T-REX 150X

INSTRUCTION MANUAL

使用說明書

RH15E04XT
RH15E05XT
RH15E06XT

BTF
BIND TO FLY

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The Instruction Manual is suitable for T-REX 150X series products, for specification information, please refer to the following content accordingly

此說明書適用T-REX 150X系列商品，規格內容請詳閱說明書。

ALIGN 150 GRS

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Thank you for purchasing of Align products. Please read the manual carefully before installing and be sure to retain the manual for future reference. 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。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。

1.INTRODUCTION 前言

Thank you for buying ALIGN Products. The T-REX 150X Helicopter is designed as an easy to use, full featured Helicopter R/C model capable of all forms of rotary flight. Please read the manual carefully before assembling the model, and follow all precautions and recommendations located within the manual. Be sure to retain the manual for future reference, routine maintenance, and tuning. The T-REX 150X is a new product developed by ALIGN. It features the best design available on the R/C helicopters market to date, providing flying stability for beginners, full aerobatic capability for advanced fliers, and unsurpassed reliability for customer support.

感謝您選購亞拓產品，為了讓您容易方便的使用T-REX 150X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這台直昇機，同時請您妥善的保存這本說明書、作為日後進行調整以及維修的參考。T-REX 150X是由亞拓自行研發的新產品，不論您是需求飛行穩定性的初學者或是追求性能的飛行愛好者。T-REX 150X將是您最佳的選擇。

WARNING LABEL LEGEND 標誌代表涵義

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

IMPORTANT NOTES 重要聲明

R/C helicopters, including the T-REX 150X are not toys. R/C helicopter utilize various high-tech products and technologies to provide superior performance. Improper use of this product can result in serious injury or even death. Please read this manual carefully before using and make sure to be conscious of your own personal safety and the safety of others and your environment when operating all ALIGN products. Manufacturer and seller assume no liability for the operation or the use of this product. This product is intended for use only by adults with experience flying remote control helicopters at a legal flying field. After the sale of this product we cannot maintain any control over its operation or usage.

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

T-REX 150X遙控直昇機並非玩具，它是結合了許多高科技產品所設計出來的休閒用品，所以商品的使用不當或不熟悉都可能會造成嚴重傷害甚至死亡，使用之前請務必詳讀本說明書，勿輕忽並注意自身安全。注意！任何遙控直昇機的使用，製造商和經銷商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，本產品是提供給有操作過模型直昇機經驗的成人或有相當技術的人員在旁指導於當地合法遙控飛行場飛行，以確保安全無虞下操作使用，產品售出後本公司將不負任何操作和使用控制上的任何性能與安全責任。

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。

We recommend that you obtain the assistance of an experienced pilot before attempting to fly our products for the first time. A local expert is the best way to properly assemble, setup, and fly your model for the first time. The T-REX 150X requires a certain degree of skill to operate, and is a consumer item. Any damage or dissatisfaction as a result of accidents or modifications are not covered by any warrantee and cannot be returned for repair or replacement. Please contact our distributors for free technical consultation and parts at discounted rates when you experience problems during operation or maintenance. As Align Corporation Limited has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

模型商品屬於需高操作技術且為消耗性之商品，如經拆裝使用後，會造成不等情況零件損耗，任何使用情況所造成商品不良或不滿意，將無法於保固條件內更換新品或退貨，如遇有使用操作維修問題，本公司全省分公司或代理商將提供技術指導、特價零件供應服務。對使用者的不當使用、設定、組裝、修改、或操作不良所造成的破損或傷害，本公司無法控制及負責。任何使用、設定、組裝、修改、或操作不良所造成的破損、意外或傷害，使用者應承擔全部責任。

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CAUTION 注 意

- Fly only in safe areas, away from other people. Do not operate R/C aircraft within the vicinity of homes or crowds of people. R/C aircraft are prone to accidents, failures, and crashes due to a variety of reasons including, lack of maintenance, pilot error, and radio interference. Pilots are responsible for their actions and damage or injury occurring during the operation or as of a result of R/C aircraft models.
- Prior to every flight, carefully check rotorhead spindle shaft screws and tail blade grip screws, linkage balls and screws, ensure they are firmly secured.

- 遙控模型飛機、直昇機屬高危險性商品，飛行時務必遠離人群，人為組裝不當或機件損壞、電子控制設備不良，以及操控上的不熟悉、都有可能導致飛行失控損傷等不可預期的意外，請飛行者務必注意飛行安全，並需了解自負疏忽所造成任何意外之責任。
- 每趟飛行前須仔細檢查，主旋翼夾座橫軸螺絲、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。

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 flying field consisting of flat, smooth ground without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others and your model. For the first practice, please choose a legal flying field.
Do not fly your model in inclement weather, such as rain, wind, snow or darkness.

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，請需遵守當地法規到合法遙控飛行場地飛行。務必選擇在空曠合法專屬飛行場地，並必須注意周遭有沒有人、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。
請勿在下雨、打雷等惡劣天候下操作，以確保本身及機體的安全。

FORBIDDEN 禁 止 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！

FORBIDDEN 禁 止 PREVENT MOISTURE 遠離潮濕環境

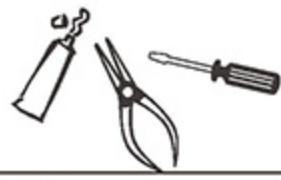
R/C models are composed of many precision electrical components. It is critical to keep the model and associated equipment away from moisture and other contaminants. The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash.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

直昇機內部也是由許多精密的電子零組件組成，所以必須絕對的防止潮濕或水氣，避免在浴室或雨天時使用，防止水氣進入機身內部而導致機件及電子零件故障而引發不可預期的意外！

FORBIDDEN 禁 止 PROPER OPERATION 勿不當使用本產品

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

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



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

Due to the certain learning curve when operating RC helicopters for the first time, avoid attempts by yourself. 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.)

遙控直昇機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 or make contact with the helicopter while the main blades are in motion. During take-off, landing, and flight, be sure to keep the helicopter away from all obstacles. Operators must stand at least 5 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5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，都可能引請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 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、直昇機多半是以 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。

SAFETY ON THE USE OF DRY CELL BATTERIES 乾電池使用安全

The AA carbon-zinc batteries are one time use, they should not be charged for repetitive use. Please read and follow the guidelines below prior to use. The manufacturer cannot be held liable for accidents and damages as result of improper usage.

- **These are one time use battery, and should not be recharged.**
- **Ensure proper polarity and installation method during use.**
- **Do not mix battery of different age or different model. Doing so may affect battery life, and even cause fire danger.**
- **If the product is not used for long period of time, please remove the batteries to prevent damaged caused by battery leaks. Do not use batteries which exhibits symptoms of leaks.**
- **Please follow local law and ordinances when disposing used batteries. Do not dispose them improperly.**

3號(AA)碳鋅電池，不可重覆充電使用，使用碳鋅電池前請務必詳讀並遵照下列事項，本公司將不對任何不當使用所造成的損害及意外負責。

- 碳鋅電池為一次性電池，嚴禁重覆充電使用。
- 安裝使用時，請確認電池正負極位置及安裝方式。
- 嚴禁新舊或不同型號電池混用，以免影響電池使用壽命，甚至造成電池起火燃燒的危險。
- 產品長時間不使用時，請取出電池，以免造成電池電力流失或電池漏液而損壞主機。若電池已經有漏液情況，請勿再繼續使用。
- 廢棄電池，請依照該使用國家或地區的廢棄物清理法令回收，切勿任意丟棄以免汙染環境。

SAFETY ON THE USE OF LITHIUM POLYMER (LIPO) BATTERIES 鋰聚電池使用安全

Lithium batteries have higher degree of risk when compared to other batteries. Please read and follow the guidelines below prior to use. The manufacturer cannot be held liable for accidents and damages as result of improper usage.

- **Due to the certain learning curve when operating RC helicopters for the first time, avoid attempts by yourself. 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.)**
- **Avoid over charging / discharging Li-Po batteries. Doing so may cause internal damages and affect the battery's discharge performance.**
- **Avoid continuous use under high temperature environment, or when battery exhibits high temperature. Doing so may shorten battery life, causing puffing of battery, or even danger of explosion.**
- **Discharge the batteries to 60-70% of full capacity for long term storage. Too low of voltage may result in over-discharging over time. Therefore, we recommend periodic charge of battery in long term storage, this will reduce chance of over-discharge damage.**
- **To avoid the danger of explosion and fire, use of third party charger to charge these batteries are prohibited.**
- **Avoid impact, disassembly, incorrect polarity, and burning of batteries. Avoid shorting of battery terminal by metallic objects. Avoid puncture of battery with sharp material.**
- **Charging error could result in battery explosion, fire, and other unexpected danger or property loss. Please always charge batteries with equipment in sight, do not leave charger unattended. Should you need to leave the charging area, please remove the battery and abort charging process.**
- **Should the battery exhibit excessive heat after use, do not charge immediately. Doing so may cause battery to puff, deform, explode, or even start a fire.**
- **Please follow local law and ordinances when disposing used batteries. Do not dispose them improperly.**

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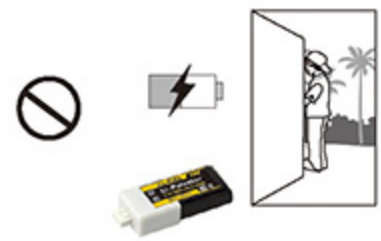
鋰聚電池較其他電池有更高的危險性，使用前請務必遵照下列注意事項，本公司將不對任何不當使用所造成的損害負責。

- 充電時請使用原廠鋰聚電池充電器，充電電壓8.4V(4.2V/CELL)電流不可高於0.6A，放電時不得低於最低放電電壓3V/CELL。
- 鋰聚電池要避免過充與過放的情形發生，過充或過放會對電池內部造成損傷並影響電池放電性能。
- 避免在高溫的環境或電池已經產生高溫而繼續使用，這會使電池壽命減短，嚴重者可能會使電池膨脹甚至爆炸的危險。
- 如果長期不用時，請以60%～70%的充電量儲存。電量過低時，可能因自放電導致過放，因此，存放不使用的鋰聚電池時，建議定期充電，以防止自放電低於最小工作電壓而老化，避免電池充飽存放，充飽存放常會導致電池的膨脹。
- 嚴禁使用原廠以外的充電器進行充電，以免發生爆炸起火的危險。
- 嚴禁撞擊、拆解、正負極反接、焚燒電池，避免金屬品碰觸電池正負極造成短路。並請防止尖銳的物品刺穿電池，以避免電池起火的危險。
- 充電時務必在視線範圍內進行，不可在無人看管的情形下充電，以避免因充電異常造成電池爆裂、燃燒甚至引發火災等不可預期的危險及損失。若需離開看管範圍時應將電池取出，停止對電池充電。
- 電池使用後如有發熱情況，嚴禁充電。否則會造成電池膨脹、變型、爆炸甚至起火燃燒，危害生命財產的安全。
- 廢棄電池，請依照該使用國家或地區的廢棄物清理法令回收，切勿任意丟棄以免汙染環境。



BALANCE CHARGER SAFETY PRECAUTIONS 充電器使用注意事項

FORBIDDEN 禁 止

- **ALIGN CH-150X battery charger is suitable to 2cell. Please do not dismantle or change it for other purpose.**
- **If there is any unusual deformation of the surface of battery, please do not charge it anymore. If the battery becomes hot while charging, stop charging and check if the battery is broken.**
- **Do not let this machine drench to the rain / water or uses under the heavy moisture, in order to avoid the interior short-circuits and accidents.**
- **For short-circuits battery, the indicating light of the charger will be off, so please stop charging.**
- **Charging error could result in battery explosion, fire, and other unexpected danger or property loss. Please always charge batteries with equipment in sight, do not leave charger unattended. Should you need to leave the charging area, please remove the battery and abort charging process.**

- 亞拓CH-150X充電器適用2cell之鋰電池，請勿自行拆卸，改裝或作為其他用途。
- 外觀已膨脹的電池不可再充電使用；損壞的電池於充電過程中會有發熱的情形，應停止對該電池進行充電。
- 勿讓本機淋到雨水或在重濕氣下使用，以免內部發生短路等不可預期的故障及意外。
- 內部短路的電池，當接上充電器時指示燈會熄滅予以警示，應停止對該電池進行充電。
- 充電時務必在視線範圍內進行，不可在無人看管的情形下充電，以避免因充電異常造成電池爆裂、燃燒甚至引發火災等不可預期的危險及損失。若需離開看管範圍時應將電池取出，停止對電池充電。

WARNING 警 告

- **Do not use the charger at place near heater or expose of sunshine.**
- **Keep the vent unimpeded.**
- **While using, put the charger at a stable place and avoid falling down or colliding.**

- 避免靠近熱源或電器產品或在陽光直射環境下使用。
- 散熱口須保持暢通不可堵塞，以免影響散熱效果。
- 使用時請放置於平穩的場所並避免摔落或受到外力撞擊。

CAUTION 注 意

- **The battery being in use may be a little hot. Please do not charge the battery right away. It might cause the battery broken, even an accident.**
- **Prevent liquid and anything into the device. If so, please unplug the charger and take out the battery and send it to our distributors to repair.**
- **If there is an unusual temperature increase, swell, or other unusual occurrences, please unplug the battery and AC plug immediately.**

- 當電池剛使用過且表面溫度尚未冷卻時，請勿立即充電，否則將造成電池損壞，甚至引發意外。
- 不要讓異物或任何液體進入機體，如有尖細異物或任何液體進入機體時，請儘快將電源及電池拔除，並送至經銷商或本公司處理。
- 當充電過程中發生電池溫度升高、電池膨脹或其他異常情形時，請立即拔除電池與充電器電源插頭。

- T-REX 150X are fully assembled, tuned, and pass flight test before leaving the factory; this included the 150 GRS Flybarless system parameters and electronic speed controller (ESC).
- T-REX 150Xfeatures built in ALIGN/Futaba S-FHSS 2.4Ghz system, and support the use of SPEKTRUM DSM2 / DSMX / JR DSM2 satellite receivers. To get the T-REX 150X airborne, all that needed is inputting of parameters listed in manual into your transmitter, and binding of your transmitter, then you are ready to fly.
- ALIGN's smallest and most petite 3D helicopter T-REX 150X, carries the same superior pedigree and design concept that originated from the successful T-REX line of helicopters. Featuring strong power, superior flight control stability, and equipped with high end components, far exceeding any other helicopters currently on the market.
- Miniature size, control precision that s the larger helicopters, enables you to enjoy flying inside a confined space. Beginners can even enjoy this with ease by just turning down the speed dial. The innovative breakthrough T-REX 150X will bring you a new dimension of flying enjoyment.

- T-REX 150X整機全部由原廠組裝調整完成，其中包括150 GRS無平衡翼系統所有參數設定。
- 您只要搭配ALIGN/Futaba S-FHSS 2.4 GHz系統遙控器或SPEKTRUM DSM2/DSMX、JR DSM2/DMSS衛星天線跟遙控器，並完成說明書內遙控器設定及對頻就可以飛行了。
- T-REX 150X是亞拓最小、最迷你的3D直昇機，它傳承優良的血統，所有設計理念源自於T-REX系列直昇機的成功經驗。它具備強勁的動力、超穩定的飛行控制與高檔精緻的配備，遠遠超越市面上其他機種。
- 迷你的大小，如同大型機子的操控感，讓您在小空間內就可享受飛行的樂趣，即便是剛入門的初學者，只要調低速度控制旋鈕，就可以輕易的掌控。T-REX 150X創新的突破，將是帶給你不同飛行樂趣的全新直昇機。

TREX 150X TOP

【RH15E05XT】

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

T6六動2.4G遙控器完整的說明書請至官網下載專區下載。

http://www.align.com.tw/T6/

RTF READY TO FLY

2.4GHz S-FHSS 6CHANNEL

Brand New 150 GRS Flight Controller

Experience Attitude Auto-Level Flight and Extreme 3D Fun Flying!

ALIGN 150 GRS

App Store Google play BL Heli

Super Combo TREX 150X

【RH15E04XT】

BTF BIND TO FLY

Brand New 150 GRS Flight Controller

Experience Attitude Auto-Level Flight and Extreme 3D Fun Flying!

ALIGN 150 GRS

App Store Google play BL Heli

Combo TREX 150X

【RH15E06XT】

BTF BIND TO FLY

Brand New 150 GRS Flight Controller

Experience Attitude Auto-Level Flight and Extreme 3D Fun Flying!

ALIGN 150 GRS

App Store Google play BL Heli

4.EQUIPMENT REQUIRED FOR ASSEMBLY 自備設備 ALIGN

COMPATIBLE TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY 適用遙控器及電子設備

ALIGN T6 Radio Control System
ALIGN T6
六動2.4G遙控器

SPEKTRUM DSM2 / DSMX / JR DSM2 / DMSS System
SPEKTRUM2.4 GHZ 遙控器

Futaba S-FHSS 2.4GHz transmitter
Futaba S-FHSS
系統遙控器
18MZ/18SZ/14SG/10J/8J/6J

DMSS DSM2 DSMX

ALIGN [HER15001]
DSM2 / DMSS /DSMX Remote Receiver
衛星天線

ADDITIONAL TOOLS REQUIRED FOR ASSEMBLY 自備工具

Cutter Knife
刀子

Hexagon Screw Driver Set
六角螺絲起子組
1.3mm x2+0.9mm x1

Needle Nose Pliers
尖嘴鉗

Oil
潤滑油

CA
瞬間膠

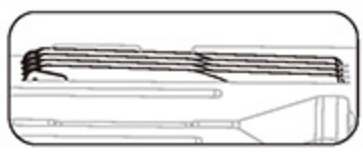
R48
軸承膠

5.PACKAGE ILLUSTRATION 包裝說明 ALIGN

Part Quick Finder
零件快速購

CAUTION 注 意

Do not fully pressed blade into the blade groove, keeping a certain section above foam case for easy extraction.
收納主旋翼時不要完全壓入溝槽，預留部分於泡棉外，能輕易取出使用。



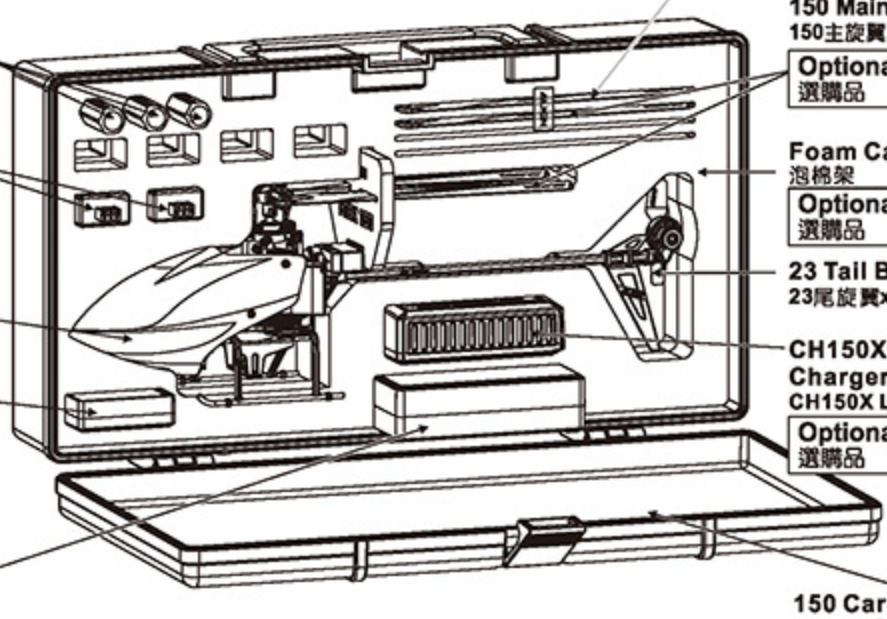
Hexagon ScrewDriver Set
六角螺絲起子組
1.3mm x2+0.9mm x1
Optional Equipment 選購品

7.4V 300mAh Li-Po Battery x 2
7.4V 300mAh
Li-Po 電池 x2
Optional Equipment 選購品

T-REX 150X x 1
T-REX 150X x 1

Parts Box A
配件盒 A
52x40x12mm
Optional Equipment 選購品

Parts Box E
配件盒 E
78.5x60.9x21mm
Optional Equipment 選購品



[HD123BB] 150 Main Blades x 2 Set
150主旋翼 x 2 Set
Optional Equipment 選購品

Foam Case
泡棉架
Optional Equipment 選購品

23 Tail Blade x 1
23尾旋翼x 1

CH150X Li-Po Charger x 1
CH150X Li-Po充電器 x1
Optional Equipment 選購品

150 Carry Boxx 1
CH150手提箱 x1
Optional Equipment 選購品

ALIGN

6.MODEL STANDARD EQUIPMENT DIFFERENCE 標準配備版本說明 ALIGN

There are many versions of T-REX 150X your choice. Some versions includes additional electronics and other equipment, others may not. The Instruction Manual is based on the T-REX 150X S.C. You may purchase any additional items or any spare parts for other T-REX 150X versions by referring to more product information in this manual.

T-REX 150X系列商品有多種版本可作為選擇，除標準配備會因您購買的商品版本而有些微不同，在組裝、設定上都是一致的，在此我們以 Super Combo作為操作範例，您也可依照書面上的商品資訊來增添其他選購商品。

T-REX 150X TOP STANDARD EQUIPMENT T-REX 150X TOP標準配備 [RH15E05XT]

T-REX 150X

T6 Radio Control System
T6六動2.4G遙控器 x 1

CH150X Li-Po Charger x 1
CH150X Li-Po充電器 x1

Hexagon ScrewDriver Set
六角螺絲起子組1.3mm x2+0.9mm x1

7.4V 300mAh Li-Po Battery
7.4V 300mAh Li-Po 電池 x 2

23 Tail Blade
23尾旋翼 x 1

[HD123BB]

150 Main Blades
150主旋翼 x 2 Set

150 Carry Box-Black
150專用手提箱 x 1

Main Blade Holder
主旋翼固定架 x 1

Parts Box
配件盒 x 1

Blade Balance Decal
主旋翼配重貼紙

Remote Extension
衛星訊號線

Spare Parts Pack
備件包

T-REX 150X SUPER COMBO STANDARD EQUIPMENT T-REX 150X SUPER COMBO標準配備 [RH15E04XT]

T-REX 150X

CH150X Li-Po Charger
CH150X Li-Po充電器 x1

Hexagon ScrewDriver Set
六角螺絲起子組
1.3mm x2+0.9mm x1

7.4V 300mAh Li-Po Battery
7.4V 300mAh Li-Po 電池 x 2

23 Tail Blade
23尾旋翼 x 1

[HD123BB]

150 Main Blades
150主旋翼 x 2 Set

150 Carry Box-Black
150專用手提箱 x 1

Main Blade Holder
主旋翼固定架 x 1

Parts Box
配件盒 x 1

Blade Balance Decal
主旋翼配重貼紙

Remote Extension
衛星訊號線

Spare Parts Pack
備件包

ALIGN

T-REX 150X COMBO STANDARD EQUIPMENT　T-REX 150X COMBO標準配備　[RH15E06XT]

T-REX 150X	23 Tail Blade 23尾旋翼 x 1	150 Main Blades 150主旋翼 x 1 Set	7.4V 300mAh Li-Po Battery 7.4V 300mAh Li-Po 電池 x 1
Main Blade Holder 主旋翼固定架 x 1	Blade Balance Decal 主旋翼配重貼紙	Remote Extension 衛星訊號線	Spare Parts Pack 備件包

7.SAFETY CHECK BEFORE FLYING 飛行前安全檢查重要事項　ALIGN

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

- Please read the manual and RADIO CONTROL SYSTEM instruction manual before operating. Make sure you understand the basic flight knowledge and other important notes. Also always be conscious of your own personal safety with correct learning process.
- Before flight, please check if the batteries of transmitter and receiver are enough for the flight.
- Before turn on the transmitter, please check if the throttle stick is in the lowest position. IDLE switch is OFF. If they are not, the screen of the transmitter will appear warning label with warning beeps until IDLE switch is OFF and throttle stick is in the lowest position.
- When turn off the unit, please follow the power on/off procedure. Power ON- Please turn on the transmitter first, and then turn on receiver. Power OFF- Please turn off the receiver first and then turn off the transmitter. Improper procedure may cause out of control, so please to have this correct habit.
- Before operation, check every movement is smooth and directions are correct. Carefully inspect servos for interference and broken gear.
- Check for missing or loose screws and nuts. See if there is any cracked and incomplete assembly of parts. Carefully check main rotor blades and rotor holders. Broken and premature failures of parts possibly cause resulting in 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 the battery and power plug are fastened. Vibration and violent flight may cause the plug loose and result out of control. When IDLE UP throttle curve function is enabled, please be careful and avoid IDLE-UP switch and caused the risk of unexpectedly speed up of the main blades.

- 在開始操作前，請務必詳閱本說明書以及遙控器說明書，了解基本飛行知識與注意事項後再進行實機操作，以確保飛行安全與正確學習過程。
- 每次飛行前確定您發射機與接收機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於最低點，熄火降落開關，定速開關(IDLE)是否於關閉位置；當以上開關未在關閉位置與最低點位置，遙控器開機發聲會出現警告指示與發出警告聲響，直到開關撥回關閉位置與油門搖桿放回最低點位置。
- 關機時必須遵守電源開關機的程序，開機時應先開啟發射機後，再開啟接收機電源；關機時應先關閉接收機後，再關閉發射機電源。
  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脫的螺絲與螺帽，確認沒有組裝不完整或損毀的零件，仔細檢查主旋翼是否有損壞，特別是接近主旋翼夾座的部位。損壞或組裝不完整的零件不僅影響飛行，更會造成不可預期的危險。注意:對損耗、有裂痕零件更新及定期保養檢查的重要性。
- 檢查所有的連桿頭是否有鬆脫的情形，過鬆的連桿頭應先更新，否則將造成直昇機無法操控的危險。
- 確認電池及電源接頭是否固定牢靠，飛行中的震動或激烈的飛行，可能造成電源接頭鬆脫而造成失控的危險。當遙控器有設置特技飛行模式時，要小心避免不經意的切換到IDLE-UP開關，導致主旋翼突然急劇加速暴衝產生的危險性。

When you see the marks as below, please use 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，以確保使用之可靠度。

CA ： Apply CA Glue to fix.
R48 ： Apply Anaerobics Retainer to fix.
T43 ： Apply Thread Lock to fix.
OIL ： Add Grease.

CA：使用瞬間膠固定
R48：使用金屬管狀固定缺氧膠固定
T43：使用螺絲膠
OIL：添加潤滑油

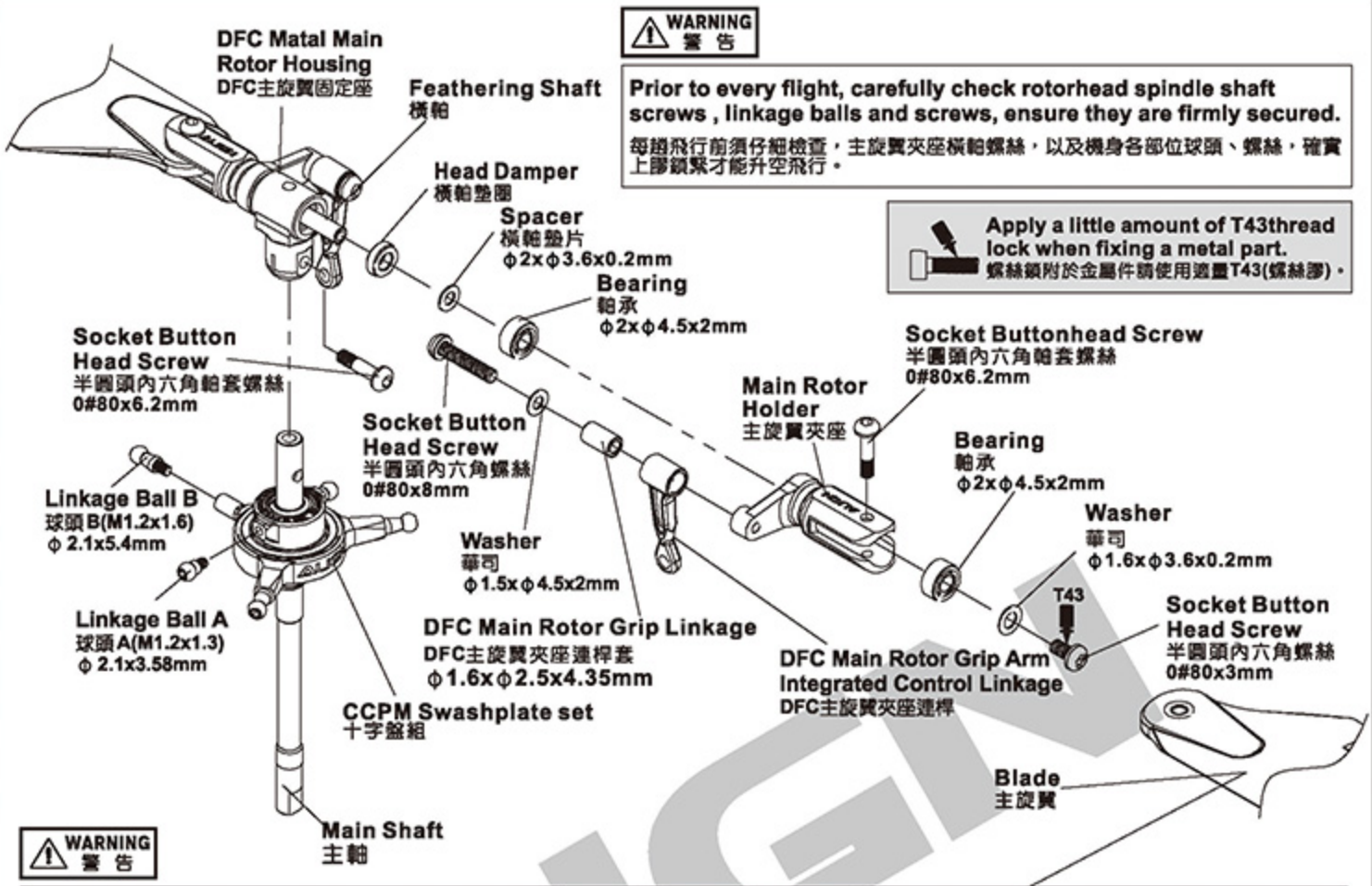
When assembling ball links, make sure the "A" character faces outside.
各項塑膠製連桿頭扣接時，A字請朝外。

Grease 潤滑油(自備)　Green 綠色　Blue 藍色　Furnished 瞬間膠

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

R48 metal tubular adhesive (eg. Bearings). T43 thread lock, apply a small amount on screws or metal parts and wipe surplus off. When disassembling, recommend to heat the metal joint about 15 Seconds. (NOTE ： Keep plastic parts away from heat.)

R48 為強力金屬管狀(如軸承)接著劑，T43為螺絲膠，膠合螺絲或金屬內外徑請務必少量使用，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。(注意！塑膠件避免接近熱源)



WARNING 警 告

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

每趟飛行前須仔細檢查，主旋翼夾座橫軸螺絲，以及機身各部位球頭、螺絲，確實上膠鎖緊才能升空飛行。

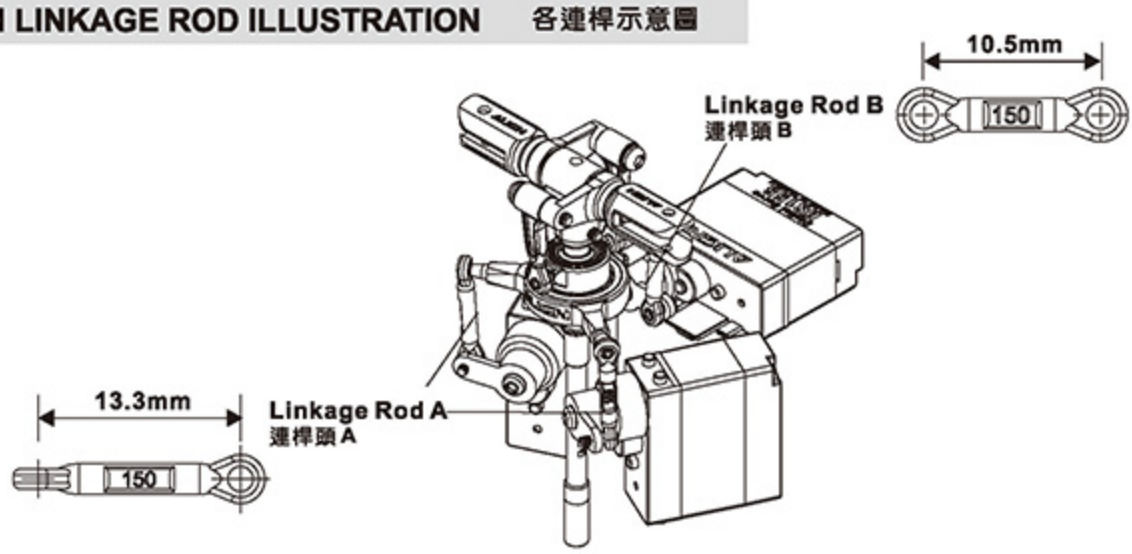
Apply a little amount of T43thread lock when fixing a metal part.
螺絲頭附於金屬件請使用適量T43(螺絲膠)。

WARNING 警 告

1. **Do not over-tighten main blade bolts. The blades must be able to swing freely. Over-tightening will prevent the blades from straightening out, resulting in vibrations.**
2. **Make sure to ONLY use the 150 Main Blades [HD123AB/ HD123BB / HD123CB / HD123EB] series on Trex 150X for installation or replacement. The new 150 main blade is special design for 150X, it can withstand higher rotor speed, and efficiently resist higher centrifugal tension, to avoid the problem of blade shooting while high rotational speed.**
3. **If using T43 or R48: While attaching the T-REX 150X main blade, please be aware the T-REX 150X main blades are made of ABS plastic material. DO NOT ALLOW T43 or R48 to come in contact with the main blades. If using T43 and R48 only apply a small amount. DO NOT APPLY to main blade screw! Excessive use of T43 or R48 will result in T43 or R48 coming in contact on the root of the main blade surface which can result in fractures of the ABS material.**

1. 主旋翼固定螺絲不可鎖過緊，要保持旋翼能順暢收折。過緊時會造成旋翼無法甩直而產生機體震動。
2. 安裝或更換主旋翼時，請務必搭配新款 150 主旋翼 [HD123AB / HD123BB / HD123CB / HD123EB]。新款的150 主旋翼能抗更高的離心拉力，能承受較高的主旋翼轉速，避免高轉速射槳問題發生。
3. 150主旋翼在安裝時，請注意只使用小量螺絲膠 (T43) 與缺氫膠 (R48)於主旋翼螺絲上，達到固定效果即可。因為150主旋翼為ABS塑膠材質，若過量的螺絲膠 (T43) 與缺氫膠 (R48)附著於主旋翼表面，會造成塑膠變質脆化，導致射槳的危險。

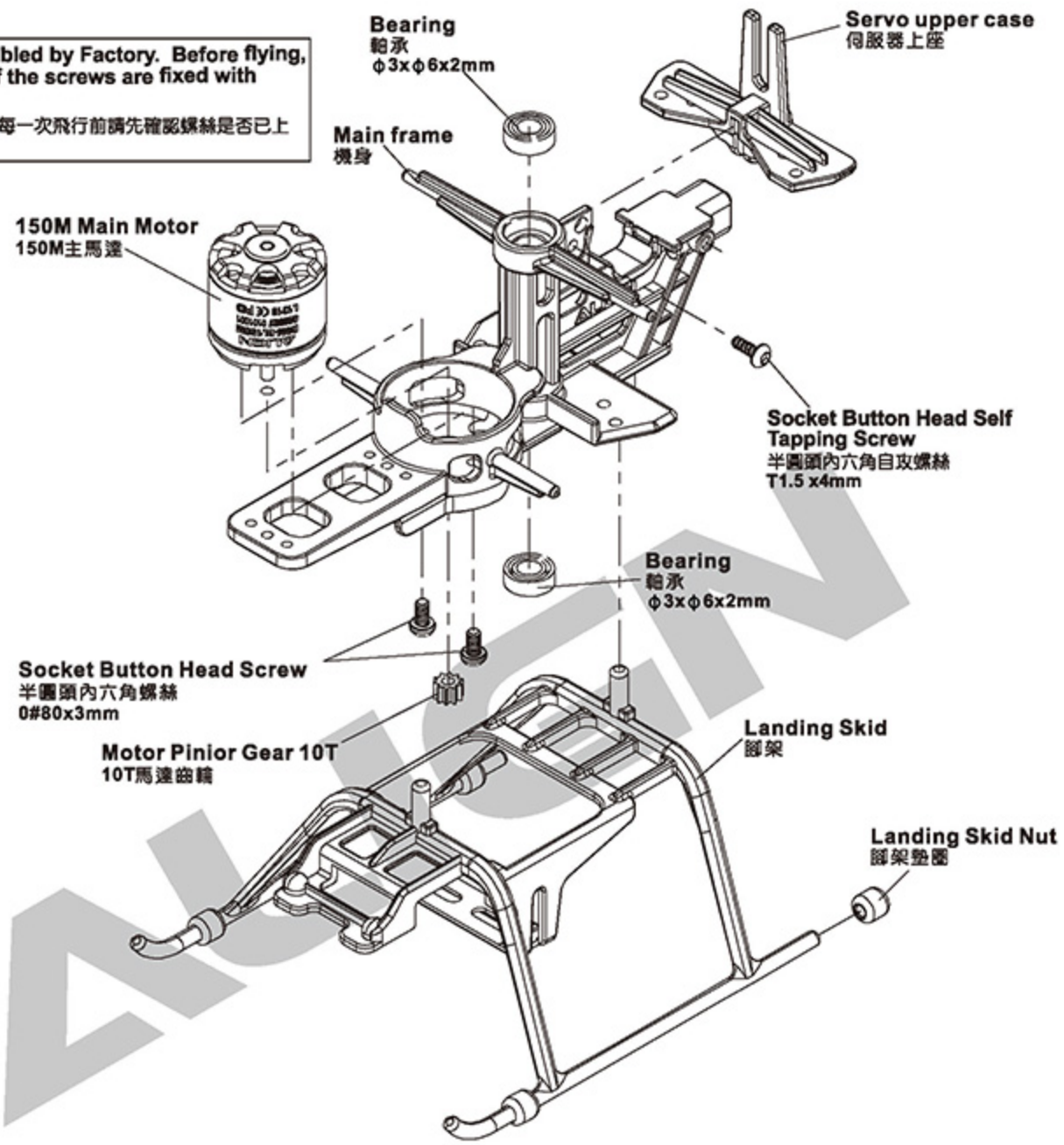
EACH LINKAGE ROD ILLUSTRATION 各連桿示意圖

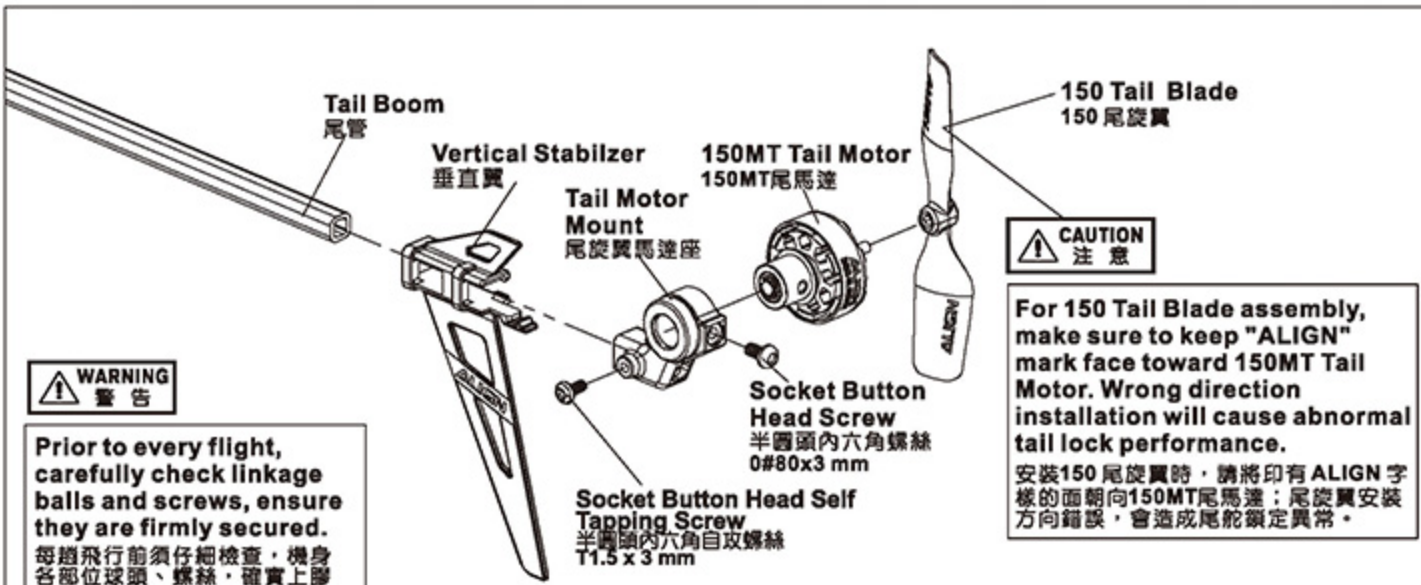


Apply a little amount of T43thread lock when fixing a metal part.
螺絲頭附於金屬件請使用適量T43(螺絲膠)。

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。





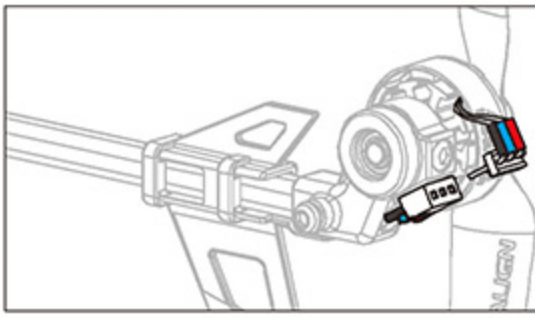
CAUTION 注意

For 150 Tail Blade assembly, make sure to keep "ALIGN" mark face toward 150MT Tail Motor. Wrong direction installation will cause abnormal tail lock performance.
安裝150 尾旋翼時，請將印有ALIGN 字樣的面朝向150MT尾馬達；尾旋翼安裝方向錯誤，會造成尾舵鎖定異常。

WARNING 警告

Prior to every flight, carefully check linkage balls and screws, ensure they are firmly secured.
每趟飛行前須仔細檢查，機身各部位球頭、螺絲，確實上膠鎖緊才能升空飛行。

ALIGN



STAND ALONE TAIL MOTOR PLUG MOUNT

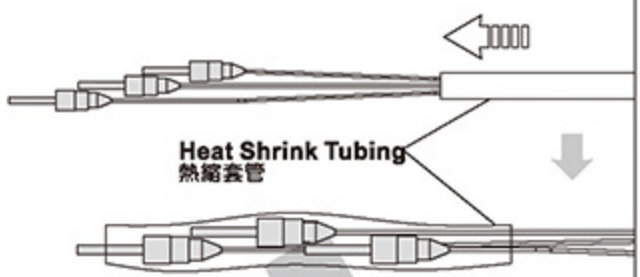
New tail motor plug mount makes maintenance easy.

尾馬達獨立插座設計
獨立式插槽，讓維修更輕鬆簡單。

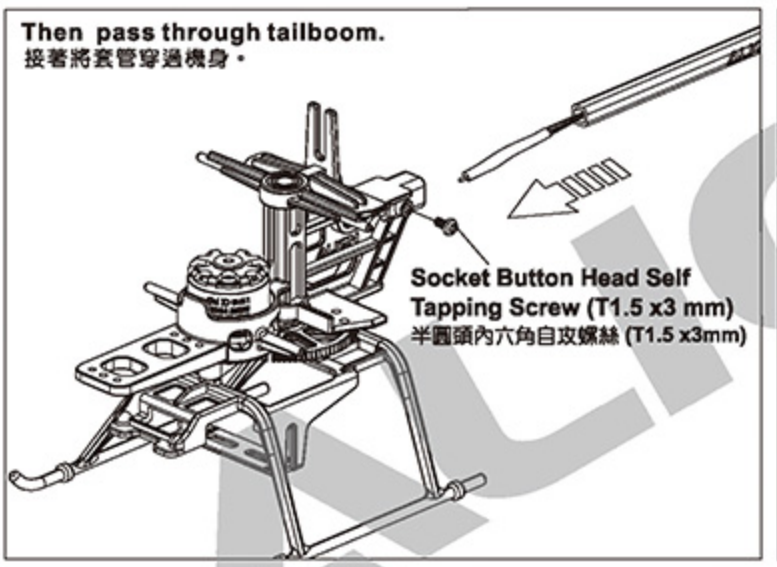
Stagger the plugs to pass through tail boom
馬達線插頭以互相前後錯開方式穿過尾管

Please leave sufficient slack on the tail motor wires; excessive tension may cause breakage.
尾馬達線請保持適當鬆緊度，過度拉緊會造成尾馬達斷線。

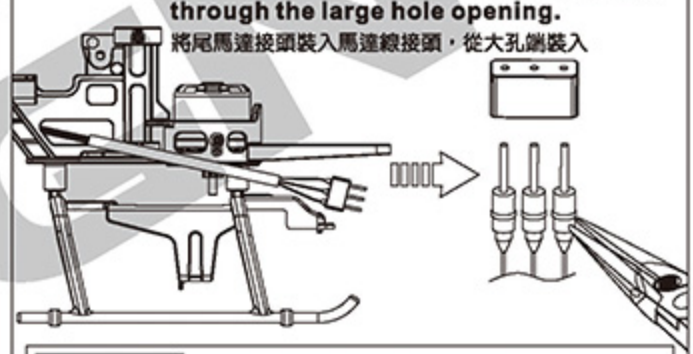
Stagger the motor wires and insert heat shrink tubing into plugs.
馬達線插頭先互相前後錯開，再將熱縮套管往前套入插頭。



Then pass through tailboom.
接著將套管穿過機身。

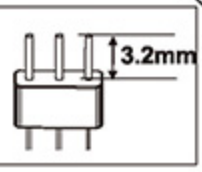


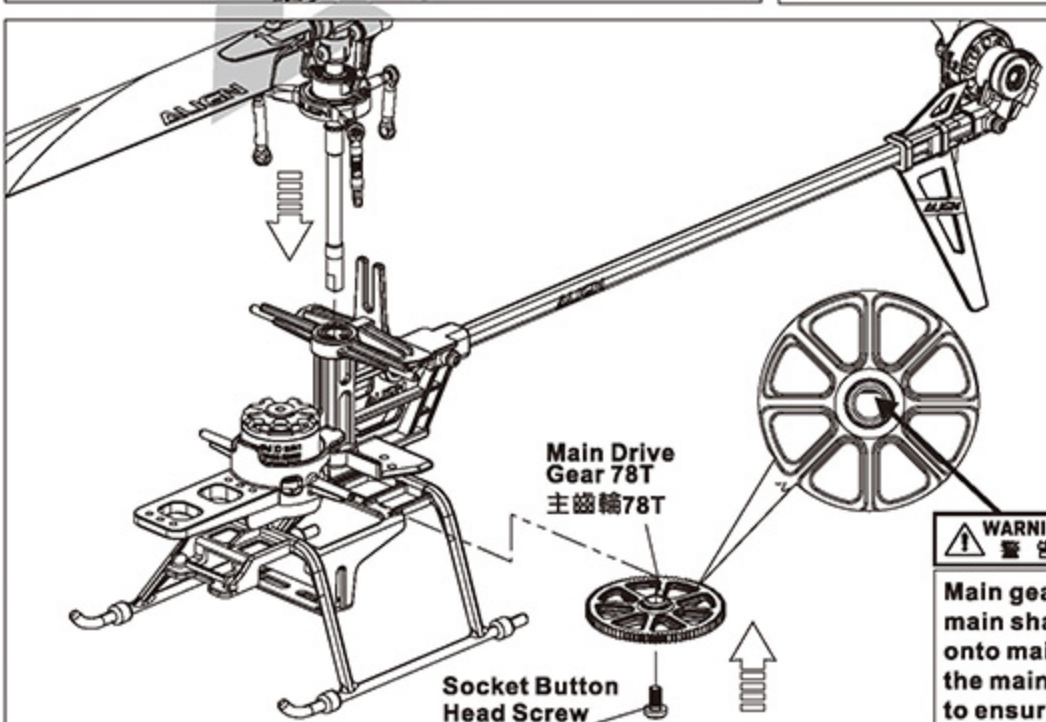
Insert tail motor into motor wire socket through the large hole opening.
將尾馬達接頭裝入馬達線接頭，從大孔端裝入



WARNING 警告

Ensure motor plugs are plugged in all the way.
請確認馬達線插頭確實插到底。





WARNING 警告

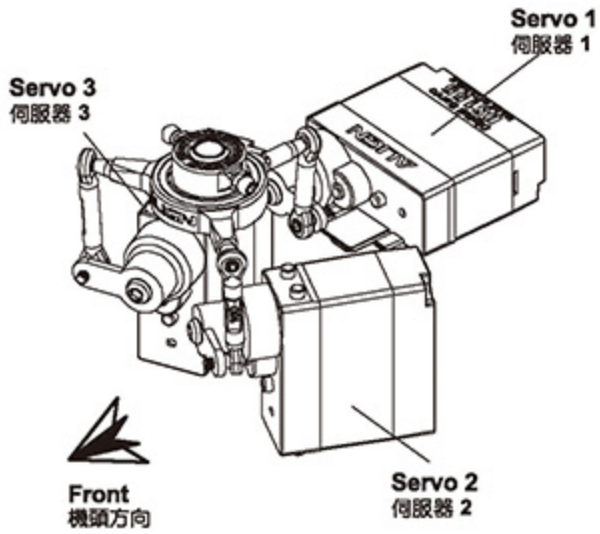
Prior to every flight, carefully check linkage balls and screws, ensure they are firmly secured.
每趟飛行前須仔細檢查，機身各部位球頭、螺絲，確實上膠鎖緊才能升空飛行。

WARNING 警告

Main gear is designed to embed into main shaft. When pressing main gear onto main shaft, match the flat spot on the main shaft and press all the way in to ensure it is seated all the way in.
主齒固定為嵌入設計，當主齒壓入主軸時，請對準缺口至定位並確認主軸上下無虛位。

ALIGN

SERVO SETTING AND ADJUSTMENT 伺服器設定與調整



CAUTION 注 意

1. Servo can only be installed in this orientation when T-REX 150X is used: with head point forward, right forward is aileron, left forward is pitch, mid-rear is elevator.
   Aileron and elevator cannot be interchanged, otherwise helicopter will not function correctly.
2. Swashplate type setting on the transmitter should be set to H-1 traditional swashplate type. If swashplate movement is incorrect after assembly per instruction, please double check for correct connection. JR/Spektrum transmitter should be set to 1-Servo-Normal swashplate type.

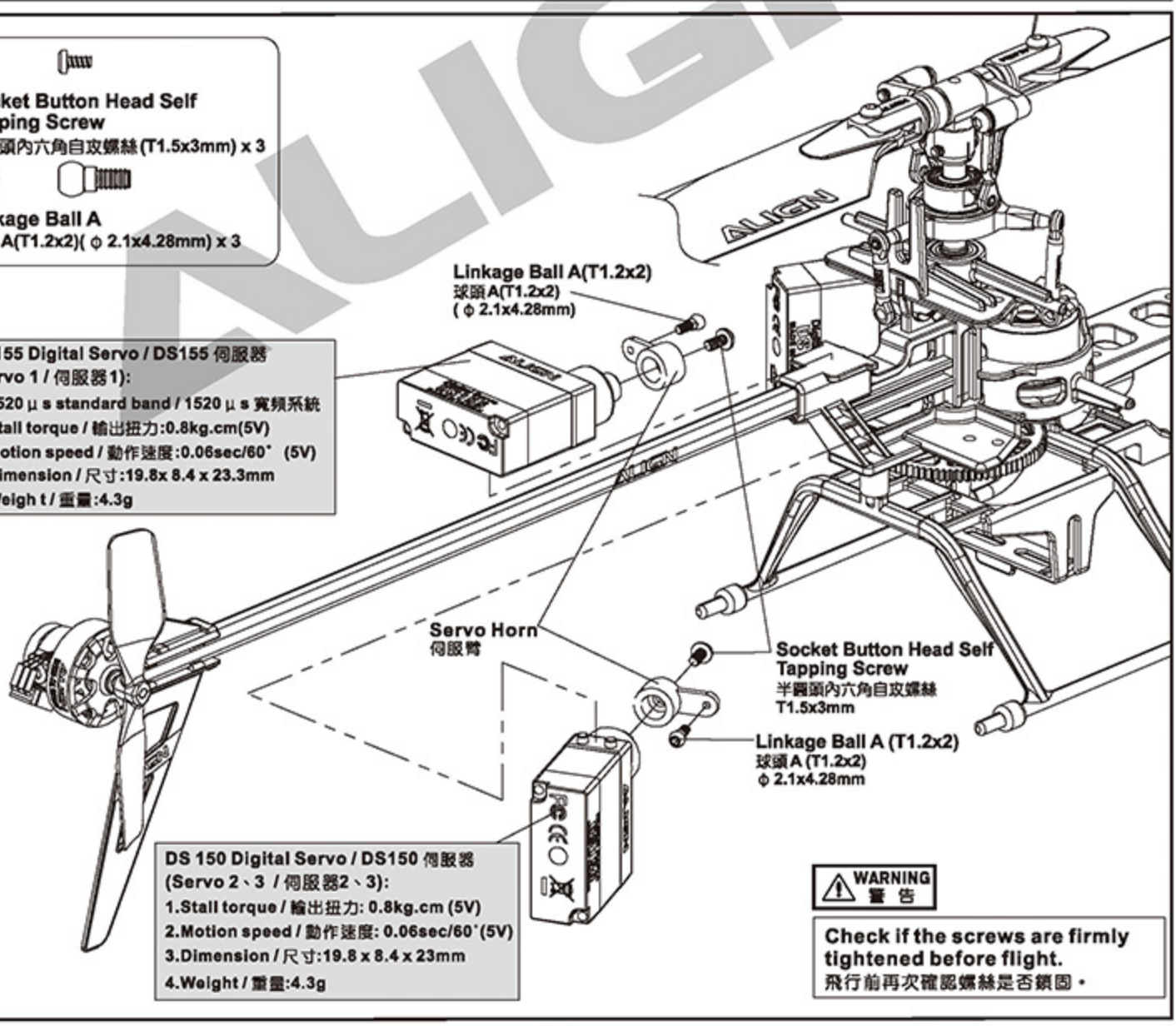
1. T-REX 150X伺服器的安裝方式只有一種。當機頭朝前時，右前為副翼；左前為螺距；右後為升降。副翼、螺距不可裝錯。如果沒依照圖示連結，直昇機動作會不正確。
2. 遙控器十字盤設定，必須選擇H-1傳統十字盤模式。依照圖示安裝完畢，如果十字盤動作不正確，請檢查伺服器接線是否正確。JR/Spektrum遙控器為1-Servo-Normal十字盤模式。

Channel layouts of each radio brands 各廠牌遙搖控器頻道配置

	CH1	CH2	CH3	CH4	CH5	CH6
Futaba	AIL 副翼	ELE 升降舵	THR 油門	RUD 尾舵	GYRO 感度	PIT 螺距
JR/SPEKTRUM	THR 油門	AIL 副翼	ELE 升降舵	RUD 尾舵	GYRO 感度	PIT 螺距

Socket Button Head Self Tapping Screw
半圓頭內六角自攻螺絲(T1.5x3mm) x 3

Linkage Ball A
球頭A(T1.2x2)(ϕ 2.1x4.28mm) x 3



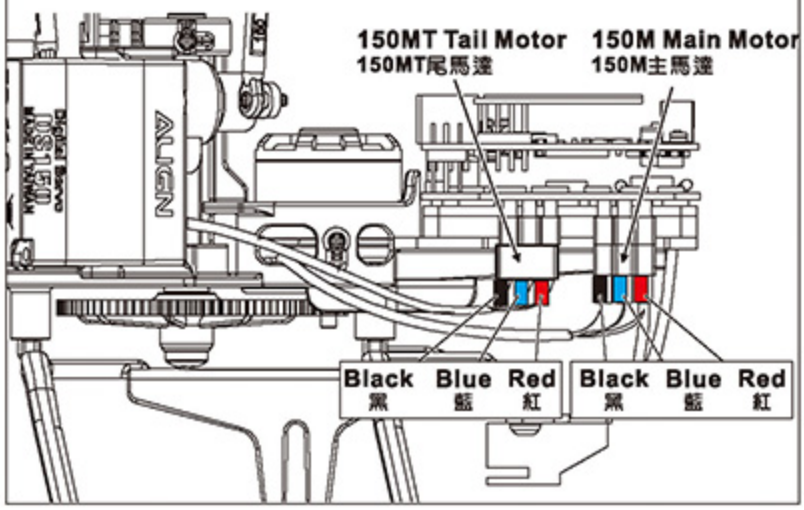
DS155 Digital Servo / DS155 伺服器 (Servo 1 / 伺服器1):
1. 1520 μ s standard band / 1520 μ s 寬頻系統
2. Stall torque / 輸出扭力:0.8kg.cm(5V)
3. Motion speed / 動作速度:0.06sec/60° (5V)
4. Dimension / 尺寸:19.8x 8.4 x 23.3mm
5. Weigh t / 重量:4.3g

DS 150 Digital Servo / DS150 伺服器 (Servo 2、3 / 伺服器2、3):
1.Stall torque / 輸出扭力: 0.8kg.cm (5V)
2.Motion speed / 動作速度: 0.06sec/60°(5V)
3.Dimension / 尺寸:19.8 x 8.4 x 23mm
4.Weight / 重量:4.3g

WARNING 警 告

Check if the screws are firmly tightened before flight.
飛行前再次確認螺絲是否鎖固。

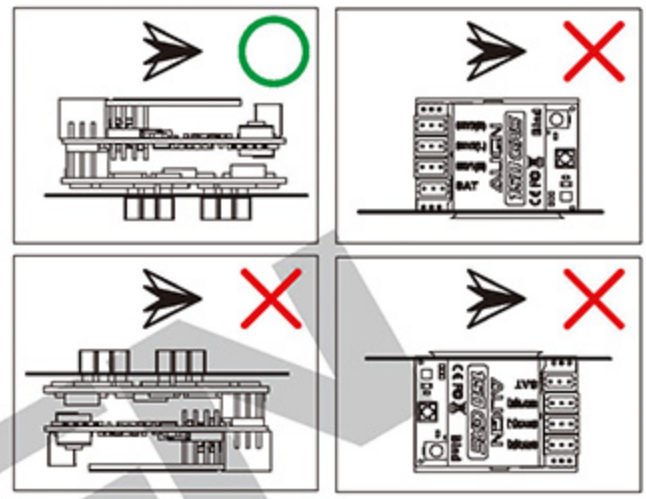
MOTOR WIRE CONNECTED ILLUSTRATION
馬達接線圖

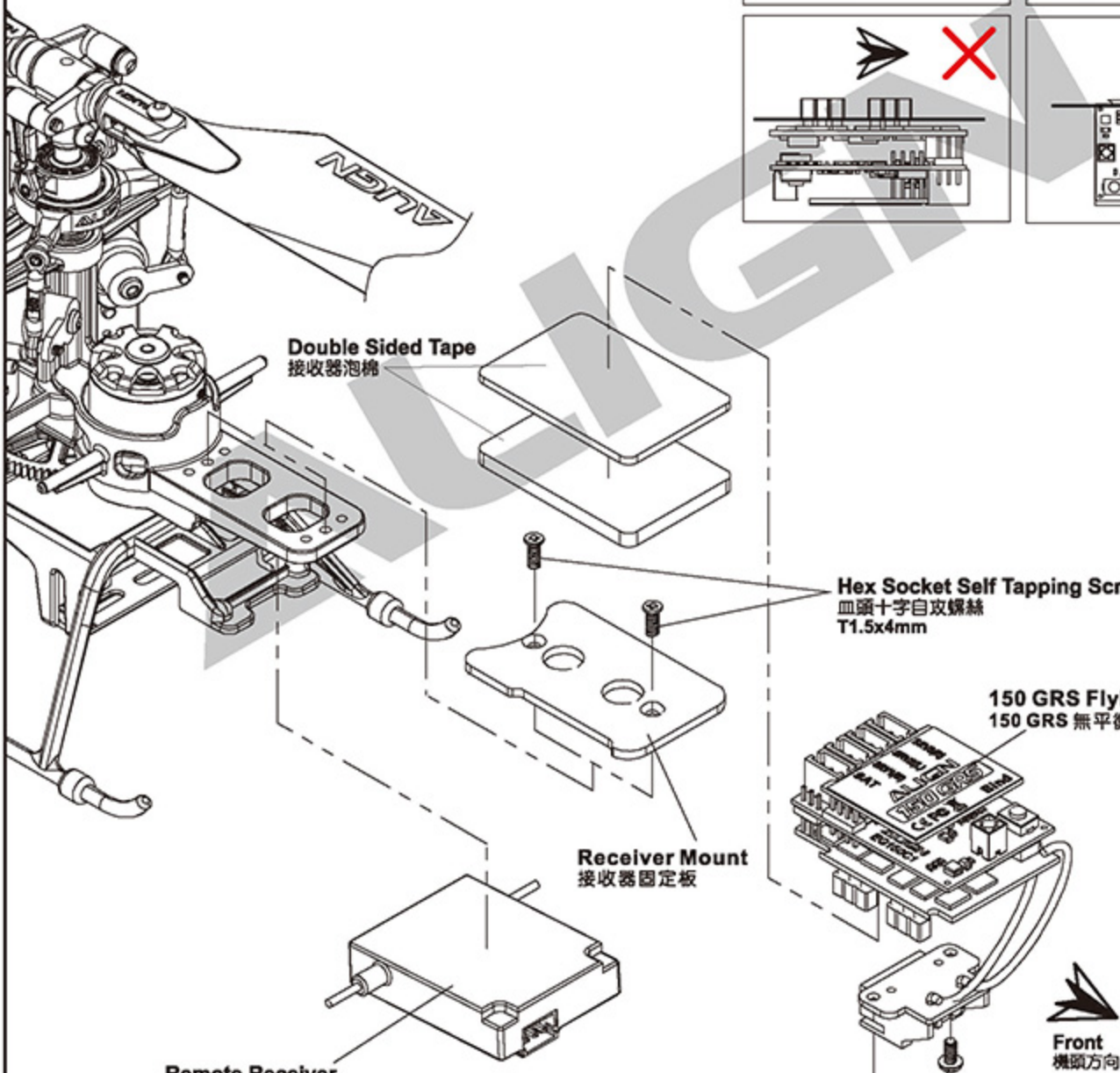


WARNING 警告

1. 150 GRS can only be installed face down, with antenna point towards from the helicopter.
2. Incorrect installation will cause incorrect compensation of the helicopter swashplate. Flying with incorrect installation will result in crash.
3. 150 GRS Flybarless system must be mounted using the Align supplied double sided tape; the use of other tapes will affect flight performance.

1. 150 GRS的安裝方式只有一種，必須為左邊圖示的安裝方式。
2. 安裝錯誤會造成直昇機十字盤修正錯誤，強行飛行會有墜機的危險。
3. 150 GRS無平衡翼系統，必須使用亞拓提供的專用接收器泡棉來固定，如果使用其他泡棉會影響飛行性能。



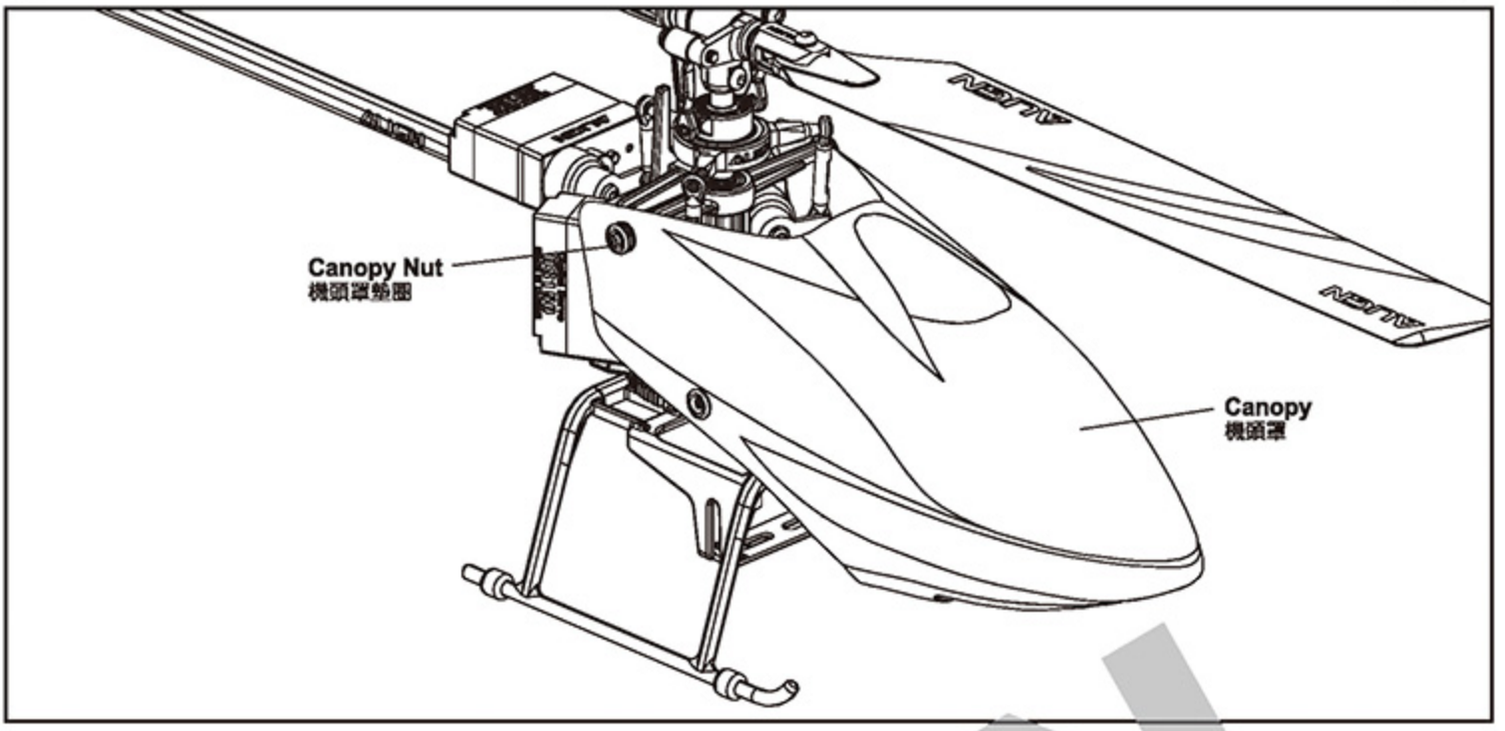


Optional Equipment
另購品

Apply a little amount of T43thread lock when fixing a metal part.
螺絲鎖附於金屬件請使用適量T43(螺絲膠)。

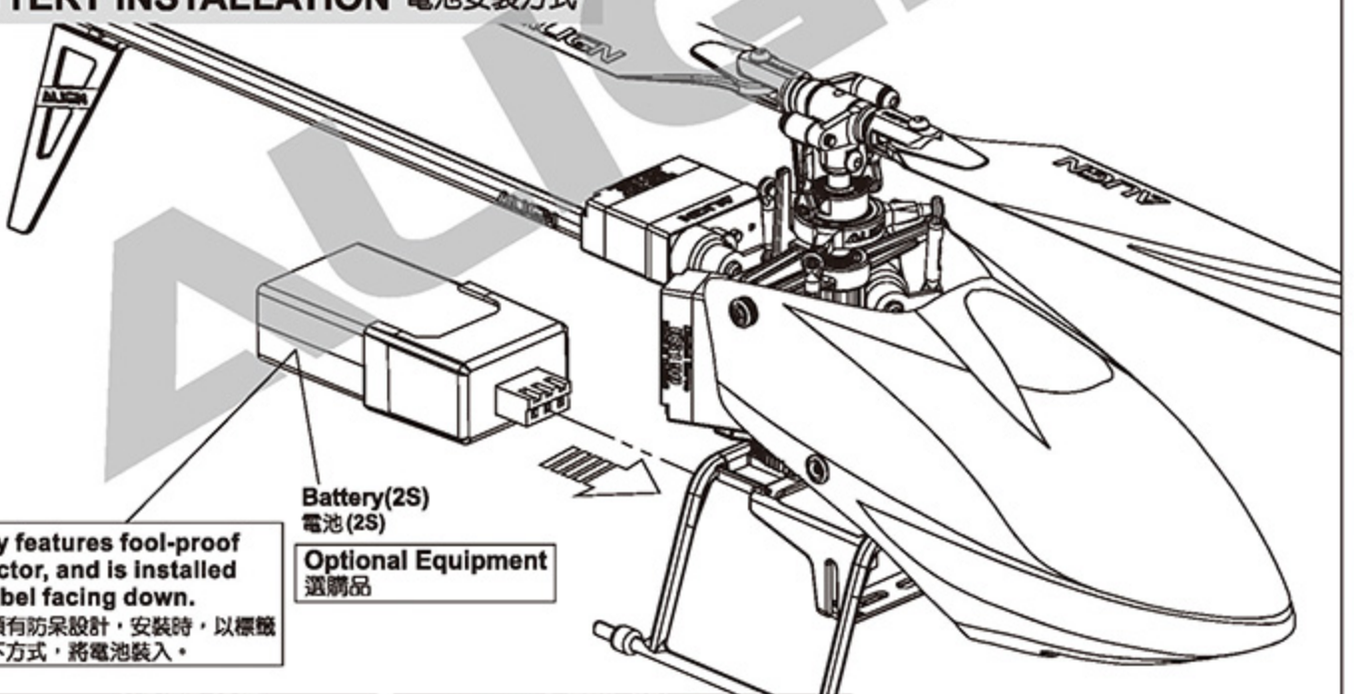
ALIGN

10.CANOPY ASSEMBLY 機頭罩安裝



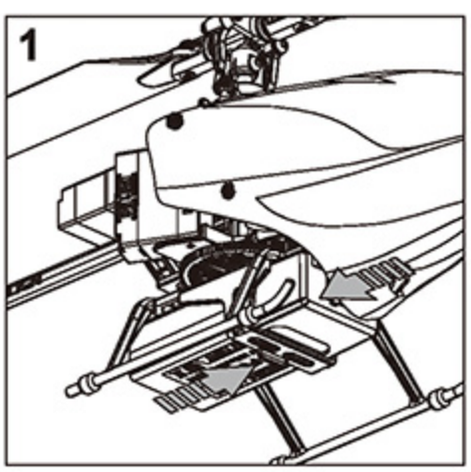
11.INSTALLATION FOR BATTERY 電池安裝方式

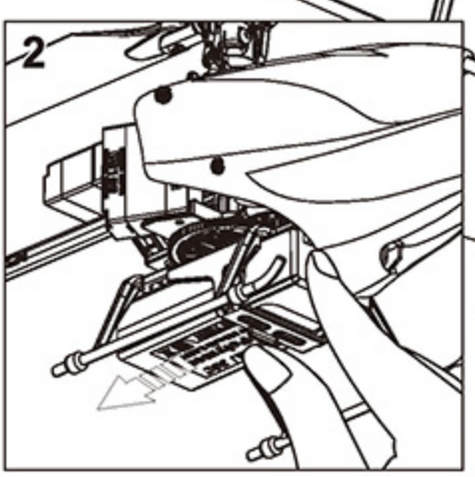
BATTERY INSTALLATION 電池安裝方式



Battery features fool-proof connector, and is installed with label facing down.
電池接頭有防呆設計，安裝時，以標籤貼紙朝下方式，將電池裝入。

Optional Equipment
選購品





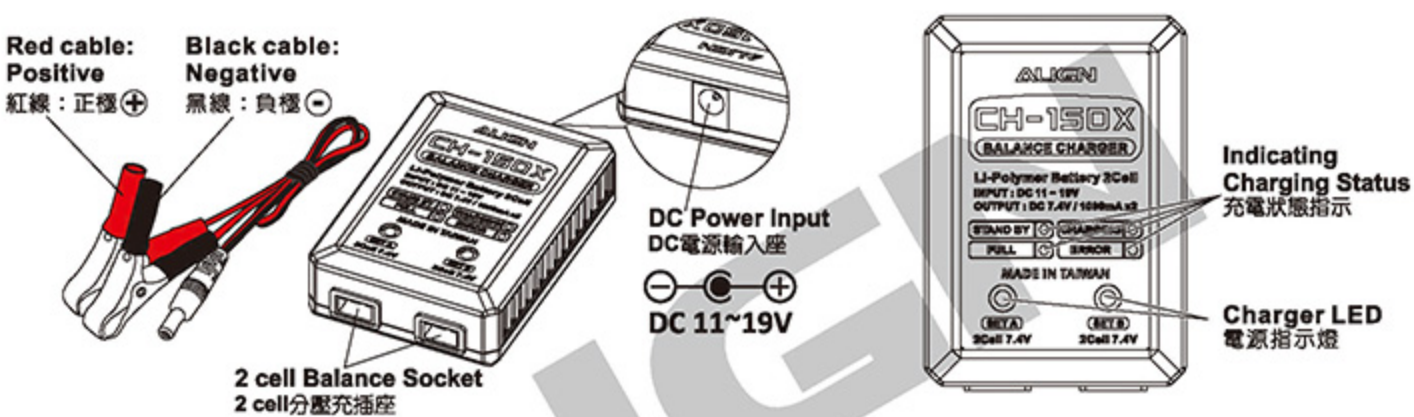
With thumb on battery holder in landing skid, and press the battery with index finger to eject the battery.
將拇指放在腳架輔助肋上，食指按住電池向內壓即可退出電池。

FEATURES 功能介紹

1. Suitable for DC 11V~19V power input .
2. Apply to 3.7V 2 cell Li-polymer batteries.
3. Equipped dual output function, it allows two batteries charging with 1A current in the same time.
4. Balance charging is good to prevent the situation of over-charging or under-charging for a single cell.
5. Auto-detected charge status display.
6. The auto-detected function of low voltage for power storage.
7. Reverse polarity protection and short circuit protection.

1. 適用DC 11V~19V輸入電源。
2. 適用3.7V規格之 2 cell Li-polymer充電電池。
3. 具備雙輸出功能，可同時對2顆電池各以1A電流進行充電。
4. 分壓採平衡充電，有效防止單cell過充危險或充電不足情況。
5. 自動偵測充電狀態燈號顯示。
6. 具自動偵測電壓不足補償充電功能，有效發揮電池最大蓄電功能。
7. 具電池極性錯誤與短路保護功能。

ILLUSTRATION 各部名稱



INSTRUCTIONS 使用說明

1. Connect the included power cord between DC power input on the main body and the polarized power supply socket on DC power (Suitable for 11V~19V DC power).
2. Once the power is on, the charger led will turn green, the waiting mode shows ready to charge.
3. Charging for DC 7.4V 2 cell Li-polymer batteries: Insert the adapters of Li-polymer batteries for balance charging to 2cell sockets in correct directions. The indicating light on the side will be red steady lit showing "on charging".
4. When the indicating light turn green steady lit, it means charging completed. Please remove the batteries.
5. If indicating light is still green steady lit when the batteries connect to the charger, it means the batteries are full of electricity. The charger will not work on the batteries.
6. Standard charging methods:
   Charge two batteries concurrently. Fully changed battery voltage: 8.4V
7. The charger has the function of supply. After the lights turn green, the charger will detect voltage of the batteries, and give a few more time of charging, until the power is full.

1. 依所附的電源線一端連接在機體的DC電源輸入座；另一端依極性接上DC電源（適用11V-19V直流電)。
2. 當電源接入時，機體的電源指示燈(CHARGER LED)會顯示綠色，進入待機狀態。
3. 使用DC 7.4V 2 cell Li-polymer充電：
   將鋰電池分壓充電線的接頭，依防呆缺口的方向插入標示分壓充插座上，此時充電狀態指示燈會顯示紅燈，進入充電狀態。
4. 當充電狀態指示燈顯示為綠燈恆亮時，表示電池已充飽電，即可將電池取下。
5. 若電池連接至充電器時充電狀態指示燈仍然顯示綠燈恆亮，表示電池仍為飽電狀態，此時充電器不會對電池進行充電。
6. 標準充電方式：每次可充兩組2 cell的鋰電池：電池充飽後的電壓為 8.4V。
7. 本充電器具充電補償功能，當充電至顯示綠燈後，充電器會自動偵測電池電壓，若不足時將自動給予短時間的充電補償，使電池完全充飽電。

SPECIFICATION 規格表

Model 型號	Voltage Input 輸入電壓	Current input 輸入電流	Voltage Output 輸出電壓	Current Output 輸出電流
CH150X	DC 11V-19V	Upto 1.5A as suggestion	2 cell DC 7.4V	Each output 1000mA 雙輸出，各1000mAh

LED STATUS 燈號說明

Each LED light corresponds directly to each charging battery.
兩顆LED燈各對應一顆電池

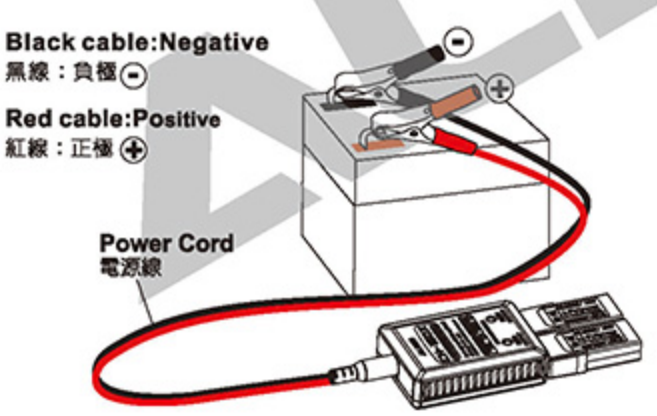
SET A/ SET B	Steady lit Green 綠燈恆亮	Steady lit Red 紅燈恆亮	Flashing Red 紅燈閃爍
LED status 燈號說明	1. Stand by 待機中(未接電池) 2. Full 充電完成	Charging 充電中	Error 錯誤

BATTERY CHARGING INSTRUCTION 充電方式說明

CH-150X Three Battery Charging Method Please refer to below instruction to start battery charging :
CH-150X充電器的電源供應有三種方式，請參考下方充電方式來進行電池充電

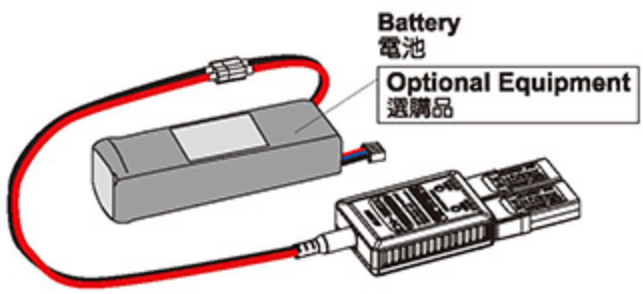
METHOD 1 方式一

There are positive and negative electrode of power cord, please refer to the instruction and connect the power cord to lead-acid batteries or other power supplies for charging. (Suitable for 11V~19V power input)
電源線有正、負兩端，請對照極性連接12V鉛酸電池或電源供應器進行充電。(適用11V~19V輸入電源)



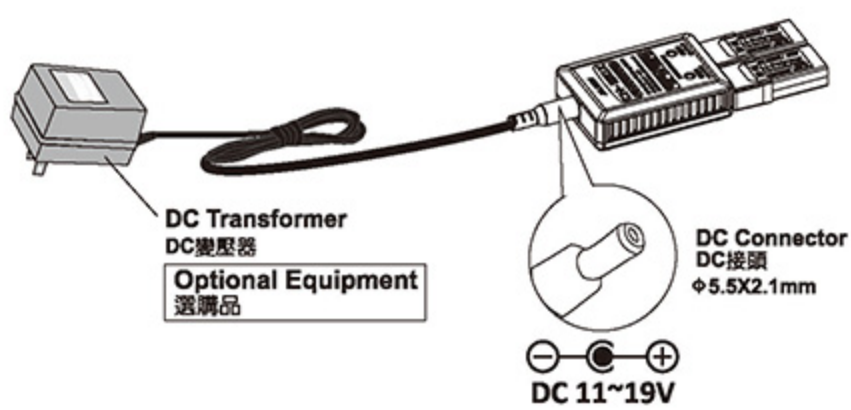
METHOD 2 方式二

Allow to convert the power cord port into XT60 connector. (Suitable for using 4 cell or 3 cell 11.1V battery as power supplier.)
將電源線改裝成XT60接頭。(適用4cell或3cell 11.1V電池當作充電器輸入電源)

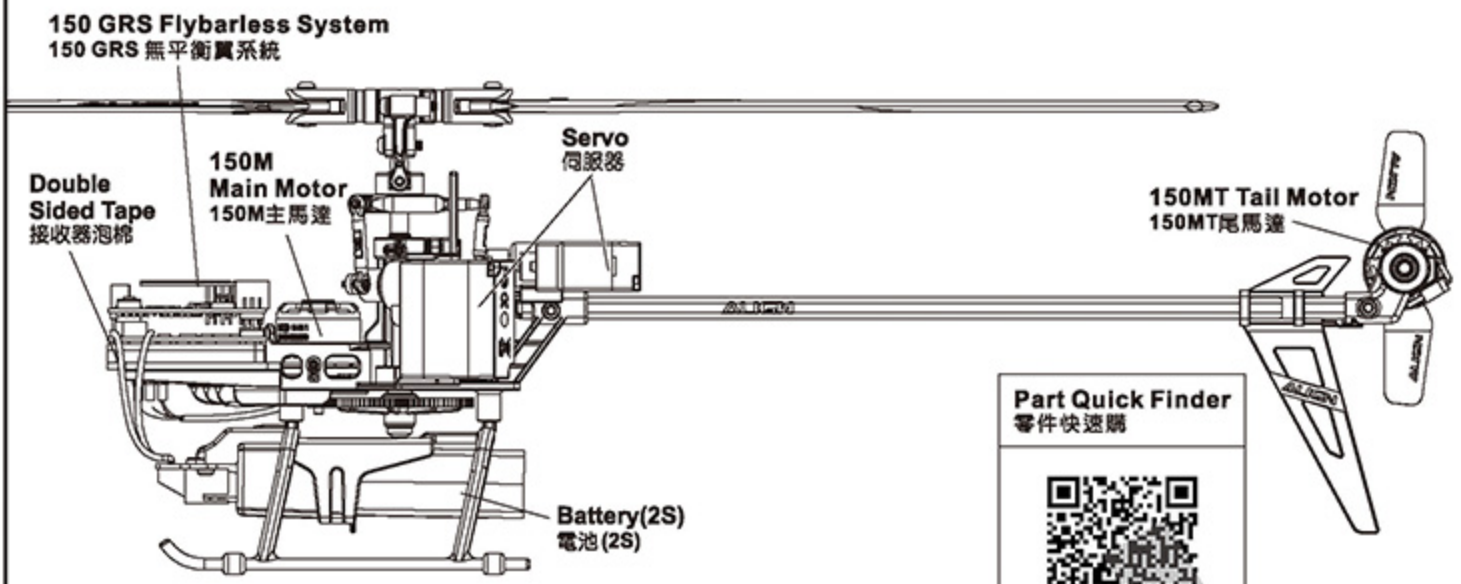


METHOD 3 方式三

Market available DC transformer
(Output voltage: 11V~19V suggest current input: upto 1.5A)
一般市售DC變壓器
(輸出電壓為11V-19V，電流建議1.5A以上)

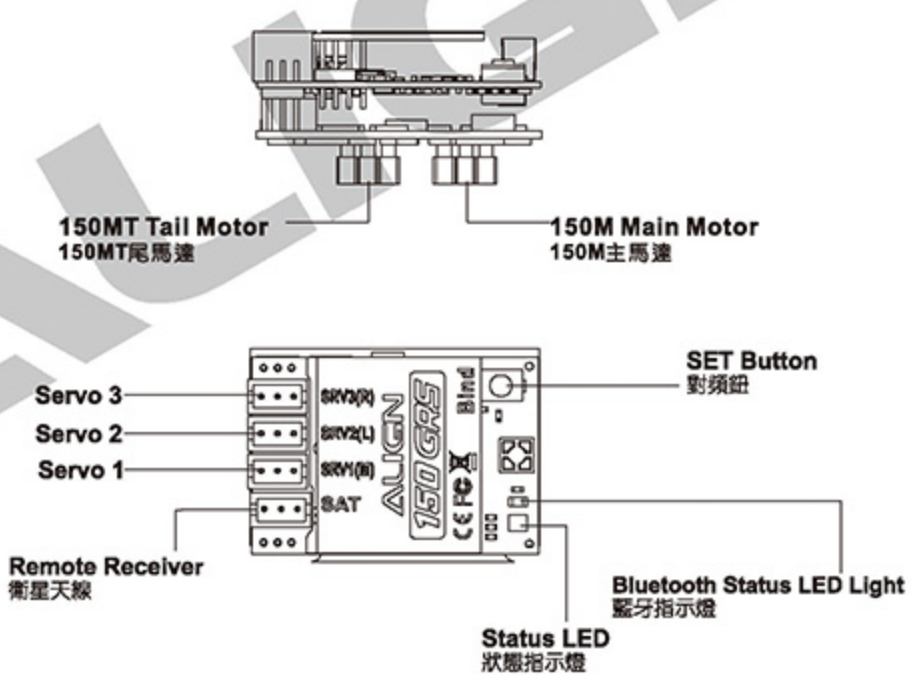


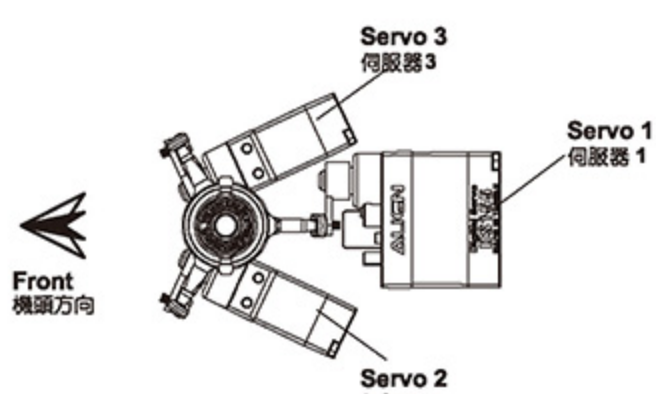
ALIGN



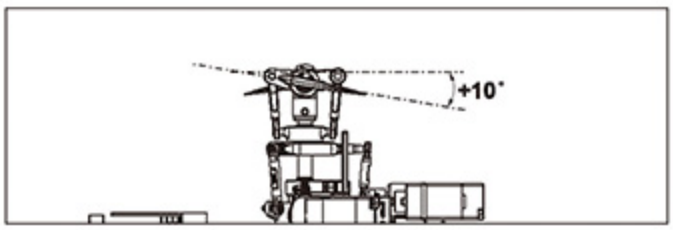
Part Quick Finder
零件快速購

150 GRS WIRING DIAGRAM 150 GRS接收器接線示意圖

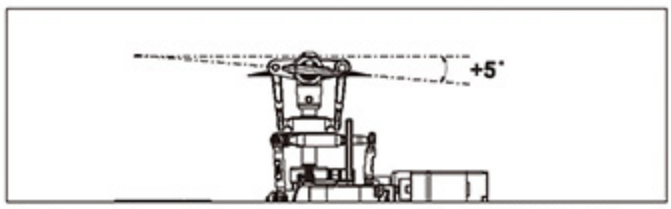




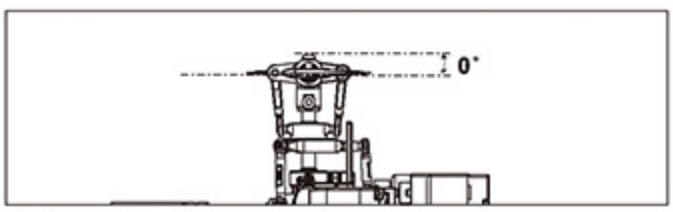
GENERAL FLIGHT 一般飛行模式



Stick position at high/Throttle60%/Pitch +10°
搖桿高速/油門60%/Pitch +10°

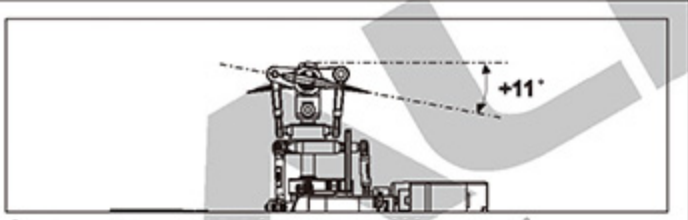


Stick position at Hovering/Throttle 50~55%/ Pitch 5°
搖桿停懸/油門50~55%/Pitch 5°

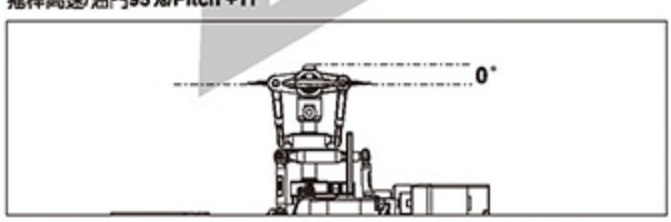


Stick position at low/Throttle 0%/Pitch 0°
搖桿低速/油門0%/Pitch 0°

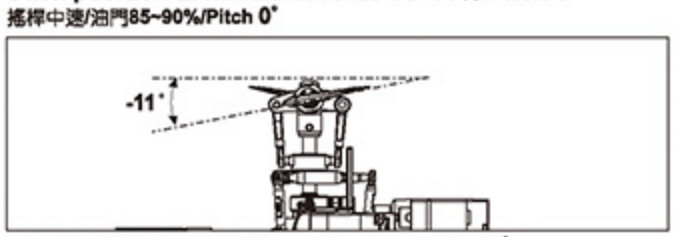
3D FLIGHT 3D特技飛行模式



Stick position at high/Throttle 95%/Pitch +11°
搖桿高速/油門95%/Pitch +11°



Stick position at middle/Throttle 85~90%/Pitch 0°
搖桿中速/油門85~90%/Pitch 0°



Stick position at low/Throttle 95%/Pitch-11°
搖桿低速/油門95%/Pitch-11°

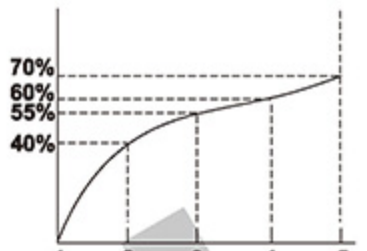
CAUTION 注意

1. Pitch range: Approx 26 (± 13)degrees.
2. If the pitch is set too high, it will result in shorter flight duration and poor motor performance.
3. Setting the throttle to provide a higher speed is preferable to increase the pitch too high.

1. 螺距(Pitch)總行程約26°(± 13)。
2. 過大螺距設定，會導致動力與飛行時間降低。
3. 動力提昇以較高轉速的設定方式，優於螺距調大的設定。

GENERAL FLIGHT 一般飛行模式

	Throttle 油門	Pitch 螺距
5	70%High speed 70% 高速	+10°
4	60%	
3	55%Hovering 55% 停懸	5°
2	40%	
1	0% Low speed 0% 低速	0°



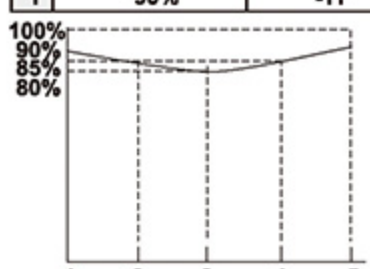
Throttle Curve(Hovering Flight)
停懸模式油門曲線

Pitch and Rotation Speed Pitch與轉速關係

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

IDLE 1:SPORT FLIGHT

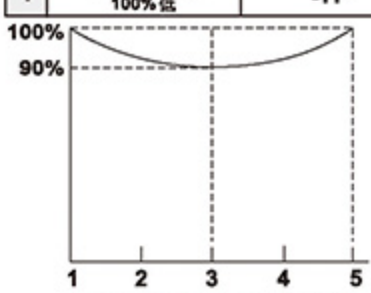
	Throttle 油門	Pitch 螺距
5	90%	+11°
4	85%	
3	80%	0°
2	85%	
1	90%	-11°



Throttle Curve(Simple Aerobatic Flight)
空中飛行模式油門曲線

IDLE 2:3D FLIGHT

	Throttle 油門	Pitch 螺距
5	100% High 100% 高	+11°
3	90% Middle 90% 中	0°
1	100% Low 100% 低	-11°



Throttle Curve(3D Flight)
特技飛行模式油門曲線

150 GRS Flybarless system integrates; a 6-axis gyro, ARM Cortex M4 32 bits processor, Futaba S-FHSS receiver, Bluetooth, and dual ESC. Although it's small, the redesigned system is powerful allowing the T-REX 150X to perform maneuvers just like a big scale helicopter. Moreover, Attitude Auto-level Mode is specially designed for beginners providing an easy and fun flying experience. With the built-in Bluetooth module setup or adjusts of the flight parameters and system upgrades can be done at anytime using the FREE APP.

150 GRS無平衡翼系統整合了高精密6軸陀螺儀、頂級ARM Cortex M4 32位元處理器、Futaba S-FHSS接收器、藍牙與雙電子變速器，體積小、功能強大，搭載在T-REX 150X展現出非凡性能，有如大型直昇機般的飛行特性。且針對初學入門者設計的姿態自穩飛行模式，更能讓飛行直昇機變成容易簡單的樂趣。此外，內建藍牙功能，可透過手機隨時隨地調整設定參數與功能升級。

FEATURES 產品特色

6-axis Gyro：3-axis gyroscope + 3-axis accelerometer using a superior ARM Cortex-M4 32-bits processor. 3D feeling is superior while auto-level ability is also agile and stable.
六軸陀螺儀：由三軸陀螺儀和三軸加速並配合頂級的ARM Cortex M4 32位元處理器，提供流暢的3D飛行以及敏捷的自動穩定。

Attitude Mode Self Leveling / Rescue Mode : While there is no stick input for helicopter, the heli will auto-level and still keep at horizontal position. While wrong stick input is given or heli is in trouble, or you are in panic, activate the rescue mode by flipping a switch on the radio to keep helis at a level position.
姿態自穩模式/一鍵救機功能：自平穩定飛行，當搖桿無動作時，直升機會自穩保持水平姿態。在動作錯亂或是恐慌中，透過動作發桿啟動來恢復機身水平姿態。

For Beginners：suitable for beginners.
初學者適用：非常適合初學者剛入門飛行。

3D Mode：Brand new DFCS (Direct Flight Control System) Controller allows to control real time flight. Strong Cortex-M4 Processor allows T-REX 150 to fly just like big scale helicopters.
3D模式：最新研發的DFCS(Direct Flight Control System)飛控系統讓使用者感受到真實的與直昇機連結。這個飛行控制系統用威力強大的Cortex-M4處理器讓微型直昇機的反應像大尺寸的一樣。

Designed with BL Heli ESC allows faster motor feedback and precise flying performance. Additionally it integrates main motor & tail motor in a dual system output. Also it adopts a high-speed and powerful micro MCU processor, which features low-voltage, low-temperature, and lost and found protection.
電子變速器採用BLHeli程式，使得馬達反應更快速、更精準的提升飛行性能。另外也整合主馬達與尾馬達的雙系統輸出設計，更採用高速、功能強大且體積小的MCU處理器，具備低電壓、溫度與油門訊號遺失保護功能。

Multi-system Support：Futaba S-FHSS 2.4GHz System
採用MEMS（Micro Electro Mechanical Systems）微機電系統技術感測器，具有體積小，可靠性高，穩定性佳的優點。

Bluetooth Connection：Utilizes with Bluetooth for phone setup adjust.
支援藍牙功能，可透過手機設定調整。

App Interface Parameter Adjustment：Support for mobile devices, iPad, iOS & Android allows easy set up and adjustment to flight parameter settings. The APP makes firmware updates easier to install. Download the FREE APP to get the latest firmware update with additional improved functions.
APP設定介面調整：支援IOS、Android系統手機/平板，透過APP可以隨時隨地進行設定與飛行參數調整。主程式升級更加簡單，只需透過手機APP功能即可進行韌體更新，取得最佳優化與新增功能。

SETUP PRE-CHECK 設定前注意事項

1. **Before flying, the 150 GRS must initialize properly and the transmitter must have enough battery power.**
2. **There is only one way to connect the servos to the 150 GRS. Failure to connect the servos properly will result in damage to the 150 GRS or servo.**
3. **The 150 GRS status LED must be (insert proper color here) before flying.**
4. **While using 150 GRS Flybarless system, use H-1 (Futaba) or Normal (Spektrum) for trasditional swashplate type (1-Servo-Normal).**
5. **While using 150 GRS Flybarless system, the transmitter subtrim, and servo Endpoints (Travel. ADJ) must be set to default setting. Do not adjust subtrim or enpoint in your transmitter. Do not activate the Swash Mix function.**
6. **While using 150 GRS Flybarless system, the rudder gain is adjusted usgin the APP interface. The GYRO channel (CH5) is designed to swith between 3D mode and Attitude Auto-level mode.**
7. **150GRS ESC with built-in BLHeli system, after connecting to the battery, the ESC will emit 3 short beep & 2 long beeping. The 2long beep represents throttle stick is at the bottom position, ESC will be activated. But if the ESC only emit 3 short beep represents you should correct and put the throttle stick to the bottom position to activate ESC.**

1. **在每次飛行之前，請確認150 GRS是否固定良好，並檢查遙控器是否有足夠電量。**
2. **150 GRS安裝的方式與伺服器接線方式只有一種，請勿任意更改安裝方式，以免修正錯誤造成危險。**
3. **飛行前，請注意150 GRS燈號指示要正確，才可進行飛行。**
4. **使用150 GRS無平衡翼系統，遙控器的十字盤類型必須為H-1傳統十字盤模式。JR/Spektrum遙控器為1-Servo-Normal十字盤模式。**
5. **使用150 GRS無平衡翼系統，遙控器內的微調、Endpoint（Travel. ADJ）伺服器行程設定，必須為預設值不可變動設定。Swash Mix十字盤混控功能請勿開啟。**
6. **150 GRS無平衡翼系統，尾舵感度調整完全由APP上來調整設定，GYRO頻道(CH5)為配置切換3D模式與姿態自穩模式開關。**
7. **150GRS電變採用BLHeli程式，接上電池後會發出三短音兩長音的聲響，後面兩長音為油門最低點確認聲響，如果沒有兩長音表示油門沒在最低點位置，電變則不會啟動。**

WARNING 警告 **For safety reasons, please remove all motor cables from T-REX 150X during 150 GRS setup.**
設定150 GRS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 150 GRS下載安裝

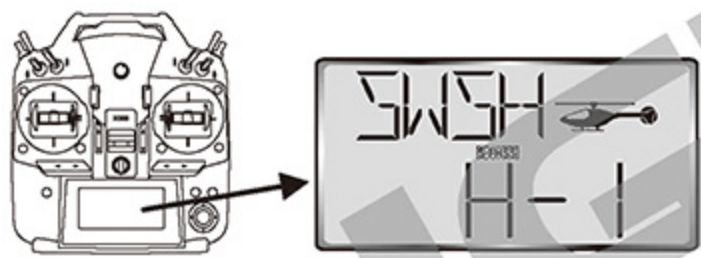
Prior to leaving the factory, 150 GRS flight control system is flashed with the latest firmware version.
Visit Align at www.align.com.tw for the lastest news and firmware updates.

150 GRS無平衡翼系統，在出廠前已是最新版本，請安心使用。
您也可以連結至亞拓150 GRS網站查詢，隨時更新亞拓發佈的最新版本及各項最新訊息。

1.T-REX 150X is assembled in the factory which includes configuration of the 150 GRS Flybarless system. T-REX 150X is a BTF model, only requiring the use of either an ALIGN / Futaba S-FHSS 2.4GHz transmitter or Spektrum DSM2/DSMX / JR DMSS/DSM2 satellite and transmitter. Follow the binding process as listed below.
In the Transmitter select a helicopter model.
Use H-1 (Futaba) or Normal (Spektrum) for traditional swashplate type (1-Servo-Normal). Selecting the wrong swashplate type will result in flight error.

T-REX 150X整機全部是由原廠組裝調整完成，包括150 GRS無平衡翼系統所有的參數設定。您只要搭配ALIGN /Futaba S-FHSS 2.4GHz系統遙控器或Spektrum DSM2/DSMX、JR DMSS/DSM2衛星天線與遙控器，並對頻完成以下設定就可以飛行了。

遙控器必須選擇直昇機模式，十字盤類型請選擇H-1傳統十字盤（1-Servo-Normal）。
如果十字盤類型設定錯誤，會造成動作不正確且無法飛行。



WARNING 警告 **Never enable your transmitter's mixing function.**
請勿開啟遙控器混控功能。

2.Please scan QR Code for link to ALIGN website to find related software, or search" ALIGN 150 GRS" in iOS / Android app store.

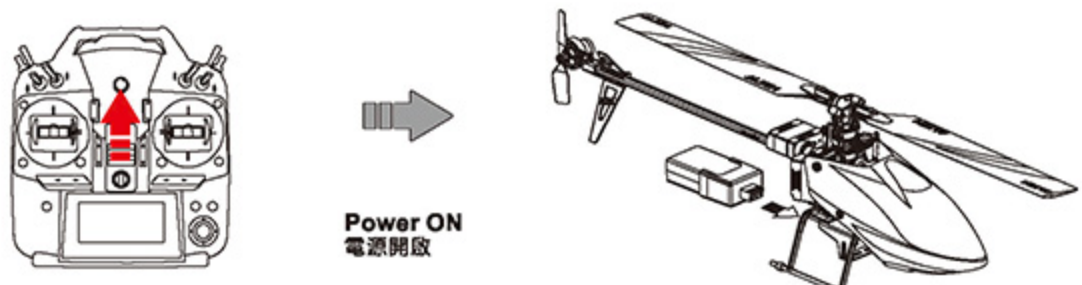
請掃描QR Code連結亞拓網站下載相關軟體，或是在iOS/Android App store搜尋"ALIGN 150GRS"。

http://www.align.com.tw/download-en/150grs/

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

3.Turn on the transmitter and connect the battery to the TREX 150X.

開啟遙控器與接上電源



Power ON
電源開啟

150 GRS SETUP 150 GRS設定

PROGRAM SPLASH PAGE 程式版本宣告

The splash page is displayed when the program is launched. The 150 GRS program page appears two seconds later.

第一次進入程式，或重新登入顯示版本宣告頁面兩秒後自動進入150 GRS首頁。

The 150 GRS Disclaimer is diplayed when the APP is launched for the first time. Please, read Align MRS System Agreement in it's entirety. Please, read Align MRS System Agreement in it's entirety.

150 GRS 免責聲明：

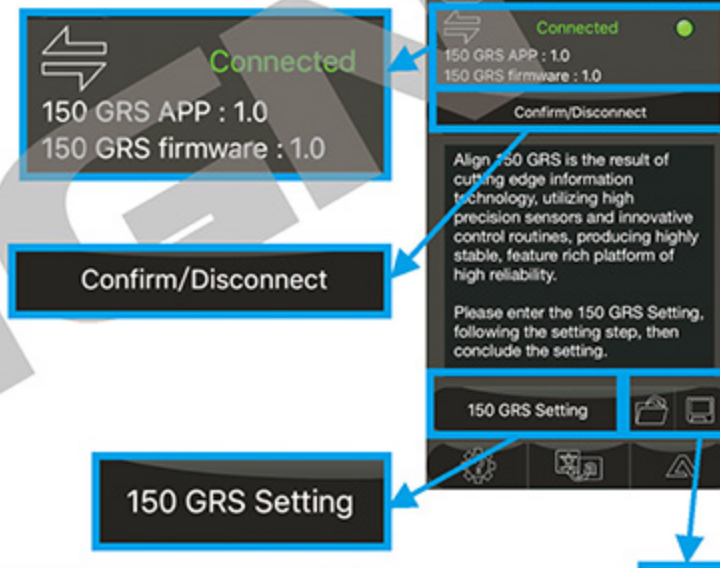
首次使用150 GRS，系統會顯示免責聲明，請詳讀內容！一旦下載、安裝或使用 ALIGN 150 GRS軟體或其中任何部分，即表示貴用戶同意遵守各項條款與細則。

CONNECTION STATUS LED DESCRIPTION 連線狀態燈號說明

Green light indicates a normal connection. Red light 150 GRS APP is not connected. The screen will display MRS current firmware and interface version

綠燈為正常連線；紅燈為未連線。

當150 GRS為正常連線狀態下，系統會顯示目前150 GRS的操作介面版本與程式版本。



CAUTION 注 意

Do not disconnect the battery until the parameter store process is finished. After completing the 150 GRS setup, return to the APP homepage and click "Setup Confirm/Disconnect". Wait till 150 GRS stores all parameter settings, then the setup is completed.

當150 GRS設定完畢，不可直接斷電拔除直昇機電池，必須回APP首頁點按"設定確認/中斷連線，確認儲存設定值後才算完成設定步驟。

Click on "150 GRS Setting" to enter the setup page.

選擇（150GRS設定）進入150GRS目錄選單。

READ AND SAVE THE FILE 讀取及儲存檔案

150 GRS provides a read and save function for parameter settings. Make sure to save all your settings after setup and before performing a system update.

150 GRS提供讀取及儲存參數設定的功能，在各項選單設定完畢或準備更新程式之前，可以將喜好的參數設定儲存至手機，做為日後調整設定使用。

Load Parameter File
讀取參數設定檔案

Save the File
儲存參數設定檔案

150GRS SETTING SELECTION 150 GRS目錄選單

The 150 GRS Setup Menu allows quick access to each menu selection. When configuring 150 GRS for the first time we recommend using the arrow button to follow setup sequence.

由150 GRS目錄選單可快速進入所要的選項頁，首次設定150 GRS建議依序進行設定調整與檢查。

CAUTION 注 意

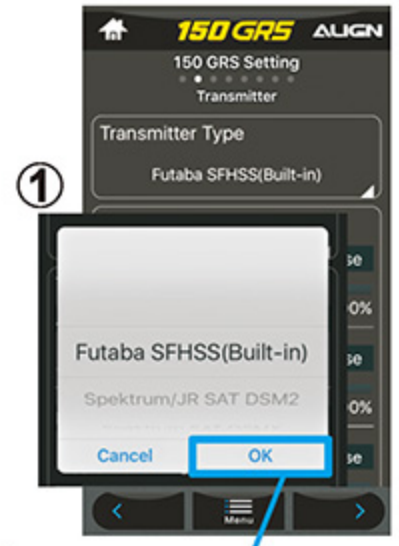
Do not disconnect the battery until the parameter store process is finished. After completing the 150 GRS setup, return to the APP homepage and click "Setup Confirm/Disconnect". Wait till 150 GRS stores all parameter settings, then the setup is completed.

當150 GRS設定完畢，不可直接斷電拔除直昇機電池，必須回APP首頁點按"設定確認/中斷連線"，確認儲存設定值後才算完成設定步驟。

TRANSMITTER TYPE 遙控器選擇

Select the transmitter type; 150 GRS Flybarless system built-in Futaba S-FHSS receiver, Spektrum/JR SAT DSM2, Spekturm SAT DSMX, JR DMSS SAT receiver. Please choose the transmitter for T-REX 150. BTF for using ALIGN/Futaba S-FHSS transmitter; the addition of a remote satellite is required for Spektrum/JR system.

請選擇所使用遙控器類型。150 GRS無平衡翼系統內建Futaba S-FHSS接收機，支援外接Spektrum/JR SAT DSM2、Spektrum SAT DSMX、JR DMSS SAT接收器使用。請選擇所使用的遙控器系統，使用ALIGN/Futaba S-FHSS系統遙控器可以直接對頻使用。Spektrum/JR請外接衛星天線對頻使用。



CAUTION 注意

1. **Binding varies based on selected receiver type. Please, refer to the receiver manufacture manual for instructions on binding and wiring.**
2. **When first time setup, make sure to perform and complete travel range calibration, or it may lead to abnormal system control.**

1.各廠牌接收器的對頻方式不同，請依照原廠指示對頻完成後再進行接線。
2.150 GRS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。

Please, refer to Align's website for announcements about the MRS flight controller system, firmware updates, compatibiltiy, and support.

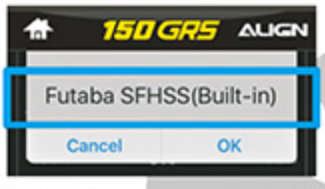
各類型接收器相關支援及更新，請隨時關注亞拓發佈150 GRS飛控系統的最新版本及各項最新訊息。

Click "OK" to save after select the receiver type.

選擇接收器類型後按（確認）。

TRANSMITTER BINDING 遙控器對頻

FUTABA S-FHSS BINDING FUTABA S-FHSS對頻方式



① Select 150 GRS built-in Futaba S-FHSS receiver in APP interface, then save the setting and confirm.

請先選擇150 GRS APP內建Futaba S-FHSS接收機，並確認儲存設定。

② Please re-connect to the power

請重新接上電源

③ 150 GRS Status LED Red & Aqua Blue Light will be flash, then press "Bind" button to start binding.

150 GRS狀態指示燈會出現紅、水藍色燈閃爍，按一下對頻鈕進行對頻。

④ While binding, 150 status LED Green Light will flash.

對頻時，狀態指示燈會出現綠燈單閃。

⑤ Turn on the transmitter

開啟遙控器

⑥ Based on your setup mode, the receiver LED Blue Light or Aqua Blue will be lit once binding is completed.

對頻完成，狀態指示燈會依您設定的模式出現藍色燈或水藍色燈

CAUTION 注意

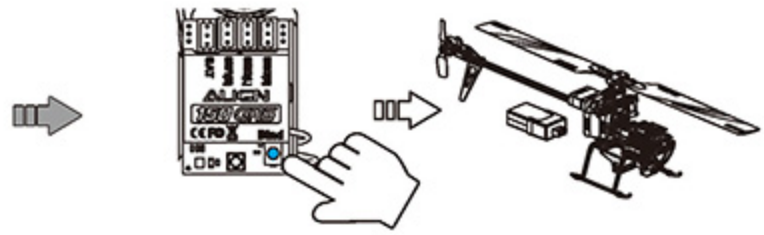
Futaba Transmitter please set Throttle Channel to"Normal" direction.

Futaba遙控器油門頻道正反向請設定為"正向"。

ALIGN

DSM2/DSMX SATELLITE BINDING

DSM2/DSMX衛星天線對頻方式



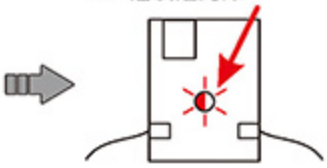
① **Select 150 GRS / DSM2/DSMX receiver in APP interface, then save the setting and confirm.**

請先選擇150 GRS APP內DSM2/DSMX接收機，並確認儲存設定。

② **Press and hold the "Bind" button and connect to the battery to start binding**

長按對頻鈕進行對頻，同時接上電源

Flashing LED Light
LED燈快速閃爍



Solid LED light indicates the Satalite is bound to the Transmitter.
LED燈恆亮

④ **The LED light on Satellite will blink. You are now in binding mode**

進入對頻模式。

⑤ **Press the "Bind" button on the transmitter to power on.**

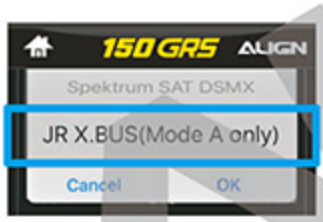
遙控器按對頻鈕開機

⑥ **Once binding is complete satelite receiver LED will be solid.**

對頻完成，狀態指示燈會恆亮，確認對頻完成。

DMSS SATELLITE BINDING

DMSS衛星天線對頻方式



Flashing LED Light
LED燈快速閃爍

① **Select 150 GRS / JR X.BUS (Mode A only) receiver in APP interface, then save the setting and confirm.**

請先選擇150 GRS APP / JR X.BUS (Mode A only)接收機，並確認儲存設定。

② **Please re-connect to the power**

重新接上電源

③ **The LED light on Satellite will blink. You are now in binding mode**

進入對頻模式。

Solid LED light indicates the Satalite is bound to the Transmitter.
LED燈恆亮

④ **Transmitter Binding (JR X.Bus Mode A only)**

遙控器對頻
(JR X.BUS MODE A ONLY)

⑤ **Once binding is complete satelite receiver LED will be solid.**

對頻完成，狀態指示燈會恆亮，確認對頻完成。

TRANSMITTER SETTING 遙控器設定

RC Transmitter Stick Direction and Travel Range Calibration:

1.Before starting, set all EPA / Travel ADJ max and min value on your TX to default 100%, and neutralize all subtrims to " 0 ".

2.Move your RC 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.

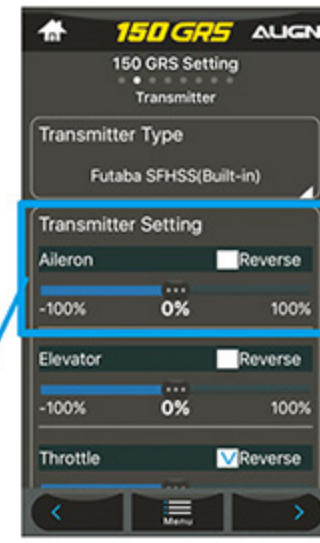
3.This function is only active while connected to program.

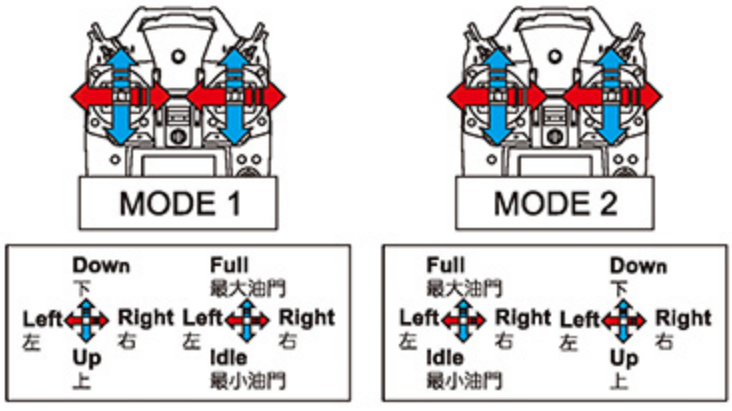
遙控器搖桿方向、行程校正：

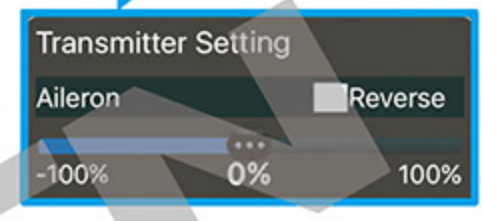
1.設定此項目前，遙控器內所有頻道Endpoint（Travel. ADJ）伺服器行程最大最小值要為預設值100%，所有微調也必須為預設值＂0＂。

2.確認遙控器各頻道動作，如副翼、升降、油門、尾舵、GYRO、螺距方向是否正確，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”來改變動作方向，讓介面與遙控器動作一致。

3.此功能僅支援在連線狀態下使用。

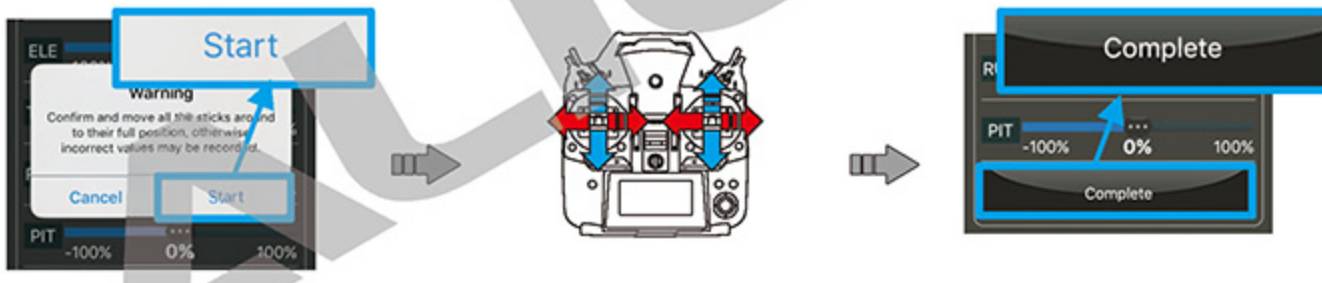






4.Select "Stick travel calibration" and move all sticks on RC transmitter to maximum and minimum position, then click on "Complete"to finish.

4.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 "Start".**
點選開始進行遙控器行程校正

② **Move all sticks on RC transmitter to maximum and minimum position.**
將遙控器搖桿推至最大及最小

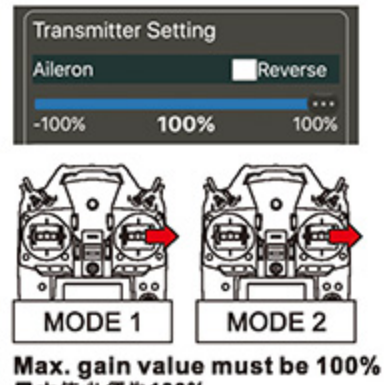
③ **Click on "Complete"**
完成

CAUTION 注 意

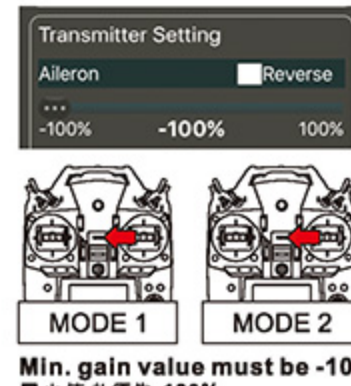
Make sure to set the transmitter throttle curve and collective curve to be default settings 0, 50, 100 as slash line.
校正時遙控器油門曲線螺距曲線必須為預設值0、50、100斜直線。

WARNING 警 告

After completing transmitter range setting, all channels max. and min. gain value must be 100% & -100%. If the gain value is set too large or too small, it will causes abnormal flight performance and unexpected danger.
遙控器行程校正後，各頻道最大最小值必須為100%、-100%，如果最大、最小不正確會造成飛行動作異常與不可預期的危險。



Max. gain value must be 100%
最大值必須為100%



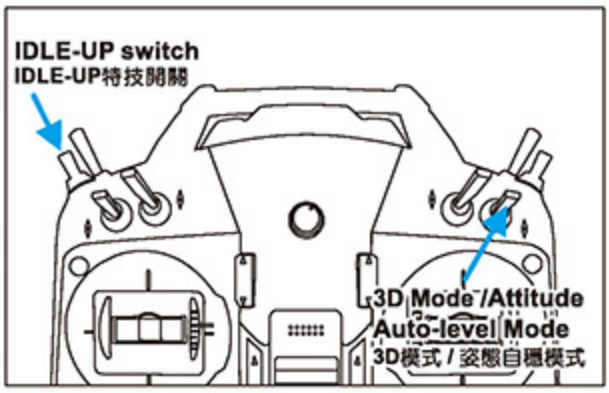
Min. gain value must be -100%
最小值必須為-100%

FLIGHT MODE SETUP 飛行模式開關設定

150 GRS Attitude Auto-level mode which is activated by Gyro channel switch. Assign a 2-step switch on your RC transmitter GYRO channel to Attitude Auto-level (CH5) or allow to switch and perform Attitude Auto-level mode through your previous channel setting on GYRO menu on your APP. The Rudder gain only can be adjusted on APP, the rudder gain value will not be changed via RC transmitter flight mode switch.

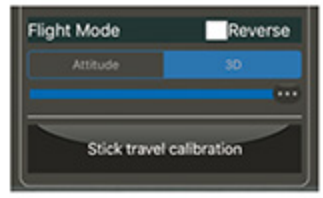
150GRS無平衡翼系統具備姿態自穩模式，模式切換為利用GYRO頻道(CH5)指定一個開關來做自穩模式的開關，而利用搖控器內GYRO選單或CH5頻道做為自穩模式的起動，原尾舵感度值則完全由APP內做設定，飛行模式開關切換不會改變尾舵感度設定值。

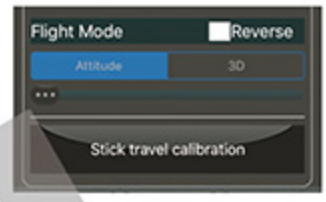
將遙控器GYRO頻道(CH5)選擇一個兩段開關來對應切換模式。
各型號遙控器開關配置設定不相同，可依使用習慣選擇開關。



3D Mode
3D模式

Attitude
Auto-level Mode
姿態自穩模式





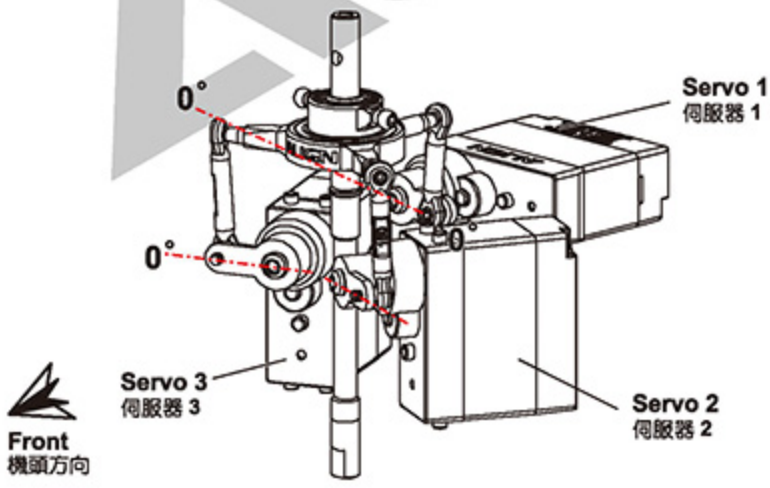
CAUTION 注意

Flight mode switch must set isolatedly, must not set at the same switch position together with IDLE-UP switch.
飛行模式開關為獨立開關，不可與IDLE-UP特技開關設定在相同開關。

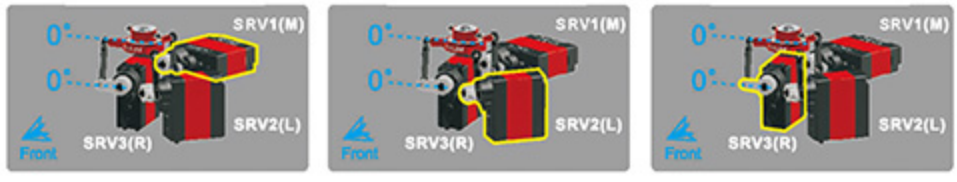
SWASHPLATE 十字盤中立點調整

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，讓伺服器擺臂為水平，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中立點。



ALIGN

CELLECTIVE 集體螺距

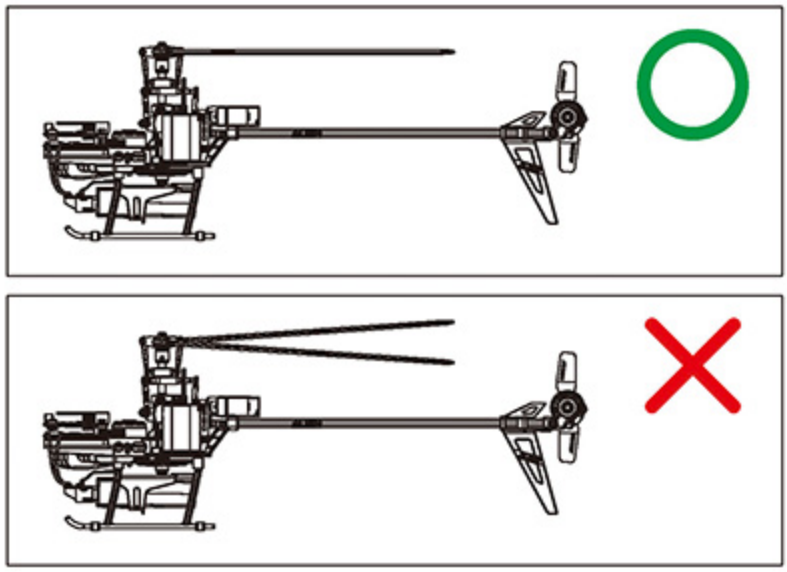
After completing servo leveling adjustment, click to "0 degree collective pitch" to adjust collective pitch.

There is no digital pitch gauge for small helicopter such as the T-REX 150X; however, you are able to check collective pitch by folding both main rotors to one side (90 degrees); if the main blades are parallel, then pitch is at 0 degree, if they are not parallel to each other, you can adjust the collective pitch using the APP interface.

調整好十字盤水平後，先點選"0度螺距"，調整0度螺距的位置。

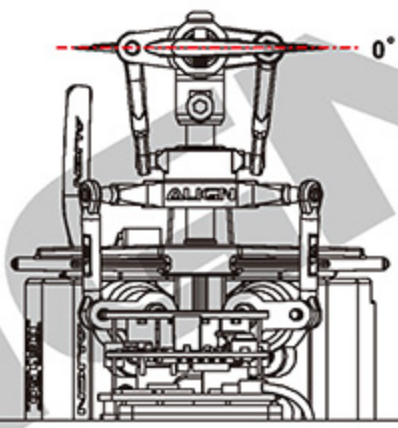
由於T-REX 150直昇機較小，沒有可對應使用的螺距規，調整時可將直昇機的主旋翼對折，且將直昇機側90度擺，如果兩主旋翼為相互平行，則為0度螺距。

如果兩主旋翼沒平行呈現角度，利用介面上的螺距微調，將主旋翼螺距調整為0度。



Positive / Negative Collective: After setting 0 degree of collective pitch, then set the Max./Min. collective pitch.

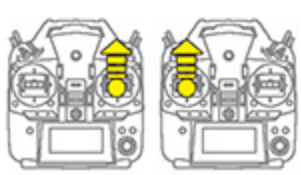
最大最小集體螺距：當0度螺距調整完畢後，且0度螺距必須準確，才可進行最大最小集體螺距調整。

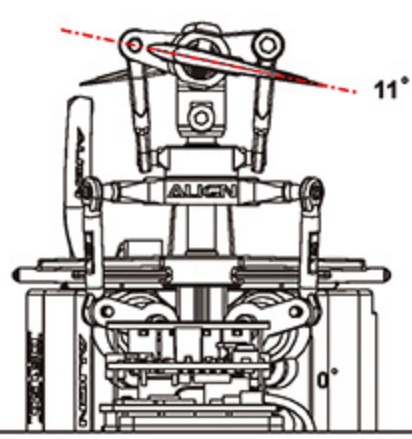


Positive Collective : Move (Push) the throttle stick to the high position for Max. collective pitch adjust via APP interface. Recommend Max. collective pitch for beginners 11 degree and 12 degree for advanced pilots.

最大集體螺距：將油門搖桿推至最高，調整最大集體螺距角度，利用介面來增減最大集體螺距。初學入門玩家建議設定為11度，高階玩家建議設定12度。

Push throttle to highest.
油門推至最高



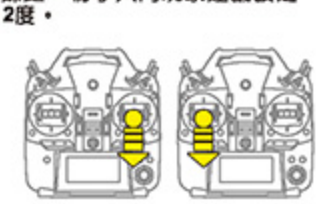


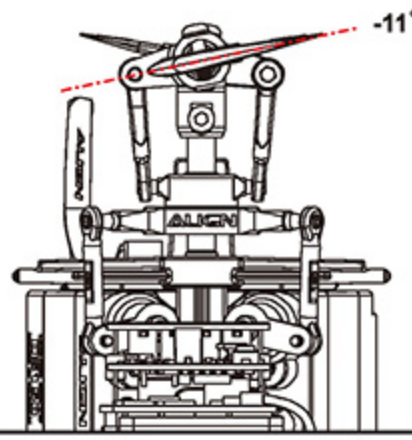
Default Setting : 80%
出廠預設值80%

Collective : Move (Pull) the throttle stick at the lowest position for Min. collective pitch adjust via APP interface. Recommend Max. collective pitch for beginners 11 degree and 12 degree for advanced pilots.

最小集體螺距：將油門搖桿拉至最低，調整最小集體螺距角度，利用介面來增減最小集體螺距。初學入門玩家建議設定為-11度，高階玩家建議設定-12度。

Push throttle to lowest.
油門推至最低





Default Setting : 80%
出廠預設值80%

PARAMETER SETTING 參數設定

It is not necessary to adjust the gain setting, as the 150 GRS Flybarless system default setting is factory set to provide the optimum performance. However this parameter can be adjusted based on your flying style or preference.

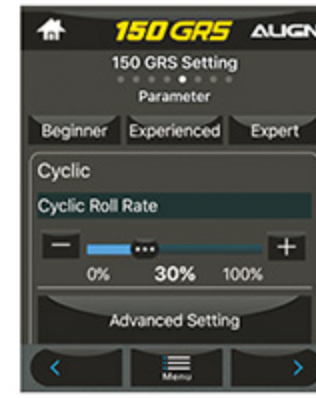
Beginner : Suitable for beginners for stable flight.

Advanced : Suitable for average pilots, the flight maneuver becomes more agility for advanced adjustment.

Professional : Suitable for professional pilots

150 GRS無平衡翼系統出廠預設感度已為最佳適用感度，不需調整即可飛行，你也可以依照個人操控手感與喜好，調整符合需求的飛行特性。

初階：適合剛入門的初學者使用，適合平穩飛行。
中階：適合一般玩家使用，調整後的數據較初階設定略靈敏。
高階：適合專業玩家級使用。



Click"Reset" will revert back to system default value. Factory default value is based on Beginner Parameter.

點選「恢復原廠預設值」，將回到原廠預設值。原廠預設為初階的飛行參數值。

PARAMETER SETUP FUNCTION INSTRUCTION 參數設定功能介紹

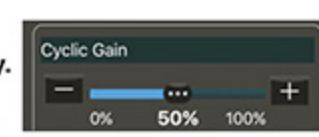
CYCLIC ROLL RATE 翻滾速率

Elevator and Aileron Cyclic Roll Rate Adjustment. A higher value provides faster roll rate. Suggest to use default setting for beginner.
調整升降、副翼的翻滾速率。數值越大翻滾速率越快，初學者建議使用預設值。

Default Setting : 30%
出廠預設值為30%。

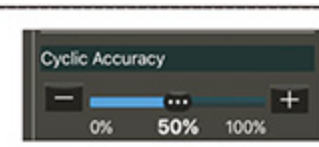
CYCLIC GAIN 十字盤感度

Swashplate Gyro Gain Adjustment. There may be left/right or front/back vibration on the aircraft if the gain is set too high, suggest to lower down the gain value accordingly.
Default Setting : 50% (The best gain setting)
調整十字盤陀螺儀的感度。當飛行時，若機體有左右或前後快速抖動的現象，表示感度過高，可適當的調低感度。



CYCLIC ACCURACY 十字盤精準度

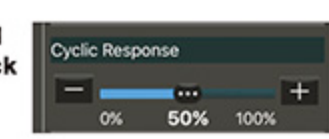
Cyclic Reaction Accuracy Adjustment. A higher value provides more precise movement. But there may be tracking or vibration if the gain is set too high.
調整十字盤動作的精準度。數值越大，十字盤動作越精準，但過大的數值容易造成追蹤、抖動。



Default Setting : 50%
(The best gain setting)
出廠預設值50%已是最佳感度。

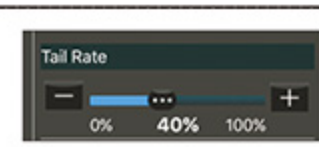
CYCLIC RESPONSE 十字盤反應

Swashplate Direct Control Adjustment. A higher value provides more direct command to swashplate. Make movement more accelerated; Too high value leads to bounce back movement. Too low value leads to sticky reaction feeling
調整十字盤動作的反應。數值越大反應越快越確實，數值越小則反應越慢越不確實。



TAIL RATE 尾舵速率

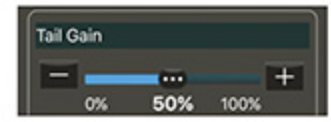
Rudder Piro-rate Adjustment
調整尾舵自旋的速度。



ALIGN

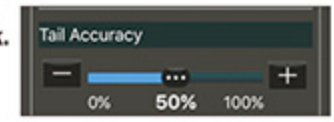
TAIL GAIN 尾舵感度

Rudder Gain Adjustment
調整尾舵的感度。



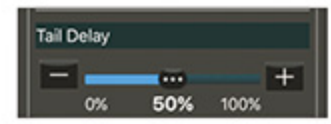
TAIL ACCURACY 尾舵精準度

Rudder Tail-lock Accuracy Adjustment. A higher gain value provides a more accurate tail lock. If the gain value is set too high the tail will rapidly bounce side to side. Default Setting : 50% (The best gain setting)
調整尾舵鎖定的精準度。值越大尾舵鎖定會越確實，但過大的值會造成鎖定回彈。出廠預設值50%已是最佳感度。



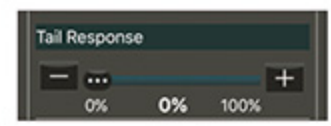
TAIL DELAY 尾舵延遲

Rudder Response Delay Adjustment
調整尾舵反應的延遲。



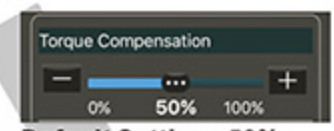
TAIL RESPONSE 尾舵反應

Rudder Direct Reaction Adjustment. A higher gain value provides more tail acceleration reaction ; This is usually not necessary unless the extreme rapid movement required.
調整尾舵動作的反應。數值越大反應越快越確實，數值越小則反應越慢越不確實。



TORQUE COMPENSATION 反扭力補償

Anti Torque Compensation Adjustment.
調整主旋翼產生的反扭力補償。



Default Setting : 50%
(The best gain setting)
出廠預設值50%已是最佳感度。

CAUTION 注意

Do not disconnect the battery until the parameter store process is finished. After completing the 150 GRS setup, return to the APP homepage and click "Setup Confirm/Disconnect". Wait till 150 GRS stores all parameter settings, then the setup is completed.
當150 GRS設定完畢，不可直接斷電拔除直昇機電池，必須回APP首頁點按"設定確認/中斷連線"，確認儲存設定值後才算完成設定步驟。

Return to APP Homepage and click "Setup Confirm/Disconnect"
回APP首頁點按（設定確認/中斷連線）。

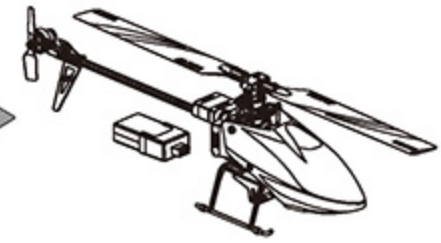
ESC THROTTLE TRAVEL ADJUSTMENT ESC油門行程校正

Although the T-REX 150 throttle calibration has been completed in the factory, it's recommend to perform a calibration after binding to ensure smooth motor operation.

雖然T-REX 150X油門校正已經在廠內完成校正，但為確保馬達動作的順暢，請務必於搖控器對頻後再進行一次油門校正。

① **Tap the "Calibration" buttun for confirmation**
點按"校正"確認

② **The Bluetooth will disconnect after press "OK",Please reboot to do the throttle calibration.**
按下確認後藍牙將會自動斷線，請重開機進行油門校正



③ **Please re-connect to the power**
請重新接上電源

ACCELEROMETER SUBTRIM 加速計微調

Advanced Setting : If the T-REX 150X continues to drift in Attitude mode after the Gyro Compensation, you can trim the settings using the accelerator for correction.

STEP 1 : The T-REX 150X does not need to adjust the accelerometer if fly normally, but if there is a drift in attitude auto-level mode, you can fine-tune the accelerometer to correct it.

STEP 2 : Helicopter may drift towards to the left slightly in a hover. Adjust compensation to correct angle to prevent heli drift. The best angle depends on RPM,

此功能為進階設定，當你已經有重新執行陀螺儀校正，但在姿態自穩模式下仍有飛行偏移的情況時，可以透過加速計微調來調整偏移。

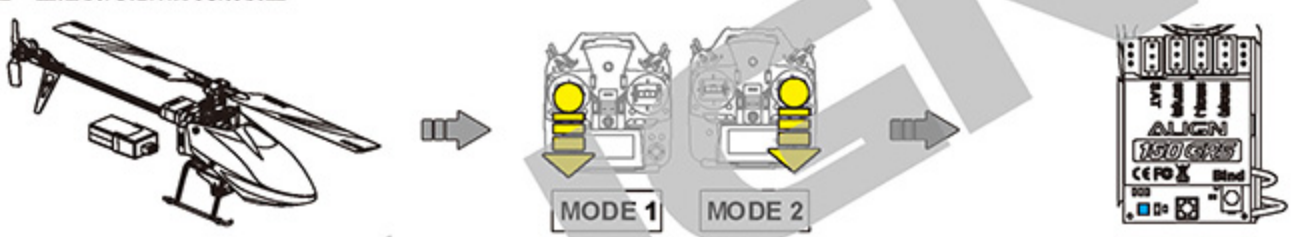
步驟1：T-REX 150X飛行正常時不需調整加速計，但在姿態自穩模式下仍有飛行偏移的情況時，可以透過加速計微調來調整偏移。

步驟2：直升機停懸時稍微朝左邊偏移。即可使用此補償功能來調整直升機至正確的角度，以防止朝一邊偏移。最適當的角度則取決於RPM、俯仰值以及主旋翼。

GYRO CALIBRATION 陀螺儀校正

Advanced Setting : The T-REX 150X will perform without any changes to advanced settings. If drift becomes an issue, perform a gyro compensation. Gyro Compensation: Place T-REX 150X at horizontal position, pull the elevator stick to the lowest position for approximately 3 seconds, wait till the status LED light rapidly flashes blue, indicating Gyro compensation has started. When the blue light stop flashing, then the compensation process is complete.

此功能為進階設定，T-REX 150X飛行為正常情況下，不需進行此功能調整。當你的T-REX 150X飛行時有不正常偏移時，可以進行陀螺儀校正。校正方式：將直昇機放置於靜止的水平面上，遙控器升降搖桿拉至最低約3秒，當狀態指示燈呈現藍燈快速閃爍，即開始進行陀螺儀校正，藍燈快閃結束即完成校正。



① **Please re-connect to the power**
請重新接上電源

② **Pull the elevator stick to the lowest position for approximately 3 seconds,**
遙控器升降搖桿拉至最低約3秒

③ **When the blue light stop flashing, then the compensation process is complete.**
藍燈快閃結束即完成校正。

CAUTION 注 意

DO NOT MOVE the T-REX 150X during the compensation process, or the compensation will fail to configure properly.
校正過程不可移動直昇機，否則會影響校正準確度。

FIRMWARE UPDATE 主程式更新

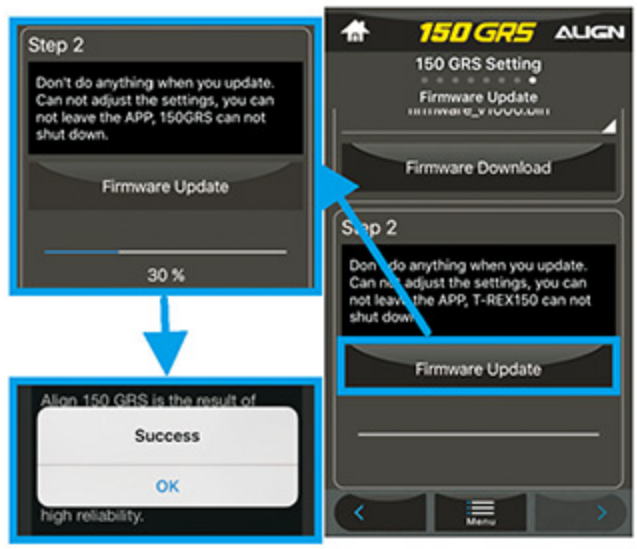
STEP 1. FIRMWARE DOWNLOAD
150 GRS will automatically detect your current version. Please, select the latest firmware version and press download.
步驟1：主程式下載
150 GRS 會自動判別目前版次，請點選最新版本主程式後，按下載。

CAUTION 注 意

Don't do anything when you update. Can not adjust the settings, you can not leave the APP, 150 GRS can not shut down.
各廠牌更新時請勿做任何動作。不能調整設定、不能跳出APP、150 GRS不能斷電。

STEP 2. FIRMWARE UPDATE
Press "Firmware Update" after download completes.

步驟2：主程式更新
150 GRS新版本主程式，下載完成後，按下主程式更新。



CAUTION 注 意

Don't do anything when you update. Can not adjust the settings, you can not leave the APP, 150 GRS can not shut down.

各廠牌更新時請勿做任何動作。不能調整設定、不能跳出APP、150 GRS不能斷電。

150 GRS INDICATOR LED 150 GRS指示燈說明

LED STATUS LIGHT 燈號閃爍圖示說明	LED STATUS LIGHT CONDITION 燈號指示狀況說明
Red / Aqua-blue light flashing 紅色 / 水藍色燈交叉閃爍	**1. 150 GRS binding failed.** **2. The transmitter has not yet powered on ; throttle stick is not at the lowest ehile power on.** **1.150 GRS對頻不成功。** **2. 遙控器尚未開機或遙控器開機時油門尚未設在最低點。**
Blue light turn dark to bright briefly and repeatedly 藍色燈重複快速由暗轉亮	**Power On / 3D Mode** **開機完成 / 3D模式。**
Aqua-blue light turn dark to bright slowly and repeatedly 水藍色燈燈重複慢速由暗轉亮 (如同呼吸頻率)	**Power On / Attitude Mode** **開機完成 / 姿態模式。**
Blue light briefly flash then off repeatedly 藍色燈單閃	**Connect Successfully** **APP連線成功。**
Red / Blue light flashing 紅色 / 藍色燈交叉閃爍	**System Updating…** **主程式更新中。**
Red light flashing 紅色燈單閃	**Transmitter lost signal…** **遙控器失去訊號斷訊中。**
Green light flashing 綠色燈單閃	**Binding…** **對頻中。**

ALIGN

SPECIFICATIONS 產品規格

1. Operating voltage range： 2S Li-Po
2. Operating current consumption： <100mA @ 5V
3. Rotational detection rate： 2000°/sec
4. Rudder yaw detection rate： 2000°/sec
5. Sensor resolution：16BIT
6. Operating temperature：-20℃ ~ 65℃
7. Operating humidity：0% ~ 95%
8. Swashplate Support : MODE H-1
9. Receiver Support : ALIGN / Futaba S-FHSS、DSM2 / DSMX / DMSS
10. Transmit Distance: In open space without interference <150M

1. 操作電壓範圍 : 2S Li-Po
2. 工作電流 : <100mA @ 5V
3. 側滾及前滾角速度範圍 :2000度/sec
4. 尾舵角速度範圍 : 2000度/sec
5. 感測器解析度 : 16位元(16 BIT)
6. 操作溫度 : -20℃ ~ 65℃
7. 操作濕度 : 0% ~ 95%
8. 支援十字盤類型 : H-1 模式
9. 支援發射機類型 : ALIGN / Futaba S-FHSS、DSM2 / DSMX / DMSS
10. 接收距離：空曠無干擾地面 <150M

17.FLIGHT MODE INTRODUCTION 飛行模式介紹

150 GRS Attitude Auto-level mode which is activated by Gyro channel switch. Assign a 2-step switch on your RC transmitter GYRO channel to Attitude Auto-level (CH5) or allow to switch and perform Attitude Auto-level mode through your previous channel setting on GYRO menu on your APP. The Rudder gain only can be adjusted on APP, the rudder gain value will not be changed via RC transmitter flight mode switch.

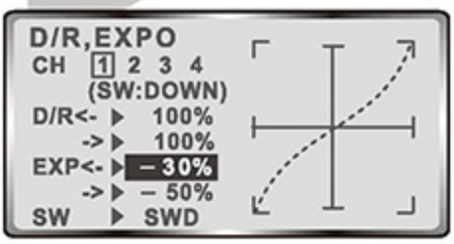
150GRS無平衡翼系統具備姿態自穩模式，模式切換為利用GYRO頻道(CH5)指定一個開關來做自穩模式的開關，而利用搖控器內GYRO選單或CH5頻道做為自穩模式的起動，原尾舵感度值則完全由APP內做設定，飛行模式開關切換不會改變尾舵感度設定值。
將遙控器GYRO頻道(CH5)選擇一個兩段開關來對應切換模式。各型號遙控器開關配置設定不相同，可依使用習慣選擇開關。

3D MODE 3D模式

3D Mode : Normal flight and 3D flight mode, without auto level function. Full control by the pilot without any horizontal leveling capabilities.
Control Response adjustment:
Set the exponential (EXP) of Aileron/Elevator/Rudder according to your control feel in 3D mode.
When control response is too fast, decrease EXP -10%~-60% for Futaba radios； increase EXP +10%~+60% for JR radios.
When control response is too sluggish, increase EXP +0%~+30% for Futaba radios; decrease EXP -0%~-30% for JR radios.

3D模式：即一般飛行與3D飛行模式，完全由操控者控制，無自動水平功能。
動作靈敏度調整:3D模式可依個人飛行操控手感調整遙控器副翼、升降、尾舵的EXP；
當3D模式動作靈敏度太大，Futaba調低範圍-10%~-60%；JR的調高範圍+10%~+60%。
當3D模式動作靈敏度太小，Futaba調高範圍+0%~+30%；JR的調低範圍-0%~-30%。

Futaba



JR

WARNING 警告

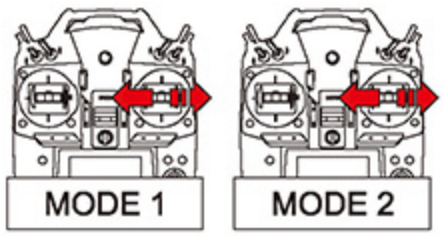
3D mode is suitable only for experienced pilots without any horizontal leveling capabilities. Beginners should avoid flying in 3D mode or it will cause unforeseen danger and crashes.
3D模式適合有飛行經驗的玩家使用，並嚴禁初學者使用，否則會造成不可預期的結果。在3D模式下無自動水平功能。

ATTITUDE AUTO-LEVEL MODE 姿態自穩模式

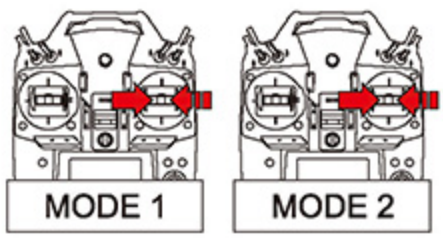
Attitude Auto-level Mode : Maintains level. Elevator/Aileron stick inputs are translated as angular command. Larger stick input translates to steeper angels of aircraft tilt

姿態自穩模式：姿態模式會自動保持直昇機水平，升降、副翼搖桿指令為角度命令，搖桿動作越大直昇機動作角度越大。

1.Elevator/aileron stick
升降/副翼搖桿



2.Release stick (multicopter automatically levels)
搖桿放開(機體自動回正)

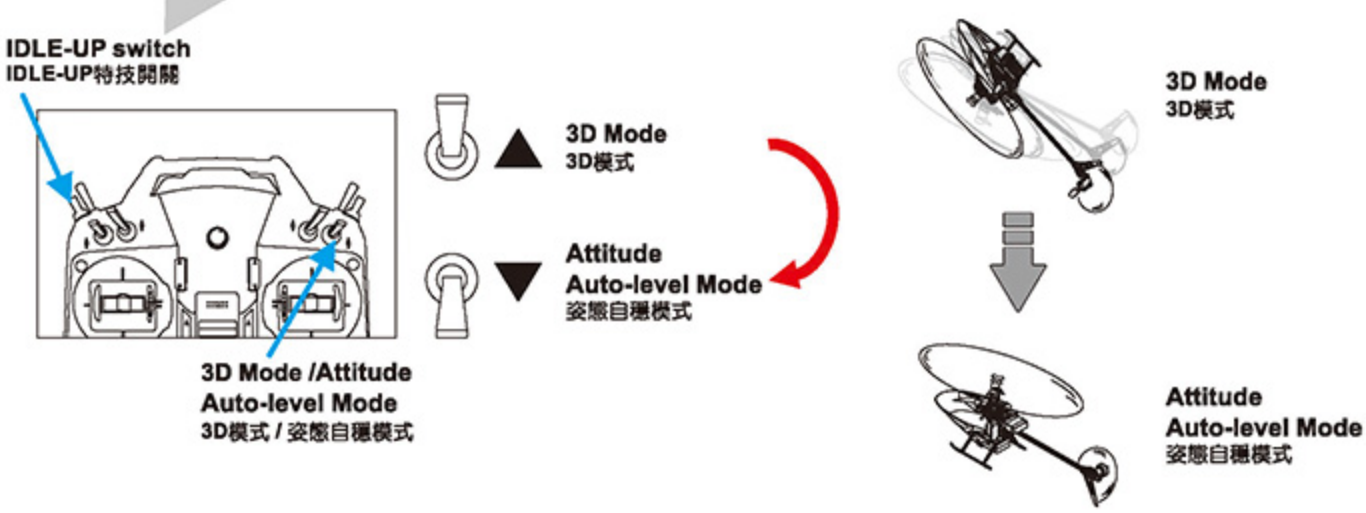


3.In Attitude Mode, helicopter will auto-level in the air, but without GPS function, pilots can set up their own flying altitude by themselves.

Additional applications of Attitude Mode: When helicopter is in disoriented or control disorder in 3D flying mode, you can switch 3D mode into attitude mode to keep it staying level, that we call" Rescue Mode". Rescue Mode is useful function for beginners, it can help pilots saving helicopters from some crash cases. However, when you activate the Rescue Mode from 3D mode to attitude mode, please be aware of the height and location where your helicopter is due to in some cases, you might hit the ground or obstacles while Rescue Mode is in process.

姿態模式下直昇機會回正保持水平姿態，但無定位功能，高度則由玩家自行控制。

姿態模式可以有其他的運用，當你在3D飛行模式下失去方向與控制錯亂時，可以將飛行模式切換到姿態模式，直昇機會回正保持水平，作為失控救援(一鍵救機)功能。一鍵救機為學習飛行的輔助功能，主要控制權是在操控者手上，如果飛行區域有障礙物或飛行高度過低，就有可能在救機過程撞擊障礙物或地面，所以在3D模式切換到姿態模式時，必須控制好高度與直昇機位置，才可確保每次救援成功降低直昇機損傷。
搖桿放開(機體自動回正)



CAUTION 注意

Flight mode switch must set isolatedly, must not set at the same switch position together with IDLE-UP switch.

飛行模式開關為獨立開關，不可與IDLE-UP特技開關設定在相同開關。

FEATURES 特點說明

1.15 Model Memory Capability.
2.Logical control interface.
3.Supports MODE1~MODE4.
4.Supports 4 types of swashplates.
5.5 point throttle and pitch curves.
6.Rudder gyro gain adjustment.
7.Built in RF failsafe and battery failsafe protection.
8.Supports both helicopters and fixed wing aircrafts.

1.具備15組模型記憶功能。
2.直覺式的操作設定介面。
3.支援MODE1、MODE2、MODE3、MODE4搖桿模式。
4.支援4種十字盤類型。
5.具備5點可調油門、螺距曲線。
6.具備尾舵感度調整功能。
7.具備失控保護與電池失控保護功能。
8.支援直昇機與飛機功能。

2.4GHz S-FHSS

[HERT6003]
[HERT6004]
[HERT6005]
T6 Radio Control System Combo
T6六動2.4G遙控器組

Please visit Align download area to get the completed instruction manual at Align website.
詳細的T6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/T6/

SPECIFICATIONS 產品規格

1.6-Channel-2.4GHz S-FHSS transmitter(Up to 4-Channel at 2.4GHz FHSS system)
2.Transmitting on 2.4GHz band
3.Operating system:2-stick,6-channel system
4.Power supply:4-AA 1.5V Dry Cell batteries or 1.2V Ni-MH batteries
5.Current drain:120mA

1.6通道-2.4GHz的S-FHSS發射機(在2.4GHz FHSS系統上最多至4通道)
2.在2.4GHz頻段上傳輸。
3.作業系統：雙控制桿，6通道系統。
4.電源：4顆AA 1.5V乾電池或1.2V線氫電池
5.電流：120毫安。

TRANSMITTER SETUP PARAMETERS DIAGRAM 遙控器設定表

T-REX 150X already has all 150 GRS parameters configured at the factory. Just follow the diagram below and enter all parameters into the transmitter and bind the radio, the helicopter will be ready to fly. The parameters in diagram below is suitable for beginners and general 3D flying, but can be adjusted to suit personal flying preference.

T-REX 150X 出廠時已經完成 150 GRS 所有設定，只要將下表的遙控器各項參數輸入到遙控器中，以及完成對頻動作就可以進行飛行。下表參數適用初學基礎飛行以及一般 3D 飛行使用，您也可以依照個人飛行習慣來調整遙控器參數。

ALIGN / FUTABA S-FHSS SYSTEM ALIGN / FUTABA S-FHSS 系統

	AIL 副翼	ELE 升降	THR 油門	RUD 尾舵	GYRO 感度	PIT 螺距
Servo Reverse 伺服器正反轉	Normal 正向	Normal 正向	Normal 正向	Normal 正向	Normal 正向	Normal 正向
D / R 雙重比率	▲ 100 %	▲ 100 %		▲ 100 %		
	▼ 100 %	▼ 100 %		▼ 100 %		
EXP 動作曲線	▲ -30 %	▲ -30 %		▲ -15 %		
	▼ -30 %	▼ -30 %		▼ -15 %		
End Point Adjust 伺服器行程量	▲ 100 %	▲ 100 %	▲ 100 %	▲ 100 %	▲ 100 %	▲ 100 %
	▼ 100 %	▼ 100 %	▼ 100 %	▼ 100 %	▼ 100 %	▼ 100 %

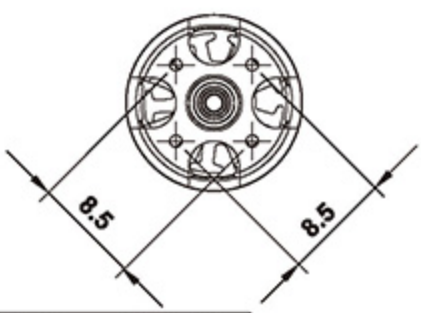
Swash type 十字盤類型	H-1				
Gyro gain 尾舵感度	3D Mode / 3D模式 50 % (AVCS)			Attitude Auto-level Mode / 姿態自穩模式 -50 % (NORM)	
Normal Throttle Curves 一般飛行油門曲線	P1	P2	P3	P4	P5
	0 %	44 %	57 %	63 %	70 %
Normal Pitch Curves 一般飛行螺距曲線	P1	P2	P3	P4	P5
	50 %	60 %	70 %	78 %	100 %
IDLE-UP Throttle Curves 3D飛行油門曲線	P1	P2	P3	P4	P5
	90 %	85 %	80 %	85 %	90 %
IDLE-UP Pitch Curves 3D飛行螺距曲線	P1	P2	P3	P4	P5
	0 %	25 %	50 %	75 %	100 %

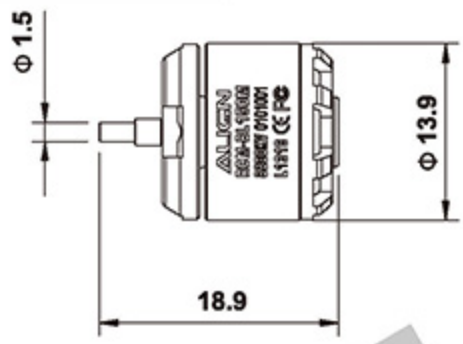
19.POWER COLLOCATION REFERENCE 原裝動力數據參考表 ALIGN

This new Brushless motor developed by the ALIGN POWER R&D TEAM, is packed with the latest, cutting edge technology available today. It features exceptional levels of high-torque power. The 150M& 150MT utilizes an 6-pole outrunner stator-rotor and unrivaled Ndfeb extra strong magnets that traditional magnets cannot compare to. Also included is a high temperature, wear-resisting, low friction, double ZZ high efficiency bearing. The 150M will be the most revolutionary motor operating on low current amperage, and delivering high torque to RC models.

由亞拓動力團隊獨家研發出新款的無刷馬達，具有超高扭力特色，採用9槽矽鋼片、6極外轉子以及傳統磁鐵無法比擬的釹鐵硼超強磁鐵，搭配高溫耐磨的雙ZZ超高效能精密軸承設計，電流低、扭力強，將是下一波動革命中最具代表性的一顆星。

150M MAIN MOTOR (9000KV/1107) 150M主馬達(9000KV/1107)



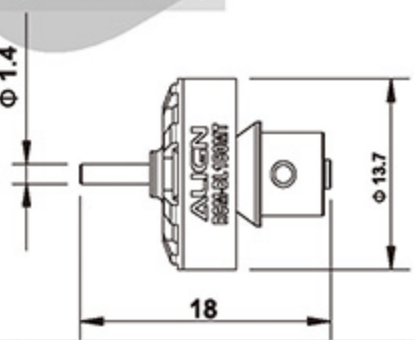


(單位:mm)
(Unit:mm)

SPECIFICATION 尺寸規格

KV	KV值	9000KV(RPM/V)	Input voltage	輸入電壓	2S
Stator Diameter	定子外徑	11mm	Stator Thickness	定子高度	7mm
Stator Arms	矽鋼片槽數	9	Magnet Poles	磁鐵極數	6
Dimension	尺寸	Shaft軸 Φ 1.5x Φ 13.9x18.9mm	Weight	重量	Approx. 約6.5g

150MT TAIL MOTOR (8000KV/1103) 150MT尾馬達(8000KV/1103)



(單位:mm)
(Unit:mm)

SPECIFICATION 尺寸規格

KV	KV值	8000KV(RPM/V)	Input voltage	輸入電壓	2S
Stator Diameter	定子外徑	11 mm	Stator Thickness	定子高度	3mm
Stator Arms	矽鋼片槽數	9	Magnet Poles	磁鐵極數	6
Dimension	尺寸	Shaft軸 Φ 1.4x Φ 13.7x18mm	Weight	重量	Approx. 約3.3g

20.150 GRS ESC MANUAL 150 GRS ESC使用說明 ALIGN

PRODUCT FEATURES 產品特色

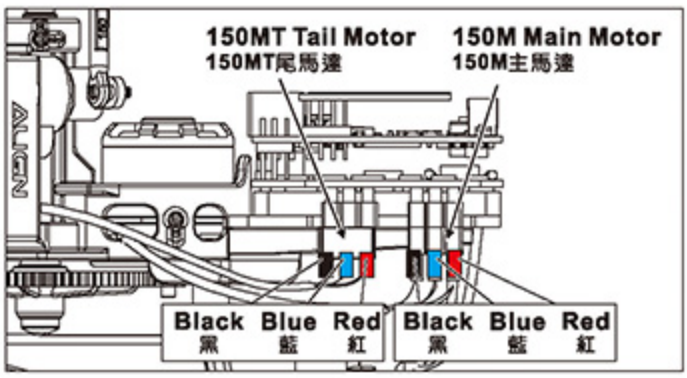
T-REX 150X are assembled, tuned, and passed flight test before leaving the factory; this includes the 150GRS flybarless system and electronic speed controller (ESC). Therefore, the ESC does not need any setup and can be used directly.

1. **Designed with BL Heli ESC allows faster motor feedback and precise flying performance.**
2. **Utilizes high speed, feature rich, but miniature footprint MCU processor**
3. **Includes low voltage, temperature, and loss of throttle signal protection features.**
4. **Dual output system design for main and tail motors.**

T-REX 150X出廠都是組裝、設定完成且通過試飛的完成機，其中包含150 GRS無平衡翼系統與電子變速器也是設定完成的，所以電子變速器方面並不用重新設定就可以直接使用。

1. **電子變速器採用BLHeli程式，使得馬達反應更快速、更精準的提升飛行性能。**
2. **採用高速、功能強大且體積小的MCU處理器。**
3. **具備低電壓、溫度與油門訊號遺失保護功能。**
4. **整合主馬達與尾馬達的雙系統輸出設計。**

WIRING ILLUSTRATION 接線示意圖



ESC SPECS ESC規格

BL Heli

	Continuous Current 持續	Peak Current 瞬間
Main Motor 主馬達	6A	7A
Tail Motor 尾馬達	3A	3.5A
BEC Output BEC輸出	5V / 2A	5V / 2.5A

FEATURES 特性說明

1. Persistent maximum current require optimal heat dissipation condition.
2. Supported motor types: 2 poles to 18 poles brushless outrunners.
3. Maximum rotational speed: 2 poles-240000 RPM, 12 poles-40000 RPM.
4. Input voltage: 2S Li-Po.

1. 持續最大電流需在機體散熱良好情況下。
2. 支援馬達型式：2極至18極之內外轉子無碳刷馬達。
3. 支援最高轉速：2極→240000轉，12極→40000轉。
4. 輸入電壓：2S Li-Po。

ESC POWER ON AND AUDIBLE ALARM INSTRUCTION ESC正確開機及警音說明

A.POWER ON THE ESC ESC正確開機過程

① Turn on the transmitter and put the throttle stick at the bottom position
開啟遙控器電源並將油門推至最低

② Connect to the battery and do the transmitter binding
請接上電源並完成遙控器對頻

③ After plug-in the battery, the motor will emit "3 short beeps and 2 long beeps" then ESC power on successfully.
接上電源後，馬達警音提示出現"3短音2長音"表示ESC開機成功。

CAUTION 注意

After plug-in the battery, the motor only emit "3 short beeps" then the ESC power on is not successful. Reasons :
1.Throttle stick is not at bottom position
2.The transmitter doesn't turn on or binding process failed.

接上電源後，馬達警音提示若只出現"3短音"，代表ESC沒有開機成功，可能原因如下：
1.遙控器油門沒有推至最低。
2.遙控器沒開機或對頻沒有成功。

B.HELICOPTER LANDING 當直昇機準備降落時

① Put the throttle stick at bottom position for landing, then the ESC will emit "2 long beeps".
將油門推至最低準備降落直昇機，電變會發出"2長音"的確認聲響。

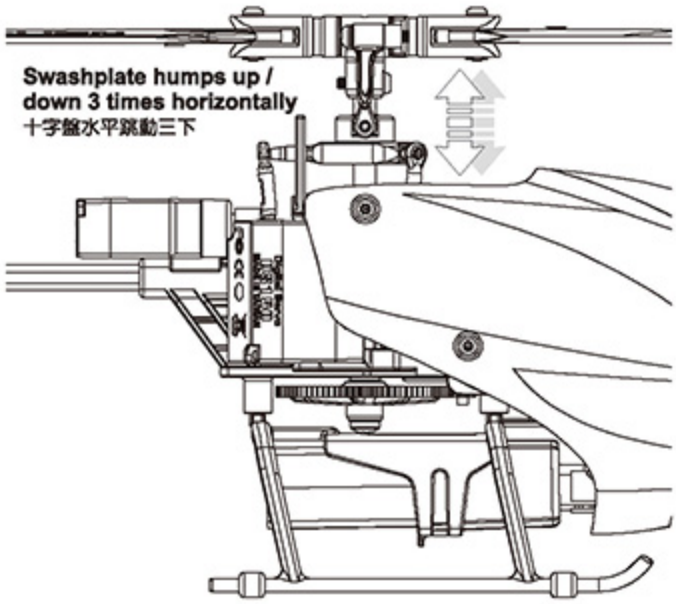
② Make sure to wait till the "2 long beeps" alarm stop, then you can pull up the throttle stick to start next flight or the ESC will not be activated successfully.
當直昇機降落於地面時請務必等待"2長音"聲響結束後才可再推油門起飛，如果聲響未結束就推油門，電變則不會啟動。

CAUTION 注意

BL Heli

The main feature of BLHeli ESC, the ESC will emit long beep "2 long beeps" every time while throttle stick is at the bottom position and ESC is been activated successfully.
電變正確開啟後，每當油門到最低點位置時，電變也會發出"2長音"聲響，這是BLHeli電變特性。

ALIGN



STEP1 步驟1

Turn on the Transmitter, and then turn on 150 GRS power.
先開啟遙控器電源，再開啟150 GRS電源。

STEP2 步驟2

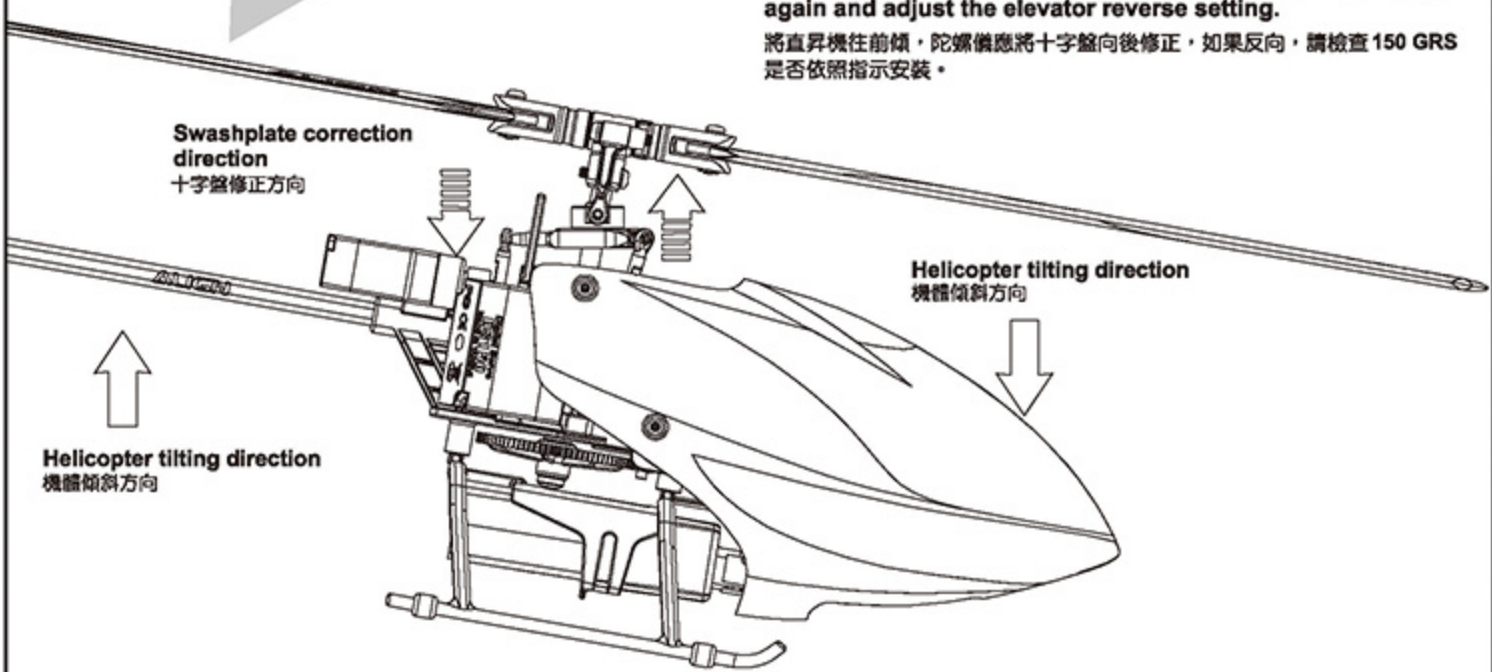
The 150 GRS Blue Light or Aqua Blue Light will be lit solidly.
此時150 GRS 狀態燈會以藍色或水藍色燈號恆亮。

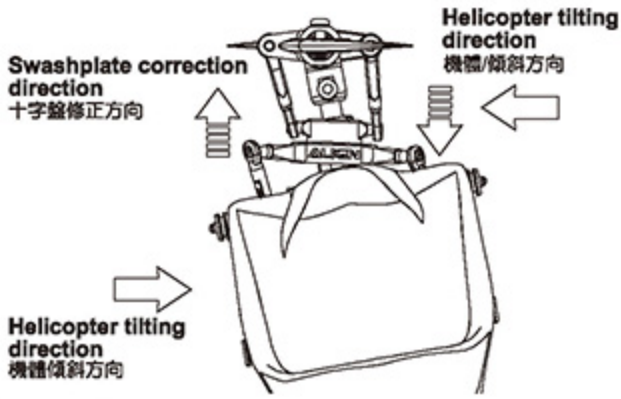
STEP3 步驟3

As shown in diagram to the left, the swashplate will twitch up and down 3 times after initialization to signal successful startup.
如左圖示，初始化完成後，十字盤會保持水平行下小幅跳動三下，表示完成開機程序，如十字盤為傾斜跳動三次，請檢查伺服器是否依照指示安裝。

STEP4 步驟4

Tilt the helicopter forward and swashplate should tilt back to compensate. If reversed, perform the flybarless initial setup again and adjust the elevator reverse setting.
將直昇機往前傾，陀螺儀應將十字盤向後修正，如果反向，請檢查150 GRS是否依照指示安裝。

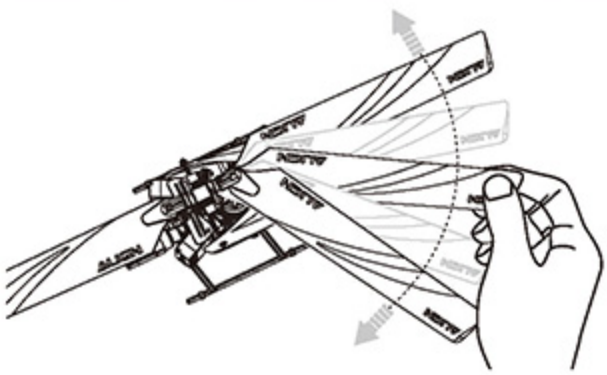




STEP5 步驟5

Tilt the helicopter right, gyro should tilt the swashplate left to compensate. If reversed, pl ease check for the correct installation direction of 150 GRS.

將直昇機往右傾，陀螺儀應將十字盤往左修正，如果反向，請檢查150 GRS是否依照指示安裝。



STEP6 步驟6

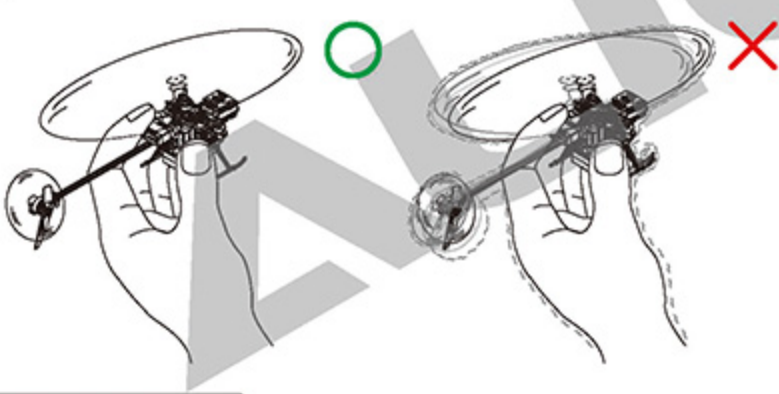
Do not over-tighten main blade bolts. The blades must be able to swing freely. Over-tightening will prevent the blades from straightening out, resulting in vibrations.

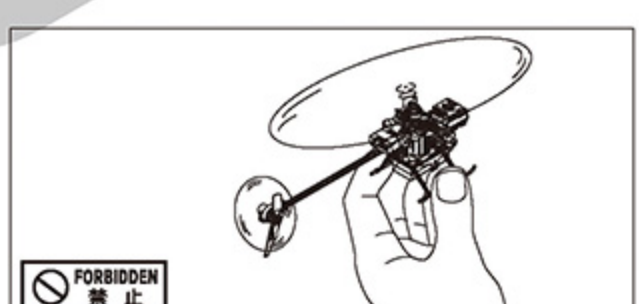
主旋翼固定螺絲不可鎖過緊，要保持旋翼能順暢收折。過緊時會造成旋翼無法甩直而產生機體震動。

STEP 7-1 步驟7-1

Hold the helicopter by hand to test rotation, and fly only if fonfirmed there are no excessive vibration from helicopter. During test, hold the helicopter firmly, away from face/head, and push the throttle up to 50%~60% under normal mode.

將直昇機抓在手上試運轉，確認直昇機無過大震動才可以飛行。試運轉時請將直昇機抓好，並遠離頭部，使用一般模式，油門推到 50%~60%測試。





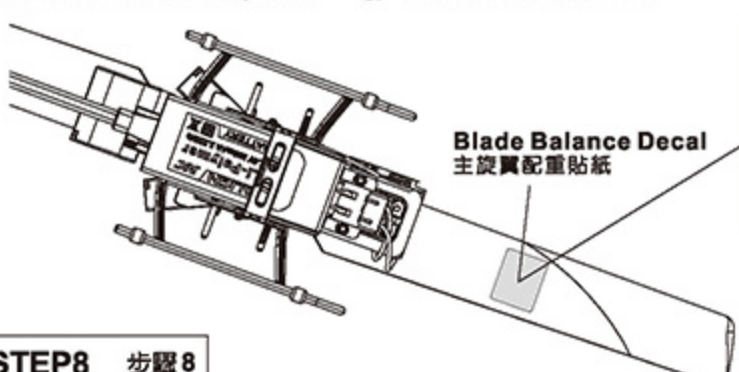
Do not hold the landing skids when performing power on test for helicopter vibration , to avoid skids apart from helicopter causing unexpected accidents.

嚴禁使用抓腳架方式來測試直昇機震動！避免因腳架脫落，造成不可預期的意外發生。

STEP 7-2 步驟7-2

Should there be excessive vibrations, first check if there are any damaged or improperly installed parts (such as bent main and feathering shaft). If vibration persists after all parts are confirmed ok, the main blades can be balanced with the included blade balance decal (each sticker around 0.02g)

如果直昇機震動過大，請先確認機體各部位是正常無損壞或安裝不良(例：主、橫軸歪曲)。確認機體正常後，直昇機還是有震動，可以使用隨機附送的主旋翼配重貼紙(單張約0.02g)，來為主旋翼進行配重平衡。



Weight stickers can be applied to the center of the backside. If vibration increases, move the sticker to the other blade. Once vibration is reduced, the sticker can be moved laterally along the blade to further minimize vibrations.

可以貼在旋翼背面的中心位置測試。如果震動加大，則換到另一支旋翼測試。震動減小後可移動貼紙位置讓震動減至最小。

STEP8 步驟8

Confirm all functions are normal, power cycle the system, and begin flight test after initialization.

確定所有功能正常，重新開機，完成開機程序後進入飛行測試。

Option equipment
另購品

[HOT00010]
150 blades balancer
150主槳平衡器組

PLEASE PRACTICE SIMULATION FLIGHT BEFORE REAL FLYING 飛行前請事先熟練模擬飛行

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 lef t / right", and "Elevator up / down".**
3. **The simulation flight practice is very important, please keep practicing until the fingers move naturally when you hear operation orders being call out.**

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

Mode 1	Mode 2	Illustration 圖示
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

ALIGN

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 5 meters away from the helicopter to avoid injury caused by loose parts due to improper assembly or any unforeseen dangers.**

◎嚴禁用手抓取運行中的直昇機，並禁止將直昇機對著眼睛，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5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

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

- **When arriving at the flying field.**
- 當抵達飛行場

CAUTION 注意

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

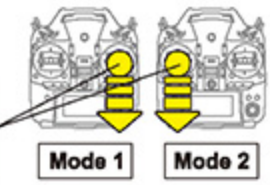
STARTING AND STOPPING THE MOTOR 啓動和停止馬達

CAUTION 注 意

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

CAUTION 注 意

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



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

・Check the movement.
・動作確認

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

ON! Step2
Connect to the helicopter power
接上直昇機電源

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

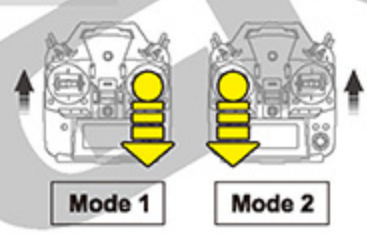
FLIGHT ADJUSTMENT AND NOTICE FOR BEGINNERS 初學飛行調整與注意

CAUTION 注 意

◎Make sure that no one or obstructions in the vicinity.
◎You must first practice hovering for flying safety. This is a basic flight action. (Hovering means keeping the helicopter in mid air in a fixed position)
◎確認鄰近地區沒有人和障礙物。
◎為了飛行安全，您必須先練習停懸，這是飛行動作的基礎 (停懸:直昇機滯留空中並保持固定位置)。

STEP 1 THROTTLE CONTROL PRACTICE 油門控制練習

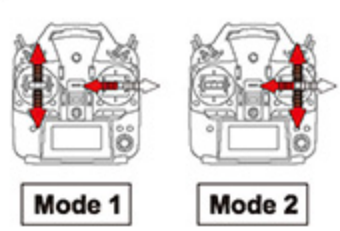
When the helicopter begins to lift-off the ground, slowly reduce the throttle to bring the helicopter back down. Keep practicing this action until you control the throttle smoothly.
當直昇機開始離地時，慢慢降低油門將飛機降下。
持續練習飛機從地面上升和下降直到您覺得油門控制很順。

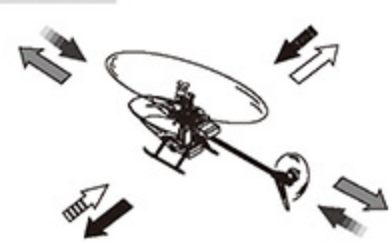


STEP 2 AILERON AND ELEVATOR CONTROL PRACTICE 副翼和升降控制練習

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

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





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 5M and continue practicing.
◎ If the helicopter flies too far away from you, please land the helicopter and move your position behind 5M and continue practicing.
◎ 當直昇機機頭偏移時，請降低油門並且降落，然後移動自己的位置到直昇機的正後方5公尺再繼續練習。
◎ 假如直昇機飛離您太遠，請先降落直昇機，並到直昇機後5公尺再繼續練習。

STEP 3 RUDDER CONTROL PRACTICING 方向舵操作練習

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

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

STEP 4

After you are familiar with all actions from STEP1 to 3, draw a circle on the ground and practice within the circle to increase your accuracy.
◎You can draw a smaller circle when you get more familiar with the actions.

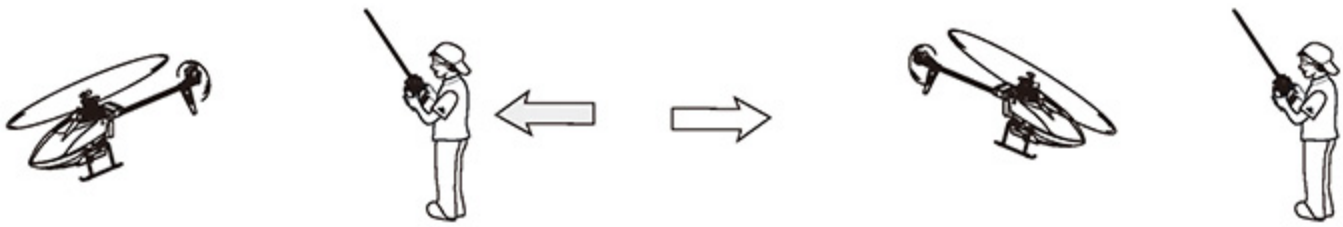
當您覺得 STEP1~3 動作熟悉了，在地上畫圈圈並在這個圈圈的範圍內練習飛行，以增加您操控的準確度。
◎當您更加習慣操作動作，您可以畫更小的圈圈。

ALIGN

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

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 in front of the helicopter.

當您覺得STEP1~4動作熟悉了，站在面對直昇機側邊並繼續練習STEP1~4。
之後，站在直昇機機頭前方重複步驟練習。



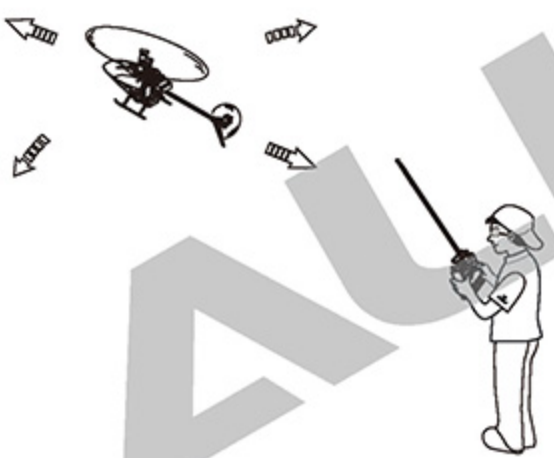
23. 150 GRS FLYBARLESS FLIGHT TEST PROCEDURE 飛行測試程序 ALIGN

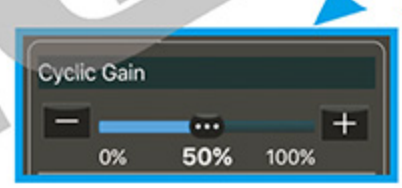
ELEVATOR AND AILERON GAIN ADJUSTMENT 升降及副翼陀螺儀感度調整

Hover the helicopter and observe if there are any left / right or forward / backward fast oscillation. If oscillation exists, turn the cyclic gain value to reduce the gyro gain.

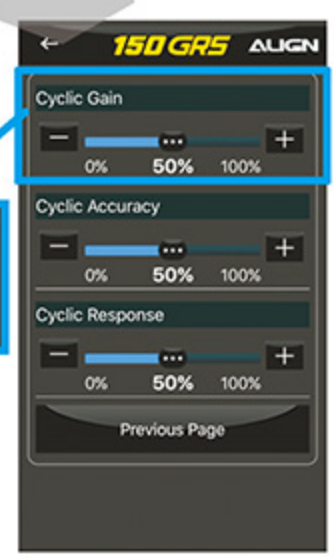
先將直昇機以停懸飛行，觀察直昇機左右及前後是否有不正常快速抖動現象，如果前後或左右有抖動，請將十字盤感度調低，以減少陀螺儀修正感度。

Forward/back oscillation ， Left/right oscillation
前後晃動 / 左右晃動





Reduce the Cyclic Gain Value
降低十字盤感度



FORWARD STRAIGHT LINE FLIGHT 前進直線航道飛行

After hovering, proceed to fast forward flight. Should there be similar oscillation, please reduce gain. Should the helicopter pitch up or experience slow response during flight, increase gain. Repeat this process until ideal gain value is achieved. Pilot can also adjust the cyclic EXP setting for the preferred stability. After all adjustments are completes, the pilot can enjoy the stability of slow flight and the fast agility from flybarless system.

停懸完後可快速前進飛行，同樣的如果有不正常抖動時，請將感度調小，飛行時如果有機頭向上仰起或反應緩慢現象時，請將感度調大，重複測試將感度調整至最理想值，使用者也可依據個人經驗調整舵面EXP以增加停旋穩定性。完成所有調整後，就可享受150 GRS所提供低速飛行的穩定性及高速時的靈活性。

Forward Flight
前進飛行

ALIGN

	Problem 狀況	Cause 原因	Solution 對策
Blade Tracking 雙槳平衡	**Tracking is Off** 雙槳	**Bent feathering shaft or warped main blades.** 橫軸彎曲或主旋翼變型	**Replace the feathering shaft or main blades** 更換橫軸或主旋翼
Hover 停懸	**Headspeed too low** 主旋翼轉速偏低	**Excessive pitch** 主旋翼的PITCH偏高	**Adjust pitch DFC to reduce pitch by 4 to 5 degrees. (Hovering head-speed should be around 5000RPM.** 將PITCH 調低約＋4~5度 (停懸時主旋翼需為約5000RPM)
		Hovering throttle curve is too low 停懸點油門曲線過低	**Increase throttle curve at hovering point on transmitter (around 65%)** 調高停懸點油門曲線(約65%)
	Headspeed too high 主旋翼轉速偏高	**Not enough pitch** 主旋翼的PITCH偏低	**Adjust pitch to increase pitch by 4 to 5 degrees.** 將PITCH調高約＋4~5度
		Hovering throttle curve is too high 停懸點油門曲線過高	**Decrease throttle curve at hovering point on transmitter (around 65%)** 調低停懸點油門曲線(約65%)
Rudder Response 尾舵反應	**Drifting of tail occurs during hovering, or delay of rudder response when centering rudder stick.** 停懸時尾巴向某一邊偏移，或搜動方向舵並回復到中立點時，尾翼產生延遲，無法停頓在所控制位置上。	**Over or under rudder compensation** 尾舵補償過大或過小	**Tail drafts counter-clockwise → increase rudder compensation** 尾巴往逆時針方向偏移→加大尾舵補償 **Tail drafts clockwise → decrease rudder compensation** 尾巴往順時針方向偏移→減小尾舵補償
		Rudder gyro gain too low 尾舵陀螺儀感度偏低	**Increase rudder gyro gain** 增加尾舵陀螺儀感度
	Tail oscillates (hunting, or wags) at hover or full throttle 停懸或全油門時尾翼左右來回搖擺。	**Rudder gyro gain too high** 尾舵陀螺儀感度偏高	**Reduce rudder gyro gain** 降低尾舵陀螺儀感度
Oscillation during flight 飛行抖動	**Helicopter oscillates forward /backward/left/right while performing cyclic maneuvers** 升降舵或副翼打舵動作時，機體前後左右抖動。 **Helicopter front bobbles (nods) during forward flight.** 直線飛行時，機頭點頭。	**Swashplate gyro gain is slightly too high.** 十字盤陀螺儀感度偏高，產生追蹤現象。	**Reduce the Cyclic Gain Value** 降低十字盤感度。
		Worn servo, or slack in control links 伺服器老化，控制結構有虛位。	**Replace servo, ball link, or linkage balls.** 更換伺服器、連桿頭、球頭。
Drifting during flight 飛行飄移	**Pitching up or aileron drift during forward flight** 直線飛行機頭上揚或副翼飄移	**Swashplate gyro gain is slightly too low** 十字盤陀螺感度偏低	**Increase the Cyclic Gain Value** 調高十字盤感度。
Control Response 動作反應	**Slow Forward/Aft/Left/Right input response** 前後左右飛行動作反應偏慢	**Roll rate too low** 滾轉速率偏低	**Increase the Cyclic Roll Rate** 調高翻滾速率
	Sensitive Forward/Aft/Left/Right input response 前後左右飛行動作反應偏快	**Roll rate too high** 滾轉速率偏快	**Reduce the Cyclic Roll Rate** 調低翻滾速率

If above solution does not resolve your issues, please check with experienced pilots or contact your Align dealer.
※在做完以上調整後，仍然無法改善情況時，應立即停止飛行並向有經驗的飛手諮詢或連絡您的經銷商。

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The Align Team is dedicated to you by innovating and developing new RC Helicopters, Multicopters, and FPV Racing Quads to provide a more diversified experience for our customers. Visit our website at www.align.com.tw for the latest news, information, and updates about our extensive line of products for the RC enthusiasts.

Good Flying!

再次感謝您對亞拓系列商品的喜愛與支持，您的肯定是對我們最大的認同。

亞拓團隊秉持創新研發的精神，開發遙控直昇機／多軸飛行機／穿越機系列商品，提供給您體驗更多樣化的飛行樂趣。您可以透過下列連結，隨時瞭解亞拓的最新動態，以及各項訊息分享。

祝福您有一個愉快的飛行體驗。

ALIGN T-REX Helicopter　亞拓遙控直昇機
http://www.align.com.tw/helicopter-en/

ALIGN Multicopter　亞拓多軸飛行機
http://www.align.com.tw/multicopter-en/

ALIGN FPV Racing Quad　亞拓穿越機
http://www.align.com.tw/multicopter-en/mr25/

ALIGN Website　亞拓官網
http://www.align.com.tw

ALIGN Shopping Cart　亞拓購物車
http://shop.align.com.tw/index.php?language=en

ALIGN Quick Finder　亞拓零件快速購
http://shop.align.com.tw/partfinder.php?language=en

ALIGN FaceBook
https://www.facebook.com/Align-Corporation-194493419543/?ref=mf

ALIGN Istagram
https://instagram.com/aligncorporation/

ALIGN YouTube
https://www.youtube.com/channel/UCaPj_K5DNo7HSmP1eytUvMQ

ALIGN Youku
http://i.youku.com/u/UMTQ0NjEwNjczNg==

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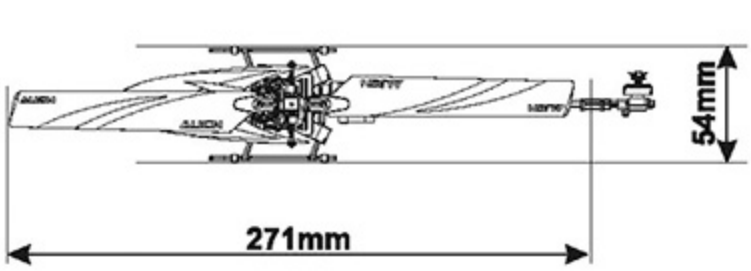
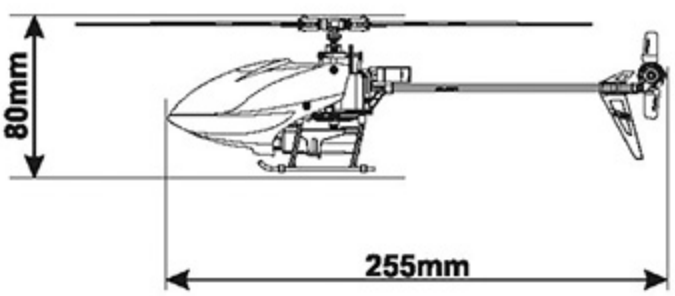
Specifications & Equipment/規格配備:

Length/機身長:255mm
Height/機身高:80mm
Main Blade Length/主旋翼長:120mm
Main Rotor Diameter/主旋翼直徑:271mm
Tail Rotor Diameter/尾旋翼直徑:45mm
Motor Pinion Gear/馬達主齒:10T
Main Drive Gear/傳動主齒:78T
Drive Gear Ratio/齒輪傳動比:1:7.8
Flying Weight(without battery)/全配重(不含電池):Approx. 55g





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