EX-II

INSTRUCTION MANUAL

KO PROPO

■ Table of Contents

■ For Safe Operation

Due to the nature of radio controlled models, improper handling may lead to dangerous situations. Therefore please read the following information carefully in order to ensure safe operation. Please also understand that KO Propo is not responsible for any injuries or damage which result from noncompliance of these cautions and notices.

⚠ **Warning!** Improper handling/
usage may lead to a high probability of material damage as well as a possibility of serious personal injury or even death.

⚠ **Notice!** Improper handling/
usage may lead to personal injury or material damage.

●When Installing Components

⚠ **Warning!** Prohibited matters	●Make sure metal parts on the model (car chassis/ship hull) do not come into contact with each other. ※Contact between metal parts may result in noise, which could cause the receiver to malfunction and lead to an uncontrollable model. ●Do not cut or bundle the antenna cable. ※This may lower the receiver's sensitivity and lead to an uncontrollable model. ●Ensure correct polarity when installing transmitter and receiver batteries. ※Incorrect polarity may damage the product.
⚠ **Warning!** Enforcement matters	●Within Japan, this product is limited to usage with models which operate on the ground or in the water. ※Do not use for other non-designated purposes. ●Ensure that all connectors (receiver, servo, switch, etc.) are connected securely. ※If connections become loose due to vibrations, it may lead to an uncontrollable model. ●Securely attach receiver with thick double-sided tape and ensure that it does not make contact with other parts. ※Strong shocks or contact with other parts due to vibrations may lead to an uncontrollable model. ●Check servo operation to ensure the pushrod is not subject to excessive loads. ※Excessive loads may damage the servo or increase battery power consumption. ●Make sure to use the rubber grommet when attaching the servo and that the servo does not contact the R/C equipment tray. ※If vibrations affect the servo, it may lead to damage or an uncontrollable model. ●Use in conjunction with genuine official KO Propo products. ※KO Propo is not responsible for any damages or injuries which result from use of this product in combination with other manufacturer's products.

●Notes for Usage

⚠ **Warning!** Prohibited matters	●Do not use when there is thunder. ※It is possible for lightning to strike the antenna. ●Do not use in the rain or in areas where water has accumulated. ※If water enters the product it may lead to an uncontrollable model. ●Do not use in the following locations: 1. Near R/C circuits (within 3km) 2. Near crowds, on streets, or near actual vehicles or ships. 3. Near high-voltage power lines or communication facilities. ※If signal interference, etc. causes an uncontrollable model, a serious accident may result. ●Do not use when your concentration levels are compromised by tiredness, alcohol, medication, etc. ※Mistakes in judgment may result in serious accidents. ●Do not allow glow engine fuel or engine exhaust to contact the product. ※These may attack the plastic and damage the product.
⚠ **Warning!** Enforcement matters	●Check to ensure that the selected model memory matches the model to be controlled. ※Using an incorrect memory may lead to an uncontrollable model. ●Make sure to stop the engine (disconnect motor cables) before changing transmitter settings.

⚠ **Caution!** Prohibited matters	●Do not touch engine, motor, ESC, etc. immediately after use as they may be hot. ※Doing so may lead to burns.
⚠ **Caution!** Enforcement matters	●When switching on, always turn on the transmitter first, followed by the receiver. Follow the reverse order when switching off. ※If the wrong order is followed, it may lead to an uncontrollable model. ●Dismantling or modifying the RF Module (internalized in the case of the EX-2) is prohibited and is punishable by law. ※Doing so may lead to accidents such as short circuits and KO Propo Customer Service Department may not accept dismantled/modified products for repair. ●Do not use this product in aircraft, hospitals, or near fire alarms or medical equipment. ※This may lead to malfunctions and result in serious accidents. Also, by law you must cease operation if the product affects other wireless or electrical devices. ●2.4GHz transmitters must be registered with the Japan Radio Control Safety Association. ※The transmitter which you have purchases is already registered. Products which do not have proof of registration are illegal.

●Notes After Usage

⚠ **Warning!** Enforcement matters	●In the case of an R/C car, make sure to remove the battery pack after driving. ※If the car is switched on accidentally, it may lead to a fire or an uncontrollable model. ●Keep transmitters, batteries, and models away from small children. ※Chemical agents and the items themselves may cause personal injury.
⚠ **Caution!** Enforcement matters	●Remove batteries from transmitter if it will not be used for a considerable time. ※If batteries are left in the transmitter, battery leakage may result in damage. ●Do not store transmitter/receiver in the following conditions: 1. Extremely hot (over 40ºC) or cold (below 10ºC) temperatures. 2. Locations in direct sunlight. 3. Locations with high humidity. 4. Locations subject to vibrations. 5. Locations with lots of dust. ※These conditions may cause the case to deform and damage the product.

●Transmitter Battery Handling and Charging (separately available option)

⚠ **Danger!** Enforcement matters	●Never short-circuit the battery connector. ※This may lead to a fire or explosion. ●Do not dispose batteries in fires. ※This is very dangerous and may lead to an explosion. ●Use KO Propo chargers to charge the battery and use the correct current (under 1A). ※Incorrect current may lead to battery damage, overheating, or leakage. ※Other manufacturer's chargers may not have a automatic cutoff function.
⚠ **Danger!** Enforcement matters	●Do not subject the battery to strong shocks. ※This may damage the battery and cause leakage or a short circuit. ●Do not dismantle or modify the battery. ※This may cause dangerous leakage of battery fluids. ●Keep away from water. Do not charge a wet battery. ※This may cause overheating and damage. ●Do not charge alkaline batteries. ※Alkaline and other single-use batteries cannot be recharged. Doing so may lead to fire and damage. ●Do not use wet hands when plugging in the charger's AC Adapter. ※This may result in electrical shocks.

※If there is battery fluid leakage, avoid contact with eyes as it may result in blindness. If contact with eyes occur, flush with large amounts of water and seek medical attention immediately.
※When disposing batteries, Ni-Cd, Ni-MH, Li-Po, and Li-Fe batteries should be recycled in order to help protect the environment.
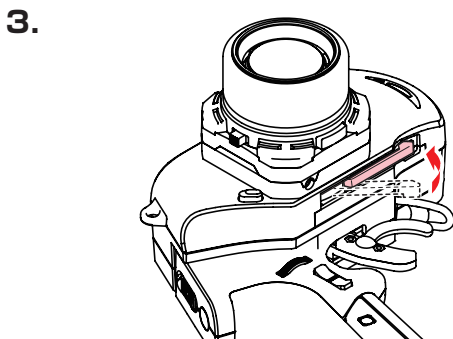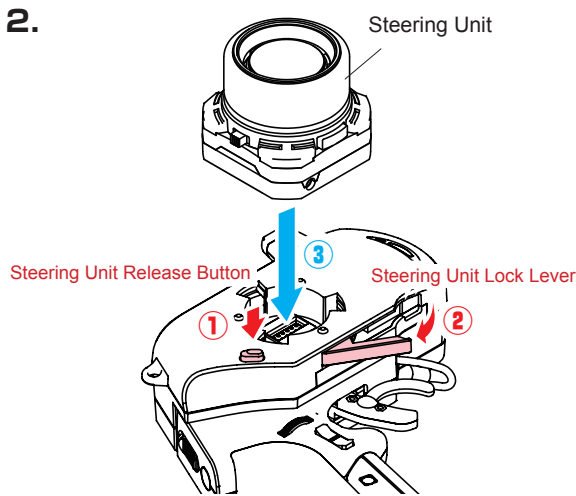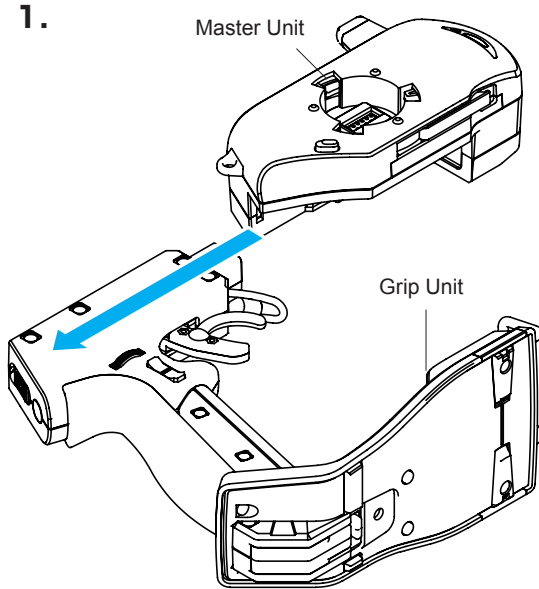
■ Getting Started

● Transmitter Assembly
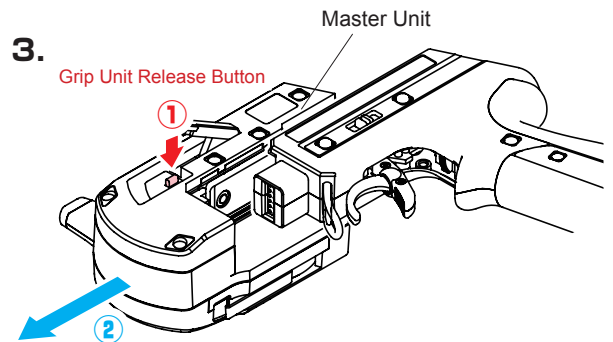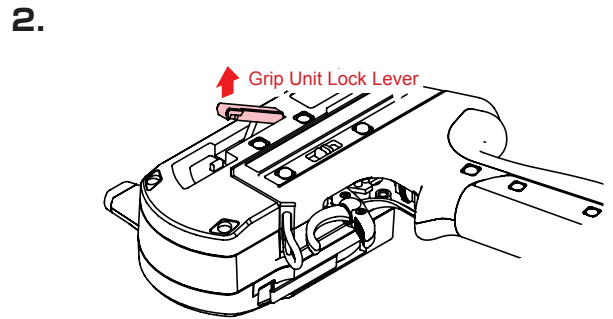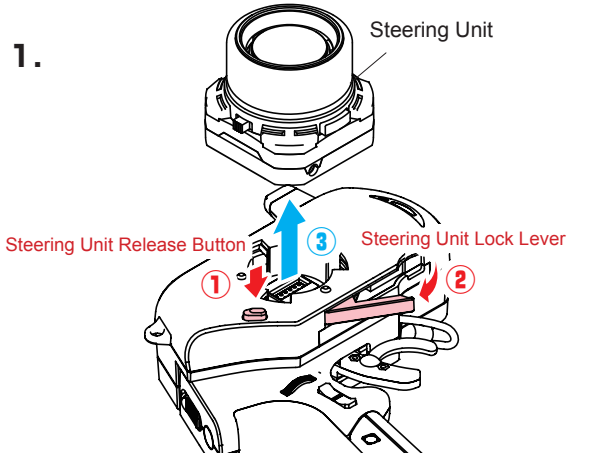
Insert the Grip Unit into the Master Unit, then attach the Steering Unit.

⚠ Remove the connector cover before use.

1.

Master Unit

Grip Unit

2.

Steering Unit

Steering Unit Release Button   ③   Steering Unit Lock Lever

①   ②

3.

● Transmitter Dismantling

Detach the Steering Unit, then detach the Master Unit.

1.

Steering Unit

Steering Unit Release Button   ③   Steering Unit Lock Lever

①   ②

2.

Grip Unit Lock Lever
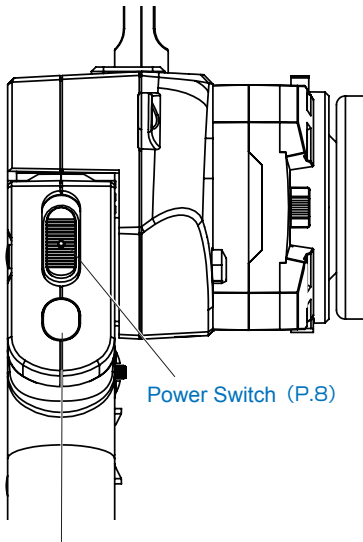
3.

Master Unit

Grip Unit Release Button

①

②

⚠ If storing the transmitter in dismantled form, please remember to attach the connector covers.

⚠ Assembly may differ with the included set contents.
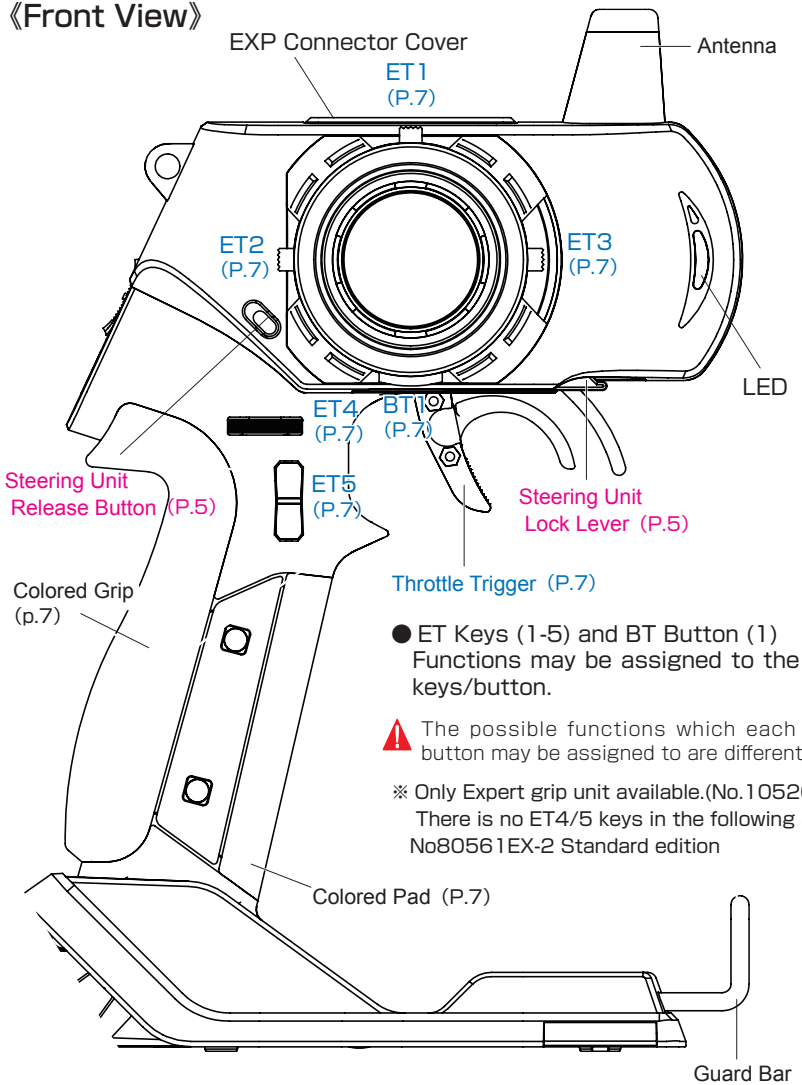
■ Names of Parts

《Side View》

Power Switch (P.8)

Charger Jack (P.8)
※ Open the cover
(Only Expert Grip)

《Front View》

EXP Connector Cover

ET1 (P.7)

Antenna

ET2 (P.7)

ET3 (P.7)

LED

ET4 (P.7)

BT1 (P.7)

ET5 (P.7)

Steering Unit
Release Button (P.5)

Steering Unit
Lock Lever (P.5)

Colored Grip (p.7)

Throttle Trigger (P.7)

● ET Keys (1-5) and BT Button (1)
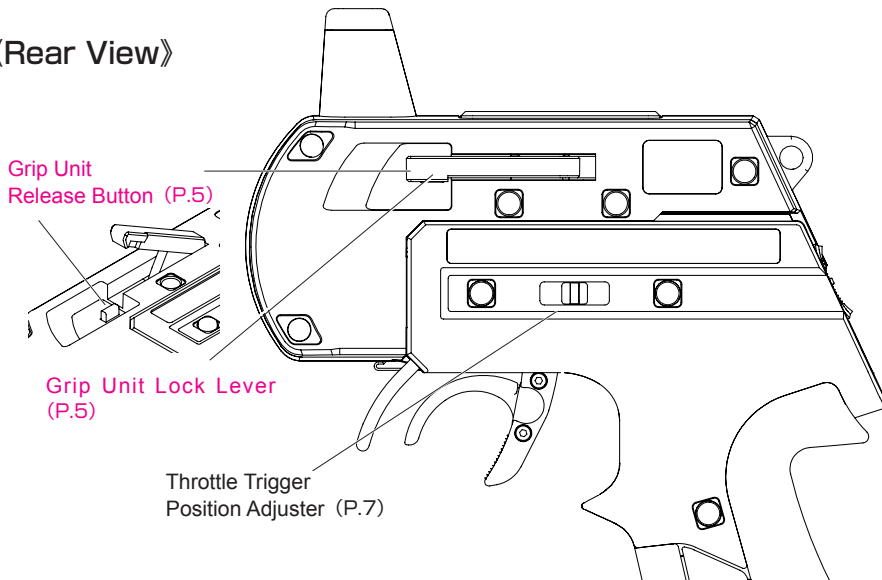Functions may be assigned to the
keys/button.

⚠ The possible functions which each key/
button may be assigned to are different.

※ Only Expert grip unit available.(No.10526)
There is no ET4/5 keys in the following sets.
No80561EX-2 Standard edition

Colored Pad (P.7)

Guard Bar

《Rear View》

Grip Unit
Release Button (P.5)

Grip Unit Lock Lever
(P.5)

Throttle Trigger
Position Adjuster (P.7)

● ET Keys (1-5) and BT Button (1)
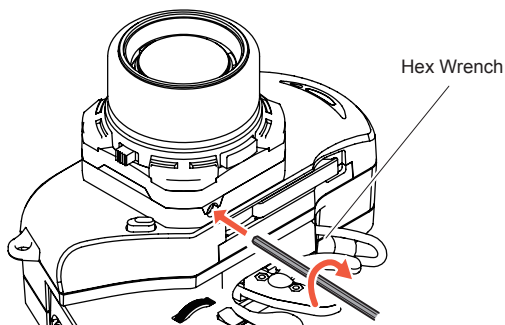
Functions may be assigned to the keys/button.

⚠️ The possible functions which each key/button may be assigned to are different.

● Steering Wheel Adjustment

Adjust the tension of the steering wheel spring.
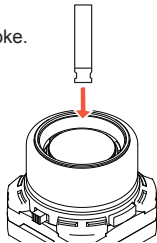
[How to Adjust]

Insert a 1.5mm hex wrench referring to the image below. Rotate clockwise to increase tension and counterclockwise to decrease it.

Hex Wrench

⚠️ Excessive counterclockwise rotation will result in the wheel being unable to return to neutral position. In this case, rotate clockwise until the wheel returns to neutral.

● Wheel Cap Remove

Insert Wheel Cap Remover to the wheel cap spoke. Pull up Wheel cap remover with Wheel Cap.

● Throttle Trigger Adjustment

Adjust the position and angle of the brake trigger to your preferences.

[How to Adjust]

① Loosen the hex screws on the throttle trigger with a 1.5mm hex wrench.

② Freely adjust the brake trigger position.

③ Tighten the hex screws to secure.

【Throttle Trigger】

Brake Trigger

Hex Screws

Ball Joint
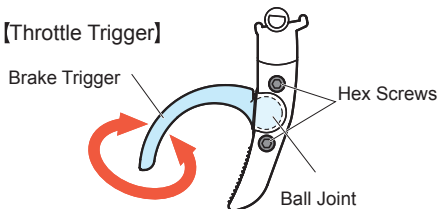
● Throttle Trigger Position Adjustment

The position of the throttle trigger may be adjusted to match the user's hands.

[How to Adjust]

① Loosen two screws on the rear side of the transmitter.

② Slide the Throttle Trigger Position Adjuster as desired.
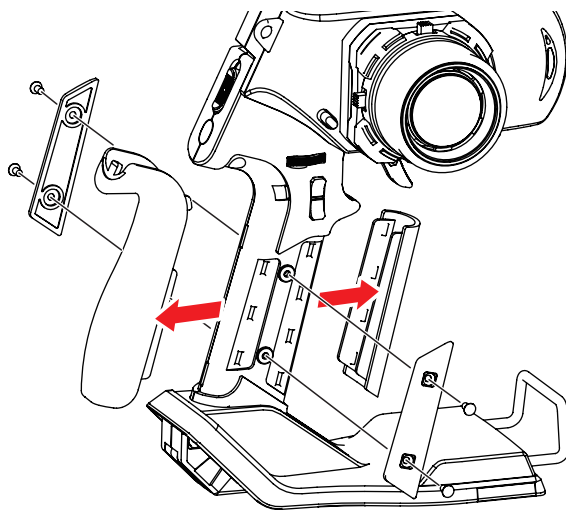
③ Tighten the loosened screws to secure.

Screws

Throttle Trigger Position Adjuster
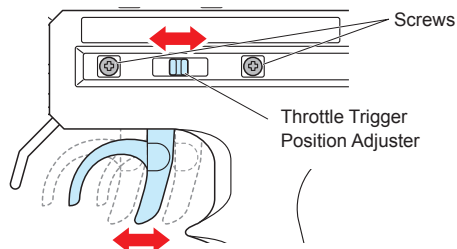
● Colored Grip and Pad Replacement

Colored grip pad (optional) and Large/small grip pad options are available.

《How to change》

Remove the two screws on each side of the grip to detach the grip plates, then attach the colored grip and pad.

⚠️ Make sure the battery box or battery pack is removed before replacing the colored grip and pad.

⚠️ The tabs on the colored grip and pad are to be inserted into holes. Note the direction.

⚠️ Note direction of the of the colored grip and pad

● Unit Connector

This product may be dismantled and therefore each unit features their respective connectors. Dirty or damaged connectors may result in malfunctions, so please handle them carefully.
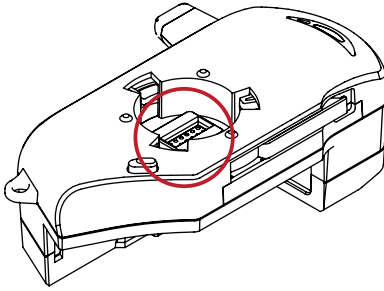
⚠️ Do not touch the unit connectors with your fingers. If connectors become corroded due to grime, they may become inoperable. If storing the transmitter in dismantled form. After prolonged use, a black residue may build up on the connectors. Use cotton swabs dipped in cleaning alcohol to remove. KO Propo's Customer Service Department also handles transmitter maintenance.

● Power Switch

This product features a safety lock. The Master Unit and Grip Unit cannot be detached when the Power Switch is in the ON position. Turn off the transmitter before dismantling.
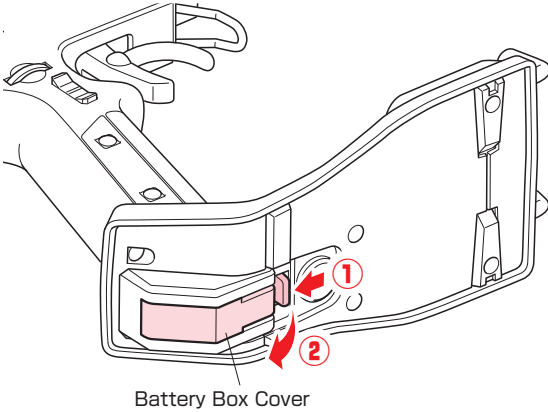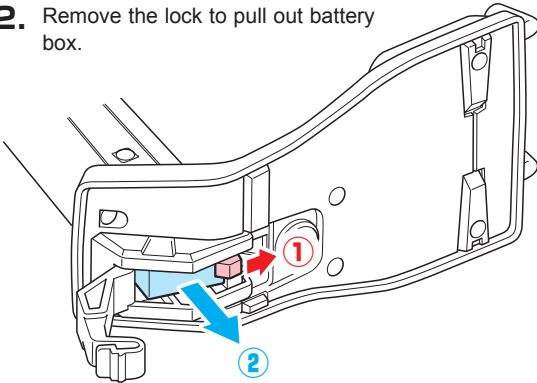
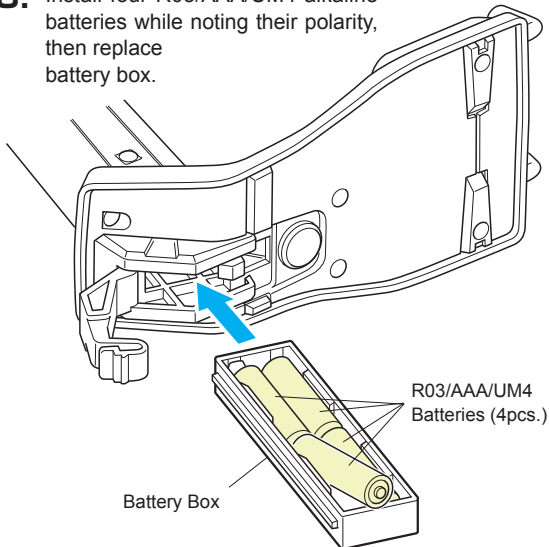Power Switch
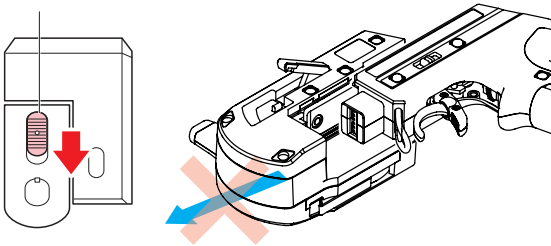
■ Preparations

● Battery Installation

**1.** Press the tab on the bottom of the transmitter to open battery box cover.

Battery Box Cover

2. Remove the lock to pull out battery box.

3. Install four R03/AAA/UM4 alkaline batteries while noting their polarity, then replace battery box.

R03/AAA/UM4 Batteries (4pcs.)

Battery Box

⚠ Use batteries which have adequate remaining capacity. Weak batteries mean lower transmitting power and may result in malfunctions.

⚠ Do not install Ni-Cd or Ni-MH batteries in the battery box. (These may cause the battery connectors to corrode.)

● Battery Level Warning

A warning will be displayed with the LED flashing and an alarm will sound when battery voltage is less 4v. When you see this warning, stop your model in a safe area, turn it off and install new transmitter batteries.
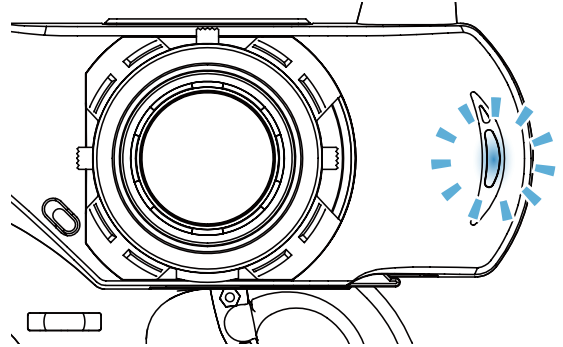
⚠ If the Xpansion unit is not assembled or used, do not use the LiFe/LiPo battery.

● Initializing EX-2

When using the EX-2 for the first time, please carry out the following settings.

※ EX-2 does will not work normally if the initial confirguration is not set.
※ This is an operation method when the expansion unit is not assembled.Initialization is necessary using a different method when expansion unit is put on, see p. 24 for more information.
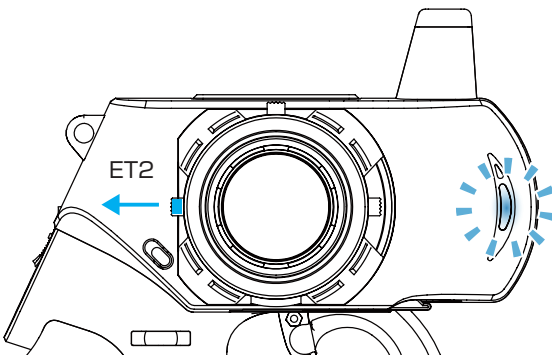
1. Power on while operating ET2 lever below.

Power ON

ET2
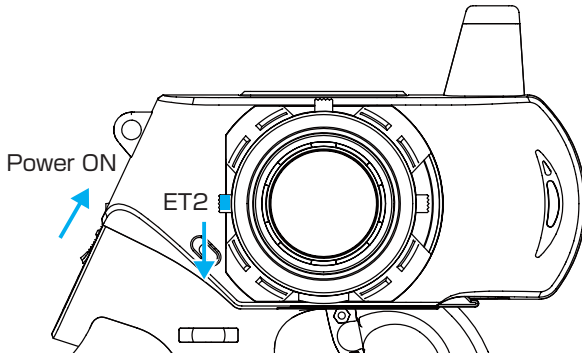
2. Hold the ET2 lever until the LED of EX-2 turns on (approximately two seconds).
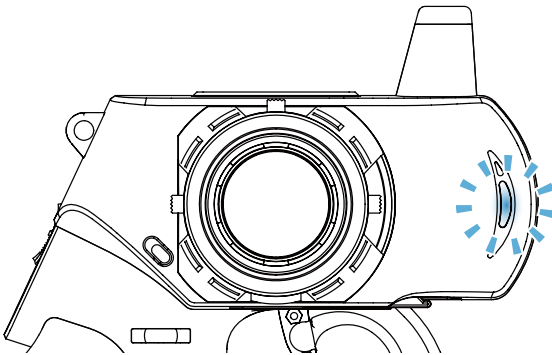
3. After the LED turns on, release ET2 lever. Buzzer sounds, and reset is completed.

ET2

⚠ When changing each unit for a different unit, please perform this initialization again.

● How to change the Modulation mode

EX-2 has two Modulation modes.

※ When attaching the Xpansion unit, this operation is the same.

《Functions》
● General RC models FHSS mode　: LEDSolid
Operating the general receivers such as KR-211FH/KR-241FH

⚠ The receiver is available for only FHSS method.The receiver of other methods (DSSS/27/40MHz) does not work.

● Mini-Z MHS mode　:　LED Flashing slowly
Oparating Kyosho Mini-Z MHS mode.
(MR-03 VE PRO)

⚠ Only MiniZ for MHS is available. Does not work with the receiver for ASF, FHS, general RC cars.

① Turn off EX-2 switch.

② Push the ET1 lever to the left and power on.

③ Hold ET1 lever until the buzzer sounds and the LED of EX-2 turns on (approximately two seconds).

ET1

PowerON
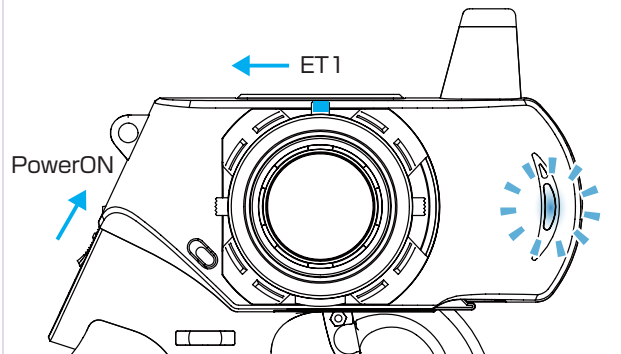
Approximately two seconds, LED turns on.

⚠ If the pilot LED is blinking fast, this is a warning that the battery voltage is low. Please change to new batteries or for a battery pack which has been charged.

④ Set the Fail-Safe Function（p.15）.

● Countermeasures Against Noise

Keep antenna cable away from all sources of noise!

Noise is generated in any area where a large amount of electric current is flowing. Position the receiver and antenna cable as far away from the motor, battery, ESC, and their associated cables as possible. (Metal or carbon fiber chassis components will also conduct electricity and generate noise.)

Since R/C models are controlled via radio signals, taking appropriate measures against noise generated by on-board equipment is of utmost importance. Take adequate measures against noise so that your machine can fully realize your driving potential.
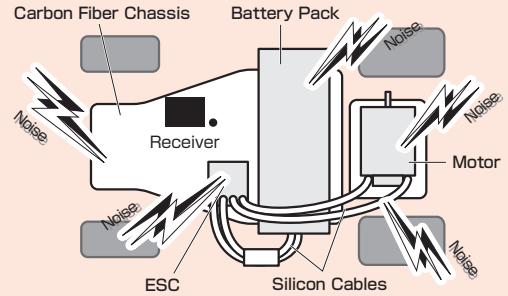
### ● Receiver Installation on a Carbon Fiber Chassis

When installing the receiver to the chassis or R/C equipment deck/tray, use two or more pieces of thick double-sided tape to raise the receiver off the chassis surface. By increasing the separation between the receiver and the noise-generating carbon-fiber chassis components, the effects of noise can be decreased.
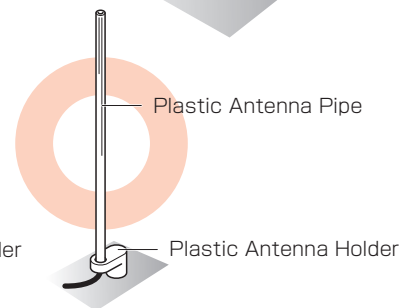
※Install the receiver so that its LEDs are visible.
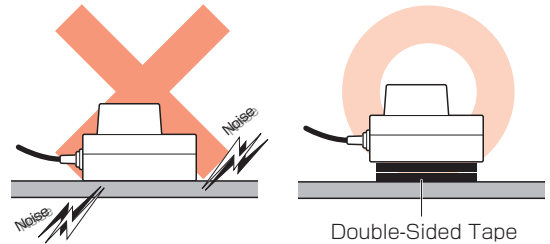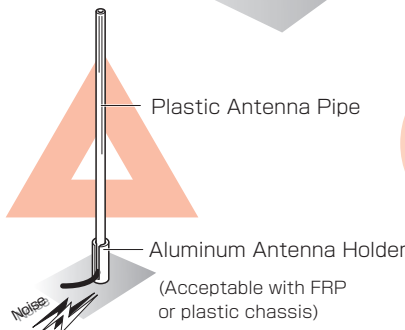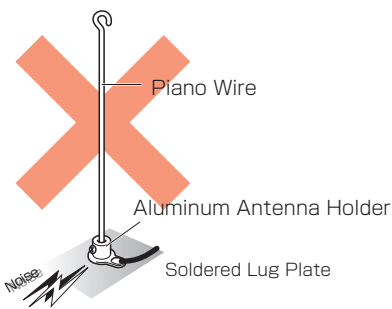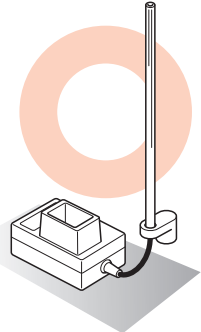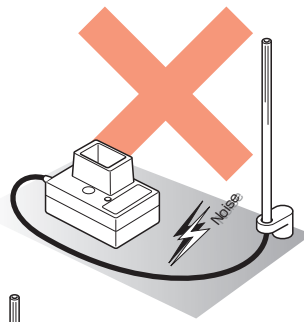
● Antenna Installation

Raise the antenna cable vertically from as high a position as possible. Insert the antenna cable into the antenna pipe so that the tip of the antenna aligns with the end of the pipe. Make the length of cable which runs between the receiver and the pipe as short as possible and position the antenna holder as close to the receiver as possible. Position the antenna cable away from sources of noise such as the chassis and R/C equipment deck/tray. Use an antenna pipe and antenna mount that are made from plastic, since metal parts will conduct noise.

Signal Receiving Section
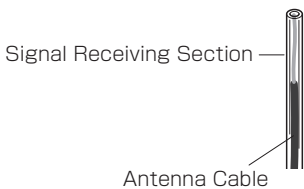
Antenna Cable

※Do not bend or cut the antenna cable.
(This may break the antenna wire and deteriorate its performance.)

Piano Wire

Aluminum Antenna Holder

Soldered Lug Plate

Plastic Antenna Pipe

Aluminum Antenna Holder

(Acceptable with FRP or plastic chassis)

Plastic Antenna Pipe

Plastic Antenna Holder

● Installing Onto a Glow Engine Car

Engine vibrations may damage the receiver. Make sure to attach a grommet (receiver holder) to reduce the effects of such vibrations. Do not attach the receiver directly to the chassis or R/C equipment deck/tray with double-sided tape. Also position the receiver so that it does not contact the heat and exhaust of the engine and muffler.

※Install the receiver so that its LEDs are visible.

Grommet
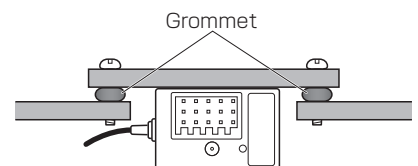
● Receiver Installation

1. Install the receiver, servo, and ESC (in the case of an electric car) onto your machine and connect them. Install the receiver while taking noise into consideration (p.11) .

　※ Carefully read the instructions included with the servo and ESC before installing and using them.

2. Install batteries into the transmitter's battery box (p.9) .
In the case of an electric car, install battery pack. In the case of a glow engine car, install battery for receiver.
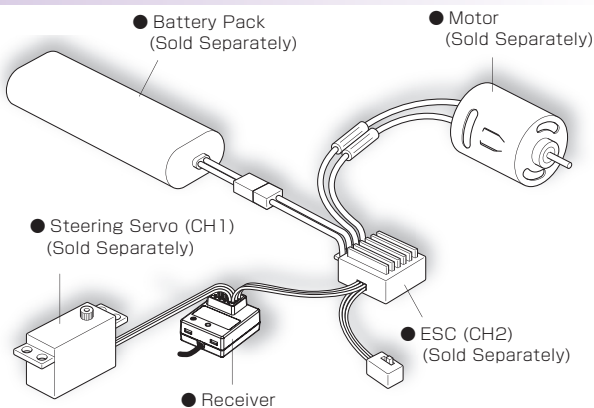
3. For 2.4GHz systems, conduct pairing of the transmitter and receiver .

　※ In order for the receiver to operate, it must store the transmitter's unique ID in its memory in a process called "pairing." Even if a single transmitter is used to control multiple receivers, each receiver must go through the pairing process with the transmitter before being used for the first time.
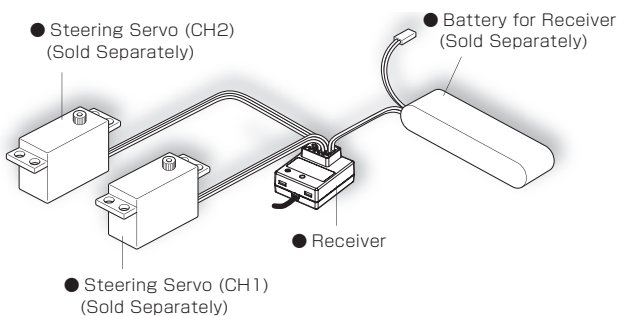
4. Adjust steering (p.18) and throttle/braking (p.19) .

5. Set the Fail-Safe Function (p.15) .

● For an Electric Car

- Battery Pack (Sold Separately)
- Motor (Sold Separately)
- Steering Servo (CH1) (Sold Separately)
- ESC (CH2) (Sold Separately)
- Receiver

● For a Glow Engine Car

- Steering Servo (CH2) (Sold Separately)
- Battery for Receiver (Sold Separately)
- Receiver
- Steering Servo (CH1) (Sold Separately)

⚠ This transmitter is only compatible with digital servos. Correct operation is not possible when used with analog servos.

⚠ For items which are not included in this product, please refer to the KO Propo website for a list of compatible products. (http://www.kopropo.co.jp)

● Pairing (For general receiver)

Case without the Xpansion unit

※ Refer to p.25 pairing Operation in the case of using the Xpansion unit.

In order for the receiver to operate, it must store the transmitter's unique ID in its memory in a process called "pairing." Even if a single transmitter is used to control multiple receivers, each receiver must go through the pairing process with the transmitter before being used for the first time.

※ **Please adjust the Modulation mode before pairing.(p.10) A receiver does not work normally in different mode.**
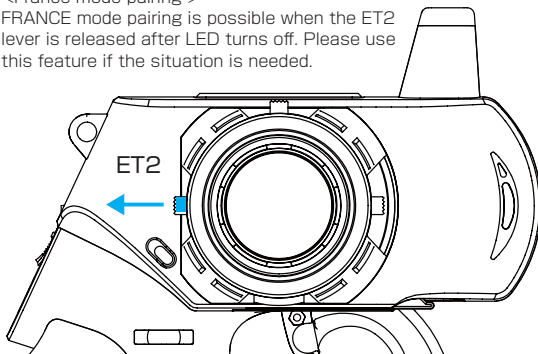
1. Preparing the Transmitter

① While pushing the ET2 lever up, power on.
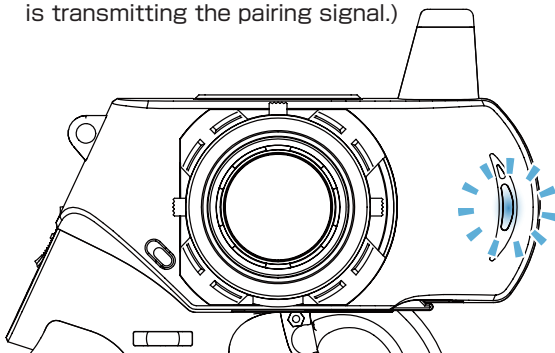
Power ON

ET2
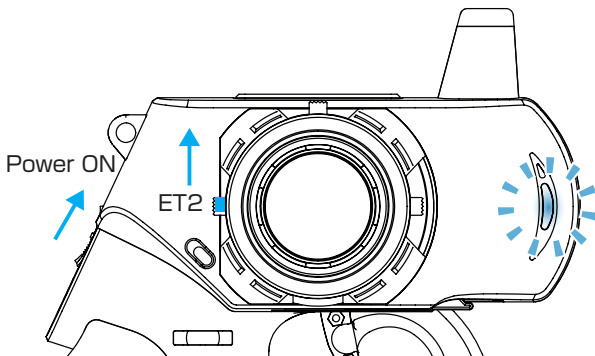
② When the ET2 lever is released, the LED turns of

<France mode pairing >
FRANCE mode pairing is possible when the ET2 lever is released after LED turns off. Please use this feature if the situation is needed.

ET2

EX-2 LED lights up again (indicating transmitter is transmitting the pairing signal.)

2. Preparing the Receiver

① Connect the receiver power source while pressing the setup button.

② Check that the receiver's LED has lit up, then release the setup button.

③ Check that the receiver's LED lights up again (indicating pairing completion)

※ When pairing is complete, pressing the ENTER key on the transmitter will return the screen to the previous [2.4Gband] menu.

※ Switch off the receiver, then switch it back on again for normal operations.

※ The preparations below are to be carried out following the pairing procedure.

BATT
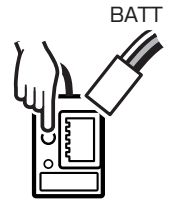
Lit LED

3. Preparations for Operation

① Switch off the receiver.

② Switch off the EX-2 main power, then switch on EX-2 again.

③ Switch on the receiver and check that the receiver LED is lit. If the LED flashes, the receiver is not getting the EX-2 signal and the pairing procedure should be repeated.
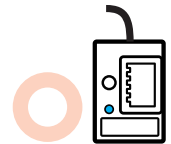
Lit LED
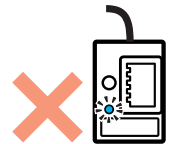
Flashing LED

⚠ During this process, your car may become uncontrollable if the ESC has not been adjusted. As a precaution, set your car so that its wheels do not touch the ground.

⚠ Pairing procedures may not go smoothly if there are wireless LAN, microwave ovens, or other users conducting pairing procedures nearby. In this case, move some distance away or wait a while before attempting the pairing procedure again.

⚠ If the mode is changed (General or France), please conduct pairing procedures with the receiver you are using again.