Thank you for buying ALIGN products. The 3GX MR FLYBARLESS SYSTEM is the latest technology in Rotary RC models. Please read this manual carefully before assembling and flying the 3GX MR FLYBARLESS SYSTEM. We recommend that you keep this manual for future reference regarding tuning and maintenance.
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INTRODUCTION

前言

3GX MR flybarless system are designed with goals of simple, convenient, light, and ease of adjustment. 3GX MR flybarless system equipped with the embedded brand new S-FHSS 2.4Ghz system; 3GX MR flybarless system is compatible to Futaba S-FHSS system. The 3GX MR flybarless system are more than just a flybarless system; it simplifies installation on small/micro sized helicopters since no receiver is needed.

Even easier, more logical setting method, which allows 3GX MR flybarless system setting to be completed with only a few steps achieving even higher stability and control feel suitable for most pilots.

3GX MR system is designed to be easy to operate, convenient, light, and is very easy to set up. The 3GX MR system is compatible with the Futaba S-FHSS system, making it simple to install on small/micro sized helicopters without needing a receiver.

更為簡單、直覺的設定方式，只要幾個步驟就可以輕鬆完成3GX MR 系統的設定，另外也針對亞拓 T-REX 250 與 T-REX 450 頂尖的飛行性能最佳化，而選擇此工業更穩定，更符合絕大部分人的操控手感。簡單來說，3GX MR 系統提供玩家一個更絢麗、更可靠的選擇。

WARNING LABEL LEGEND

標誌代表涵義

FORBIDDEN

Do not attempt under any circumstances.

在任何僅得的環境下，請勿嘗試使用。

WARNING

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

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, 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.

遙控模型機並非玩具，它結合了許多高科技產品所設計出來的休閒用品，所以產品的使用不當或不熟悉都可能會造成嚴重的傷害甚至死亡，使用之前請務必詳讀本書，勿輕忽並注意自身安全。任何遙控模型機的使用，製造商和經銷商並無義務對使用者於使用時的过错或不熟悉所造成之意外負有任何責任。產品售出後本公司將不負任何操作和使用上之任何性能與安全責任。

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.

作為本產品的使用者，您，是唯一對您自己操作的環保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 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 warranty 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.

模型商品購得後需經專業操作技術員且為消耗性之商品，如經拆裝使用後，會造成等同損壞之損耗，任何使用損壞之商品不負任何責任，當使用上出現異常時，本公司將不予負責；如超過使用壽命需更換新品，請告知代理商，本公司將會提供技術指導、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。
SAFETY NOTES

安全注意事項

- Fly only in safe areas, away from other people. Do not operate R/C aircraft within the vicinity of homes or crowds of people. R/C aircraft are prone to accidents, failures, and crashes due to a variety of reasons including, lack of maintenance, pilot error, and radio interference. Pilots are responsible for their actions and damage or injury occurring during the operation or as a result of R/C aircraft models.

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

- 遠控模型飛機、直昇機屬高危險性商品，飛行時務必遠離人群，人為組裝不良或機件損壞、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，並請了解自負疏忽所造成任何意外之責任。

- 每次飛行前須仔細檢查，主旋翼夾座軸心螺絲、尾旋翼夾座螺絲，以及機身各部位螺頭、螺絲，確實上螺鎖緊才能昇空飛行。

LOCATE AN APPROPRIATE LOCATION

遠離障礙物及人群

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

Do not fly your model in inclement weather, such as rain, wind, snow or darkness.

NOTE ON LITHIUM POLYMER BATTERIES

鋰聚合電池注意事項

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.

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溼或<br>水氣，避免在浴室或雨天空使用，防止水氣進入機身內部而導致機件及電子<br>零件故障而引發不可預期的意外！
PROPER OPERATION

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.

WARNING

OBTAIN THE ASSISTANCE OF AN EXPERIENCED PILOT

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

SAFE OPERATION

Operate this unit within your ability. Do not fly under tired condition and improper operation may cause in danger. Never take your eyes off the model or leave it unattended while it is turned on. Immediately turn off the model and transmitter when you have landed the model.

ALWAYS BE AWARE OF THE ROTATING BLADES

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.

KEEP AWAY FROM HEAT

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.

R/C models are made of various forms of plastic.
1. RADIO TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY

Suitable for below flybarless models
T-REX 250
T-REX 450 SPORT/PLUS DFC
T-REX 450 PRO

6-channel or more S-FHSS 2.4GHz transmitter

2. ADDITIONAL TOOLS REQUIRED FOR ASSEMBLY

Swashplate Leveler
AP-800 Digital Pitch Gauge
Multi-function Tester Voltmeter/Servo Diagnosis

3. EQUIPMENT ILLUSTRATION

4. 3GX MR FLYBARLESS SYSTEM WIRING DIAGRAM

Roll rate dial
Status LED
Gain dial
SET Button
Bind indicator

AIL 副翼
ELE 升降舵
PIT 傾距
RUD 方向舵
ESC
Gain and roll rate dials are set to 50% as factory default (dial at 12 o'clock position, same direction as the antenna). Should there be any oscillation on aileron or elevator during flight, reduce the gain by turning the dial counter-clockwise approximately 10 degrees at a time.

Should there be any drift front/rear/left/right during flight, increase the gain by turning the dial clockwise approximately 10 degrees at a time.

Roll rate dial is used to adjust the roll rate of helicopter's elevator and aileron; turning clockwise will increase roll rate, with faster elevator and aileron response; turning counter-clockwise will decrease roll rate, with slower elevator and aileron response. We recommend novice pilots to fly with lower roll rate.

SERVO SETTING AND ADJUSTMENT

1  T-REX 250 PLUS
T-REX 250 PLUS

1  FUTABA/ALIGN T6 TRANSMITTER/SERVO
FUTABA/ALIGN T6 遙控器對應伺服器關係

CAUTION

1. Servo can only be installed in this orientation when 3GX MR is used: with head point forward, right forward is aileron (CH1), left forward is pitch (CH6), mid-rear is elevator (CH2). CH1 and CH6 cannot be interchanged, otherwise helicopter will not function correctly.

2. Swashplate type setting on the transmitter should be set to H1 traditional swashplate type. If swashplate movement is incorrect after assembly per instruction, please double check to see if 3GX MR model setting is set to T-REX 250.

1. 使用3GX MR 伺服器的安裝方式只有一種。當機頭朝前時，右前為副翼 (CH1)；左前為螺距 (CH6)；右後為升降 (CH2)。CH1, CH6 不可換。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H1 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3GX MR 機型設定是否為T-REX250。
DS415M Digital Servo:
1. Stall torque: 2.0kg.cm (4.8V)
   2.4kg.cm (6.0V)
2. Motion speed: 0.1sec/80° (4.8V)
   0.08sec/60° (6.0V)
3. Dimension: 22.9 x 12 x 25.8mm
4. Weight: 13.9g

DS425M Digital Servo:
1. 1520 μs standard band / 1520 μs 幅頻系統
2. Stall torque: 1.1kg.cm (4.8V)
   1.2kg.cm (6.0V)
3. Motion speed: 0.07sec/60° (4.8V)
   0.05sec/60° (6.0V)
3. Dimension: 22.9 x 12 x 25.8mm
4. Weight: 13.9g

WARNING
1. 3GX MR can only be installed face down, with antenna point towards front of the helicopter.
2. Incorrect installation will cause incorrect compass orientation of the helicopter swashplate. Flying with incorrect installation will result in crash.

3GX MR must face down, antenna point forward.

Check if the screws are firmly tightened before flight.
1. Servo can only be installed in this orientation when 3GX MR is used: with head point forward, right forward is aileron (CH1), left forward is pitch (CH6), mid-rear is elevator (CH2). CH1 and CH6 cannot be interchanged, otherwise helicopter will not function correctly.

2. Swashplate type setting on the transmitter should be set to H1 traditional swashplate type. If swashplate movement is incorrect after assembly per instruction, please double check to see if 3GX MR model setting is set to T-REX 450 Sport/PLUS DFC.

1. 使用3GX MR伺服器的安裝方式只有一種。當機頭朝前時，右前為副翼 (CH1)；左前為螺距 (CH6)；右後為升降 (CH2)。CH1、CH6 可換。如果依圖示安装後，直升機動作會不正確。

2. 遙控器十字盤設定，必須選擇H1傳統十字盤模式。依圖示安裝完畢，如果十字盤動作不正確，請檢查3GX MR機型設定是否為 T-REX 450 SPORT/PLUS DFC。

**DS415M Digital Servo:**
1. Stall torque/輸出扭力：2.0kg.cm(4.8V)
2.4kg.cm(6.0V)
2. Motion speed/動作速度：0.1sec/60° (4.8V)
0.08sec/60° (6.0V)
3. Dimension/尺寸：22.9 x 12 x 25.8mm
4. Weight/重量：13.9g

**DS425M Digital Servo:**
1. 1520 μs standard band /1520 μs 寬頻系統
2. Stall torque/輸出扭力：1kg.cm(4.8V)
1.2kg.cm(6.0V)
3. Motion speed/動作速度：0.07sec/60° (4.8V)
0.05sec/60° (6.0V)
3. Dimension/尺寸：22.9 x 12 x 25.8mm
4. Weight/重量：13.9g
### T-REX 450 PRO

#### 1 FUTABA/ALIGN T6 TRANSMITTER/SERVO

**Aileron:** CH1  
**Pitch:** CH6  
**Elevator:** CH2

**CAUTION**

1. Servo can only be installed in this orientation when 3GX MR is used: with head point forward, right forward is aileron (CH1), left forward is pitch (CH6), mid-rear is elevator (CH2). CH1 and CH6 cannot be interchanged, otherwise helicopter will not function correctly.

2. Swashplate type setting on the transmitter should be set to H1 traditional swashplate type. If swashplate movement is incorrect after assembly per instruction, please double check to see if 3GX MR model setting is set to T-REX 450 PRO.

---

**WARNING**

1. 3GX MR can only be installed face down, with antenna point towards front of the helicopter.

2. Incorrect installation will cause incorrect compensation of the helicopter swashplate. Flying with incorrect installation will result in crash.

---

**WARNING**

3GX MR must face down, antenna point forward.  
3GX MR面板必須朝下，天線朝前安裝

---

3. Check if the screws are firmly tightened before flight.  
飛行前再次確認螺絲是否鎖固。
DS525 Digital Servo:
1. 1520 μs standard band / 1520 μs 電頻系統
2. Stall torque/輸出扭力: 2.4kg.cm (4.8V) 3.0kg.cm (6.0V)
3. Motion speed/動作速度: 0.08sec/60° (4.8V) 0.06sec/60° (6.0V)
4. Dimension/尺寸: 35.1 x 15.1 x 29mm
5. Weight/重量: 29g

Linkage ball A(M2x3.5)
球頭 A(M2x3.5) ⌀4.75x8.18mm

M2 Nut
M2 螺帽

DS5BF Servo horn
DS5BF 伺服器

DS525 Tail Servo
DS525 尾舵伺服器

Tail servo mount
尾舵伺服器固定座

DS415M Digital Servo:
1. Stall torque/輸出扭力: 2.0kg.cm (4.8V) 2.4kg.cm (6.0V)
2. Motion speed/動作速度: 0.1sec/60° (4.8V) 0.08sec/60° (6.0V)
3. Dimension/尺寸: 22.9 x 12 x 25.8mm
4. Weight/重量: 13.9g

---

WARNING
警告

1. 3GX MR can only be installed face down, with antenna point towards front of the helicopter.
2. Incorrect installation will cause incorrect compensation of the helicopter swashplate. Flying with incorrect installation will result in crash.

---

WARNING
警告

1. 3GX MR must face down, antenna point forward. 3GX MR 面板必須朝下，天線朝前安裝
2. Check if the screws are firmly tightened before flight. 飛行前再次確認螺絲是否鎖固。
1. COMPATIBLE TRANSMITTER
    適用遙控器

    The 3GX MR flybarless system contains a built-in S-FHSS 2.4GHz receiver, and is compatible only with similar S-FHSS system transmitters. 3GX MR is not compatible with other non-S-FHSS transmitters.

    Use S-FHSS 2.4 GHz transmitter
    使用S-FHSS 2.4GHz遙控器

    3GX MR 無平衡翼系統，內建S-FHSS 2.4GHz接收編組，必須選用一樣為S-FHSS 2.4GHz系統的遙控器才能對頻使用。3GX MR不支援S-FHSS系統以外的遙控器。

2. SELECT H-1 SWASHPLATE TYPE
    選擇H-1十字盤類型

    3GX MR supports H-1 type swashplate layout. Set the swashplate mode to H-1 in the transmitter's setting. If swashplate type is not setup properly, the control movement will not be correct, making the helicopter unflyable.

    3GX MR 支援的十字盤類型為H-1十字盤。這裡要將遙控器的十字盤選項，設定為H-1十字盤類型。如果十字盤選購錯誤，會造成直升機動作不正確無法飛行。

3. TRANSMITTER SETUP PARAMETERS DIAGRAM
    遙控器設定表

    Relative 3GX MR parameters setting information is provided for customers to fairly simple use and operate on the unit. The parameters in diagram below is suitable for beginners and general 3D flying, but can be adjusted to suit personal flying preference.

    為了方便玩家更容易使用3GX MR，以下提供使用3GX MR遙控器的相關參數與設定。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。

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<th>AIL 副翼</th>
<th>ELE 伺服</th>
<th>THR 油門</th>
<th>RUD 水舵</th>
<th>GYRO 感度</th>
<th>PIT 縫距</th>
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<tr>
<td>Gyro gain</td>
<td>Normal flight / 一般飛行</td>
<td>3D flight / 3D飛行</td>
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<td>250 PLUS</td>
<td>450 PLUS</td>
<td>450 PRO</td>
<td>250 PLUS</td>
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<td>450 PRO</td>
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<td>45% (AVCS)</td>
<td>45% (AVCS)</td>
<td>45% (AVCS)</td>
<td>40% (AVCS)</td>
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<td>40% (AVCS)</td>
</tr>
<tr>
<td>Normal Throttle Curves 一般飛行油門曲線</td>
<td>P1</td>
<td>P2</td>
<td>P3</td>
<td>P4</td>
<td>P5</td>
<td></td>
</tr>
<tr>
<td>Normal Pitch Curves 一般飛行偏航曲線</td>
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<td>44%</td>
<td>65%</td>
<td>85%</td>
<td>100%</td>
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<tr>
<td>IDLE-UP Throttle Curves 3D飛行油門曲線</td>
<td>P1</td>
<td>P2</td>
<td>P3</td>
<td>P4</td>
<td>P5</td>
<td></td>
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<tr>
<td>IDLE-UP Pitch Curves 3D飛行偏航曲線</td>
<td>90%</td>
<td>90%</td>
<td>90%</td>
<td>90%</td>
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</tbody>
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**FEATURES**

**3Axis**
3-axis gyroscopic flybarless system to simulate the stability of mechanical flybar system, yet at the same time achieving agile 3D performance.
3軸陀螺儀無平衡翼系統，可模擬飛行系統的穩定性，更有一流的3D性能。

**MEMS**
Utilizes MEMS gyro sensors, which feature small footprint, high reliability, and excellent stability.
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。

**12bit**
Sensor with 12 bit ultra high resolution, resulting in highly precise controls.
感測器12位元，超高解析度，控制精密準。

**5-FHSS**
Supports Futaba 5-FHSS 2.4GHz transmission protocol.
支援Futada 5-FHSS 2.4GHz傳輸系統。

**Easy**
Simplistic setup process without the need of external devices. Setup is done through 6 steps and 2 sensitivity adjustments.
設定簡單不需額外的介面，只需六個步驟、兩個感度調整即可完成所有設定。

**Energy**
Flybarless system dramatically improves 3D power output and efficiency, resulting in reduced fuel or electricity consumption.
無平衡翼系統，可大幅降低3D大動作飛行能量消耗，提供直升機更大的動力輸出且更加節省燃油或電力。

**Stable**
Highly sensitive gyroscopic sensors combined with advanced control detection routine providing higher hovering and aerobatic stability than other flybarless system.
高感度陀螺儀感測器及先進環路設計，可提供比一般平衡翼系統更佳的靜態及動態穩定性。

**T-REX 250-450**
Designed specifically for T-REX 250 and 450, contains optimal flight parameters, no adjustments is needed out of the box to achieve superior flight performance.
針對T-REX 250、T-REX 450設計，內建最佳飛行參數，不需調整即可優異性能表現。

**3.5V-8.4V**
Capable to operate between 3.5V to 8.4V, compatible with high voltage servos.
適用電壓3.5V～8.4V，支援高電壓伺服器。

**9g**
Small footprint, light weight, minimalist and reliable design.
體積小，重量輕，構造簡單可靠，提供操控者高性能的飛行樂趣。

**RoHS**
RoHS certified.
符合RoHS規範。
FLYBARLESS SYSTEM SETUP MODE

- Flash 1 time: Aileron neutral point
- Flash 2 times: Elevator neutral point
- Flash 3 times: Pitch neutral point
- Flash 4 times: Rudder neutral point
- Flash 5 times: Rudder left travel limit setting
- Flash 6 times: Rudder right travel limit setting

BIND LED

- STEADY LIT GREEN LED: Radio binding successfully
- FLASHING GREEN LED: Radio binding failed
- STEADY LIT RED LED: No signal detected

ROLL RATE ADJUSTMENT DIAL

Roll rate dial is used to adjust the roll rate of helicopter's elevator and aileron; turning clockwise will increase roll rate, with faster elevator and aileron response; turning counter-clockwise will decrease roll rate, with slower elevator and aileron response. We recommend novice pilots to fly with lower roll rate.

GAIN ADJUSTMENT DIAL

Should there be any oscillation on aileron or elevator during flight, reduce the gain by turning the dial counter-clockwise approximately 10 degrees at a time.

Should there be any drift front/rear/left/right during flight, increase the gain by turning the dial clockwise approximately 10 degrees at a time.
2 SETUP PRE-CHECK

1. During pre-flight check, please ensure 3GX MR is securely mounted, and there are sufficient battery in the transmitter.

2. There is only one way to mount 3GX MR on the helicopter. Do not alter the mounting direction, otherwise incorrect compensation may result in danger of crashing.

3. After 3GX MR has bounded with transmitter, please ensure 3GX MR power indicator is lit correctly, and that swashplate and rudder is compensating the correct direction.

4. To ensure proper initialization of 3GX MR, please keep the helicopter stationary during power up, do not move any transmitter sticks.

5. 3GX MR supports transmitters compatible with 2.4Ghz S-FHSS transmission type. Please ensure the swashplate setting in transmitter is set to H-1 prior to making any setting changes.

6. While setting neutral position of servos, all steps must be completed before power is turned off, otherwise servos neutral setting will fail. To ensure optimal flight performance, please ensure swashplate is level during swashplate neutral setting.

7. Adjustment of elevator and aileron roll rate must be done with the dials on 3GX MR, do not adjust elevator and aileron travel end points on transmitter. On the other hand, rudder speed is adjusted through rudder end points.

8. To achieve optimal flight performance, pitch (CH6) and rudder (CH4) travel can be adjusted on the transmitter, but do not adjust elevator and aileron end points on transmitter.

9. Elevator and Aileron gyro gain must be adjusted through the dials on 3GX MR unit. Rudder gyro gain is adjusted through transmitter's GYRO SENS function.

10. To ensure optimal signal reception, 3GX MR antennas should be at least 1/2 inch away from conductive material, and should not be bent excessively. Try to keep the transmitter close to 3GX MR during binding. Should it unintentionally bind to another transmitter, just perform binding process again.

1. 在每次飛行之前，請確認3GX MR是否固定良好，並且檢查發射器電力是否足夠。

2. 3GX MR安裝在直升機上的方式只有一種，請勿任意更改安裝方向，以免修正錯誤造成危險。

3. 發射器和3GX MR完成對頻後，請確認3GX MR開機燈號以及十字盤和尾舵的修正是否正確。

4. 開機時要保持直昇機靜止，且不要動發射器任何搖桿，以免3GX MR初始化錯誤。

5. 3GX MR支援的發射器類型為2.4GHz S-FHSS，進入所有設定之前，請確認發射器的十字盤類型須為H-1模式。

6. 在設定伺服機中立點位置時，必須把全部步驟完成才可將電源關閉，否則設定值將不被記憶。設定伺服機中立點位置時請將十字盤調整至水平以獲得最佳飛行性能。

7. 調整升降及副翼的滾轉速率時只能用3GX MR上的旋鈕來調整，不可利用發射器上的升降和副翼行程選項來調整。調整尾舵速率時則必須利用發射器上的尾舵行程來調整。

8. 為獲得最佳飛行性能，可以調整發射器上的螺距 (CH6) 以及尾舵 (CH4) 的行程，但不可調整發射器上的升降和副翼行程。

9. 升降及副翼的螺距感度必須用3GX MR上的旋鈕調整，尾舵的螺距感度請利用發射器的GYRO SENS選項來調整。

10. 3GX MR的天線位置應遠離導電材料至少半英吋的距離，且不要過度彎曲，以獲得最佳的射頻信號。發射器和3GX MR對頻時，請盡量靠近。若對到別組發射器時，重新對頻即可。
Please ensure the swashplate setting in transmitter is set to H-1 prior to making any setting changes.

1. Servo can only be installed in this orientation when 3GX MR is used: with head point forward, right forward is aileron (CH1), left forward is pitch (CH6), right-rear is elevator (CH2). CH1 and CH6 cannot be interchanged, otherwise helicopter will not function correctly.

2. Swashplate type setting on the transmitter should be set to H1 traditional swashplate type.

3. If swashplate movement is incorrect after assembly per instruction, please double check to see if 3GX MR model setting is set to T-REX 250.

4. To avoid damages to system, digital servos must be used for swashplate. Recommend servo specification: speed of 0.09s/60 degrees or faster, torque 2.2kg or higher.

1. 使用3GX MR 伺服器的安裝方式只有一種。當機頭朝前時，右前為副翼 (CH1)；左前為螺距 (CH6)；右後為升降 (CH2)。CH1、CH6不可換。如果沒依照圖示連結，直昇機動作會不正確。

2. 操控器十字盤類型，必須選擇H1十字盤模式。

3. 依照圖式安裝完畢，如果十字盤動作不正確，請檢查3GX MR機型設定是否為T-REX 250。

4. 十字盤必須安裝數位伺服器，否則會造成損壞。

建議規格：速度0.09秒/60度以內；扭力2.2kg以上。
Please ensure the swashplate setting in transmitter is set to H-1 prior to making any setting changes.

1. Servo can only be installed in this orientation when 3GX MR is used; with head point forward, right forward is aileron (CH1), left forward is pitch (CH6), right-rear is elevator (CH2). CH1 and CH6 cannot be interchanged, otherwise helicopter will not function correctly.

2. Swashplate type setting on the transmitter should be set to H1 traditional swashplate type.

3. If swashplate movement is incorrect after assembly per instruction, please double check to see if 3GX MR model setting is set to T-REX 450 Sport/PLUS DFC.

4. To avoid damages to system, digital servos must be used for swashplate. Recommend servo specification: speed of 0.09s/60 degrees or faster; torque 2.2kg or higher.

1. 使用3GX MR 伺服器的安裝方式只有一種。當機頭朝前時，右前為副翼 (CH1)；左前為螺距 (CH6)；右後為升降 (CH2)。CH1、CH6不可換。如果沒依照圖示連結，直昇機動作會不正確。

2. 遙控器十字盤類型，必須選擇H1十字盤模式。

3. 依照圖式安裝完畢，如果十字盤動作不正確，請檢查3GX MR機型設定是否為 T-REX 450 SPORT/PLUS DFC。

4. 十字盤必須安裝數位伺服器，否則會造成損壞。
   建議規格：速度0.09秒/60度以內；扭力2.2kg以上。
T-REX 450 PRO CONNECTIVITY METHOD

Please ensure the swashplate setting in transmitter is set to H-1 prior to making any setting changes.

1. Servo can only be installed in this orientation when 3GX MR is used: with head point forward, right forward is aileron (CH1), left forward is pitch (CH6), left rear is elevator (CH2). CH1 and CH6 cannot be interchanged, otherwise helicopter will not function correctly.

2. Swashplate type setting on the transmitter should be set to H1 traditional swashplate type.

3. If swashplate movement is incorrect after assembly per instruction, please double check to see if 3GX MR model setting is set to T-REX 450 PRO.

4. To avoid damages to system, digital servos must be used for swashplate. Recommend servo specification: speed of 0.09s/60 degrees or faster; torque 2.2kg or higher.

MODELS SELECTION

3GX MR is a flybarless stabilization system designed specifically for Align’s smaller helicopters, with integrated basic setup parameters for T-REX 250, T-REX 450 SPORT/PLUS DFC, T-REX 450 PRO. The 3GX MR unit bundled with T-REX 450 PLUS DFC comes already configured for the specific helicopter. Follow the steps below to reconfigure the helicopter type.

3GX MR 是特別針對亞拓小型直昇機設計的無平衡翼系統，內建 T-REX 250, T-REX 450 SPORT/PLUS DFC, T-REX 450 PRO 三種機型的基本參數設定，並為此三種機型專用的無平衡翼系統，可以參照下列方式來做機型更改。
1 MODEL DISPLAY

2 MODEL SELECTION

5 TRANSMITTER BINDING

3GX MR flybarless system contains a built in S-FHSS 2.4GHz system, and is compatible only with similar S-FHSS 2.4GHz system transmitter. please follow the instruction below to bind your radio to the 3GX MR.

3GX MR 無平衡翼系統內建 S-FHSS 2.4GHz 系統，具備接收功能一定要搭配 S-FHSS 2.4GHz 系統遙控器才能使用。您可以依照下列步驟與 3GX MR 對頻。
**STEP 1**

Turn on transmitter, connect 3GX MR to power source. If signal is detected, BIND LED will flash green, otherwise it will flash red. If transmitter is turned on, but BIND is still steady red, then power cycle 3GX MR so it will restart transmitter signal search.

打開遙控器，將3GX MR接上電源後，若偵測到遙控器訊號，但未完成對頻 BIND燈號會綠燈閃爍。若已開啟發射器，但 BIND燈為紅燈恆亮，請將 3GX MR 重新給電源，重新尋找遙控器訊號。

**WARNING**

If the LED status appears steady lit green, it mean the binding is successfully. Please skip Step 2.

If the LED status appears flashing green or steady lit red, it means the binding is failed. Please proceed Step 2 for rebind.

若燈號為綠燈恆亮，代表對頻成功，不須進行步驟 2 重新對頻。
若燈號為綠燈閃爍或紅燈恆亮，代表對頻失敗，則進行步驟 2 重新對頻。

**STEP 2**

Press and hold SET button, at this time BIND LED will be flashing red, hold the SET button until BIND LED shows steady green, then release SET button to complete binding.

按著SET鍵不放，此時BIND燈號會紅燈閃爍，直到BIND燈號顯示綠燈恆亮後，放開SET鍵即完成對頻。

1. Press and hold SET button

2. LED status changes from flashing red into constant green.

   燈號由紅燈閃轉為綠燈恆亮

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**3GX MR SETTINGS**

**3GX MR設定**

**CAUTION**

In order for the settings to stick, all 6 setting parameters for 3GX MR must be completed followed with a press of SET button, regardless if any changes are made for each settings.

3GX MR的六項設定，不論有無更動，皆須逐一完成，並按下 SET 鍵退出設定，否則 3GX MR 將不會記憶設定。
1 3GX MR INITIALIZATION

Connect power, if transmitter binding is successful, BIND LED will light solid green; otherwise it will flash green. At this time, STATUS LED lights green indicates successful power up, steady green means rudder is in heading lock mode; steady red means rudder is in non-heading lock mode. Swashplate will jump up and down 3 times after power up.

接上電源，若和遙控器對頻成功後，BIND燈為綠燈恆亮，否則綠燈閃爍。
此時STATUS燈號亮起代表開機成功，綠燈恆亮，代表尾舵為鎖定。紅燈恆亮，代表尾舵為非鎖定。開機完成時，十字盤會跳三下。

2 ENTERING 3GX MR SETUP

Power up transmitter, connect power to 3GX MR. When STATUS and BIND LEDs are light steady green, SET button is used to enter setup mode.

先打開遙控器，將3GX MR接上電源後，當STATUS和BIND燈號為綠燈恆亮時，表示開機完成，此時按SET鍵一次即可進入設定。

After system initializes, press SET once to enter 3GX MR setup mode. While in setup mode, STATUS LED will flash a number of times indicating the current setting selection. Press SET button to skip to next setting selection. 3GX MR must complete all 6 setting selections before the settings are memorized.

開機完成後，按SET鍵一次就會進入3GX MR設定。進入設定後STATUS燈會以閃爍次數代表所進入的設定選項。接續按SET鍵就會跳往下個設定選項，3GX MR必須完成6項設定才會記得設定內容。

Flash 1 time: Aileron neutral point
Flash 2 times: Elevator neutral point
Flash 3 times: Pitch neutral point
Flash 4 times: Rudder neutral point
Flash 5 times: Rudder left travel limit setting
Flash 6 times: Rudder right travel limit setting

Press SET button to enter Setup

Throttle stick fixed position
1. Disconnect motor to ESC to prevent accidental startup during setup.
2. The throttle stick must remain in center position during setup (or Switch HOLD), pitch curve must be at 50% position and remain fixed.

AILERON SERVO NEUTRAL POINT SETTING

Adjust the servo arm to level position

Momentarily press SET button first time, if STATUS LED flashes once continuously and BIND LED is off, this indicates you are in neutral setting mode of servo 1. At this time you can use RUD on transmitter to trim the neutral position of servo 1. After completing this setting it will proceed into next step.

ELEVATOR SERVO NEUTRAL POINT SETTING

Adjust the servo arm to level position

Move rudder stick to adjust

Momentarily press SET button second time, if STATUS LED flashes twice continuously and BIND LED is off, this indicates you are in neutral setting mode of servo 2. At this time you can use RUD on transmitter to trim the neutral position of servo 2. After completing this setting it will proceed into next step.

Flash green once

Flash green twice
PITCH SERVO NEUTRAL POINT SETTING

Momentarily press SET button third time, if STATUS LED flashes three times continuously and BIND LED is off, this indicates you are in neutral setting mode of servo 3. At this time you can use RUD on transmitter to trim the neutral position of servo 3. After completing this setting it will proceed into next step.

Adjust the servo arm to level position

Adjust aileron, elevator, and pitch servos' neutral point so that servo arms and swashplate remain horizontal (with throttle stick at 50% position). How level your swashplate is will directly affect how well the flight characteristic of 3GX MR is.

Adjust the servo arm to level position

Pitch Servo

Move rudder stick to adjust

Flash green thrice

RUDDERGYRO DIRECTION SETTING

Momentarily press SET button fourth time, if STATUS LED flashes four times continuously and BIND LED is steady lit green, this indicates you are in rudder compensation direction setting mode. If compensation direction is correct, then skip this step. If compensation direction is reversed, use RUD on transmitter to reverse the direction, and BIND LED will change to steady lit red. After completing this setting it will proceed into next step.

Move rudder stick to adjust

Flash green 4 times

Green LED: normal direction
Red LED: reverse direction
450 PLUS DFC is green light
綠燈：正向 紅燈：反向
450 PLUS DFC 為綠燈

Tail moving direction

Trim direction for tail servo horn.

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

CAUTION

尾舵伺服器修正方向確認，當手移動尾部時，應往逆時鐘方向，如果向反方向移動，請將舵機修正方向更換為“REVERSE”。

注意
RUDDER LEFT TRAVEL LIMIT SETTING
尾舵左舵行程設定

Momentarily press SET button fifth time, if STATUS LED flashes five times continuously and BIND LED is off, this indicates you are in left rudder end point adjustment mode. At this time rudder will drift to one side. Use RUD on transmitter to set the maximum end point on left side. After completing this setting it will proceed into next step.

接着按 SET 設一次進入尾舵左舵行程設定，STATUS 燈號為持續閃爍綠燈五次且 BIND 燈號為熄滅。此時尾舵會偏向單邊，利用遙控器尾舵搖桿設定尾舵向股機向左最大的行程，設定完成後進入下個步驟。

Adjust the rudder travel limit to the maximum without mechanical binding will result in better rudder gyro compensation effect.

在機構不干涉的情形下，設定較大的尾舵行程可使尾舵陀螺儀有較好的修正反應。

RUDDER RIGHT TRAVEL LIMIT SETTING
尾舵右舵行程設定

Momentarily press SET button sixth time, if STATUS LED flashes six times continuously and BIND LED is off, this indicates you are in right rudder end point adjustment mode. At this time rudder will drift to one side. Use RUD on transmitter to set the maximum end point on right side. After completing this setting it will proceed into next step.

再按 SET 鍵一次進入尾舵右舵行程設定，STATUS 燈號為持續閃爍綠燈六次且 BIND 燈號為熄滅。此時尾舵會偏向單邊，利用遙控器尾舵搖桿設定尾舵向股機向右最大的行程，設定完成後按 SET 鍵完成 3GX MR 設定。

Adjust the rudder travel limit to the maximum without mechanical binding will result in better rudder gyro compensation effect.

在機構不干涉的情形下，設定較大的尾舵行程可使尾舵陀螺儀有較好的修正反應。

In order for the settings to stick, all 6 setting parameters for 3GX MR must be completed followed with a press of SET button, regardless if any changes are made for each settings.

3GX MR 的六項設定，不論有無更動，皆須逐一完成，並按 SET 鍵退出設定，否則 3GX MR 將不會記憶設定。
1. Press SET button to enter 3GX MR setup mode. This setting will eliminate any swashplate interaction which may affect pitch precision.

2. Move throttle stick to enter, pitch curve at 50% position. Pitch should be at 0 degrees during this setting.

3. If servo arms and swashplate is already level at 0 degrees, but main rotor blades pitch is not at 0 degree, please adjust the length of DFC linkage rods to achieve 0 degrees pitch.

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**CAUTION**

Disconnect motor from ESC prior to setup.

設定前, 請先將馬達線拔除。

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Before setting up the 3GX MR FBL system, please use a swashplate leveler to level out the swashplate to make sure the swashplate is leveled to ensure 3GX MR provides the best performance.

使用3GX MR無平衡系統，請務必使用十字盤調整器校正十字盤，確保十字盤達到水平狀態，才能確保3GX MR飛行性能達到最佳效果。
COLLECTIVE PITCH ADJUSTMENT
集體螺距調整

The collective pitch for 3GX MR must be adjusted in radio's EPA (End Point) function.
3GX MR 集體螺距必須從遙控器 CH6 通道的 EPA (END POINT) 功能中調整。

1 MAX. COLLECTIVE PITCH ANGLE
最大集體螺距角度

Push the throttle stick to the maximum, adjust maximum collective pitch value through radio's EPA function on CH6.
將遙控器油門推桿推至最高，使用 EPA 功能調整 CH6 通道的最大集體螺距角度。

CAUTION
注意

Disconnect motor from ESC prior to setup.
設定前，請先將馬達線拔除。

2 MIN. COLLECTIVE PITCH ANGLE
最小集體螺距角度

Push the throttle stick to the minimum, adjust minimum collective pitch value through radio's EPA function on CH6.
將遙控器油門推桿推至最低，使用 EPA 功能調整 CH6 通道的最小集體螺距角度。

CAUTION
注意

Disconnect motor from ESC prior to setup.
設定前，請先將馬達線拔除。
### 3GX MR INDICATOR LED

#### 3GX MR 指示燈說明

<table>
<thead>
<tr>
<th>STATUS</th>
<th>STATUS constant green</th>
<th>STATUS constant red</th>
<th>STATUS off</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND</td>
<td>完成對頻且開機成功，尾舵為鎖定狀態</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND constant green</td>
<td>光發機亮</td>
<td>光發機亮</td>
<td>完成對頻且開機成功，尾舵為非鎖定狀態</td>
</tr>
<tr>
<td>BIND flashing green</td>
<td>Revert back to original transmitter signal, but radio binding failed, rudder in heading lock mode.</td>
<td>3GX MR detects radio signal, but is not bound to the radio</td>
<td></td>
</tr>
<tr>
<td>BIND constant red</td>
<td>3GX MR 對頻失敗，但開機成功，尾舵為鎖定狀態</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND flashing red</td>
<td>No signal detected from radio. Please check if transmitter is powered on.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND off</td>
<td>Signal detected from radio and set button was pressed for binding.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND</td>
<td>No power connecting to 3GX MR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### 1 SPECIFICATIONS

<table>
<thead>
<tr>
<th>特性</th>
<th>值</th>
</tr>
</thead>
<tbody>
<tr>
<td>操作電壓範圍</td>
<td>DC 3.5 ~ 8.4V</td>
</tr>
<tr>
<td>工作電流</td>
<td>&lt;100mA @ 4.8V</td>
</tr>
<tr>
<td>側滾及前後角速度範圍</td>
<td>± 300°/sec</td>
</tr>
<tr>
<td>尾舵角速度範圍</td>
<td>± 600°/sec</td>
</tr>
<tr>
<td>感測器解析度</td>
<td>12位元 (12 BIT)</td>
</tr>
<tr>
<td>操作溫度</td>
<td>-20°C ~ 65°C</td>
</tr>
<tr>
<td>操作濕度</td>
<td>0% ~ 95%</td>
</tr>
<tr>
<td>支援十字盤類型</td>
<td>Mode H-1</td>
</tr>
<tr>
<td>支援微波機類型</td>
<td>2.4GHz S-FHSS</td>
</tr>
</tbody>
</table>

---

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# Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blade Tracking</strong> 雙葉平衡</td>
<td>Tracking is Off 雙葉並排</td>
<td>DFC linkage rods are not even length DFC 舵手調整不均勻</td>
</tr>
<tr>
<td><strong>Hover 停懸</strong></td>
<td>Headspeed too low 主旋翼轉速偏低</td>
<td>Excessive pitch 主旋翼的 PITCH 偏高</td>
</tr>
<tr>
<td></td>
<td>Headspeed too high 主旋翼轉速偏高</td>
<td>Hovering throttle curve is too low 停懸點油門曲線過低</td>
</tr>
<tr>
<td><strong>Rudder Response 尾舵反應</strong></td>
<td>Rudder neutral point improperly set 舵中立點設定不當</td>
<td>Rudder gyro gain too low 尾舵陀螺儀感度偏低</td>
</tr>
<tr>
<td></td>
<td>Oscillation during flight 飛行振動</td>
<td>Helicopter oscillates forward/backward/left/right while performing cyclic maneuvers. 飛機進行前後左右旋轉動作時，機身會前後左右振動</td>
</tr>
<tr>
<td></td>
<td>Drifting during flight 飛行漂移</td>
<td>pitching up or aileron drift during forward flight 飛行時上揚或副翼偏移</td>
</tr>
<tr>
<td><strong>Control Response 動作反應</strong></td>
<td>Slow Forward/Aft/Left/Right input response 前後左右飛行動作反應偏慢</td>
<td>Roll rate too low 滾轉速率偏低</td>
</tr>
<tr>
<td></td>
<td>Sensitive Forward/Aft/Left/Right input response 前後左右飛行動作反應偏快</td>
<td>Roll rate too high 滾轉速率偏高</td>
</tr>
</tbody>
</table>

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，若無法改善情況時，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。