

Futaba®

4YF-2.4GHz



INSTRUCTION MANUAL
for Futaba 4YF-2.4GHz
4-channel, FHSS
Radio control system
for Airplanes

Futaba Corporation

Technical updates available at: <http://www.futaba-rc.com>

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INTRODUCTION

Thank you for purchasing the Futaba 4YF-2.4GHz FHSS^{*1} digital proportional R/C airplane system. Although this is a **beginner** system with the requirements of those flyers in mind, in order to make the best use of your Futaba 4YF-2.4GHz and to operate it safely, **you must carefully read all of the instructions.**

^{*1}FHSS: Futaba Frequency Hopping Spread Spectrum

FHSS 4YF 2.4GHz System (T4YF-2.4G transmitter/R2004GF receiver)

- FHSS 2.4GHz Spread Spectrum radio communication system.
- Unique ID code to avoid interference from other FHSS systems.
- Built-in antenna (T4YF-2.4G transmitter)

Suggestion: If, while reading the instructions, you are unclear about some of the procedures of functions and become “stuck,” continue to read on anyway.

SERVICE

(in USA)

If any difficulties are encountered while setting up or operating your system, please consult the instruction manual first. For further assistance you may also refer to your hobby dealer, or contact the Futaba Service Center at the web site, fax number or telephone number below:

www.futaba-rc.com
service@futaba-rc.com
Fax: (217) 398-7721

Telephone (8:00 am to 5:00 pm Central time Monday through Friday): (217) 398-8970, extension 2

If unable to resolve the problem, pack the system in its original container with a note enclosed and a **thorough, accurate** description of the problem(s). Include the following in your note:

- Symptoms.
- Any unusual mounting conditions.
- An inventory of items enclosed.
- The items that require repair.
- Your name, address, email address and telephone number.
- Include copy of proof of purchase or purchase receipt if warranty service is requested.

Send your system to the authorized Futaba R/C Service Center at the address below:

Futaba Service Center
3002 N Apollo Drive Suite 1
Champaign, IL 61822

(outside USA)

Please contact your Futaba importer in your region of the world to assist you with any questions, problems or service needs. Please recognize that all information in this manual, and all support availability, is based upon the systems sold in USA only. Products purchased elsewhere may vary. Always contact your region's support center for assistance.

Application, Export, and Modification

1. This product may be utilized to control model airplanes or for surface uses (Boats, Cars, Robots). It is not intended for use in any application other than the control of models for hobby and recreational purposes.
2. Exportation precautions:
 - (a) When this product is exported from the country of manufacture, its use is to be approved by the laws governing the country of destination which govern devices that emit radio frequencies. If this product is then re-exported to other countries, it may be subject to restrictions on such export. Prior approval of the appropriate government authorities may be required. If you have purchased this product from an exporter outside your country, and not the authorized Futaba distributor in your country, please contact the seller immediately to determine if such export regulations have been met.
 - (b) Use of this product outside of the scope of its internal usage may be restricted by Export and Trade Control Regulations, and an application for export approval must be submitted. This equipment must not be utilized to operate equipment other than radio controlled models.
3. Modification, adjustment, and replacement of parts:

Futaba is not responsible for unauthorized modification, adjustment, and replacement of parts on this product. Any such changes may void the warranty.

Warning: This product contains a chemical known to cause cancer and birth defects (or other reproductive harm).

Meaning of Special Markings

Pay special attention to safety where indicated by the following marks:

⚠ DANGER - Procedures which may lead to dangerous conditions and cause death/serious injury if not carried out properly.

⚠ WARNING - Procedures which may lead to a dangerous condition or cause death or serious injury to the user if not carried out properly, or procedures where the probability of superficial injury or physical damage is high.

⚠ CAUTION - Procedures where the possibility of serious injury to the user is small, but there is a danger of injury, or physical damage, if not carried out properly.

⊘ = Prohibited

ⓘ = Mandatory

⚠ WARNING

ⓘ Always keep electrical components away from **small children**.

FLYING SAFETY

⚠WARNING

To ensure the safety of yourself and others, please observe the following precautions:

- ❗ **Have regular maintenance performed.** The transmitter should have regular checkups for wear and tear. We recommend sending your system to the Futaba Service Center annually during your non-flying-season for a complete checkup and service.

Batteries

- ❗ **Charge the batteries!** (See Charging the Ni-Cd batteries, for details.) Always recharge the receiver battery before each flying session. A low battery will soon die potentially, causing loss of control and a crash. During the session pay attention to the duration of usage.
- ❗ When your radio's red LED become slow blinking, Low Battery Alarm, **immediately land** your model before losing control. Always check your transmitter and receiver batteries prior to each flight.

Where to Fly

We recommend that you fly at a recognized model airplane flying field. You can find model clubs and fields by asking your nearest hobby dealer or in the USA by contacting the Academy of Model Aeronautics.

You can also contact the national Academy of Model Aeronautics (AMA), which has more than 2,400 chartered clubs across the country. Through any one of them, instructor training programs and insured newcomer training are available. Contact the AMA at the address or toll-free phone number below.

Academy of Model Aeronautics

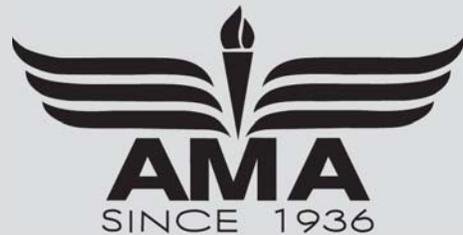
5161 East Memorial Drive

Muncie, IN 47302

Tele. (800) 435-9262

Fax (765) 289-4248

or via the Internet at <http://www.modelaircraft.org>



- ❗ **Always pay particular attention to the flying field's rules**, as well as the presence and location of spectators, the wind direction, and any obstacles on the field. Be very careful flying in areas near power lines, tall buildings, or communication facilities as there may be radio interference in their vicinity.

At the flying field

To prevent possible damage to your radio gear, turn the power switches on and off in the proper sequence:

1. Pull throttle stick to idle position, or otherwise disarm your motor/engine.
2. Turn on the transmitter power.
3. Turn on your receiver power.
4. Test all controls. If a servo operates abnormally, don't attempt to fly until you determine the cause of the problem.
5. Start your engine.
6. Complete a full range check.
7. After flying, bring your throttle stick to idle position, or otherwise disarm your motor/engine.
9. Turn off receiver power.
10. Turn off transmitter power.

If you do not turn on your system in this order, you may damage your servos or control surfaces, flood your engine, or in the case if electric-powered or gasoline-powered models, the engine may unexpectedly turn on and cause severe injury.

- ❗ **While you are getting ready to fly, if you place your transmitter on the ground, be sure that the wind won't tip it over.** If it is knocked over, the throttle stick may be accidentally moved, causing the engine to speed up. Also, damage to your transmitter may occur.
- ❗ In order to maintain complete control of your aircraft it is important that **it remains visible at all times.** Flying behind large objects such as buildings, grain bins, etc. is not suggested. Doing so may result in the reduction of the quality of the radio frequency link to the model.
- ❗ As with all radio frequency transmissions, the strongest area of signal transmission is from the sides of the antenna. **Always turn the transmitter in the best direction and operate it.** (Refer to page 7 for the instruction of the built-in antenna.)
- ⊘ **Do not cover/hold the built-in antenna part of the T4YF-2.4G transmitter with your hand during flight. Do not put any conductive plate/sticker near the antenna.** Otherwise, the operating range may become reduced.
- ⊘ **Don't fly in the rain!** Water or moisture may enter the transmitter through the stick or other openings and cause erratic operation or loss of control. If you must fly in wet weather during a contest, be sure to cover your transmitter with a plastic bag or waterproof barrier. Never fly if lightning is expected.

Other Precautions

- ❗ If there is a special regulation for using 2.4GHz radio systems at your flying site, please obey all regulations to enjoy safe flying with your 2.4GHz system.

NI-CD BATTERY SAFETY AND HANDLING INSTRUCTIONS

IMPORTANT: Use only the Futaba special charger or other chargers approved by Futaba to charge the Futaba Ni-Cd batteries.

It is important to understand the operating characteristics of Ni-Cd batteries. Always read the specifications printed on the label of your Ni-Cd battery and charger prior to use. Failure to follow the proceeding precautions can quickly result in severe, permanent damage to the batteries and its surroundings and possibly result in a **FIRE!**

⚠ WARNING

- ⊘ Do not attempt to disassemble Ni-Cd packs or cells.
- ⊘ Do not allow Ni-Cd cells to come in contact with moisture or water at any time.
- ❗ Always provide adequate ventilation around Ni-Cd batteries during charge, discharge, while in use, and during storage.
- ⊘ Do not leave a Ni-Cd battery unattended at any time while being charged or discharged.
- ⊘ Do not attempt to charge Ni-Cd batteries with a charger that is not designed for Ni-Cd batteries, as permanent damage to the battery and charger could result.
- ❗ Always charge Ni-Cd batteries in a fireproof location. Do not charge or discharge Ni-Cd batteries on carpet, a cluttered workbench, near paper, plastic, vinyl, leather or wood, or full-sized automobile! Monitor the charge area with a smoke or fire alarm.
- ⊘ Do not charge Ni-Cd batteries at currents greater than the "1C" rating of the battery ("C" equals the rated capacity of the battery).
- ⊘ Do not allow Ni-Cd cells to overheat at any time! Cells which reach temperatures above 140 degrees Fahrenheit (60°C) should be placed in a fireproof location.
- ❗ Ni-Cd cells will not charge fully (or show full charge) when too cold.
- ❗ It is normal for the batteries to become warm during charging, but if the charger or battery becomes excessively hot disconnect the battery from the charger immediately!! Always inspect a battery which has previously overheated for potential damage, and do not re-use if you suspect it has been damaged in any way.
- ⊘ Do not use a Ni-Cd battery if you suspect physical damage has occurred to the pack. Carefully inspect the battery for even the smallest of dents, cracks, splits, punctures or damage to the wiring and connectors. Do not allow the battery's internal electrolyte to get into eyes or on skin—wash affected areas immediately if they come in contact with the electrolyte. If in doubt, place the battery in a fire-proof location for at least 30 minutes.
- ⊘ Do not store batteries near an open flame or heater.
- ⊘ Do not discharge Ni-Cd batteries at currents which exceed the discharge current rating of the battery.
- ❗ Always store Ni-Cd cells/packs in a secure location away from children.

CONTENTS AND SPECIFICATIONS

*Specifications and ratings are subject to change without notice.

Transmitter: T4YF-2.4G

T4YF-2.4GHz Transmitter of FHSS system

Transmitting on 2.4GHz band

Operating system: 2-stick, 4-channel system

Power supply: 6V (4 AA size batteries)

Current drain: 90mA

Receiver: R2004GF

4 channel receiver of FHSS system

Receiving on 2.4GHz band

Power requirement: 4.8V or 6V (shared with servo)^{*1}

Current drain: 30mA (at no signal)

Size: 1.54x1.02x0.39" (39x26x10mm)

Weight: 0.49oz. (14g)

NOTE: Futaba FHSS system, T4YF-2.4G transmitter and R2004GF receiver, does not work with current Futaba FASST system. Please use T4YF-2.4G and R2004GF in pairs. Futaba FASST system and FHSS system are not compatible each other.

*1

⚠ WARNING

⊘ **NEVER** use dry batteries for the power supply of the R2004GF as they may cause difficulties.

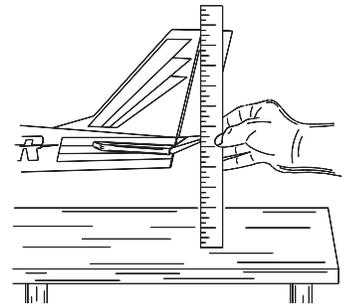
GLOSSARY

It will be helpful to understand the following terms before reading the rest of the manual.

Reversing (servo reversing) - A function that allows the user to determine the direction of response of each servo. If, after hooking up the servos, a control on the model responds in the wrong direction, the user may change the servo's direction so the control responds correctly.

Throw - When speaking of a control surface (such as an elevator or aileron), the throw is the distance the surface moves. Control surface throw is usually measured at the trailing edge of the surface and is expressed in inches or millimeters. The model in the diagram has 1/2" [13mm] of up elevator throw. Throw can also refer to the distance a servo arm (or wheel) travels.

Mixing - Two (or more) servos can be made to operate together either by mechanically joining the wires (with a Y-connector) or by electronically "joining" them through programming functions in the transmitter. When servos are electronically joined via programming, they are said to be "mixed."



INTRODUCTION TO THE 4YF-2.4GHz SYSTEM

IMPORTANT! Always turn on the transmitter first, then the receiver. When turning off the system, always turn off the receiver first. The object is never to have the receiver on by itself. Otherwise, the servos or control surfaces could be damaged, or in the case of electric-powered models, the motor may unexpectedly turn on causing severe injury.

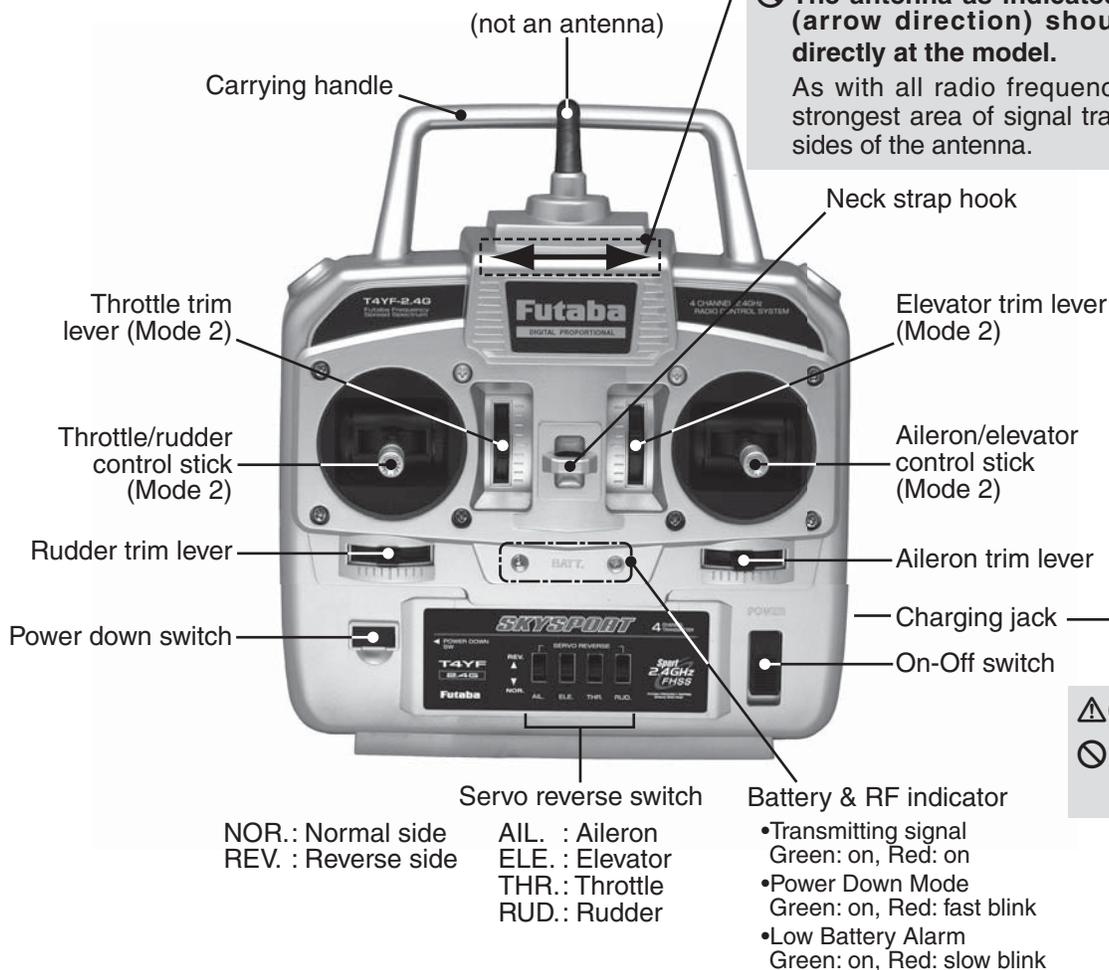
Transmitter

Programming features include servo reversing on all and factory-set, pre-programmed “wing-type” mixer elevon mixing may be activated. The power down switch activates a special “Power Down Mode” for doing a ground range check.

TRANSMITTER CONTROLS AND DESCRIPTIONS

The diagram and explanations briefly describe the functions of the Futaba T4YF-2.4GHz transmitter.

NOTE: The diagram shows a Mode 2 system.



Antenna (There is antenna inside of this part.)

⚠ WARNING

⊘ The antenna as indicated by the “↔” (arrow direction) should not be pointed directly at the model.

As with all radio frequency transmissions, the strongest area of signal transmission is from the sides of the antenna.

⚠ CAUTION

⊘ Never charge dry-cell batteries.

DESCRIPTIONS:

Neck strap hook - Mounting point for optional neck strap.

Aileron/elevator control stick - Operates the servos connected to channel 1 (aileron) and channel 2 (elevator) in the receiver.

Trim levers (all) - Used to shift the neutral or center position of each servo as labeled in the diagram.

Charging jack - Port for charging the transmitter batteries.

On/Off switch - Used to power on or turn off the transmitter's power.

Throttle/rudder control stick - Operates the servos connected to channel 3 (throttle) and channel 4 (rudder) in the receiver.

Antenna (Internal) - Radiates signals to the receiver.

⚠ WARNING

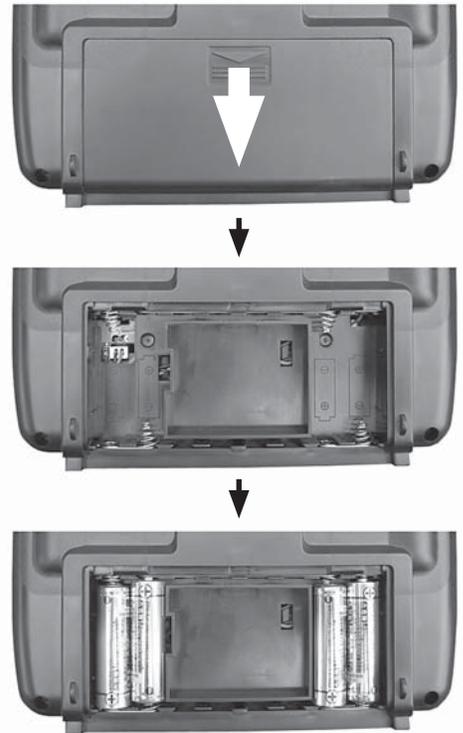
⊘ Do not cover/hold the built-in antenna part of the transmitter with your hand during flight. Do not put any conductive plate/sticker on the antenna part. Otherwise, the operating range may become reduced.

BATTERY REPLACEMENT METHOD (4 AA SIZE BATTERIES)

1. Remove the battery cover from the transmitter by sliding it in the direction of the arrow in the figure.
2. Insert four new AA size batteries.
3. Slide the battery cover back onto the case.

⚠ CAUTION

- ❗ Always be sure you reinsert the batteries in the correct polarity direction. If the batteries are loaded incorrectly, the transmitter may be damaged.
 - ❗ When the transmitter will not be used for any short or long period of time, always remove the batteries. If the batteries do happen to leak, clean the battery case and contacts thoroughly. Make sure the contacts are free of corrosion.
- **Low Battery Alarm:** If the transmitter battery voltage drops below approx. 4.2V, the red LED on the front of the transmitter will slowly blink. Land your model immediately before losing control.



CHARGING THE RECEIVER Ni-Cd BATTERIES

Ni-Cd batteries require special care and charging.

Read the charging instructions carefully.

NOTE: The batteries are supplied partially charged, but will require a full, overnight charge before the model may be flown.

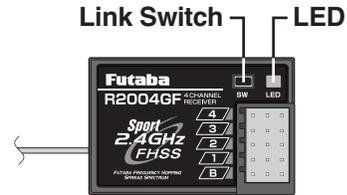
1. The receiver charging cord may be connected to the batteries two different ways: The charge cord may be connected directly to the battery pack, or to the vacant charge connector (black) coming from the on/off switch in the model. Charging “through the switch” is preferred as there will be no need to disconnect the battery.
2. Plug the A/C wall charger into a wall outlet. **Note:** If the wall outlet can be turned off by a switch in the room, be certain the switch remains on after leaving the room. Otherwise, the batteries will not be charged!
3. The charger’s LED (Light-emitting diode) should light red, indicating that current is flowing and the batteries are being charged. Discharged batteries will take about 15 hours to fully charge. If using an aftermarket fast charger, **be certain to follow the manufacturer’s instructions provided with the charger** so you do not overcharge the batteries. **NEVER** charge the batteries at a rate higher than 1,000mA. The batteries should also be discharged periodically to prevent a condition called “memory.” If, for example, only two flights are made each time you go flying, the batteries will not have “reached” very far down into their full capacity. After doing this several times the batteries will “remember” and eventually “think” they can supply only enough power for two flights. After two flights the batteries may not provide enough power to operate the system, thus causing a crash. To erase any potential memory, cycle the batteries by discharging, then charging them with a commercial battery cycler, or leave the system on and exercise the servos by moving the transmitter sticks until the servos are moving very slowly, indicating that the battery is discharged. Cycling should be done every one to two months, even during the winter or periods of long storage. If using a cycler with a readout, note the capacity after the batteries have been cycled. If there is a noticeable drop in capacity the batteries should be replaced.

Note: Charging your batteries with the special Futaba A/C battery charger is always safe. However, fast-charging with an aftermarket charger is acceptable as long as you know how to properly operate the charger. **NEVER** charge at a rate higher than 1,000 mA (1 Amp). If not done correctly, fast-charging can damage the batteries.

LINK PROCEDURE

Each transmitter has an individually assigned, unique ID code. In order to start operation, the receiver must be linked with the ID code of the transmitter with which it is being paired. Once the link is made, the ID code is stored in the receiver and no further linking is necessary unless the receiver is to be used with another transmitter. (For T/R set, the link is already done at the factory.) When you purchase another R2004GF, this procedure is necessary; otherwise the receiver will not operate properly.

1. Place the transmitter and the receiver close to each other within one (1) meter
2. Turn on the transmitter.
3. Turn on the receiver.
4. Push and hold the Link switch on the receiver.
5. When the link is complete, the LED on the receiver changes to solid green.



* Please refer to the table below for LED status and receiver condition.

No signal reception	Red : On
Receiving signals	Green: On
Receiving signals, but ID is unmatched.	Green: Blink

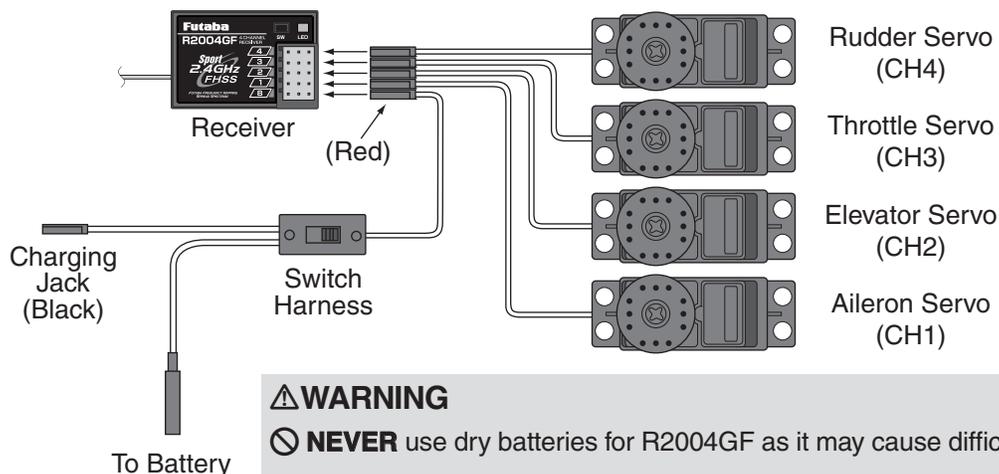
* If there are many FHSS 4YF 2.4GHz systems turned on around your receiver, it might not link to your transmitter. In this case, even if the receiver's LED stays solid green, unfortunately the receiver might have established a link to one of the other transmitters. This is very dangerous if you do not notice this situation. In order to avoid the problem, we strongly recommend you to double-check whether your receiver is controlled by your transmitter by giving stick input and then checking servo response.

⚠ WARNING

- ❗ After the linking is done, please cycle receiver power and check if the receiver to be linked is really under the control by the transmitter to be linked.
- ⊘ Do not perform the linking procedure with motor's main wire connected or with the engine operating as it may result in serious injury.

RECEIVER AND SERVO CONNECTIONS

Output Channel	Function
1	Aileron -or-right elevon (for tailless models)
2	Elevator -or-left elevon (for tailless models)
3	Throttle
4	Rudder
B	Receiver on/off switch (red-colored plug)



⚠ WARNING

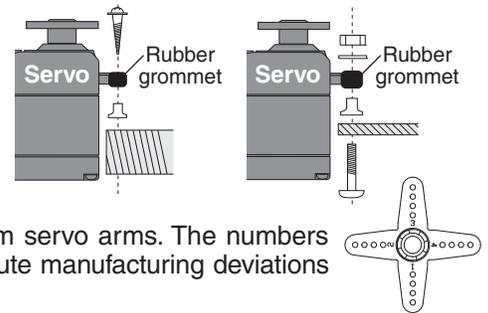
- ⊘ **NEVER** use dry batteries for R2004GF as it may cause difficulties.

RADIO INSTALLATION

Follow these guidelines to properly mount the servos, receiver and battery.

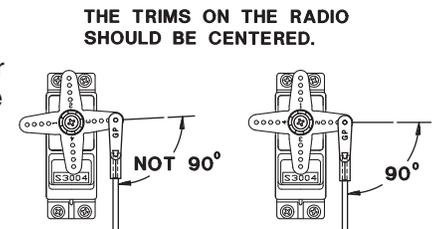
- Make certain the **alignment tab** on the battery, switch and servo connectors is oriented correctly and “keys” into the corresponding notch in the receiver or connectors before plugging them in. When unplugging items, never pull on the wires. Always pull on the plastic connector instead.
- If any servo wires are not long enough to reach the receiver, servo extension wires (available separately) may be used.

- Always mount the servos with the supplied **rubber grommets**. Do not over tighten the screws. No part of the servo casing should contact the mounting rails, servo tray or any other part of the airplane structure. Otherwise, vibration will be transmitted to the servo causing premature wear and/or servo failure.



- Note the small numbers (1, 2, 3, 4) molded into each arm on the Futaba 4-arm servo arms. The numbers indicate how many degrees each arm is “off” from 90 degrees to correct for minute manufacturing deviations from servo to servo.

- To center the servos, connect them to the receiver and turn on the transmitter and receiver. Center the trims on the transmitter, then find the arm that will be perpendicular to the pushrod when placed on the servo.

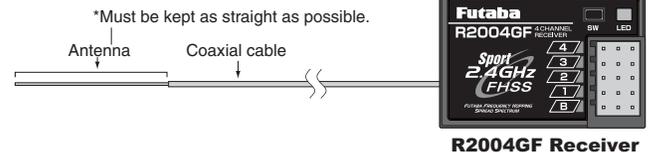


- After the servos are installed, operate each servo over its full travel and check that the pushrods and servo arms do not bind or contact each other. Also make sure the controls do not require excess force to operate. If there is an objectionable buzzing sound coming from a servo, there is probably too much resistance in the control. Find and correct the problem. Even if there is no servo damage, excess battery drain will result.
- Use the **mounting plate** from the receiver on/off switch as a template for the cutout and screw holes. Mount the switch on the side of the fuselage opposite the engine exhaust, and where it won't be inadvertently turned on or off during handling or storage. Be certain the switch moves without restriction and “snaps” from ON to OFF, and that the cutout allows **full motion** of the switch in **both** directions.

Receiver's Antenna Installation:

- To obtain the best receiving range, please refer to the following instructions:

1. The antenna must be kept away from conductive materials, such as metal and carbon by at least a half inch. The coaxial part of the antenna does not need to follow these guidelines, but do not bend it in a small radius.
 2. Keep the antenna away from the motor, ESC, and other potential RF noise sources as much as possible.
- The receiver contains precision electronic parts. It is the most delicate radio component on-board the model and should be protected from vibration, shock and temperature extremes. To protect the receiver, place velcro® on the bottom or other vibration-absorbing material. If appropriate, waterproof the receiver by placing it in a plastic bag and closing the open end with a rubber band before wrapping it in foam. If moisture enters the receiver, intermittent operation or a failure may result. Wrapping the receiver in a plastic bag also protects it from fuel and exhaust residue which, in some models, can work its way into the fuselage.



4YF-2.4GHz FUNCTIONS

Servo Reversing

The servo reverse switches are used to change the direction that a servo responds to a control input from the transmitter (each stick). After using the reversing function, check **all** the controls on the model to **be certain** they are operating in the correct direction and that you did not inadvertently reverse a servo other than the one intended. Reversing the wrong servo (and not checking the response of the controls before each flight) may be the most common cause of a crash!

*Note that the direction of the aileron servo is easily mistaken.

Trim Settings

There are four trim levers (“trims”) on the front of the transmitter. These trims are for adjusting the neutral position of the aileron, elevator and rudder servos and for setting the idle r.p.m. of the engine when the throttle stick is all the way down. The intended use of the trims is to make small servo adjustments, in flight, to get the model properly “trimmed” (so it will fly straight-and-level). Simply push or pull on the trim levers while flying and the neutral position of the servos will shift. Keep in mind that you should start out with the control surfaces centered when the servos are centered and the trims are “zeroed” (or near zero).

Center the Servos:

1. Turn on the transmitter and receiver. Operate the controls to make sure the servos respond in the correct direction. Use the reversing function to reverse any servos necessary.
2. Center the control stick.
3. Place the servo arms on the servos so they are perpendicular to the pushrods (see page 10). It is okay to cut off any unused servo arms.
4. Connect the pushrods to the control surfaces. Adjust the length of the pushrods until the control surfaces are centered when the servos are centered.

To Adjust the Trim Settings:

Once the servos and control surfaces have been connected and the control throws have been set by changing the servo horn and each control surface horn rod, get the model airborne. Adjust the trims as necessary to get the model to fly straight-and-level. If much trim is required on any one control it is a good idea to readjust the pushrods so the trims can be returned to neutral (zero).

Elevon Mixing

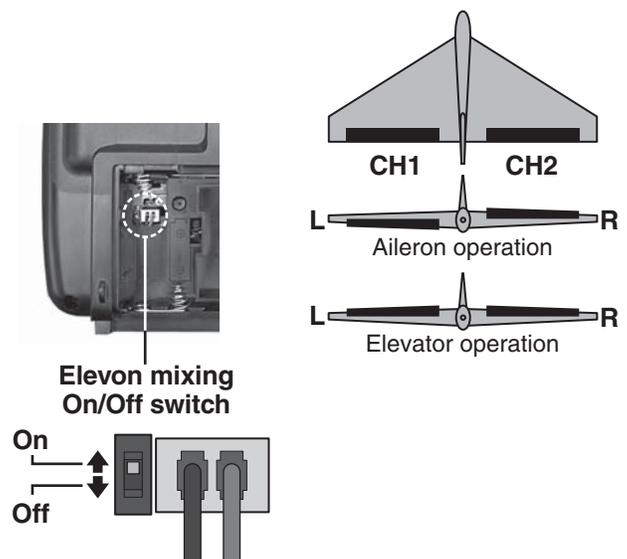
Intended for tailless, “flying wing” models such as delta wings and flying wings, elevon mixing mixes channel 1 (aileron) to channel 2 (elevator) allowing the elevons to operate in unison (as elevators) or in opposition (as ailerons). This function requires that each elevon be operated by a separate servo.

* If necessary, use the Servo Reversing function to achieve the correct direction of servo throws.

To Activate Elevon Mixing:

1. Remove the battery cover from the transmitter by sliding it.
2. Remove the leftmost battery.
3. Switch the Elevon Mixing switch to upper side.

* Use the miniature screwdriver supplied and operate the Elevon Mixing switch so that excessive force is not applied.



OTHER FUNCTIONS

Trainer Function (*Student only*)

The T4YF-2.4GHz trainer function lets you practice flying as a student by connecting the T4YF-2.4GHz to the instructor's Futaba transmitter.

To utilize the trainer function, the appropriate trainer cord (available separately) and a second Futaba transmitter (usually provided by your flight instructor or R/C club) will be required. When two radios are connected with the trainer cord, they are both capable of operating the model, but it's usually best for the instructor to hold the radio that has been setup for the plane to be flown (as it is already programmed to fly the model). When the instructor holds the trainer switch on his radio, the student will have control. When the instructor wishes to regain control he simply releases the switch. Then he will have immediate, full control.

The T4YF-2.4GHz transmitter may be connected to any T4EX, T6EXA, T7C, T9C, T10C, T12FG, T12Z, T14MZ, FX-40 series transmitter.

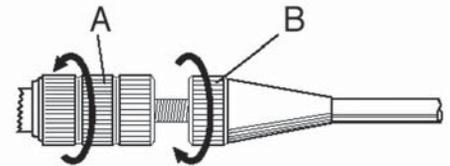
To Use the Trainer Function:

1. It is a must for the instructor to use the transmitter that is already set up for the model to be flown.
2. With the transmitters off, connect the trainer cord to both radios. (On the 4YF-2.4GHz the trainer jack is in the center of the rear of the case.) Do not force the plug into the transmitter and note that the plug is "keyed" so it can go in only one way.
6. Turn on the instructor's transmitter and the student's transmitter (T4YF-2.4GHz). Set the servo reversing and trims of the student's radio to match that of the instructor's.
7. Turn on the receiver switch in the model. Pull the trainer switch on the instructor's radio. Use the student's radio (T4YF-2.4GHz) to operate the controls (ailerons, elevator, etc.) and observe how they respond. Make any adjustments necessary to the student's transmitter to get the controls to respond correctly.
8. Check to see that the trims are in "sync" by toggling the trainer switch back and forth a few times. The controls on the model should remain stationary. If the controls do not remain stationary, this indicates that the trim settings on the student's radio do not match those on the instructor's radio. Adjust the student's trims as necessary.



Adjustable-Length Control Sticks

The control stick length is adjustable to make the transmitter more comfortable to hold and operate. To adjust the length, hold the **locking piece (B)** and turn the **stick tip (A)** counterclockwise. Turn the locking piece B up or down to lengthen or shorten the stick. When the length is suitable, lock the stick in position by turning locking piece B counterclockwise.



FLIGHT PREPARATION

Flight preparation is to be done at the flying field.

If you are an inexperienced pilot, be certain your flight instructor performs these following checks with you.

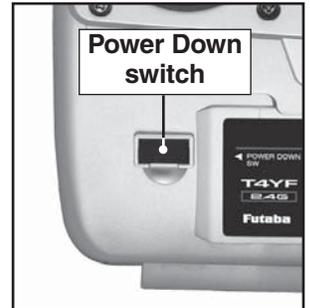
Check the Controls

1. Get the frequency clip from the frequency control board at your flying site if the site has a clip for 2.4GHz.
2. Turn on the transmitter, then the receiver (remember to do this in reverse order when turning off the system).
3. Operate and observe the controls. Look for inadvertent movement and listen for abnormal servo sounds. If problems are noted, correct them before flying. Look for binding pushrods or servo arms or pushrods that interfere with each other.
4. One at a time, operate each control on the airplane using the sticks on the transmitter to make certain each control is responding correctly. This **must** be done before **every** flight. (There are several types of malfunctions that can be discovered by performing this elementary task, thus saving your model!)

Range Check the Radio

A range check **must** be performed before the **first** flight of a new model. It is not necessary to do a range check before every flight (but is not a bad idea to perform a range check before the first flight of each day). A range check is the final opportunity to reveal any radio malfunctions, and to be certain the system has adequate operational range.

1. We have installed a special "Power Down Mode" for doing a ground range check. To activate the "Power Down Mode" please turn on the transmitter while pushing and holding the Power Down switch on the transmitter, continue holding the Power Down switch. During this mode, the RF power is reduced so the range test can be performed. When this mode is active the red LED on the front of the transmitter starts fast blinking.



This mode continues for 90 seconds while holding the Power Down switch and after that the power will return to the normal level automatically. And once you release the Power Down switch within 90 seconds, the RF power will return to the normal level.

This mode is available one time only so if you need to re-use this function the transmitter power must be cycled.

2. Walk away from the model while simultaneously operating the controls. Have an assistant stand by the model and signal what the controls are doing to confirm that they operate correctly. You should be able to walk approximately 10m (33ft) from the model without losing control.
3. If everything operates correctly, return to the model. Set the transmitter in a safe, yet accessible location so it will be within reach after starting the engine. Be certain the throttle stick is all the way **down**, then start the engine. Perform another range check with your assistant holding the plane and the engine running at various speeds. If the servos jitter or move inadvertently, there may be a problem. **Do not fly** the plane! Look for loose servo connections or binding pushrods. Also be certain that the battery has been fully charged.
4. **NEVER** start flying in the Power Down mode. On the safe side, cycle the power off then back on when ready to fly.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT (for U.S.A.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION:

To assure continued FCC compliance:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC Label Compliance Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Exposure to Radio Frequency Radiation

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20cm must be maintained between the antenna of this device and all persons.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

COMPLIANCE INFORMATION STATEMENT (for U.S.A.)

This device, trade name Futaba Corporation of America, model number R2004GF, complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

The responsible party of this device compliance is:

Futaba Service Center

3002 N Apollo Drive Suite 1, Champaign, IL 61822 U.S.A.

TEL (217)398-8970 or E-mail: support@futaba-rc.com

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