



**PROFESSIONAL RADIO CONTROL SYSTEM**

**T6x4**

**2.4GHz 6 CHANNEL TRANSMITTER**

## Operation Manual

Prior to use, please read this manual thoroughly.  
Keep this manual in a convenient place for quick  
and easy reference.

## ■ Greetings

Thank you for choosing to purchase this JR product. This is a highly developed product with outstanding functionality and ergonomics that concentrates the essence of the technology built up by this company through many decades of experience. In order to make full use of the features of this radio and to safely enjoy your RC activities, please carefully read this operation manual.

Our whole company hopes that you will enjoy using this product for many years.

## ■ Features

This is a multi-function 6-channel transmitter that is capable of supporting many aircraft. It has functionality normally only seen in more expensive transmitters.

- JR's newly developed DMSS system maintains high speed servo response while allowing simultaneous use of telemetry functions.
- The high-speed telemetry function allows information from the aircraft (that was previously unknown to the user) to be monitored on the transmitter. In addition, alarms with unique sounds alert the user to the situation on the aircraft without even looking at the screen.
- The telemetry sensor connection employs a bus system that does not require a relay box, allowing sensor extensions and additions to be easily carried out. It is acceptable to merely connect the necessary sensors in parallel.
- For the convenience of entry level users, alkaline dry cell batteries should be used with this transmitter. Be sure to only use high quality alkaline batteries. Never use older manganese dioxide batteries. An optional Ni-MH battery pack is available for those wishing to use rechargeable batteries.
- With our automatic safety system, the receiver will not operate if the correct model has not been selected in the transmitter before flight.
- The transmitter features a large LCD display and input keys that are intuitive and easy to use.
- A Trim Input function can allocate trim levers to change numerical values of various functions (such as program mix values) during flight.
- A new function synchronizes the operation of servos on multiple flight control surfaces in real time. This completely eliminates the time lag with fast control inputs.
- A micro SD card slot enables saving aircraft model data and updating of transmitter software to be easily carried out, without connecting the transmitter to a PC.
- When inputting numerical values, simultaneously pressing the function key allows the value to be changed at a ten-times faster speed.
- The 20-aircraft model memory can be utilized for storing helicopter, airplane, and glider models.
- A Trainer function is incorporated, which also allows training to be carried out individually for each channel.
- The throttle curves, pitch curves, and curve mixing use a multiple point adjusting method, and you can also activate an optional exponential curve function that further smoothes the curves.
- Three systems of multi-function program mixing are available.
- A Touch Select function is incorporated, which enables automatic switch selection for programmed functions. This selection is easily carried out.
- A 'My List' screen is provided that enables display and simple calling up of frequently used functions that the user has selected.
- Switch arrangement stickers are included for each transmitter model type so users can choose switch labeling that they require for airplanes and helicopters.

## ■ Specifications of the Transmitter

項目	規格
Part Number:	T6x4
Type of control:	6 channel computer mixing.
RF:	2.4GHz
Modulation:	DMSS (Dual Modulation Spectrum System)
Power source:	4 x AA size alkaline dry cell batteries (not included)
Neutral position:	1.5ms

## ■ General Safety Precautions \* It is very important to ensure that you observe the following precautions.

### ■ About the Proportional System

This company cannot be responsible for any accident or failure that may occur from any modification of this product, use of non-genuine parts, natural disaster, or nonobservance of the precautions described in this manual.

Further, for damages caused by an accident or failure, please understand that items (excepting this product and this Company's genuine parts) such as airplanes, competitor's products, etc will not be covered under the warranty.

The use of radio waves required by this product is defined in the Radio Law of Japan.

### ■ Basic Precautions for Safe Use of the 2.4GHz System

The 2.4GHz band is not exclusively for use with RC airplanes. This frequency band is shared with the ISM (industry, science, and medical care) band which is widely used for short-distance transmission such as microwave ovens, wireless LAN, digital cordless phones, audio games, cellphone Bluetooth, and VICS. Therefore, the steering response of the 2.4GHz system may be degraded in urban areas.

Further, as it is also used for ham and local area radio communications for mobile identification, please pay attention to possible influences from these. In the event of any adverse radio wave interference on an existing wireless station, immediately stop emitting radio waves and take interference avoidance measures.

- At a race track or airfield, minimize use of devices that can affect the transmitter/receiver and be sure to confirm safety before operation. Also, always follow instructions given by the facility staff.
- If an aircraft is allowed to fly out of sight behind a building, a pylon, trees, etc. so that the radio-waves are blocked, the control response may drop, even resulting in an "out-of-control" situation. Always let the aircraft fly within an area that can be visually observed.

### ■ Indications and Symbols Related to Safety

The following symbols used in this manual indicate the precautions regarding possible danger which may occur following improper handling.

Be sure to strictly observe them, as they contain important safety instructions. If incorrect operation methods are used, there will be a danger of death or serious injury.



**DANGER**

If incorrect operation methods are used, there will be a possibility of death or serious injury.



**WARNING**

If incorrect operation methods are used, it can be expected that there will be a possibility of problems occurring.



**CAUTION**

If incorrect operation methods are used, control issues may occur.

### ■ Initial Operation

Before using this product, ensure all parts have been provided. Connect the switch harness and servos to the receiver, and insert batteries to power the transmitter and receiver. Turn on the transmitter then receiver and confirm that they operate correctly. If they do not operate, check the voltage of the batteries. If a rechargeable battery is used for the first time after purchase or is used after being left unused for a long period, be sure to fully charge it with the battery charger before use, and confirm the transmitter and receiver are correctly bound.

**Refer to the Page 11 "Binding Procedure"**

In the event of finding any missing parts, malfunctions, etc., please contact your JR agent or distributor in your country.



**DANGER**



This indicates actions that are forbidden.



This indicates actions that must be implemented.

- ⊘ Out-of-control and dangerous situations can occur. DO NOT use this product on rainy days since it may malfunction if water gets inside the Transmitter or receiver. If use is a necessity, be sure to take waterproofing measures. Injury due to heat generation, fire, or electric shock can occur. Never disassemble or modify this product.
- ⊘ Injury due to heat generation, fire, or electric shock can occur. Never disassemble or modify this product.
- ⊘ DO NOT start the engine with the transmitter throttle in a high speed position. This is very dangerous.
- ⚠ The engine and the motor (in the case of an electrically-driven model) can start rotating at high speed, causing danger. When turning on the power switch, set the transmitter throttle stick to the lowest speed position (to prevent engine/motor rotation) and then turn on the transmitter power switch followed by the receiver power switch. When turning off the system, turn off the receiver power then the transmitter power in this order.
- ⚠ Injury can be caused. When adjusting the engine (motor), pay attention to the dangers presented. DO NOT start the engine with the transmitter throttle stick in a high speed position. This is very dangerous.



**WARNING**

- ⊘ Failure can be caused. DO NOT use this radio set in combination with a competitor's product (servo, gyro, regulator, etc). Malfunction can occur. As the electronic parts mounted in the transmitter and receiver are susceptible to impact damage, DO NOT allow strong impact or drop them.

- ⊘ Out-of-control and dangerous situations can be caused. When degraded servo movement is detected, immediately stop operating and check the battery power remaining, servos, etc.
- ⊘ DO NOT use the product in the following places, as there is a risk of an out-of-control state or an accident occurring:
  - ⦿ Transceiver interference exists.
  - ⦿ Operating near traffic consisting of cars, motorcycles and mopeds (i.e. engine powered vehicles with spark ignition).
  - ⦿ Near high-tension electric lines, buildings, banks, hospitals or in a mountainous area, etc.
  - ⦿ Near FM/TV stations, or a radio transmitting station for ship radios.
  - ⦿ Near residences and buildings, and near people.
- ⊘ A sudden malfunction may occur and will be dangerous. Even if the receiver, servo etc. get wet and then operate normally after being fully dried, the servos may later malfunction. In such case, DO NOT continue to use the product, and contact your JR dealer or distributor in your country for inspection regardless of normal operation.
- ❗ Out-of-control and dangerous situations can be caused. When degraded servo movement is detected, immediately stop operating and check the battery power remaining, servos, etc.

## ⚠ CAUTION

- ❗ Prior to flying, check the following items for safety:
  - ⦿ Is there enough battery remaining in the transmitter/receiver? (Is any rechargeable battery fully charged?)
  - ⦿ Is there any fuel spillage on the receiver, servos, etc. which was caused by leakage from the fuel tank? Is there enough fuel?
  - ⦿ Check that no linkage is in contact with the airplane body. Also, conduct a vibration test by setting the engine (motor) to high while holding the model and confirm that each control surface moves correctly.
- ❗ In the case of the initial flight, avoid flying at great distances, choose a safe place, and perform flying practice in close vicinity for several minutes.

## ■ Dry cell batteries, battery holder, rechargeable batteries and battery charge

- ❗ Abide by the following to prevent potential leakage, explosion, heat generation, and fire.

## ⚠ DANGER

- ⊘ Be sure to insert the batteries observing the correct polarity with the battery holder.
- ⊘ DO NOT use Manganese Dioxide dry cell batteries. Be sure to use Alkaline Dry cell batteries only.
- ⊘ DO NOT mix old and new batteries, or different

brands of battery.

- ⊘ DO NOT use this battery holder with rechargeable batteries (i.e. Ni-CD, Ni-MH single cells).
- ⊘ DO NOT drop or impact the battery holder. Poor connection of Dry cell batteries may result in damage to the battery or the transmitter.
- ⊘ Use a genuine JR optional Ni-MH battery pack (#04142 or #04152). Always stop charging when the specified charging time is reached.
- ⊘ When using the optional Ni-MH rechargeable battery pack, DO NOT use a Charger with the (+) and (-) set in the opposite direction.
- ⊘ DO NOT place near fire or heat.
- ⊘ DO NOT connect (+) or (-) to any material that may conduct electricity including metals (wire, etc), carbon materials, etc.
- ⊘ DO NOT disassemble, remodel, or solder the charger.
- ❗ A loss of vision may be caused if the liquid inside the battery gets into your eyes. Consult a doctor immediately after washing eyes with clean water, and DO NOT rub eye areas.

## ⚠ WARNING

- ⊘ DO NOT allow the battery or battery holder to contact water or sea water.
- ⊘ DO NOT scratch or tear off the battery shrink wrap, the lead wire, or the connector.
- ⊘ DO NOT use the battery if a scratch is left on the insulating shrink wrap, lead wire, connector, or if the insulation is damaged
- ❗ Failure can be caused. Use a genuine JR battery. Always. Stop charging when the specified charging time is exceeded.
- ❗ Skin may be damaged if leaked battery liquid stays on your skin or clothes. Wash away immediately with clean water.
- ❗ Out-of-control and dangerous situations can be caused. The rechargeable battery is composed of a combination of several batteries. Thus, confirm that all rechargeable batteries inside the pack are in a normal state by using a battery checker, etc. Note that the actual charge level of rechargeable batteries cannot be precisely confirmed by testers such as a battery checker. Be sure to judge the state of the battery in a comprehensive way using a device to confirm the recharge time, and operating time. Never charge the battery pack in a high or low temperature environment.

## ⚠ CAUTION

- ⊘ DO NOT store the battery in a place with high Temperature, humidity or dust.
- ⊘ Store the battery out of reach of children.

## ■ Recycling the Rechargeable Battery

Used Nickel metal-hydride batteries are important resources. Place a piece of tape or similar over the terminal areas, and bring them to an appropriate location that collects small rechargeable batteries for recycling.



# Contents

## Introduction

Greetings	1
Features	1
General Safety Precautions	2

## Contents

Contents	4
----------	---

## Preparation

Switch Identification Stickers	5
Stick Length Adjustment	5
Neck Strap Attachment	5
Inserting and Removing the Micro SD Card	5
Inserting and Removing the Transmitter Battery	6
Handling of the Rechargeable Ni-MH batteries used for the Transmitter or Receiver	6
Notes on stick tension spring adjustment and the throttle stroke travel adjustment plate	7
Receiver Connections	8
Using the transmitter and receiver.	
Receiver mounting location.	9
Binding Procedure	11

## Functions Common to All Models

Names of Each Transmitter Control (MODE1)	12
Names and Functions of the Input Dial	14
TRIM 【Spoiler Trim, Rudder Trim, Aileron Trim, Elevator Trim】	14
Information Display	15
My List Function	16
Navigation during Model Setting	17
Flight Mode	18

## Function List

Dual-Rate & Exponential 【D/R&EXP】	20
Travel adjust 【TRAVEL ADJUST】	21
Sub Trim 【SUB TRIM】	22
Reverse Switch 【REVERSE SW】	23
Throttle Curve 【THRO CURVE】	24
Pitch Curve 【PITCH CURVE】	26
Tail Curve 【TAIL CURVE】	28
Throttle hold 【THRO HOLD】	29
Gyro Sensitivity 【GYRO SENS】	30
Swash Mixing 【SWASH MIX】	31
Throttle trim 【THRO TRIM】	32
Flight Mode Delay 【FLIGHT MODE DELAY】	33
Flap System 【FLAP SYSTEM】	34
Differential 【DIFFERENTIAL】	35
Aileron to Rudder Mixing 【AILE → RUDD MIX】	36
Motor System 【MOTOR SYSTEM】	37
Camber system 【CAMBER SYSTEM】	38
Brake system 【BRAKE SYSTEM】	39
Program Mixing 【PROGRAM MIX 1-3】	40
Timer 【TIMER】	44
Mix Monitor 【MIX MONITOR】	45
Servo Monitor 【MONITOR】	46

Model Select 【MODEL SELECT】	47
-----------------------------	----

## System List

Model Copy & Erase 【MODEL COPY/ERASE】	48
Model Type Select 【TYPE SELECT】	50
Model Name 【MODEL NAME】	51
Flight Mode Name 【FLIGHT MODE NAME】	52
Trim System 【TRIM SYSTEM】	53
Transmitter Setting 【TX SETTING】	54
Trainer 【TRAINER】 aka: Buddy Box in the USA	56
Bind and Range Check 【BIND&RANGE】	57
Telemetry System 【TELEMETRY】	58
Fail safe 【FAIL SAFE】	61
Flight Mode Switch 【FLIGHT MODE SW】	62
Device Select 【DEVICE SELECT】	63
Swash type 【SWASH TYPE】	65
Wing Type 【WING TYPE】	66
Throttle Stick Direction 【THRO(SPOI) STICK DIRECTION】	68
XBus Function 【X.BUS】	69
Stick Mode 【STICK MODE】	71

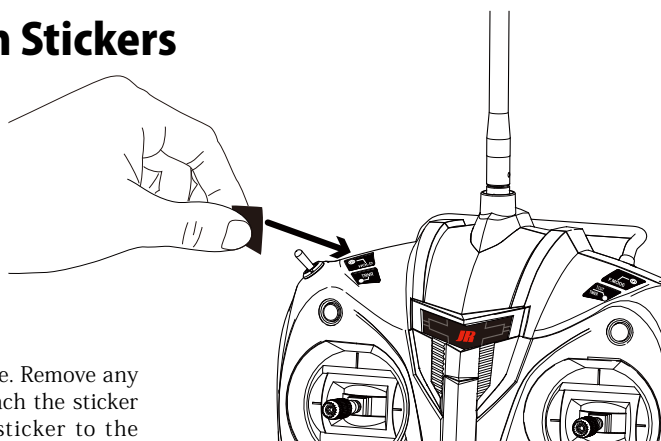
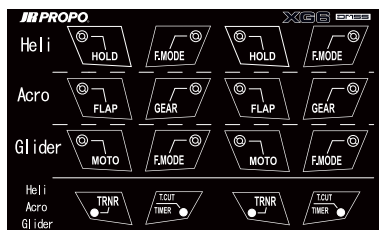
## Data Sheet

XG6 DATA SHEET / HELI	72
XG6 DATA SHEET / ACRO	76
XG6 DATA SHEET / GLID	78

## When Required...

Software Error Screens	80
Repair and After Sales Service	81

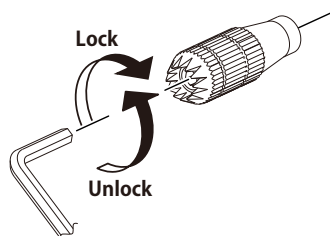
## Switch Identification Stickers



Affix the sticker for your preferred model type. Remove any dust from the affixing surface, and then detach the sticker from the backing paper. Next, apply the sticker to the transmitter surface, carefully matching the edges with the sticker area marked on the transmitter.

## Stick Length Adjustment

Undo the recessed set screw located at the tip of the control stick. Now rotate the entire stick to adjust its length. When finished, lock the recessed set screw.



## Neck Strap Attachment

For long flights you may choose to use a neck strap.

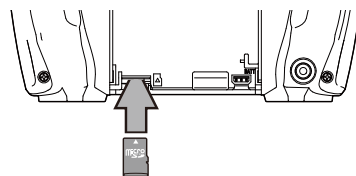


## Inserting and Removing the Micro SD Card

Compatible Micro SD Cards are 16GB or less in size and must be formatted in FAT format. Inserting and removing Micro SD cards should be carried out after opening the battery cover, with the transmitter switched off. The Micro SD card slot is located below the battery. Note that not all Micro SD cards are compatible with this transmitter.

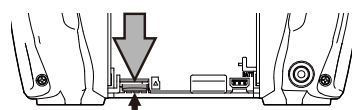
### Inserting method

Switch off the transmitter, and then slowly insert the Micro SD card into the slot below the battery until you feel a "click". Note the correct orientation of the card.



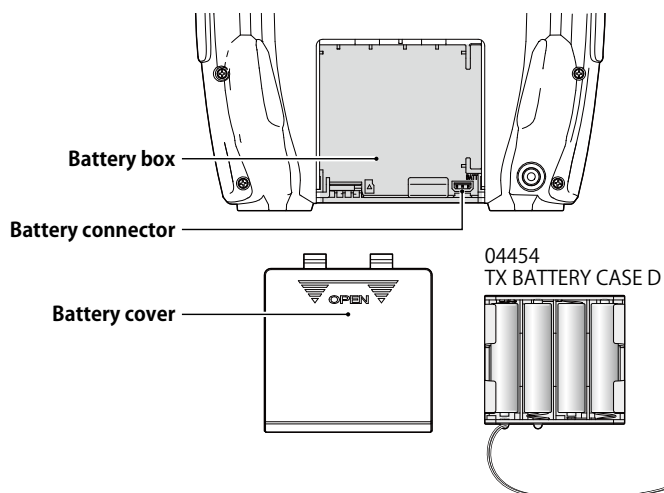
### Removing The Card

Lightly press in the middle of the Micro SD card until it clicks - the card will then pop out slightly when you remove your finger - now carefully pull the card out the rest of the way.



## Inserting and Removing the Transmitter Battery

- 1) While pressing the embossed mark on the rear surface of the battery lid, slide the lid in the direction of the arrow, and remove.
- 2) Carefully insert the dry cell battery holder's battery connector into the transmitter battery connection.
- 3) Fit the dry cell battery holder into the battery box, and mount the battery cover, taking care not to pinch the lead wires.



### CAUTION

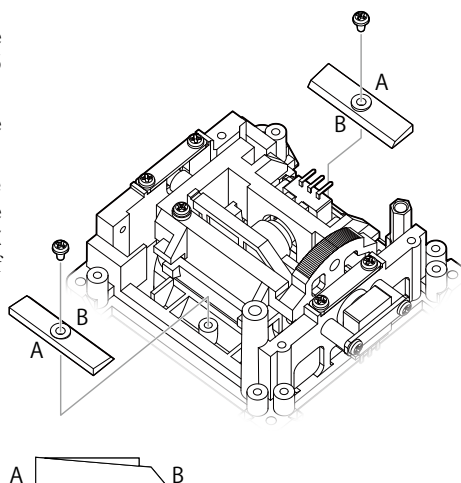
- ※ Never use Manganese Dioxide Batteries - use only high quality Alkaline batteries. Be sure to check the battery voltage. Do not mix new and old batteries. The battery alert shall trigger when the voltage drops down to 4.2V - be sure to change the battery with four brand new alkaline dry cell batteries.
- ※ Never use the included battery holder with rechargeable batteries. Insufficient terminal contact may result in damage to the battery or the transmitter.
- ※ Never drop the battery holder. Resulting poor contact may result in damage to the battery or the transmitter.

## Handling of the Rechargeable Ni-MH batteries used for the Transmitter or Receiver

- Because nickel metal hydride batteries have a high self-discharge rate, battery discharge will gradually take place even when the battery is not being used.
- For new batteries and batteries that have not been used for a long time, be certain to fully charge before use. In addition, if the battery is repeatedly charged having not been fully discharged, the battery chemistry characteristics may mean that the discharge capacity becomes temporarily reduced, because of a 'memory effect'. It is therefore recommended you occasionally fully discharge the battery and then recharge it before use.
- Charging at very high and low temperatures is dangerous.
- Charging nickel metal hydride batteries at high temperatures will cause a noticeable drop in charge capacity. Therefore, do not charge in a hot environment, for example inside a car. Hydrogen gas may be generated during charge and discharge - avoid charging close to any open flame.

## Throttle stroke travel adjustment

- By adding the Throttle stroke adjustment plate to the gimbals, the throttle stroke is limited by approximately 5 degrees.
- Be sure to install or remove the plate with reference to the drawing.
- When adding this "limiter plate" it is essential to recalibrate the throttle stick range. Be sure to follow this procedure which is explained on **Page 54 "Transmitter Setting [TX SETTING]"** in the system list for further details of calibration.

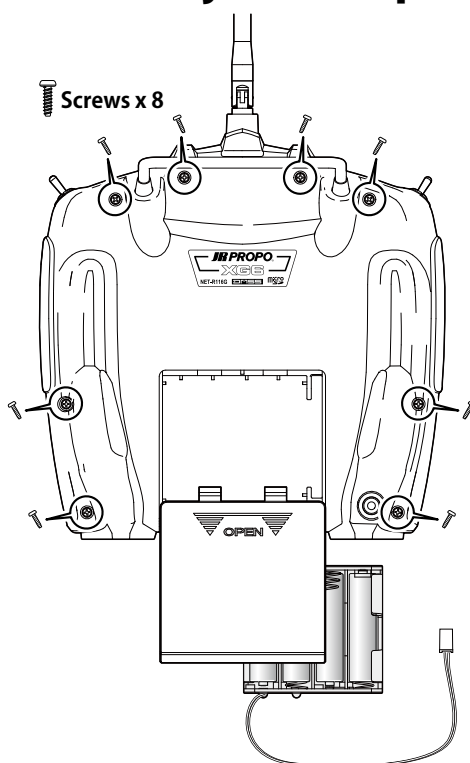


# Notes on stick tension spring adjustment and the throttle stroke travel adjustment plate

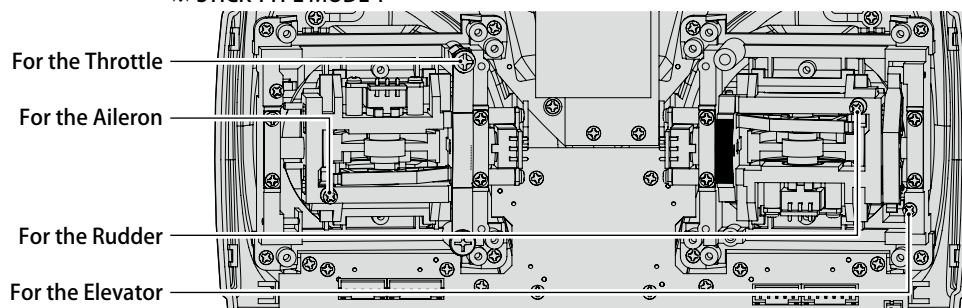
## This allows adjustment of the stick spring strength.

- ① Be certain to remove the battery before carrying out any adjustments.
  - ② Remove the screws in the eight (8) locations on the rear case.
  - ③ Adjust the springs to the desired spring tension. By carefully adjusting each of the screws, you can achieve a range of spring tensions.
  - ④ Close the rear cover, and tighten the screws. Take care of interlocking of the levers, etc. If you prefer a ratchet on the throttle, replace the spring plate as shown in the drawing on the left at the bottom of this page.
- ※ The drawing on the right shows the default setting, giving a smooth throttle transition.

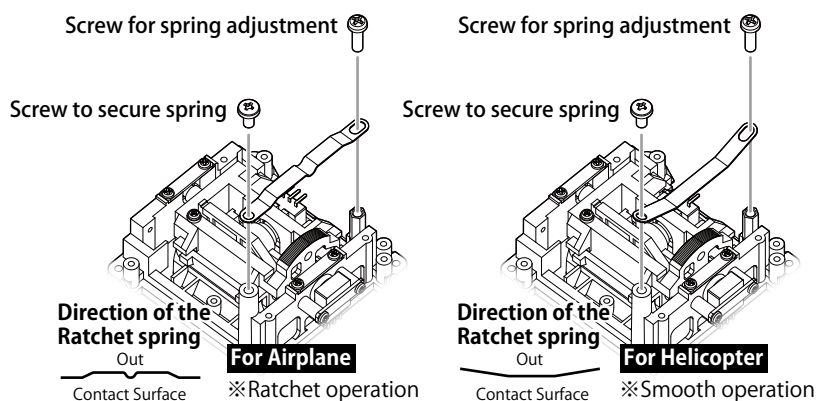
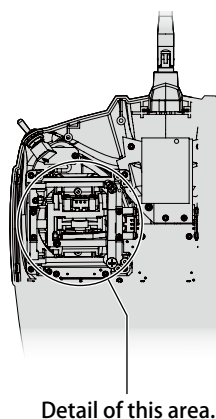
❗ Never Touch the Printed Circuit Board or any related parts inside the transmitter.



### ※ STICK TYPE MODE 1



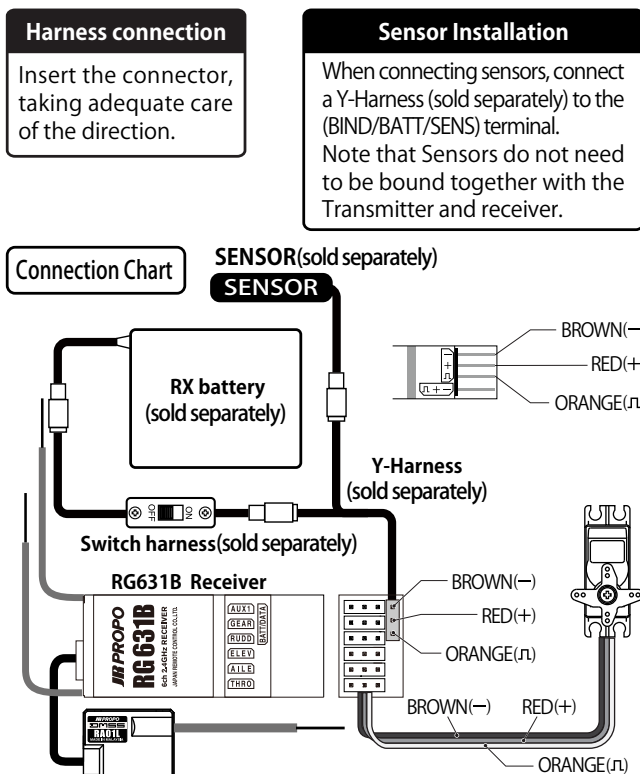
※ Touching the board may result in electric shock, uncontrolled microcomputer operation, or damage to model data, and normal operation may become impossible.



## Receiver Connections

Receiver Connections to the servos and the power supply JR labels the channels on the receiver with names rather than numbers.

From this point onward in the manual, the receiver channels will be described using their names.



- Since the receiver is susceptible to vibration, shock, and water damage, anti-vibration and waterproofing measures should be implemented.
- If the connectors become detached while flying, there will be a risk of uncontrolled operation. Please securely insert all of the connectors as far as they will go.
- In the situation where extension leads are used during installation rubber sponge should be wrapped round the connectors to fix them. Be absolutely sure not to leave the connectors hanging unsupported.

### Servo connections to the Receiver

Receiver	Helicopter	Airplane	Glider
1) THRO	THRO	THRO	LAILE
2) AILE	AILE	AILE	RAILE
3) ELEV	ELEV	ELEV	ELEV
4) RUDD	RUDD	RUDD	RUDD
5) GEAR	GYRO	GEAR	MOTO
6) AUX1	PIT.	FLAP	FLAP

## ■ Using the transmitter and receiver.

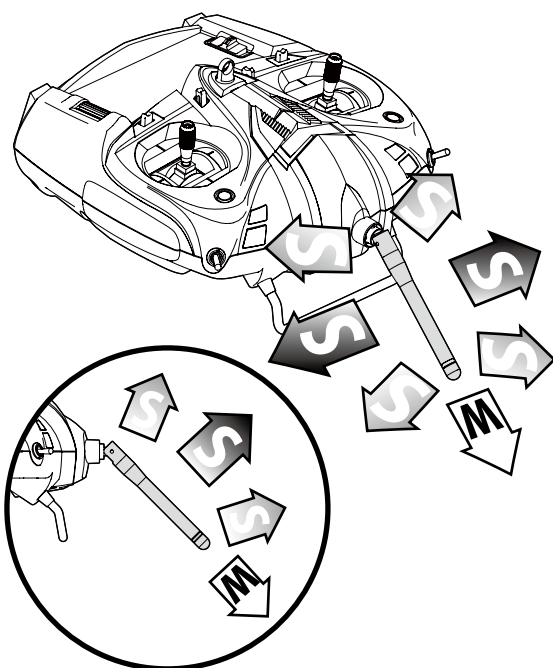
### Receiver mounting location.

#### ■ Please set up the antenna direction as per the following drawing.

The 2.4GHz band radio waves are very directional. The receiver signal is very dependant on the direction of the antenna. Since the antenna receives radio waves from the sides rather than from the tip, please appropriately position the receiver antenna when installing the receiver in the model.

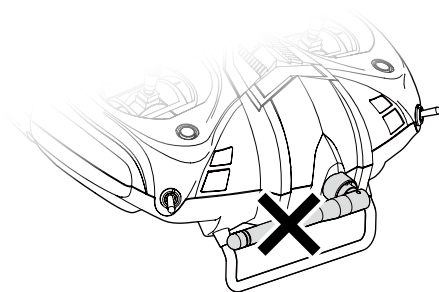
#### ■ Recommended

As the strong radio waves radiate from the sides of the antenna, this makes the best transmission to the receiver and provides the safest operation.



#### ■ Not recommended

If the transmitter antenna is folded to the left or right, the radio wave may not be transmitted properly due to the position of the aircraft, helicopter, etc. Please re-adjust the antenna direction considering the flight area of your model.



**Strong radio wave**  
Strong radio wave transmitted to the aircraft, helicopter, etc.



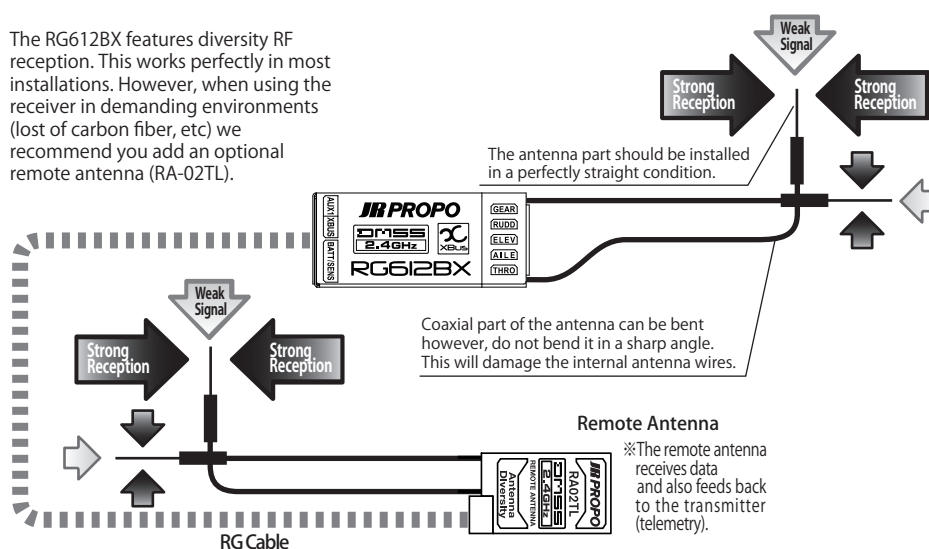
**Weak radio wave**  
Radio wave is weak.

## 2.4GHz Antenna Considerations

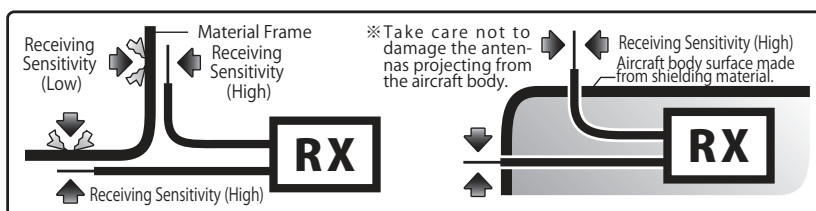
2.4GHz band radio waves have strong directionality so receiving sensitivity differs greatly depending on the direction of antenna orientation.

The RG612BX receiver has integrated telemetry, and it therefore operates as a receiver and a transmitter at the same time. When installing the receiver in the fuselage, to avoid RF interference, please place the receiver away from the ESC, regulator, servos, fuel pumps, oil pumps, and gyro unit. Most importantly, do not cross wires over the receiver antennas, including those of any remote receiver.

The RG612BX features diversity RF reception. This works perfectly in most installations. However, when using the receiver in demanding environments (lost of carbon fiber, etc) we recommend you add an optional remote antenna (RA-02TL).



※ If the antenna is attached directly to a shielding material such as carbon or metal, the receiving sensitivity of the antenna is considerably reduced.



- Multi Coaxial Antenna type receiver (more than one coaxial antenna extending from the receiver)  
Be sure to install the antenna's at right angles to each other, rather than parallel.
- Single Coaxial Antenna type receiver  
Avoid placing the antenna along a carbon fuselage, or surrounded by metal materials.

## Remote Antenna installation

The remote antenna RA02TL receives data from the transmitter, and also feeds telemetry data back to the transmitter so it is highly recommended to locate the remote antenna away from the main receiver unit, ESC, regulator, servos, gyro Sensors, harness or power cables, etc to avoid interference.

## ■ Binding Procedure (pairing the transmitter and receiver)

In order for the transmitter and receiver to communicate, it is essential to pair or bind them together. Please follow this procedure:

### ■ EZ Bind system

The included RG612BX receiver uses JR's new EZ bind system.

The EZ Bind system is an unique system designed for convenience, and allows binding without using a bind plug. Look for the EZ bind logo and follow the binding procedures below.

#### ■ Binding with the EZ Bind System

- 1) Set the transmitter to bind mode (see page 57), and then connect the battery to the receiver. The receiver's LED will start flashing, and the bind process will begin.
- 2) When the bind LED on the receiver changes from flashing to steady lit, the bind process is complete.

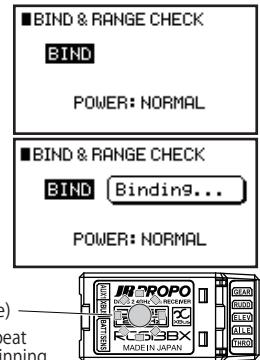
\*If you use an optional remote antenna, please be sure that the remote antenna is connected during the bind process, and confirm that the remote antenna's LED also changes from flashing to steady lit.

\*After completing the binding operation, turning on the receiver first will result in it entering a bind standby condition after 3 seconds. This will last for 5 seconds.

#### In normal operation, always turn on the transmitter first!

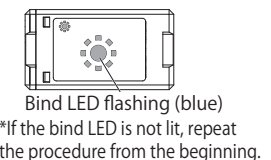
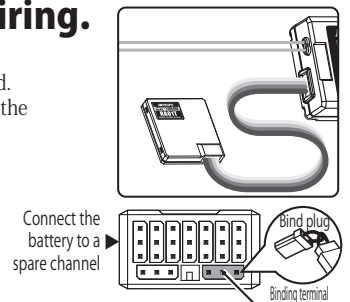
If the receiver is turned on first, it could be potentially bound to another transmitter (if another transmitter happens to be close by and placed in bind mode - which is unlikely). To avoid this risk, always turn your transmitter on first.

Bind LED flashing (blue)  
\*If the bind LED is not lit, repeat the procedure from the beginning.



## ■ Receivers which require a bind plug for pairing.

- 1) Be sure that the remote antenna is properly connected to the receiver. Locate the included bind plug, and ensure the transmitter and receiver batteries are fully charged.  
※ Note that the Remote Antenna acts as both a receiver and also transmits data back to the transmitter.
- 2) On the transmitter access the "BIND & RANGE" menu under the System List.  
**Refer to the Page 57 "Bind and Range Check [BIND&RANGE]"**
- 3) Insert the bind plug into the bind terminal of the receiver and connect the battery to a spare channel (such as the AUX channel) - the LED's on the receiver and the remote antenna will begin to blink (ready to bind).  
※ Be sure to insert the bind plug before connecting the battery.
- 4) Refer to the "BIND & RANGE CHECK" screen in the transmitter system settings. Press the dial to start the bind process.
- 5) 'Binding' will flash on the transmitter display, and upon completion of the binding process, it will display "SUCCESS! PLEASE CHECK FAIL SAFE".  
Concurrently, both receiver's LED's will stop flashing and be solid, signifying completion of the bind process.  
If the LED's continue to blink, repeat the procedure from the beginning. Next, disconnect the bind plug from receiver, disconnect the receiver battery and switch off the transmitter.
- 6) Lastly, connect a servo, turn on the transmitter then receiver, and confirm that communications have been established.



## ■ Range Check

This checks the performance of the transmitter by lowering the power output to simulate a long distance range test. Under the "Bind & Range Check" setting screen, move the cursor to the POWER: NORMAL column and change it to LOW. The transmitter will change to low power mode. When in this mode, walk a distance of approximately 40m from the aircraft and confirm that the transmitter operates the aircraft normally. Continue testing as you walk around the aircraft.

Refer to the Page 57 "Bind and Range Check [BIND&RANGE]"

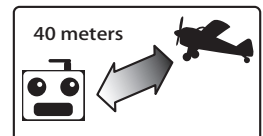
#### If the bind process or range check is not successful, check the following items:

1. Are the transmitter and receiver batteries fully charged?
2. Is the remote antenna securely connected?
3. Is the distance between the transmitter and receiver too close?
4. When the procedure is carried out on the top of a desk or bench top that is made from metal, the binding procedure may not be successful.

#### ① Be sure that the failsafe settings are set in the transmitter.

Please note that when the model or model type is changed in the transmitter, re-binding will be required. Never fly the aircraft in Range Check mode.

- ※ If the Radio wave reception is weak, the LED lights on receiver may flash or turn off.



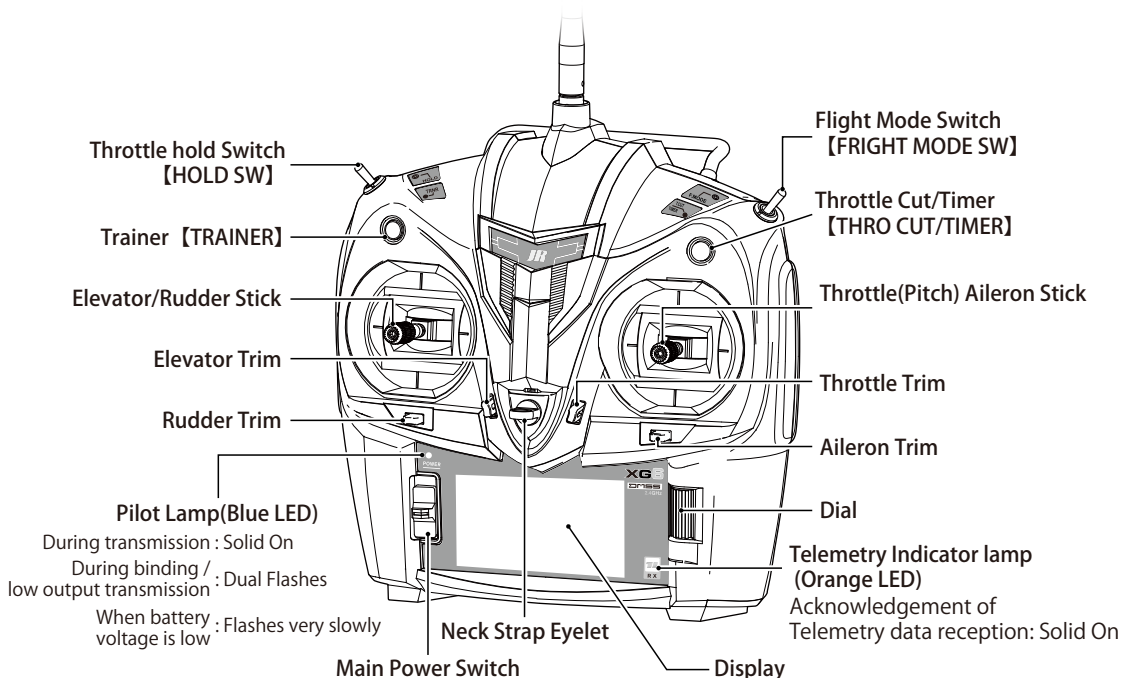


## Names of Each Transmitter Control (MODE1)

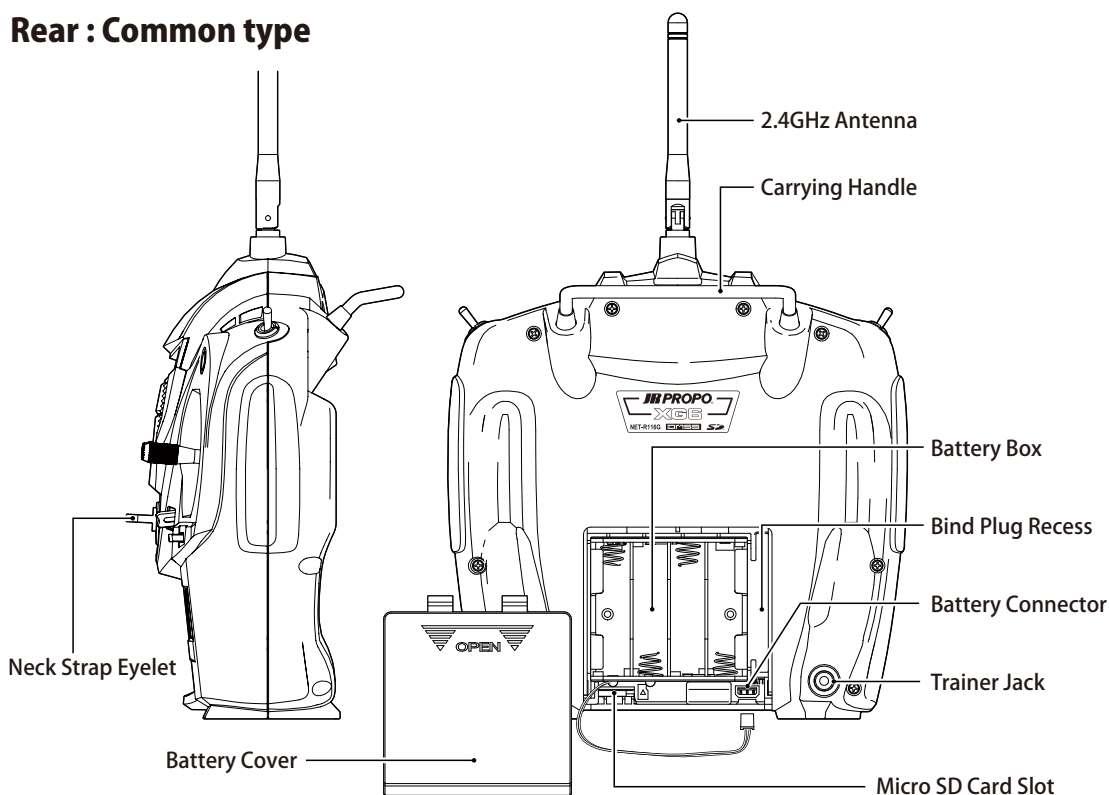
### Helicopter Type

The names in square brackets [ ] are the abbreviated characters displayed on each setting screen.

! JR gives each switch or lever a name rather than a number on the transmitter. The names and positions are different depending on the model type. Please note this when reading the manual.



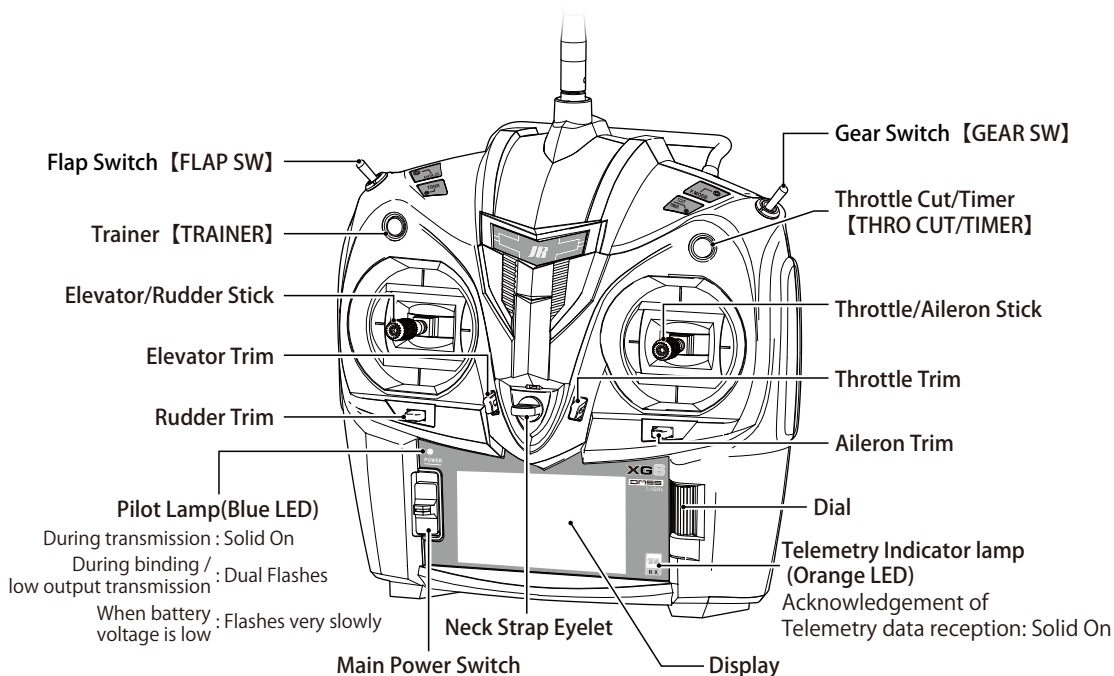
### Rear : Common type



## Names of Each Transmitter Control (MODE1)

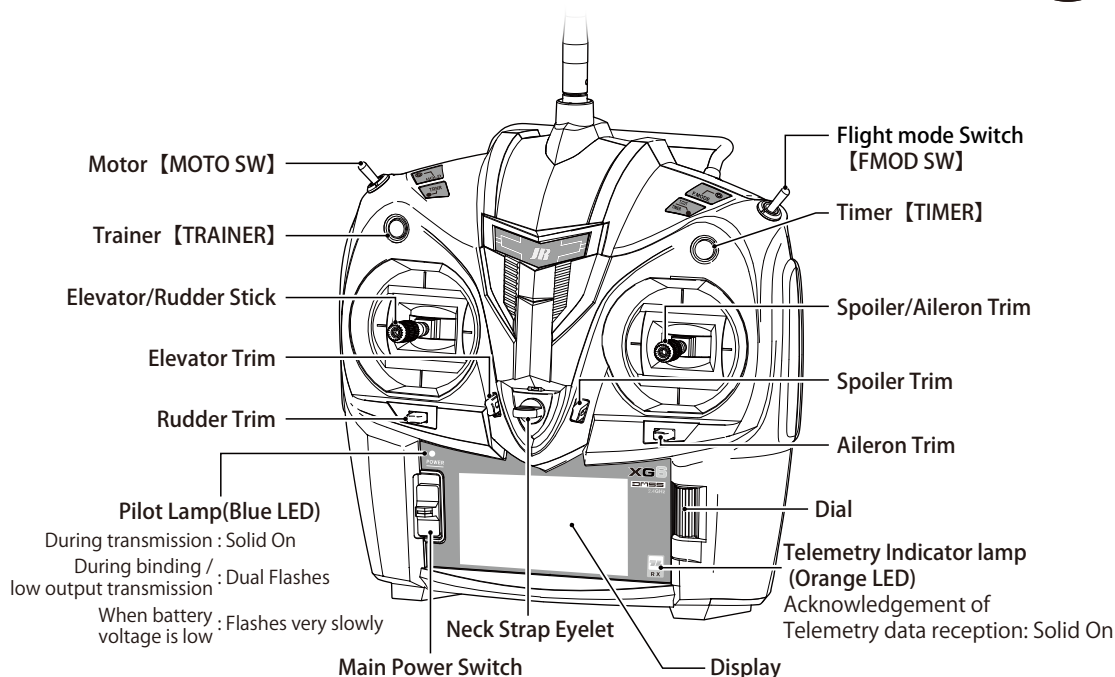
### Airplane Type

The names in square brackets [ ] are the abbreviated characters displayed on each setting screen.



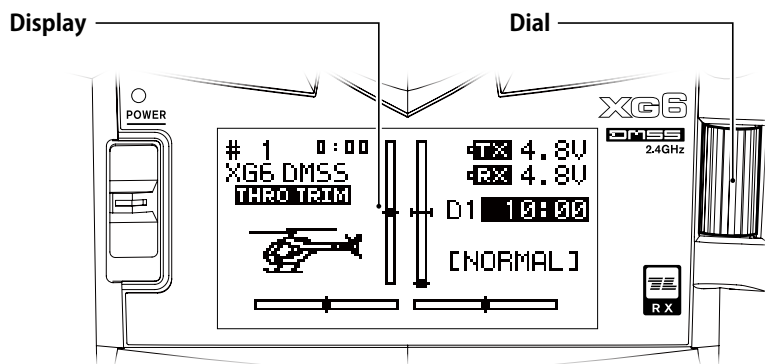
### Glider Type

The names in square brackets [ ] are the abbreviated characters displayed on each setting screen.



## Names and Functions of the Input Dial

This transmitter employs a jog-dial. When programming the transmitter, all operations can be performed very intuitively using this dial. The dial functions by rotating it left or right, and pressing it.

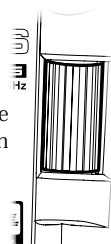


### Jog Dial

- “click” sound is heard confirming a valid input.
- “click” sound may also be heard without any change to the numerical numbers on the display. This is because numerical numbers below the decimal point are not displayed, even though the set value is changed internally.

#### TIPS

- When this key is pressed at the time of entering numbers with the dial, the number changes at ten times the normal speed. Also, by pressing down the dial for three (3) seconds, any set value can be changed to the default



## TRIM [Spoiler Trim, Rudder Trim, Aileron Trim, Elevator Trim]

This function adjusts the response of the trim levers, which are used to adjust the flight control surface by changing their position. This transmitter uses Advanced Digital Trim (known as ADT) for all the trimming channels. The ADT system is described below.

### Trim indication display and audio sound.

The graphic bar on the display shows the amount of ADT which has been input by the trim levers. The Position of the trim can also be recognized by the tone of the audio sound. The actual audio tone can be selectable in “TX SETTING”. There are two tones available - High and Low.

These tones can also be muted. Refer to the Page 54 “Transmitter Setting [TX SETTING] ”

### Auto Repeat Function and Center Click Function

The auto repeat function allows the trim lever to be continually pressed over to the side that you wish to adjust, and the trim value is continuously increased or decreased using a fast-forward action. However, if the trim position reaches neutral (center), it stops for a moment and produces a click sound to inform the user that the trim is in the neutral position. If continuously pressed, the trim continues to move past the neutral position.

### Trim Step Function

It is possible to adjust the trim step by using the TRIM SYSTEM under the System Mode. Refer to the Page 53 “Trim System [TRIM SYSTEM] ”

### Memory function - Trim setting value

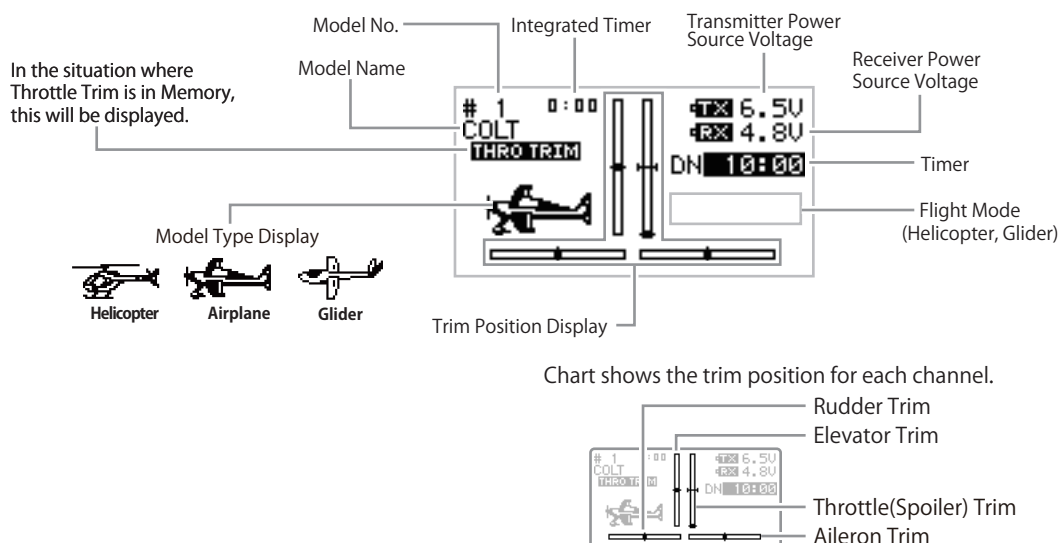
ADT is active in each of the model memories and the trim position is automatically memorized, even when switching models. The memorized trim amount and trim step for the model are automatically set, and will not be erased by changing models. In addition, each ADT can be given a different adjustment in each flight mode for each model. When adjusting the ADT with the Flight Mode switch set to optional positions, only the trim amount of the corresponding flight mode will be adjusted.

#### TIPS

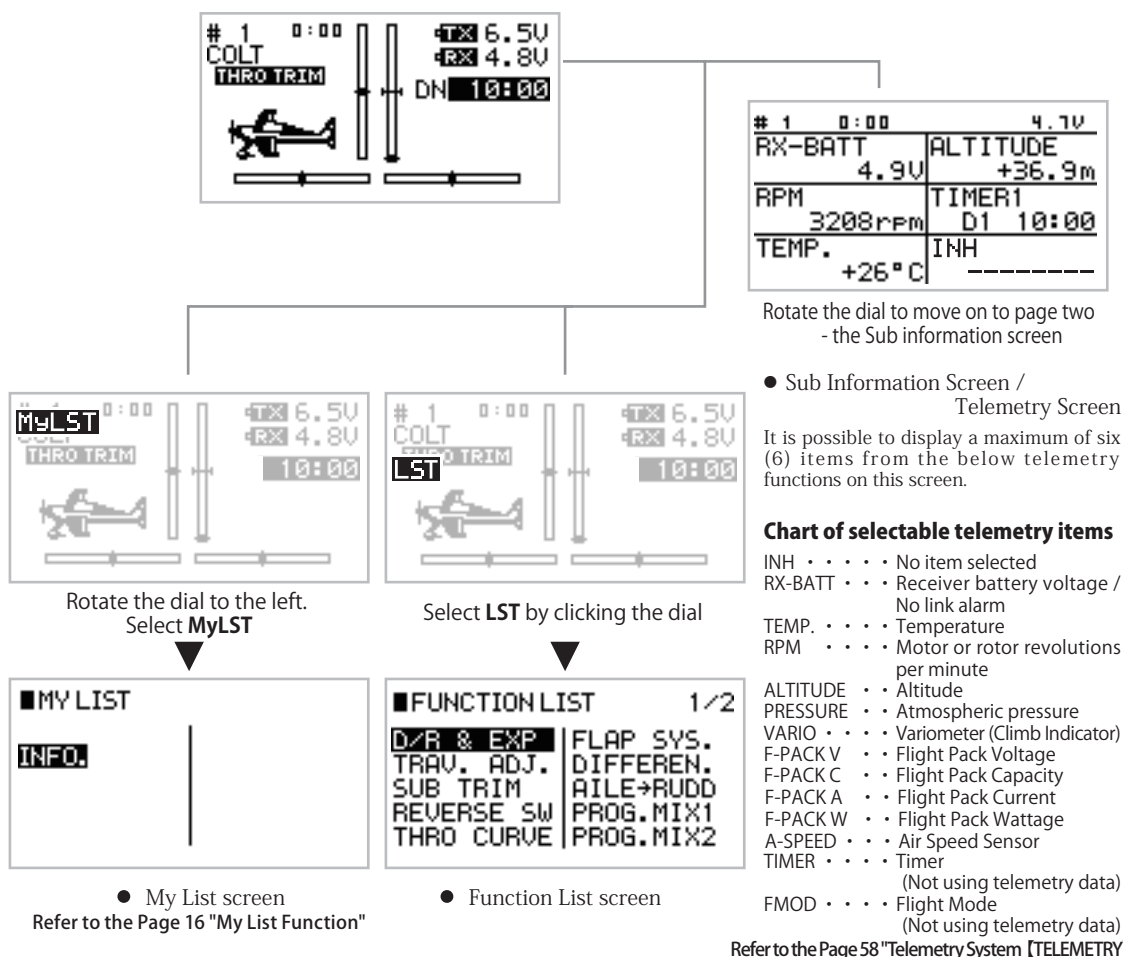
- Under the Glider mode, to adjust the horizontal movement of the Ailerons, (i.e. the Camber) use the Flaperon trim. Again, all trim is memorized for each flight mode.

## Information Display

※ Stick Type MODE 1



## Initial INFO screen



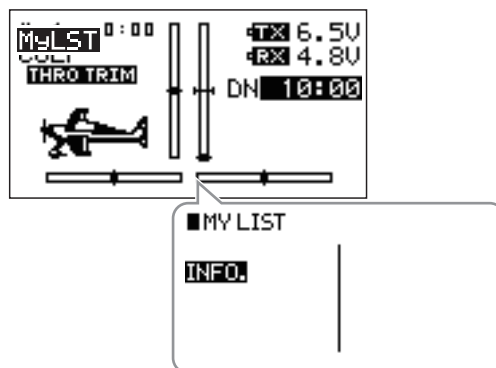
## My List Function

- Frequently used functions can be selected and displayed on the customizable 'My List' for quick access.

Pressing the ENTER key while on the normal screen will select the My List display.

Nothing will be displayed on the My List screen until it has been customized.

My List initial Condition

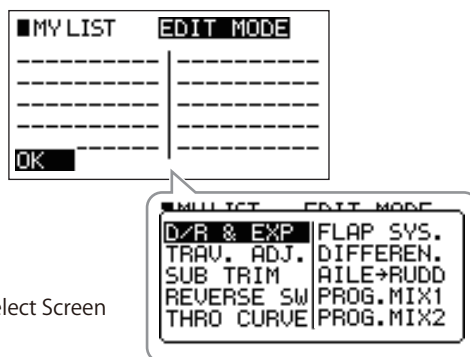


- To add functions to this list, select "EDIT" on display. The display will be shown and "EDIT MODE" will flash.



- Rotate the dial to move the cursor to the desired position and press the dial to display the items that can be added to the list.

Edit Mode

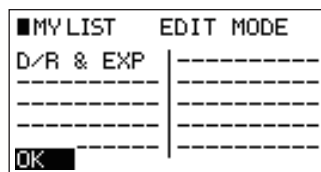


- To complete the editing process, press "OK" to exit edit mode.

Function Select Screen

- If you wish to delete a function from the 'My List' screen, select Edit mode, move the cursor to the item and press the dial for three (3) seconds. This clears the selected function from "My List".

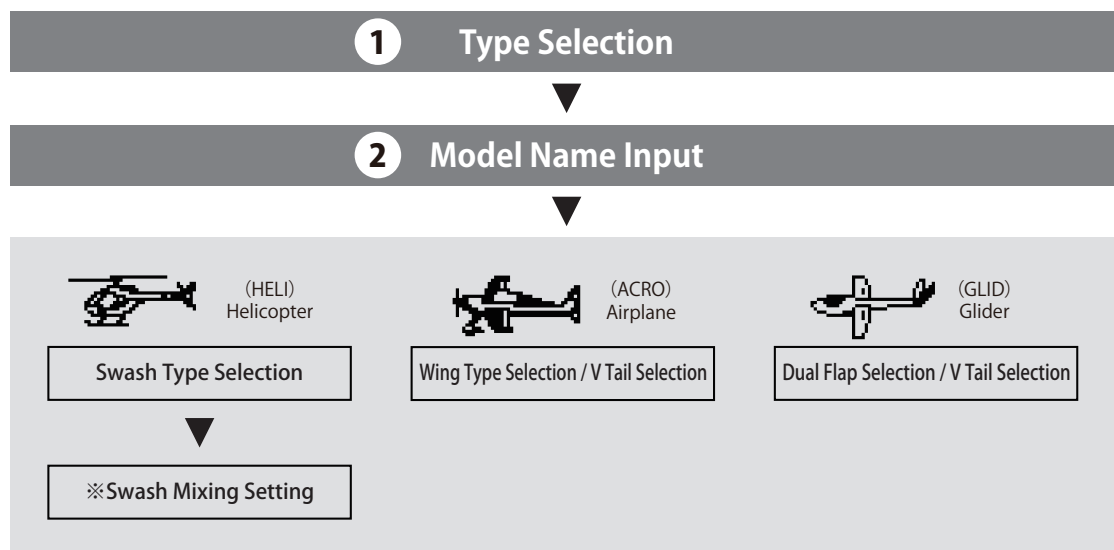
- It is also possible to add items from the system list here (model select is a useful one). Simply continue scrolling through the function list items, and you will then also find system list functions.



## Navigation during Model Setting

When a new model has been created, or when the model type is changed, it is necessary to enter basic initial information.

- 1) Type selection
- 2) Model Name
- 3) Complete some basic setup information depending on the model type selected, as shown below.
  - ▶ Helicopter (HELI)
    - Swash Type Selection → Swash Mixing Setting
  - ▶ Airplane (ACRO)
    - Wing Type Selection/V Tail Setting
  - ▶ Glider (GLID)
    - Dual Flap Selection/V Tail Selection

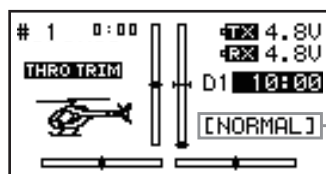


※When CCPM is selected

## Flight Mode

### Function Explanation

- The Flight Mode function allows switching between various aircraft settings using a switch. This means it is possible to select aircraft flight characteristics using a 'one-touch' operation.
- The maximum number of flight modes which can be selected varies with model type. It is possible to select up to three flight modes for helicopters, up to three flight modes for gliders - there is no flight mode selection available for airplanes.
- The current Flight Mode is displayed on the Initial INFO screen, where it can be confirmed. In addition, it is possible to change the displayed flight mode name using the Flight Mode Name screen in the System List.



Current Flight Mode

### Airplane Flight Mode

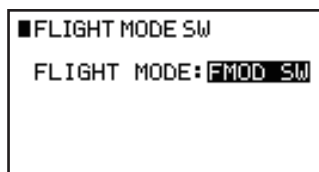
※ No Flight mode on Airplanes.



### Helicopter flight mode

- NORMAL
- STUNT
- HOLD

- ※ It is possible to select the flight mode switch from the System List under "Flight Mode Switch".
- ※ Also note that "HOLD" is not active by default -it can be activated in the Function List (see "Throttle hold").
- ※ The following sequence gives the flight mode priority when the various switches are activated.  
" HOLD > NORMAL/STUNT "



### Glider flight mode

- CRUISE
- LAUNCH
- LAND

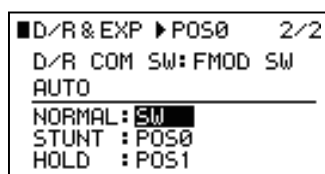
- ※ Glider flight modes are not activated by default.  
It is possible to activate these flight modes in the system list, "DEVICE SELECT".
- ※ The following sequence gives the flight mode priority when the various switches are activated.  
" LAUNCH > LAND > CRUISE "



## Items which can be modified in each flight mode

### For Helicopter

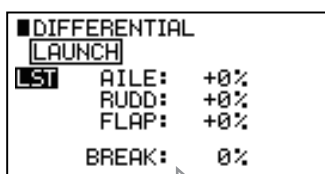
- Dual-Rate & Exponential [D/R&EXP] . . . . . Page 20
- Throttle Curve [THRO CURVE] . . . . . Page 24
- Pitch Curve [PITCH CURVE] . . . . . Page 26
- Tail Curve [TAIL CURVE] . . . . . Page 28
- Gyro Sensitivity [GYRO SENS] . . . . . Page 30
- Flight Mode Delay [FLIGHT MODE DELAY] . . . . . Page 33
- Program Mixing [PROGRAM MIX 1-3] . . . . . Page 40
- Flight Mode Name [FLIGHT MODE NAME] . . . . . Page 52
- Flight Mode Switch [FLIGHT MODE SW] . . . . . Page 62
- Memory function - Trim setting value . . . . . Page 14



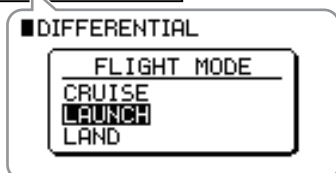
As an example, screen showing [D/R EXPO]

### For Glider

- Dual-Rate & Exponential [D/R&EXP] . . . . . Page 20
- Differential [DIFFERENTIAL] . . . . . Page 35
- Camber system [CAMBER SYSTEM] . . . . . Page 38
- Brake system [BRAKE SYSTEM] . . . . . Page 39
- Program Mixing [PROGRAM MIX 1-3] . . . . . Page 40
- Flight Mode Name [FLIGHT MODE NAME] . . . . . Page 52
- Trim System [TRIM SYSTEM] . . . . . Page 53
- Device Select [DEVICE SELECT] . . . . . Page 63
- Memory function - Trim setting value . . . . . Page 14



As an example, screen showing [DIFFERENTIAL]



※ There is no flight mode for Airplane



## Dual-Rate & Exponential [D/R&EXP]

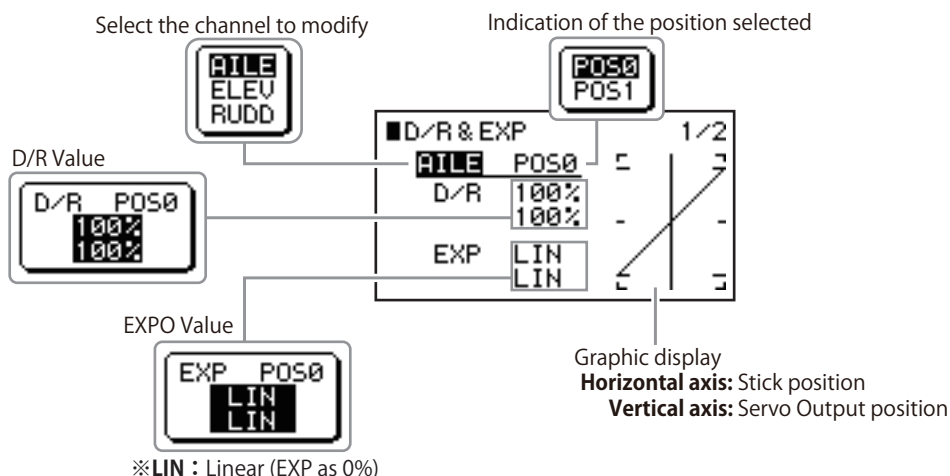
### Function Explanation

This function switches aileron, elevator, and rudder control surfaces between different control surface angles and curves, using the Dual Rate switches. By combining the control surface angles with exponential settings, it is possible to carry out various independent settings so that the aircraft response can be changed.

Exponential is a curve adjusting function that logarithmically changes the servo movement in response to the stick action, allowing the movement in the vicinity of the neutral position to be adjusted from mild (+ direction) to quick (- direction) without changing the maximum control surface angle. Adjustments made can be confirmed by looking at the graph on the screen.

### Setting Method

Two independent dual rate settings and exponential settings can be for Aileron, Elevator and Rudder.



- Dual Rate Combination Switch selection (D/R COM SW)

It is possible to select a switch as the D/R COM SW. This allows one combined switch for Aileron, Elevator and Rudder dual rate.

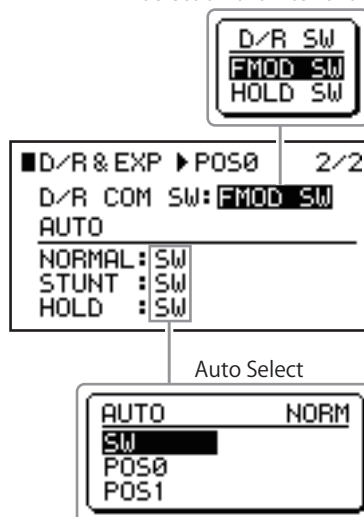
Designation of the switch is as follows.

On a 2 position switch, if the switch is away from the operator, this is "POS0" (position 0), and toward the operator is "POS1" (Position 1).

- AUTO: (flight mode change)

It is possible to set a different Dual Rate or Exponential settings for each flight mode.

#### Selection of switch allocation



### TIPS

- The Dual Rate setting numerical value can be between 0 and 125, and EXPO can be between 0 and  $\pm 100$ .
- By moving the appropriate control stick, the numerical values can be independently changed for left and right (up and down), so that the control surface angles and curves can be individually adjusted. When the cursor has an inverse display, the setting values can be modified, and can also be reset to default by pressing the dial for three (3) seconds.

### Caution Note

- Operate the servos and carefully confirm the operational settings before flying.



## Travel adjust [TRAVEL ADJUST]

### Function Explanation

This function allows independent adjustment of servo left/right (or up/down) movement, for each channel. The adjustment is carried out with reference to the neutral position. Adjustment is possible over an adjustment range between 0 and 150% in each directions. The default value is 100%, and this gives standard servo movement.

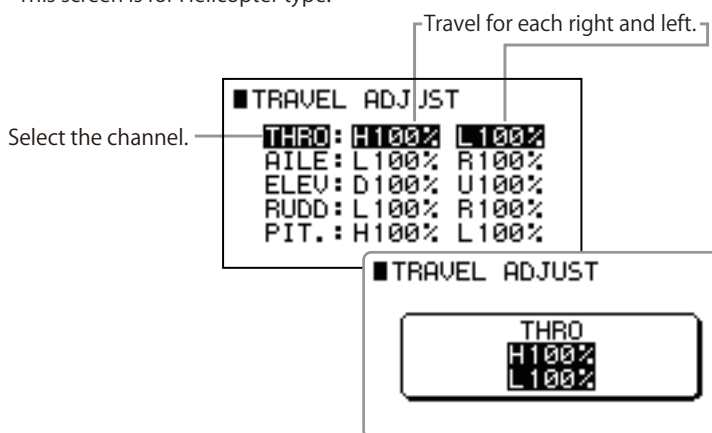
### Setting Method

Rotate the dial to move to, and select, the channel that you wish to set (inverse display). Then press the dial to display the setting box, and now change the numeric values by rotating the dial.

※ The channel names on the screen will differ according to the model type.



This screen is for Helicopter type.



### TIPS

- By moving the appropriate control stick, the numerical values can be independently changed for left and right (up and down), so that the control surface travel can be individually adjusted. When the cursor is at the inverse display, the setting values can be modified. The values can be reset to default values by pressing the dial for three (3) seconds.

### Caution Note

- Operate the servos and carefully confirm the control surfaces move as expected before flying.
- Note that Swash type or Wing type settings may change the channel indications.
  - Swash type [SWASH TYPE] . . . . . Page 64
  - Wing Type [WING TYPE] . . . . . Page 65

## ■ Sub Trim [SUB TRIM]

### ■ Function Explanation

This allows fine trimming of the servos attached to each channel. This trim should be used as a fine adjustment when the servo horn mounting angle is not 90 degrees with regard to the linkage. Note that if large amounts of sub trim are used, it will affect the maximum deflection of the servo. It is therefore recommended to use only small values here.

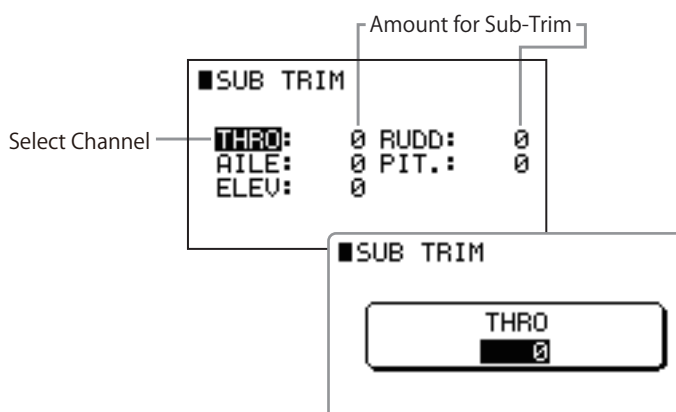
### ■ Setting Method

Rotate the dial to move to and select the channel that you wish to set (inverse display). Then press the dial to display the setting box, and carry out the numerical value setting.

※ The channel names on the screen will differ according to the model type.



Helicopter mode shown on the screen



### ■ Caution Note

- Operate the servos and carefully confirm the control surfaces move as expected before flying.
- As noted above, this function is a fine tuning function to adjust the servo neutral. It is highly recommended to adjust the neutral as much as possible using the linkages and servo horn positions.
- Note that Swash type or Wing type settings may change the channel indications.
  - Swash type [SWASH TYPE] . . . . . Page 64
  - Wing Type [WING TYPE] . . . . . Page 65

## Reverse Switch [REVERSE SW]

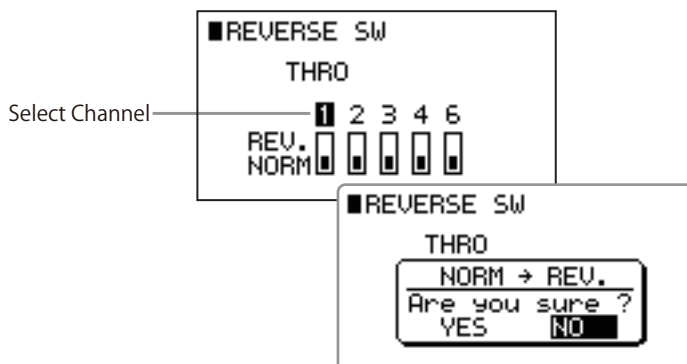
### Function Explanation

This function reverses the servo operating direction (pulse change direction) of each channel.

### Setting Method

Rotate the dial to move to and select the channel that you wish to change (inverse display). Then press the dial to select the rotation direction. "NORM" is the normal direction and "REV" is the reverse direction. Actually operate the servos and carefully confirm the settings before flying.

※ The channel names on the screen will differ according to the model type selected.



### TIPS

- Carefully note that the Reverse switch position will affect the final output value of the signals - therefore, it will affect servo movement direction even if the channel is inhibited when used as part of a control mix.
- Note that Swash type or Wing type settings may change the channel indications.
  - Swash type [SWASH TYPE] . . . . . Page 64
  - Wing Type [WING TYPE] . . . . . Page 65

## IMPORTANT NOTICE

In the situation where the reverse switch setting is changed after the Fail Safe has been set, the failsafe will operate incorrectly. Therefore, in the situation where the Fail Safe is operated after the throttle channel has been set to reverse, the servo will be move to the Full High position, which is extremely dangerous. After finalizing the transmitter settings,

be sure to confirm and re-do as necessary the Fail Safe settings (match the stick to the position that you wish to set and press the Memory key), and be certain to carry out operation confirmation By switching off the transmitter, and checking whether the servos move to the correct position.

# Throttle Curve [THRO CURVE]

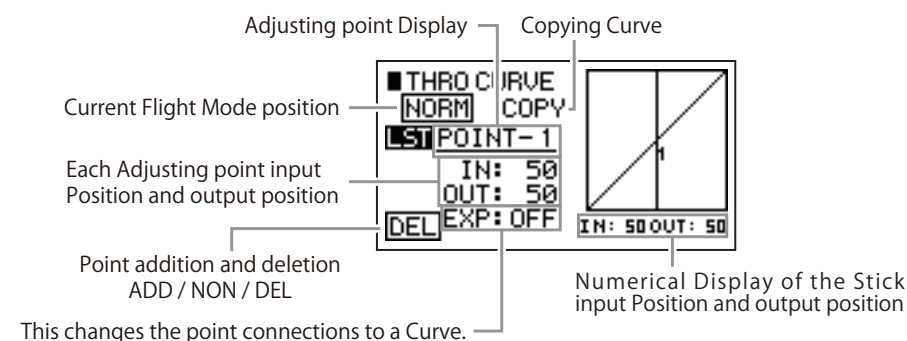
## Function Explanation

This function adjusts throttle servo operation in response to throttle stick operation. The servo position can be set independently for a maximum of 5 point positions. In addition, an EXPO function is incorporated to allow smooth connection of each of the points. This function is available in each Flight Mode for helicopters (maximum 2), and 1 mode for airplanes.

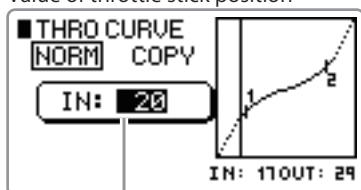


## Setting Method

There are three initial curve points set at the low, center, and high positions. To add a point, set the stick to the desired position and press "ADD" on the screen using the dial. In the situation where a point is to be deleted, this should be carried out by placing the cursor on "DEL" and press the dial. To change values at each point, rotate the dial to move to and select the point that you wish to change (inverse display). Then press the dial to select and change the numerical value.

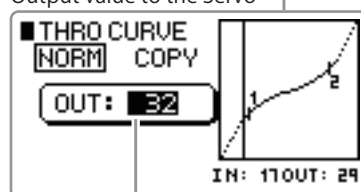


Value of throttle stick position

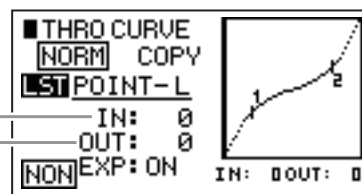


Direction of the point: Left/Right

Output value to the Servo



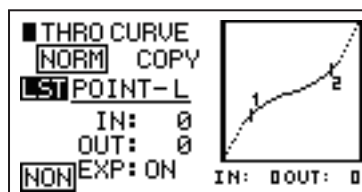
Direction of the point: Up/down



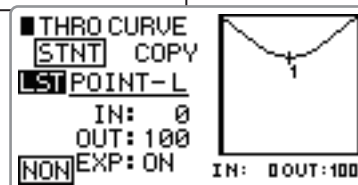
Normal mode

## For Helicopter

There are two (2) flight modes (Normal & Stunt) available for helicopter throttle curves. Set each throttle curve as desired for the particular flight condition.



Stunt mode



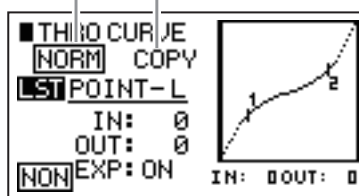
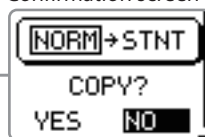
- Copy Function

There is a function to copy the Normal mode curve to the Stunt curve mode or vice versa. Set the base curve for copying and press "COPY" and push the dial, - confirm copy by pressing the dial "YES"

Select Flight Mode (Copy mode)

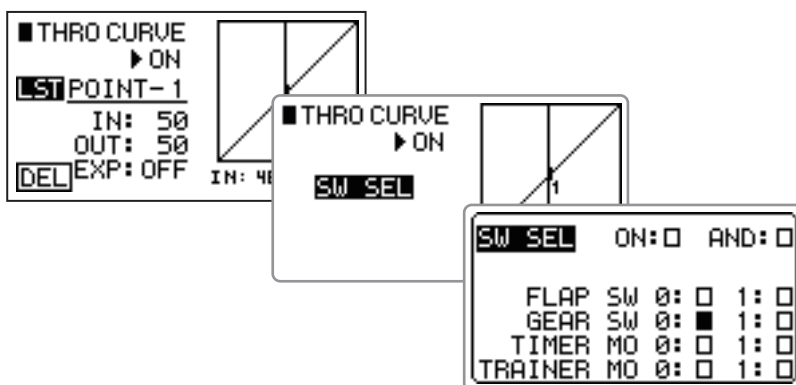


Confirmation screen for copying



## For Airplane

There is one throttle curve available and it is possible to change the curve at any time with a toggle switch or button switch to either "ON" or "OFF"



### TIPS

- The numerical value "IN" shows the position of the throttle stick and the numerical value "OUT" shows the output value to the servo.
- Adjustment is possible over a range between 0 and 100% for each of the Low or High (up or down) directions.
- The graphic curve indication also reflects the position of the Throttle trim.

## Caution Note

- Actually operate the servos and carefully confirm the settings before flying.

# Pitch Curve [PITCH CURVE]

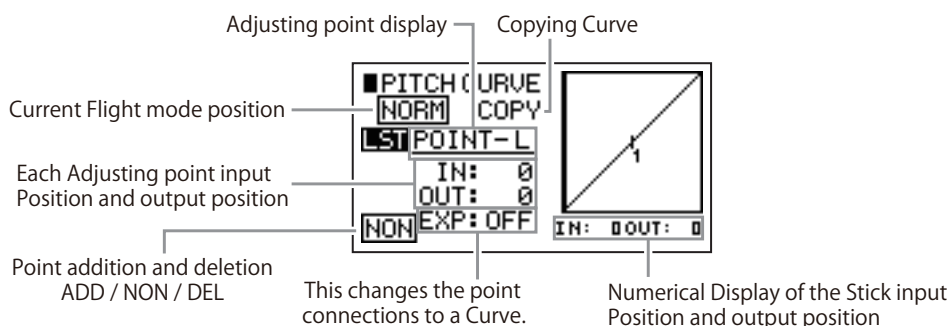


## Function Explanation

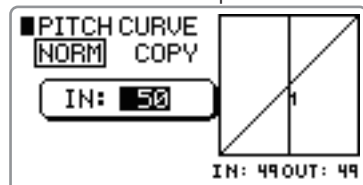
This function adjusts pitch operation in response to throttle stick operation. The servo position can be set independently for a maximum of 7 point positions. In addition, an EXPO function is incorporated to allow smooth connection of each of the points. This function is available in each Flight Mode for helicopters (maximum 6), and 2 modes for airplanes.

## Setting Method

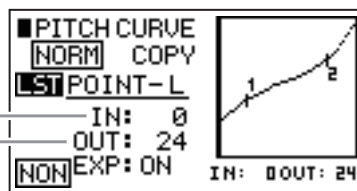
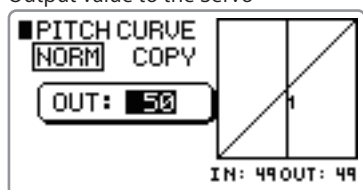
There are three initial curve points set at the low, center, and high positions. To add a point, set the stick to the desired position and press the "ADD" key. In the situation where a point is to be deleted, this should be carried out using the "DEL" key. To change values at each point, rotate the dial to move to and select the point that you wish to change (inverse display). Then press the dial to select and change the numerical value.



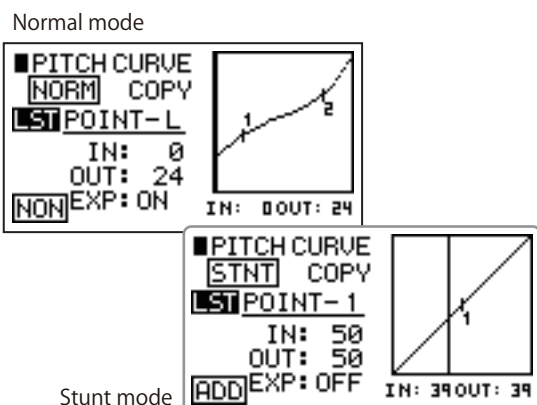
Value of throttle stick position



Output value to the Servo

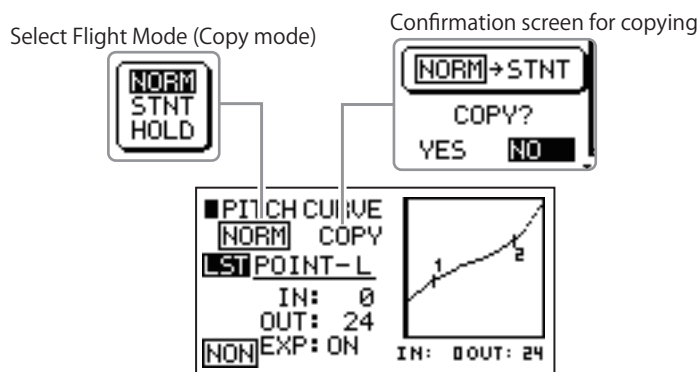


Each flight mode is allocated a different pitch curve. It is possible to modify these curves independently for each flight mode.



- Copy function

It is possible to copy the Normal mode curve to Stunt mode or Hold mode or vice versa. Select the flight mode curve and execute copy by pressing the dial, and then confirm by pressing "YES" to complete the copy operation.



## TIPS

- The numerical value "IN" shows the position of the throttle stick and the numerical value "OUT" shows the output value to the servo.
- Adjustment is possible over a range between 0 and 100% for each of the low and high (up and down) directions.

## Caution Note

- After programming, operate the servos and carefully confirm each Flight Mode setting before flying.



## ■ Tail Curve [TAIL CURVE]



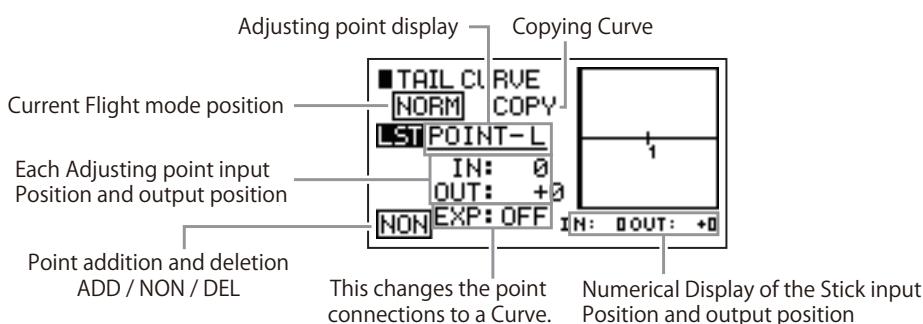
### ■ Function Explanation

This function allows mixing between the pitch and the tail servo. It is also known as revolution mixing. It allows setting of the mix amounts separately up and down from the hovering point. Intermediate points can also be established in each direction, so that fine tuning can be carried out. In addition, a Mixing Rate setting, which is convenient for detailed adjustment of stunt positions, is possible. A maximum of 2 different curves can be programmed, one for each Flight Mode.

Please note this really is a 'retro' function! It is never used these days with modern gyros and flybarless systems.

### ■ Setting Method

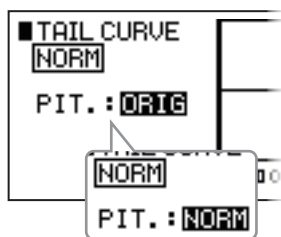
There are three initial curve points set at the low, center, and high positions. To add a point, set the stick to the desired position and press the dial "ADD". In the situation where a point is to be deleted, this should be carried out by pressing the dial to "DELETE". To change values at each point, rotate the dial to move to, and select, the point that you wish to change (inverse display). Then press the dial to select and change the numerical value.



#### ● Input Pitch (PITCH)

The pitch information that is input to the mixer can be selected from the following two types.

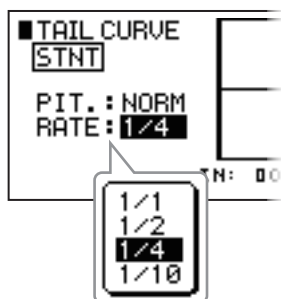
- ① "NORM": This is the stick position referenced to the curve set using the Pitch Curve function.
- ② "ORIG": This is the stick position itself not considering the pitch curve.



#### ● Mixing Rate for Stunt Mode (RATE)

This display will be shown when the Flight Mode is set to a stunt position. Even though the graph and output figures will remain the same, a function will be implemented that reduces the actual mixing amount by the multiplier described below. This is the stunt mode common multiplier.

- 「1/1」 : × 1  
「1/2」 : × 0.5  
「1/4」 : × 0.25  
「1/10」 : × 0.1



### ■ Caution Note

- When using a Tail Lock (Heading Lock) Gyro, this function will not be required since the tail will be automatically corrected. Each of the setting values must be set to zero.

# Throttle hold [THRO HOLD]



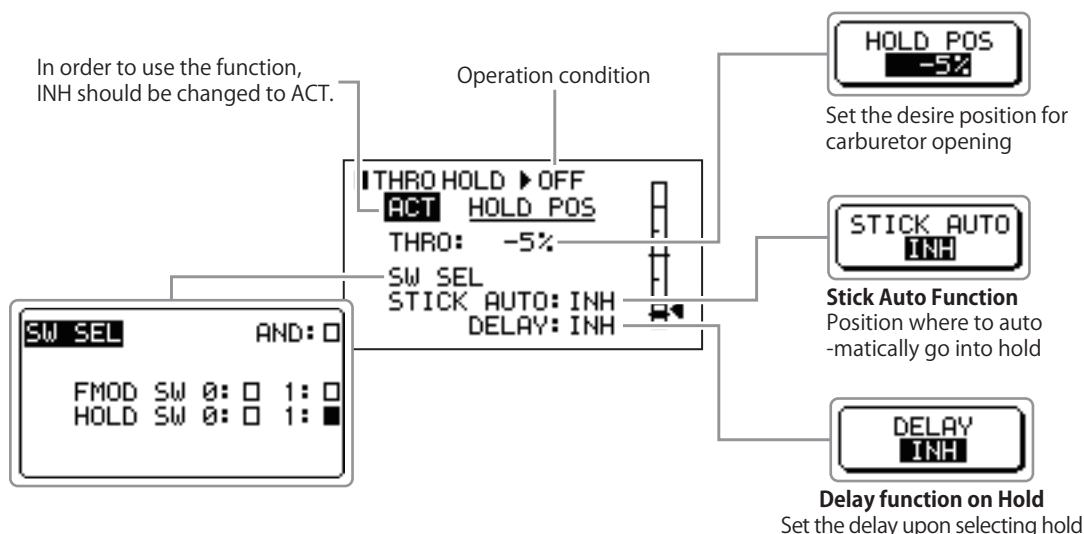
## Function Explanation

This function is used for autorotation landings –it holds the Throttle Servo at a low position, while the pitch stick continues to work normally. Using a selected switch, the engine can be cut, or fixed at an optional slow position. Further, there is also a Stick Auto function that allows switching of the servo to the Hold position when the stick is lowered to a preset position.

## Setting Method

This function is inhibited “INH” by default. Set the function to ACT. Then adjust the hold position as required. The Hold switch is used by default, but this selection can be modified.

By default, the “HOLD SW” is allocated to POS1. It is possible to allocate this switch to any desired switch location.



- Stick Auto Function (STICK AUTO)

When “STICK AUTO” is set, the servo will change to the Hold position when the stick is lowered past a predetermined position. To deactivate this function simply turn off the allocated switch. Initially this function is inhibited. To activate this function, move the cursor to “INH”, and press the dial to “ACT”. Move the cursor to the inversed display next to STICK AUTO, Move the throttle stick to the desired position and press the “STO” key to set the position (a numerical value between 0-100 will be displayed on the inversed display). To “INH” this function, press the dial for more than 3 seconds, to CLEAR.

- Hold delay function (DELAY)

It is possible to set a “DELAY” to prevent a sudden increase in engine rotations when the Hold switch is set to OFF. The duration of the delay can be set between 0.1 to 2.0 seconds.

### TIPS

- By setting throttle hold active, this function acts like an additional flight mode. It is possible to set dedicated Dual rates, Pitch Curve, etc to this function.

## Caution Note

- Operate the servos and carefully confirm the control surfaces move as expected before flying.

# Gyro Sensitivity [GYRO SENS]

## Function Explanation

**HELI Type** : It is possible to adjust the Gyro sensitivity by using the gear channel (GEAR). The sensitivity can be adjustable manually selecting for each Flight mode or Hold Switch, or can be set using the "AUTO" function. There are two gyro sensitivity modes available - "NORMAL" and Tail Lock (T.LOCK) - choose the type depending on your application.

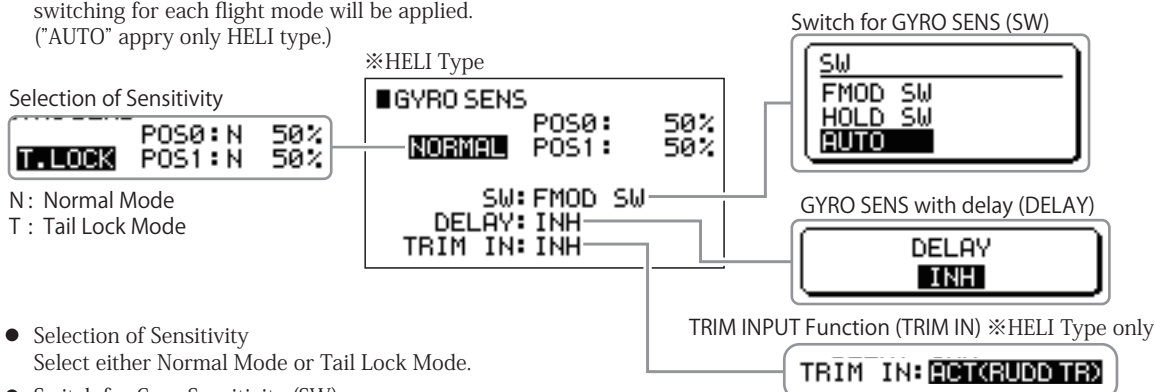
**Airplane Type** : It is possible to adjust the Gyro sensitivity by using the gear or flap channel (GEAR/FLAP). The sensitivity can be adjustable manually selecting for Switch. There are two gyro sensitivity modes available - "NORMAL" and Tail Lock (T.LOCK) - choose the type depending on your application.



## Setting Method

Select the switch for changing the gyro sensitivity either manually or "AUTO" and move the cursor to each position to input the numerical sensitivity value on the display. If "AUTO" is selected, individual sensitivity switching for each flight mode will be applied.

("AUTO" apply only HELI type.)



- Selection of Sensitivity

Select either Normal Mode or Tail Lock Mode.

- Switch for Gyro Sensitivity (SW)

Under manual operation, select either Flight Mode (F.MOD SW) or Hold Switch (HOLD SW) Under auto operation, depending on the flight mode switch, Select "AUTO".

- Gyro sensitivity Switching delay (DELAY)

To avoid excessive servo hunting when switching the gyro sensitivity from a low sensitivity to higher sensitivity setting, (when changing to a flight mode with lower rpm, but the blade rpm is not yet stable) it is possible to set a delay on this function.

Note: During switching, the time will be delayed only when switching to a higher sensitivity.

- Trim Input Function (TRIM IN)

Gyro sensitivity can be input by the rudder trim lever. By setting this function it is easy to adjust the sensitivity using the rudder trim lever during flight. ※HELI Type only

### TIPS

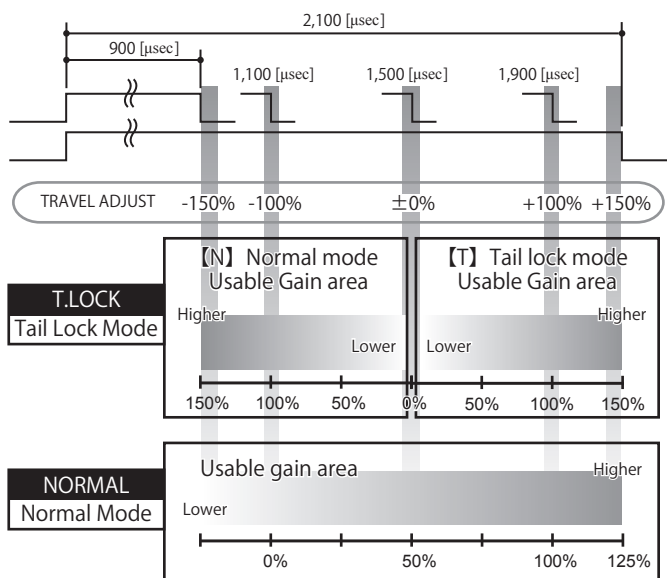
- Gyro Sensitivity adjustment often consists of two parts as shown in the diagram. Read the instructions with your Gyro unit and become familiar with correct operation. Select the Gyro Sensitivity to suit with your application.

- Concerning Trim Input, it is possible to adjust the Gyro sensitivity value using the rudder trim lever, which is a very useful function for setting the sensitivity during flight.

## Caution Note

- Be sure to understand your Gyro manual to allow correct use of this function. Carefully check the direction of the tail servo and be sure that everything works correctly before flight.

### Gyro gain value and actual output value



## Swash Mixing [SWASH MIX]



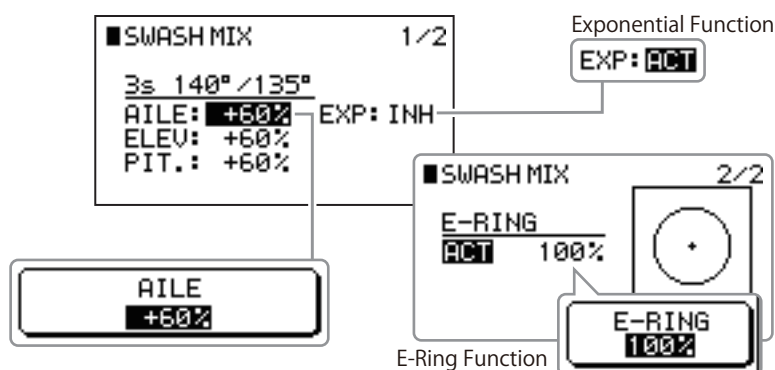
### Function Explanation

This function sets the mixing relating to the swash plate and swash plate servos (1-3) to allow coordinated control of the helicopter. The swash mixing is essential for helicopters that incorporate CCPM systems. CCPM is a type of pitch mixing in which the servos are directly linked to the swash plate. In this transmitter, 3 types of swash plate can be selected. An E-ring function is also incorporated that easily limits the swash maximum angle.

Note: When setting up a helicopter with a flybarless unit, please follow the flybarless unit manufacturers instructions regarding swash type and swash mix settings. EXP and the e-ring function should not be used.

### Setting Method

Set the "SWASH TYPE" according to the helicopter's swash plate configuration. The "SWASH TYPE" selection is in the System List, and should be chosen before proceeding to set the swash mix. Note: Refer to Page 64 for detail. The default settings for the Swash Mix are +60% on Aileron, Elevator and Pitch. If necessary, adjust the mixing amount and direction according to the type of helicopter and servos used. Press the dial to display the setting box, and then carry out numerical value adjustment.



- Exponential Function (EXP)  
By activating this function, the servo's non-linear output is modified to be more linear in motion.
- E-Ring Function (E-RING)  
By activating this function, the e-ring electronically corrects the swash to move in the same angle in all directions. The operation of the stick and e-ring can be confirmed on the graph. The diameter of the circle is the swash tilt angle, which can be set as desired.

### TIPS

- If the swash direction is incorrect, it is possible to set the swash mix in a negative direction to achieve an appropriate setting.
- The setting value in this function should be between 0 to  $\pm 125$ , but the practical range of useful values is 40-70%. If the mixing amount is too much and you are not able to achieve the desired swash throw, adjust the servo horn hole position outwards to allow more throw.

### Caution Note

- Actually operate the servos and carefully confirm settings before flight.

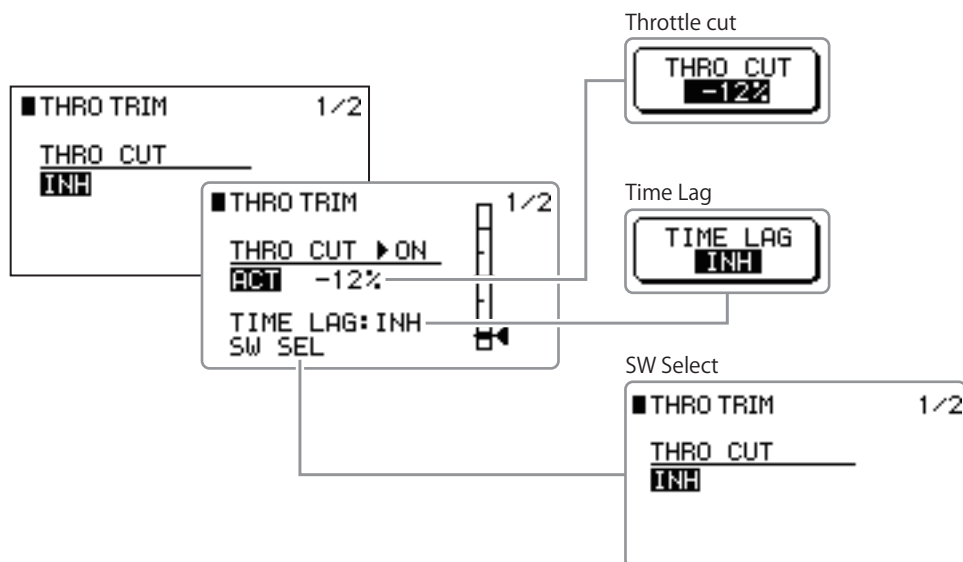
## Throttle trim [THRO TRIM]

### Function Explanation

This provides facility for cutting the engine. There is a Trim Memory function to return the trim to its previous position after cutting the engine using the Trim.

### Setting Method

If the Throttle Cut is set to ACT, the Trim Memory will be automatically set to INH. On the screen rotate the dial to move to and select (inverse display), then press the dial to set the item.



- Throttle Cut Function (THRO CUT)

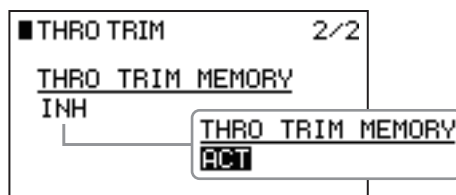
Throttle cut can be used by setting it to "ACT". Initially the switch is allocated to "TRN SW", POS1. It is possible to allocate this switch to any desired switch location, And set Throttle Cut to the desired position.

- Time Lag (TIME LAG)

This function is to avoid the sudden stopping of the engine if the throttle cut switch is activated in error. This is especially useful when using the momentary switch (Trainer switch). It is possible to use this momentary switch as a timer switch at the same time as throttle cut. When the time lag function is activated, throttle cut only activates when the switch is held on for a certain duration. The timer can be activated by a momentary action as usual. The time lag duration can be set between 0.5 to 2 seconds.

- Throttle Trim Memory (THRO TRIM MEMORY)

When the Trim is lowered in a single action, the trim position immediately prior to the movement will be memorized, and when the trim is raised again, the trim will automatically return to the memorized position. The memorized position will be marked on the Trim display.



### TIPS

- Please carefully confirm the linkage does not jam when the carburetor is closed.

### Caution Note

- Throttle Cut will only work when the helicopter Flight Mode is set to "NORMAL".

## ■ Flight Mode Delay [FLIGHT MODE DELAY]

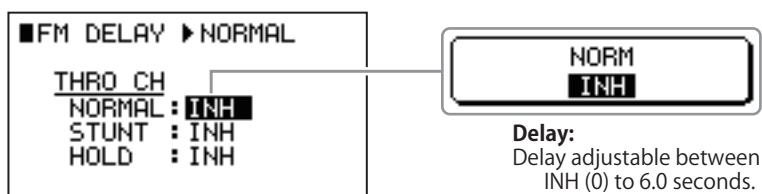


### ■ Function Explanation

When the Flight Mode is changed, the servos may move suddenly, causing a jerky reaction in flight. To prevent this, it is possible to set a time to each channel separately, during which the servo will move slowly to the new position when switching Flight Modes. This can be set separately in each Flight Mode.

### ■ Setting Method

Rotate the dial to select the desired channel in the setting screen, then press the dial to display the time setting box. The time displayed here will be the time for moving the servo to the new position of the Flight Mode that is currently being displayed.



### ■ Caution Note

- Actually operate the servos and carefully confirm the settings before flying.

# ■ Flap System [FLAP SYSTEM]



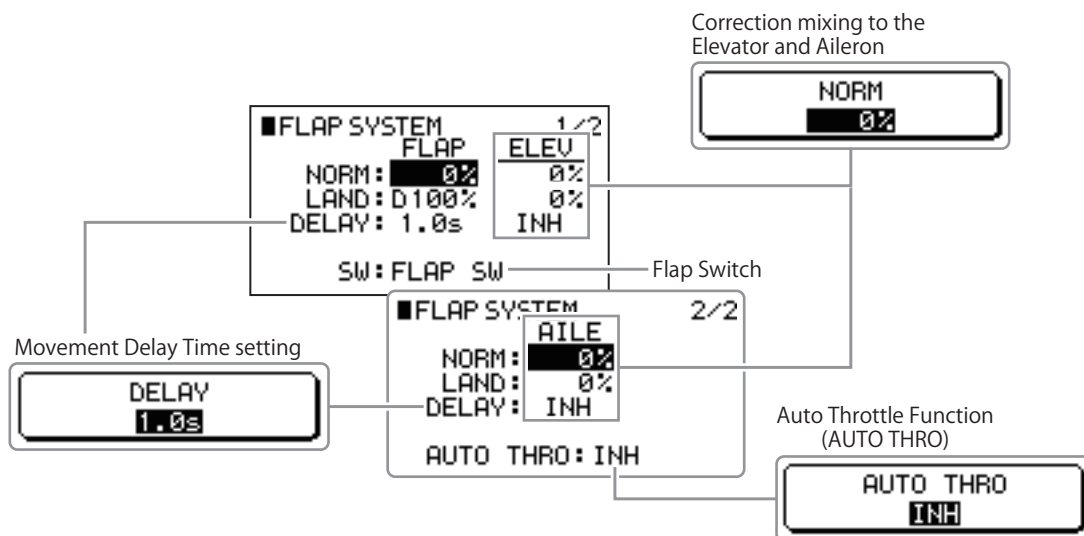
## ■ Function Explanation

The flaps can be controlled in two stages using a switch. A flap delay is also possible. Additionally, there is a function that carries out mixing to the elevators and ailerons. There is also an Auto Throttle function that automatically lowers the flaps when the throttle stick is lowered.

## ■ Setting Method

If the flap channel output has not been set to "SYS" in the Device Select menu, the function will be displayed as being unusable. To use this function, set the flap channel to "SYS".

Set each Flap position in Normal and Land positions. If required, set a numeric value for the delay function.



- Delay function(DELAY)

It is possible to adjust the transition timing between Normal (NORM) and Land (LAND) position.

- Flap position switch (SW)

This is the switch to change the Flap position between Normal and Land.

※ Note that this is exactly the same setting procedure as in Device Select under the system list, where the Flap channel input is selected.

- Auto Throttle Function (AUTO THRO)

By activating "AUTO THRO", the flaps are automatically lowered depending on the throttle stick position. Set the throttle stick at the desired position and press the dial to display the box confirm the position.

Above the point where "AUTO THRO" has been set, "NORM" mode is selected. Below this point the flaps should be automatically activated to the desired position.

- Correction mixing for Elevator and Aileron.

In order to off-set the pitching action upon activating the flaps, it is possible to set a mix to elevator. It is also possible to set a correction in roll by mixing to the Ailerons when the flaps are deployed.

## ■ Caution Note

- Actually operate the servos and carefully confirm the settings before flying.

# Differential [DIFFERENTIAL]

## Function Explanation

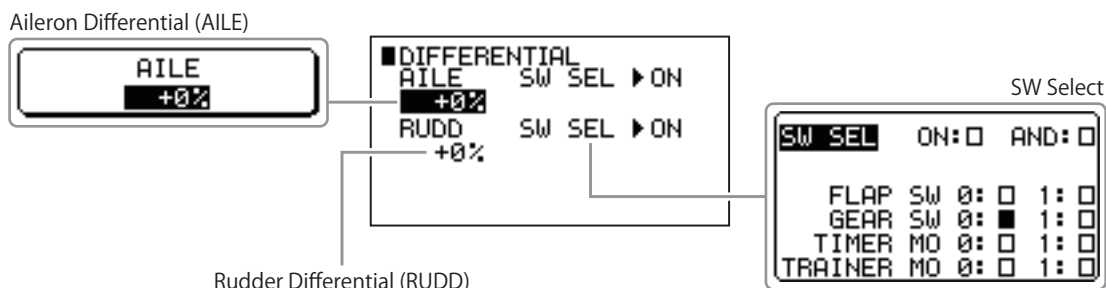
This function can be used when the aileron, rudder, and flap channels have been set to Dual Channel (two servos are set to each control function). Taking ailerons as an example, if the wing is a high-lift style, when the ailerons are moved up and down by the same angle, greater air resistance will be generated on the underside, causing the aircraft to yaw in the opposite direction to the intended turn. Differential acts to correct this effect by moving the down going aileron less than the up going aileron. On a glider there will be situations during, for example, butterfly movements where differential is not necessary. To prepare for this, the break function cancels the differential setting when the Spoiler stick is lowered.



## Setting Method

### For Airplane

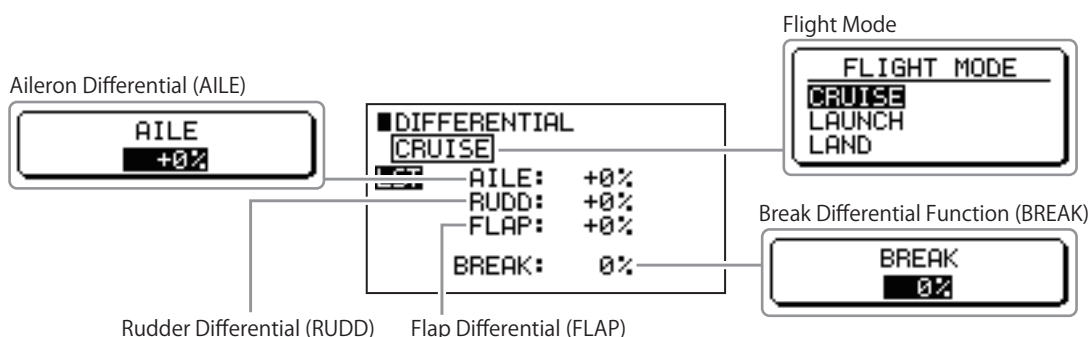
It is possible to turn differential on or off.



- Aileron Differential (AILE)  
Setting can be activated for the below wing types.  
FLAPERON / DELTA
- Rudder Differential (RUDD)  
Settings can be activated for the below wing types.  
V-TAIL

### For Glider

It is possible to set each control surface differential amount (Aileron, Rudder, & Flap) to the flight mode switch.



- Aileron Differential (AILE)  
Settings can be activated for the below wing types.  
FLAPERON
- ※ The transmitter is set to Flaperon as the default setting for Glider.
- Rudder Differential (RUDD)  
Settings can be activated for the below wing types.  
V-TAIL
- Flap Differential (FLAP)  
Settings can be activated for the below wing types.  
DUAL FLAP
- Break Function (BREAK)  
This function cancels the differential for each control, and is coupled with spoiler stick position.

## Caution Note

- Actually operate the servos and carefully confirm the settings before flight.



## ■ Aileron to Rudder Mixing [AILE → RUDD MIX]

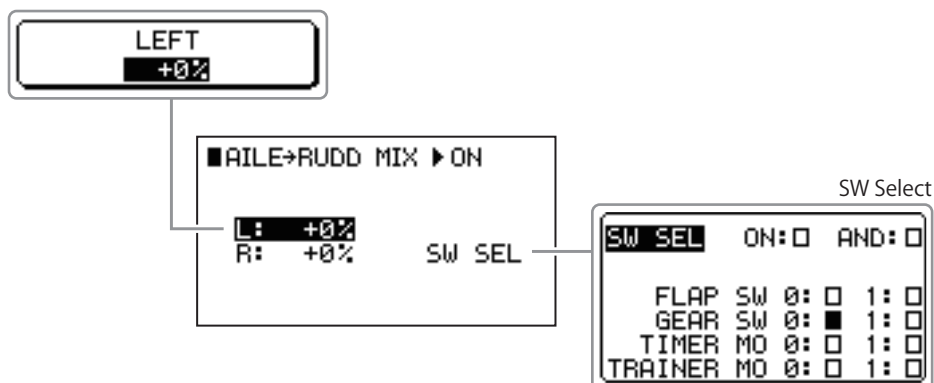


### ■ Function Explanation

This function allows smooth coordinated turns for scale model aircraft.

### ■ Setting Method

It is possible to set Mixing amounts from Aileron to Rudder independently for both right and left directions. It is also possible to allocate a switch to turn the mix on or off.



### ■ Caution Note

- Actually operate the servos and carefully confirm the settings before flight.

## Motor System [MOTOR SYSTEM]

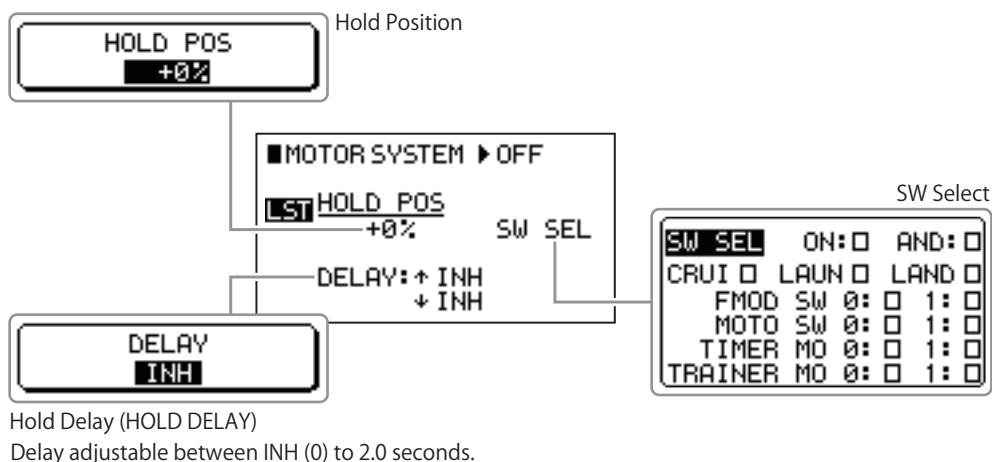


### Function Explanation

This function is used to switch off (HOLD) the motor channel by using a switch or by selecting various flight mode positions. By using the Delay function, it is possible to smoothly run the motor from low r.p.m. to higher r.p.m. in a linear (smooth) transition (Note: The speed controller must allow a linear transition to utilise this function).

### Setting Method

In order to activate this function, it is necessary to set the "GEAR" channel to "MOTO" under the System List (Note that the Gear channel is set to Motor as default ). Set the Motor hold position and allocate a switch or flight mode as desired.



- Hold Delay (HOLD DELAY)  
 ↑ : Delay time before switching on the motor.  
 ↓ : Delay time before switching off the motor.

### Caution Note

- Set the speed controller to run the motor and carefully confirm the settings before flying.

## ■ Camber system [CAMBER SYSTEM]



### ■ Function Explanation

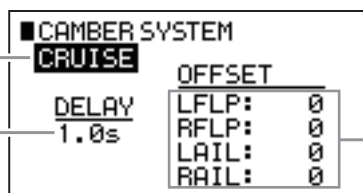
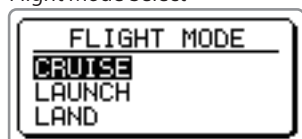
It is possible to set up a glider which has full span ailerons or flaps. These control surfaces can be moved up and down simultaneously to change the wing camber. Because changing the wing camber can vary the rate of descent and the drag, it is possible to change the flight endurance and the glide ratio. These settings can be changed for each Flight Mode. In addition, because the delay time during transition can be adjusted, the aircraft will not react suddenly or Wildly to these changes.

### ■ Setting Method

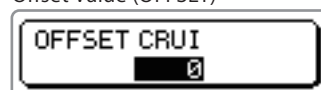
Set the amount of Camber (Aileron or Flap) offset in each flight mode.

It is possible to set a desired time "DELAY" in the menu.

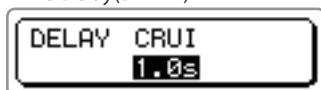
Flight Mode Select



Offset Value (OFFSET)



Time Delay(DELAY)



- Offset Value (OFFSET)

Set the Offset value for both FLAP and Aileron for each flight mode.

- ▶ AILERON

Set offset values for each Aileron - Left Aileron (LAIL) and Right Aileron (RAIL)

- ▶ FLAP

Set a single Flap offset using "FLAP". For "Dual Flaps" set the "LFLP" (Left Flap) and "RFLP" (Right Flap) values independently.

- Time Delay (DELAY)

Set the Time delay when switching between different flight modes. "INH" is no Time Delay. The time delay duration can be set between 0.1 to 6.0 seconds. "HOLD" means without Time Delay. This time delay also affects the trim, in addition to the offset values. The following Trims may be affected.

- ▶ Flap Trim      「FLAP TRIM」

- ▶ Flaperon Trim    「FPRN TRIM」

- ▶ Elevator Trim    「ELEV TRIM」

### ■ Caution Note

- Actually operate the servos and carefully confirm the settings before flight.

## ■ Brake system [BRAKE SYSTEM]



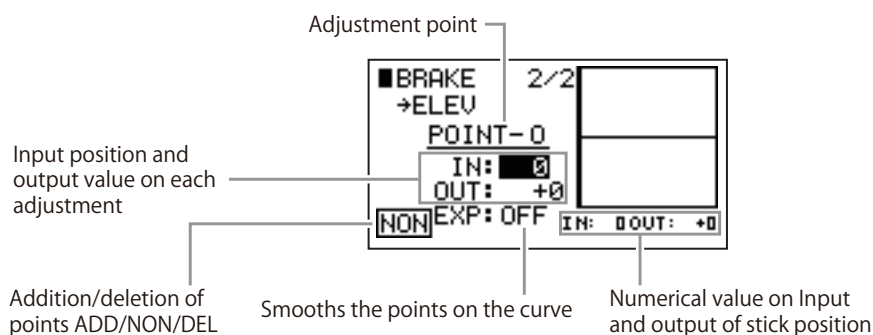
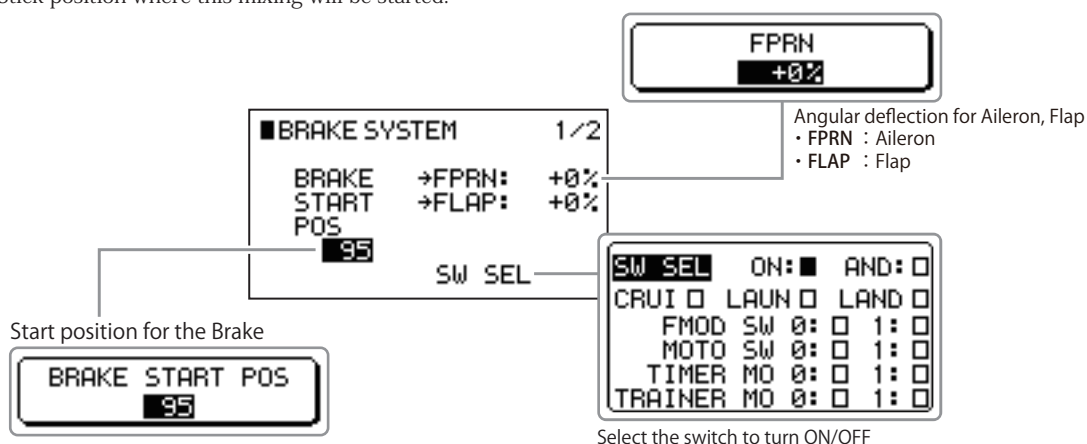
### ■ Function Explanation

This function creates air brakes using the ailerons, flaps and elevators. The function is also known as Butterfly mixing or Crow mixing. When the spoiler stick is lowered, the flaps will lower and the ailerons will be lifted. Looking from the front of the aircraft you will see the whole wing will no longer generate lift, and will generate a huge amount of drag. A dead band can be set to prevent unintended operation when operating the spoiler stick.

In addition, the trim correction provided by the elevators can be finely adjusted to the corresponding air brake angle using curve points.

### ■ Setting Method

First set the mixing amount provided from the Spoiler Stick operation to the ailerons and flaps. Then adjust the Stick position where this mixing will be started.



#### ● Brake Start Position (BRAKE START POS)

This adjusts the stick position where the brake operation will be started. It is possible to arrange a 'dead band' to prevent unintended operation when operating the spoiler stick.

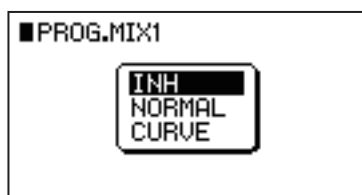
### ■ Caution Note

- When this function is operated, the servos will move a considerable amount. At this time, care is required to avoid applying an unreasonable force to each of the control surfaces.
- After programming these settings, operate the servos and carefully confirm each of the Flight Mode settings before flying.

## ■ Program Mixing [PROGRAM MIX 1-3]

### ■ Function Explanation

If a mixing function is required that is not already incorporated in the transmitter, three program mixing systems are provided for use. These can be used to freely structure your own mixes. For this mixing, either simple (normal) mixing or curve mixing (that allows setting of a curve using multiple points) can be selected.



### ■ Setting Method

- Normal mixing and Curve mixing

There are three (3) mixers available that can be activated by switch or by flight mode.

#### ▶ Selection of the Master Channel

Select the Master Channel for controlling the program mix. The channel name may be different depending on the aircraft type selection (please refer to the chart below).

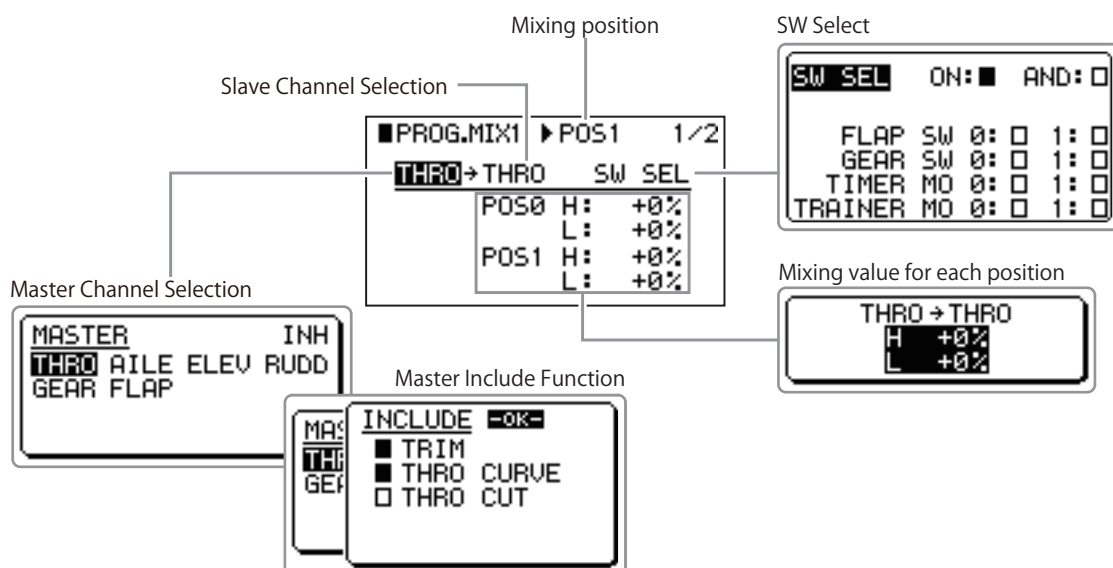
There is an option available to include or not include any trim or other mixing to the program mix in regards to the Master channel.

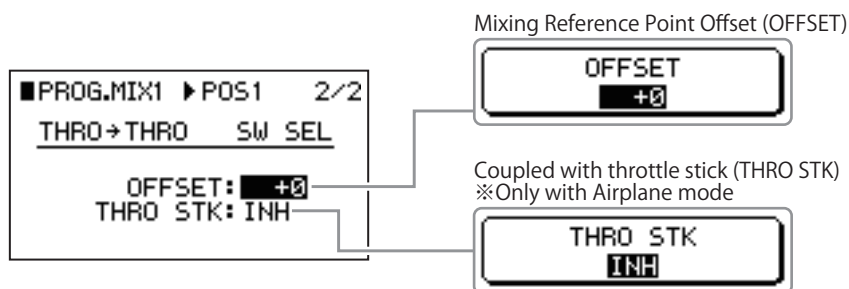
#### ▶ Slave channel Selection

Select the Channel for mix output. The channel name may be different depending on the aircraft type selection (please refer to chart 2 below).

There is an option available to include or not include any other mixing with the program mix in regards to the Slave channel.

- Normal Mixing



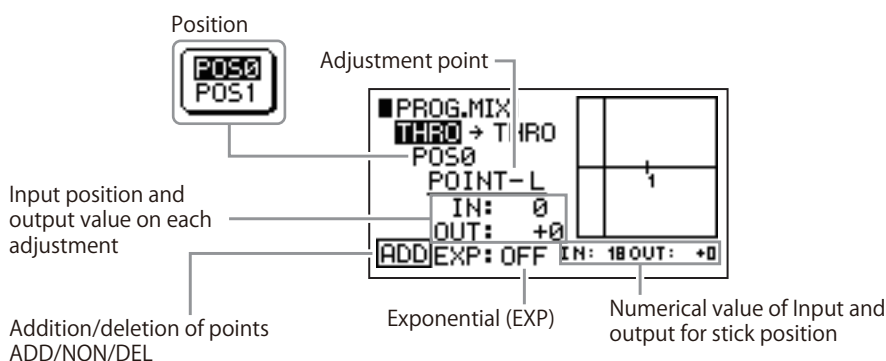


By default, this is set to "INH". Select Normal for using a Normal Program Mix curve. To "INH" this function, move the cursor to the Master/Slave channel selection and select the 'INH', then press the dial.

## ► Mixing Reference Point Offset (OFFSET)

By setting an OFFSET, the mixing Reference Point can be changed to the desired Mixing point on the Master Channel.

## ● Curve Mixing



By default, this is set to "INH". Select CURVE for using Curve type Program Mixing. To "INH" this function, move the cursor to the Master/Slave channel selection and select the 'INH', then press the dial.

## ► Curve Point Setting

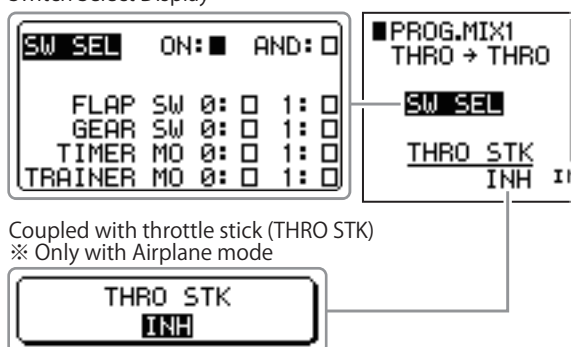
It is possible to set up to five (5) mixing curve points at desired positions. Initially, there are three curve points set - a Low point, Center point and High point. To add more points, select the Master channel and move the cursor to ADD and press the dial. Or to delete a point, move the cursor to DEL and press the dial. To change the value at a point, move the cursor to the location where you wish to make the change then press dial to inverse the display, and input the numeric value.

## ► Exponential function

By activating mix Exponential, it is possible to smooth the transition between points on the curve.

## As a Example

### Switch Select Display





## ■ Master channel's name, items which can be "INCLUDED" in the mix.

### ■ For Helicopter

Channel name	Items which can be Included
Ch1: Throttle (THRO)	Throttle trim, Throttle Curve (THRO CURVE), Throttle hold (THRO HOLD), Throttle Cut (THROCUT)
Ch2: Aileron (AILE)	Aileron trim, Dual Rate (D/R&EXP)
Ch3: Elevator (ELEV)	Elevator Trim, Dual Rate (D/R&EXP)
Ch4: Rudder (RUDD)	Rudder Trim, Dual Rate (D/R&EXP)
Ch6: Pitch (PIT.)	Pitch Curve (PIT.CURVE)

### ■ For Airplane

Channel name	Items which can be Included
Ch1: Throttle (THRO)	Throttle trim, Throttle Curve (THRO CURVE), Throttle Cut (THROCUT)
Ch2: Aileron (AILE)	Aileron trim, Dual Rate (D/R&EXP)
Ch3: Elevator (ELEV)	Elevator Trim, Dual Rate (D/R&EXP)
Ch4: Rudder (RUDD)	Rudder Trim, Dual Rate (D/R&EXP)
Ch5: Gear (GEAR)	
Ch6: Flap (FLAP)	Flap System (FLAPSYS)

### ■ For Glider

Channel name	Items which can be Included
Ch1: Flaperon (FPRN)	Brake System (BRAKE SYS), Camber System (CAMB SYS.)
Ch2: Aileron (AILE)	Aileron trim, Dual Rate (D/R&EXP), Camber Off Set (CAMBOFST)
Ch3: Elevator (ELEV)	Elevator Trim, Dual Rate (D/R&EXP), Brake System, (BRAKESYS)
Ch4: Rudder (RUDD)	Rudder Trim, Dual Rate (D/R&EXP)
Ch5: Gear (GEAR)	
Extra: #SPO	
MOTO	Spoiler trim (TRIM) *When Motor channel input device is set as Spoiler stick. Motor System (MOTO HOLD)

## ■ Slave channel's name, application items which can be "INCLUDED"

### ■ For Helicopter

Channel name	Items which can be Included
Ch1: Throttle (THRO)	
Ch2: Aileron (AILE)	
Ch3: Elevator (ELEV)	
Ch4: Rudder (RUDD)	
Ch6: Pitch (PIT.)	

### ■ For Airplane

Channel name	Items which can be Included
Ch1: Throttle (THRO)	
Ch2: Aileron (AILE)	Aileron Differential (DIFFEREN.)
Ch3: Elevator (ELEV)	
Ch4: Rudder (RUDD)	Rudder Differential (DIFFEREN.)
Ch5: Gear (GEAR)	
Ch6: Flap (FLAP)	

### ■ For Glider

Channel name	Items which can be Included
Ch1: Flaperon (FPRN)	
Ch2: Aileron (AILE)	Aileron Differential (DIFFEREN.)
Ch3: Elevator (ELEV)	
Ch4: Rudder (RUDD)	Rudder Differential (DIFFEREN.)
Ch5: Gear (GEAR)	
Ch6: Flap (FLAP)	
Extra: MOTO	
FLAI	When the Wing type is set to "Dual Flap" (DUAL FLAP) it is possible to mix Aileron to Flap and it is also possible to include Flap Differential (FLAP DIFF) in the mix.

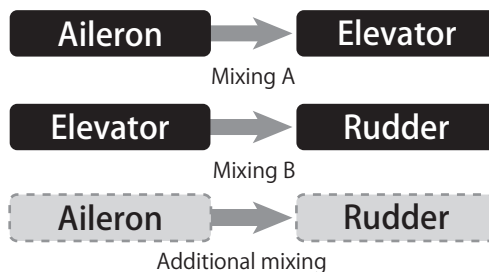
## ■ Caution Note

- Actually operate the servos and carefully confirm the settings before flight.

### ■ Explanation of the "INCLUDE" function for program mixing....

If there are several mixing functions being employed, there is normally no relation between each of the individual mixers. However, if desired, by using the "INCLUDE" function, it is possible to simplify the mixing methods using this function.

**As an example**, the chart on the right shows possible mixing to reduce an airplane's flight habits affected by characteristic of the airplane's configuration. To reduce such habits, mixing may be set for Aileron to Elevator and separately the mixing of Elevator to Rudder. As standard, the first mix would not have a flow on effect with the second. So movement of the ailerons would have no effect on the rudder. Using the "INCLUDE" function allows the two separate mixes to be coupled together. Now, Movement of the ailerons would result in movement of the rudder.





## ■ Timer [TIMER]

### ■ Function Explanation

This transmitter incorporates Three Independent Timer systems as well as an Integrated Timer. Each system has two types of timer – a count down timer and a stop watch timer. The timer can be operated by Flight Modes and through free switch selection.

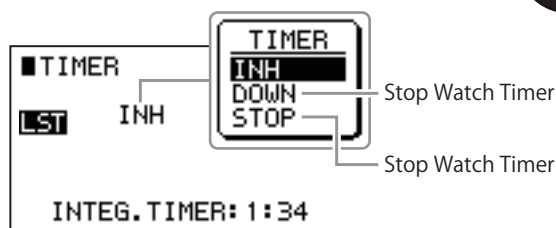
### ■ Setting Method



#### ● Down Timer

Initially, the timer function is inhibited - "INH". Select (INH) and press the dial and select "Down Timer".

The default value for the DOWN timer is 10:00 - 10 minutes and 00 seconds. The Down Timer can be set to a maximum of 59 minutes 59 seconds. As the timer counts down, an alert signal will sound every 10 seconds for times of 1 minute or less, and every second for times of 10 seconds or less. From zero, the timer will start counting up and "+" will be displayed.



#### ● Stop Watch Timer (UP TIMER)

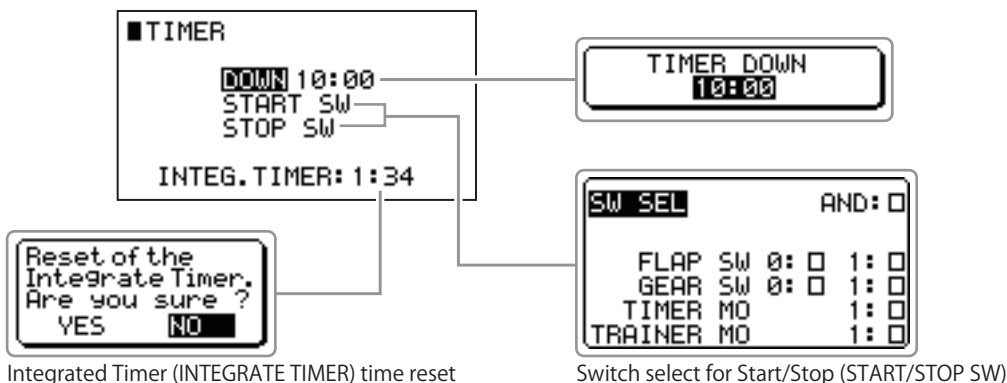
Initially, the "STOP" watch up timer function is inhibited - "INH". To activate, select (INH) and press the dial to select the "STOP" timer. The default setting for the STOP timer is 00:00 - 0 minutes and 0 seconds. The STOP Timer can run to a maximum of 59 minutes 59 seconds and then returns to 0 minutes, 0 seconds. While the timer is running, a signal will sound every minute.

#### ● Starting and Stopping the timer (START/STOP)

This function can be allocated to different switches to start or stop the timer.

#### ● Integrated Timer (INTEGRATE TIMER) time reset

The Integrated Time is recorded individually for each model. When this time exceeds 100 hours, the time will return to zero. This can be used as a reference for maintenance of each aircraft. This time can also be manually reset to zero - set the cursor on the Integrated timer and press the dial to reset.



### TIPS

- It is possible to move from the Information and Timer screen to each timer function directly.
- It is possible to reset the timer by pressing and holding the dial after moving the cursor to the Timer display on the Information and Timer screen.

## Mix Monitor [MIX MONITOR]

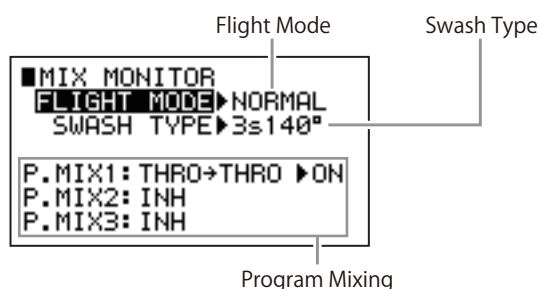
### Function Explanation

This screen gives a list and confirmation of each of the mixing conditions and basic settings incorporated in the transmitter. Because all mixing that is incorporated for each model will be displayed regardless of whether it is set to INH or ACT, it is possible to discover unintentional setting mistakes. Further, each of the items displayed on the screen can be accessed directly, avoiding the trouble of searching for functions, allowing speedy access to settings.

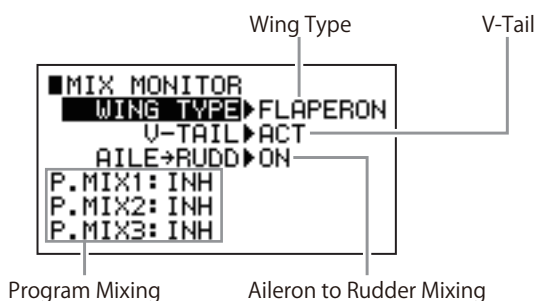
### Setting Method

It is possible to check each Mixing condition on the monitor. Move the cursor using the dial and Press dial to set each function directly.

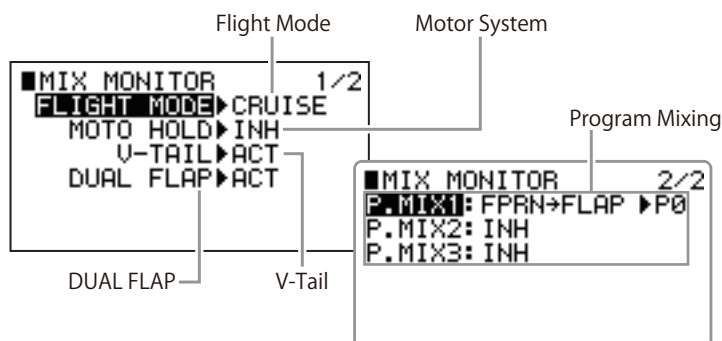
#### For Helicopter



#### For Airplane



#### For Glider



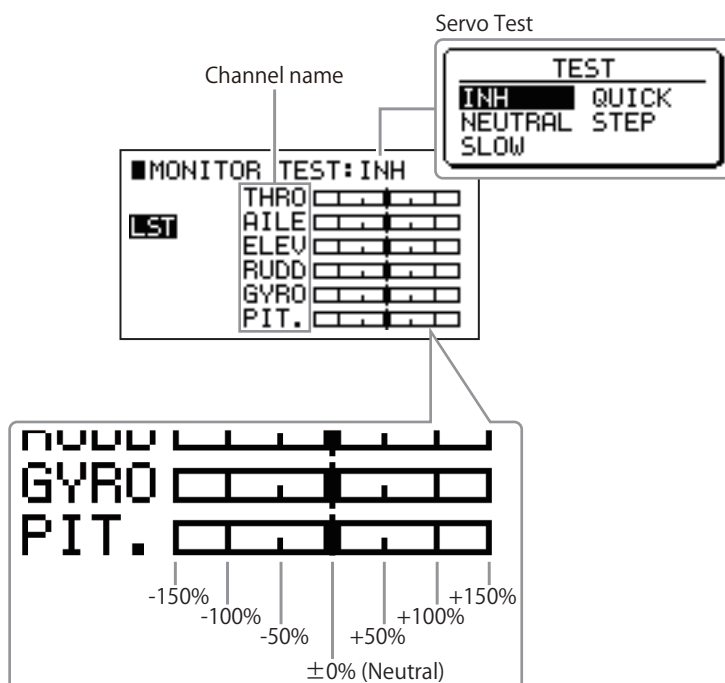
## Servo Monitor [MONITOR]

### Function Explanation

This function allows simulation of servo operation on the transmitter. Because this gives a 'final output' of all servo signals, provisional confirmation of functions can be carried out before actually connecting the servos. Further, this is useful for discovering unintentional mixing and switch setting mistakes.

### Setting Method

- Servo test outputs are displayed on the screen. Operate each control and switch and carefully confirm the settings.



#### Servo Test (SERVO TEST)

A Servo Test can be carried out using this function. Select the required servo test from below four options.

INH: Inhibited.

NEUTRAL: Set all the servos to their Neutral positions.

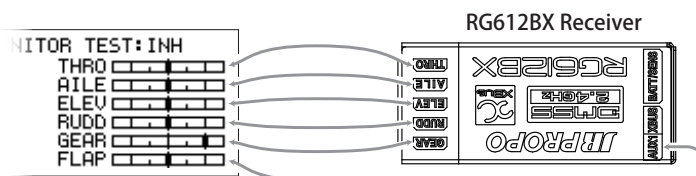
SLOW: All servos simultaneously move at Low speed linearly using  $\pm 100\%$  travel.

QUICK: All servos simultaneously move at High speed linearly using  $\pm 100\%$  travel.

STEP: Each servo sequentially moves to each side in turn using 100% travel.

### TIPS

It is highly recommended to use the Servo test monitor to check the movement of the control surfaces. Not only checking control movement, it is also possible to confirm which channel has been assigned to the receiver slots. Especially for mixing functions, without powering the model, it is useful to confirm servo movement using this monitor. Indications of the monitor channels are ordered the same as the receiver slots.



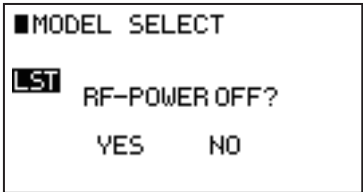
# Model Select [MODEL SELECT]

## Function Explanation

This function allows you to start setting up a new model and switch between existing models. Up to 20 unique models can be stored in this transmitter.

## Setting Method

Confirmation of Radio RF output

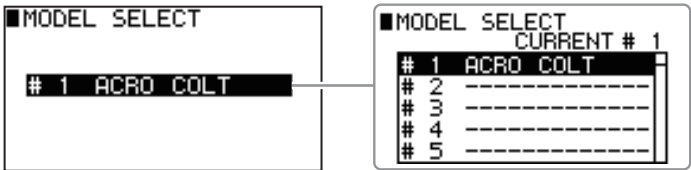


For safety reasons, a screen initially appears confirming that you wish to stop radio wave transmission. Select "YES" to continue to this function. Next, the current Model number, and Model Name are displayed. Select this item and press the dial.

Now rotate the dial to find the model you wish to switch to and press the dial to select it.



When creating a new model, selecting a name containing "----" will start initial parameter navigation allowing a new model to be created.



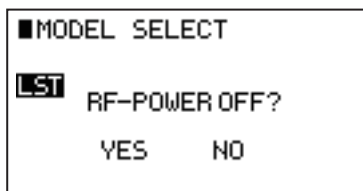
# Model Copy & Erase [MODEL COPY/ERASE]

## Function Explanation

From this screen, copying and erasing of model data is carried out. This can be carried out on both the transmitter memory and on the micro SD Card. In addition, it is possible to copy model data between other matching JR transmitters that have been connected using a trainer cable.

## Setting Method

Confirmation of Radio RF output

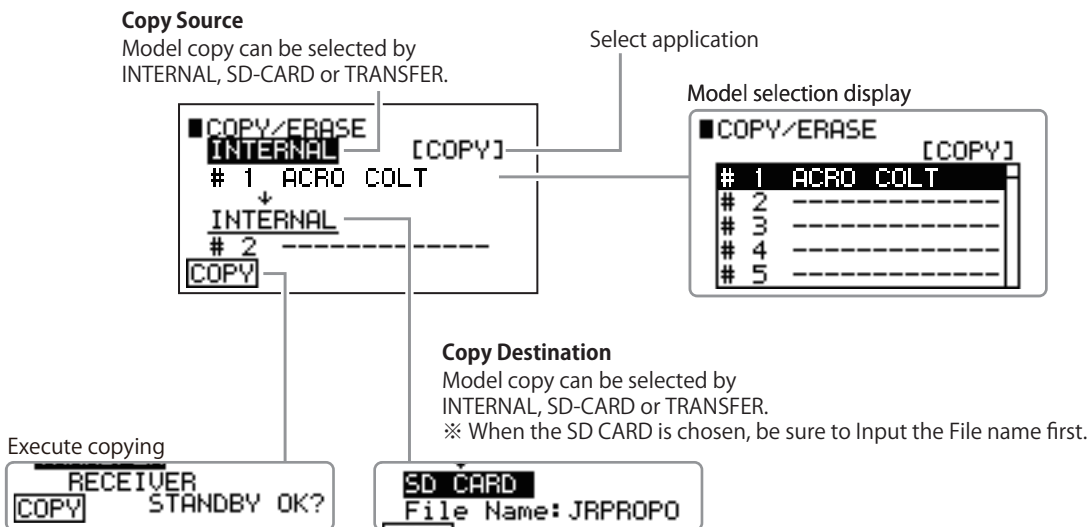


For safety reasons, a screen initially appears confirming that you wish to stop radio wave transmission. Select "YES" to continue to the function screen. No RF output is transmitted.



### Model Copy

Model copy can be selected from INTERNAL, MICRO SD-CARD or TRANSFER.



### Copy Source

The Copy Source can be selected as the Internal Memory "INTERNAL", MICRO SD CARD "SD-CARD", and between two transmitters "TRANSFER".

If "Transfer" is selected, the Copy source will be the current model number.

Be sure to select the particular Model before proceeding.

### Copy Destination

The Copy Destination can be selected from "INTERNAL", "SD CARD", or "TRANSFER".

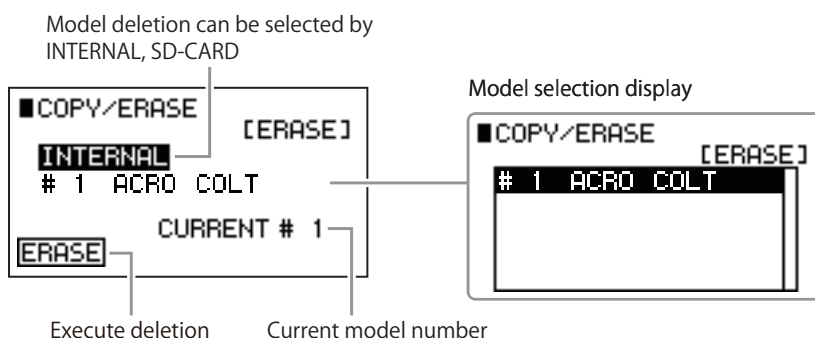
If wish to select the Destination as "INTERNAL" or "TRANSFER", chose the appropriate Model number.

If data exists on the Copy destination, it cannot be written over. Be sure to erase the data first before copying.

When the SD CARD is chosen, be sure to Input the File name.

If the File name chosen is exactly the same as a previous entry, this cannot be copied over. Modify the file name and try again.

## ● Model Erase



Model data stored on the "INTERNAL" memory or SD CARD can be erased. Be sure to double check the model being erased before continuing.

- ※ If the currently selected model is erased, the new model creation wizard will automatically start. If you wish to use data from the current model number, be sure to copy it to another model number first and then erase the particular model from the Model Select function.

## TIPS

- The "TRANSFER" of data between transmitters can be only achieve when the Trainer cable (Sold Separately) has been plugged into the XG6 and the transmitter power switch is turned off.
- When a model transferred from another transmitter is used, it will be necessary to re-bind with the receiver.

## ■ Caution Note

- While this screen is displayed, and during the copy procedure, NEVER remove the Micro SD Card under any circumstances.  
There will be a danger of destroying Model Data which is on the card.
- Only insert or remove the Micro SD card when the transmitter power is switched off.
- Actually operate the servos and carefully confirm all settings before flying.

## Model Type Select [TYPE SELECT]

### Function Explanation

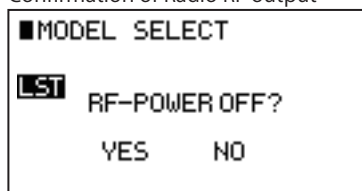
This function allows selection of the model type.

The type can be switched between Helicopter ⇄ Airplane ⇄ Glider.

Additionally, this screen will be automatically displayed when creating a new model.

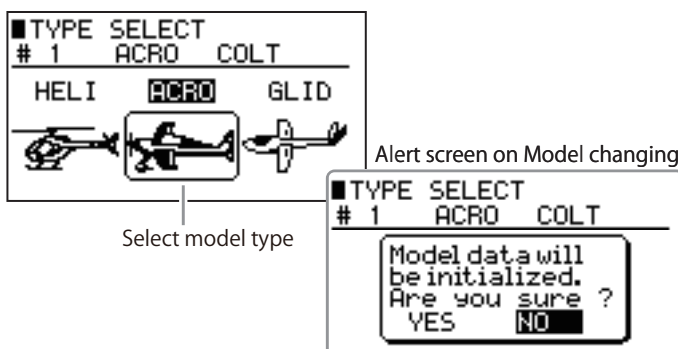
### Setting Method

Confirmation of Radio RF output



When entering this function screen from the System List, the currently selected model type can be changed. Select the type that you wish to change to by rotating the dial, then press the dial to confirm. After doing so, you will be asked whether the current model data is to be reset, so select "YES" to implement the reset.

For safety reasons, a screen initially appears confirming that you wish to stop radio wave transmission. Select "YES" to continue to this function. Now no RF output will be transmitted.



### TIPS

- The connections with the receiver should be made as follows:

#### Receiver connection channel list

Receiver	Helicopter	Airplane	Glider
1) THRO	THRO	THRO	LAILE
2) AILE	AILE	AILE	RAILE
3) ELEV	ELEV	ELEV	ELEV
4) RUDD	RUDD	RUDD	RUDD
5) GEAR	GYRO	GEAR	GEAR
6) AUX1	PIT.	FLAP	FLAP

### Caution Note

- Because the previous data will be erased when the model type is changed, any important model data should be copied and backed-up beforehand. Also note that when the Model type is changed, the new model setup wizard will automatically start, so choose the Model Type and Wing Types accordingly.

# Model Name [MODEL NAME]

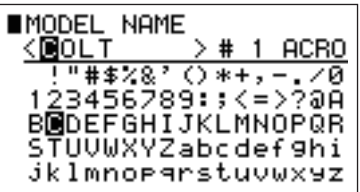
## Function Explanation

In this screen, the inputting and modification of each model name can be carried out. Select the name from the list of characters and numbers. The Name can contain a maximum of 8 characters or numbers.



## Setting Method

The name of the model that is currently being used can be registered and changed. First, move the cursor to the desired position, and press the dial. By doing this, the cursor will move to the list of characters, allowing you to select your desired characters and input it by pressing the dial.



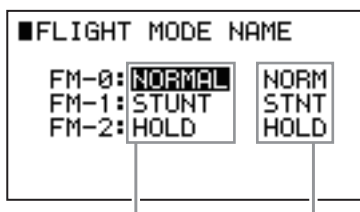
- Since the Model Name is displayed on the Information display and during Model Selection , it is useful to use a unique name for each aircraft.



## ■ Flight Mode Name [FLIGHT MODE NAME]

### ■ Function Explanation

In this screen, the name given to the different Flight Modes can be changed. The Flight Mode name display is shown with two names, one long name up to six (6) characters and one short name up to four (4) characters, which are used in each of the screens, and each can be freely changed.

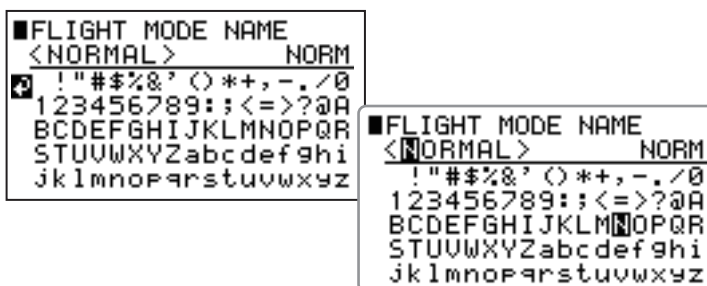


Flight Mode name long

Flight Mode name short

### ■ Setting Method

In each Flight Mode, there are displays of a long 6-character name and a short 4-character name. Rotate the dial to select the name that you wish to change, then press the dial and enter the name in the same way as you would for a model name. Note that since Airplane mode has no flight modes, there is no function to be named.



### TIPS

- The Flight Mode name is displayed on the Information display as well as each function showing flight mode condition.

# Trim System [TRIM SYSTEM]

## Function Explanation

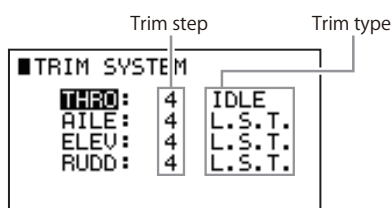
In this screen, the various settings relating to the Trims can be changed. The resolution of each Trim, the Trim type, and whether separate or common trims should be used for each flight mode can be set. Using this function, customers can easily change the trim settings.

## Setting Method

- Trim Step  
It is possible to set the trim travel amount per one (1) click. The default is Four (4) steps per click. It is possible to set the step to be between one (1) step and ten (10) steps.
- Trim Type
  - Normal Trim (NORM) . . . . Normal Trim is the default trim type. The entire servo operation range will be changed when the trim is moved.
  - Limit Stroke Trim (L.S.T) . . . . Limit Stroke Trim the trim amount set at each stick center (neutral) position will be maximum, while the effect of the trim will disappear at the stick end positions. End point travel adjustment will not be changed by the trim settings. It is possible to avoid damage to servos, linkages and control surfaces by using L.S.T.
  - Idle Trim (IDLE) . . . . . Idle Trim is a Helicopter only function: This trim only functions at the low position of the throttle stick.

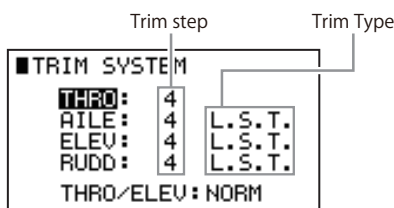


## For Helicopter



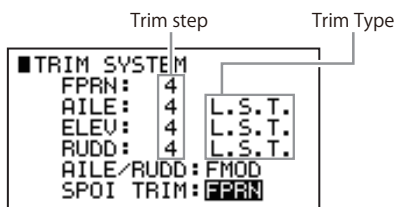
## For Airplane

- Cross Trim setting  
Throttle trim and Elevator trim can be switched (Cross Trim) in order to set the trim to the opposite side of the transmitter so as trim can be adjusted without removing fingers from the control stick.



## For Glider

- Flight Mode Trim for Aileron and Rudder Trim (AILE/RUDD TRIM)  
It is possible to independently select Aileron and Rudder Trim for each flight mode, or use a common trim setting across all flight modes.  
COM: Common.  
FMOD: Individual trims for each flight Mode.
- Selection of the Spoiler Trim Lever function (SPOI TRIM)  
It is possible to select the spoiler trim lever function, as a default, it is set to Flaperon. (FRPN), and functions as Flaperon trim.
  - Flaperon trim (FRPN TR): . . . . . Functions as Flaperon trim
  - Flap trim (FLAP TR): . . . . . Functions as Flap trim
  - Spoiler trim (SPOI TR): . . . . . Under device select, it functions as trim for the Motor channel when the Gear channel has been set as Motor (MOTO) and also Spoiler stick (SPOI ST) as an Input device.



## TIPS

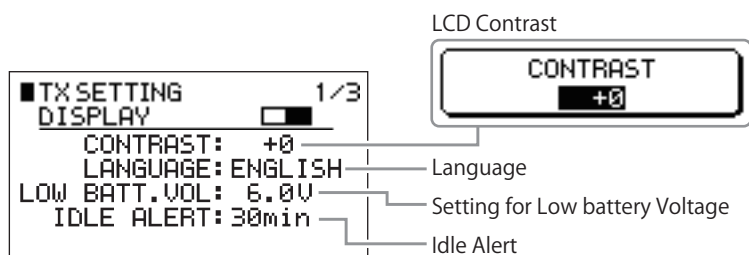
- By setting the Trim Step to "0" it is possible to inhibit the operation of a trim lever.
- For Helicopter: It is very useful when using an ESC in non-governor mode to be able to Move the whole Throttle Curve to change the Rotor r.p.m. .

# Transmitter Setting [TX SETTING]

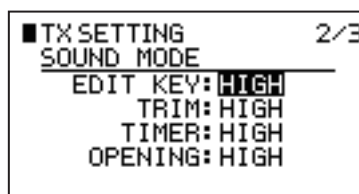
## Function Explanation

This function allows basic adjustment of transmitter settings.

## Setting Method



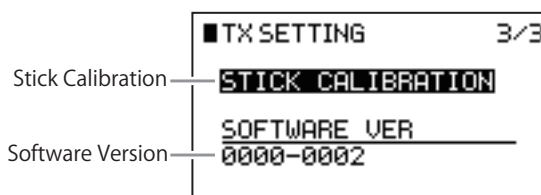
- LCD contrast (CONTRAST)  
The LCD Contrast can be changed between numerical values of  $\pm 20$ .
- Language (LANGUAGE)
  - ▶ English
  - ▶ DEUTSC : German
  - ▶ FRANCE : French
- Low battery warning (LOW BATT.VOL)  
This sets the voltage at which the Low battery alert triggers. Initially, it is set to 6.0V.
- Idle Alert (ILDE ALERT)  
This function ensures the operator does not forget to turn off the transmitter. The idle (inactivity) time can be set to four different settings:  
INH, 10 minutes: (10min), 30 minutes: (30min), and 60 minutes: (60min)
- Audio Mode (SOUND MODE)  
It is possible to change the audio pitch (or mute) for the following functions.
  - ▶ Edit
  - ▶ Trim step
  - ▶ Timer sound
  - ▶ Opening sound (Sound when the transmitter is first turned on)
- Definition of the tones
  - ▶ HIGH . . . High Tone sound
  - ▶ LOW . . . Low Tone sound
  - ▶ OFF . . . Mute



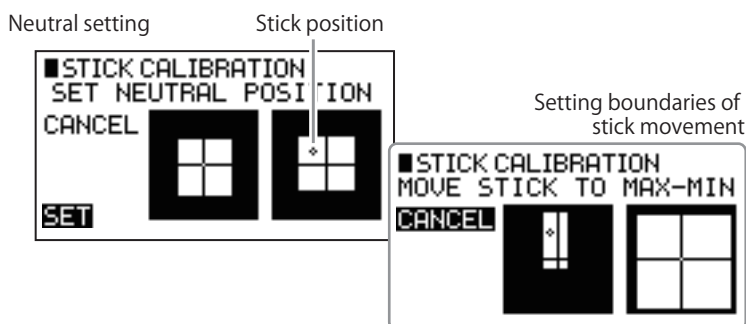
## TIPS

- Alert Warnings cannot be muted.

- Software version (SOFTWARE VER)  
This indicates the current version of the transmitter's software.  
For example: 0001-0000 (Ver1.0)



- Stick Calibration (STICK CALIBRATION)  
This function calibrates the neutral position of the stick and stick travel which is especially useful after changing Stick mode ( Mode 1 to Mode 2 or Vice Versa). The calibration procedure is as follows.
- 1) Place both right and left sticks in their center positions, and set the cursor to "SET", and press the dial to calibrate neutral.
  - 2) Next move both right and left sticks up and down and right to left and press the dial to calibrate stick travel.
  - 3) Be sure to check control movement and neutral positions on the servo monitor screen  
Refer to the Page 46 "Servo Monitor [MONITOR] "



## Caution Note

- Be careful not to force the stick gimbal during the calibration procedure.

# Trainer [TRAINER] aka: Buddy Box in the USA

## Function Explanation

This function allows two (2) transmitters to be connected via a Trainer cable (available separately) to allow dual control flight instruction. A skilled pilot can teach a beginner how to fly an aircraft using this trainer system. The C.O.L.T. can function as Master (Trainer) or Slave (Trainee). Control can be changed between Master and Slave using the Master Transmitter's Trainer switches (Trainer momentary switch, or Trim Lever).



## Setting Method

- As a Master transmitter  
When using the C.O.L.T. as a "MASTER"
- ① The Main Power must be turned on, the transmitter is transmitting Radio Waves, and is bound to the aircraft.
- ② The Trainer cable is plugged in.
- ③ The Trim Lever or Trainer Switch (Momentary Toggle switch) are selected using "SW SEL" – by turning these ON/OFF it is possible to switch control from the Master transmitter to the Slave. There are two modes available for the Master transmitter.

### ► NORMAL MODE

The Master transmitter always has priority control. Control data coming from Slave transmitter is only sent to the aircraft by switching control from Master to Slave. The Slave transmitter has to be set to "PPM" mode. The Master transmitter has full control over the model, however, the Slave transmitter does not need to be exactly the same radio, or a high end transmitter. The Slave transmitter should be able to output a "PPM" signal, and have a trainer Jack as the minimum transmitter function requirements.



### ► PROGRAM TRAINER

The Master transmitter can be programmed to choose the control channels independently for use by the Slave transmitter. Channel-1 (THRO /SPOI), Channel- 2 (AILE), Channel-3 ELEV) Channel-4 (RUDD) - Select one or more of them to be controlled by the Slave transmitter. This allows the beginner pilot to learn a single control independently. This makes it easier to learn, without the worry of controlling all functions at once. The data coming from Slave to Master is combined with data from the Master transmitter's Settings (Trim, Dual rates, Mixing etc...) before being transmitting to the model. Therefore, The Master transmitter has full control. However, the Slave transmitter does not need to be a full control radio. Precise adjustments and settings must be done in the Master transmitter. The Slave transmitter must be selected as "SLAVE". This Trainer program is available on most recent JR Computer transmitters.



- As a Slave transmitter  
When using the transmitter as a "SLAVE"
- ① The Main Power switch must be turned off (No Radio Waves are transmitted).
- ② The Trainer cable must be plugged in.

There are two modes available for the Slave transmitter.

- When the Master transmitter is set to Normal mode, the Slave transmitter should also be set to "NORMAL" mode. There are no specific setting requirements, however, if the radio has a Trainer program, do not set it as "SLAVE".

### ► SLAVE MODE

Use this mode when the Master transmitter is set to "Program Trainer". When set as "SLAVE", only the Gimbals stick functions pass control outputs to the Master transmitter. Therefore, settings such as Dual rates and Mixing are ignored completely.



※ Possible to confirm the movement and condition in the "Servo Monitor" Refer to the Page 46 "Servo Monitor [MONITOR]"

## Caution Note

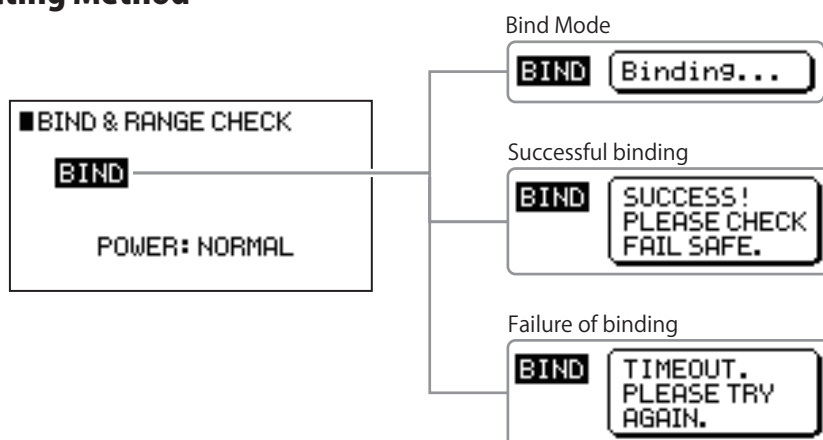
- Be sure to check for correct function and control prior to commencing flight training using two transmitters. Pay particular attention to control direction, Dual rates, mixing and etc..

## Bind and Range Check [BIND&RANGE]

### Function Explanation

This function allows binding (pairing) with the receiver. In addition, transmitter power output can be reduced for carrying out a range check.

### Setting Method



- Binding (BIND)

Set the receiver to the Bind Standby condition. Then rotate the dial to select "BIND" (inverse display) and press the dial. If the display shows "SUCCESS", binding has been successfully completed. If the display shows "TIMEOUT PLEASE TRY AGAIN", the bind process failed and you must try again.

- POWER (RF POWER) Range Check

If POWER is changed from "NORMAL" to "LOW", the transmitter RF power is reduced, allowing a range check to be carried out. Place the Aircraft 40 meters (approx 130 feet) away from the transmitter, and ensure all the controls function normally.

### TIPS

- If there is difficulty in binding a receiver, please confirm the following:
  - ▶ Are the transmitter and receiver batteries fully charged? Please fully charge the batteries.
  - ▶ Are the transmitter and receiver too close to each other?  
If they are set too close to each other, RF swamping may interrupt the binding process. Please try binding again with the transmitter and receiver further apart.
  - ▶ If the transmitter and receiver are on a metal table or desk, binding may be difficult.  
Please try binding on a different surface.

### Caution Note

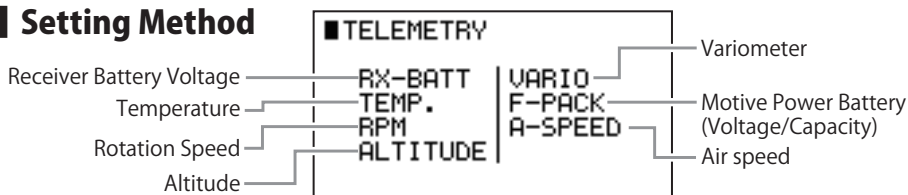
- Be sure to set the "FAIL SAFE" (under System List) after the binding procedure is complete. It is essential to use the Fail safe to minimize the risks of RF signal loss. Be conscious about safety at all times. Check the actual Fail safe settings by turning off the transmitter, and monitoring the response of the servos.  
When the model or type is changed in the transmitter, it will be necessary to re-bind the receiver.
- NEVER fly the aircraft in Range Check mode.

# ■ Telemetry System [TELEMETRY]

## ■ Function Explanation

This allows optional telemetry sensors present in a particular aircraft, gathering information such as Receiver Voltage, Altitude, Temperature or Propeller or rotor blade r.p.m., etc. In addition to the data on the display, alarms are used, so as aircraft conditions can be monitored without taking your eyes off the aircraft.

## ■ Setting Method



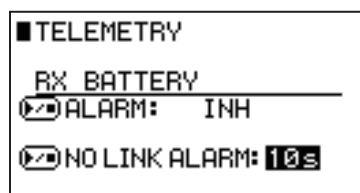
## ■ Receiver battery (RX-BATT) No Link Alarm (NO LINK ALARM)

### ● Receiver Battery Alarm

This function alerts to a drop in receiver battery voltage. Initially it is inhibited. To activate, set the alarm Voltage between 3.0V ~9.0V in 0.1V increments.

### ● No Link Alarm

This will warn when the transmitter is no longer receiving data from the model. Initially it is set as inhibited. Set the delay after which the alarm should sound to either 10S (10 seconds), 15S (15 seconds), 20S (20 seconds), or 30s (30 seconds).



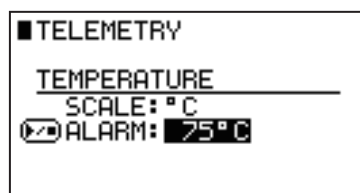
## ■ Temperature (TEMPERATURE)

### ● Units (SCALE)

This selects the units for temperature display - Celcius ( ° C) or Fahrenheit ( ° F). Select the units as desired.

### ● Alarm (ALARM)

This sets the temperature at which the alarm will sound – between 30 and 500 ° C. Initially this alarm is inhibited. Set the temperature to the desired alarm point.



## ■ Revolutions Per Minute (RPM)

### ● Sensor type

Select the Rotation Sensor type depending on usage.

#### ➤ Magnetic Sensor (MAGNETIC)

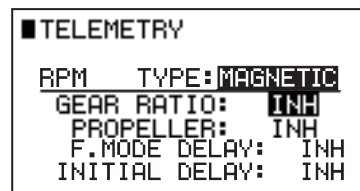
By using the Magnet on Rotation object to sense the rotation.

#### ➤ Optical Sensor (OPTICAL)

By using the optical sensor which detect the obstruction of the light per propeller blade.

#### ➤ Motor Pulse Sensor (MOTOR)

By detecting the Pulse signal on the brushless motor to sense the rotation.



### ● Gear Ratio (GEAR RATIO)

It is possible to monitor the Helicopter's actual rotor blade r.p.m. by entering the gear ratio. Check the gear ratio for each Helicopter by checking your manual. Initially it is set as inhibited. Set the necessary numerical value. Gear Ratios can be set between 1.00 ~20.00 in 0.01 increments.

### ● Number of Blades (PROPELLER)

It is possible to monitor an Airplane's actual Propeller r.p.m by installation of an optical sensor. It is necessary to input the number of blades of the propeller in order to have actual Propeller r.p.m displayed. Initially, it is inhibited. The number of Propeller blades can be set between 1-20.

### ● Delay (F.MODE DELAY)

It is possible to display and store the maximum r.p.m. recorded in each flight mode. However, when the flight mode is changed, the sensor may immediately store a maximum value, which would be invalid. To avoid storing incorrect r.p.m. data, this function allows rpm to stabilize before storing any data. Initially it is set to inhibited. Set the desired numerical amount which would suit with your model. The delay can be set from 0.5s (0.5 seconds) ~ 10.0s (10 seconds) in 0.5 seconds increments.

### ● Initial Delay (INITIAL DELAY)

In order to detect the Signal Pulse from the Brushless motor, it is essential to use ESC, however, certain ESC on the R/C market offers the function to alert initial start with sound of beep. This can be recognised as a highest RPM signal on this sensor. So False RPM may appear on the data screen. In order to avoid this false signal reading, It is capable to set the transmitter to read the signal with some delay between 5seconds to 30seconds (with 5seconds interval. Initially it is set as INH. Set the required timing by seconds to activate this function.

## Altimeter (ALTITUDE)

### Units (SCALE)

This selects the units –Meter (m) or Feet (ft). Select the units as desired.

### Sound: Audio (SOUND1, 2, 3)

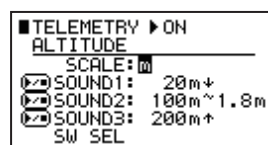
It is possible to select from three (3) types of audio for different altitude indications. Initially it is set to inhibit. If desired, set the alert sound depending on the situation. It is possible to set altitude between 1 ~2000m in 1.0 meter increments.

Types of Alert: ↑ : When the altitude is greater than the set value. ↓ : When the altitude is less than the set value. ~ : When flying within the set altitude range.

※ When the alert is set in an altitude range, it can be set between 0.3m ~9.9m in 0.3m increments. If the three (3) conditions overlap, Priority is set as "SOUND3 > SOUND2 > SOUND1".

### Switch Select (SW SEL)

It is possible to set an Alert to be active by switches or stick position, or a combination of those devices by using "SW SEL". Initially it is always turned on.



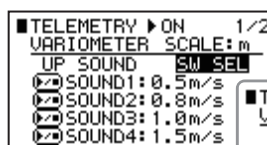
## Climb Indicator (VARIOMETER)

### Units (SCALE)

This selects the units (m/s, ft/s). Select the units as desired.

### Audio for Ascent (UP SOUND1, 2, 3, 4)

The Climb Rate can be set in 4 different ranges, with an alert for each range. Each one of the settings can have an alert. Initially it is set to "INH". The Climb Rate alert can be set between 0.1m/s ~3.0m/s, in 0.1m/s increments.



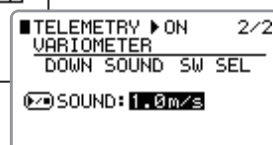
※ If the four (4) conditions overlap, Priority is set as "SOUND4 > SOUND3 > SOUND2 > SOUND1".

### Audio for Descent (DOWN SOUND)

The Descent Rate can be set in 4 different ranges, with an alert for each range. Each one of the setting can have an alert. Initially it is set to "INH". The Descent Rate alert can be set between 0.1m/s ~3.0m/s, in 0.1m/s increments.

### Switch Select (SW SEL)

It is possible to set the Alert to be active by switches or stick position, or a combination of those devices by using "SW SEL". Initially it is always turned on.



## For Motive Power Battery (FLIGHT PACK)

### Motive Power BatteryAlarm (VOLT-ALARM)

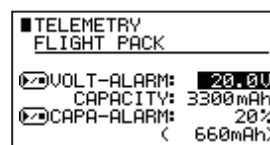
It is possible to set an alert for low Motive Power Battery voltage. Initially it is set as Inhibited. Set the alert voltage as desired. The Voltage can be set between 0.1V ~655.3V in 0.1V increments.

### Nominal Capacity Value (CAPACITY)

It is possible to set a Nominal Capacity Value to match your Motive Power battery capacity. The remaining battery capacity value is displayed by deducting the consumed capacity value. It can be set between 0mAh ~30,000mAh, in 10mAh increments.

### Battery Capacity Alarm (CAPA-ALARM)

It is possible to set a capacity remaining alert based on the Nominal Capacity value of your battery. Initially it is set as Inhibited. To activate, set a percentage between 0% to 100%. The alarm will sound when this calculated percent capacity remaining reaches this figure.



## TIPS

- By using the Information screen, it is possible to display your desired Telemetry information on the first page, together with the Timer and Flight Mode selection on a screen that customers can customize so that it is easy to check. Initially it is set as Inhibited. Select the telemetry information to be displayed, and allocate it to a position on the screen.

## Caution Note

- The Telemetry sensor data is meant as an indication only, and therefore we cannot guarantee the accuracy of any recordings obtained.



## Air speed(A-SPEED)

### Units of measurement (UNITS)

Select the units to display.

**km/h:** To show the speed in km per hour. **mph:** To show the speed in miles per hour.

**knot:** To show the speed in knots.

### High speed alarm (UP ALERM) :Intermittent tone.

Set the over speed alarm.

The default value is disabled (INH). It is necessary to set a speed to enable the high speed alarm.

The alarm range is from 1 km/h to 999 km/h in 1 km/h steps.

### Low speed alarm (DN ALERM) : Constant tone.

The default value is disabled (INH). It is necessary to set a speed to enable the low speed alarm.

The alarm range is from 1 km/h to 999 km/h in 1 km/h steps.

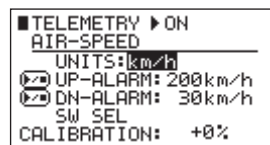
### Switch select (SW SEL)

It is possible to select a switch and/or stick position to determine when the alarms should be active.

※ Confirm the low speed alarm starts beeping once activated with the model on the ground.

### Calibration (CALIBRATION)

The TLS1-SPD monitors airspeed using a pressure sensor. Sometimes it is necessary to modify the displayed values slightly because of installation differences, etc. Here you can modify the displayed airspeed by inputting a +/- percentage.



## TIPS

- By using the Information screen, it is possible to display your desired Telemetry information on the first page, together with the Timer and Flight Mode selection on a screen that customers can customize so that it is easy to check. Initially it is set as Inhibited. Select the telemetry information to be displayed, and allocate it to a position on the screen.

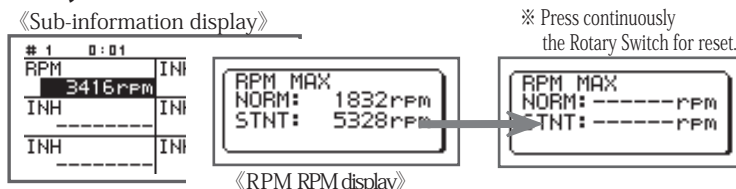
## Caution Note

- The Telemetry sensor data is meant as an indication only, and therefore we cannot guarantee the accuracy of any recordings obtained.

## Sub Information display • Telemetry set up on display

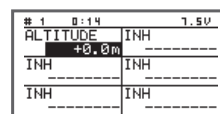
### Maximum rotation(RPM) memory reset (Rotation sensor in use)

- Long press the dial to reset the rpm data.



### Altitude reset display (Altitude sensor TLS1-ALT in use)

- The sensor altitude can be made at 0.0m by long pressing the dial.



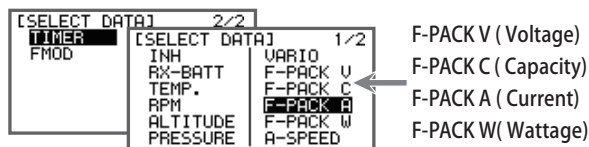
### Highest altitude memory reset (Altitude sensor TLS1-ALT in use)

- The sensor highest altitude data can be reset at 0.0m long pressing the dial.

《Sub-information display》

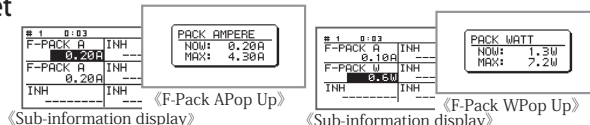
### Power sensor display (Power sensor TLS1-PWR)

- When Telemetry Power Sensor(TLS1-PWR) is used, Select the voltage, capacity, current and wattage to display.



### Maximum Value (Ampere/Watt) memory reset (Power sensor TLS1-PWR in use)

- Maximum value can be reset by long pressing the dial. after setting the display at each AMPERE or/WATT Pop up.



### Maximum Speed memory reset (Air speed sensor TLS1-SPD in use)

- Maximum Speed memory can be reset by long pressing the dial after setting the display at A-Speed Pop up. Indication of the speed memory shall be reset as "0km/h"

※Each value shall be erased after turning off the main power.

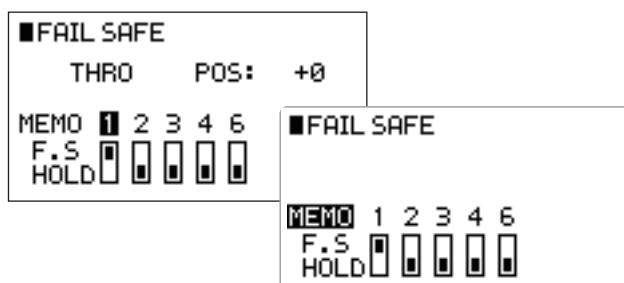
## ■ Fail safe [FAIL SAFE]

### ■ Function Explanation

If the receiver does not receive a valid RF signal from the transmitter, this function moves the servos to predefined positions, to avoid the scenario of the aircraft crashing at, for example, full throttle. Be sure to set the Fail Safe before flying each aircraft.

### ■ Setting Method

This function allows selections to be made for each channel in case of loss of RF signal. "HOLD", maintains the servo positions as they were immediately before the radio signal was lost. This is the default setting. It is also possible to select "FAIL SAFE". In order to set the "FAIL SAFE" positions (the servos move to predefined positions in the event of loss of radio signal), change the switch for each of the channels on the screen to "FAIL SAFE". The memorizing of each of the Fail Safe positions is carried out by operating the stick to the desired position and holding it there while pressing the "MEMO" key to activate this function.



### ■ Caution Note

- For safety reasons, engine-powered and electric powered aircraft must have their motive power channels set to the slowest speed.
- If the Reverse Switches or Stick Mode are changed after setting the Fail Safe, the motive power failsafe may be set, in error, to the Full Throttle position. In order to avoid making this dangerous mistake, be certain to remember to implement the Fail Safe settings after completing the aircraft set-up.
- Before flying, be certain to confirm the failsafe settings by switching off the transmitter power, and observing that the servos move to the positions intended.

## ■ Flight Mode Switch [FLIGHT MODE SW]

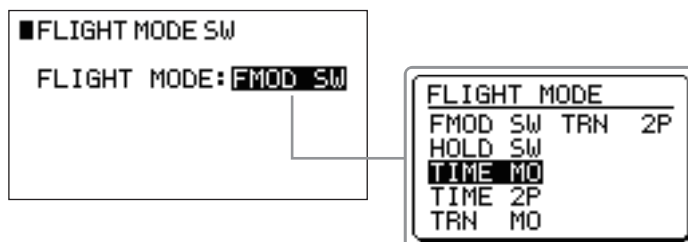


### ■ Function Explanation

Select the switch to change the flight mode

### ■ Setting Method

Initially, it is set as Flight mode switch (FMODE SW). If desired, it is possible to choose the switch from the list.



### TIPS

- Use the touch select function which allows switch choice by simply moving the desired switch. This is useful when it is hard to define the switch name.

### ■ Caution Note

- Actually operate the servos and carefully confirm the settings before flying.

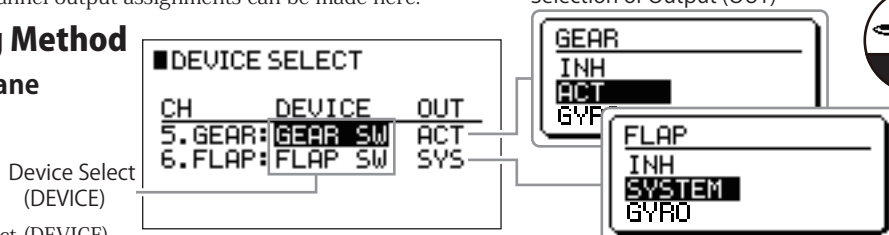
## Device Select [DEVICE SELECT]

### Function Explanation

This screen is where various flight modes can be set, and where switch functions can be defined. Further, channel output assignments can be made here.

### Setting Method

#### For Airplane



- Device Select (DEVICE)  
Here input devices (switches, and levers) can be linked to a particular channel. Select the device as desired.

- Selection of Output (OUT)

Here the Output configuration of each channel can be specified.

INH: No output.

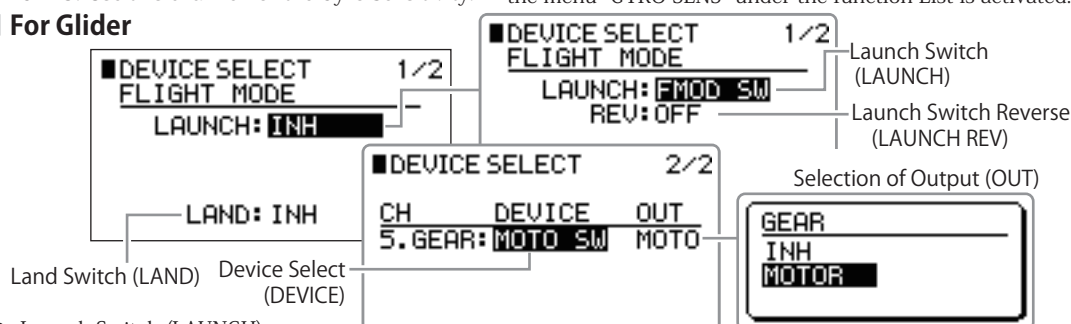
ACT: Allow output - standard.

SYS: Use this channel for the Flap system.

GYRO: Use this channel for the Gyro Sensitivity.

※ By setting the flap channel to "SYS"(SYSTEM), the menu "FLAP SYSTEM" under the function List is activated.  
By setting the 5 or 6 channel to "GYRO", the menu "GYRO SENS" under the function List is activated.

#### For Glider



- Launch Switch (LAUNCH)  
By setting up a LAUNCH (Launch Switch) it is possible to set two additional flight Modes:

- ▶ Cruise Mode (CRUISE)
- ▶ Launch Mode (LAUNCH)

- ▶ Launch Switch Reverse (LAUNCH REV)

It is possible to switch the Launch Switch position on the Flight Mode switch.

OFF: The Upper switch position (POS0) will be set as Cruise and the Bottom switch position (POS1) will be set as LAUNCH (Launch Mode).

ON: The Upper switch position (POS0) will be set as Launch and the Bottom switch position (POS1) will be set as Cruise (Cruise Mode).

- Land Switch (LAND)

By setting up a LAND (Land Switch) it is possible to set the following two flight Modes:

- ▶ Cruise Mode (CRUISE)
- ▶ Launch Mode (LAUNCH)

- Device Select (DEVICE)

Here input devices (switches, levers and trim switches) can be linked to a particular channel. Select the device as desired.

- Selection of Output (OUT)

Here the Output configuration of each channel can be specified.

INH : No output.

MOT : Use this channel for Motor control.

※ When the Motor Channel is set, "MOTOR SYSTEM" on the function List becomes activated.

### TIPS

- Even though a channel's OUT (Output) can be set to "INH", it is possible to use the channel with a "PROGRAM MIX" (on the function List) as a Master channel. It is also possible to set this under "DEVICE SELECT"
- Touch Select function: When selecting a switch, by operating the switch that you wish to use, the switch will be automatically recognize and be set to that function. It is useful when you are not sure of the switch name.
- It is possible to select from the following two (2) movement options when using a trim lever as an Input device:  
2P: 2 position movement / MO: Momentary Movement

### Caution Note

- Actually operate the servos and carefully confirm the settings before flying.



# Swash type [SWASH TYPE]

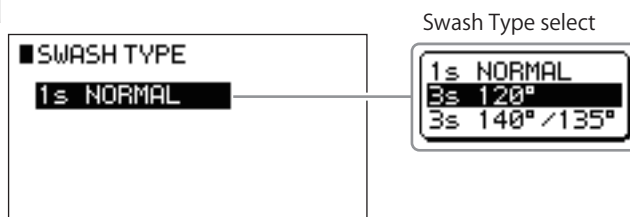


## Function Explanation

This function allows electronic CCPM mixing to match the mechanical structure and control of the helicopter swash plate. After making the SWASH TYPE selection, detailed settings should be made using Swash Mixing in the Function List.

**Note:** When setting up a helicopter with a flybarless unit, please follow the flybarless unit manufacturers instructions regarding swash type and swash mix settings.

## Setting Method

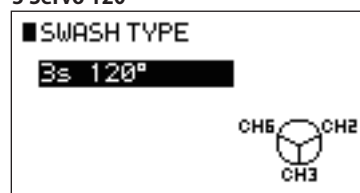


Select the CCPM Swash type on the screen by rotating the dial, and then pressing the dial. This displays a list of Swash Patterns –select the pattern which matches your helicopter. Initially, it is set to 1 servo Normal. Note that the actual mixing amount and direction settings must be carried out in the System List - "SWASH MIXING".

### Swash Types

- ▶ 1 Servo Normal: Mechanical mixing
- ▶ 3 Servo 120° : 120° swash (120° CCPM)
- ▶ 3 Servo 140° /135° : 140° /135° swash (140° /135° CCPM)

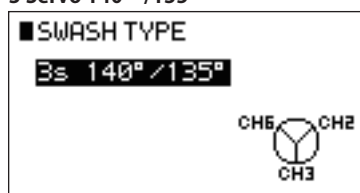
### 3 Servo 120°



## Caution Note

- Actually operate the servos and carefully confirm the settings before flying.
- When the swash type is changed, the display will be as indicated in the diagram on the right.
  - Travel adjust [TRAVEL ADJUST] . . . . . Page 21
  - Sub Trim [SUB TRIM] . . . . . Page 22
  - Reverse Switch [REVERSE SW] . . . . . Page 23
  - Servo Monitor [MONITOR] . . . . . Page 46
  - Fail safe [FAIL SAFE] . . . . . Page 61

### 3 Servo 140° /135°



When normal swash type is selected, the servos plug into the receiver as expected (aileron, elevator, pitch).

When the swash type is set to 3S 120° or 3S 140°/135°, please follow the graphics on the transmitter display as to where each servo plugs into the receiver. Note that CH2 is the aileron port, CH3 is the elevator port, and CH6 is the pitch port on the receiver.

# Wing Type [WING TYPE]

## Function Explanation

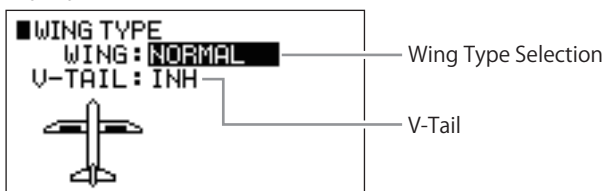
Here the wing type can be set. Dual ailerons and dual flaps, dual elevators, dual rudders, tailless planes, and V-tail wings can be selected.

## Setting Method

This function is used to select the Wing type according to the type of airplane.

### For Airplane

Normal



#### Wing Type (WING)

Select the Main Wing Type.

##### Normal (NORMAL)

For standard airplane wing layouts.

##### Flaperon (FLAPERON)

For wings with Dual Ailerons. Also, mixing Dual Ailerons as Flaps is possible.

The following channel outputs are used:

Refer to the Page 34 "Flap System [FLAP SYSTEM] "

Channel 2 (AILE) : Right Aileron (RAIL)

Channel 6 (FLAP) : Left Aileron (LAIL)

##### Delta (DELTA)

It is possible to set up a Delta Wing to use Elevons.

The following channel outputs are used:

Channel 2 (AILE) : Left Elevon (LEVN)

Channel 3 (ELEV) : Right Elevon (REVN)

The actual meaning of "DELTA" is a defined wing shape, and not a tailless airplane. However, JR does call tailless airplanes deltas (e.g. the F-102 or Dassault Mirage III).

##### V-Tail (V-TAIL)

Used to perform mixing for a V-tail airplane.

The following channel outputs are used:

Channel 3 (ELEV) : Left Tail (LTAL)

Channel 4 (RUDD) : Right Tail (RTAL)

Flaperon



Delta



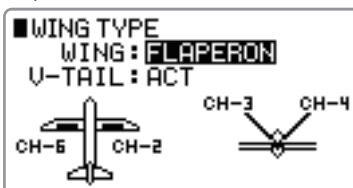
Normal / V-Tail



## Caution Note

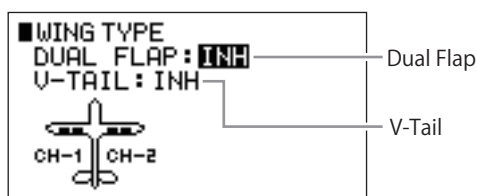
- Actually operate the servos and carefully confirm the settings before flying.
- Upon setting the Wing type, the following functions have changes to the servo naming on the display:
  - Travel adjust [TRAVEL ADJUST] . . . . . Page 21
  - Sub Trim [SUB TRIM] . . . . . Page 22
  - Reverse Switch [REVERSE SW] . . . . . Page 23
  - Servo Monitor [MONITOR] . . . . . Page 46
  - Fail safe [FAIL SAFE] . . . . . Page 61

Flaperon / V-Tail



## For Glider

Normal setting (Dual Aileron)



Dual Aileron is the standard Wing type for Glider.

Channel 1 : Left Aileron (LAIL)

Channel 2 : Right Aileron (RAIL)

- Dual Flap (DUAL FLAP)

Dual flap is not active by default. To use this function, it must first be activated "ACT".

Channel 5 : Left Flap (LFLP)

Channel 6 : Right Flap (RFLP)

- V-Tail (V-TAIL)

This is mixing for a V-Tail airplane.

The following channel outputs are used:

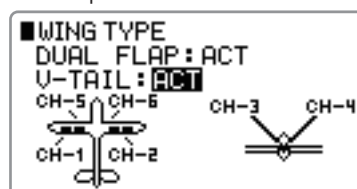
Channel 3 (ELEV) : Left Tail (LTAL)

Channel 4 (RUDD) : Right Tail (RTAL)

Dual Flap



Dual Flap / V-Tail



## Caution Note

- Upon setting the Wing type, the following functions have changes to the servo naming on the display:
  - Travel adjust 【TRAVEL ADJUST】 . . . . . Page 21
  - Sub Trim 【SUB TRIM】 . . . . . Page 22
  - Reverse Switch 【REVERSE SW】 . . . . . Page 23
  - Servo Monitor 【MONITOR】 . . . . . Page 46
  - Fail safe 【FAIL SAFE】 . . . . . Page 61
- Actually operate the servos and carefully confirm the settings before flying.

# Throttle Stick Direction

## [THRO(SPOI) STICK DIRECTION]



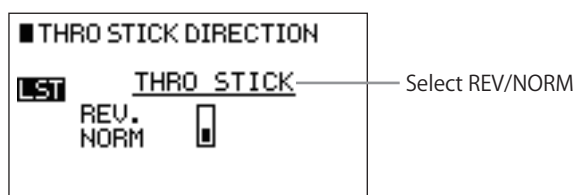
### Function Explanation

This enables the Throttle Stick (Spoiler Stick) direction to be reversed without changing the output signal value – the input value gets changed. This is a completely different function from using the Reverse switch function.



### Setting Method

Initially it is set to “NORM” (Downward: Slow, Upward: High). If necessary set it to “REV” (Downward: High, Upward: Slow).



### TIPS

- It is necessary to use this function (rather than the reverse switch) so that all mixing functions work correctly when flying using this technique.

### Caution Note

- Actually operate the servos and carefully confirm the settings before flying.



## Stick Mode [STICK MODE]

### Function Explanation

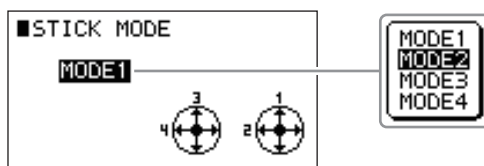
This function changes the stick mode between Mode 1, Mode 2, Mode 3 & Mode 4. In the USA, Mode-2 is commonly used. In Japan, Mode 1 is the most common configuration.

### Setting Method

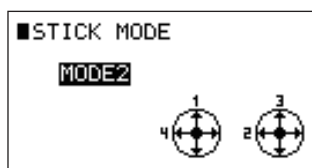
The initial setting is determined by the mode the radio was in when purchased. This function can be used to change this mode.



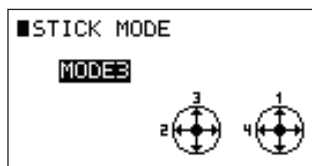
Mode1



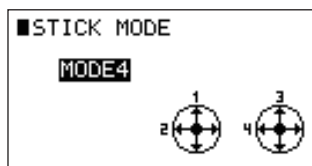
Mode2



Mode3



Mode4



### Caution Note

If the throttle stick position to be changed (between Mode 1 & Mode 2 or between Mode 3 & Mode 4), the throttle stick and elevator stick Spring location requires changing. Be sure to Calibrate both stick gimbals after changing the Stick Mode.

Refer to the Page 55 "Stick Calibration (STICK CALIBRATION)"

## ■ XBus Function [X.BUS]

### ■ Function Explanation

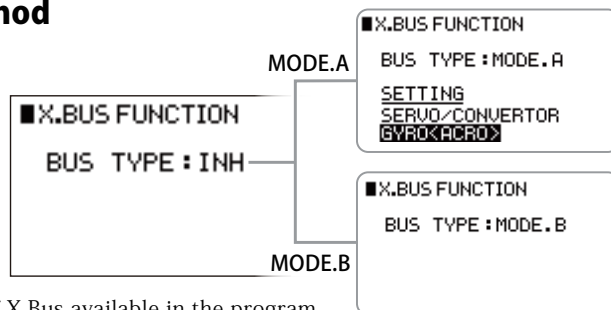
This C.O.L.T. can use JR's new XBus system, featuring JR's own serial bus data instead of PWM (Pulse Width Modulation) to communicate with X-Bus products such as servos. Control signals are sent in a serial manner to all channels, with individual servos recognizing their own data from the receiver.

※ A XBus capable receiver must be used in order to perform Serial data transmission.

XBus devices must also be also programmed, otherwise they will not operate correctly.

Note that the included RG612BX receiver can provide an XBus output, but this must first be activated. Please see the included receiver instructions for further information.

### ■ Setting Method



There are two type of X Bus available in the program.

#### ● BUS TYPE

► INH : Without X.Bus

※ When using a DMSS Receivers without X.Bus capability BUS TYPE should be set to INH.

► MODE.A : This is the JR's own proprietary mode and is used with JR XBus servos, Gyro system, and other accessories.

► MODE.B : This serial protocol mode (UDI) is used by BeastX and Mikado V-Bar flybarless gyro systems.

The channels are output as follows. Only the first 6 of the 12 output channels can be adjusted using the C.O.L.T.

- |                      |          |   |
|----------------------|----------|---|
| 1) Aileron           | 7) AUX2  | } 7ch to 12ch do not exist on this 6channel transmitter so these channel shall be set to neutral. |
| 2) Elevator          | 8) AUX3  |   |
| 3) Rudder            | 9) AUX4  |   |
| 4) AUX1 (Pitch/Flap) | 10) AUX5 |   |
| 5) Throttle          | 11) AUX6 |   |
| 6) GEAR              | 12) AUX7 |   |

※ Note carefully that there will be "NO" PWM output signals from standard ports on the receiver when X.Bus has been activated in MODE.B.

#### ● Method of setting and explanation of the each items on X-BUS MODE A.

When "SERVO/CONVERTER" is chosen, XBus parameter settings for XBus compatible servos can be adjusted through the transmitter. Before adjusting the XBus parameters, be sure that power is turned on and the transmitter and receiver are already bound.

Main ID on Left and Sub ID on Right for compliant Device.

Main ID on Left and Sub ID on Right when changing ID.

Set the Cursor on the specific item and Press the scroll dial to finalize.

This is the value of the SETTING amount that determines how precisely the servo moves for one increment of increase-decrease. (similar to trim step) It can be set between 1% - 10% with 1% offering fine control and 10% coarse adjustment.

Press either "+" or "-" to increase or decrease the numerical value.



## ✪ XBus ID's

There are two ID's - the main ID and the sub ID. The main ID configures channel numbers, and the sub ID configures up to 4 individual servos, which can be adjusted individually.

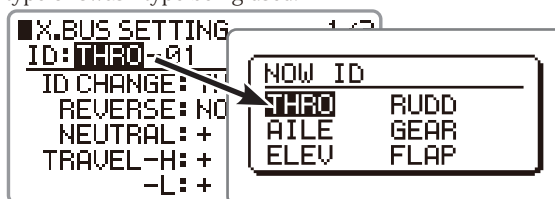
It is recommended to mark the ID number on each individual XBus servo itself to avoid confusion.

※The channel name will vary depending on the wing type or swash type being used.

## ✪ ID Change ( ID CHANGE)

It is possible to adjust XBus devices through the transmitter. Input the current main + sub ID's for the XBUS device and the new desired ID's.

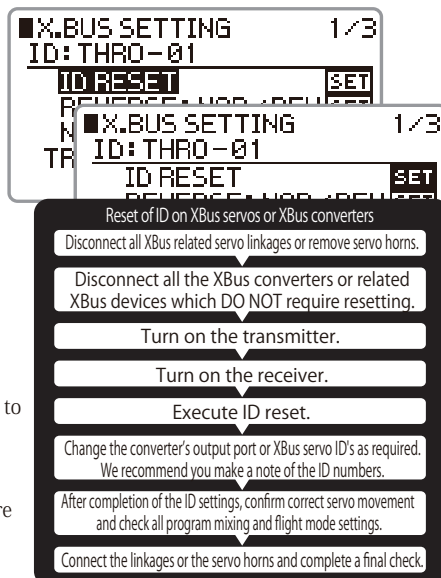
Place the cursor on "SET" and press the dial to finalize the setting.



## ✪ ID Reset (ID RESET)

It is possible to reset an XBus device to default settings using the transmitter. Set the cursor to "ID CHANGE" and press the dial to finalize. Place the cursor on "SET" and press the dial to finalize the ID RESET.

※ The ID reset function will reset all connected converters or XBus servos to their default ID such as (THRO(01)-01). Be sure to remove all servo horns or linkages before performing a reset as the servo may move beyond the linkage limitation and damage the linkage or the servo itself. Additionally, if a control surface employs two or more servos, you must be careful to disconnect the servo linkages and servo horns when resetting XBus servos. The high stress of binding the servo may damage the servos, receiver or relative devices by high current consumption and a fire may occur.



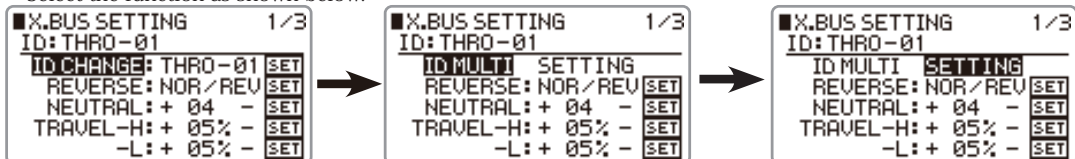
## ✪ Collective ID set function(ID MULTI-SETTING)

This function is used to carry out channel ID mapping for the XPort Duo receiver (XB1-14DRS). Move the cursor to ID CHANGE and press the dial to select "ID MULTI".

Move the cursor to "SETTING" (to the right of "ID MULTI") and press the dial to enter the collective setting. Set the main ID and sub ID on this screen. It is essential to press the dial selecting "SET DATA - INIT." to store the settings to the XPort Duo. All the data is always over written.

Note: Reverse, centering and travel limit are all initialized (reset) after executing "SET DATA - INIT.".

Select the function as shown below.



■ Set the main ID and sub ID on the following screen.

※All the properties of the ID will be initialized (reverse, centering and travel limit).

※The maximum number of channels displayed is 6 when using a C.O.L.T..

## ✪ Reverse (REVERSE)

It is possible to reverse the servo. Set the particular servo's main ID and sub ID,

set either normal or reverse, and press the dial. Place the cursor on "SET" and press the dial to finalize.

## ✪ Neutral (NEUTRAL)

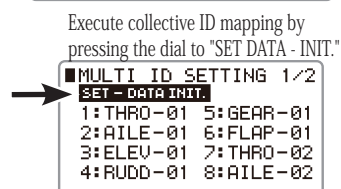
It is possible to set the servo neutral. Set the particular servo's main ID and sub ID, set the cursor on "+" or "-" to change the neutral value, place the cursor on "SET" and press the dial to finalize the setting.

## ✪ Travel(TRAVEL)

It is possible to adjust the servo travel. Set the particular servo's main ID and sub ID, set the cursor on "+" or "-" and press the dial to change the travel value, place the cursor on "SET" and press the dial to finalize the setting.

※ These setting must be performed after the transmitter and receiver are bound (paired), and the XBus devices must be connected and powered on.

Note: Be sure to remove the bind plug from the receiver bind port, other wise setting cannot be accomplished.



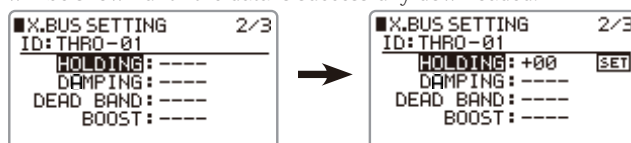
## ■ Additional parameters for NX servos

### ■ Setting procedure

First confirm the target main ID and sub ID is correctly selected.

Select the element to be modify. By pressing the dial, the current setting data is downloaded from the servo.

- "----" will be shown until the data is successfully downloaded.



- Once the current data is displayed, new values can be entered in the usual manner. The new values are not stored (uploaded) until SET is pressed.

- The new set values are reflected by servo movement even before the data is uploaded.



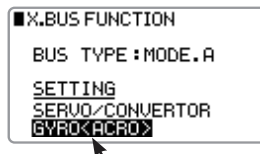
- Scroll over to highlight SET and press the dial. The value is stored to the servo.

### ■ Setting parameters.

- Holding gain (HOLDING) -> Retaining force
  - + value increases the retaining force.
  - value decreases the retaining force.
  - [Setting range] -50 ~+50
- Damping gain (DAMPING) -> Stopping characteristic
  - + value stops the servo earlier. The servo decreases in speed before reaching the target angle.
  - value stops the servo later. The servo starts stopping after reaching the target angle.
  - [Setting range] -50 ~+50
  - ※Try to increase the damping gain first to remove any hunting.
  - ※If there is hunting after increasing the holding gain, either decrease the holding gain or increase the damping gain.
  - ※Sometimes hunting can occur after decreasing the holding gain. Try increasing the holding gain or decreasing the damping gain.
  - ※JR NX servos are optimally set up at the factory. Apply +/- 0% for factory settings.
  - ※The best settings depend on the application. Experiment to find the optimal settings.
- Dead band (DEAD BAND)
  - + value widens the dead band.
  - value narrows the dead band.
  - [Setting range] -10 ~+10
- Boost (BOOST) -> power to start the motor.
  - + value increases the starting power to the motor. This results in a better response but also characteristically rough running.
  - value decreases the starting power to the motor. This results in smooth movement but with a slower response.
  - [Setting range] -999 ~+999
- Alarm level (ALARM LEVEL)
  - A beep (high frequency) sound is used to provide feedback on servo load. Set the percentage of maximum load to alarm at.
  - [Setting range] 0% ~ 99%
- Delay time for alarm (ALERM DELAY)
  - Set the delay before the alarm sounds after sensing the set load.
  - [Setting range] 0.0s ~5.0s
- Angle (ANGLE)
  - Selectable 120° or 180° total servo travel.
  - ▶ 120° : Normal angle
  - ▶ 180° : Retract/Robot etc.
- Slow start (SLOW START)
  - Enable (ON) / Disable (OFF) the servo slow start function. When selected, on initial power on, the servos will slowly travel to their neutral positions. Useful on large control surfaces.
- Stop mode (STOP MODE)
  - Select the servo action if receiver signal is lost.
  - ▶ FREE : The servo is free to move - no power is applied to the motor. Useful if more than one servo is driving a control surface.
  - ▶ HOLD : The servo holds its current position after signal loss.

## Setting up the JR Axis airplane gyro using XBus

The JR Axis three axis airplane gyros can be programmed by this transmitter. The transmitter allows access to the same functions as the Axis Assistant, a PC application. Read the manual for the Axis carefully before commencing configuration.



### There are some important considerations when using the Axis airplane gyro with the C.O.L.T. transmitter.

- There are few functional limitations due to only 6 channels and no flight modes available in airplane mode. Here are some items which differ from other transmitters with more channels.
  - XBus channel ID setting for tail type (tail setting refer to the AXIS manual page 11). It is not possible to separate the control using dual servos or to set the channel ID to #7. To use the elevator, assign it as ID #3.
  - There is note on PWM output port connection/tail type setting (AXIS manual page 12) which explains to connect to the left elevator to the elevator 2 port - note that the elevator 2 port is not usable with a 6 channel radio.
  - There is a note about common flight mode trim values (AXIS manual page 13). Since there are no flight modes available on this transmitter, please disregard this setting.
  - Channel assignment on the transmitter (AXIS manual page 14). On this transmitter, only channels 5 and 6 can be assigned. Note that there is no extra channel available on this transmitter. Also the gyro gain setting channel can only be assigned to one single channel so, if setting the gyro gain control from the transmitter, set the gyro gain control to one single channel not individual gain channels (default value is channel 5). Trim set/Flap channel should be inhibited.
  - Gain channel assignment / gain setting on each flight mode (AXIS manual page 15). The function naming in the transmitter is different as it only indicates "N" as damping gain and "H" as tail lock mode. In the AXIS manual up to 3 gains are described - however, only two gain settings are available, so you can only change between these two modes.
  - Gain channel assignment / selection switch (AXIS manual page 15). Note that there is no "AUTO" function in this transmitter.
  - Gain channel assignment / trim set channel (AXIS manual page 15). This should be set to "INH".

### Transmitter setup

- Before setting gyro gains, first assign gyro gain channel in the 'DEVICE SELECT' menu. Assign gyro gain channel. Then, set the gyro gains in 'GYRO SENS' in the function list.
  - Setting switches
    - Select the switch menu on the gyro gain screen to show the switch selection list. By default, the switch is Flap switch.
  - Delay
    - To set a delay when switching gyro gains, select 'set delay' in the gyro submenu.

### Gyro setup - page 63 of the Axis manual

Select GYRO(ACRO) in the XBus settings.

### Channel assignment

Set the gain transmission port on the AXIS unit. All 3 axis must be set to the same assigned channel (default is channel 5).

### Flap Channel assignment

If the flap channel is used (default is channel 6), be sure it does not clash with the gain adjustable channel.

### Wing type setting

First, select the main wing type.

※ Under the system List, WING TYPE main wing setting should be "NORMAL" Tail wing should be as "INH"

#### Normal (NORMAL)

- Up or down trim (↑ / ↓) operate as Flap trim

#### Tail type setting (TAIL TYPE)

- Synchronize trim (SYNC-TRIM) cannot be used.

### Gain setting (refer to AXIS manual page 38~)

#### Setting of Trim Input system

- There is no trim input switch available on this transmitter so that not possible to use this function.

## Caution note

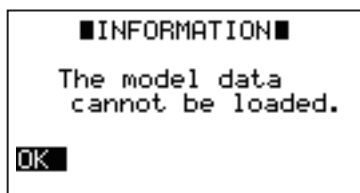
- Actually operate the servos and carefully confirm the setting before flying.

## ■ Software Error Screens

### ■ If the Following Messages are Displayed...

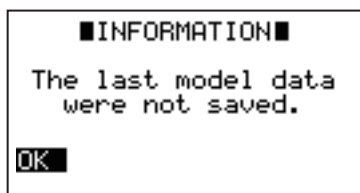
If errors occur in transmitter software operation, error displays are shown to indicate the internal error details.

#### ■ Model Data Reading Failure



- Cause  
This is displayed if the model data is initialized, and when there are internal memory operation problems.
- Response  
If the message is repeatedly displayed, please contact your JR sales agent(JR Distributer).

#### ■ This is displayed when the model setting data has not been normally saved.



- Cause  
This is displayed if the battery is removed while setting is taking place, and when there are problems in the internal memory.
- Response  
If the message is repeatedly displayed, please contact your JR sales agent(JR Distributer).

## Repair and After Sales Service

### Be sure to read the warranty carefully

- Only if the product is found to be faulty under normal operations, within the warranty period, will we repair the product based on our assessment. The repair will be paid for by the consumer when the damage is due to improper use (crash damage, misuse etc.), or the warrantee period has expired, or without the warranty attached (copies will not be accepted). Note that some damage may not be economical to repair. The scope of the warranty is limited to the Proportional Radio System and excludes aircrafts, engines, accessories and any non JR product. Please note we will not be responsible for any loss of model which was set or recorded by the customer, damage caused by misuse of the product, nor for any compensation for damage to human life, health or property, nor for any damage incidental to the above. When the warranty period has expired, we will repair the product for cost if requested by the customer, if we judge that the product may be used safely following the repair.
- Please note in advance that the warranty period may vary depending on the JR Sales Agent (JR Distributor) in your country. Please contact them for further details concerning the warranty or After-Sales Service (repair services, purchase of parts and/or the accessories, etc). Please save any important model data on a data sheet or on a SD card, before requesting any repair. The product may be initialized to factory settings during the repair process. We will not be responsible for any damage or loss of data.

### Caution

- This product and the associated documents are copyrighted by Japan Remote Control Co., Ltd. It is prohibited by law to duplicate, copy, reprint, or modify the product or documents, either entirely or partially without prior notice and approval.
- This product is not designed to be used as equipment or as an instrument which involves human life including as a medical instrument, aerospace instrument, transport equipment, or weapon system, or any other purpose in which high reliability is required, such as space satellite use. We will not be responsible for physical injury, fire, or any other social damage arising from the improper use of this product or any of the equipment or equipment control systems of the general type as described (but not limited to) the above.
- The product and the contents in the document are subject to change without prior notice due to ongoing development.
- If customers violate any of the terms listed in the 'Caution' section of this document, customers must terminate the use of the product if ordered by our company.
- Please note that regardless of the above, we will not be responsible for any other effects which arise by operating this product.

## FCC and IC Information

### FCC Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
  - This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### IC Information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: 1) This device may not cause interference, and 2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes: 1) l'appareil ne doit pas produire de brouillage, et

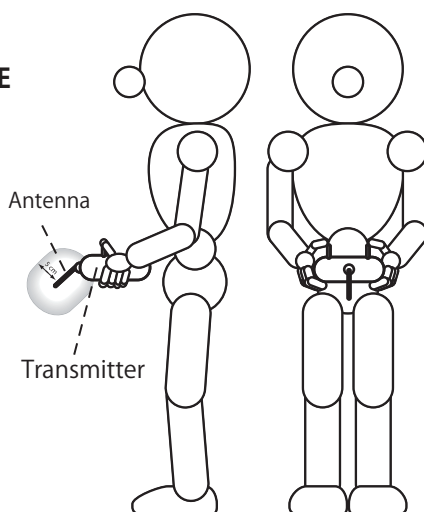
2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### Precautions

#### ANTENNA SEPARATION DISTANCE

When operating your transmitter, please be sure to maintain a separation distance of at least 5 cm between your body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF exposure safety requirements as determined by FCC regulations.

The following illustrations show the approximate 5 cm RF exposure area and typical hand placement when operating your transmitter.



#### CAUTION!

- Please hold the transmitter in the correct position.
- Please do not touch the antenna during operation of the transmitter.
- Please do not operate near the head intentionally.

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