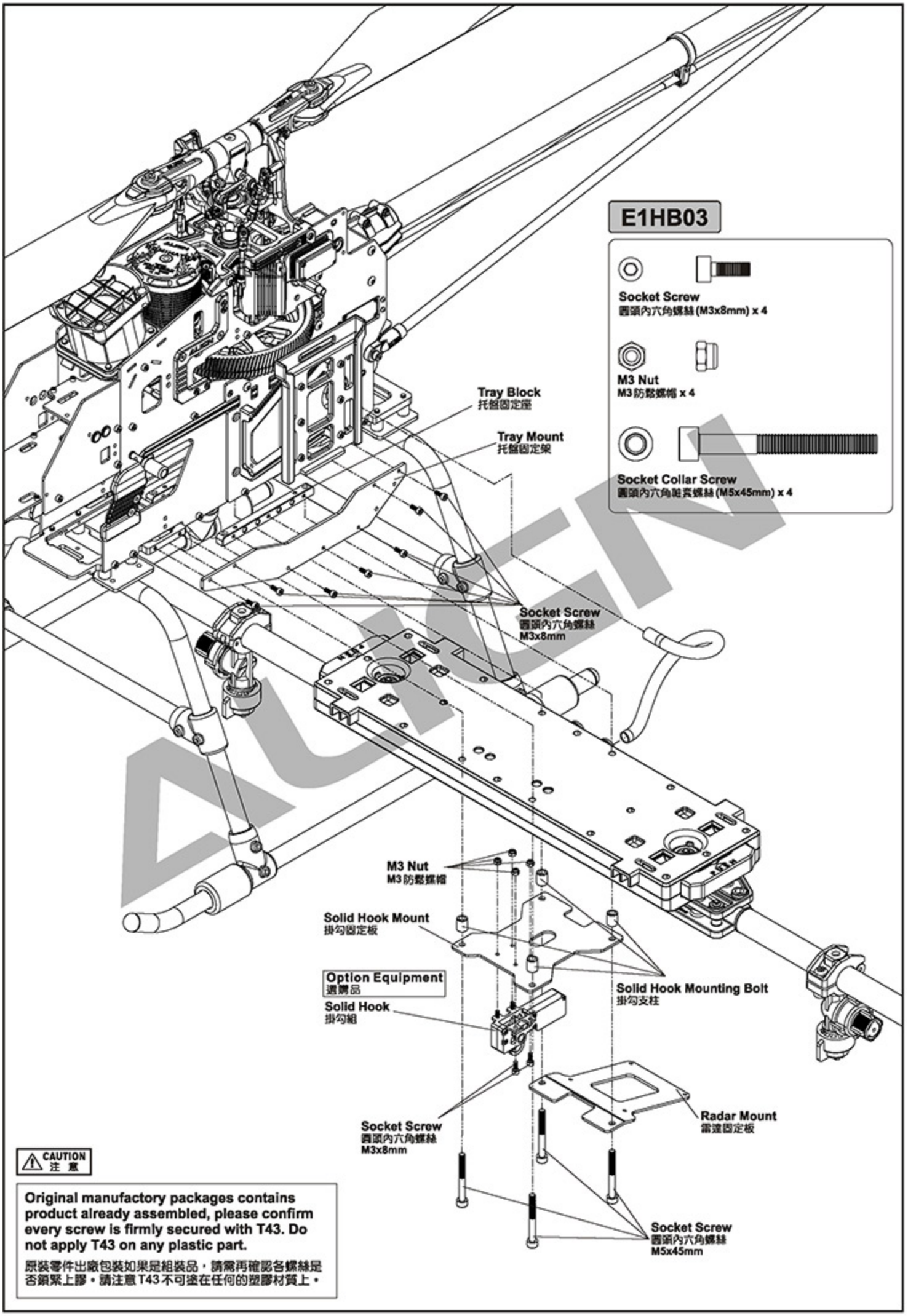
M4 Nut
M4防鬆螺帽 x 2

M4 Washer
M4華司 (ϕ 4x ϕ 8x1mm) x 2

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，請需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。



CAUTION
注 意

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

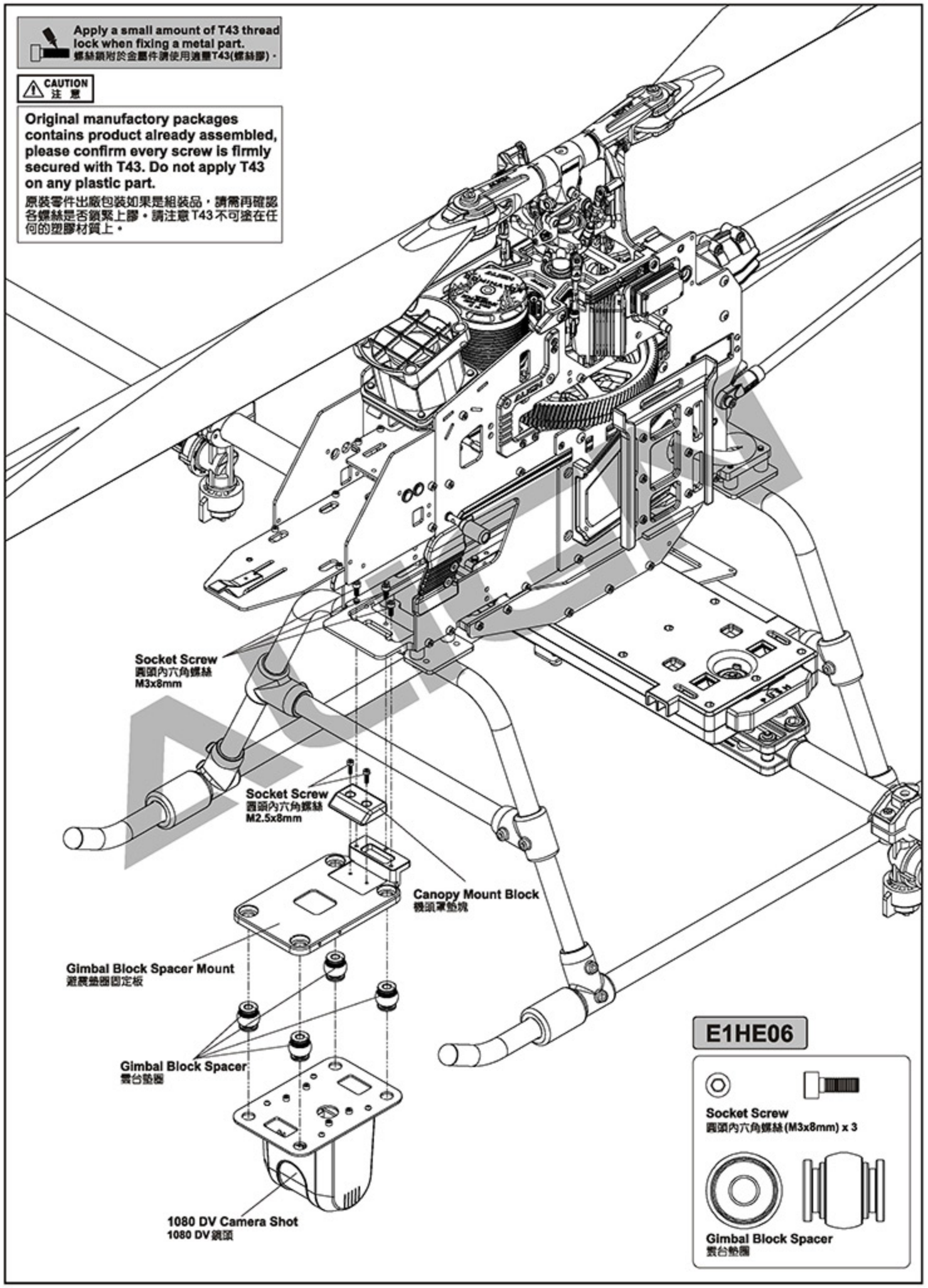
原裝零件出廠包裝如果是組裝品，請需再確認各螺絲是否鎖緊上膠，請注意T43不可塗在任何的塑膠材質上。

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)。

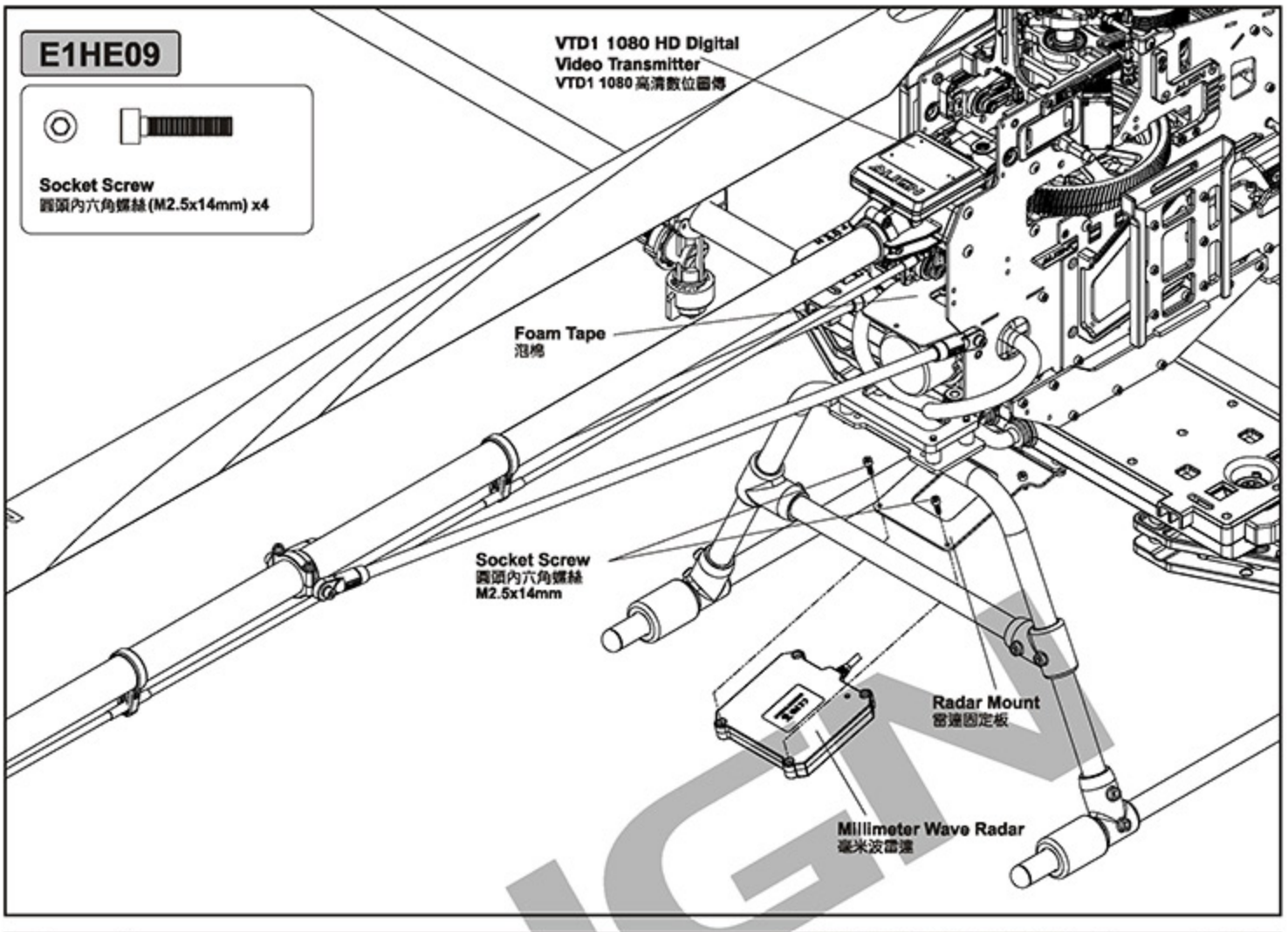
CAUTION 注意

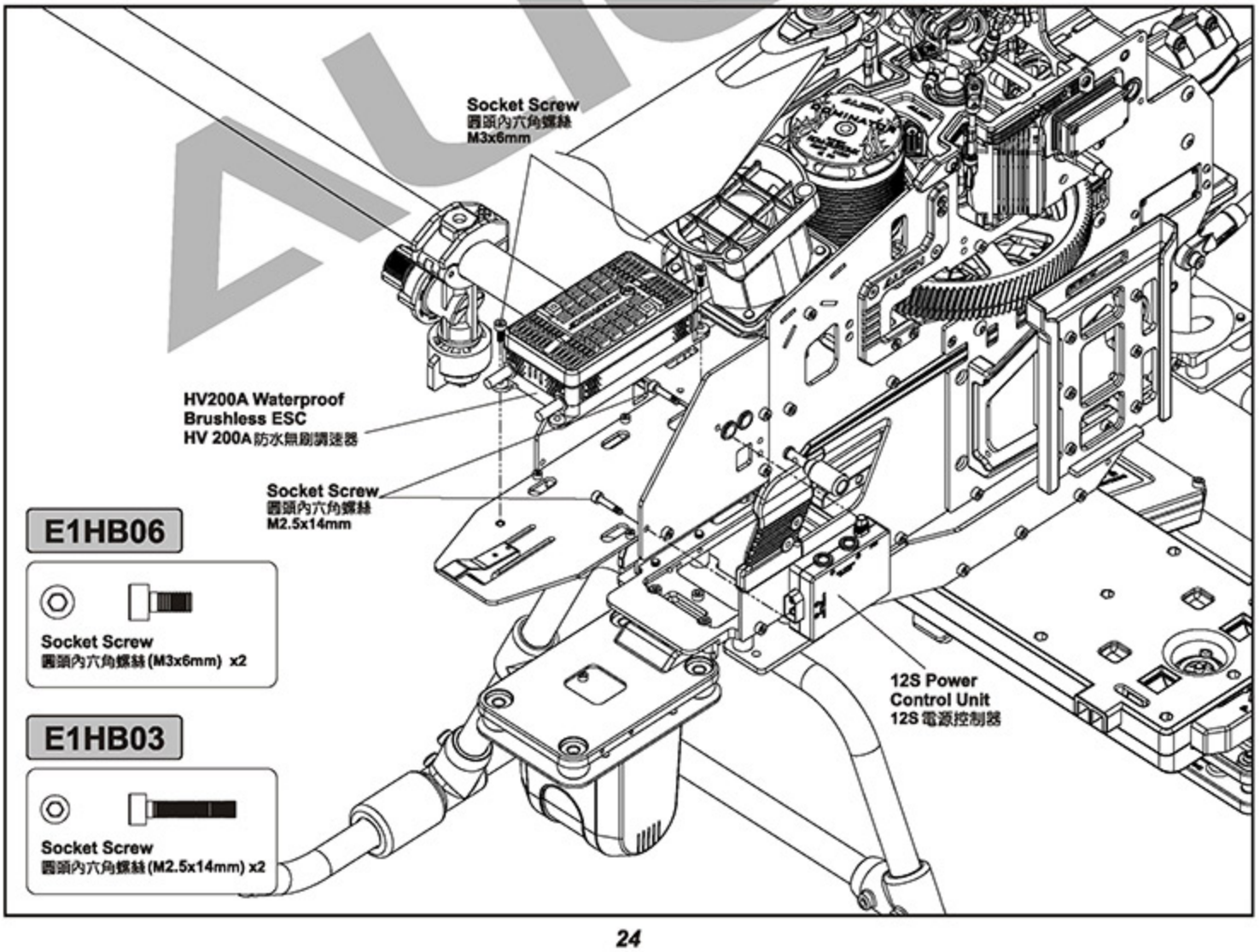
Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not apply T43 on any plastic part.

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



E1HE06

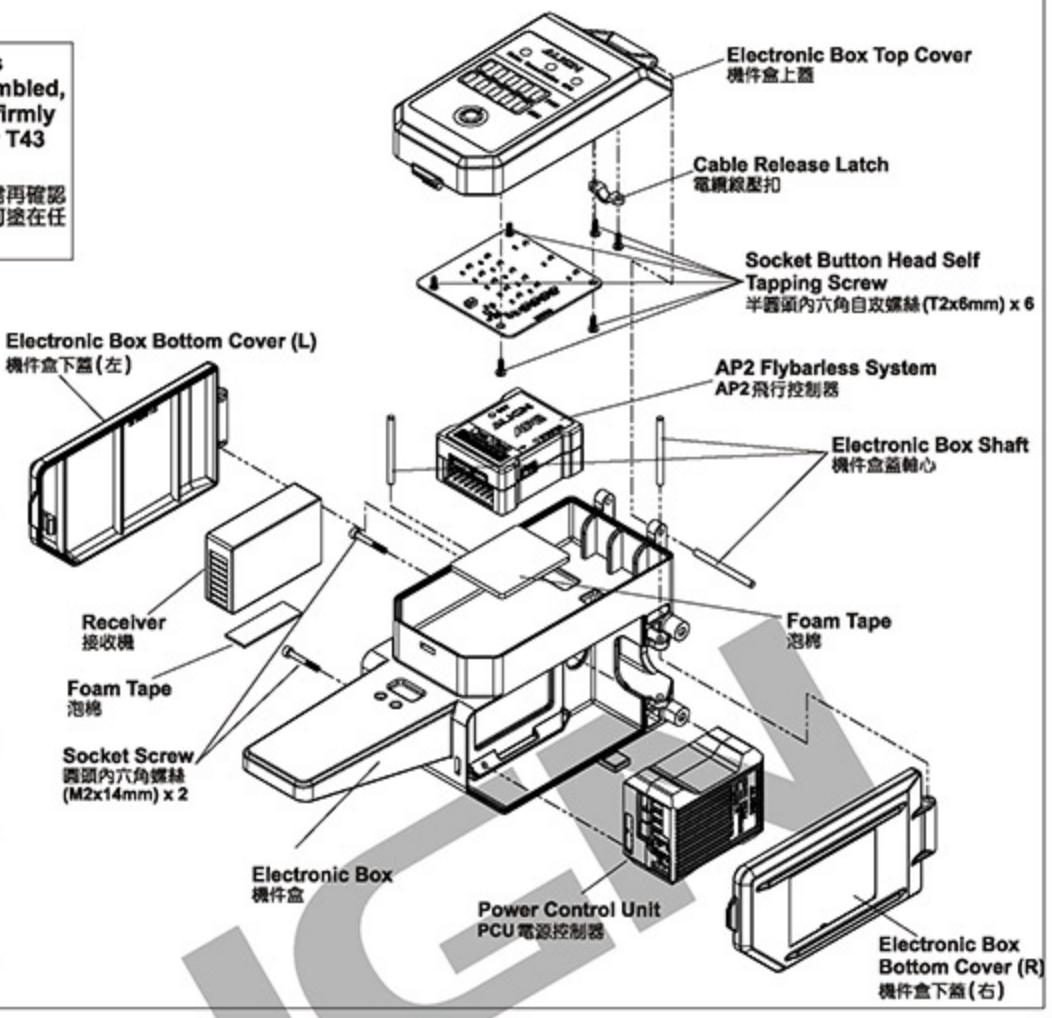

E1HE09
Socket Screw
圓頭內六角螺絲 (M2.5x14mm) x4
VTD1 1080 HD Digital
Video Transmitter
VTD1 1080高清數位圖傳
Foam Tape
泡棉
Socket Screw
圓頭內六角螺絲
M2.5x14mm
Radar Mount
雷達固定板
Millimeter Wave Radar
毫米波雷達


Socket Screw
圓頭內六角螺絲
M3x6mm
HV200A Waterproof
Brushless ESC
HV 200A防水無刷調速器
Socket Screw
圓頭內六角螺絲
M2.5x14mm
E1HB06
Socket Screw
圓頭內六角螺絲 (M3x6mm) x2
E1HB03
Socket Screw
圓頭內六角螺絲 (M2.5x14mm) x2
12S Power
Control Unit
12S電源控制器

CAUTION
注 意

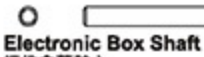
Original manufactory packages contains product already assembled, please confirm every screw is firmly secured with T43. Do not apply T43 on any plastic part.

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



E1HB05

Socket Button Head Self Tapping screw
半圓頭內六角自攻螺絲(T2x6mm) x 6



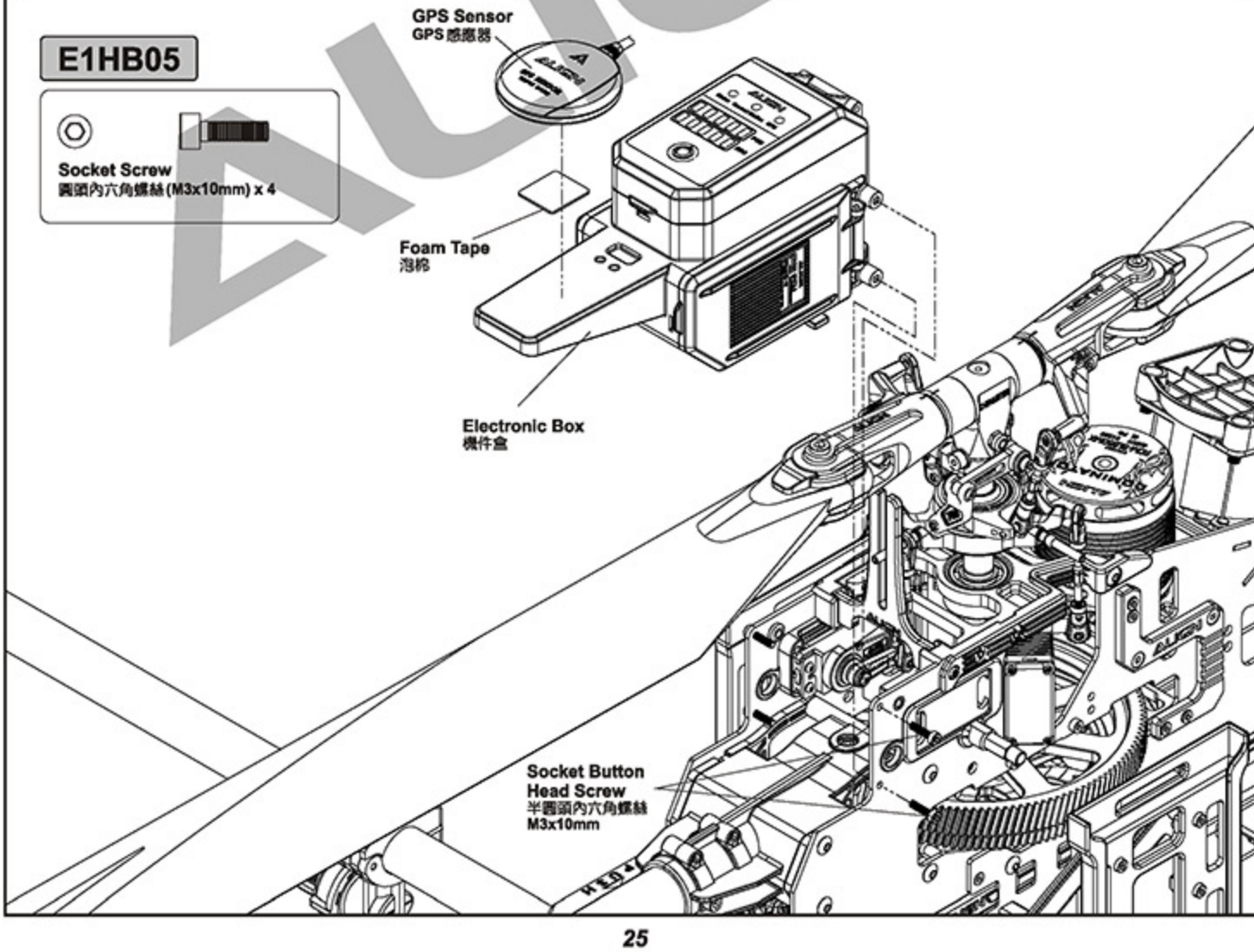
Electronic Box Shaft
機件盒蓋軸心

E1HE03

Socket Screw
圓頭內六角螺絲(M2x14mm) x 2

E1HB05

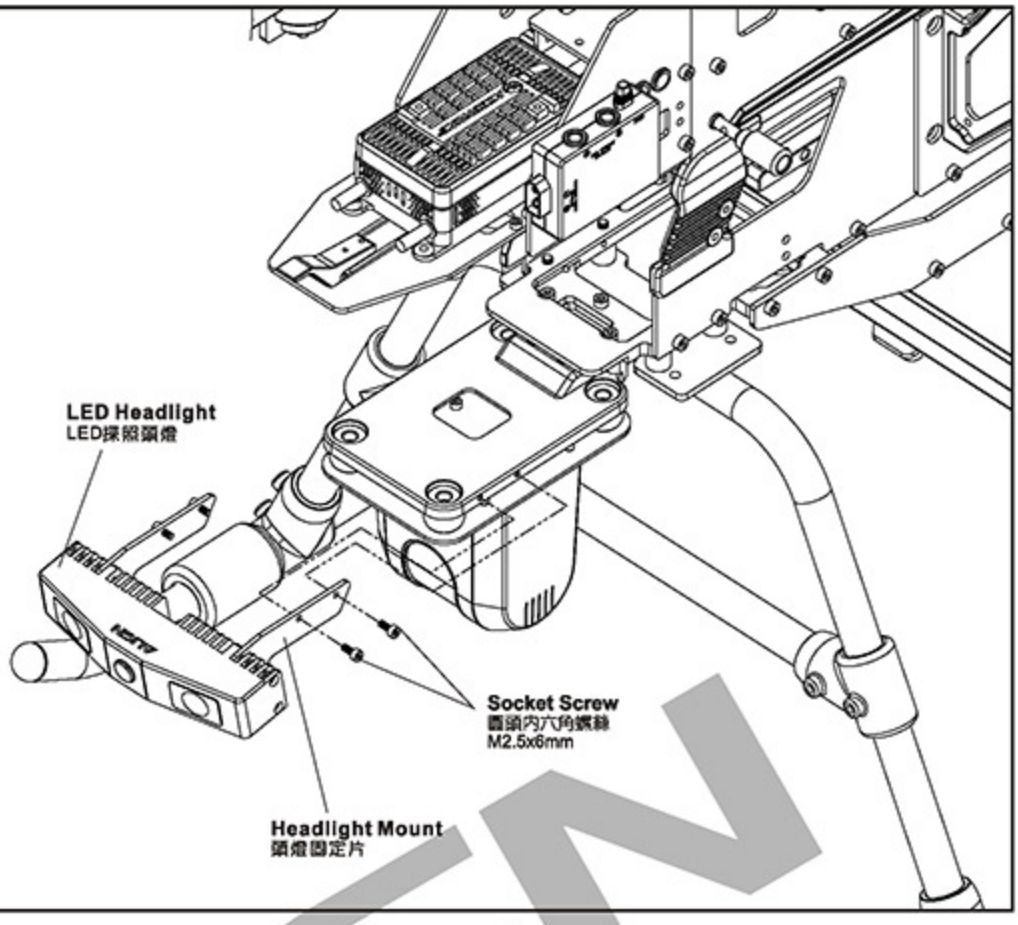
Socket Screw
圓頭內六角螺絲(M3x10mm) x 4



CAUTION 注意

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

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



E1HE10

Socket Screw
圓頭內穴角螺絲(M 2.5x6mm) x 4

BATTERY INSTALLATION ILLUSTRATION 電池安裝

CAUTION 注意

Make sure the battery is inserted properly and firmly with the latch slide surface facing in the battery rail to prevent any unexpected danger happened during flights.

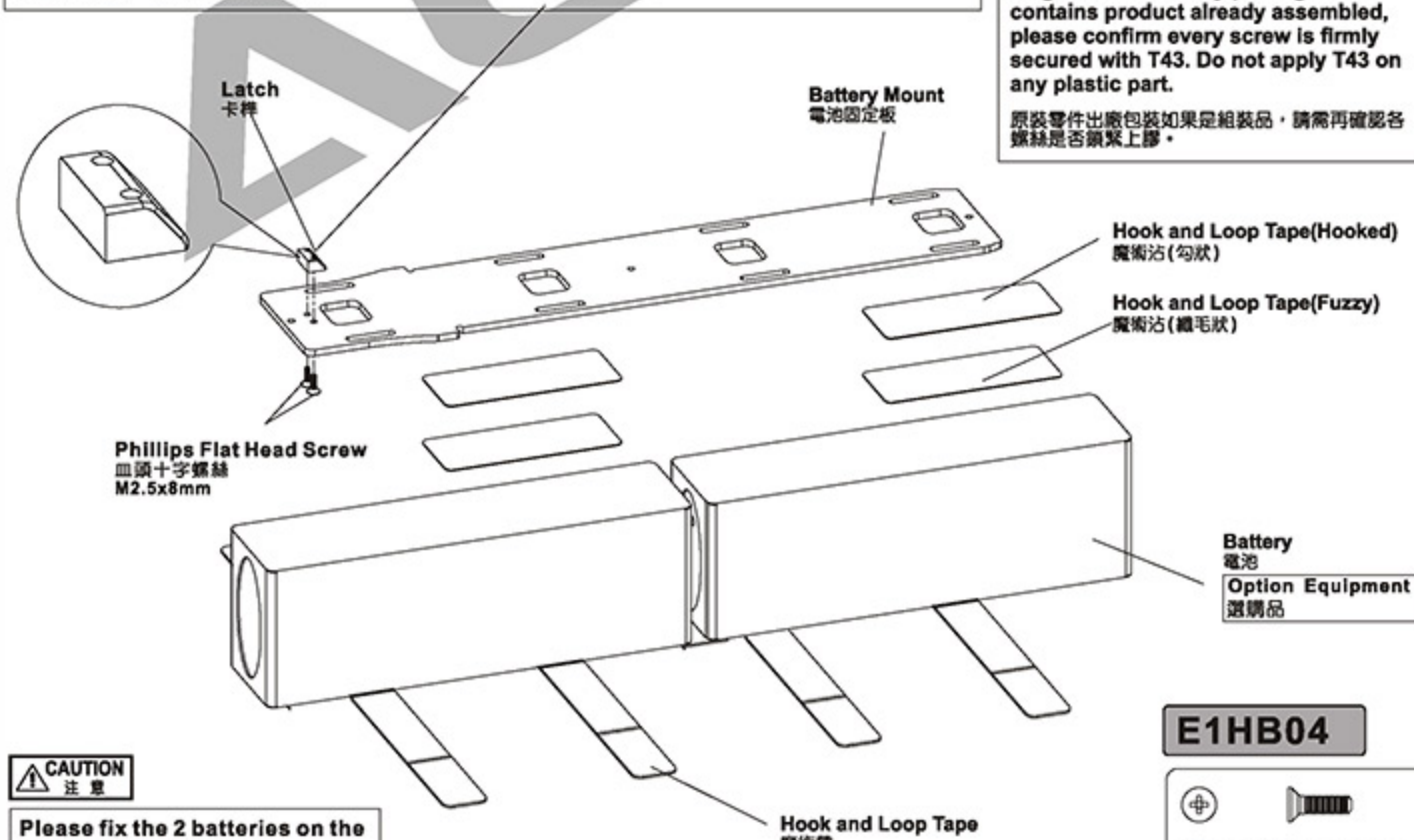
卡榫正確安裝方向，請將斜面朝向內，避免因卡榫與電池壓扣不完全，在高速飛行中可能造成電池滑出或其他不可預期的意外發生。

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

原裝零件出廠包裝如果是組裝品，請需再確認各螺絲是否鎖緊上膠。



CAUTION 注意

Please fix the 2 batteries on the battery mount evenly.
2顆電池請平均固定於電池板上。

E1HB04

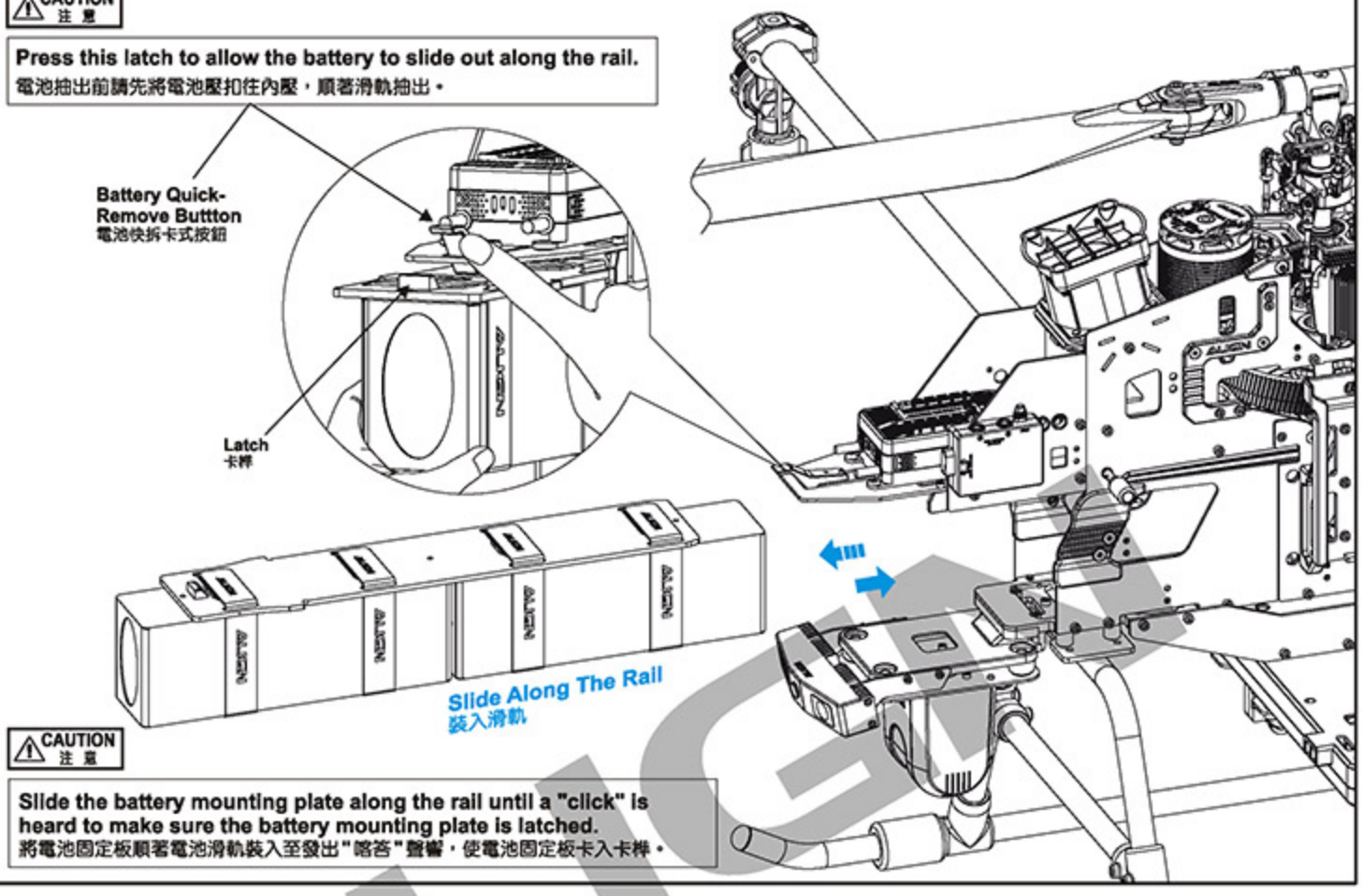
Phillips Flat Head Screw
皿頭十字螺絲(M2.5x8mm) x 2

INSERT THE BATTERY FROM THE FRONT 電池從前方置入

New 3K Main frame embedded with battery mounting rails with patented spring loaded latching mechanism.
3K側板與電池滑軌一體成型，整合式彈匣結構加卡榫設計。

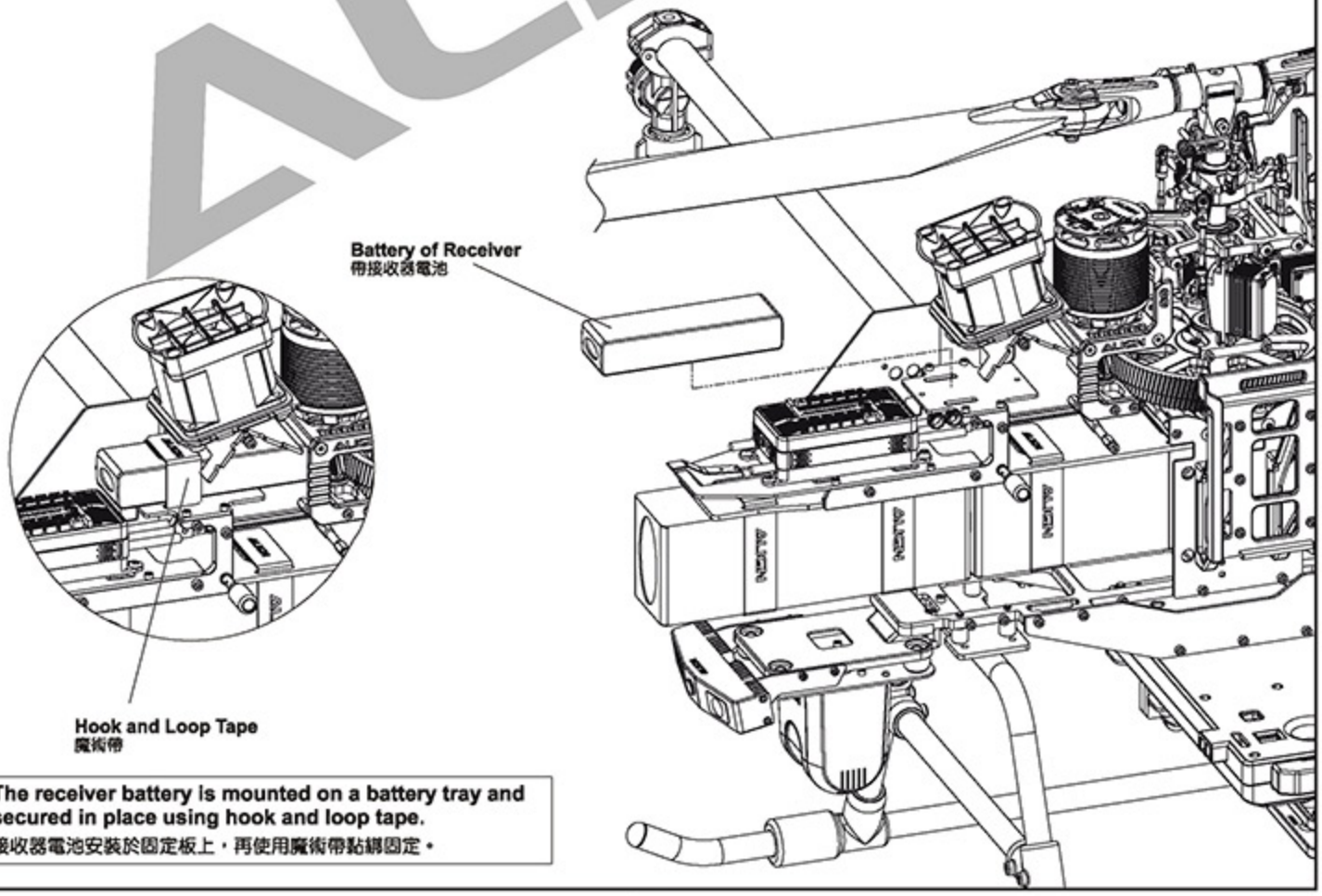
CAUTION 注意

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。

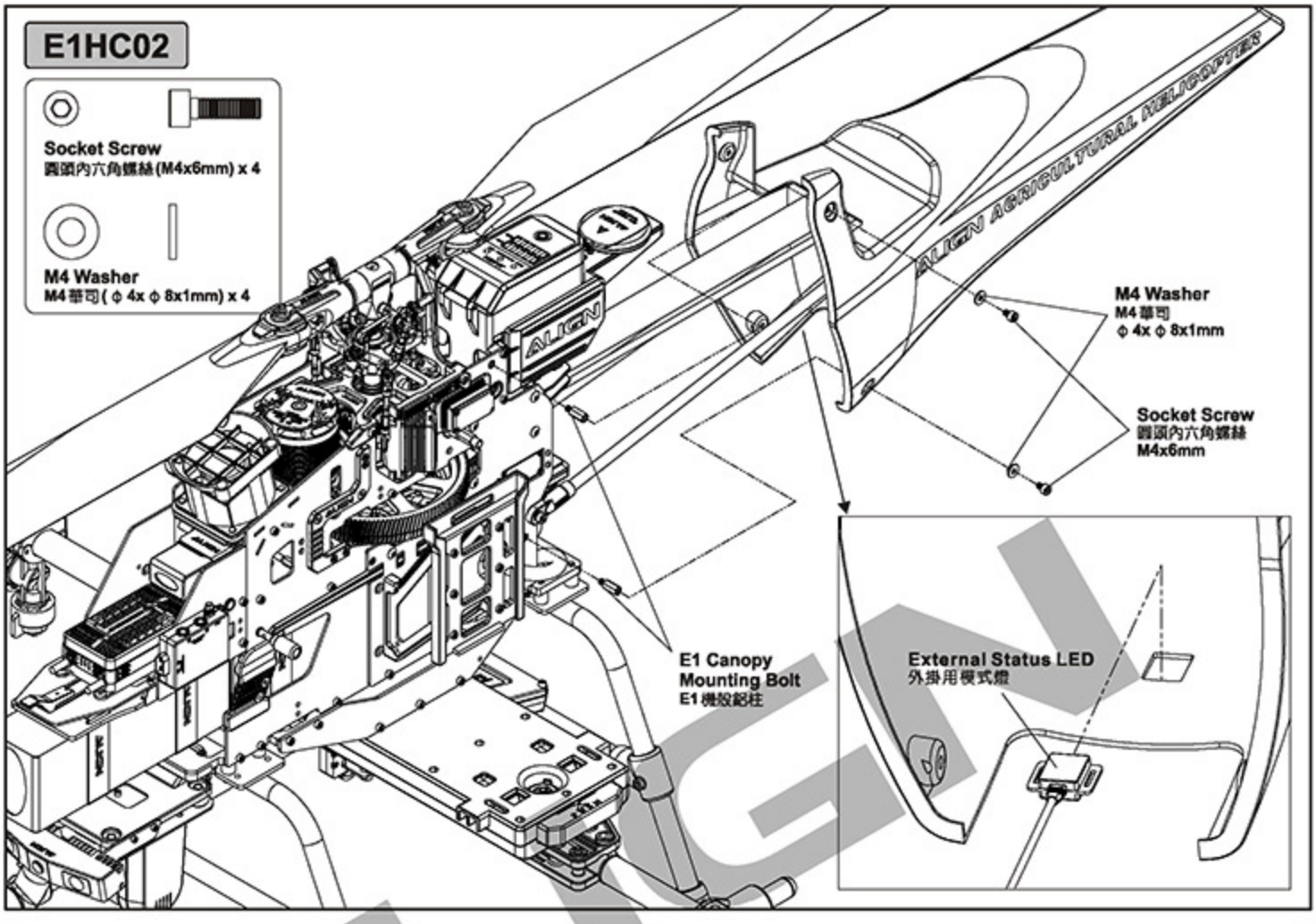


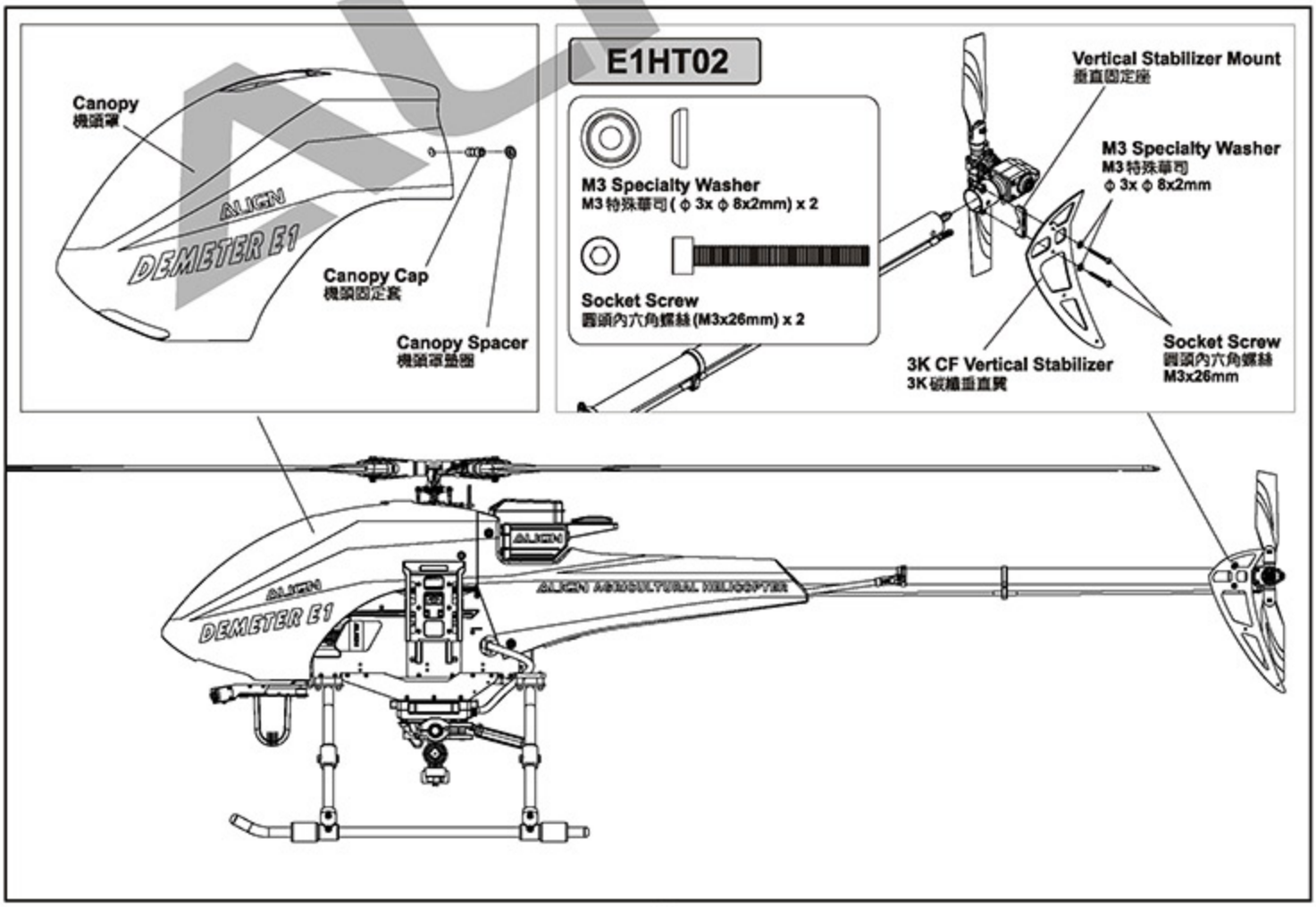
CAUTION 注意

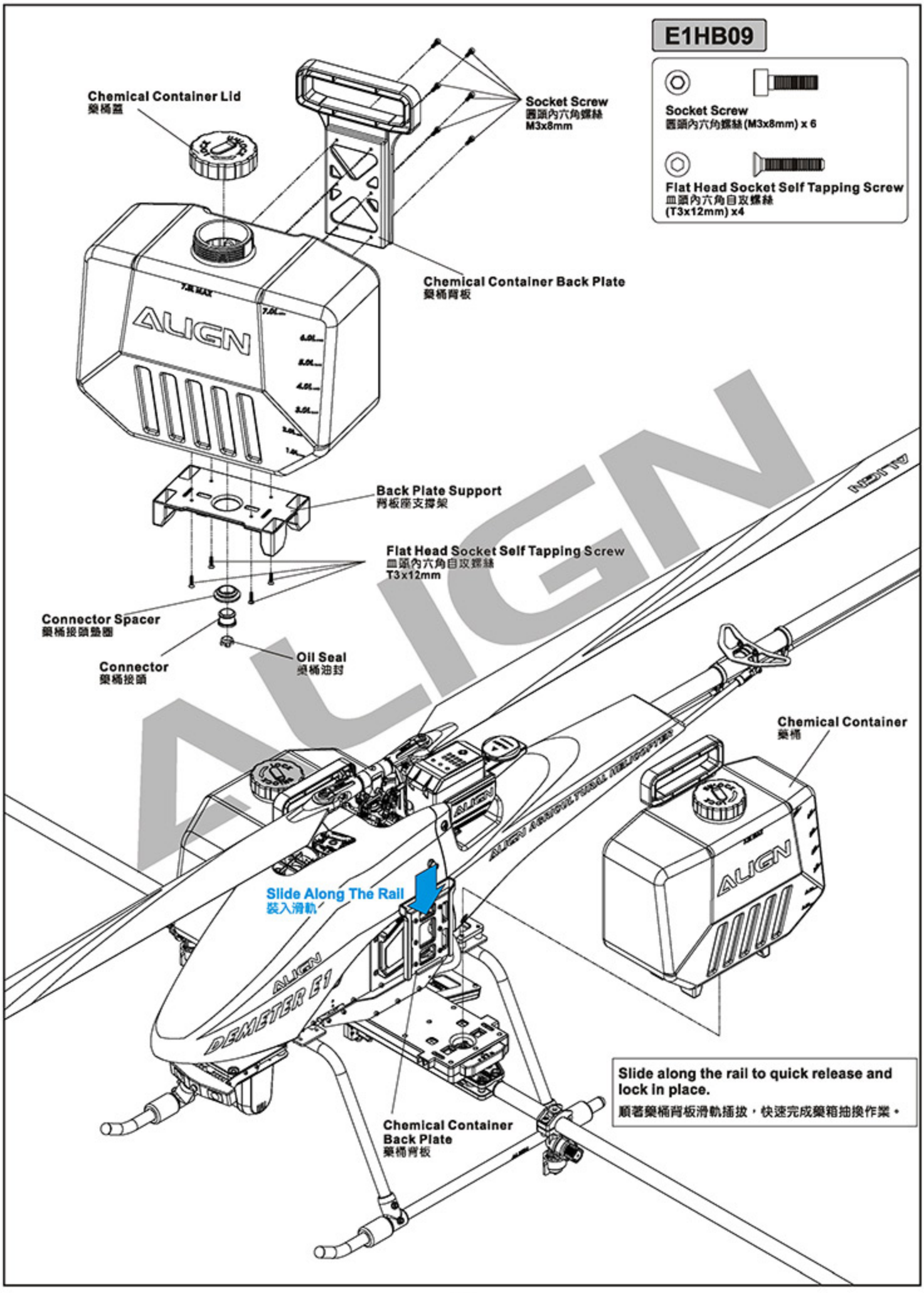
Slide the battery mounting plate along the rail until a "click" is heard to make sure the battery mounting plate is latched.
將電池固定板順著電池滑軌裝入至發出"喀答"聲響，使電池固定板卡入卡榫。

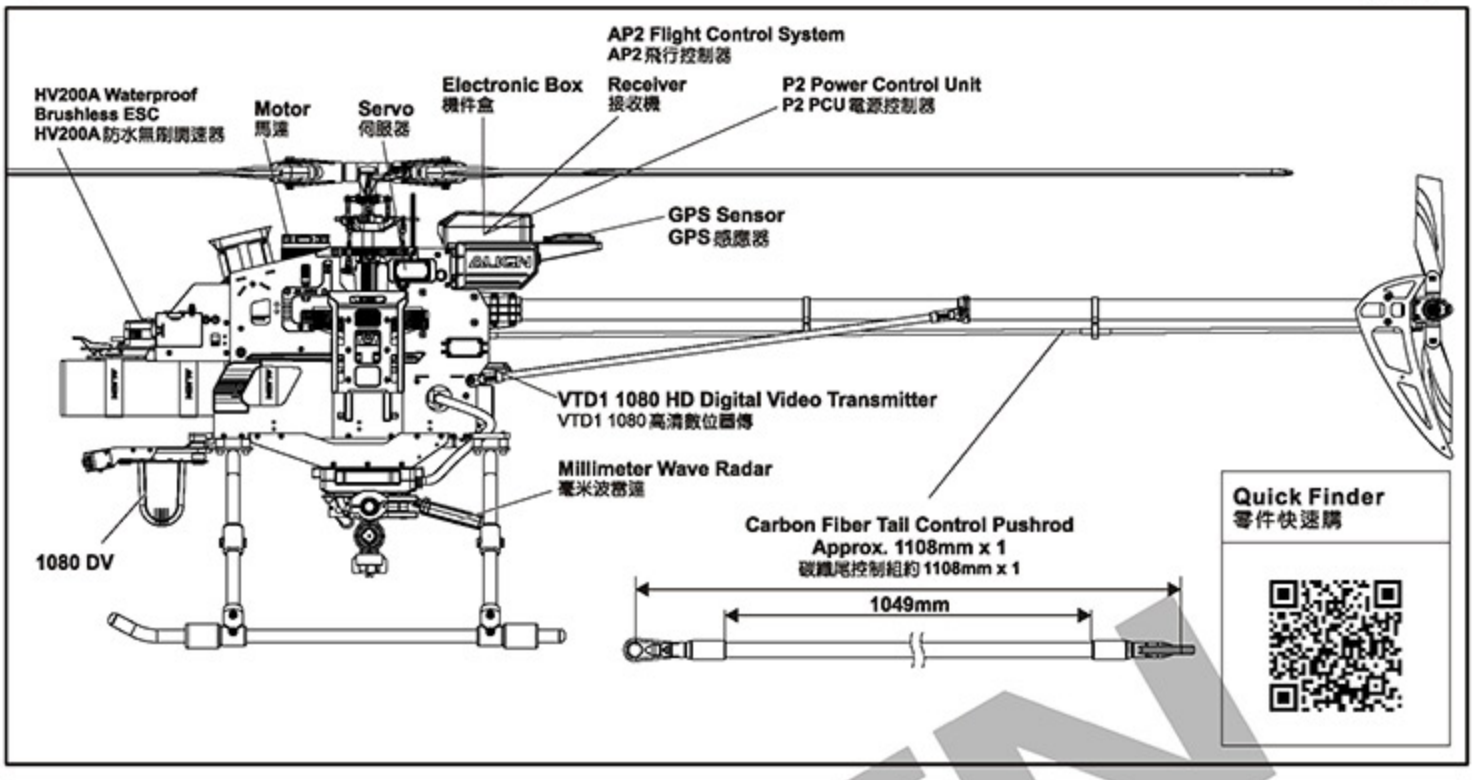


The receiver battery is mounted on a battery tray and secured in place using hook and loop tape.
接收器電池安裝於固定板上，再使用魔術帶黏綁固定。

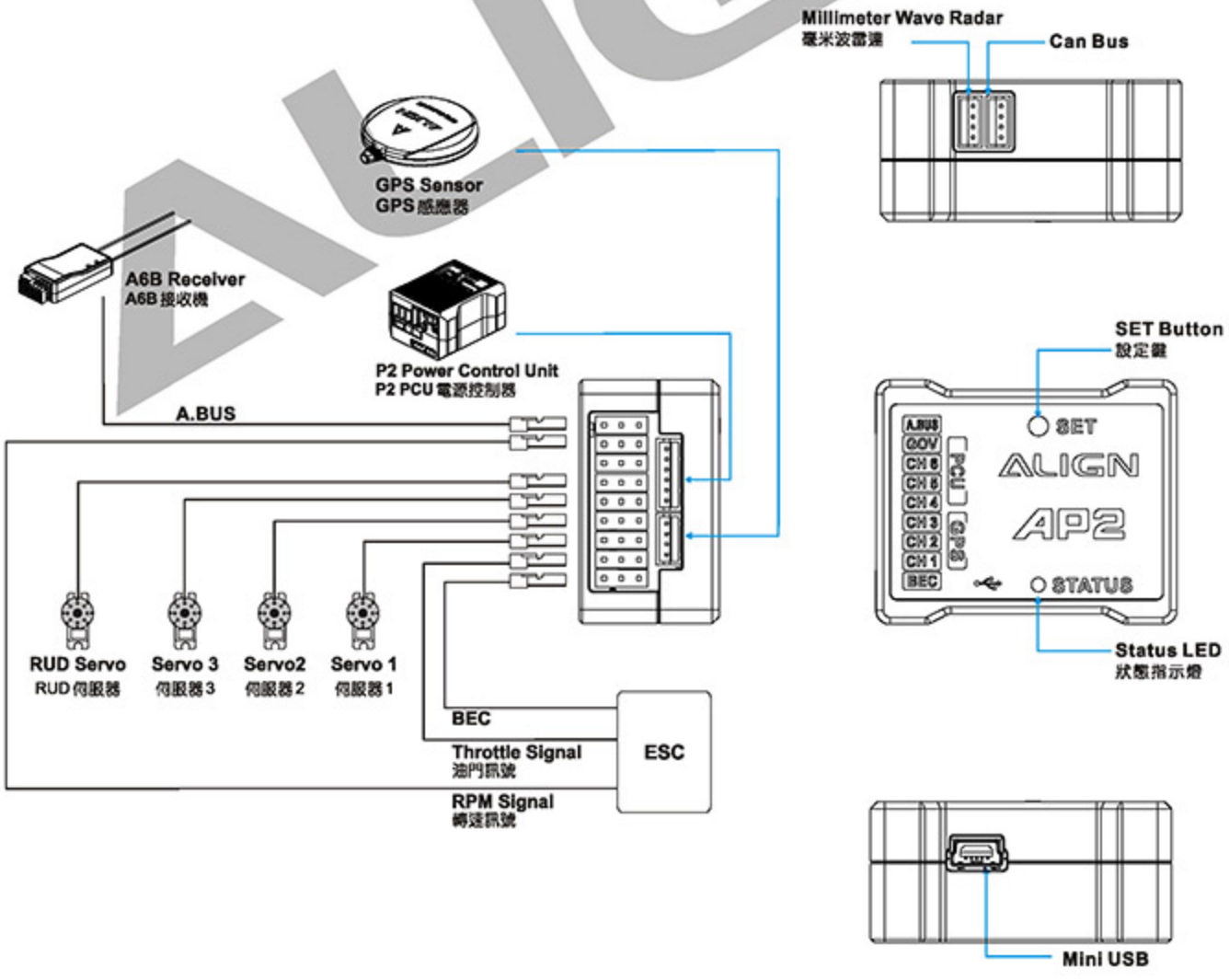

E1HC02
Socket Screw
圓頭內六角螺絲 (M4x6mm) x 4
M4 Washer
M4 華司 (ϕ 4x ϕ 8x1mm) x 4
M4 Washer
M4 華司
ϕ 4x ϕ 8x1mm
Socket Screw
圓頭內六角螺絲
M4x6mm
E1 Canopy
Mounting Bolt
E1 機殼鋁柱
External Status LED
外掛用模式燈
ALIGN AGRICULTURAL HELICOPTER


Canopy
機頭罩
Canopy Cap
機頭固定套
Canopy Spacer
機頭墊圈
E1HT02
M3 Specialty Washer
M3 特殊華司 (ϕ 3x ϕ 8x2mm) x 2
Socket Screw
圓頭內六角螺絲 (M3x26mm) x 2
Vertical Stabilizer Mount
垂直固定座
M3 Specialty Washer
M3 特殊華司
ϕ 3x ϕ 8x2mm
3K CF Vertical Stabilizer
3K 碳纖垂直翼
Socket Screw
圓頭內六角螺絲
M3x26mm
ALIGN
DEMETER E1
ALIGN AGRICULTURAL HELICOPTER

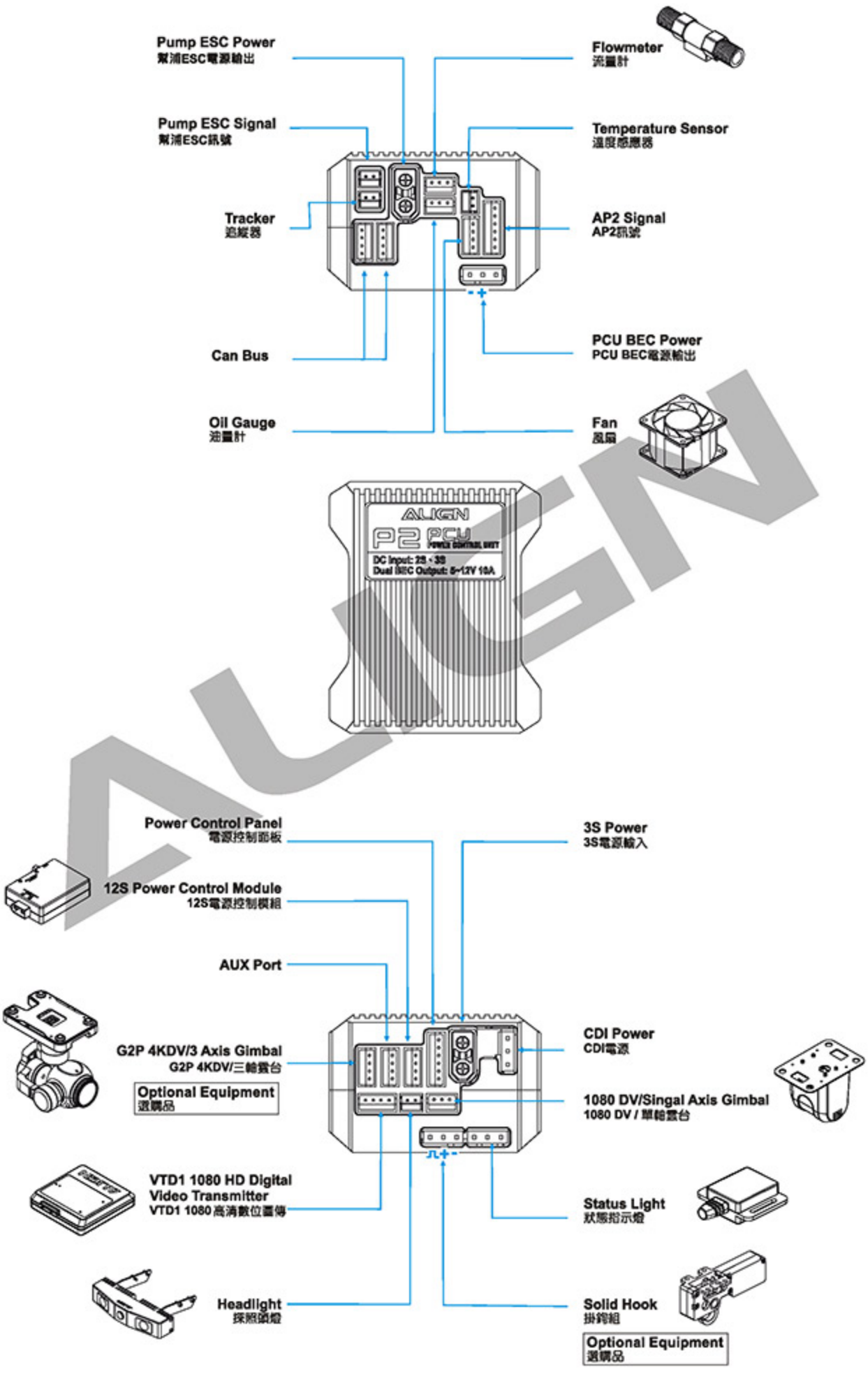

E1HB09
Socket Screw
圓頭內六角螺絲 (M3x8mm) x 6
Flat Head Socket Self Tapping Screw
皿頭內六角自攻螺絲
(T3x12mm) x4
Chemical Container Lid
藥桶蓋
Socket Screw
圓頭內六角螺絲
M3x8mm
Chemical Container Back Plate
藥桶背板
Back Plate Support
背板座支撐架
Flat Head Socket Self Tapping Screw
皿頭內六角自攻螺絲
T3x12mm
Connector Spacer
藥桶接頭墊圈
Connector
藥桶接頭
Oil Seal
藥桶油封
Chemical Container
藥桶
Slide Along The Rail
裝入滑軌
Chemical Container
Back Plate
藥桶背板
Slide along the rail to quick release and lock in place.
順著藥桶背板滑軌插拔，快速完成藥箱抽換作業。



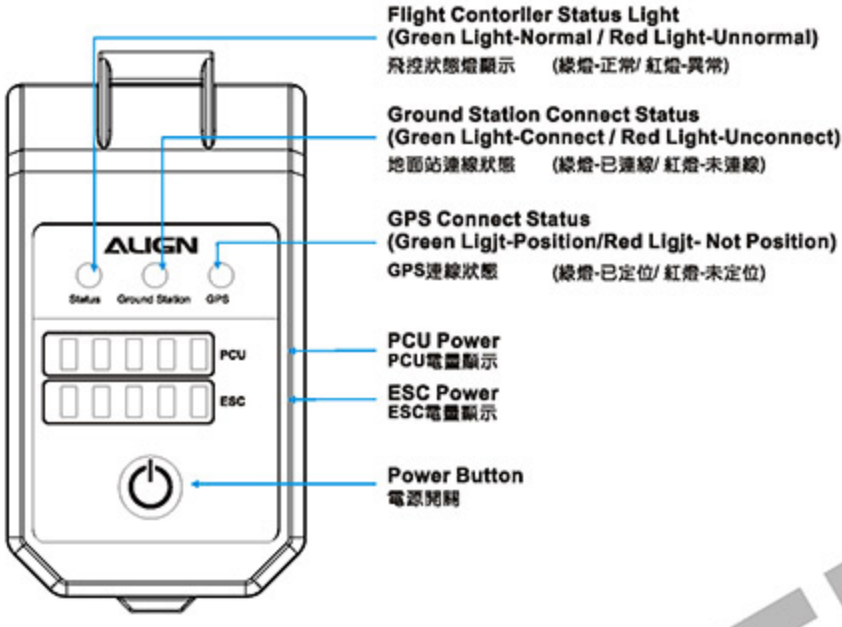
AP2 FLIGHT CONTROL SYSTEM AP2飛行控制系統



P2 POWER CONTROL UNIT　　P2 PCU電源控制系統



INTELLIGENT POWER MANAGEMENT 智慧型電源控制系統



LEVEL INDICATOR DESCRIPTION
電量指示燈說明

Level LED display 燈號顯示	Level indicator 電量顯示
	80%~100%
	60%~80%
	40%~60%
	20%~40%
	0%~20%

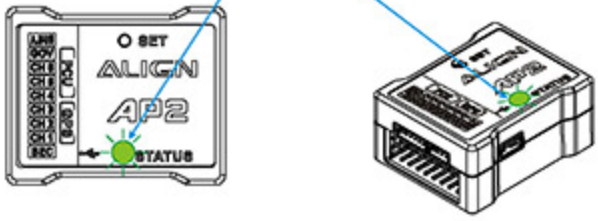
POWER ON 電源開啟

Battery level check: Short press of power button to check remaining power.
Power On: Press and hold power button for 3 seconds until battery indicator LEDs light up and Status LEDs flash.
Power Off: Press and hold power button for 3 seconds until all LEDs shut off.

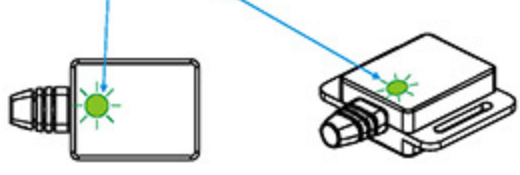
檢查電量：短按電源鍵檢視剩餘電量。
開啟電源：長按電源鍵3秒，電池電量指示燈亮起與模式燈閃爍，即完成開機動作。
關閉電源：長按電源鍵3秒，所有燈號熄滅，即完成開機動作。

HELICOPTER LED STATUS INDICATOR 直昇機狀態指示燈說明

AP2 LED Status Display
AP2狀態燈號顯示



Flight Mode Display
飛行模式狀態顯示



CAUTION 注意

Allow to check helicopter flight mode/status through LED light. In GPS mode, there are GPS & navigation mode to setup and fly. Except GPS mode, attitude mode is the only choice.

可透過狀態指示燈了解直昇機的飛行模式與狀態，在GPS未定位情況下，飛行模式只能在姿態模式，GPS與導航模式無法使用。

AP2 STATUS LED DESCRIPTION AP2狀態燈號圖示說明

FLIGHT STATUS 動作狀態	LED DISPLAY 燈號顯示	
	With GPS Signal 有GPS訊號	No GPS Signal 無GPS訊號
Attitude Mode 姿態模式	 Green flashes 2 times 綠燈閃爍2次	 Green flashes 2 times 綠燈閃爍2次
GPS Mode GPS模式	 Green flashes 3 times 綠燈閃爍3次	—
Navigation Mode 導航模式	 Green flashes 4 times 綠燈閃爍4次	—
Failsafe Protection 失控保護	 Red flashes once 紅燈閃爍1次	—
Return Home 自動返航	 Red flashes 2 times 紅燈閃爍2次	—
Setup Mode 設定模式	 Orange(Red and Green) flashes 3 times 橘燈(紅/綠)閃爍3次	 Orange(Red and Green) flashes 3 times 橘燈(紅/綠)閃爍3次
Magnetometer Calibration 磁力計校正	 Orange(Red and Green) flashes 4 times 橘燈(紅/綠)閃爍4次	 Orange(Red and Green) flashes 4 times 橘燈(紅/綠)閃爍4次
Power ON 開機	 Orange(Red and Green) flashes once 橘燈(紅/綠)閃爍1次	 Orange(Red and Green) flashes once 橘燈(紅/綠)閃爍1次

FLIGHT MODE STATUS LED DESCRIPTION 飛行模式狀態燈號圖示說明

FLIGHT STATUS 動作狀態	LED DISPLAY 燈號顯示	
	With GPS Signal 有GPS訊號	No GPS Signal 無GPS訊號
Attitude Mode 姿態模式	 Green flashes 2 times 綠燈閃爍2次	 Green flashes 2 times 綠燈閃爍2次
GPS Mode GPS模式	 Green flashes 3 times 綠燈閃爍3次	—
Navigation Mode 導航模式	 Green flashes 4 times 綠燈閃爍4次	—
Failsafe Protection 失控保護	 Red flashes once 紅燈閃爍1次	—
Return Home 自動返航	 Red flashes 2 times 紅燈閃爍2次	—
Setup Mode 設定模式	 Orange(Red and Green) flashes 3 times 橘燈(紅/綠)閃爍3次	 Orange(Red and Green) flashes 3 times 橘燈(紅/綠)閃爍3次
Magnetometer Calibration 磁力計校正	 Orange(Red and Green) flashes 4 times 橘燈(紅/綠)閃爍4次	 Orange(Red and Green) flashes 4 times 橘燈(紅/綠)閃爍4次
Processing_/Disconnect 開機中/未連線	 Red LED keep flashing 紅燈持續閃爍	 Red LED keep flashing 紅燈持續閃爍

FEATURES 特點說明

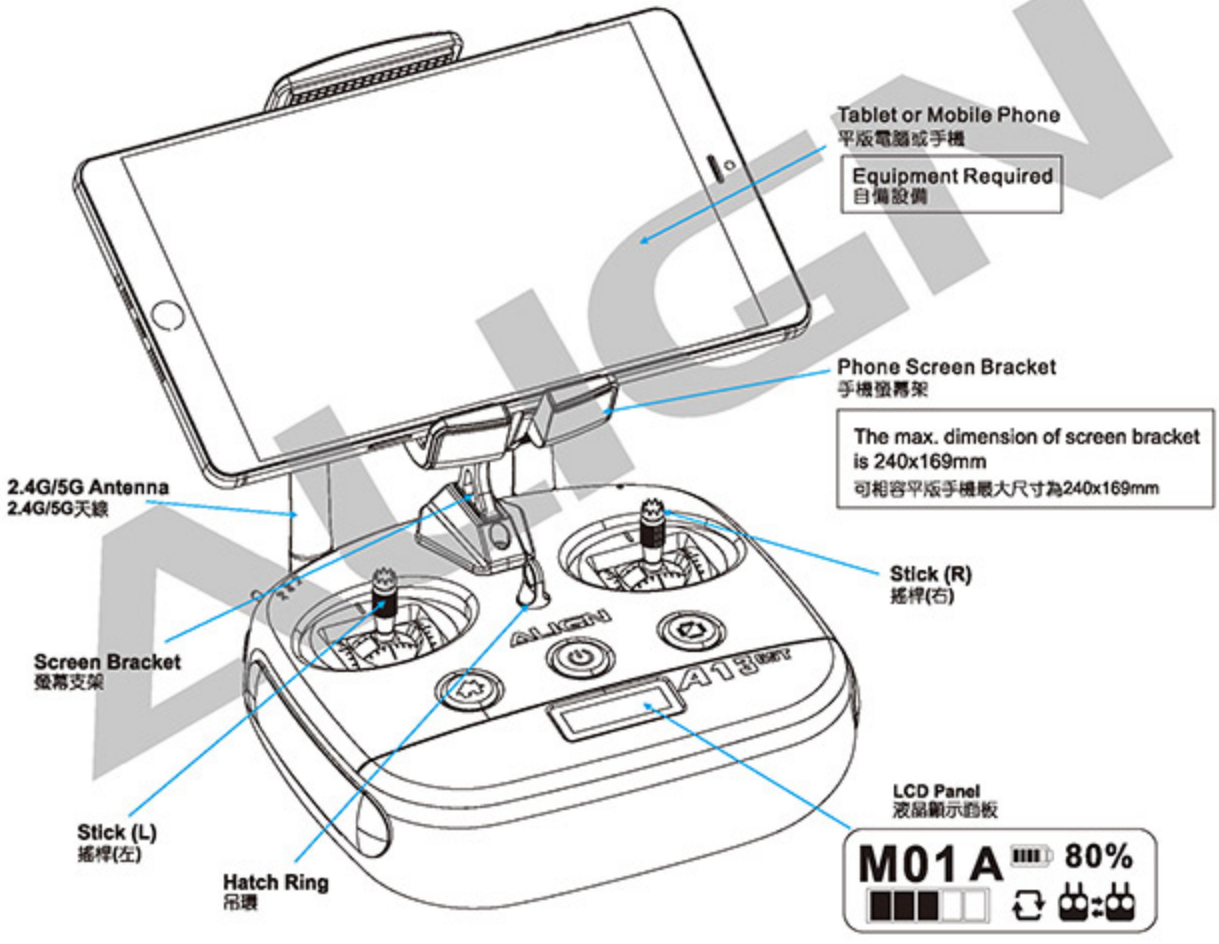
A13 GST is an ergonomic design with a comfortable grip and precision gimbal control. The built-in integration of this new remote control system was developed specifically to allow single button control of multiple functions and to improve flight efficiency.

Ground System APP is used to adjust the remote control parameters and custom button mode, so the Demeter maintains the best-performing state. Support for helicopter, multi-axis aircraft. Using a dual-frequency transmission system, with high-gain antenna, effectively enhancing the anti-jamming capability and picture quality.

A13 GST遙控器具符合人體工學設計外觀，有舒適握感與精準靈敏搖桿控制，內在是完美整合性高全新遙控系統，而它就是為了高端專業產品而量身打造。可透過簡易按鍵控制飛行器多項功能，而提升操控效率。

支援APP調整遙控器參數以及自定義按鈕模式，讓飛行器保持最佳理想狀態。支援直昇機與多軸飛行器功能。採用雙頻發射系統，搭配高增益天線，有效大幅提升抗干擾能力及畫面品質。

Please visit Align download area to get the completed instruction manual at Align website.
詳細的A13遙控器說明介紹，請掃描QR Code連結亞拓網站下載相關資訊。
完整的說明書請至官網下載專區下載。
http://www.align.com.tw/A13/

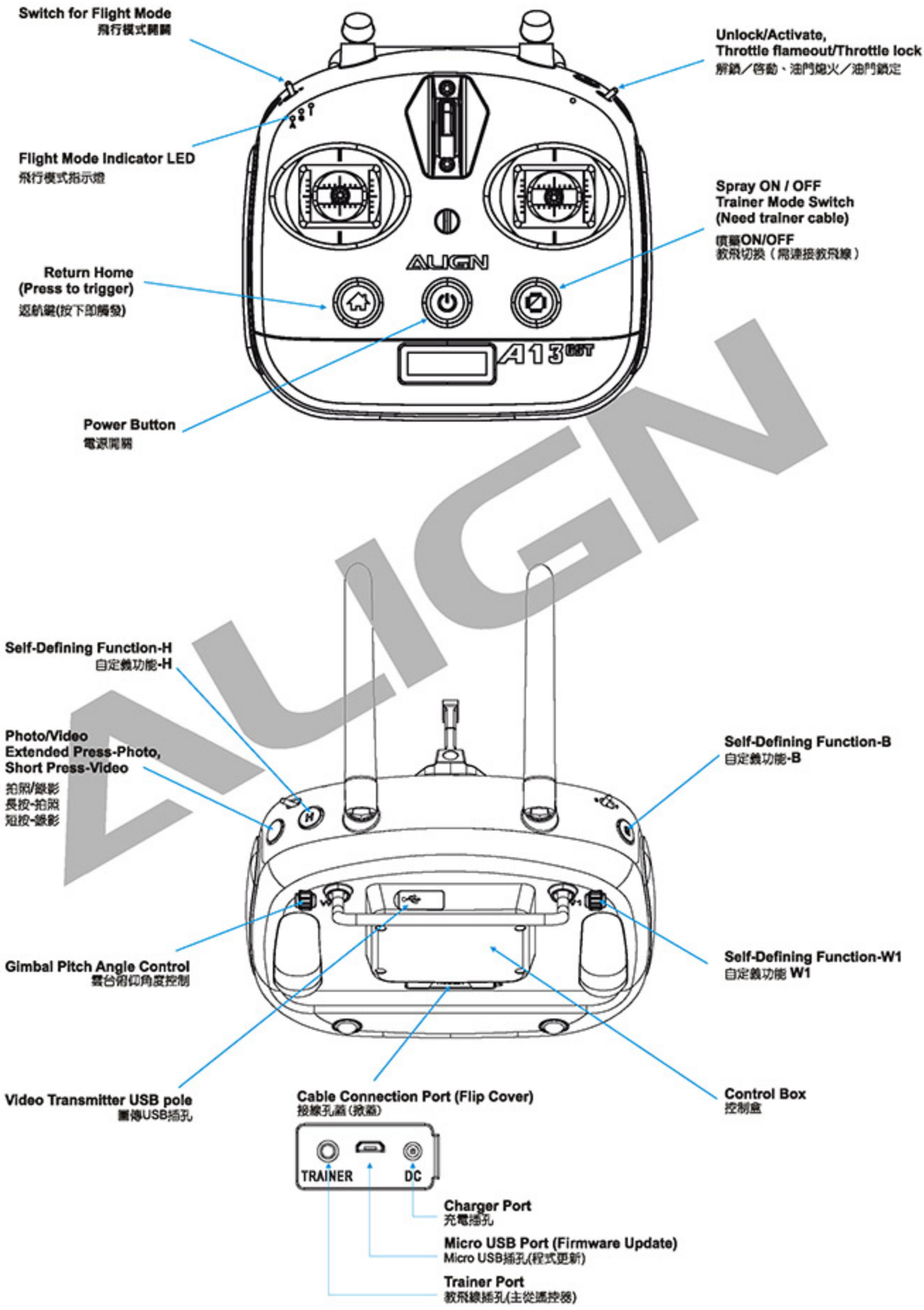


LCD Panel Illustration 液晶顯示面板圖示說明

M01	**Model Selection** 模型選擇
■■■□	**Receive Signal (Under two bars will flash)** 接收訊號(當低於兩格時，以閃爍表示)
A/G/I	**A (Attitude) / G (GPS Positioning) / I (Navigation)** A(姿態)／G(定位)／I(導航)

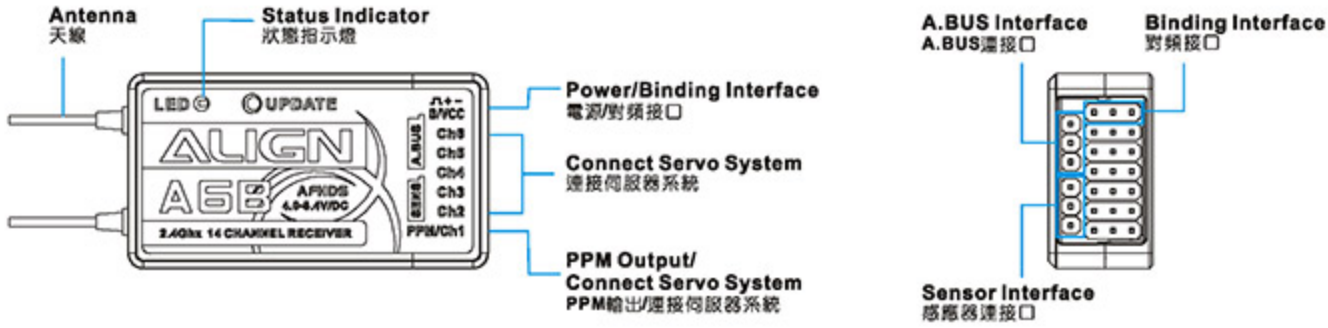
	Master / Slave trainer mode connected 教練／主從機連線完成
	Receiver Bound 接收器對頻完成
80%	**The bar is flashing in electronic scroll when charging or flashing when battery power (in digital) under 20%** 充電時，格數依照跑馬燈方式閃爍。 電池電量(以數字顯示)，當低於20%時，以閃爍表示

TRANSMITTER INTRODUCTION 按鍵功能說明



A6B RECEIVER INTRODUCTION A6B接收器功能介紹

RECEIVER SETUP INDICATORS 接收器各部位名稱



PPM/CH1	**Connect CH1 servo or PPM output signal.** 連接CH1通道的伺服器或輸出PPM信號
CH2~CH6	**The interface connect servo, power and other accessories.** 接口可以連接伺服器、電源或其他零件
B/VCC	**Using binding wire when binding; using power cord when normal operating, power range is 4.0~8.4V.** 對頻時用於連接對頻線，正常操作時用於連接電源線，供電範圍值在4.0~8.4V。
A.BUS	**For output A.BUS signal.** 用於輸出A.BUS接收器接收訊號。
SENS	**For connecting sensor.** 用於連接各感應器。

RECEIVER ANTENNA 接收器天線

To ensure signal receiption quality, please make sure to keep electronics governor and other metal parts away when installing receiver.

為確保訊號質量，安裝接收器時請盡量避開電子調速器及其他金屬零件。

STATUS INDICATOR 狀態指示燈

The status indicator showes current battery voltage and work status of the receiver.
狀態指示燈用於指示接收器電源以及工作狀態

LED off 燈號熄滅	**Power disconnected.** 接收器電源未連接
Red solid light 紅色恆亮	**Power on and working.** 接收器已連接電源，並正常運作。
Fast flashing 快速閃爍	**Binding** 接收器處於對頻狀態。
Flashing slowly 慢速閃爍	**The pairing transmitter is off or loss of signal.** 已配對的遙控器未開機，或訊號遺失。

WARNING 警告

To ensure quality of signal reception, the antenna should be vertical the RC model. When operating, careful to avoid pointing an antenna directly at the receiver. Do not grip transmitter antenna during operation as this will weaken the quality and intensity of radio transmission resulting in loss of control.

為確保訊號品質，天線應與遙控模型垂直放置。操控時不要用天線直接對著接收器。在使用過程中，嚴禁緊握遙控器天線，否將會減弱無線電傳播訊號的品質和強度，導致操控失靈及遙控模型失控的危險。

SOFTWARE DOWNLOAD AND INSTALLATION A13 下載安裝

A13 Radio control system is flashed with the latest firmware version in factory. Visit Align at www.align.com.tw for the lastest news and firmware updates.

Please scan QR Code for link to ALIGN website to find related software, or search" ALIGN A13" in iOS / Android app store.

A13 遙控器，在出廠前已是最新版本，請安心使用。您也可以連結至亞拓A13網站查詢，隨時更新亞拓發佈的最新版本及各項最新訊息。
請掃描QR Code連結亞拓網站下載相關軟體，或是在iOS/Android App store搜尋"ALIGN A13"。

http://www.align.com.tw/a13/

Compatible with ANDROID APP ON Google play Download on the App Store

---

Demeter E1 is assembled in the factory which includes configuration of the AP2 flight control system . Demeter E1 requires the use of an ALIGN A13 Transmitter. Follow the binding process as listed below.

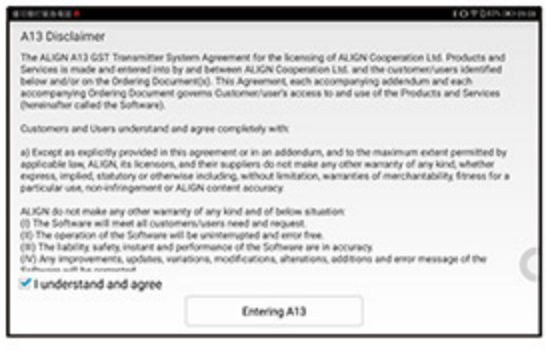
Demeter E1 植保直昇機整機，包括AP2 飛行控制系統所有的參數設定，出廠前已組裝調整完成。搭配ALIGN A13 遙控器，完成藍牙連線並且對頻成功即可開始使用。

1. POWER ON A13

1. 開啓A13介面

The A13 Transmitter system Disclaimer is diplayed when the APP is launched for the first time. Please, read Align A13 Transmitter system Agreement in it's entirety.

免責聲明：
首次使用A13遙控器系統，請詳讀免責聲明內容！一旦下載、安裝或使用 A13遙控器軟體或其中任何部分，即表示 貴用戶同意遵守各項條款與細則。



---

2. BLUETOOTH CONNECTION

Press "A13 Bluetooth Connection", turn on bluetooth device and search "ALIGN A13" to start connecting. Green light up when connecting successfully and then enter "A13 Transmitter system"

2. 藍牙連線

點擊（A13藍牙連線），開啟藍牙裝置，搜尋（ALIGN A13）進行連線。A13藍牙連後顯示綠燈連線成功，即可進入A13遙控器設定首頁。

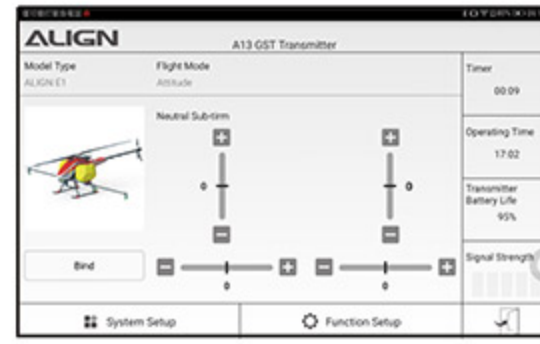
RADIO BINDING 遙控器對頻

A13 Radio Control System home page shows valuable information including; model name and number, binding, flying mode, sub-trim, timer, sum time, radio battery power, launcher and receiver signal, system and function setting.

Please follow below instruction to bind radio.

進入A13遙控器設定首頁，有當前模型顯示、對頻、飛行模式、微調顯示、計時器、累計時間、遙控器電量、發射與接收訊號、以及系統設置和功能設置。

請參照下列方式進行遙控器對頻。

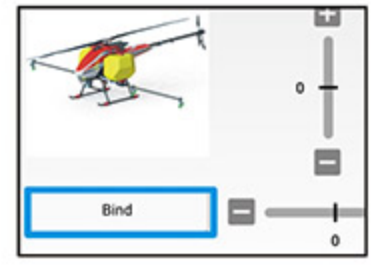


3.BINDING METHOD

3. 對頻方式

① **Power on A13**
開啟遙控器電源

② **Receiver connect with binding key**
接收器接上對頻金鑰。



③ **Binding Method I :**
對頻方式一：

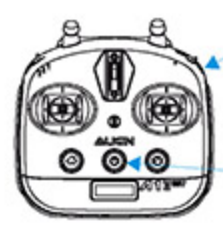
Turn on APP and press "Binding" and radio screen displays "Binding"
開啟APP連線後點擊〔對頻〕，
此時遙控器螢幕會顯示Binding。

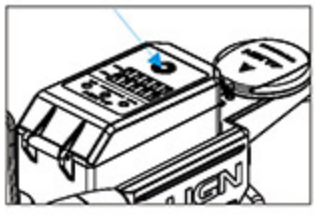
OR 或

③ **Binding Method II :**
Other way to bind through firmware

對頻方式二：
也可以通過硬體進入對頻模式。

Press radio "Photo/Video" and "Power Button" simultaneously, and radio screen displays "Binding"
同時按下遙控器的（拍照/錄影）與（電源開關）按鈕，此時遙控器螢幕會顯示Binding。





④ **Power on receiver (Demeter main power)**
開啟接收器電源(植保機主電源)

⑤ **The monitor will show receiver signals and binding connection status after completion.**
完成，此時遙控器上會顯示接收器訊號強度與連線對頻完成。

⑥ **Solid red light on receiver after finish.**
對頻成功後接收器燈號為紅燈恆亮

A13 Radio is adjusted in the factory, only required to confirm the bluetooth connection and binding success. The default parameter is the best value for Demeter E1, highly recommend not to adjust randomly by users who are unfamiliar with Demeter for fear of wrong settings of transmitter to cause Demeter in abnormal flight and damage the Demeter or people get hurt. Detailed instruction and introduction please refer A13 radio manual.

A13遙控器在出廠前已調整完成，僅需確定對頻成功即可使用。預設的參數均專為E1植保機調整最佳化數值，強烈建議不熟悉系統操作者切勿進行調整，避免遙控器參數設定錯誤，造成植保機飛行異常，嚴重者導致機體損壞或人員傷亡。
詳細功能介紹請參閱A13遙控器使用說明。

Align intelligent flight controller built-in ARM Cortex-M4 32 bits processor 180MHz supports multiple flight modes (Attitude, GPS Speed, Intelligent flight mode), Auto Return Home and Rescue Return Home, Low Voltage Protection (LED Warning or Auto Return Home), OSD output, Gimbal Control, Automated Guidance Mapping, Auto Operational Flight Paths, Equipped Video and Spray System Monitoring to achieve advanced spray capacity. Providing a safe, efficient and convenient way to deliver superior crop protection.

亞拓高效能智慧飛控系統內建 ARM Cortex-M4 32bit 高階處理器 180MHz，具備多種飛行模式（姿態、GPS速度、智能自動導航）、自動返航與失控保護返航、低電壓保護（閃燈警示與自動返航）、OSD訊號輸出、雲台控制，能自動規劃飛行路徑、定高、定位，可藉由地面站及噴灑系統即時監控藥劑噴灑狀態，達到定量噴灑、容量偵測等功能，提供安全便捷的植保作業。

FEATURES 產品特色

High Performance Intelligent Flight Control System ARM Cortex-M4 32bit High-end processor.

高效能智慧飛控系統ARM Cortex-M4 32bit 高階處理器 180MHz。

Through 5G video transmitter and APP WIFI transmission, it allows to modify the flight control performance and flight electrical control parameters.

透過5G圖傳、使用APP WIFI 傳輸，對飛控飛行性能與飛行機電控的參數做修改設定。

Flight Mode: Attitude mode and GPS (speed)

飛行模式：可選擇為姿態模式、GPS(速度)模式。

Triple Satellite Positioning Module with GPS, Glonass and BDS provide precise, stable and fast positioning in real-time to avoid drift and frequency issue.

可選擇使用GPS全球定位系統、GLONASS蘇聯衛星定位系統；或GPS全球定位系統、以及BDS北斗衛星導航系統，能有效補足各系統在時間、頻率、漂移偏移的原始限制，讓衛星訊號在接收時更穩定、精準、定位更快速。

Out-of-control Protection: When Demeter lose control signal and in good condition of GPS mode and satellite signal, flight control system will execute auto return home to have Demeter return home safely. If no GPS signal, the Demeter keeps in horizontal level.

失控保護：當飛行機丟失遙控器訊號時，在GPS模式及衛星訊號良好的狀態下，飛控系統會執行自動返航使飛行機在安全機制下自動駕駛安全返回Home點；若是在無GPS訊號下，飛行機則會保持機水 平 。

Low Voltage Pretection: Flash warning light while low voltage. Auto return home in low voltage.

低電壓保護：低電壓閃燈警示、低電壓自動返航。

Point Memory In Navigation: In auto navigation, when system executes auto return for low voltage or missions need, the last working place is memorized and then continue unfinished flight operations from last place.

導航中繼點記憶：自動導航作業中途，低電壓或任務需要，當系統啓動自動返航後，可記憶最後執行作業的位置，然後可再接續未完成的飛行作業。

Regional Route Planner: In the Ground System map, mark the designated area for spray application. The system operates flight path by selected shape and calculates an efficient spray route which is displayed. The spray route, height, spacing and flight mode can easily be adjusted.

區域路徑規劃：於地面站的地圖上點選所要執行飛行任務的範圍，由系統依圈選的形狀自動規劃，運算出涵蓋整個範圍面積的飛行路徑。可調整移動飛行路徑方向的角度、飛行路徑點的高度、間距、以及頭向模式。

Remote Target Route Planner: use multi-point path coordinates to fly to designate location. Every point path can be set up with flight height, speed and mode.

遠端目標路徑規劃：利用多點式路徑點座標，執行命令飛至指定的目的地，每個路徑點可設定飛行高度、速度、頭向。

Flight Mode: Offer two flight mode (Nose heading to the front or Nose heading to the back), constant speed and height, allow to keep the most efficient spraying

飛行頭向：頭向及無頭向兩種飛行模式-在智能作業中達到定速、定高飛行，以最有效率噴灑方式，達到作物都能得到均勻的噴灑

Spray Mode: Offer Crops Mode for large area of flat farmland and Trees Mode for orchard with wide range of heights.

噴灑模式：提供一般噴灑模式適用於大面積較平整的農地、以及果樹噴灑模式:適用於範圍與高低落差大的果園。

Flight Monitoring: Display flight path and trajectory. Record all flight information such as flight distance, time, speed, altitude, voltage, current, record flight, and much more.

飛行監控：顯示飛行航道、飛行軌跡，記錄起飛、飛行中以及降落時所有飛行資訊，如飛行距離、飛行時間、速度、高度、電壓、電流...等等。

Track Record: Record each task details: location, time, area, spray flow, chemical, crop type, and so on. Spray operation management will be more efficient, controlled, so redundant spraying is avoided.

軌跡紀錄：紀錄每次任務詳細內容：地點、時間、面積、噴灑流量、用藥、農作物類型....等。在噴灑作業管理將更加有效和控管，也能避免重複噴灑。

Warning functions display; low voltage, low fuel, and the number of satellites are less than 10.

安全警示提醒功能，具備低電壓警告、動力(油量)警告、衛星數低於10顆警告。

Alert Voice Playback: It has a voice reminding when operating any instruction, also has a voice warning when detecting any problem in flight .

語音播放：當執行任何指令動作時，會發出語音提醒，偵測到飛行機有任何異常狀況時，更會立即發出語音警報 。

The AP2 flight control system support iOS V9.0 or better and Android V7.0 or better.
Considering the best working efficiency, the specifications of the tablet or mobile phone are recommended as follows: 4GB RAM, and more than 20GB ROM storage space; in order to keep the best and fast performace quality.

AP2飛行控制系統支援iOS版本9.0以上、Android版本7.0以上系統。
考量最佳使用效率，平板或手機的規格要求建議如下：搭配記憶體(RAM)4GB，以及儲存空間(ROM)20GB 以上；避免因平板或手機效能不足影響作業品質。

⚠ WARNING 警告 **For safety reasons, please remove all motor cables from Demeter during AP2 flight control system setup.**
設定AP2 的過程中，必須將馬達線拆除，避免發生不可預期的危險。

SOFTWARE DOWNLOAD AND INSTALLATION AP2 下載安裝

AP2 flight control system is flashed with the latest firmware version in factory. Visit Align at www.align.com.tw for the lastest news and firmware updates.

Please scan QR Code for link to ALIGN website to find related software, or search" ALIGN AP2" in iOS / Android app store.

AP2 飛行控制器，在出廠前已是最新版本，請安心使用。您也可以連結至亞拓AP2網站查詢，隨時更新亞拓發佈的最新版本及各項最新訊息。
請掃描QR Code連結亞拓網站下載相關軟體，或是在iOS/Android App store搜尋"ALIGN AP2"。

http://www.align.com.tw/ap2/

Compatible with ANDROID APP ON Google play | Download on the App Store

---

Demeter E1 is assembled in the factory which includes configuration of the AP2 flight control system . Demeter E1 requires the use of either an ALIGN A13 transmitter. Follow the binding process as listed below.

Demeter E1 植保直昇機整機，包括AP2 飛行控制系統所有的參數設定，出廠前已組裝調整完成。搭配ALIGN A13 遙控器對頻完成以下連線設定即可開始使用。

1. TURN ON AP2 INTERFACE

1. 開啓AP2介面

The AP2 flight control system Disclaimer is diplayed when the APP is launched for the first time. Please, read Align AP2 flight control system Agreement in it's entirety. Please, read Align AP2 flight control system Agreement in it's entirety.

免責聲明：
首次使用AP2 飛行控制系統，請詳讀免責聲明內容！一旦下載、安裝或使用 AP2 飛行控制系統軟體或其中任何部分，即表示貴用戶同意遵守各項條款與細則。

---

2. SELECT MODE

Select the used mode "Demeter E1", press "Next"

2. 選擇機型

選擇所使用的機型 Dembetr E1，按（下一步）。

Press "Enter Ground Station" to enter ground station interface directly. Please make sure the Demeter has been connected correctly.

點選（進入地面站介面）將直接進入地面站頁面。請確定已經正確連接飛行機。

3. SELECT GIMBAL

Select the used Gimbal, press "Next"

3. 選擇雲台相機

選擇所使用的雲台相機，按（下一步）。

The standard equipment of Demeter is 1080DV. This DV is only for video transmitter purpose, no needs to adjust setup. If it's equipped with optional G2P/4K DV, brightness, saturation and contrast..etc in camera mode can be adjusted.

植保機標配為1080 DV，此DV專為影像回傳用途，無需調整設定。若設備為另購品G2P/4K DV，可進入相機模式調整亮度、飽和度、對比度...等參數.

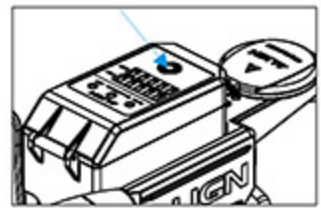
---

4. GROUND STATION CONNECTION: TURN ON DEVICE POWER

4. 地面站連線：開啓設備電源

Turn on the transmitter.

開啟遙控器電源



Power on Demeter E1.

開啟E1植保機電源

---

5. CONNECTING:

Turn on Wi-Fi in tablet and connect to "ALIGN_XXXX" device. Enter in after finish.

5. 進行連線：

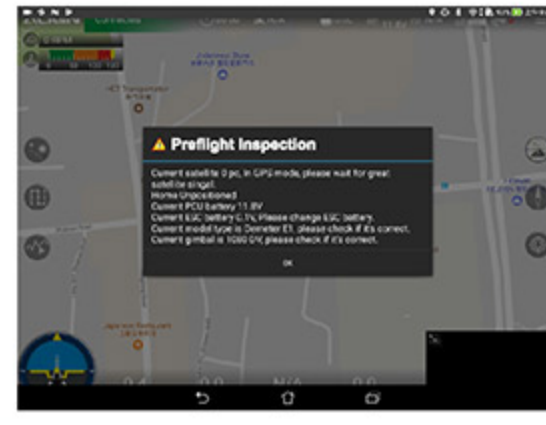
開啟平版WIFI，選擇WIFI名稱 [ALIGN XXXX] 進行連線，完成後進入地面站。

Finish connection. Enter Ground Station.

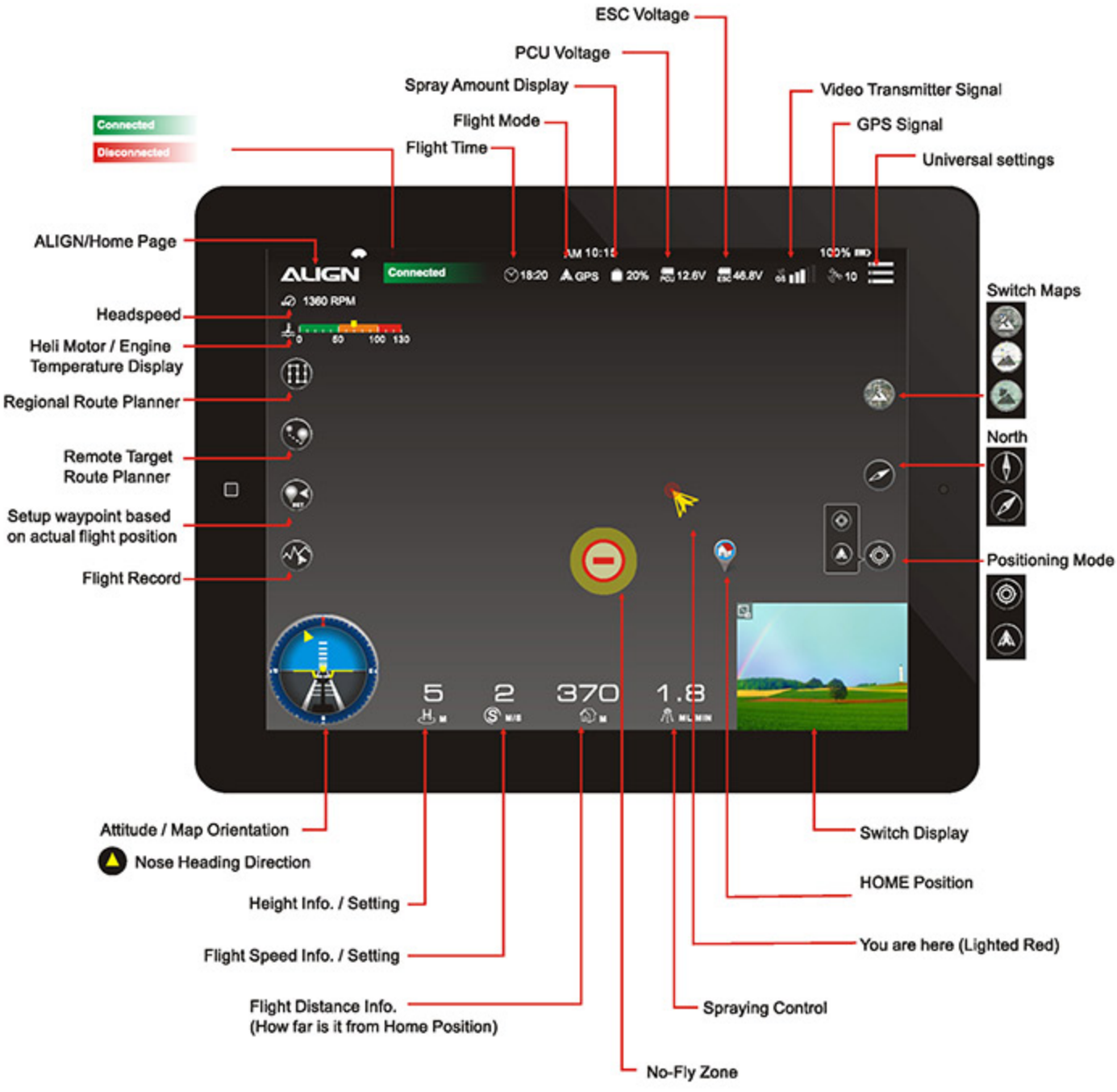
連線完成，進入地面站。

After finish connection, please do preflight inspection exactly. System shows current Demeter status and quipment selected, make sure to double check all devices are used in safe range and selected correctly.

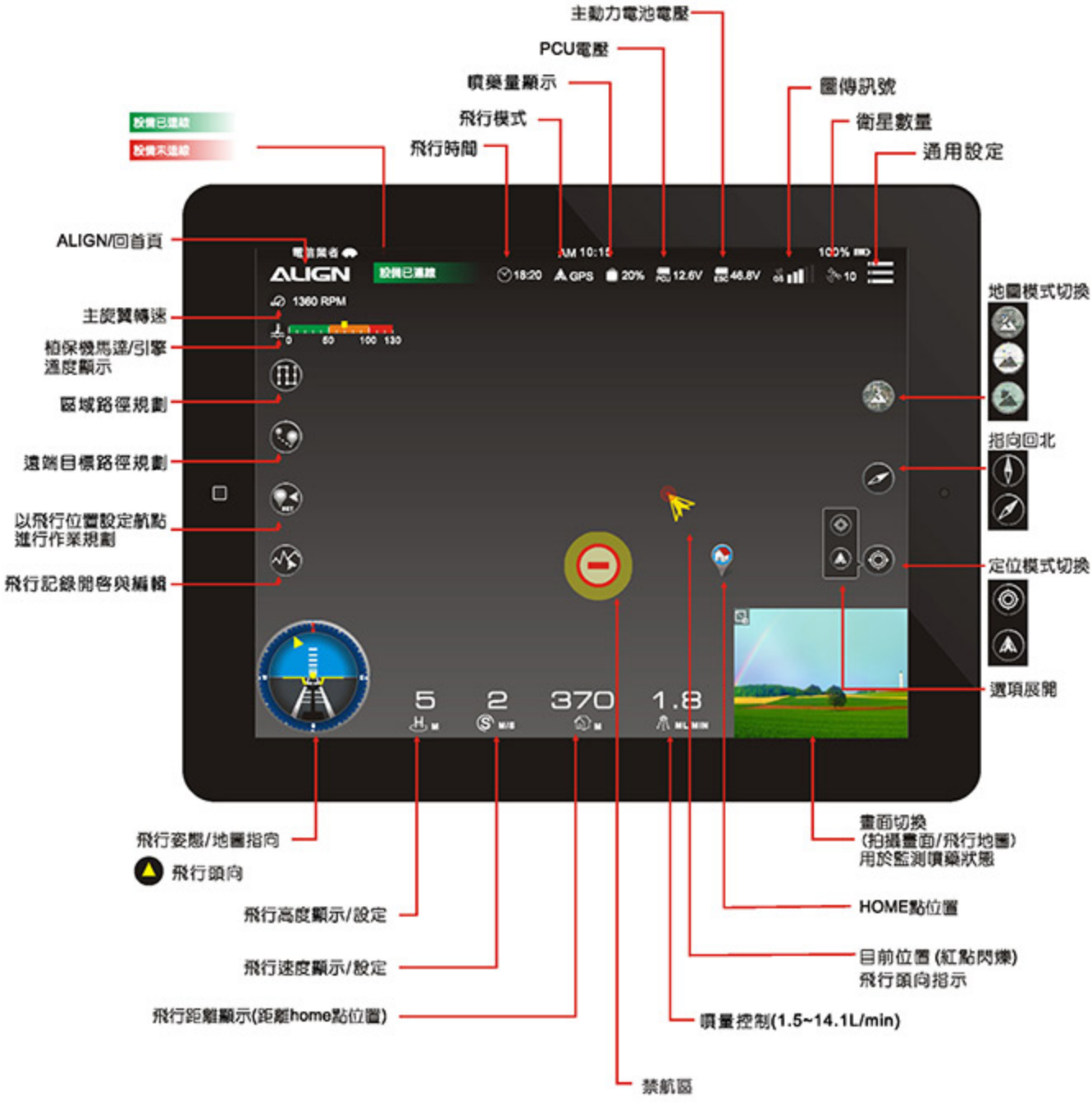
連線後應確實做好飛行前檢測。系統顯示目前飛行機狀態及設備選擇的項目，務必再一次確定設置在安全使用範圍、且飛行設備選擇正確。



GROUND STATION BASIC INTRODUCTION 地面站基本資訊介紹



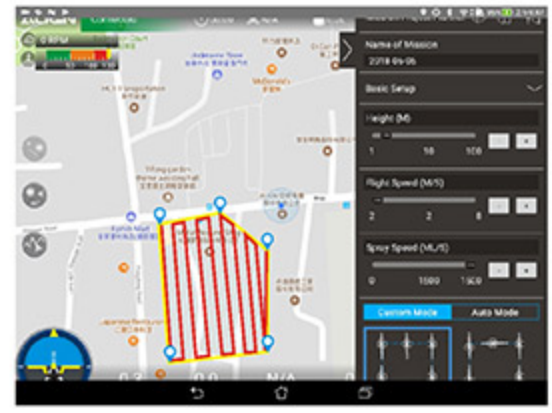
GROUND STATION BASIC INTRODUCTION 地面站基本資訊介紹



AP2 offer two kinds of mission planner:

AP2具備兩種任務規劃方式：

1. REGIONAL ROUTE PLANNER 區域路徑規劃



In the Ground System map, mark the designated area for spray application. The system operates flight path by selected shape and calculates an efficient spray route which is displayed. The spray route, height, spacing and flight mode can easily be adjusted.

Basic setup: flight height, flight speed, spray speed and flight mode..etc. After setup, press "Upload data to flight control".

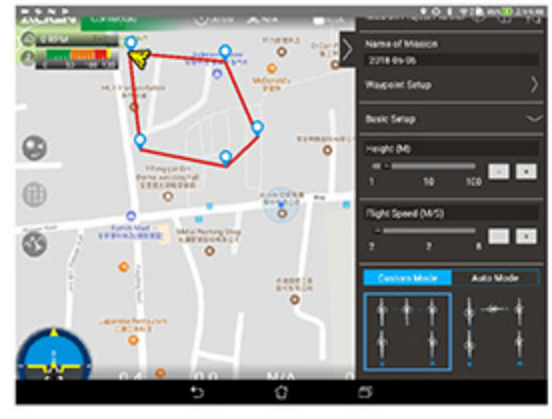
Advanced setup: sub-trim based on personal usage habits. It's set up to optimization in factory, basic works can be skip out, no needs to be set up again.

於地面站的地圖上點選所要執行飛行任務的範圍，由系統依點選的區域自動規劃，運算出涵蓋整個範圍面積的飛行路徑。可調整移動飛行路徑方向的角度、飛行路徑點的高度、間距、以及頭向模式。

基本設置:飛行高度、發行速度、噴灑速度、飛行頭向等，設定完成後，按（數據上傳至飛控）。

進階設置:為個人使用習慣微調，出廠時已調至最佳化，一般作業可省略不需設定。

SETUP WAYPOINT BASED ON ACTUAL FLIGHT POSITION 飛行位置設定航點

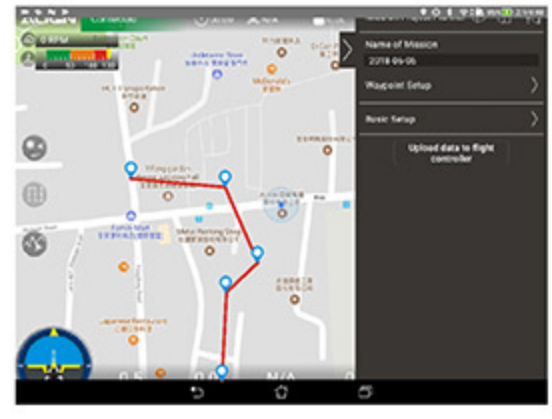


Regional Route Planner : It allows to set route by drawing in AP2 ground station. Or it can set route by actual flying. Fly Demeter above to the desired location and hover, set up the flight position in ground station one by one, then connect them to be your own regional route.

區域路徑規劃作業，除了可直接於地面站點選區域範圍，也可透過飛行位置設定：將飛行機飛行至欲規劃區域的邊界點上方，點選飛行位置設定鍵設定，依序區域邊界點。

---

2. REMOTE TARGET ROUTE PLANNER 遠端目標路徑規劃



Remote Target Route Planner: use multi-point path coordinates to fly to designate location. Every point path can be set up with flight height, speed and mode.
Basic setup: flight height, flight speed, spray speed and flight mode..etc. After setup, press "Upload data to flight control".
Advanced setup: sub-trim based on personal usage habits. It's set up to optimization, basic works can be skip out, no needs to be set up again.

利用多點式路徑點座標，執行命令飛至指定的目的地，每個路徑點可設定飛行高度、速度、頭向。

基本設置:飛行高度、發行速度、噴灑速度、飛行頭向等，設定完成後，按（數據上傳至飛控）。

進階設置:為個人使用習慣微調，出廠時已調至最佳化，一般作業可省略不需設定。

FLIGHT RECORD 飛行記錄

Flight record can auto record every mission status in bar type display, simultaneously accumulate flight time, spray range, or re-calculate the record.
If there are lots of records, it can enter key words to narrow down search range to find out the record information rapidly and precisely.

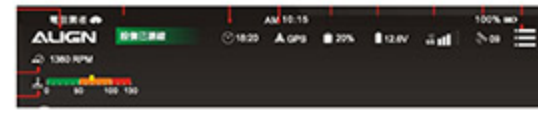
飛行記錄可自動記錄每趟任務的執行狀況，條列式展出，同時可累計飛行時間，噴灑範圍，或將其記錄歸零重新計算。
當有多筆記錄時，亦可輸入關鍵字縮小搜尋範圍，快速精準的尋找該筆飛行資料。

SINGAL MISSION DETAILS 單趟任務細節

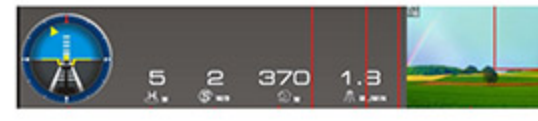
Every flight record is recorded in detail:
operation content, type of crops, chemical proportion, working power, contact information, next work notification…etc. Simultaneously record voltage line chart, photo, and inport, export and save information to use as statistics and reference.

每筆飛行記錄均可詳細記錄：作業內容、農作類型、藥劑調合比例、作業動力、連絡資料、下次作業通知……等等；同時記錄電壓折線圖、拍攝影像、可將資訊匯入、匯出、儲存，作為統計分析及參考數據。

EQUIPMENT STATUS DISPLAY 設備狀態顯示



In connecting, upper page of ground station display equipment status.
Upper display: flight Time, flight mode, spray amount, voltage, video transmitter signal, satellite amount, headspeed and motor/engine temperature.
Lower display: current attitude / map orientation, nose heading, flight height, flight speed, flight distance, spray amount...etc.

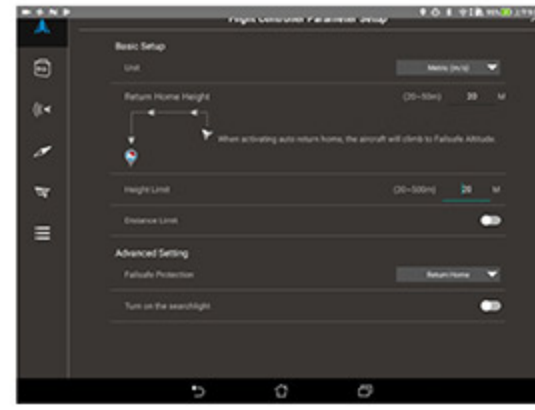


飛行機連線狀態中，地面站頁面上方會顯示當前設備狀態。
上列顯示：飛行時間、飛行模式、噴藥量、電池電壓、圖傳訊號、衛星數量以及主旋翼轉速、馬達/引擎溫度。
下列顯示：目前飛行姿態、地圖指向、飛行頭向、飛行高度、飛行速度、飛行距離、噴灑量……等資料顯示。

UNIVERSAL SETTINGS 通用設置

Click "Universal settings" then you can start set up: flight controller settings, transmitter settings, video transmitter functions, GPS satellite settings, magnetic calibration and aircraft flying information.

點選〔通用設置〕，可開啓飛控設置、遙控器設置、圖傳設置功能、GPS衛星設置、磁力計校正、飛行機狀態資訊。



1. FLIGHT CONTROLLER SETTINGS:

Basic Settings : To set up failsafe auto return home flight altitude, limited flight altitude or limited flight distance.
Advanced Settings : To set up sensor settings.

1. 飛控設置：

基礎設置：設定失控保護返航高度、飛行高度限制、距離限制。
進階設置：傳感器狀態。

---

2. TRANSMITTER SETTINGS:

Display stick mode, channels and EXP curve.

2. 遙控器設置：

顯示目前搖桿模式、頻道顯示、以及EXP曲線。

---

3. VIDEO TRANSMITTER FUNCTIONS:

Video transmitter is bound at the factory. If either the receiver or ground launcher is changed, the aircraft requires rebinding.

3. 圖傳設置：

圖傳設置出廠前已完成對頻。若必須更換空中接收端或地面發射端其中一端設備時，才需重新進行對頻。

BIND METHOD :

A.) When replacing video transmitter, make sure to rebind the system. Please enter both video transmitter codes on the aircraft (receiver code) and ground (launcher code). After entering the codes, press [Binding].

B.) After binding, please turn off the aircraft at first, then turn off the transmitter. Re-power on both devices afterward for completion.

對頻方式：

A)當更換任一端圖傳設備時，以空中接收端所使用的圖傳組編碼為主，對應同一組地面發射端編碼，輸入該組編碼後，按〔對頻〕。

B)對頻完成後，先關閉飛行機電源再關閉遙控器電源，然後重新開機即完成。

Video Transmitter Codes Diagram 圖傳編碼示意圖

Each video transmitter code is unique.
Please refer to below diagram and enter the code.

每套圖傳都有獨立且對應的編碼序號，請參考圖選位置，輸入您圖傳的專屬編碼。

Launcher Code 發射端編碼	Receiver Code 接收端編碼
80201-0018-A	80201-0018-B
12:DB:01:AA:01:C9	12:DB:01:BB:01:C9
Align-018	

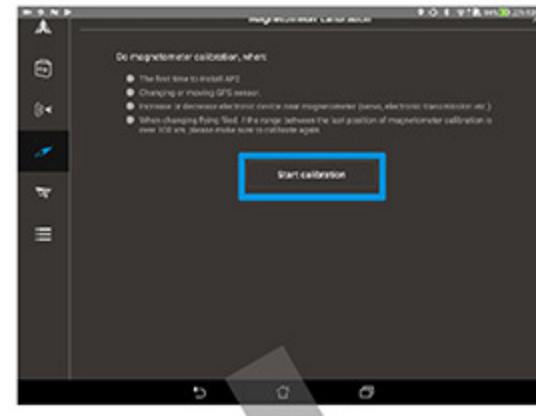
4. MAGNETOMETER CALIBRATION

Objects on helicopter can interfere with magnetometer's readings, lowering AP2's heading precision, and even affect position hold ability. To reduce the environmental effect on magnetometer, AP2 must be calibrated prior to use to ensure correct and stable operations.

4. 磁力計校正：

磁力計在AP2裡面是扮演辨別頭向與植保機姿態的角色，而植保機上的電子變速器、馬達、電線、鐵性物質等會干擾磁力計，影響AP2頭向控制的準確度，甚至影響定位控制的效果。為了減少環境對磁力計的影響，所以使用AP2前務必要執行磁力計校正的工作，才能讓AP2有正確與穩定運作。

MAGNETOMETER CALIBRATION 磁力計校正步驟



Magnetometer calibration is required:

- **The first time AP2 is installed.**
- **When changing or moving GPS sensor.**
- **When there is an increase or decrease of electronic devices near magnetometer; such as servo, electronic transmission, etc.**
- **When changing the flying location and the range between the last position of magnetometer calibration is greater than 100km.**

在以下情況，必須做磁力計的校正：

- 第一次安裝AP2時。
- 更換或移動GPS感應器時。
- 增加或減少磁力計附近的電子裝置（伺服器、電子變速器等）時。
- 當變更飛行場地，位於上一次做磁力計校正動作的位置，兩地相隔距離100公里以上時，請必須重新校正一次。

WARNING 警告

- **Please perform calibration in open space, at least 10 meters away from strong magnetic field and conductive materials (magnets, metal table, metal buildings, concrete floors, high voltage electrical tower etc). External environment factors may affect the accuracy of magnetometer. Should multicopter experience poor position holding performance while in AP2 flight mode, please perform magnetometer calibration steps again.**
- **AP2 requires a minimum of 10 satellites for flying.**
- 請在空曠且遠離強磁和導磁物質10公尺以上（磁鐵、鐵桌、鐵皮屋、鋼筋水泥地板、高電壓線路等）的地方校正。外在環境的改變會影響磁力計的準確度，當植保機於AP2飛行模式下，發生定位效果不佳時，請重新校正磁力計。
- 在正常的情況下，AP2所需衛星數量為 10顆。若接收不到衛星訊號，或衛星強度不足，禁止飛行。

Before doing magnetometer calibration, please fold up the pipes of Demeter to lessen the width of body and do rotation process; at the meantime to hold the Demeter firmly to prevent falling down. It can be done by two people if necessary.

執行磁力計校正前，請將植保機機管收合，減少機身寬度，以便進行旋轉動作；同時必須穩固抓取植保機，避免摔落造成損傷。必要時亦可由兩人同時協作校正。

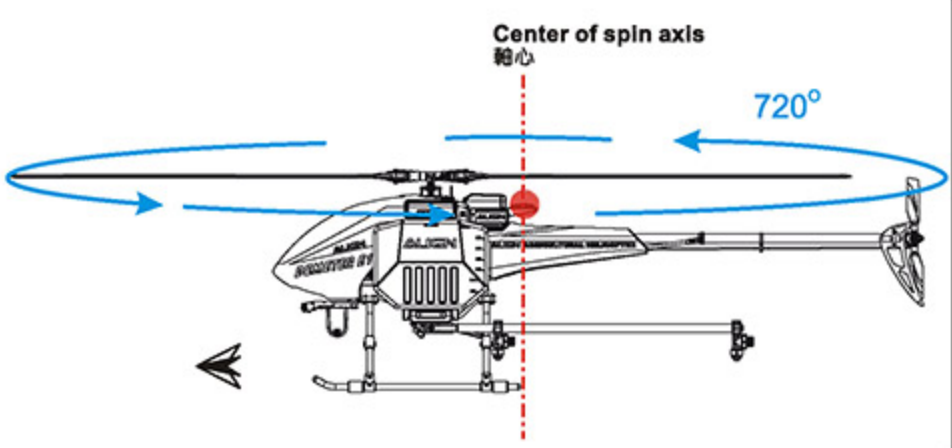
STEP 1

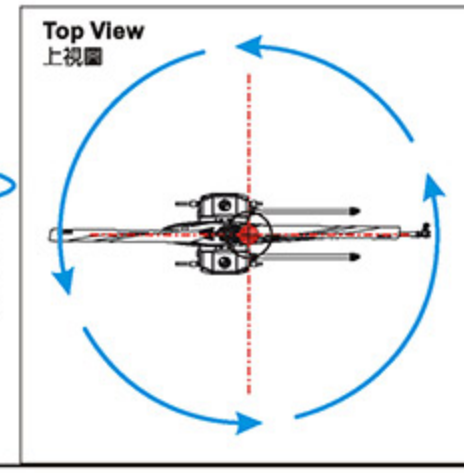
Demeter parallel 720-degree horizontal rotation.

Place the Demeter horizontal to level ground with the GPS sensor as a center rotate the Demeter horizontally 720 degrees.

植保機水平旋轉兩圈(720度)。

拿起植保機，且以GPS感應器為軸心，水平旋轉兩圈(720度)。





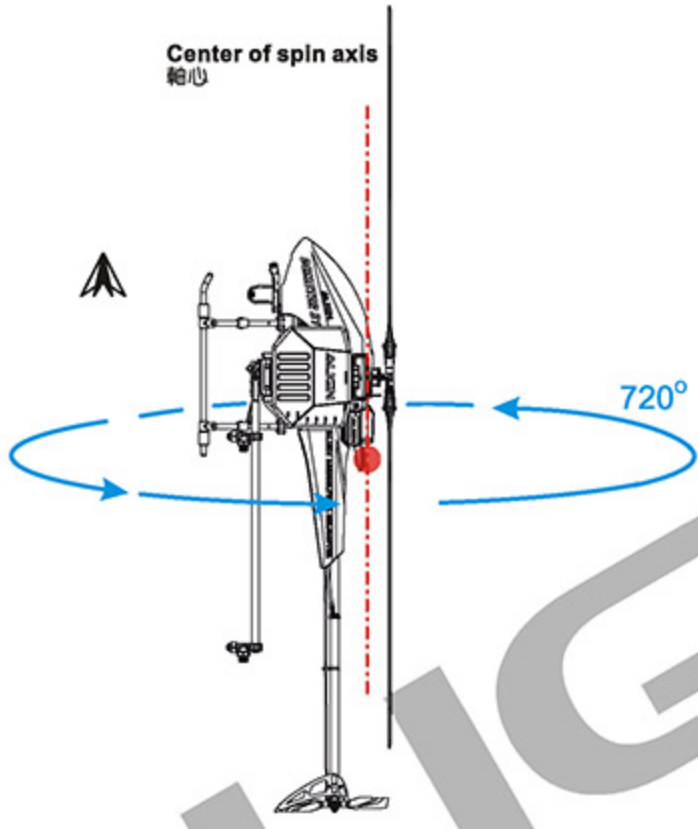
STEP 2

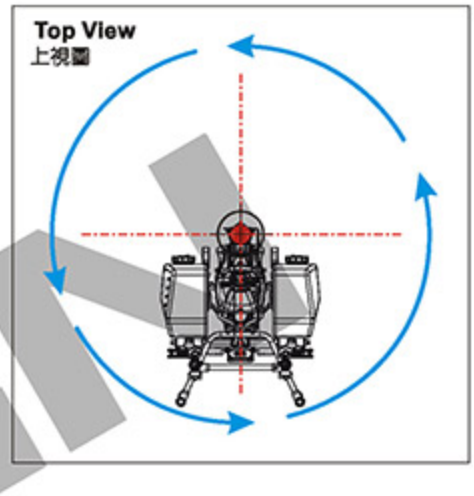
Demeter vertical 720-degree horizontal rotation.

Place the Demeter vertical to level ground with the GPS sensor as a center rotate the Demeter horizontally 720 degrees.

植保機朝上直立，水平旋轉兩圈(720度)。

將植保機朝上立起，以GPS感應器為軸心，再水平旋轉兩圈(720度)





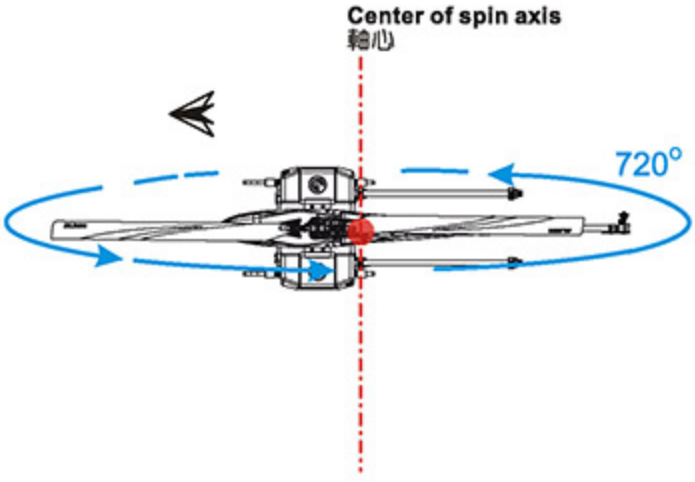
STEP 3

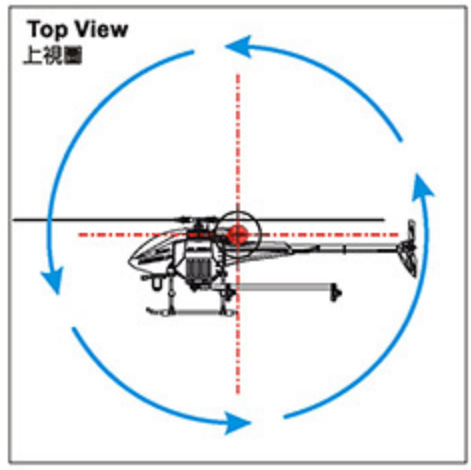
Demeter vertical 720-degree horizontal rotation.

Place the Demeter one side down to level ground with the GPS sensor as a center rotate the Demeter horizontally 720 degrees

植保機朝側邊平行，水平旋轉兩圈(720度)。

將植保機朝側邊平行，以GPS感應器為軸心，再水平旋轉兩圈(720度)。





Please repower on after complete.

完成後，請重新開機。

5. AIRCRAFT FLYING INFORMATION

Display Flight Time, Flight Mode, Flight Speed, Distance from HOME, Flight Altitude, Voltage, Currency, GPS Signal, Number of Satellites, Headspeed, Motor Temperature, Spray volume, and so on.

5.飛行機狀態資訊

顯示飛行時間、飛行模式、飛行速度、HOME點距離、飛行高度、電壓、電流、訊號強度、衛星數量、主旋翼轉速、馬達溫度、噴灑量.....等相關資訊。

6.LAYOUT

Select AP2 flight controller settings, unit settings (metric or imperial), and offline map download service (Only available when using the AMAP).

6.設置

選擇AP2飛控設定、單位設定(公制或英制)、以及離線地圖下載(當使用高德地圖才有此功能)。

AP2 FLIGHT CONTROLLER AP2飛控設定

For beginners or helicopter learners, ensure not to change or setup AP2 flight controller system settings on your own. AP2 flight controller system which is an advanced setup must be instructed by experienced pilots or professionals.

AP2飛控設定屬於進階部份，建議初學者或無直昇機操作經驗者勿獨自進行調整，必須在有相關經驗的專業人員指導下，才進行AP2飛控設定。

CAUTION 注 意

When first time setup, make sure to perform and complete travel range calibration, or it may lead to abnormal system control.

初次設定時，請務必要正確執行遙控器行程校正，否則會造成遙控器控制異常。

TRANSMITTER CHANNELS AND DIRECTION CONFIRMATION 遙控器各頻道行程、方向確定

CH1~CH4

Transmitter Stick Direction and Travel Range Calibration:

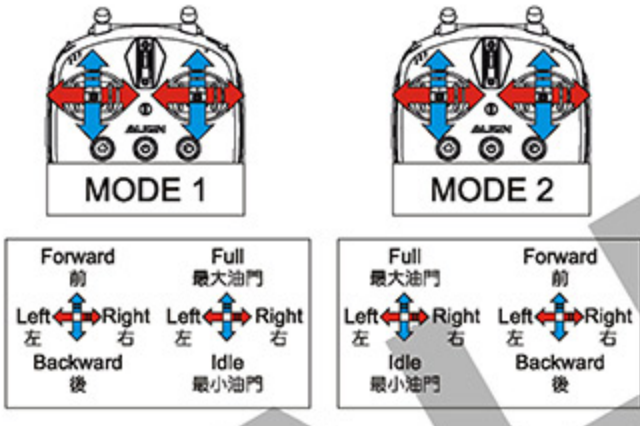
1) Before starting, set all endpoints max and min value on your TX to default 100%, and neutralize all subtrims to 0.

2) Move your transmitter sticks and confirm travel direction on aileron/ elevator/ throttle/ rudder correctly matches the PC interface display. Select the " Reverse"on corresponding channels that need reversing.

遙控器搖桿方向、行程校正：

1)設定此項目前，所有頻道行程量最大最小要為預設值100%，所有微調設為"0"。

2)確認遙控器各動作，副翼、升降、油門、尾舵搖桿方向是否正確，如果介面上顯示方向與搖桿方向相反，可點選該頻道上的"正反向"，讓介面與遙控器一致。



3)Select "Stick travel calibration" and move all sticks on transmitter to maximum and minimum position, then click on "Complete"to finish.

3)點選"遙控器行程校正"將遙控器搖桿都推至最大、最小，然後按下"完成"來結束校正。

① **Click on RC Travel Range Calibraton.**
點選遙控器行程校正

② **Click on "Start".**
點選開始進行遙控器行程校正

③ **Move all sticks on RC transmitter to maximum and minimum position.**
將遙控器搖桿推至最大及最小

④ **Click on "Complete"**
完成

CAUTION 注 意

After setup, make sure to click "Confirm" at the bottom of each page to ensure and complete all the parameter settings.

每次設定時，請務必按下"設定確認鍵"，確認此次參數設定已調校完成。

SWASHPLATE CENTER SETTING 十字盤中立點調整

Servo Neutral point and Level point Adjustment : Adjust each servo individually to the neutral position (90 degrees) using the APP interface to ensure all servo arms are in the horizontal position.

此設定為調整各伺服器中立點與十字盤的水平，利用介面上的伺服器中立點調整，逐一調整各伺服器中立點，使伺服器擺臂為水平，且十字盤也要為水平。

While using the line bar to set up servo neutral setting, there will be servo image flashing showing the one you're adjusting on the interface.

調整伺服器中立點拉霸左右移動時，介面圖示會依您正在調整的伺服器出現閃爍，提醒您正在設定的是哪一個伺服器的中立點。

COLLECTIVE PITCH SETTING 螺距調整

1. **After completing servo leveling adjustment, click "0 degree collective pitch" to adjust collective pitch.**
2. **After setting 0 degree of collective pitch, then set the Max./Min. collective pitch.**
3. **Recommend the max. pitch at 9 degree & min. pitch at -2 degree.**

1. 調整好十字盤水平後，利用（0°螺距微調），將螺距調整為0度。
2. 調整最大最小集體螺距時，0°螺距必須準確，才可進行最大及最小集體螺距調整。
3. 最大螺距建議調整為9度，最小螺距建議調為-2度。

RUDDER SETTING 尾舵調整

'1. **Pushing rudder stick to left will cause tail pitch slider to slide right. If not, please set "REVERSE"in the system.**
'2. **Push rudder stick on transmitter all the way left, and adjust the parameter on interface so the rudder is at maximum left.**
'3. **Push rudder stick on transmitter all the way right, and adjust the parameter on interface so the rudder is at maximum right.**

1. 確定尾舵方向：尾舵打左時尾滑套會向右移動，如果不正確，請調整介面上的正反向。
2. 尾舵左舵最大行程：將遙控器尾舵向左推至最大，調整介面左舵行程拉霸，對應尾舵滑套至最大不干涉位置。
3. 尾舵右舵最大行程：將遙控器尾舵向右推至最大，調整介面右舵行程拉霸，對應尾舵滑至最大不干涉位置。

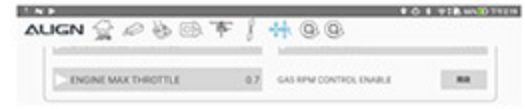
PARAMETER SETUP 參數設定

It is not necessary to adjust the gain setting, as the AP2 flight system default setting is setup at the factory to provide the optimum performance. However this parameter can be adjusted based on your flying style or preference.

AP2飛行控制系統原廠預設值已最佳適用狀態，不需要調整即可飛行。
您也可以依照個人操控習慣與喜好，調整符合需求的飛行特性。

[G1 Parameter Setup] This settings is for G1 engine model only. For E1 battery model please skip this.

（G1飛行參數設定）此設定為引擎植保機專用功能，您使用的Demeter E1為電動植保機，請略過此項設定。



FLIGHT PARAMETER FACTORY DEFAULT SETUP AND ADJUSTMENT

飛行參數原廠預設值及調整說明

Parameters 參數項目	Factory Default 原廠預設值	Adjustment Instruction 調整說明
THROTTLE VALUE IDLE 主旋翼轉速	85%	Settings for headspeed governor and throttle curves. 設定主旋翼定速轉速值。
ROLL ANGLE 副翼角度	40°	Settings for aileron at maximum angle 設定副翼最大動作角度。
TRIM ROLL ANGLE 姿態副翼水平調整	0°	Settings for aileron angle in ATT mode. 調整姿態模式下副翼方向的偏移。
BREAKING ACC 定位煞車調整	33%	Settings for brake strength in GPS mode. The bigger value the more powerful brake strength. 調整GPS模式定位煞車力度，數值越大煞車力度越大。
SRAY RATE PERCENTAGE 噴灑速率	100%	Sray rate percentage 調整農藥噴灑速率的大小。
PITCH ANGLE 升降角度	40°	Settings for maximum elevator deflection angle 設定升降最大動作角度。
TAIL RATE 尾舵速率	25%	Settings for maximum rudder frequency 設定尾舵動作最大速率。
TRIM PITCH ANGLE 姿態升降水平調整	0°	Settings for elevator angle in ATT mode 整姿態模式下升降方向的偏移。
MAGNETIC INCLINATION 磁力計微調	5.48°	To adjust the GPS angle value base on where your geographic location is in GPS mode. 調整GPS模式下，直線方向飛行時偏移磁場偏差值調整，此參數為校正磁力計因各地地磁不同而產生的直飛行偏移。

In GPS mode, the aircraft may not fly straight in forward flight because GPS angle will vary from different Magnetic Field Deviation, which means angle on the horizontal plane between magnetic north and true north, and it' s positive when magnetic north is east of true north, and negative when it is to the west. To correct the angle value accordingly, AP2 system will automatically adjust the GPS angle value base on where your geographic location is. So please refer to below link of N.O.A.A. Calculator and select your located deviation as following request.

GPS實際飛行路徑會受地磁偏角影響產生偏差值。地磁偏角是地球上任一處的磁北方向和正北方向之間的夾角，當地磁北向實際偏東時，地磁偏角為正，反之為負。請根據您目前所在之國家位置，設定相對的GPS偏差角度，系統會自動為您修正偏差值。否則，在 GPS的模式下做直線飛行時，可能會產生不同程度的偏移現象。

N.O.A.A. Calculator 計算當地磁場偏差數值參考網站
http://www.ngdc.noaa.gov/geomag-web/#declination

AP2 FIRMWARE UPDATE AP2主程式更新

CAUTION 注意

You must download the firmware before updating. For safety reasons, please remove all rotor blades. Before download, please turn on mobile network or WiFi.

更新前必須下載主程式，務必拆除主旋翼，以免發生危險。下載前請先開啓行動網路或WiFi。

STEP 1. FIRMWARE DOWNLOAD 主程式下載

AP2 will automatically detect your current version. Please, select the latest firmware version and press download.

AP2會自動判別目前版次，請點選最新版本主程式後，按下載。

WARNING 警告

Don't do anything when you update. Can not adjust the settings, you can not leave the APP, AP2 can not shut down.

更新主程式時請勿做任何動作。AP2不得斷電、不能調整設定、並且不能關閉或跳出APP，必需直到更新完成。

STEP 2. FIRMWARE UPDATE 主程式更新

Press "Firmware Update" after download completes.

Ap2 新版本主程式，下載完成後，按下主程式更新。

PCU FIRMWARE UPDATE PCU主程式更新

CAUTION 注意

You must download the firmware before updating. For safety reasons, please remove all rotor blades. Before download, please turn on mobile network or WiFi.

更新前必須下載主程式，務必拆除主旋翼，以免發生危險。下載前請先開啓行動網路或WiFi。

STEP 1. FIRMWARE DOWNLOAD 主程式下載

PCU will automatically detect your current version. Please, select the latest firmware version and press download.

PCU會自動判別目前版次，請點選最新版本主程式後，按下載。

WARNING 警告

Don't do anything when you update. Can not adjust the settings, you can not leave the APP, PCU can not shut down.

更新主程式時請勿做任何動作。PCU不得斷電、不能調整設定、並且不能關閉或跳出APP，必需直到更新完成。

STEP 2. FIRMWARE UPDATE 主程式更新

Press "Firmware Update" after download completes.

PCU 新版本主程式，下載完成後，按下主程式更新。

MAP MODE 地圖模式

Different map versions, ways of finding north, positioning modes can be choosed :

Map Version: Earth Mode, Full Mode, Mix Mode.

Finding North: Maps & Direction, Directioons North

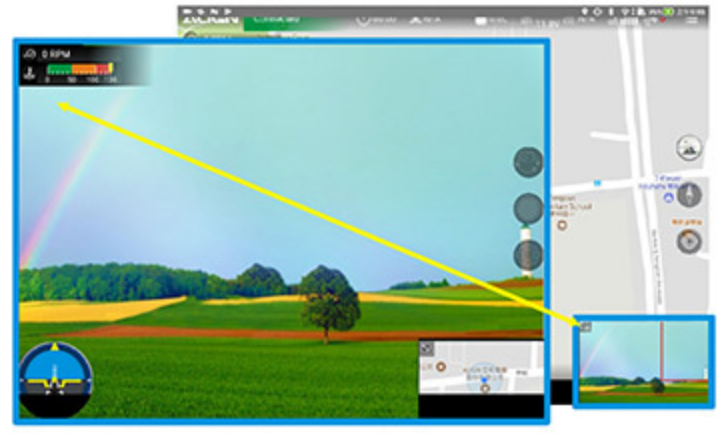
Locating Mode: Aircraft Positioning, Maps Positioning

地圖模式可選擇地型顯示方式、指向回北、定位模式。
地型顯示選項：衛星模式、地圖模式、混合模式切換。
指向回北選項：地圖方向、地圖回北切換。
定位模式選項：機保機定位置中、地圖定位置中。

SWITCH SCREENS 畫面切換

Switch screens by clicking the picture-in-picture on the bottom right for Camera Mode or Map Mode.

點擊右下方子母畫面，可切換主畫面為相機模式或地圖模式。



CAMERA MODE 相機模式

Camera Mode only support ALIGN G2P 4K DV which featuring photo/record mode, shutter/print screen, and camera function settings.

1. Photo/Record : Switch photo or record mode by pressing the button.

2. Shutter : During video recording, it allow to print screen by pressing the shutter button.

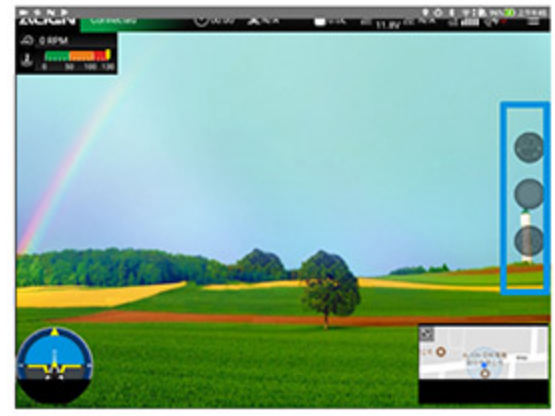
3. Function Settings : Brightness, Saturation, Contrast, Sharpness, E/V, Camera mode, Resolution, Image Format, Format SD Card, and Reset.

相機模式功能僅支援ALIGN G2P 4K DV操作，具有拍照/錄影切換、快門/螢幕截圖、以及相機功能設定。

1.拍照/錄影切換鍵：切換相機為拍照模式或錄影模式。

2.快門鍵：相機模式快門鍵於錄影模式中可做為螢幕截圖快捷鍵。

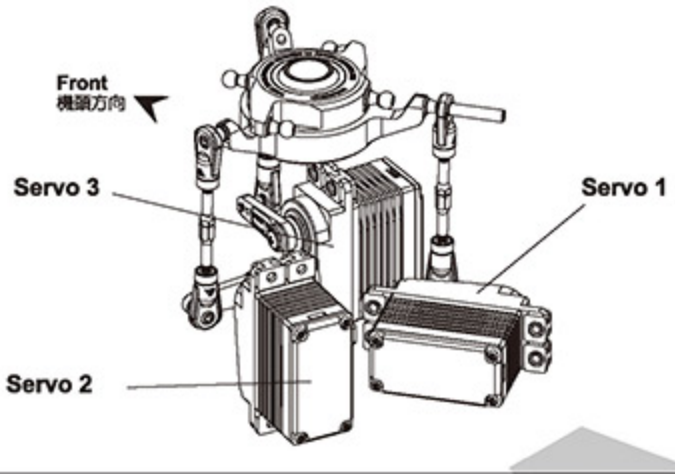
3.相機設定鍵：可調整亮度、飽和度、對比度、銳利度、EV值、拍照模式、影像解析度、影像格式，以及格式化SD卡、重置相機參數。



SERVO CONFIGURATION 伺服器配置

Following the servo configuration diagram , plug the servos to AP2 Flight control system. (See page 31)

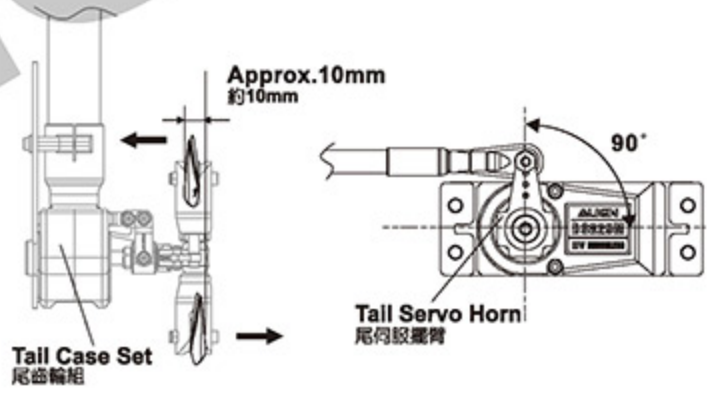
請依照圖示的伺服器名稱，將伺服器接到AP2飛行控制系統。(請參考第31頁)



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 as shown in photo. If the tail pitch assembly is not in the middle position, please adjust the length of rudder control rod to trim.

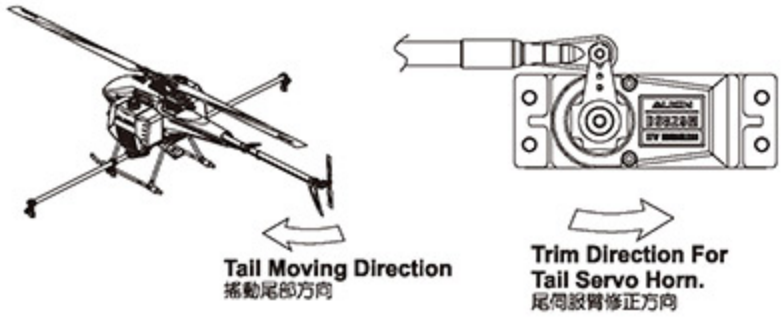
陀螺儀開機後，在非鎖定模式下，尾伺服器與尾 Pitch控制組正確擺置位置。若尾 Pitch控制組未置中時請調整尾控制連桿的長度來修正。



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，尾伺服臂應反時鐘修正，反向時請切換陀螺儀上" 鎖定反向" 開關修正。

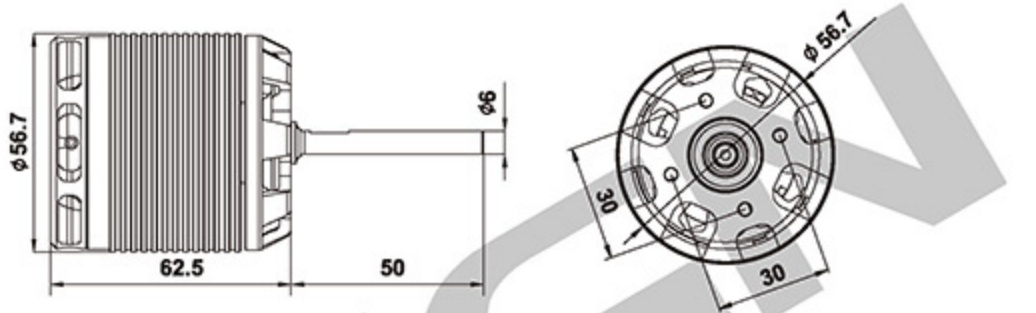


RCM-BL850MX (450KV/4535) MOTOR 無刷馬達

Power and torque requirements of enthusiasts, the high output 850MX 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! 850MX 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.

亞拓特別針對大動力、高扭力的需求，研發設計出為極致動力而生的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電動商品，其高功率高效率輸出特性，適合電動飛機/電動植保機之高扭力高轉速驅動動力用途，速度控制可採本公司或市售規格無刷電子變速器。轉子採用高磁性材料釹鐵硼精製而成，定子採用本廠NC自動繞線與高強度樹脂成型保護，耐高溫低震動。心軸採高硬度高鋼性軸承鋼及雙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、高效能850型無刷馬達。該項新商品已通過本廠技術單位，實施精密嚴格動、靜態，磁場特性、強磁耐高溫磁損、運轉平衡震動及噪音、負載實測飛行動態性能等全項嚴格檢測。

SPECIFICATION 尺寸規格



(Unit單位:mm)

ILLUSTRATION 接線示意圖

KV	KV值	450KV(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	磁鐵極數	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 ø6x56.7x112.5mm	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啟動轉向不盡相同，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。

PRODUCT FEATURES 產品特色

- High performance microprocessor with a running frequency of IP 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 2 pole 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 ro 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 programming or parameter setting through ALIGN ASBOX Multifunction Programmer.
- Multiple protections like thermal shutdown protection, overload protection, over-current protrceion, 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，相容多種無刷馬達，具備優異的定速和緩啟動性能
- 微處理器採用獨立的穩壓IC給供電，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，可記錄當次飛行的最低電壓、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，通過手機端(IOS ro Android)軟體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、溫度保護、過負荷保護、電流保護等多重保護功能，有效延長電變使用壽命；
- 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燒毀等故障時，最大限度保證BEC正常輸出，提供救機機會；
- 支援線上讀取、設定電設定數，查看速度曲線表（存儲模式下），升級電子調速器固件（需要ALIGN ASBOX多功能設定盒或WIFI模組）。

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/

HV200A防水無刷調速器可透過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/

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 電壓
HV200A Waterproof Brushless ESC	For 700-800 Class Helicopter (Propeller: 700-1000mm) 700-1000級電動直昇機 （槳長：700-1000mm）	6~14S LiPo Battery (22.2V~51.8V) 6~14S鋰電池 (22.2V~51.8V)	200A/300A	Switch-mode, 5V~8V Adjustable Voltage (Step: 0.1V),10A/30A Cont./Peak Current 開關穩壓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 Wire/RPM Signal Transmission Wire. 油門信號/BEC輸出線/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； Orange/Red/Brown : BEC Output Wire； Yellow: RPM Signal Transmission Wire. 白、紅、黑三色線為油門信號線； 橘、紅、棕三色線為BEC輸出線； 黃色為RPM信號傳輸線		105x50x36mm/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

CAUTION 注意

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

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

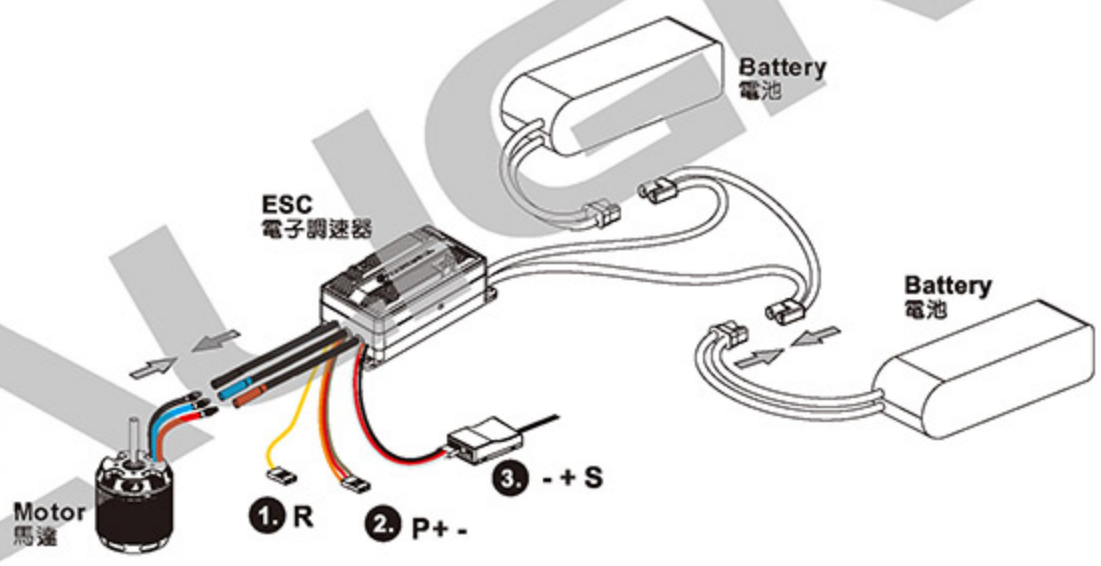
Connections 接線示意圖

1. **RPM Signal Wire(Yellow): 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.**
2. **BEC Output Wire (Orange/Red/Brown): 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.**

   Remark : BCE output cable can also connect to ALIGN ASBOX. While connecting, make sure the BEC cable wires : Orange / Red / Brown (P + -) must plug to the ESC port correctly as instructed.
3. **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 parallely connected in the BEC output wire, which means BEC voltage output wire and ground cable.**

1. **RPM信號線（黃）：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。）**
2. **BEC輸出線（橘、紅、棕）：這條額外的BEC輸出線插入接收機電池專用通道或任意空閒通道。（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任意空閒通道。）**

   註:BCE輸出線也可連接ALIGN ASBOX多功能設定盒，連接時BEC輸出線橘、紅、棕(P+ -)必須正確連接設定盒ESC孔，腳位不可接錯顛倒。
3. **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，而紅線和黑線分別並聯在內部BEC的輸出端（即BEC電壓輸出線和地線）。**



Throttle Range Calibration 油門行程校準操作方法

CAUTION 注意

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%

1. **Turn on the transmitter and move the throttle stick to the top position, and connect the ESC to a battery. The motor will emit " ♪123" indicating the ESC is powered on normally.**

   開啟遙控器，將油門打到最高點，電子調速器接電池，馬達鳴叫"♪123"提示音，表示供電正常

2. **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鋰電池數（長音嗶—表示5，短音嗶-表示1，例如：12S鋰電池將鳴叫"嗶—嗶—嗶-嗶-" ）

3. **2 seconds later, the motor will emit two short beeps indicating the maximum throttle position has been successfully calibrated and accepted.**

   等待2秒，馬達發出"嗶-嗶-"雙短鳴音，表示油門最高點校準成功

4. **Move the throttle stick to the bottom position in 3 seconds. Wait for 1 second, a short beep will emit indicating the minimum throttle position has been accepted.**

   3秒內將油門搖桿推到最低，等待1秒，"嗶"一聲提示音，油門最低點校準成功

5. **ESC/radio calibration completed, the power system is ready to go.**

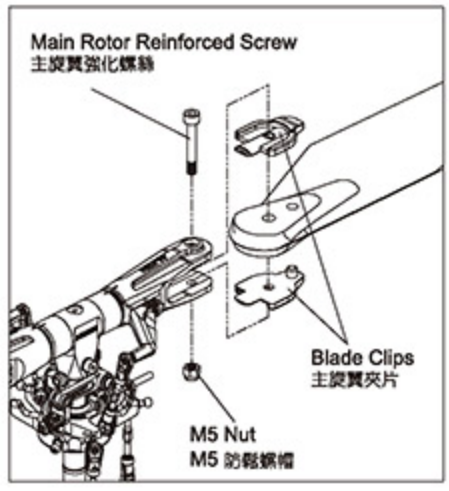
   校准成功，系統準備就緒，可隨時起飛

1. Assembly the main rotor before mission flight.

2. Put the blade clips on main blades and assemble them in rotor holder. Then fix the rotor holder and main blades with reinforced screws temporarily.

1.植保機作業前組裝主旋翼。

2.先將主旋翼夾片扣進主旋翼內，再把主旋翼套入夾座，以專用的強化螺絲暫時鎖附定位即可。



CAUTION 注意

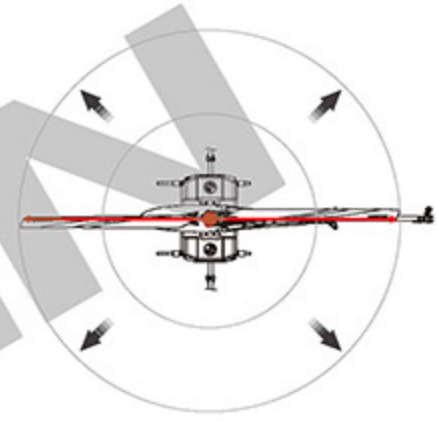
Suggested way to lock:
After fully locking with a hex wrench, retract 1/4 turn to keep the main rotor slightly loose.

鎖附力道建議方式：
使用六角扳手完全鎖緊後，再退返1/4圈，使主旋翼保持微鬆的狀態。

---

3. Place and keep the Demeter on level ground. Pull the throttle up just a little bit not over central point and until rotorhead speed goes over 1300RPM, please turn it off immediately. Then calmly wait till the main blades stop rotating on its own. By doing this, the main blades will be pull straight outward naturally by centrifual force. Make sure not to stop heli rotation by hands or others or it will affect main blades performance in flight.

3.把植保機置於平整的地面上，在不起飛的狀態下，以不超過遙桿中立點位置輕推油門；當轉速即將達到1300RPM時，立即關閉馬達電源，(請確保轉速不超過1300RPM)。關閉馬達電源後，靜待主旋翼自行停止轉動，在靜止前切勿以外力碰觸主旋翼，否則將可能影響到主旋翼甩直的位置。此步驟是利用轉動的離心力讓主旋翼呈現甩直的最佳狀態。



CAUTION 注意

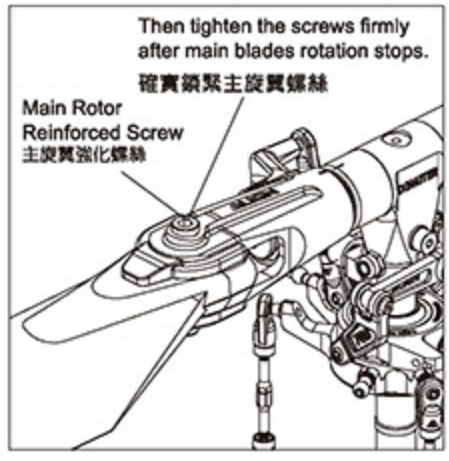
When pulling the blades straight outward, please be sure to keep the helicopter away from all obstacles and operators must stand at least 10 meters away from the helicopter to prevent from any demage or unforeseen dangers

進行甩直動作時，務必遠離障礙物，站立位置必需距離10公尺以上，避免因操作不當，而引發不可預期的財物及人員損傷。

---

4. Then tighten the screws firmly after main blades rotation stops.

4.主旋翼停止後，確實鎖緊主旋翼螺絲。



CAUTION 注意

Ensure to tighten the screws and pull the main blades straight outward as read in step 3 - 4. Improper assembly will cause oscillation during flight and unexpected danger.

如果主旋翼未鎖緊或在未甩直的狀態下，當植保機載重飛行時，容易造成機體異常震動，而影響飛行效能。請重新進行第3、4步驟。

---

5. After mission flight, make sure to remove the main blades all the time for your safety.

5.植保機作業完畢後，確實拆卸主旋翼，以保持良好的使用習慣。

PLEASE PRACTICE SIMULATION FLIGHT BEFORE REAL FLYING 飛行前請事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".

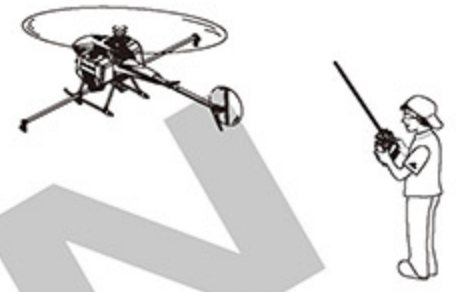
3. The simulation flight practice is very important, please keep practicing until the fingers move naturally when you hear operation orders being call out.

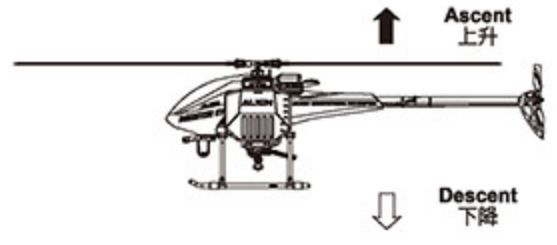
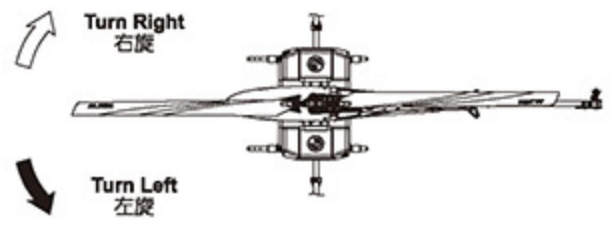
在還沒瞭解植保機各動作的操控方式前，嚴禁實機飛行，請先進行電腦模擬飛行的練習，一種最有效、最安全的練習方式，就是透過市面販售的模擬軟體，以遙控器在電腦上模擬飛行，熟悉各種方向的操控，並不斷的重複，直到手指可熟練的控制各個動作及方向。

1.將植保機放在空曠的地方(確認電源為關閉)，並將植保機的機尾對準自己。

2.練習操作遙控器的各搖桿(各動作的操作方式如圖示)，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。

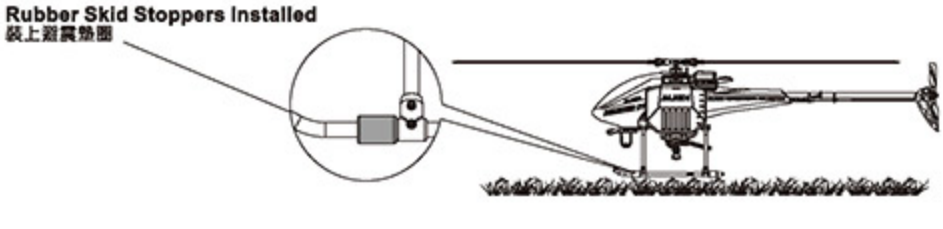
3.模擬飛行的練習相當重要，請重複練習直到不需思索，手指能自然隨著喊出的指令移動控制。



Mode 1	Mode 2	Illustration 圖示
 Aileron 副翼		 Move Left 左移 Move Right 右移 Rotate Left 左翻 Rotate Right 右翻
 Elevator 升降/前後		 Fly Forward 前進 Fly Backward 後退 Forward Rotate 前翻 Backward Rotate 後翻
 Throttle 油門		 Ascent 上升 Descent 下降
 Rudder 方向		 Turn Right 右旋 Turn Left 左旋

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.

將植保機置於柔軟地面上，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陀螺儀，影響飛控系統升空前過度修正。



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.

植保機離地前，十字盤可能因陀螺儀受震動的反饋，使十字盤有傾斜的情形，此時請勿刻意將十盤修正為水平狀態，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，一離地即偏往修正方向的危險。

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.**

1.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。
2.慢慢的推起油門搖桿到高點並且停止，在飛機離開地面前，從飛機側邊觀察主旋翼轉動。
3.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)。

a.When rotating, the blade with higher path means the pitch is too big. Please shorten ball link for regular trim.

b.When rotating, the blade with lower path means the pitch is too small. Please lengthen ball link for regular trim.

a.旋翼轉動時較高軌跡的主旋翼表示螺距(PITCH)過大，請調短連桿頭修正。
b.旋翼轉動時較低軌跡的主旋翼表示螺距(PITCH)過小，請調長連桿頭修正。

CAUTION 注意

◎Tracking adjustment is very dangerous, so please keep away from the helicopter at a distance of at least 10m.
◎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. +5~6° when hovering.

◎調整軌跡非常危險，請於距離飛機最少10公尺的距離。
◎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+5～6°。

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植保機，並禁止將植保機對著眼睛，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

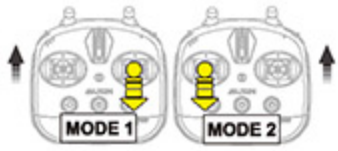
◎Make sure that no one or obstructions in the vicinity.
◎For flying safety, please carefully check if every movement and directions are correct when hovering.
◎Do not attempt to fly until you have some experiences with the operation of helicopter.

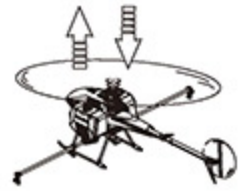
◎確認鄰近地區沒有人和障礙物。
◎為了飛行安全，您必須先確認停懸時各項操控動作是否正常。
◎嚴禁無熟練操控飛行經驗者操控飛行。

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.

◎當植保機開始離地時，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。

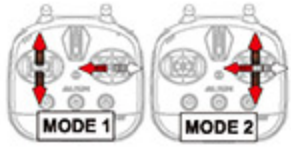




STEP 2 AILERON AND ELEVATOR CONTROL PRACTICE 副翼和升降控制練習

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.使植保機依指示: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植保機開回到原來位置。



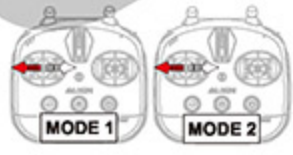
⚠ CAUTION 注 意

◎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.
◎當植保機機頭偏移時，請降低油門並且降落，然後移動自己的位置到植保機的正後方10公尺再繼續練習。
◎假如植保機飛離你太遠，請先降落植保機，並到植保機後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.將植保機機頭移動左或右，然後慢慢反向移動方向舵搖桿並將植保機飛回原本位置。



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.

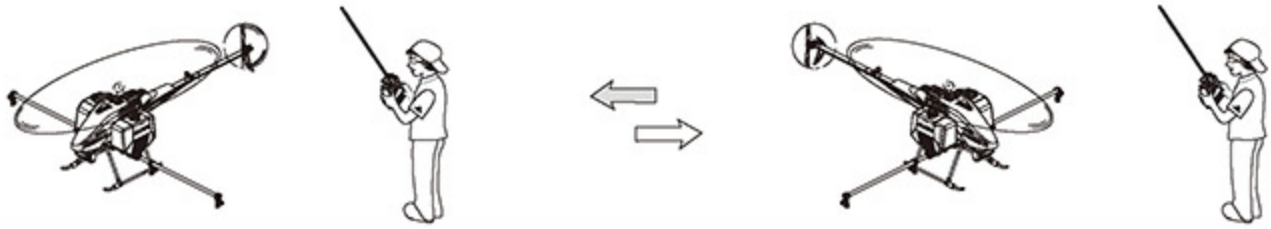
當你覺得 STEP1~3 動作熟悉了，在地上畫圈圈並在這個圈圈的範圍內練習飛行，以增加你操控的準確度。

◎You can draw a smaller circle when you get more familiar with the actions.
◎當你更加習慣操作動作，你可以畫更小的圈圈。

STEP 5 DIRECTION CHANGE AND HOVERING PRACTICE 改變植保機方向和練習停旋

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，站在面對植保機側邊並繼續練習STEP1~4。之後，站在植保機機頭右邊重複步驟練習。



LOCATE AN APPROPRIATE LOCATION 遠離障礙物與人群

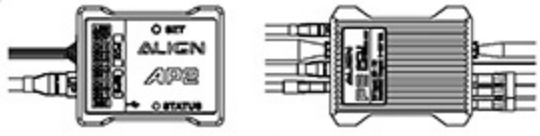
R/C aircraft can fly at high speed, thus posing a certain degree of potential danger. Choose a legal flying field consisting of flat, smooth ground without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others, and your model. Avoid location with magnetic and radio interferences. Please choose a legal flying field. Do not fly your model in inclement weather, such as rain, wind, snow or darkness.

遙控飛行機飛行時具有一定的速度，相對的也潛在著危險性，。必須注意周遭有沒有人、高樓、建築物、高壓電線、樹木等等，避免磁場干擾、外力訊號干擾及操控的不當造成自己與他人財產的損壞。。請勿在下雨、打雷、沙塵等惡劣天候下操作，以確保本身及機體的安全。

CHECK THE WIRE DIRECTION 檢查插線

Ensure all electrons are firmly and well connected and assembled or it may cause unexpected danger during flight.

接線時應確保插頭插至定位，否則將會導致接觸不良、設備無動作反應、或產生其它不可預期的危險！



CHECK ALL EQUIPMENTS 檢測設備

After connecting to ground station, the system will remind the content for pre-check before taking off to ensure devices are all set well.

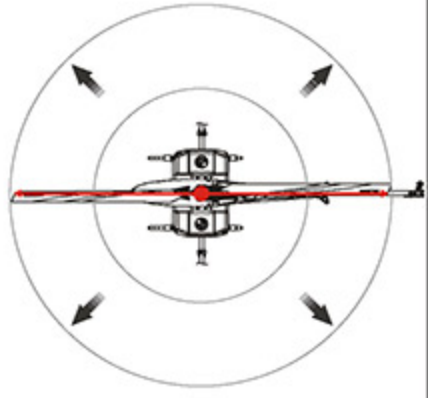
在連線完成進入地面站時，系統會提示飛行前檢測內容，供使用者再一次確定設備是否選擇正確。

IMPORTANT NOTICE 主旋翼安裝及甩直注意事項

CAUTION 注 意

When pulling the blades straight outward, please be sure to keep the helicopter away from all obstacles and operators must stand at least 10 meters away from the helicopter to prevent from any demage or unforeseen dangers

進行甩直動作時，務必遠離障礙物，站立位置必需距離10公尺以上，避免因操作不當，而引發不可預期的財物及人員損傷。



1. **Assembly the main rotor before mission flight**
2. **Put the blade clips on main blades and assemble them in rotor holder. Then fix the rotor holder and main blades with reinforced screws temporarily.**
3. **Place and keep the Demeter on level ground. Pull the throttle up just a little bit not over central point and until rotorhead speed goes over 1200RPM, please turn it off immediately. Then calmly wait till the main blades stop rotating on its own. By doing this, the main blades will be pull straight outward naturally by centrifual force. Make sure not to stop heli rotation by hands or others or it will affect main blades performance in flight.**
4. **Then tighten the screws firmly after main blades rotation stops.**
5. **After mission flight, make sure to remove the main blades all the time for your safety.**

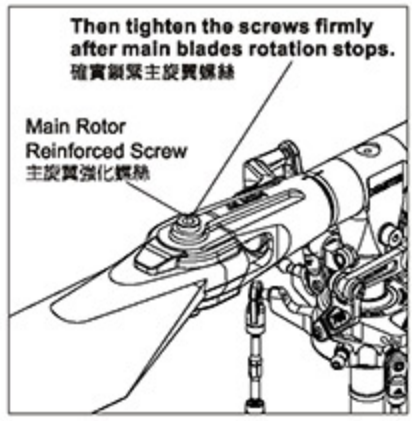
1.植保機作業前組裝主旋翼。

2.先將主旋翼夾片扣進主旋翼內，再把主旋翼套入夾座，以專用的強化螺絲暫時鎖附定位即可。

3.把植保機置於平整的地面上，在不起飛的狀態下，以不超過遙桿中立點位置輕推油門；當轉速即將達到1200RPM時，立即關閉馬達電源，(請確保轉速不超過1300RPM)。關閉馬達電源後，靜待主旋翼自行停止轉動，在靜止前切勿以外力碰觸主旋翼，否則將可能影響到主旋翼甩直的位置。此步驟是利用轉動的離心力讓主旋翼呈現甩直的最佳狀態。

4.主旋翼停止後，確實鎖緊主旋翼螺絲。

5.植保機作業完畢後，確實拆卸主旋翼，以保持良好的使用習慣。



CAUTION 注 意

Attention! Ensure to tighten the screws and pull the main blades straight outward as read in step 3 - 4. Improper assembly will cause oscillation during flight and unexpected danger.

如果主旋翼未鎖緊或在未甩直的狀態下，當植保機載重飛行時，容易造成機體異常震動，而影響飛行效能。請重新進行第3、4步驟。

MOTOR START AND STOP 馬達電源啓動與關閉

Safety feature to allow spin-up of motors only when specific transmitter stick movement is executed, so that accidental start/stop is prevented.

1. To Start Motor

1) Turn on transmitter power.

2) Press and hold power button for 3 seconds to turn on helicopter power.

3) Start the motor by pushing both transmitter control sticks toward lower inner position for 2 seconds.

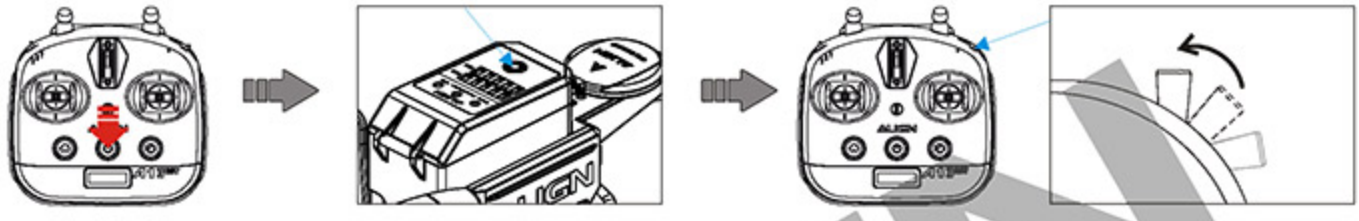
馬達具備安全保護裝置，必須執行遙控器動作才能啓動或關閉馬達電源，避免因誤開電源而啓動或關閉馬達。

1. 開啓馬達電源

1) 開啓遙控器電源。

2) 啓動機身主電源，長按電源鍵3秒開機。

3) 將遙控器油門解鎖開關向內撥2秒解鎖，才會啓動主馬達。



① **Power ON**
電源開啓

② **Press and hold 3 seconds to turn on**
長按3秒開機

③ **Disarm the motor by pushing both control sticks toward lower inner position for 2 seconds.**
油門解鎖開關往內撥2秒解鎖

---

2. To Stop Motor

1) Push both transmitter control sticks toward lower outer position.

2) Press and hold the power button for 3 seconds to turn off helicopter power.

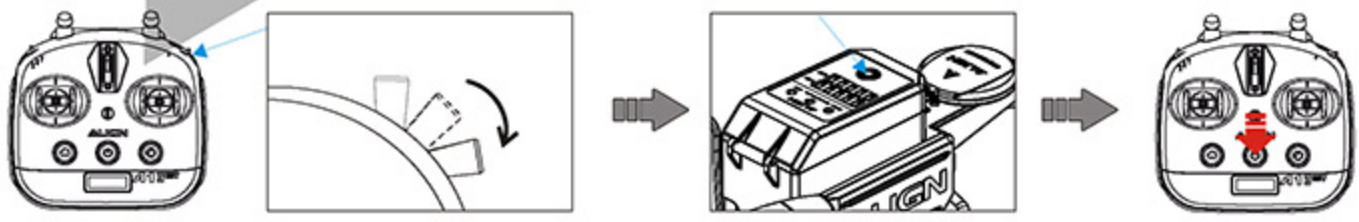
3) Turn off transmitter power.

2. 關閉馬達電源

1) 將遙控器油門解鎖開關往外撥關閉馬達電源。

2) 關閉機身主電源，長按電源鍵3秒關機。

3) 關閉遙控器電源。



① Push both RC transmitter control sticks toward lower outer position.
油門解鎖開關往外撥關閉馬達電源

② Press and hold 3 seconds to turn off
長按3秒關機

③ Power OFF
電源關閉

HOME POSITION SETTING 返航點設定(HOME)

Setting the home position is a necessary and important step during pre-flight check. The goal of home position setting is for helicopter to properly perform intelligent flight modes and return home feature.

1. After performing magnetometer calibration, the power must be turned off. Once the power is turned back on and satellite lock is acquired, the Home location is recorded for this flight.
2. Power on helicopter. Do not move the helicopter until external status LED turns green.

植保機Home點設定是必要且是執行飛行前相當重要步驟之一，主要目的讓植保機在GPS飛行模式下能正確執行各項智能飛行及必要時能安全返航Home點。

1. 第一次飛行執行完磁力計校正後，必須關閉電源，再次開機後，當接收到衛星定位後，此為這次飛行的Home點。
2. 開啓啓動電源，直到外掛用模式燈亮綠燈前，請勿晃動機體。

CAUTION 注 意

Avoid setting Home location while indoor, or at location near obstacles within 15 meter such as trees or houses.

禁止於室內、屋簷下、樹下；周遭務必遠離障礙物15公尺以上的地方設定為Home點。

WARNING 警 告

Before flying, ensure battery is fully charged, magnetometer calibration has been performed, and confirm HOME position has been registered. If HOME position has not been registered before each flight, and automatic return home or low voltage / failsafe return home was activated during flight, the system will not be able to recognize and accurately fly back to the home position, resulting in deviation from intended path and unexpected fly away, causing damages and unforeseen danger.

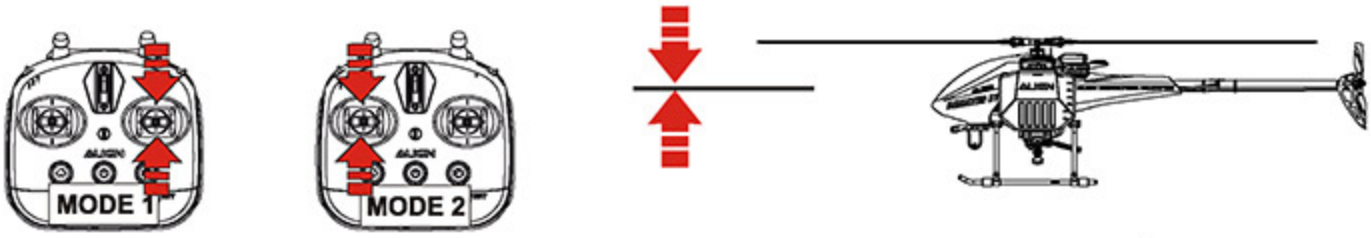
起飛前請檢查電源是否足夠，並做好磁力校正，及確實執行HOME 點設定。若每次飛行前未確實執行HOME點設定，在飛行時啓動自動駕駛中的自動返航、低電壓自動返航、失控自動返航之功能時，系統將無法辨認並準確的飛回起飛地之HOME點，進而導致飛行航道偏離而飛失，將可能造成財產損失及不可預期的意外發生。

ATTITUDE MODE 姿態模式

Maintains level and altitude. Elevator/Aileron/Rudder stick inputs are translated as angular command. Larger stick input translates to steeper angels of helicopter tilt, with maximum of 30 degrees.

姿態模式會自動保持多軸飛行機姿態水平與定高功能，升降、副翼、尾舵搖桿指令為角度命令，搖桿動作越大飛行機動作角度越大，最大角度限制為30度。

a) Center stick = altitude hold
油門搖桿置中=定高



b) Elevator/aileron stick (left and right maximum of 30°)
升降/副翼搖桿(左或右最大30度)

c) Release stick (helicopter automatically levels)
搖桿放開(機體自動回正)

GPS MODE GPS 模式

Maintains level, altitude, and position through GPS lock. Elevator/Aileron/Rudder stick inputs are treated as speed command. Larger stick input translates to faster flying speed, with maximum horizontal velocity of 8 meters/sec and vertical speed of 3 meters/sec.

會自動保持多軸飛行機姿態水平、定高與GPS定位，升降、副翼、尾舵搖桿指令為速度命令，搖桿動作越大飛行機飛行速度越快，最大飛行速度水平 8 公尺/秒，垂直 3 公尺/秒 。

Straight flight speed: 8 m/sec
直線飛行速度：8公尺/秒

CAUTION 注意

GPS Signal may be susceptible to interference including weather, environment and other possible factors, which could affect GPS locking performance. If helicopter receive inaccurate GPS lock or drift under GPS flight mode, make sure to switch to Attitude mode for manual control.

GPS訊號會因天氣、外界干擾、環境...等因素影響定位，在使用GPS模式飛行下，如果植保機發生定位不準、偏移情況，請切換至姿態模式，將植保機控制飛回。

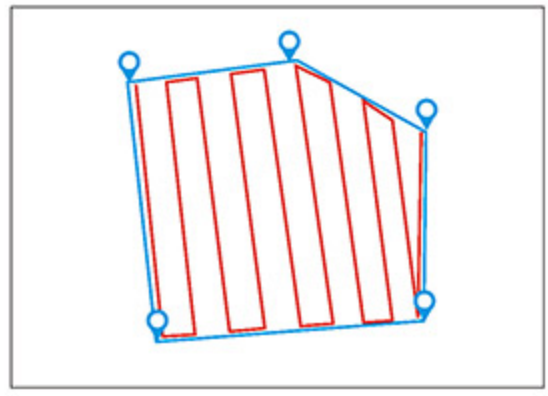
REGIONAL ROUTE PLANNER 區域路徑規劃

Regional Route Planner: In the Ground System map, mark the designated area for spray application. The system operates flight path by selected shape and calculates an efficient spray route which is displayed.

The system will automatically stop spraying while helicopter make a turn during flight to prevent spraying overload in the same position, then it'll continue spraying after it.

區域路徑規劃：於地面站的地圖上點選所要執行飛行任務的範圍，由系統依圈選的形狀自動規劃，運算出涵蓋整個範圍面積的飛行路徑。

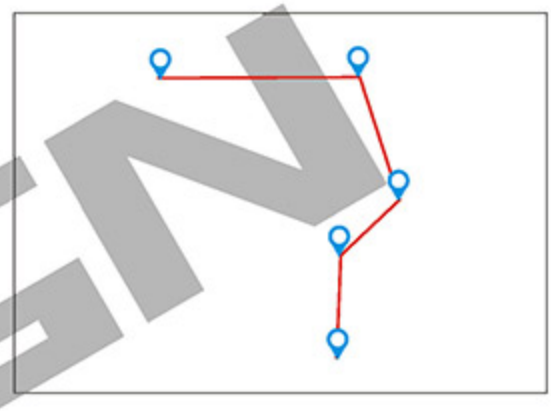
飛行過程遇到轉彎處會關閉噴灑，當植保機頭向朝路線前進時，將重新開啓而確保藥劑不會在同地點重複噴灑。



REMOTE TARGET ROUTE PLANNER 遠端目標路徑規劃

Remote Target Route Planner: use multi-point path coordinates to fly to designate location. Every point path can be set up with flight height, speed and mode.

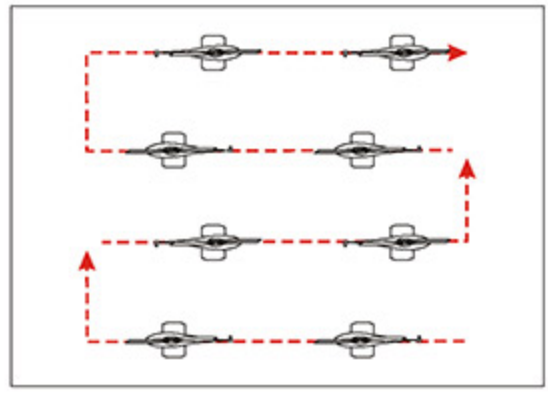
遠端目標路徑規劃：利用多點式路徑點座標，執行命令飛至指定的目的地，每個路徑點可設定飛行高度、速度、頭向。



NOSE HEADING TO THE FRONT 頭向模式

Demeter fly along with the assigned route and keep nose heading to the front whenever it turns.

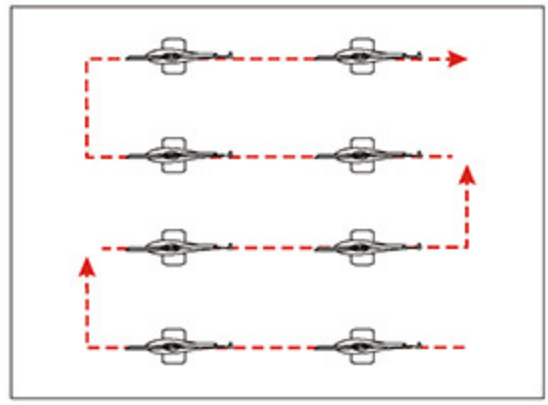
植保機會依設定航線飛行，頭向固向前方，當航線轉彎時，植保機頭向會跟著轉。



NOSE HEADING TO THE BACK 無頭模式

Demeter fly along with the assigned route and will not change it's heading direction when it turns.

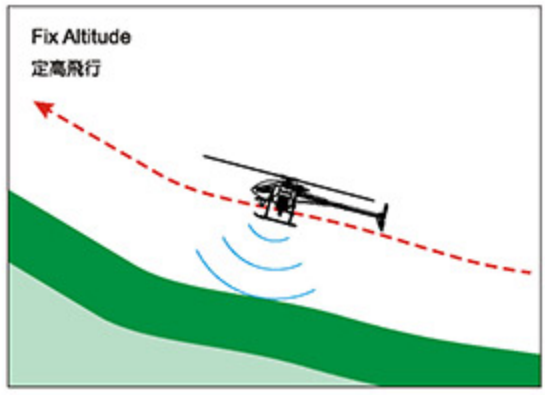
植保機頭向固定朝著區域路徑長邊路線，當路徑轉彎時直昇機頭向保持方向，不會跟著轉。



LANDSCAPE ALTITUDE DETECTION 偵測地形高度

A millimeter wave radar is used to detect the terrain height so the helicopter can adjust to maintain the same dltitude from the plants to provide a uniform spray across all crops.

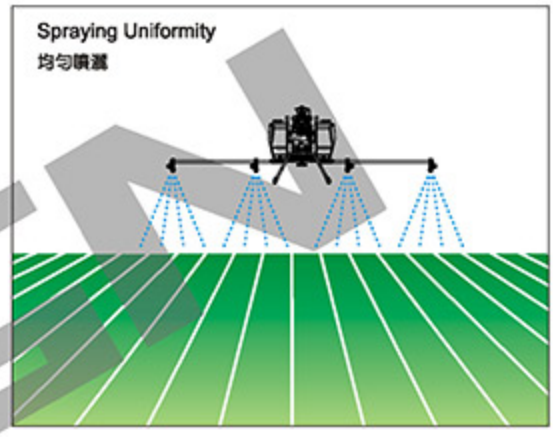
透過毫米波偵測地形高度，讓植保機在不同高低起伏的地形，提前調整高度定高，維持固定高度執行噴灑作業，確保藥量均勻噴灑於作物上。



SPRAY MODE 噴灑模式

Crops Mode (like Corns/Wheat/Sugar Cans/Tea Trees…etc)

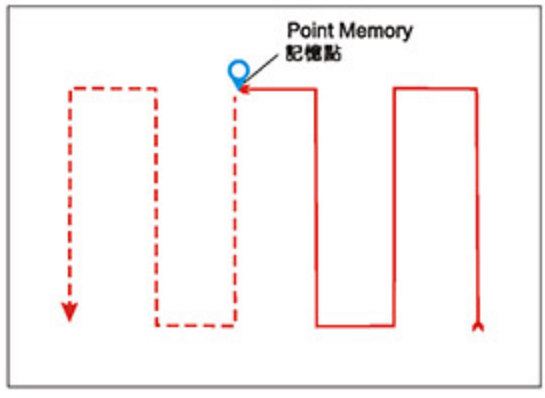
噴灑模式：適用於面積大、集中與平整農作物(如:水稻/玉米/小麥/甘蔗/茶葉...)。



POINT MEMORY IN NAVIGATION 智能記憶座標-作業回復

Demeter incorporates an intelligent route interruption resume function. The AP2 saves the last chemical spray-location. This function allows the Demeter to return to the previous spray location to continue the programmed spray path. This particular feature ensures reliable deployment of chemicals to provide efficient plant protection.

航線斷點智能記憶功能，無藥時可自動記憶座標點，添加藥劑後可一鍵返回記憶點繼續噴灑作業，保障植保作業的連續性



SMART RETURN HOME 智慧返航

Automatic return home function is a flight aid in scenario where the pilot has lost sight of the aircraft, or is unable to tell its orientation due to excessive distance, the aircraft will automatically and securely fly back to the home position under GPS mode with good GPS satellite reception.

自動返航功能是輔助植保機在操控過程中，若發生迷航或距離太遠無法辨識正確飛行方向時，在GPS模式下且衛星訊號良好的狀態下，可藉由飛控系統執行自動返航指令，讓植保機在安全機制下自動駕駛安全返回Home點。

When activate the smart return home function, please confirm below issue in system :

A. : Directly land and drop down to height of 2 metres above the ground.

B. : Follow the original flight pattern and fly back to home position, then land and drop down to height of 2 meters above the ground.

C. : Firstly increase height to 10 meters above the ground, then follow the original flight pattern and fly back to home position, then land and drop down to height of 2 meters above the ground.

Remarek : To secure aircraft safety: point A can only work for flying distance within 5 meters; point B & C only work for flying distance within 5 - 30 meters; point C can only work for flying distance over 30 meters.

當開啓返航鍵時，系統會詢問使用者採用什麼方式返航:

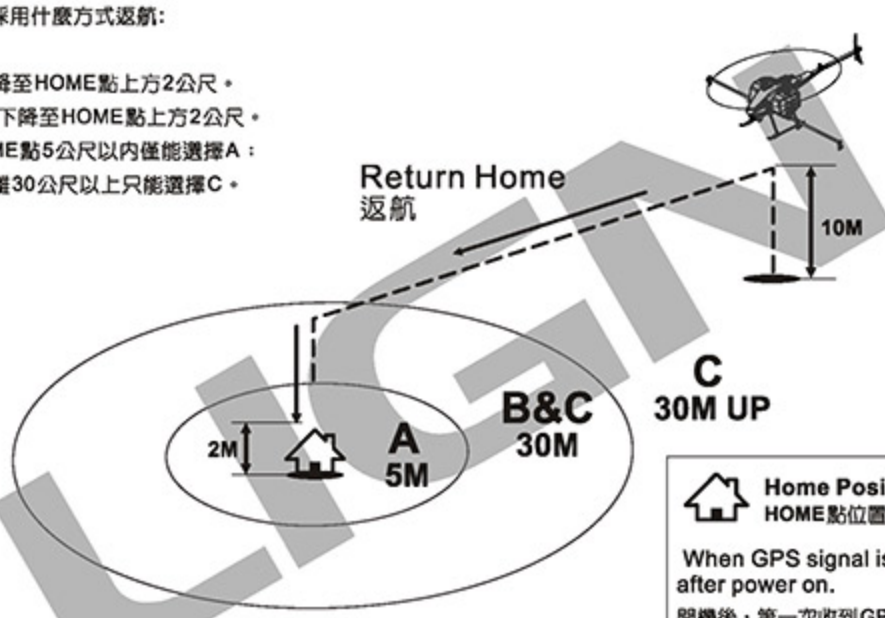
A.直接原地下降至離地面2公尺。

B.沿原飛行高度返回到HOME點，下降至HOME點上方2公尺。

C.提升10公尺高度再返回HOME點，下降至HOME點上方2公尺。

註:為確保植保機返航安全，距離HOME點5公尺以內僅能選擇A；

距離5-30公尺可以選擇B或C；距離30公尺以上只能選擇C。



Home Position:
HOME點位置

When GPS signal is first received after power on.

開機後，第一次收到GPS訊號的位置。

CAUTION 注 意

1. **During automatic Return Home function, Demeter will choose the shortest path between current location and home location.**
2. **If the flight path deviates from the intended path to home during return home function, immediately disengage auto return home function, and manually fly the aircraft back home.**
3. **If automatic Return Home function needs to be disengaged while returning home, flip the Return Home switch on and off to regain manual control.**

1. 執行自動返航功能時，植保機會從飛行位置與HOME 點最短的距離做為飛行路徑。
2. 若在飛行機抵達HOME點或返航途中，發生衛星定位回HOME點航線偏移，請立即解除自動返航指令，以手動操控回HOME點。
3. 解除自動返航指令：遙控器關閉自動返航按鍵，即能解除自動返航指令。

Please make sure to read below importance carefully to prevent any serious damaged: Please make sure to read below importance carefully to prevent any serious damaged:

(1) Magnetometer Calibration: Please do perform magnetometer calibration before starting each flight to secure precise locking position to prevent any damage or accident happened to helicopter, such as drift, lost GPS positioning…etc.

(2) Receiving range of transmitter and receiver checking: During flight, please make sure to pay attention for receiving range of your own transmitter and receiver to keep airframe safety from long distant flying.

(3) GPS satellite reception: When power on before taking off, please make sure the GPS signal is acquired, the LED turns to flash/green. The GPS reception will be changed and interfered by temperature, obstacle…etc, so please be aware of GPS reception during flying.

飛行前請務必確定以下3項重點，如果有其中一項不確實就有可以導致植保機飛行失誤。

(1) 磁力計校正：請務必於每次飛行前執行磁力計校正。確保每趟飛行過程定位的準確性，避免造成植保機於飛行過程中失去定位、飄移或飛偏造成飛行失誤。

(2) 遙控器與接收器接收距離測試：飛行時須特別注意飛行距離範圍確保遙控器與接收器可接收範圍，以確保飛行安全。

(3) GPS衛星收訊：每趟飛行前請務必確認GPS已經完成定位才能起飛。但過程中衛星訊號仍會受遮蔽物干擾、氣候因素…等影響，因此飛行過程中須注意GPS衛星訊號是否正常。

FAILSAFE PROTECTION 失控保護

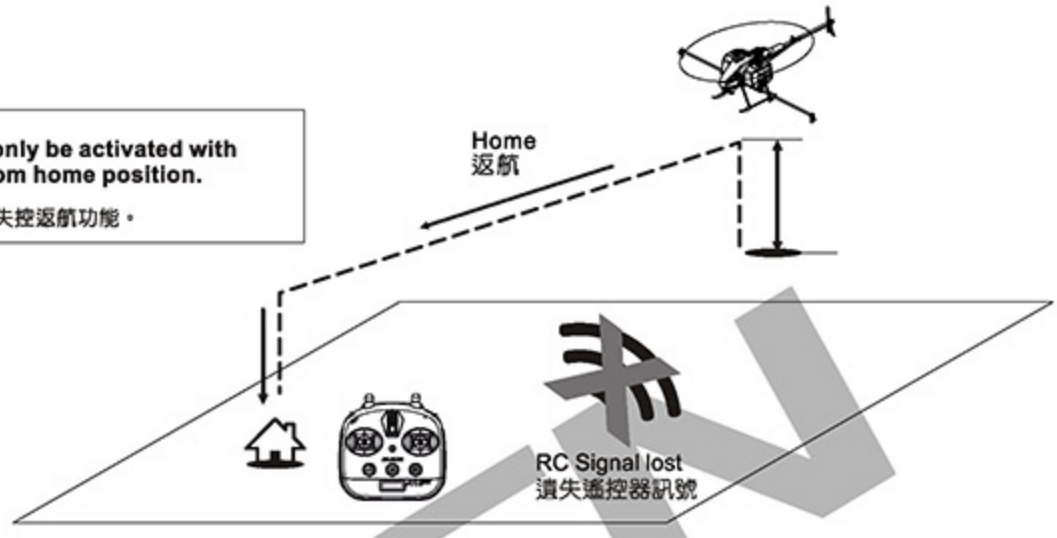
Failsafe Protection：When aircraft loses radio control signal, AP2 will initiate Return Home function when GPS signal is available; but when there is no GPS signal, AP2 will maintain level in the air only. Once radio control signal is back, then AP2 will disengage the auto return home function.

失控保護：當飛行機丟失遙控器訊號時，在有GPS訊號下，AP2會執行自動返航；當遙控器訊號恢復時，AP2會自動解除自動返航。在無GPS訊號下，AP2會保持姿態水平。

CAUTION 注 意

Return Home Function can only be activated with aircraft at least 20M away from home position.

在HOME點半徑20M之內，不執行失控返航功能。



LOW VOLTAGE PROTECTION 低電壓保護

AP2 provides two methods for low voltage protection. Please refer to the AP2 instruction manual for low voltage cutoff parameters.

1. First Stage Protection：low voltage warning light.

Low voltage warning light: Sets the trigger voltage for low voltage warning. Recommended value is 3.625V, at which point the aircraft will have approximately 200M range left (around 1 minute). When voltage drops below the set value, AP2 LED will be flashing red.

2. Second Stage Protection：low voltage trigger for automatic return home.

Low voltage Return Home：Sets the trigger voltage for low voltage return home. We highly recommend the value of 3.60V to be used, at which point the aircraft will have approximately 100M range left (around 30 seconds). When voltage drops below the set value, AP2 will initiate automatic return home feature.

AP2提供兩種低電壓保護，請參考AP2 操作介面安裝與設定，進行低電壓保護數據設定。

1.第一階保護：低電壓警示閃燈

設定低電壓警示閃燈電壓，出廠設定為3.625V(建議值)，此電壓預估可安全飛行距離能力為(約1分鐘)200M，當飛行中電池電壓低於此設定電壓時，AP2即會閃爍紅燈提醒。

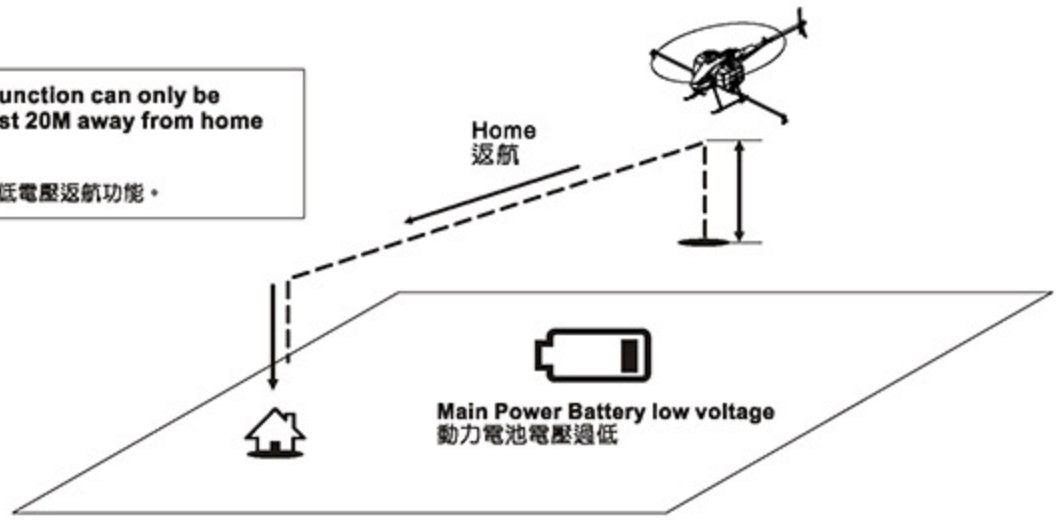
2.第二階保護：低電壓自動返航

設定低電壓自動返航電壓，出廠設定為3.60V(建議值)，此電壓預估可安全飛行距離能力為(約30秒)100M，當飛行中電池電壓低於此設定電壓時，AP2即會執行自動返航。

CAUTION 注 意

Low Voltage Return Home Function can only be activated with aircraft at least 20M away from home position.

在HOME點半徑20M之內，不執行低電壓返航功能。



- Prior to use, please ensure to confirm the ratio of pesticides and provide well protective equipment for workers to prevent pesticide exposure.
- Ensure to understand and check climate and wind direction during working to prevent damage to human body, animals and the environment.
- After spraying and working, make sure to clean the chemical container properly. Remove the chemical and pour water in to clean the container, waterpipe and nozzles for times.
- Make sure to remove the chemical and clean helicopter structure and electric devices carefully to avoid mechanical corrosion.
- Please remove the battery and keep it cool while helicopter is off or off work for period of time.
- Make sure to remove the battery and place it in flat and stable safety box to prevent dirt and damage for well protection.

- 作業前應確實瞭解農藥調配的濃度比例，以及操作安全，作業人員應佩戴防護用具，防止與藥物直接接觸。
- 作業時確實瞭解當地氣候及風向，預防對人體、動物以及環境造成傷害。
- 每次噴灑作業結束時，務必確實清潔藥箱，藥劑清除後，再將清水注入作業箱內，完全噴灑，藉由清水反復清洗，使藥箱、管路及噴嘴完全清潔。
- 作業完畢後應確實清潔植保機機體結構與電子設備，避免農藥殘留造成機械腐蝕損壞。
- 當植保機閒置或需要長期存放時，請將電池拆下並存放於陰涼乾燥的地方。
- 當植保需要長途運輸時，必須拆除電池，並且平穩固定於防護箱內隔絕髒污，避免因碰撞損壞機體功能及安全。

SPECIFICATIONS 產品規格 ALIGN

AP2 FLIGHT CONTROL SYSTEM AP2飛行控制系統

Input Voltage 輸入電壓	DC 6-8.4V
Operating Current Consumption 消耗電流	<300mAh @ 6V
Operating Frequency 工作頻率	180MHz
Operating Temperature 工作溫度	-20˚C ~ 65˚C(-4˚F ~ 149˚F)
Hovering Precision (Depending on Satellite Status) 停懸精度 (受衛星狀況影響)	Horizontal ±1m(3.28ft)，Vertical ±1m(1.64ft) 水平 ±1公尺，垂直 ±0.5公尺
Maximum Flight Speed 作業最高速度	8M/sec 8M/秒
Maximum Altitude Restriction 飛行高度限制	300m(984ft) above the takeoff point 距起飛點上方300公尺
Maximum Angular Speed 最大角速度	Aileron/Elevator 200˚/sec, Rudder 400˚/sec 副翼/升降 200度/秒，尾舵 400度/秒
Maximum Tilting Angle 最大傾斜角度	40˚
Supports Helicopter Configurations 支援機型	ALIGN DEMETER E1/ DEMETER G1
Dimension 尺寸	43.8x35.5x20.4 mm

P2 PCU POWER CONTROL UNIT P2 PCU電源控制組

Input Voltage 輸入電壓	7.4~12.6V	Dimension 尺寸	49.5x40.5x26.8 mm
Operating Frequency 工作頻率	168MHz	Operating Temperature 工作溫度	-20C˚~65˚C(-4˚F~ 149˚F)

850MX(450KV/4535) BRUSHLESS MOTOR 850MX(450KV/4535)無刷馬達

Input Voltage 輸入電壓	12S	Stator Arms 矽鋼片槽數	12
Max Continuous Current 最大耐電流	115A/250A(2sec)	Magnet Poles 磁鐵極數	10
Max Output Power 最大輸出功率	5100W/11000W(2sec)	Dimesion/ Weight 尺寸/ 重量	φ6xφ56.7x112.5mm/ 570g

1080 DV 1080 DV

Aperture 光圈	F2.0	Dimension 尺寸	100.4x74x111.5mm
FOV 視角	130°		

MILLIMETER WAVE RADAR 毫米波雷達系統

Emission Frequency 發射頻率	24~24.20 Ghz	Range Resolution 距離解析度	0.75M
Emission Power (EIRP) 發射功率（EIRP）	13~24 dBm	Dimension 尺寸	92x63x6mm (HxWxD)
Measurement Accuracy 測量精度	±0.02M	Weight 重量	22g
Update Rate 更新率	50Hz	Working Temperature 工作溫度範圍	-40℃~85℃

VTD1 1080 HD DIGITAL VIDEO TRANSMITTER VTD1 1080高清數位圖傳

Working Frequency 工作頻率	5~5.9Ghz
Way of Transmission 傳輸方式	SDR Wireless Transmission Frame SDR無線電傳輸架構
Wide Transmission Distance 空曠傳輸距離	1.5~2km
Emission Power 發射功率	200mw（23dBm）
Power 功耗	Transmitter < 2.5W / Receiver < 2W 發射板<2.5 W ， 接收板<2 W
Delay 延時	<40ms
Video Output 影像輸出	1080P / 720P HD Digital Video Transmission 1080P/720P 高清數位影像回傳
Mobile Phone / Tablet 手機平板	ANDROID, IOS and Flight Controller OSD Display ANDROID、IOS、飛控OSD顯示
Antenna 天線	5dB Circular Antenna 5dB全向天線

SPRAYING SYSTEM 噴灑系統

Pump Supply Voltage 幫浦輸入電壓	12V	Flow Control 流量控制	Spray Calculator (0~2L/min) 計算控制噴藥量、0~2L/min
Pump Power Consumption 幫浦耗電流	3A	Container Volume 作業箱容積	15L
Flow Detecting 流量偵測	Chemical Volume Detecting / Remaining Warning 偵測藥水水位、剩餘量提示	Pump Control 幫浦控制	Spray Amount Setting (0~2 L/min) 噴藥流量可調 0~2L/min

STANDARD NOZZLE 標配噴嘴

Model No. 噴嘴型號	Atomized Particles 霧化顆粒	Spraying Speed 噴灑速度	Spraying Time (10L with 4 spraying nozzle) 噴灑時間(4噴頭10L)	Pressure 壓力 Bar	Liquid Sprayed (Per spraying nozzle) 流量(單一噴頭) L/min	Spraying Angle 噴灑角度
SF11001(橙) 120目	136 μm	全速(MAX)100%	7min	3	0.36	Fan-shaped nozzle 110 degrees. 扇形110度
		80%	7min 20sec	2.5	0.34	
		50%	9min	1.5	0.28	

Q&A 1 UNABLE TO POWER ON ?

(1) Check whether P2 PCU battery is well connected.
(2) Check whether AP2 flight control system and P2 PCU signal cable is well connected; also check whether AP2 flight control system is well connected to BEC unit.

無法正常開機?
(1) 檢查P2 PCU電池與動力電池是否有接好。
(2) 檢查AP2飛行控制器與P2 PCU訊號線是否有接好，與AP2飛行控制器是否有接上BEC電源。

Q&A 2 OSCILLATION HAPPENED WHILE LIFT-OFF THE GROUND OR IN FLIGHT.

(1) Please check the main rotor and follow the instruction, ensure to tighten the screws back after straightening the main rotor. Make sure the main rotors stop rotation naturally on its own or it'll effect the flight performance.
(2) Ensure to check and adjust the pitch of the blades and keep them rotating at the same path.

植保機起飛與飛行中會異常抖動?
(1) 主旋翼必須依照說明書指示，確實甩直後在鎖緊主旋翼螺絲。甩直後必須讓主旋翼自動停止，不可使用外力來停止，否則會改變主旋翼甩直狀態。
(2) 檢查兩支主旋翼角度是否一致，不可有雙槳情況。

Q&A 3 THE COOLING FAN IS NOT RUNNING.

Check whether the cooling fan is well connected with P2 PCU unit.

散熱風扇無法啟動?
檢查散熱風扇延長線是否有正確跟P2 PCU與風扇連接。

Q&A 4 THE COOLING FAN IS ON BUT THE TEMPERATURE IS STILL HIGH.

Check whether the temperature sensor is well connected with P2 PCU unit. If the temperature sensor loose or damaged, the system will show the highest temperature degree on the ground station.

散熱風扇一直處於開機狀態，溫度顯示於最高溫度?
檢查溫度感應線是否有正確與P2 PCU 連接。溫度感應線未連接或是感應線異常時，地面站溫度會顯示最高溫度。

Q&A 5 WHILE STARTING SPRAYING, THE PUMP IS NOT WORKING.

(1) Check whether pump ESC did emit sound while heli boot?
If there is no sound, please check the connection between pump ESC and P2 PCU unit, ensure they are well connected.
(2) Check the AP2 settings in ground station system, the spray rate value should set over 50 so the pump will work accordingly, otherwise not.

啟動噴灑時，幫浦無啟動?
(1) 檢查開機時，幫浦ESC是否有正確啓動音。無啓動音，請檢查幫浦ESC是否有跟P2 PCU 與幫浦正確連接。
(2) 檢查地面站AP2設定，噴灑速率參數不可調整為0，必須大於50以上幫浦才會正常啓動。

Q&A 6 WHILE STARTING SPRAYING, THE PUMP WORKS BUT IS UNABLE TO SPRAY SUCCESSFULLY.

(1) Inhalation of air causes the air pressure to exceed the pump pressure. Please remove the nozzle and release the air to balance the pressure in pump for next spray mission.
(2) Check and clean the dirty in spray pipe and nozzle to ensure running smoothly.

啟動噴灑時，幫浦有啟動但無法噴水?
(1) 噴前一趟噴灑時有吸入空氣導致壓力超過幫浦壓力。將噴頭打開使噴管內空氣跑出洩壓，即可恢復正常噴灑。
(2) 檢查噴管管路與噴頭是否有雜物阻塞。

Q&A 7 UNABLE TO CONNECT TO THE GROUND STATION.

(1) Check 5G WiFi connection to ensure video transmitter is connected to the tablet successfully.

(2) Check if Demeter boots correctly follow by the manual instruction?

地面站無法連線?

(1) 檢查平板是否有5G WiFi連線功能，確認WiFi是否有與圖傳連線。

(2) 檢查植保機是否有正常開機。

Q&A 8 IN CAMERA MODE, THERE ARE NO OPTIONS FOR AP2 GROUND STATION SETUP ?

(1) The standard 1080 DV only works as video transmission, no need for setting adjustment.

(2) For 1080 DV, there are no options for set up in ground station.

(3) Upgrade with 4K DV, it allows for camera setting, such as lightness, saturation and contrast...etc.

AP2地面站在相機模式下沒有選項無法設定?

(1)植保機標配為1080 DV，此DV僅作為影像回傳用，本身沒有調整設定的功能。

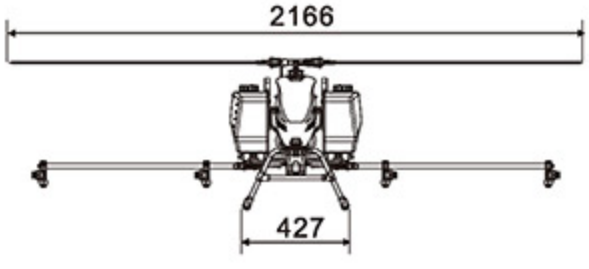
(2)所以當選擇設備為1080P Dv時，在地面站上無相機設定的選項。

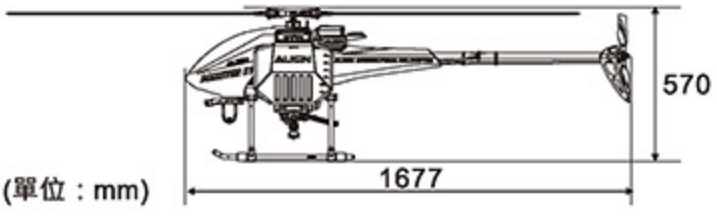
(3)若設備為另購的4K DV時，在地面上則會有相機設定的選項，可調整亮度、飽和度、對比度...等。

ALIGN

SPECIFICATIONS & EQUIPMENT／規格配備:

Body Length/機身長：	1677mm
Body Height/機身高：	570mm
Body Width/機身寬：	427mm
Main Rotor Length/主旋翼長度：	990mm
Main Rotor Diameter/主旋翼直徑：	2166mm
Tail Rotor Diameter/尾旋翼直徑：	313mm
Weight/空機重量：	Approx. 10.5kg
Full Load/飛行承載重：	29.5kg
Motor/無刷馬達：	850MX(450KV/4535)
Max output power/最大輸出功率：	5100W / 11000W(2sec)
Chemical Container/作業藥箱：	15L
Maximum Working Speed/作業最高速度：	8M/sec.
Spray Efficiency/噴灑效率：	Spray up to 0.48 acres per minute 1.4~2分地/分鐘(1分地=970平方公尺)
Flight Duration/飛行時間：	Approx. 15min.(10000mAh Battery) Approx. 10 min.(6000mAh Battery)
Atomized Particles/霧化顆粒：	SF11001: 136 μ m SF11015: 136~177 μ m





(單位：mm)

亞拓電器股份有限公司
ALIGN CORPORATION LIMITED MADE IN TAIWAN
2018.Nov.20 G00731