

**KO PROPO**<sup>®</sup>  
*Digital Proportional System*



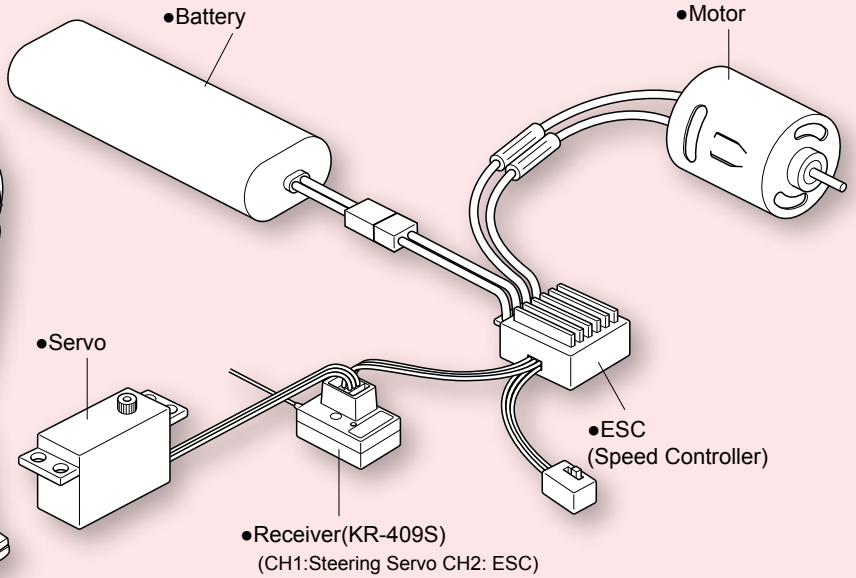
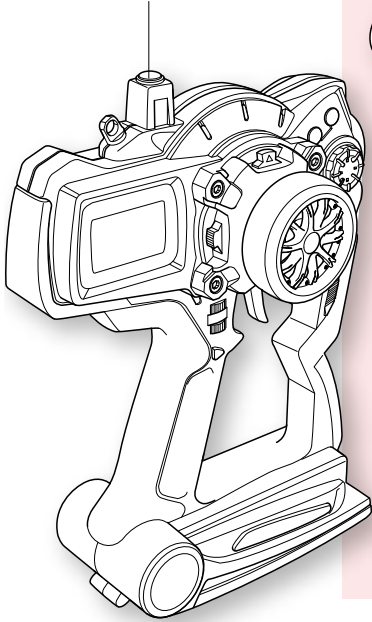
**EX-10 BURUS**  
**Instruction Manual**

# ■ Connection of Receiver



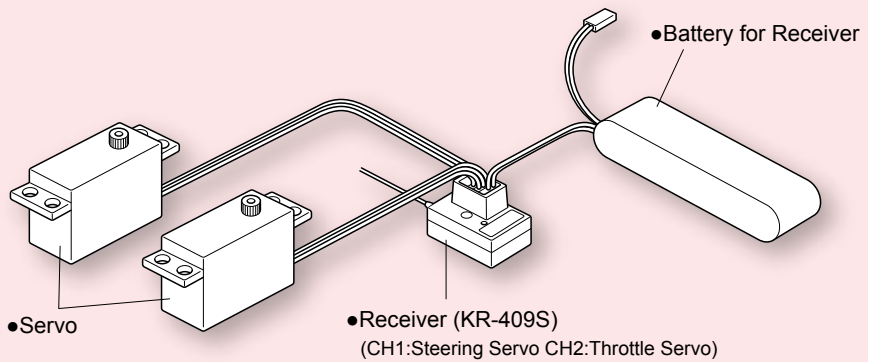
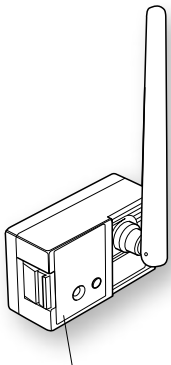
## ● With Electrical Powered Car

● Transmitter (EX-10EURUS)



## ● With Gas Powered Car

● RF Module (RF-902S or RF-902SM)



**[Attention!]** Please see the correspondence product table when using it excluding the equipment included in the set. It is possible to confirm it also in the correspondence table of our web page. ([www.kopropro.co.jp](http://www.kopropro.co.jp))

# SAFETY PRECAUTIONS



## For the safe Usage of this Unit

With the nature of radio controlled models, misoperation will result in danger. In order to avoid these circumstances and to use this unit safely, please read the contents thoroughly.

**Danger!** Failure to observe the matter discussed in such an item poses a serious threat of death or severe injury.

**Warning!** Failure to observe the matter discussed in such an item poses a possibility of death or severe injury, and a great likelihood of damage to the equipment or property.

### Notes in assembly of mechanism before use

**Danger!**  
Prohibited matters

- Prevent metal parts in the model ( Car, or Boat ) from touching caused by vibration.
- Do not cut or bundle the aerial wire with other cords.  
It may result in decreasing the sensitivity of a receiver and may result in the model running out of control.
- Be careful not to reverse the polarity of the transmitter and the receiver. Reverse polarity could damage the unit.
- Be sure to connect all equipments correctly.  
If connections are loose, the model may run out of control.  
The vibration may damage the servo and the model may run out of control

**Danger!**  
Enforcement matters

- Be sure to install a receiver with thicker double sided tapes.  
A strong shock or vibration may result in the model running out of control.
- When operating each servo, check that there is no unnecessary force on the push rod.  
It may damage the servo or increase the consumption of batteries.
- Be sure to use grommets and to prevent the servo from touching any metal or carbon plates directly.  
The vibration may damage the servo and the model may run out of control.
- Be sure to use genuine KO Propo products e.g. transmitter, receiver, ESC and other optional parts.  
We cannot assume any responsibility for the use of other companies' products with this unit.

### Notes on driving (sailing)

**Danger!**  
Prohibited matters

- Do not use this unit in thunderstorms.  
There is a possibility of lightning striking the antenna.
- Do not use the transmitter in the rain or in a location where water might get on it. The unit may become wet, which causes loss of control.
- Do not run the model in the following places.
  - 1, Near to other radio control car circuits. (within 3km)
  - 2, Near to people or on the road.
  - 3, The surface of the water where there are actual sized boats.
  - 4, Near to electric wires and communication facilities.In the case of the model running out of control, it will be very dangerous.

 **Danger!**  
Prohibited matters

- Do not allow any plastic parts to come in contact with fuel and exhaust.  
Doing so causes risk of damage.

 **Danger!**  
Enforcement matters

- Be sure to confirm that the model memory is matched to the models currently running.  
Not doing so may cause the model to run out of control.
- When you make functional changes, be sure to stop the engine or disconnect the motor lead wire.

 **Danger!**  
Prohibited matters

- Do not touch the engine, motor, ESC where heat is generated.  
May result in burning.

 **Danger!**  
Enforcement matters

- Always turn on the switch on the transmitter first, followed by the receiver. When turning off the switch, always turn off the receiver first, followed by the transmitter.  
If you don't follow the correct order, the receiver may get interference.
- Altering the transmission module is inhibited by law and is subjected to penal code violations. Resolution remodelling of all products may result in the cause of a short and other accidents. In addition, if this product is altered we will refuse repair service.
- Please do not use this product inside an airplane, hospital, near any automatic control equipment, medical electrical machinery and apparatus such as fire alarms.  
In addition with respect to the law, if this product effects other radio equipment and electronic equipment, use must be discontinued at once.

### Notes After Driving (sailing)

 **Danger!**  
Enforcement matters

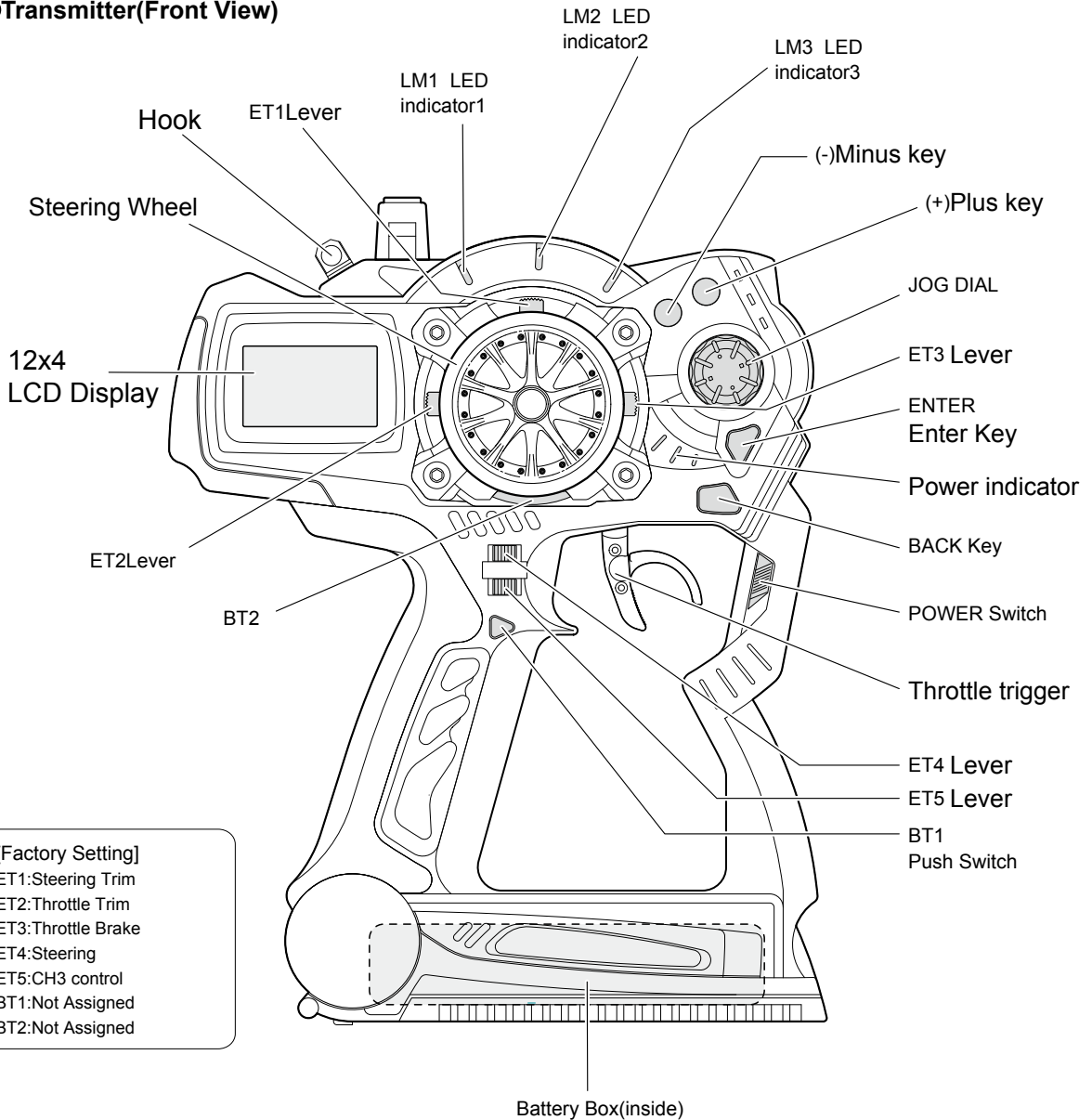
- In the case of an electric-powered car, be sure to disconnect the nicad battery afterward.  
It may cause fire or the model to run out of control in case of the switch being left on.
- When storing the transmitter, batteries, and models, be sure to keep them out of the reach of children.  
It may result in damage and/or bodily injury from the chemicals.
- Be sure to disconnect the battery from the transmitter when not in use for a long time.  
It may damage the transmitter if you leave the battery in the transmitter for a long time.

 **Danger!**  
Enforcement matters

- Do not store the transmitter in the following places.
  - 1,Extremely hot or cold places (+40, -10,).
  - 2,Direct sunshine.
  - 3,Places with high humidity.
  - 4,Dusty places.If you store the unit under these circumstances, it may result in misoperation or damage to the unit.

# NAME OF PARTS

## Transmitter(Front View)



**[Factory Setting]**

- ET1:Steering Trim
- ET2:Throttle Trim
- ET3:Throttle Brake
- ET4:Steering
- ET5:CH3 control
- BT1:Not Assigned
- BT2:Not Assigned

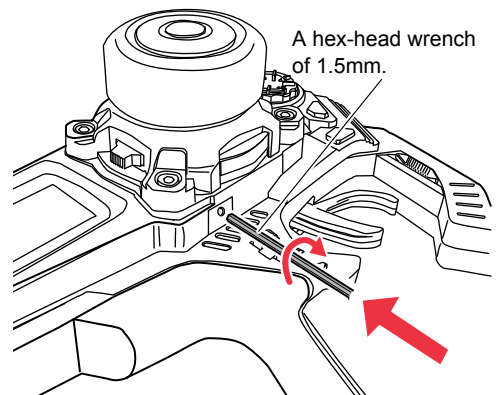
## Adjustment of Steering Tension

Strength of the spring of the steering wheel can be adjusted.

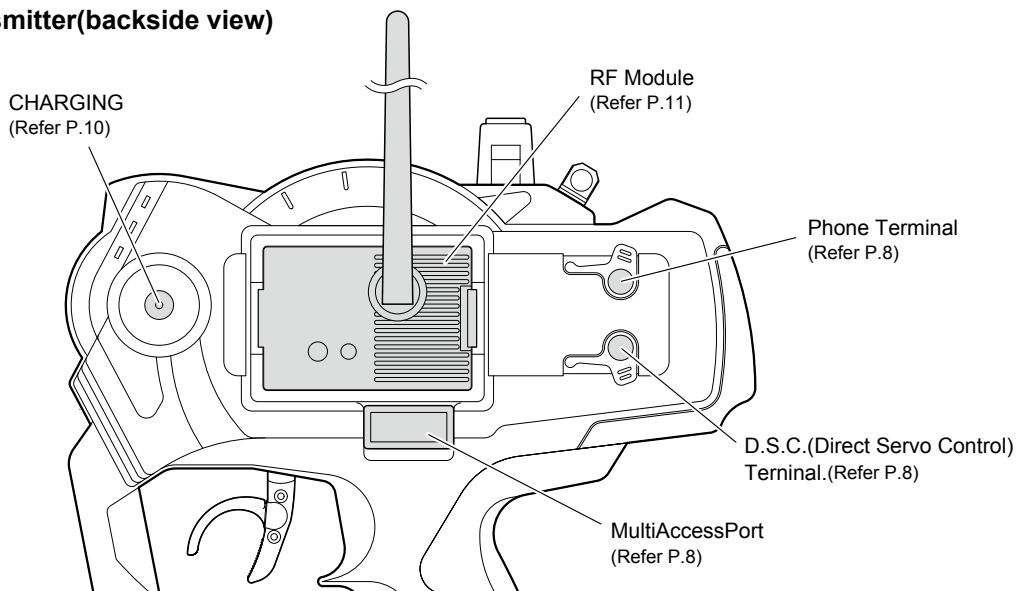
**[Usage]**

Each direction doesn't turn on constancy. So when it becomes tight, do not turn the tension any more. The tension adjustment can be adjusted by the hole above the ET4 button (figure right) with a hex-head wrench of 1.5mm.

The tension strengthens when turning in the clockwise direction. It weakens when turning in the opposite direction.



## ●Transmitter(backside view)

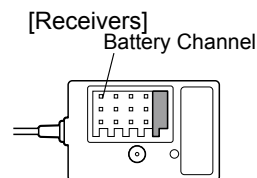


### ▶ D.S.C.Terminal

Because the DSC function is installed in this unit, the setting can be confirmed without putting out the electric wave. A D.S.C. cable (optional) is necessary to use this function.

Receivers that will work with this function should be a KO Propo genuine product which is compatible with DSC.

1. Turn off the power switch of the transmitter and connect the DSC cable to the DSC terminal. The power supply of the transmitter enters when the DSC cable is connected.
2. (Case of KR-409S Usage) Please change mode to "Digital".  
(Case of Older Receiver Usage) Please change to NORMAL,HighSPD,or ADVANCE.
3. The other side of the DSC cable is connected to the receiver.  
**[Coution!]** The crystal of the receiver is pulled out.
4. Connect Battery to the receiver.
5. Connect Servo and check it.
6. Once you are finished using DSC, turn off the receiver side first then DSC Jack should pulled out.



### ▶ MultiAccessPort

The multi access port offers a new method of installing, exchanging and the editing of new settings information.Obtaining the Data Pack and the communications adaptor can be used for the multi access port.

**[Data Pack (optional)]** The 10 model memory in the main unit can have an additional 40 model memory.

### **[I.C.S Communication Adaptor(optional)+I.C.S USB Adaptor(optional)]**

The two way communication is possible by connecting the PC to your transmitter with the optional interface kit. By using the software from the interface kit, settings of the transmitter can be edited in PC and the data can be saved regardless of the number of model memory.

### ▶ Phone Terminal

The buzzer sound can be clearly confirmed by using the earphone jack. Commercially available  $\Phi 3.5$ earphone for radios can be used. (MONO type can be used. With STEREO type, only one side will be heard.)

This is useful when you cannot hear the buzzer sound due to other outside noises. The Buzzer sound can be heard from the transmitter even when the earphone jack is connected.

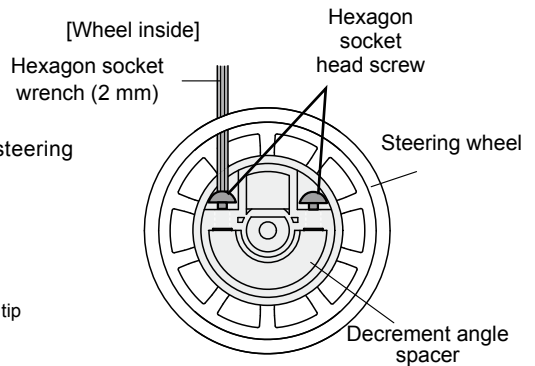
## ▶ Setting of Wheel and trigger

### [Adjusting the steering angle]

#### [Procedure]

1. Remove the sponge from the steering wheel.
2. Insert the hexagonal socket wrench (2 mm) into the two holes of steering wheel and tighten the hexagon socket head screws.
3. Attach the sponge to the steering wheel.
4. Referring to page 45, set "#ADJVOL" (adjust variable resistor).

□To return to the initial state, adjust the hexagon socket head screw so that the tip does not protrude from the tapped hole by a small distance.

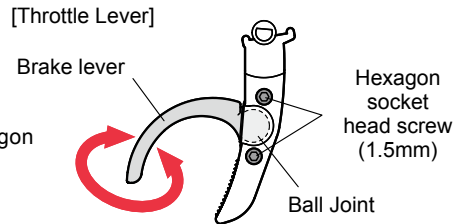


### [3D Adjustable trigger]

The position of the brake lever and the adjustment of the angle can be freely done.

#### [Procedure]

1. A Hexagon socket head screw of the throttle lever is loosened by Hexagon socket wrench.
2. The brake lever is adjusted to an arbitrary position.
3. A Hexagon socket head screw is tightened, and fixed.



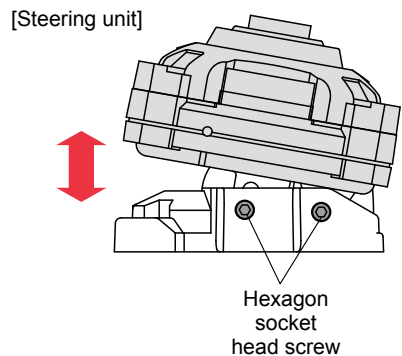
### [Wheel Extention Unit]

The installation angle of the steering wheel foil can be freely adjusted.

□Please refer to the manual of the attached paper for the installation of the unit.

#### [Procedure]

1. Two Hexagon socket head screws under the wheel extension are loosened by Hexagon socket wrench (3 mm).
2. The position is adjusted at the position of the favor.
3. Hexagon socket head screw is tightened, and fixed.



## ▶ Color Pad and Replace Grip(optional)

It is possible to exchange it for other color pad and grip.

#### [How to remove pad or grip.]

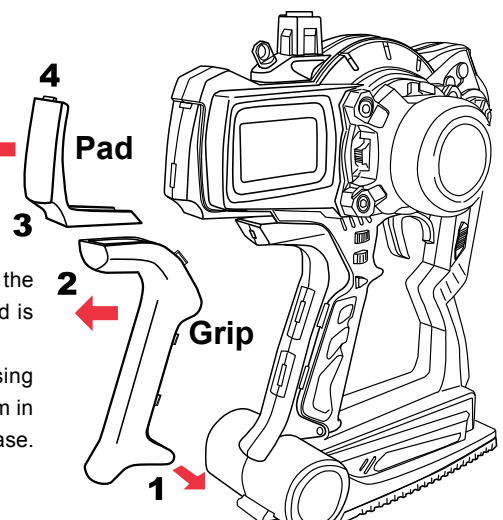
Pull in the direction of the arrow (3), the pad removes using your fingernail (4).

After expanding the lower side (1), the whole grip pulls the in direction (2) of the arrow.

#### [How to attach pad or grip.]

Do this in the reverse order of the removal procedure. The lower side of the pad is slid in. Then using your fingernail the upper side (3) of the pad is inserted into the transmitter case.

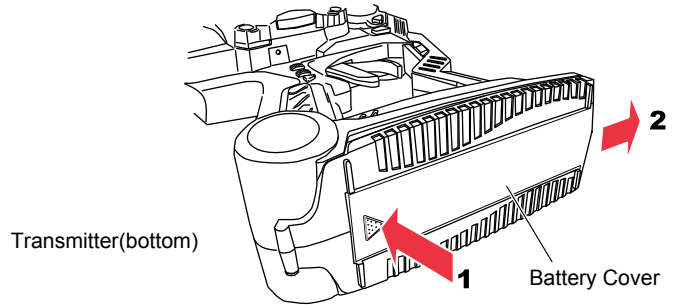
Slide the grip onto the case and then push the six tabs into the case using your fingernails. If it is not easy to insert the tabs into the case, push them in by using a minus driver etc. Do not using anything that will damage the case. Finally, push the guide pins that exists in the lower side (2) into the case.



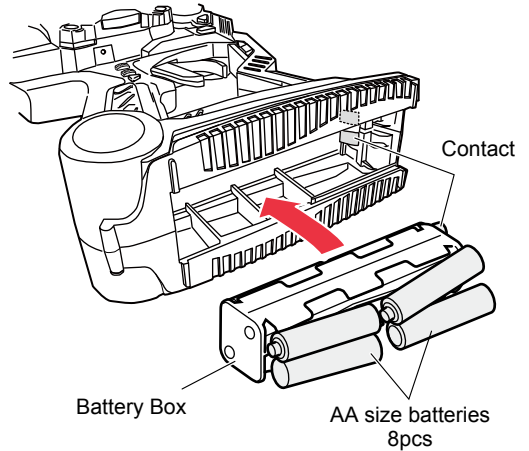
# ■ PREPARATION FOR USING THIS UNIT

## ▶ How To Insert Batteries

1. Pressing in the direction of the arrow of (1), while pushing the part in the arrow of (2).



2. (1)The direction is matched to the display of the plus or minus of the dry battery box, and eight AA size batteries are put.  
(2)The direction of the terminal of the dry battery box and the terminal of the transmitter is matched and it pushes it into the interior.  
(3)The battery cover is closed.



**[Caution!]** Do not use AA size Ni-cd or NiMH batteries.  
The inside of the transmitter corrodes by generating gases when charging it.

### [Battery pack (option)]

Rechargeable Ni-MH battery pack.

#### [How To Insert Batteries]

- (1)The connector is inserted noting the direction as shown in figure.
- (2)Insert battery pack and close the cover.
- (3)Be careful not to trap the cord.

Please attach included sponge to the battery lid when the battery pack is used.

**[Caution!]**

**Be careful to the polarity of the connector.**

**[Caution!]**

**Do not use it excluding the battery made of our company.**

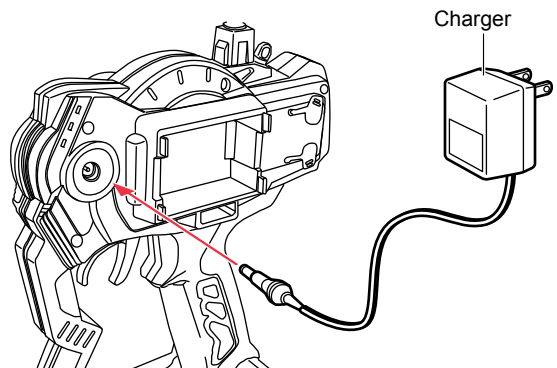
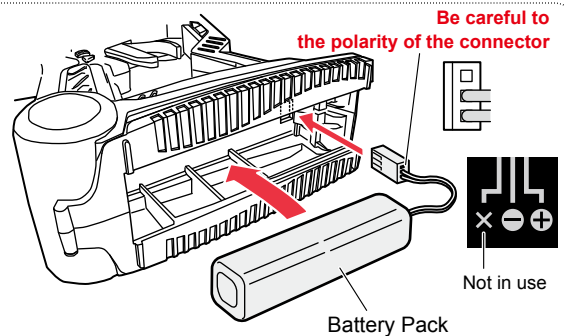
### [About Charging (only for battery packs)]

Connect AC Mains charger as shown in figure.

The charging time from flat condition is 14-16 hrs for AC Mains charger.

**[Caution!]** Do not charge when dry cell batteries are used.

**[Note!]** If the charge plug is inserted, the power supply of the transmitter is turned off.



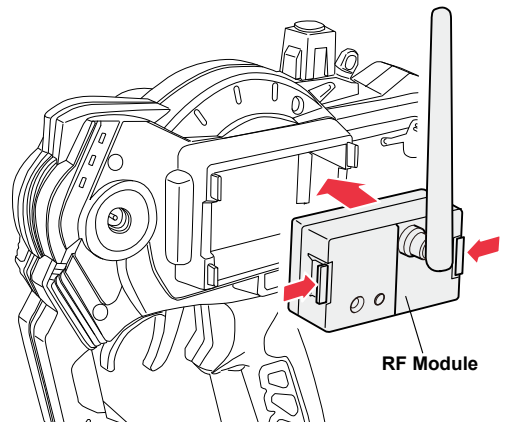


## ► Changing the RF Module and Crystals

Remove the RF module and replace them as required.  
When removing the RF module, push the right and left claws.

Please exchange modules to change frequency band  
(2.4GHz,27MHz,40MHz).

- [Coution!]** Turn off the power of this unit when Changing the RF Module and Crystals
- [Coution!]** Please remove the rubber cap of the main body antenna, install, and use the antenna (optional) when you use 27MHz and 40MHz.
- [Coution!]** Please read the handling manual of the module attachment well when you use it.



## ▣ Notes on installing receiver (anti-noise measures)

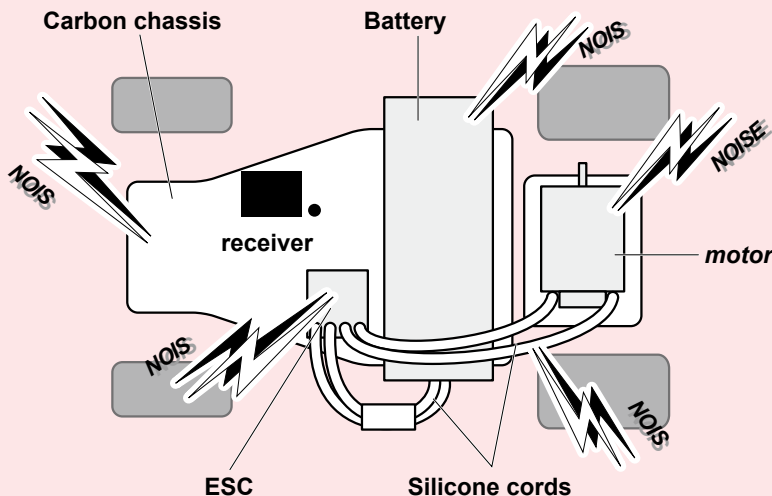
### Locate antenna cable as far away from noise source!

**Be careful  
of noise!**

Assume that all areas where large currents are flowing are generating noise! Locate antenna cables and receiver as far away from the motor, ESC, silicone cords as possible. (Materials such as metal or carbon chassis also conduct noise)

R/C model is controlled by radio wave.

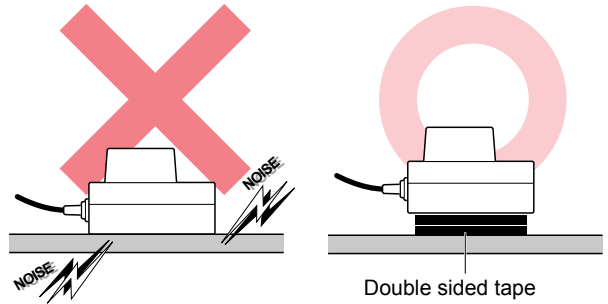
Therefore, anti-noise measures are the most important factor. Take measures to ensure optimum performance of your R/C model and driving technique.



## • Fixing receiver to carbon chassis

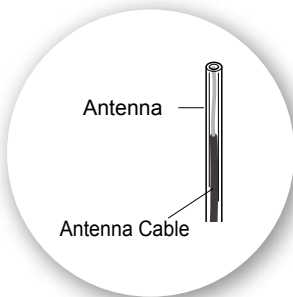
When fixing the receiver to the chassis or on the mechanism deck, use more than 2 layers of double-sided tape to avoid direct contact with chassis. Chassis and mechanism deck (especially carbon material) can also conduct noise. Making space between receiver with them is recommended to ensure protection against noise.

- Note receiver LED position when installing.

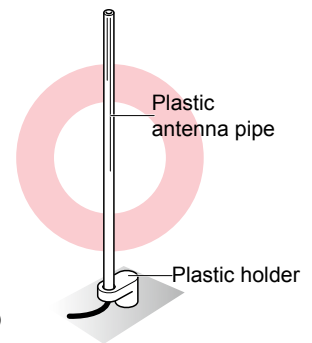
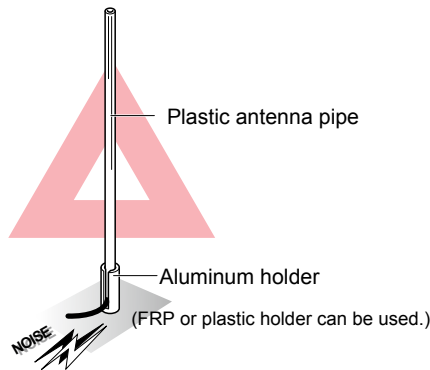
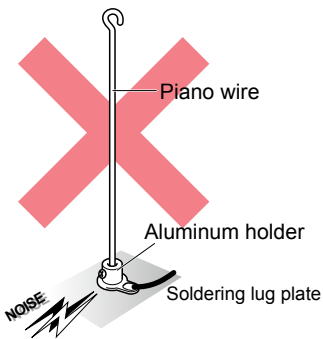
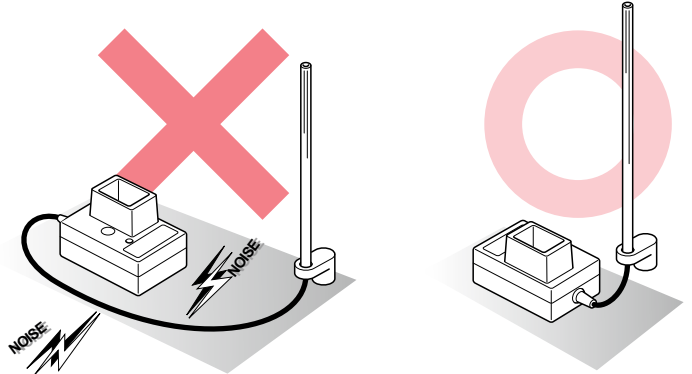


## • Antenna installation

Raise antenna cable vertically and set as high as possible. Pass cable into antenna pipe to protect from damage. Be sure that the cable projects a bit from antenna pipe. Installing antenna holder far away from receiver may deteriorate radio sensitivity. Locate antenna holder as near to the receiver as possible. Make sure that the antenna cable does not come in direct contact with chassis, mechanism plate or other noise sources. Make sure to use plastic antenna pipe and mount. Do not use metal antenna mount as it easily conducts noise and result in trouble.



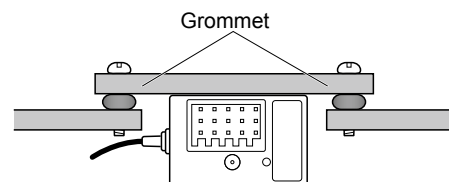
- Do not cut or bundle antenna cable (It may result in breaking of wire and deteriorate performance)



## • Attaching to a gas car

Engine vibration may damage the servo. Make sure to attach grommet (receiver holder) to reduce vibration. Do not attach directly to chassis or mechanism plate using double-sided tape. The installation position should be as far as possible from heat from engine or exhaust.

- Note receiver LED position when installing.

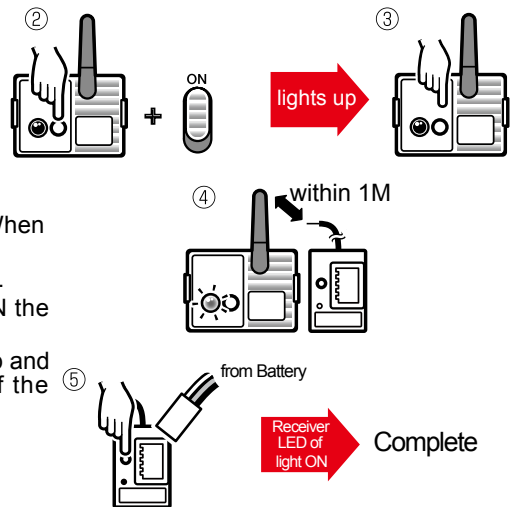


## Unit preparation

1. Install receiver, servo, ESC (when using with electric car) and connect cables. Install receiver noting anti-noise measures.  
Read instructions included with servo and speed controller before connection and usage.
2. Install batteries (R6/AA/UM3 size batteries x 8) to transmitter, then install running battery to electric R/C car. For gas R/C car, install receiver batteries. Note polarity and install fresh batteries. Depleted batteries may deteriorate radio power and cause problems.
3. Register the transmitter to the receiver to complete "pairing(as follows "How to pairing")"
4. Adjust steering and throttle/brake settings
5. Adjust failsafe.

### [How to pairing] Case of RF-902S

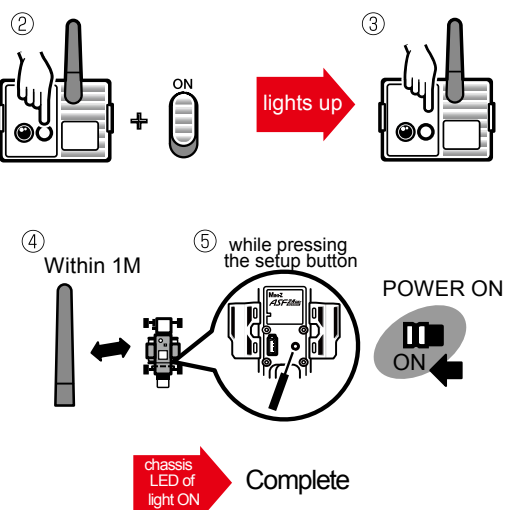
1. Install the RF-902S module in the transmitter and raises the antenna.
2. While the set button of module is pushed, power of the transmitter is turned on. At this time the LED light of module lights up.
3. After approximately 3 seconds, the LED light will go out. When LED goes out is verified, please release the set button.
4. The Receiver is brought close to the transmitter (within 1M).
5. While pressing the pairing button on the receiver, turn ON the power source.
6. Release the pairing button when the LED indicator lights up and the pairing is completed. Please turn off the power of the transmitter and the receiver.



If the pairing fails it may be due to a wireless LAN, microwave oven or someone else trying to pair at the same time. Please move to another location where you can try the pairing again.

### [How to pairing] Case of RF-902SM (for Mini-Z)

1. Install the RF-902SM module in the transmitter and raises the antenna.
2. While the set button of module is pushed, power of the transmitter is turned on. At this time the LED light of module lights up.
3. After approximately 3 seconds, the LED light will go out. When LED goes out is verified, please release the set button.
4. The chassis is brought close to the transmitter (within 1M). (As for a detailed procedure, please refer to the instruction manual of the chassis.)
5. While pressing the pairing button on the chassis, turn ON the power source.
6. Release the pairing button when the LED indicator lights up and the pairing is completed. Please turn off the power of the transmitter and the receiver.

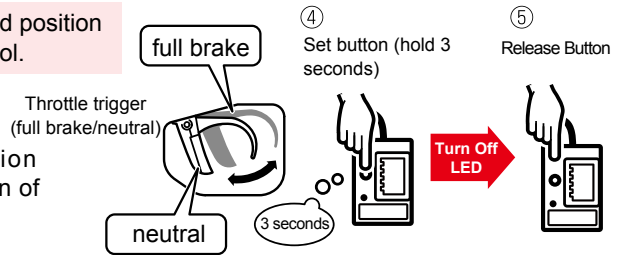


If the pairing fails it may be due to a wireless LAN, microwave oven or someone else trying to pair at the same time. Please move to another location where you can try the pairing again.

## 【Failsafe setting】

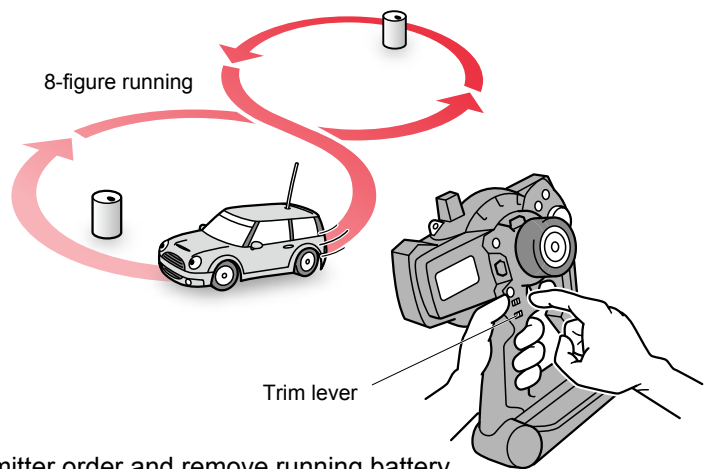
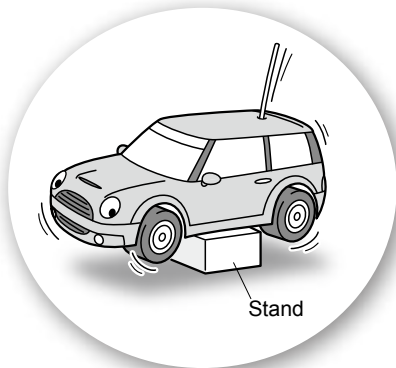
Failsafe automatically returns throttle (2ch) in desired position (full brake/neutral) if the model may run out of control.

- ① Switch transmitter on.
- ② Switch receiver on and check servo movement.
- ③ Operate throttle trigger in brake/neutral position (transmitter memorizes the position) Hold set button of receiver more than 3 seconds.  
Release after LED turns off.
- ④ Failsafe function can be checked by switching off transmitter. The data will be memorized until resetting.  
When replacing brake linkage of a gas car, resetting is recommended.



## ■ Procedure when running

1. **Power on:** Note surroundings and switch transmitter on, then switch receiver on.
2. **Checking model:** Confirm model to be used.
3. **Checking movements:** Raise wheels from ground and operate transmitter to check movements.  
Detail adjustment using steering/throttle trim lever should be done while running.  
Adjust steering balance by operating 8-figure running.



4. **Power off:** Switch off in receiver, transmitter order and remove running battery.

Make sure to switch the transmitter on and off after an interval of at least 2 seconds.

■ **Transmitter:** KT-409H

**Operation method:** Wheel + trigger method

**Number of channels:** 4 channels

**Transmission frequency range:** Any frequency range is available by replacing the RF module

**Neutral pulse:** 1.5mSec

**Power supply:** 8xAA size dry cells or 8-cells battery pack

**Current consumption:** Less than 80mA (high frequency range is not included)

■ **RF module:** RF-902S or RF-902SM

**Modulation:** DSSS

**Transmission frequency:** 2.4GHz

■ **Receiver:** KR-409S

**Reception method:** DSSS

**Number of channels:** 4 channels

**Reception frequency:** 2.4GHz

**Operating voltage:** 3.5-7.4V

**Dimensions:** 28x18.3x18.5mm

**Weight:** 7.5g

**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 UNDESIRE OPERATION.**

**KO PROPO**<sup>®</sup>  
DIGITAL PROPORTIONAL SYSTEM

