EX-II INSTRUCTION MANUAL



KO PROPO®

KONDO KAGAKU Co., Ltd. 2016 Ver.1.1

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■ 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.

●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.

⚠ Caution!
Enforcement matters

●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 40°C) or cold (below 10°C) 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

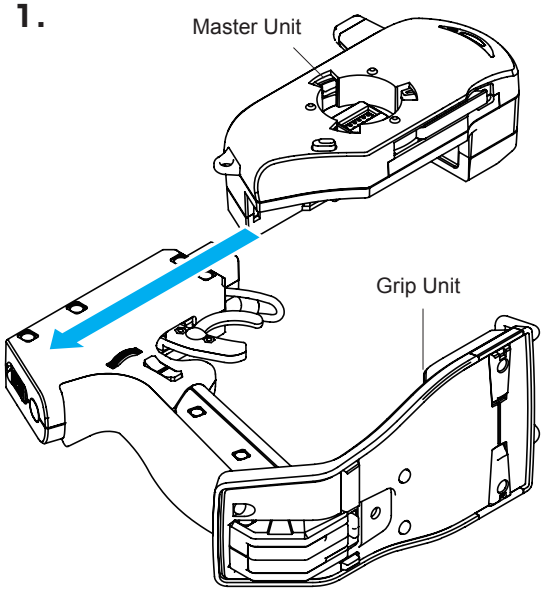
[Legend] :Point :Notice

● Transmitter Assembly

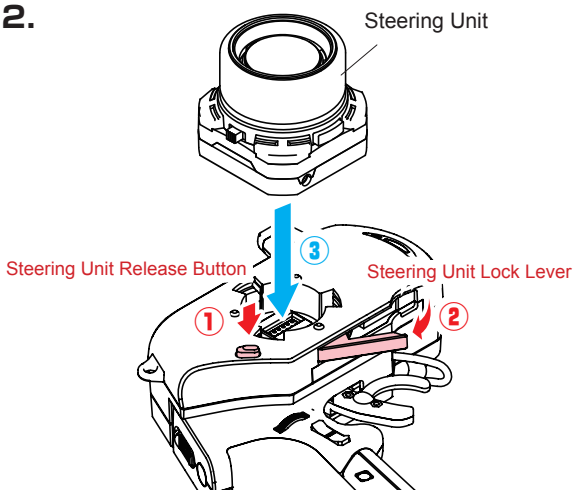
Insert the Grip Unit into the Master Unit, then attach the Steering Unit.

Remove the connector cover before use.

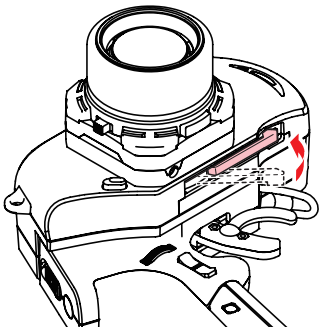
1.



2.



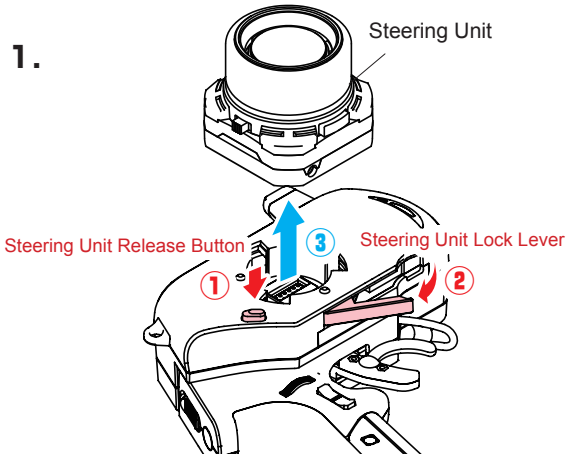
3.



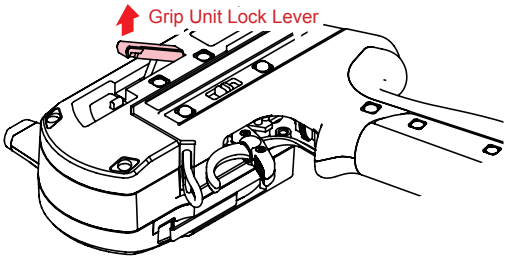
● Transmitter Dismantling

Detach the Steering Unit, then detach the Master Unit.

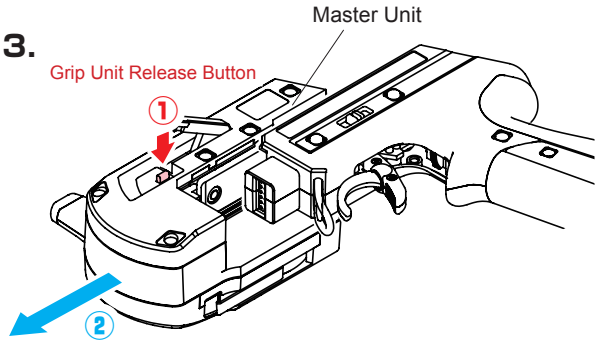
1.



2.



3.

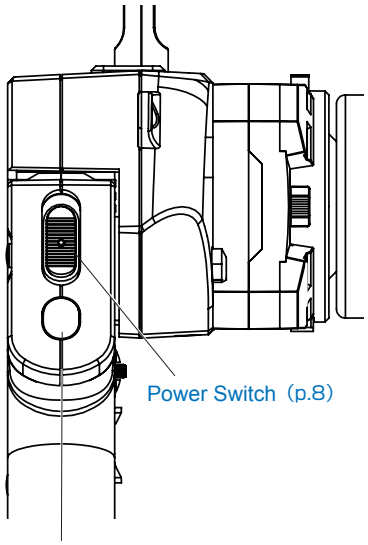


If storing the transmitter in dismantled form, please remember to attach the connector covers.

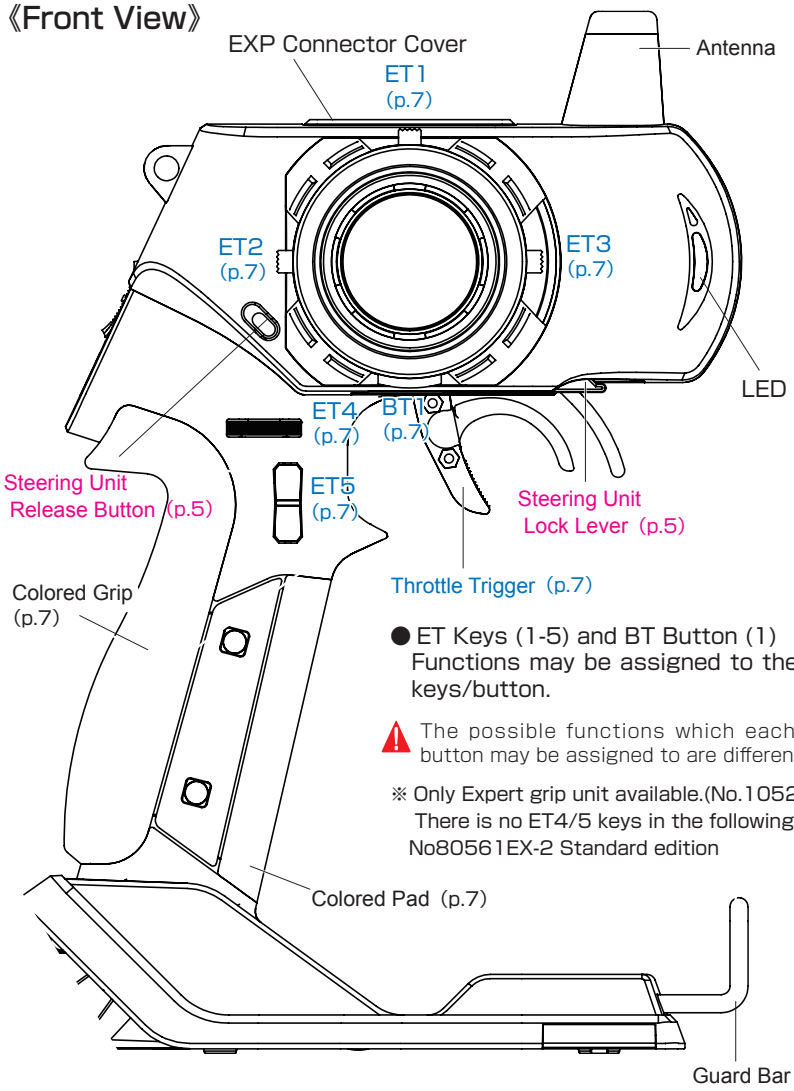
Assembly may differ with the included set contents.

■ Names of Parts

《Side View》



《Front View》

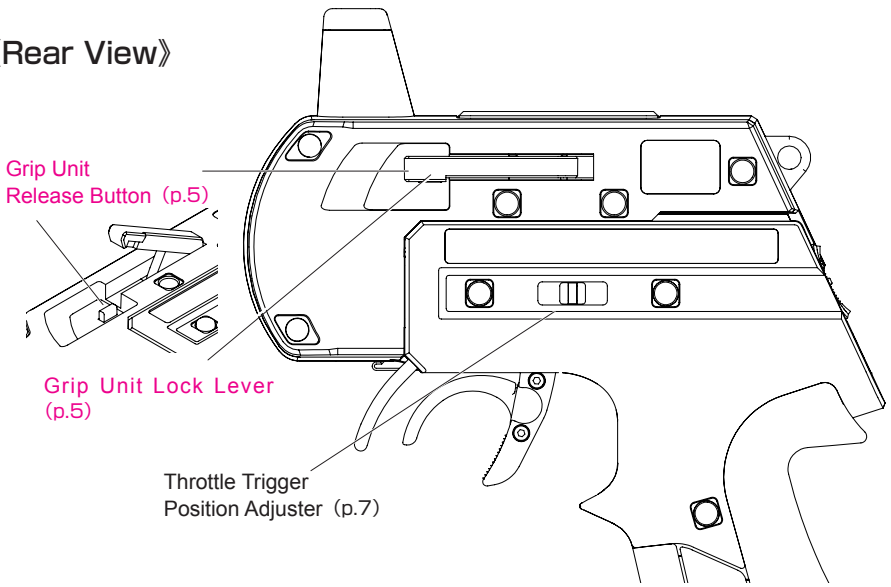


● ET Keys (1-5) and BT Button (1) Functions may be assigned to the keys/button.

⚠ 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

《Rear View》



● ET Keys (1-5) and BT Button (1)

Functions may be assigned to the keys/button.

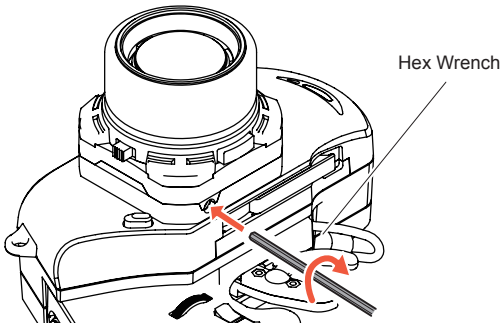
⚠ The possible functions which each key/button may be assigned to are different.

● Steering Wheel Adjustment

Adjust the tension of the steering wheel spring.

[How to Adjust]

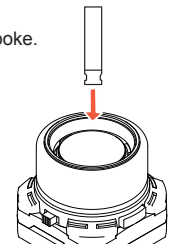
Insert a 1.5mm hex wrench referring to the image below.
Rotate clockwise to increase tension and counterclockwise to decrease it.



⚠ 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

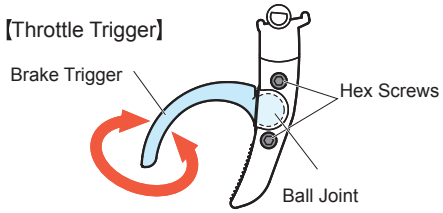
Adjust the position and angle of the brake trigger to your preferences.

[How to Adjust]

①Loosen 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 Position Adjustment

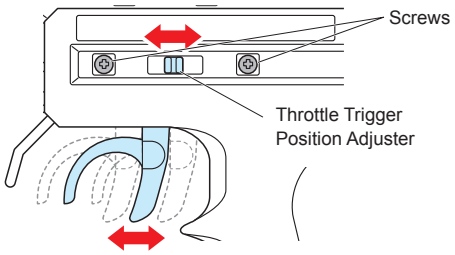
The position of the throttle trigger may be adjusted to match the user's hands.

[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.

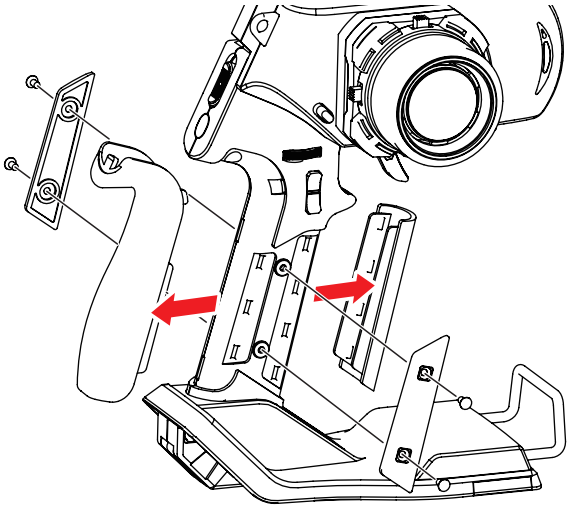


● Colored Grip and Pad Replacement

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.



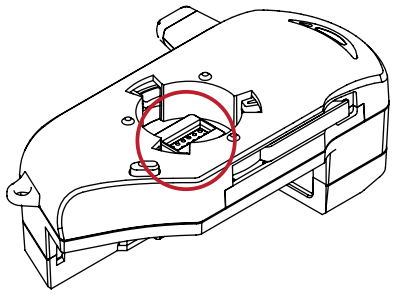
⚠ Make sure the battery box or battery pack is removed before replacing the colored grip and pad.

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

⚠ Note direction of the 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.

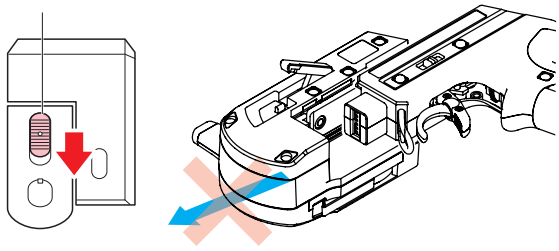


⚠ Do not touch the unit connectors with your fingers. If connectors become corroded due to grime, they may become inoperable. If storing the transmitter in dismantled form. After prolonged use, a black residue may build up on the connectors. Use cotton swabs dipped in cleaning alcohol to remove. KO Propo's 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



● Charger Jack

When using the Xpansion and an expert grip unit, A battery stand, a rechargeable battery, a battery charger are necessary.

※ When using the Xpansion and an expert grip unit,A battery stand, a rechargeable battery, a battery charger are necessary.
※ Unusable by the following set contents
No.10555 EX-2 Basic set
No.10559 Basic grip unit
No.10561 EX-2 Standard set

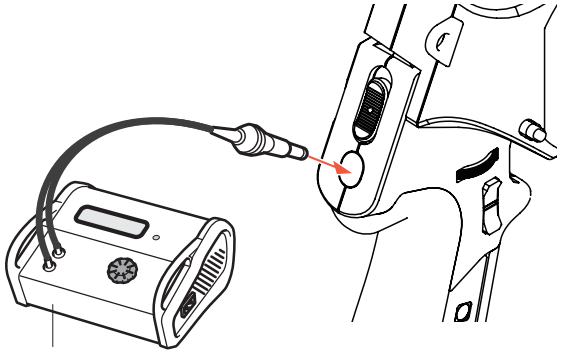
[How to Recharge]

① Confirm that the power switch is in the OFF position. If only using the Grip Unit, make sure that the connector cover is in place.

② Make sure the battery is securely connected. If the connection is loose, the battery may not charge completely.

③ Securely connect the charger plug to the charger jack.

④Begin charging using a current of less than 1A.



Quick Charger (Sold Separately)

⚠ If the Xpansion unit is not assembled or used, do not use the LiFe/LiPo battery.

⚠ When using balance charger (optional BX-10L balance charger), please note that it cannot be charged via the charger jack. Remove the battery pack from the transmitter and connect to balance terminal.

⚠ Make sure the power switch is in the OFF position when charging. If only using the Grip Unit, make sure that the connector cover is in place. A short circuit may occur if the connector makes contact with metal and lead to a serious accident. Use a current of less than 1A to charge. Do not connect/disconnect the battery during charging. Take note of the charger plug's polarity in order to avoid damage.

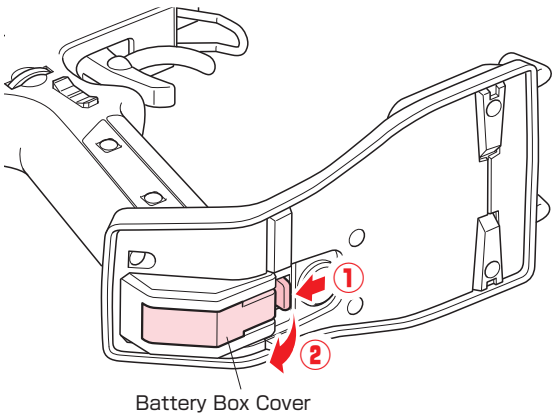
⚠ Do not attempt to charge if using alkaline batteries. Doing so may result in battery leakage or cracking which will damage the transmitter.

⚠ [Discharging the Battery Pack]
If using a battery pack, please note that it cannot be discharged via the charger jack. Remove the battery pack from the transmitter to discharge it.

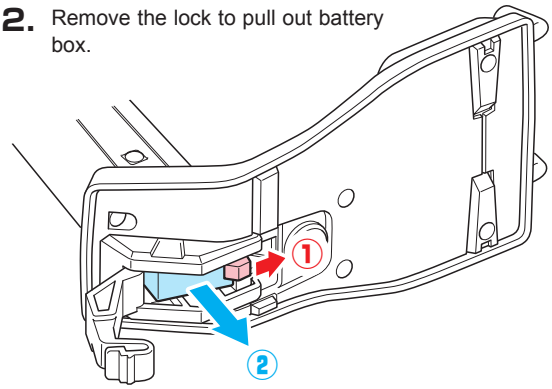
Preparations

Battery Installation

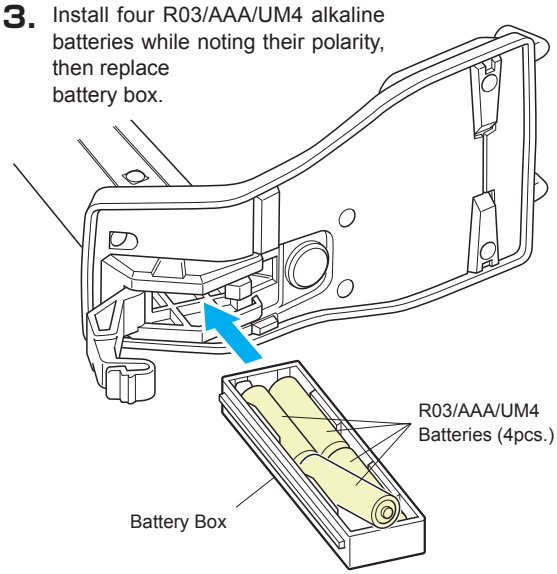
1. Press the tab on the bottom of the transmitter to open battery box cover.



2. Remove the lock to pull out battery box.



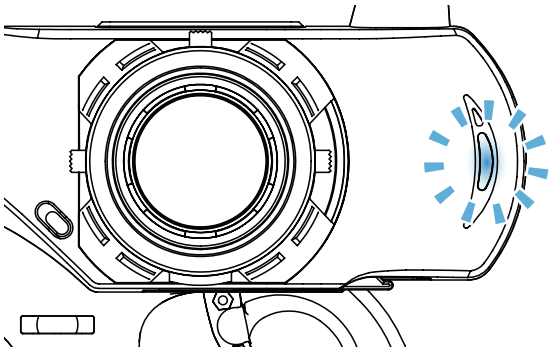
3. Install four R03/AAA/UM4 alkaline batteries while noting their polarity, then replace battery box.



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

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.



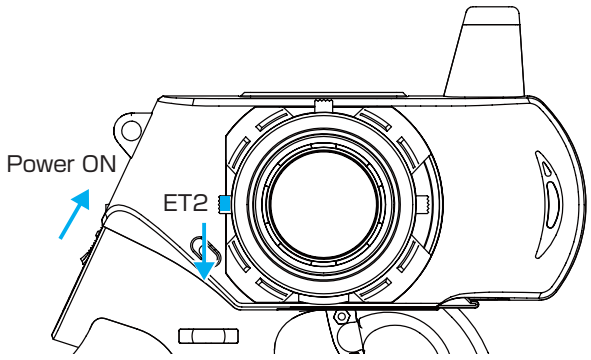
⚠ If the Xpansion unit is not assembled or used, do not use the LiFe/LiPo battery.

● Initializing EX-2

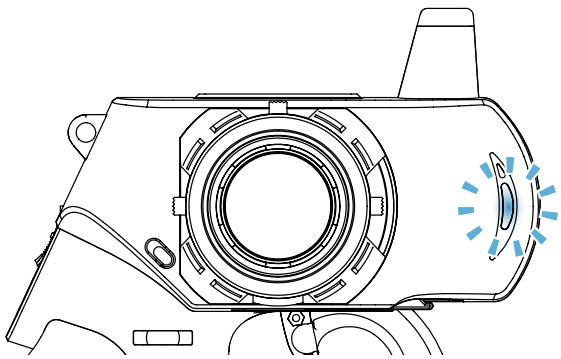
When using the EX-2 for the first time, please carry out the following settings.

※ 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.

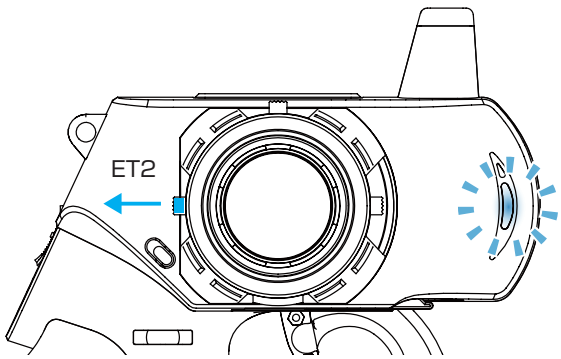
1. Power on while operating ET2 lever below.



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.



⚠ 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 : LED Solid
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.

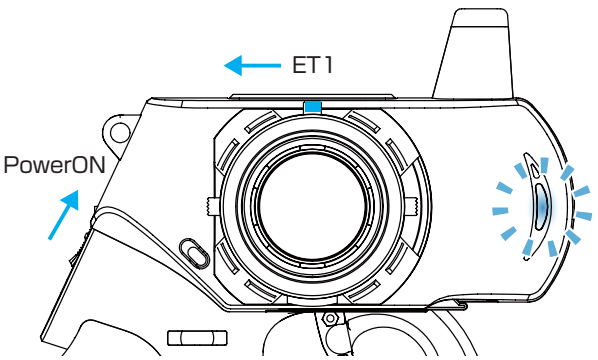
● Mini-Z MHS mode : LED Flashing slowly
Oparating Kyosho Mini-Z MHS mode.
(MR-03 VE PRO)

⚠ 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).



Approximately two seconds, LED turns on.

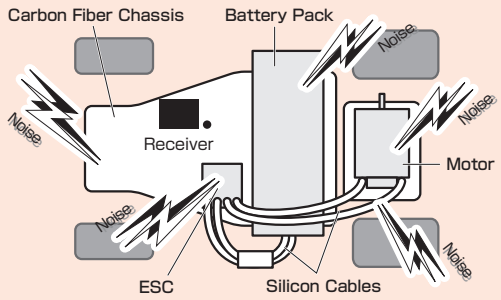
⚠ If the pilot LED is blinking fast, this is a warning that the battery voltage is low. Please change to new batteries or for a battery pack which has been charged.

④ Set the Fail-Safe Function (p.15) .

● Countermeasures Against Noise

Keep antenna cable away from all sources of noise!

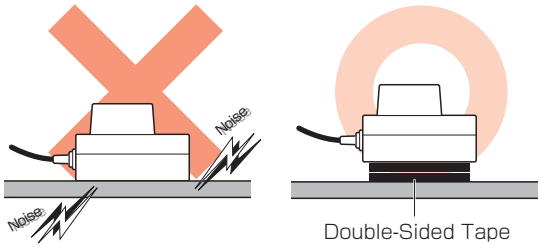
Noise is generated in any area where a large amount of electric current is flowing. Position the receiver and antenna cable as far away from the motor, battery, ESC, and their associated cables as possible. (Metal or carbon fiber chassis components will also conduct electricity and generate noise.)
Since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

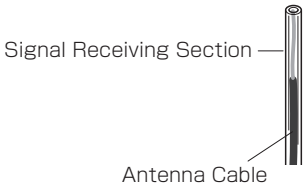
When installing the receiver to the chassis or R/C equipment deck/tray, use two or more pieces of thick double-sided tape to raise the receiver off the chassis surface. By increasing the separation between the receiver and the noise-generating carbon-fiber chassis components, the effects of noise can be decreased.

※Install the receiver so that its LEDs are visible.

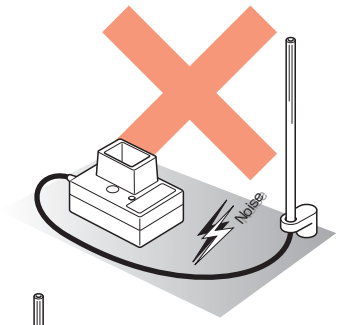


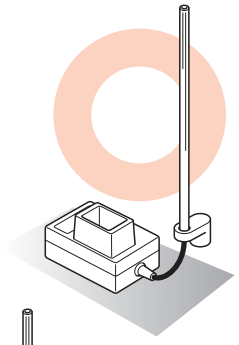
● Antenna Installation

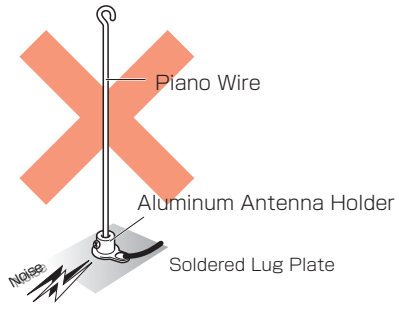
Raise the antenna cable vertically from as high a position as possible. Insert the antenna cable into the antenna pipe so that the tip of the antenna aligns with the end of the pipe. Make the length of cable which runs between the receiver and the pipe as short as possible and position the antenna holder 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.

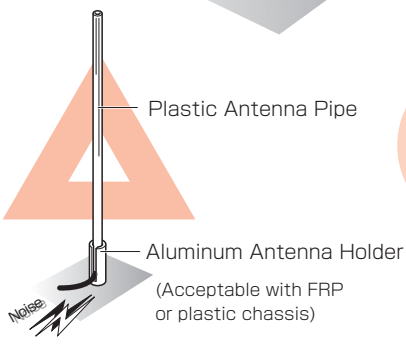


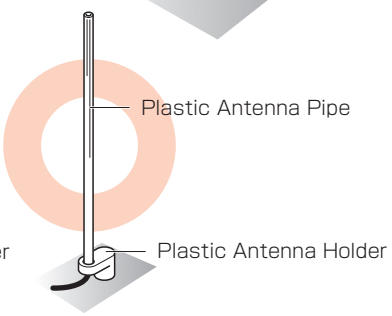
※Do not bend or cut the antenna cable.
(This may break the antenna wire and deteriorate its performance.)







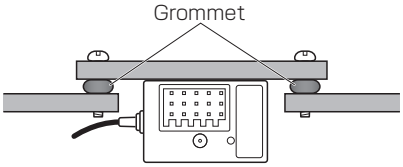




● Installing Onto a Glow Engine Car

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.



● 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.

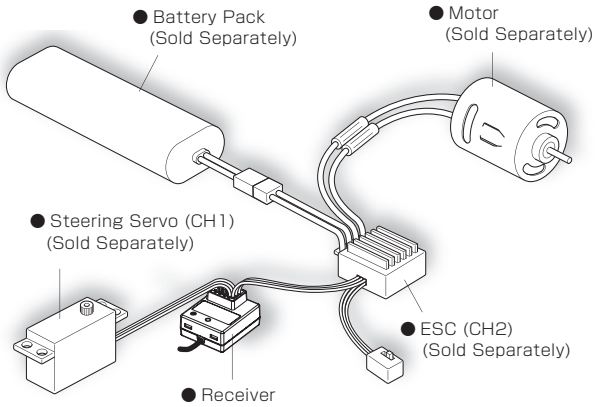
3. For 2.4GHz systems, conduct pairing of the transmitter and receiver .

※ 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.

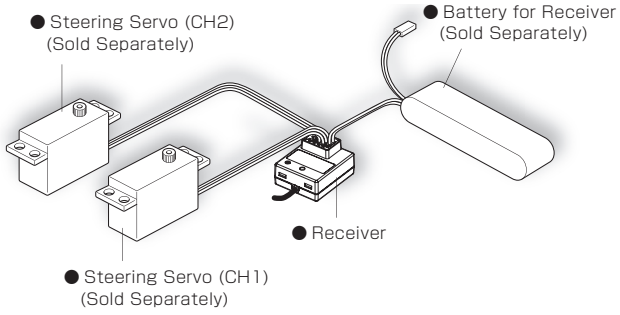
4. Adjust steering (p.18) and throttle/braking (p.19) .

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

● For an Electric Car



● For a Glow Engine Car



⚠ 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

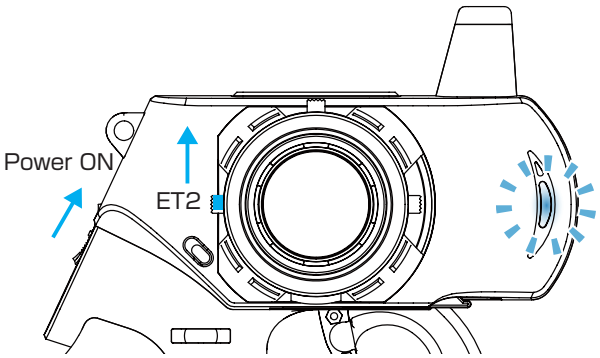
※ Refer to p.25 pairing Operation in the case of using the Xpansion unit.

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.

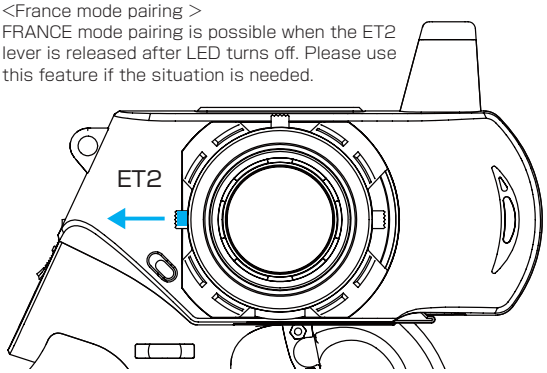
1. Preparing the Transmitter

① While pushing the ET2 lever up, power on.

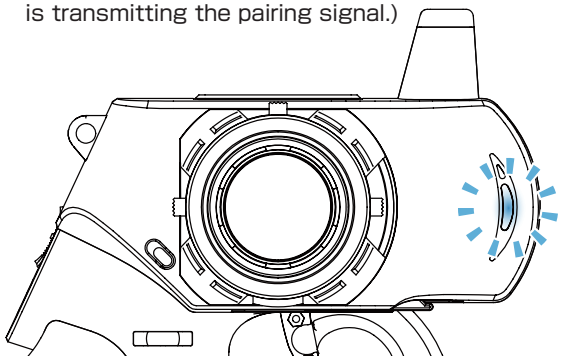


② When the ET2 lever is released, the LED turns of

<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.



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.

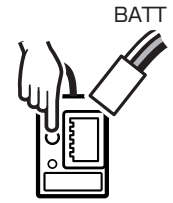
② Check that the receiver's LED has lit up, then release the setup button.

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.





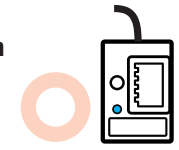
Lit LED

3. Preparations for Operation

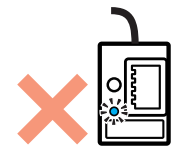
① Switch off the receiver.

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.

● Pairing (For MHS Mini-Z)

Case without the Xpansion unit

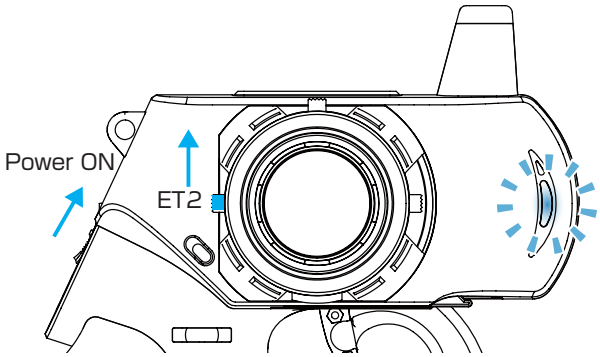
※ Refer to p.26 pairing Operation in the case of using the Xpansion unit.

In order for the Mini-Z to operate, it must store the transmitter's unique ID in its memory in a process called “pairing.” Mini-Z 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.

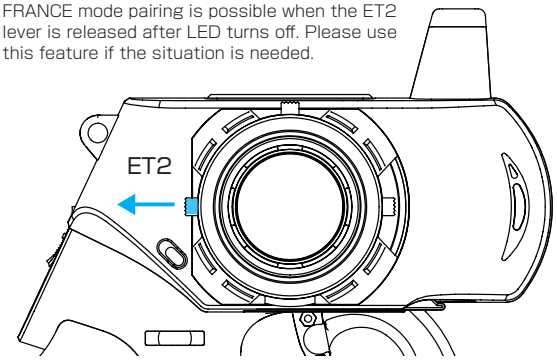
1. Preparing the Transmitter

① While pushing the ET2 lever up, power on.

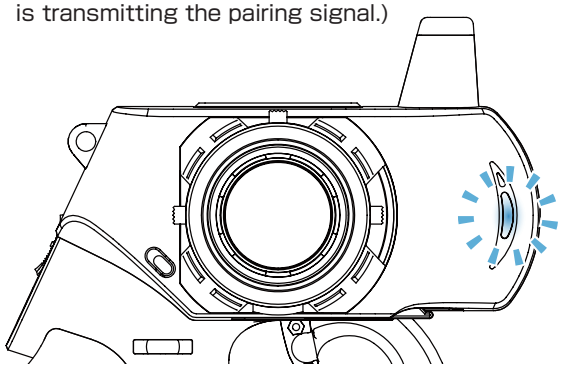


② When the ET2 lever is released, the LED turns of

<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.

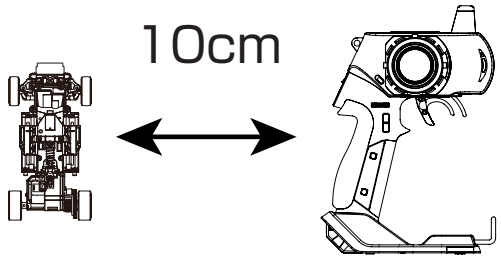


EX-2 LED lights up again (indicating transmitter is transmitting the pairing signal.)



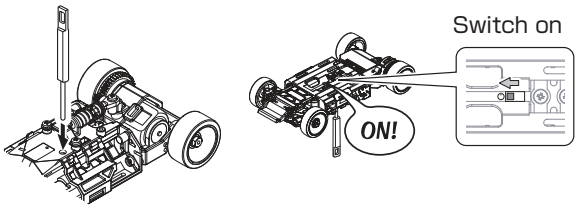
2. Preparing the Mini-Z

① Bring distance of EX-2 and MiniZ close to about 10cm.

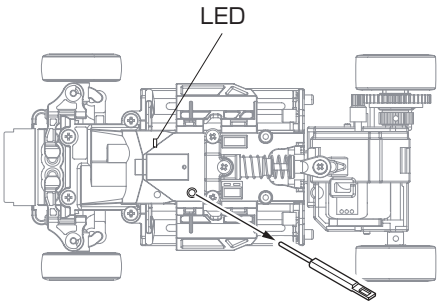


② Switch on MiniZ while pushing the setup button of Mini-Z.

Pushing setup botton



③ After the Mini-Z's LED has lit up, release the setup button. Then check that the Mini-Z's LED lights up again (indicating pairing completion)



3. Preparations for Operation

① Switch off MiniZ.

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

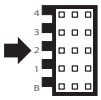
③ Bring distance of EX-2 and MiniZ close to about 30cm. Switch on the Mini-Z and check that the receiver LED is lit. If the LED flashes, the Mini-Z is not getting the EX-2 signal and the pairing procedure should be repeated.

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

● Fail-Safe Setting

Fail-safe is when the receiver loses the radio signal of the transmitter and the function keeps channel 2 (throttle) in an optional position.
The configuration is usually full brake or neutral.

1



This function works for only 2nd channel.

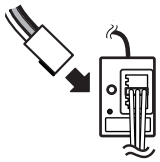
2



Transmitter ON

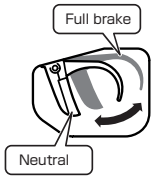
Turn on the transmitter.

3


Receiver ON

Turn on the receiver and verify operation.

4



Hold the throttle to the position On the transmitter, hold the throttle to the position you would like it to be set to.

Recommended positions are the following :

Full Brake
● GP car
● EP car
(forward / Brake)

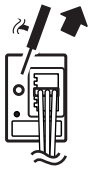
Neutral
● EP car
(forward / Back)
(forward / Brake / Back)

5


Press for 3 seconds

While holding the position, press the setup button on the receiver for 3 seconds.

6


LED light goes off

Hold the setup button on the receiver until the LED light goes off and release the button. Fail-safe setting is complete.

7



Transmitter OFF

Turn off the transmitter. And the device that connected into 2nd Channel will move to the position that you set up.

⚠ Please be sure to set the fail-safe.

⚠ If you change the position of the fail-safe operation, please set again. We recommend to set it again even if you modify the car engine brake linkage.

■ Procedures Prior to Operation

1.Switching On

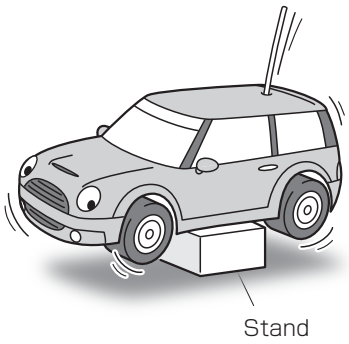
After ensuring that it is safe to do so, switch on the transmitter followed by the receiver or Mini-Z.

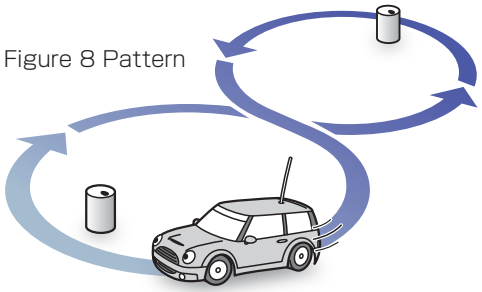
2.Model Confirmation

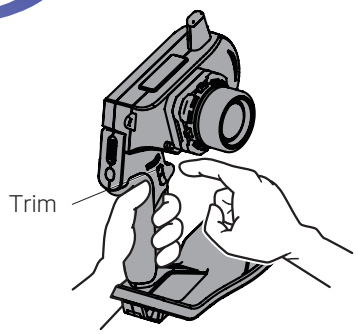
Confirm the model which will be used.

3.Checking Movements

With the model's wheels lifted off the ground, operate transmitter to check for proper movement. While driving, use steering and throttle trims to make fine adjustments. Drive in a figure 8 pattern to check steering balance.







4.Switching Off

After a driving session, switch off the receiver (or Mini-Z), followed by the transmitter. Remove the battery pack from the model.

⚠ After switching off, wait at least 5 seconds before switching on again to ensure proper operation.

● Trim and Sub Trim Operation

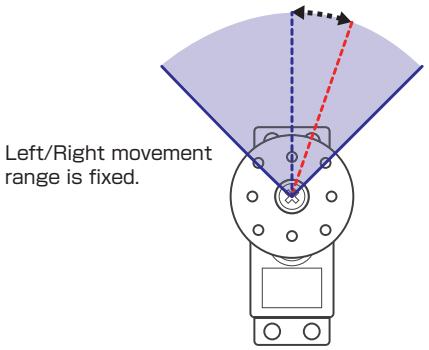
The sub trim is a convenient feature but it could also complicate the setting process if used incorrectly. Use the sub trim in the correct manner while also referring to the sub trim operation instructions on p.44 and p.49.

《Purpose of the Sub Trim》

When a servo is to be mounted onto a model, it is usually connected to the receiver temporarily to enable the transmitter to check its neutral position before it is installed. However, upon running the model it is often the case that it does not run in a straight line and the steering servo's neutral position has to be readjusted. This adjustment function is known as the "trim," but trim adjustment is not only done at the beginning, but it also must be done during model operation to account for factors such as tire wear and chassis warp. However, using the normal trim to make these intermediary adjustments could cause other problems. In the case of the steering trim, it could lead to different turning radii for the left and right wheels. For throttle trims on glow engine cars, the point of maximum braking, the full open position of the carburetor, etc. would be shifted. For this reason, the normal trims are designated as "center trims" that only adjust the neutral position, while a new function called sub trim is used in conjunction to enable the most optimal settings.

● Trim (Center Trim)

Adjusting neutral position only.



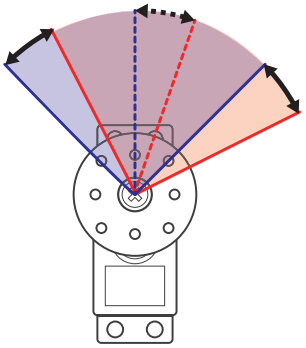
Initially, steering trim and throttle trim are assigned to ET1 and ET2 respectively.

《Purpose of the Trim》

The effect of the sub trim is illustrated in the image on the right. Adjusting the sub trim also moves the left/right angle range. In contrast, the center trim moves the neutral position without changing the angle range position. However, trying to compensate the neutral position while making large sub trim adjustments may throw off the model's left/right balance.

● Sub Trim

Left/Right angle range and neutral position can be both be adjusted.



Only at the time of expansion setting, t he sub trim is accessed via the steering menu, but the steering trim can be assigned to one of the ET keys in SETUP.

《Actual Setting Sequence》

① When installing R/C equipment, the servo's neutral position is set first, then final adjustments would be made with the sub trim after installation. However, if the sub trim setting value is high, adjust the neutral position again.

② Test run to confirm neutral position. Adjustments during this time should also be made with the sub trim. After neutral position is fixed, adjust steering balance (p.20) so that the left and right wheels have the same turning radius and use steering travel (p.19) to adjust overall steering angle.

③ During the course of practice or racing, use the center trim to correct slight changes to the neutral position. If the setting value becomes high, correct in conjunction with the sub trim so that the center trim value is zero.

Use the sub trim to adjust settings prior to driving instead of the center trim.

Install R/C equipment when the sub trim setting value becomes low.

If the neutral position becomes slightly off during driving, use center trim to correct.

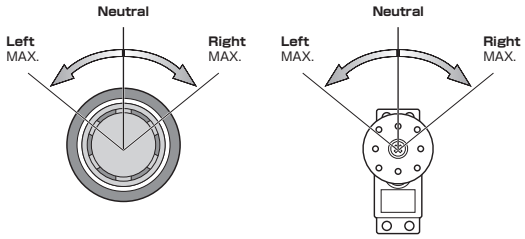
■ operating procedure

● STEERING

※ Other than the operation explanation of the steering wheel,the following function explanation is in the case of not using the Xpansion unit. Refer to p.43 operation in the case of using the Xpansion unit.

■ Steering wheel

Turn steering in right and left, the servo (steering) connected to 1CH of the receiver works.

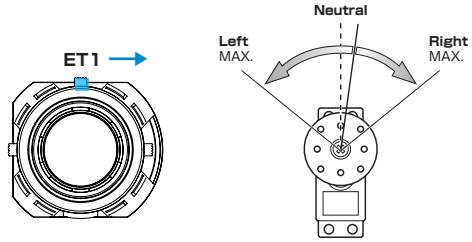


■ Steering trim

Adjusts the neutral/center position of the steering angle range. The function to make a fine adjustment so that a car goes straight, operate the ET1 lever in the right and left directions.

● A buzzer sound with a single beep sound when operated to the right and left.
● A buzzer sound "Piro" is made when the center trim is adjusted.
● When exceeding the setting range a "Pi-" sound can be heard. Please look over your installation and linkage of the servo horn.

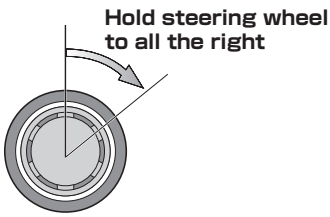
< ex. Right >



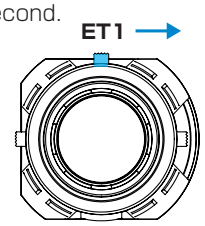
■ Steering reverse

Changing the output directional movement of the servo when it is moving in the opposite direction. (when a steering moves to the left while turning the steering wheel to the right.)

① Hold the steering wheel all the way to the right .



② Press and hold the ET1 lever to right, wait about 1 second.



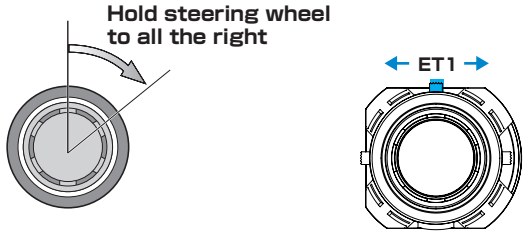
③ A single buzzer sounds and the steering directional movement is reversed.

※ Return reverse setting, perform operation to ① ～③ again.

■ Steering travel

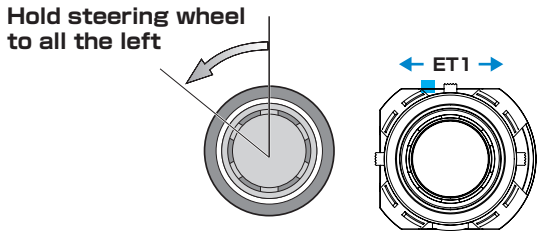
Adjust the left/right steering angles independently. This enables the turning radii to match up during cornering.

● Travel R
① Hold steering wheel to all the right
② Push ET1 lever by 1 click, adjust the range of Steering angle.



Do not hold the ET1 lever, or the steering reverse will be set.

● Travel L
① Hold steering wheel to all the Left
② Push ET1 lever by 1 click, adjust the range of Steering angle.

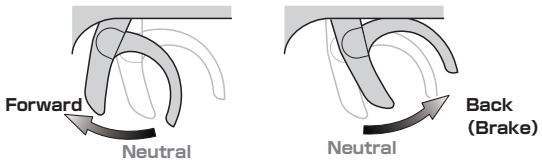


● THROTTLE

※ Other than the operation explanation of the trigger movement, the following function explanation in case of not using the Xpansion unit. Refer to p.48 operation in the case of using the Xpansion unit.

■ Throttle trigger

Operating trigger, the servo (ESC) connected to 2CH of the receiver works forward and reverse function.



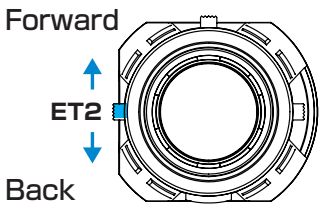
■ Throttle trim

Adjusts the neutral/center position of the throttle stroke range.The function to make a fine adjustment, operate ET2 lever in up and down.

● A buzzer sound with a single beep sound when operated up or down.

● A buzzer sound "Piro" is made when the center trim is adjusted.

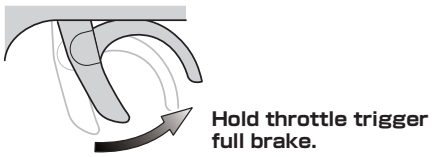
● When exceeding the setting range a "Pi-" sound can be heard. Please look over your installation and linkage of the servo horn.



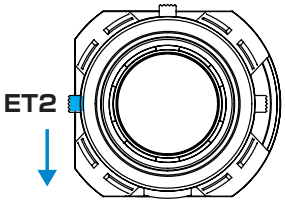
■ Throttle reverse

Changing the output directional movement of the servo when it is moving in the opposite direction. (when the brake is moving the forward throttle.)

① Hold throttle trigger full brake.



② Press and hold the ET2 lever down, wait about 1 second.



③ A single buzzer sounds and the throttle directional movement is reversed.

※ Return reverse setting, perform operation to ①～③ again.

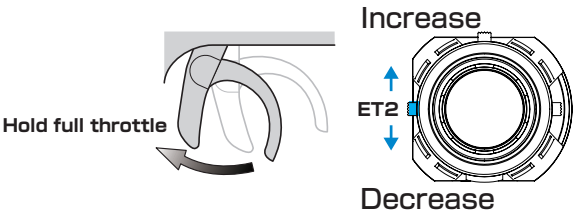
■ Throttle travel

Modify the maximum amount of throttle brake movement and forward acceleration movement.

● Travel F(Forward)

① Hold throttle trigger full throttle.

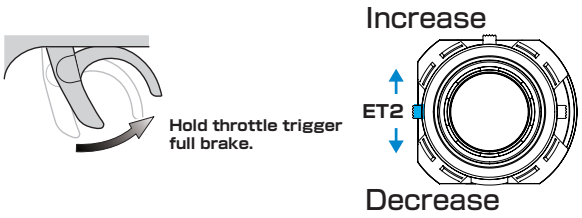
② Push ET2 lever by 1 click, adjust the range of throttle movment angle. Quantity of the movement increases and decreases when operating the ET2 lever up or down respectively.



● Travel B(Brake)

① Hold throttle trigger full brake.

② Push ET2 lever by 1 click, adjust the range of throttle movment angle. Quantity of the movement increases and decreases when operating the ET2 lever up or down respectively.

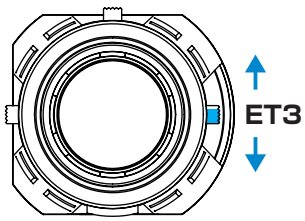


⚠ Do not hold the ET2 lever, or the steering reverse will be set.

● 3CH operation

Operating the ET3 lever, controls the 3ch servo.

※ The funtion explaination is in the case when not using the Xpansion unit. Refer to p.33 operation in the case of assembled Xpansion unit.



Example

① using KR-241FH receiver, a servo connected to 3CH can operate 5WAY .
※ Cannot change setting value.
※ The set point fixed –100, -50, 0, 50, 100.

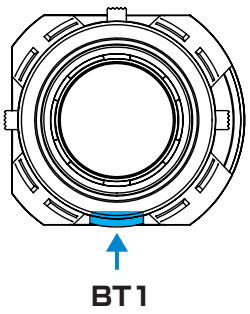
② Use it for steering gyro gain (effect) control as MiniZ MR-03VE PRO for MHS.

It is possible to do the gyro gain configuration of KR-212FHG, but because entry value is large, normal operation is not possible, you cannot use it.

● 4CH operation

When the button of BT1 is operated, it is possible to operate the signal of 4CH.

※ The funtion explaination is in the case when not using the Xpansion unit. Refer to p.33 operation in the case of assembled Xpansion unit.



Example

① using KR-241FH receiver, a servo connected to 4CH can operate 2WAY .
※ Cannot change setting value.
※ The set point fixed 0, 100.

② Use it for steering gyro gain (effect) control as MiniZ MR-03VE PRO for MHS.

It is possible to do the gyro gain configuration of KR-212FHG, but because entry value is large, normal operation is not possible, you cannot use it.

■ Display and Control Method for attaching the Xpansion unit

● Basic Operations to Change Settings

Operation Controlling of the setting adjustments is done via the L(<) key, R(>)key, ENTER(ENT) key, and BACK key.

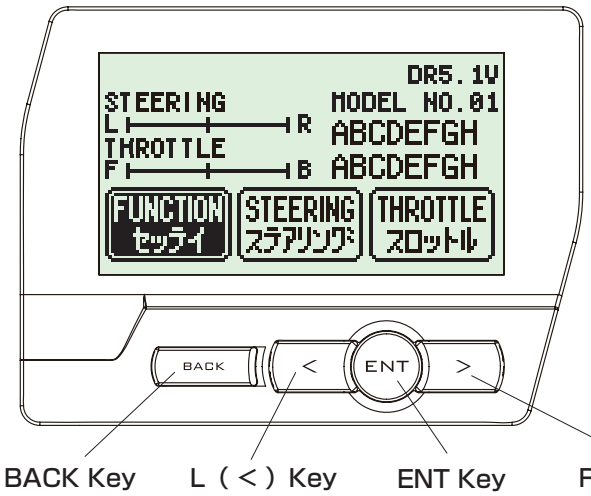
ENT Key: Selecting item to be modified; Confirming a change after a setting change.

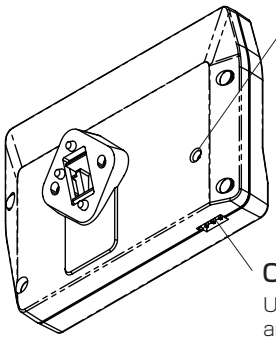
L (<) Key: Used to move cursor between menu choices and to change a setting value.
Lowering a value (for L/R cases: raising toward L); Return to a previous menu item.

R (>) Key: Used to move cursor between menu choices and to change a setting value.
Raising value (for L/R cases: raising toward R); Proceed to next menu item.

BACK Key : Returning to previous screen; Canceling change

L(<) key + R(>) key Pressing simultaneously: Resets the value to default setting.





Command Button
Used for firmware upgrading. Please refer to an update manual for the details.

Communication port
Used for firmware upgrading and ICS communication. Please refer to an update manual for the details.

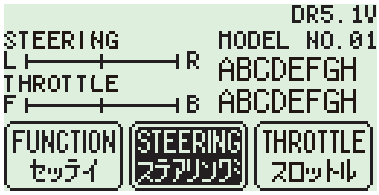
BACK Key　L (<) Key　ENT Key　R (>) Key

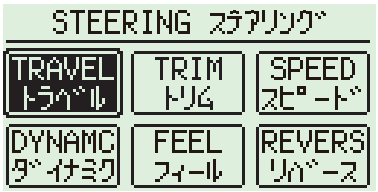
【 Basic Operation 1: Selecting from a Menu 】

This explanation uses [Steering] as an example.

① Use the R(>) key to move the cursor over [Steering].

② Press the ENTER key to change to the Steering Menu screen.





【 Basic Operation 2: Changing a Setting Value 】

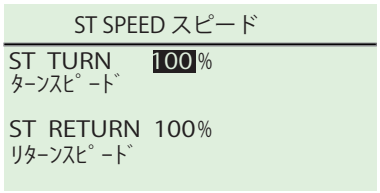
This explanation uses [TURN 1] on the Steering Speed screen as an example.

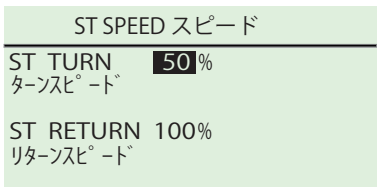
① Use R(>) key to move the cursor over the 100% value next to [ST TURN].

② Press ENTER key to select it for modification.

③ Once selected, the cursor will blink. Now use the L(<)key+R(>)key to change the value.

④ After changing the value, press the ENTER key again to confirm the change.





● Installation of Xpansion unit

※ Not included with No.10555 EX-2 BASIC set.

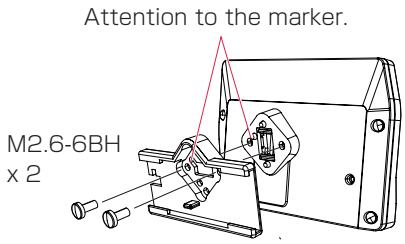
Xpansion unit can be mounted facing the front or the side. The factory setting is mounted to the front.

⚠ Be careful to not misuse the M2.6-6BH and TP2.6-8BH screws.

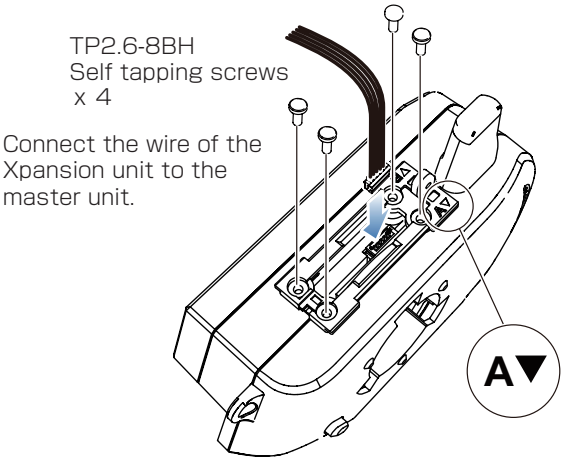
Ⓟ Xpansion unit can be mounted in two different directions using the monitor base and bracket..

A ▼ : setting to the front

① Attach a monitor base parallel to Xpansion unit. ※ Factory setting.

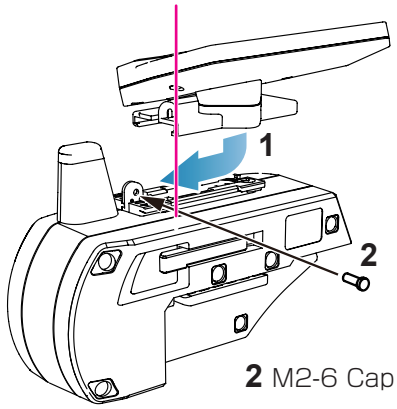


② Attach the monitor bracket to the master unit. ※ [**A ▼**] mark to the steering side



③ Attach expansion unit to a master unit.

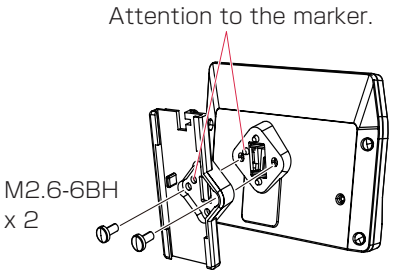
1 While matching the edge of the base with the dent of the bracket, slide it until the Xpansion unit locks.



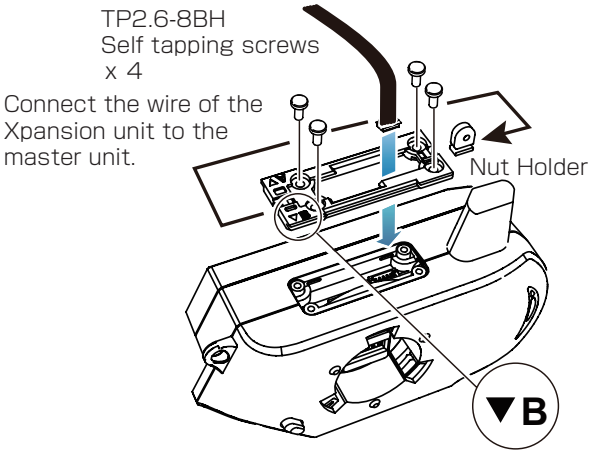
2 M2-6 Cap Screw

▼ B : when mounting sideways

① Attach the monitor base at a right angle to Xpansion Unit. ※ Different Factory setting.



② Attach the monitor bracket to the master unit. ※ Apply [B ▼] mark to the steering side.

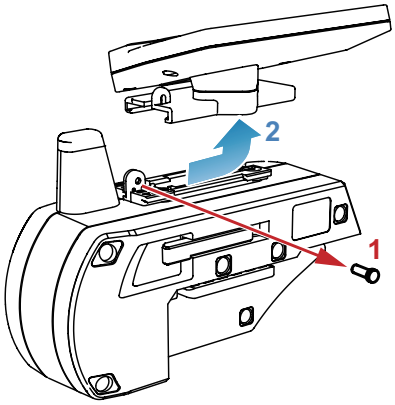


③ Attach the Xpansion unit to the master unit. ※ Attach the monitor base and bracket as shown in figure A ③ .

How to disassemble the Xpansion unit.

1.Remove M2-6 Cap Screw.
2.Slide the Xpansion like shown in the figure below and take off.

※ The disassembly method is the same as side and front positions.



⚠ When assembling or disassembling the Xpansion unit to EX-2, please switch off the EX-2.

● Startup Screen and Initial Screen

When the transmitter is switched on, the startup screen will display, followed by the initial screen.
※ Pressing the ENTER key during the startup screen will allow you to proceed to the initial screen.

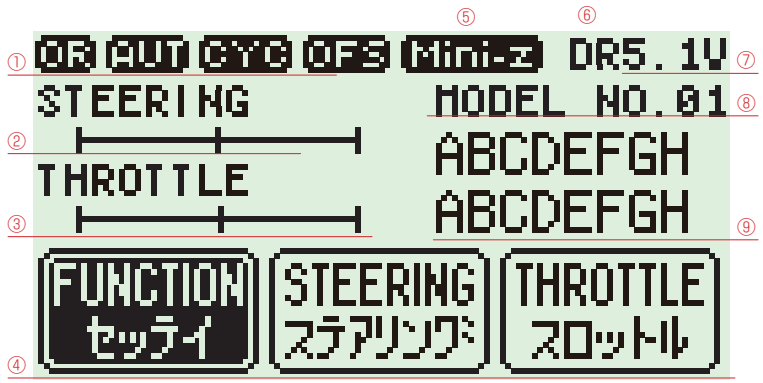
【 Startup Screen 】



① Version Information :

Displays the version of the program that is installed in the Master Unit's CPU.
This product's performance may be upgraded via paid or free upgrades.
Check the KO Propo website for information regarding such upgrades.
(http://www.kopropo.co.jp)

【 Initial Screen 】



① Function Monitor: Functions that are active will be lit up.

OR : Steering and Brake travel Override
AUT : Throttle Auto Start
CYC : Cycle (Throttle Acceleration/Throttle ABS)
OFS : Offset (Drag Brake/Idle Up)

② Steering Trim Monitor: Displays the position of the steering trim.

③ Throttle Trim Monitor: Displays the position of the throttle trim.

④ Top menu: Display three kinds of setting items

FUNCTION Modify settings related to functions.
STEERING Modify settings related to the steering.
THROTTLE Modify settings related to the throttle.

⑤ Mini-Z MODE : Functions that are in Mini-Z will be lit up.

⑥ Power Source Type: Displays the type of battery being used.

LP : Li-po DR : R03/AAA/UM4 Alkaline Batteries
LF : Li-Fe NI : Ni-MH

(Notice) If you switch battery types, make sure to also change the [Battery Management] setting.

⑦ Voltage: Displays the current power source voltage.

⑧ Model Number: Displays the currently selected model number.

⑨ Model Name: Displays the name of the currently selected model number.

● VR information setting

Adjust the steering and throttle resistance information. ※ Please perform the VR information configuration to calibrate your system.

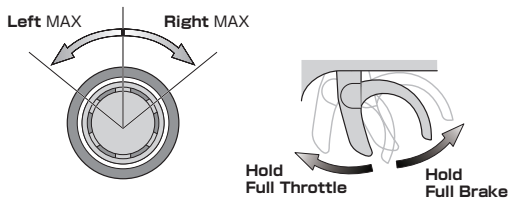
○ When using EX-2 for the first time.
○ When changing a steering unit for a different product or when putting it back together.
○ When changing a grip unit for a different product or when putting it back together.
○ When using and confusion has occurred in the positional information.

1.Select [FUNCTION] on the initial screen and push the ENTER key.
2.Select [SYSTEM] on the function screen and push the ENTER key.
3.Select [VR INFO] on the system screen and push the ENTER key.
4.Move the wheel slowly to the full left and right lock (numbers will change as the steering is moved) and release the wheel back to neutral.
5.Move the trigger slowly to the full throttle and full brake positions (numbers will change as the throttle is moved) and release the trigger back to neutral.
6.Then select YES (press ENTER) to adjust and save the settings.

3.Example before setting

VR INFOMATION	VRｲﾝﾌｫﾒｰｼｮﾝ	
ST- LEFT	ﾋﾀﾞﾘ 2204	
NUT	ｾﾝﾀｰ 2198	
RIGHT	ﾐｷﾞ 2194	OK? YES
TH- HI	ｾﾞﾝｼﾝ 2078	
NUT	ｾﾝﾀｰ 2075	
LOW	ﾌﾞﾚｰｷ 2072	

4,5, Move slowly to full stroke, then release.



6, Small window [Yes] comes active.

VR INFOMATION	VRｲﾝﾌｫﾒｰｼｮﾝ	
ST- LEFT	ﾋﾀﾞﾘ 3949	
NUT	ｾﾝﾀｰ 2198	
RIGHT	ﾐｷﾞ 487	OK? YES
TH- HI	ｾﾞﾝｼﾝ 3313	
NUT	ｾﾝﾀｰ 2075	
LOW	ﾌﾞﾚｰｷ 1463	

※ When operating the VR INFORMATION and pressing the BACK key will cancel the operation.

● 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 : LED Solid
Operating the general receivers such as KR-211FH/KR-241FH Only receivers using FHSS will work.

⚠ The receiver of other methods (DSSS/27/40MHz) do not work.

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

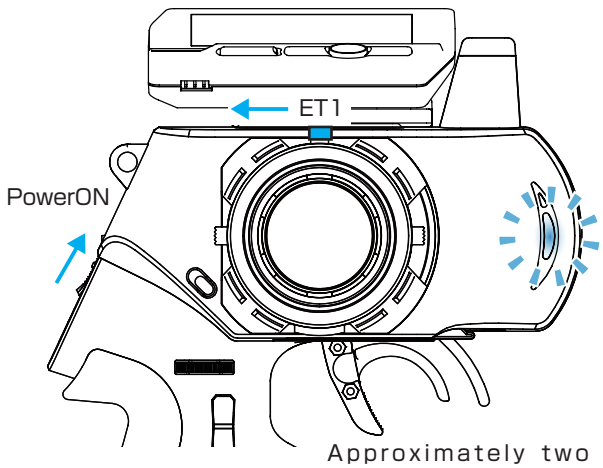
※ Functions that are in Mini-Z will be lit up at initial screen.

⚠ Only MiniZ using MHS will work. Does not work with 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).



⚠ 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.

⚠ Model selection changes and modulation mode changes are not linked.

● Pairing (For general receiver)

Case of using the Xpansion unit

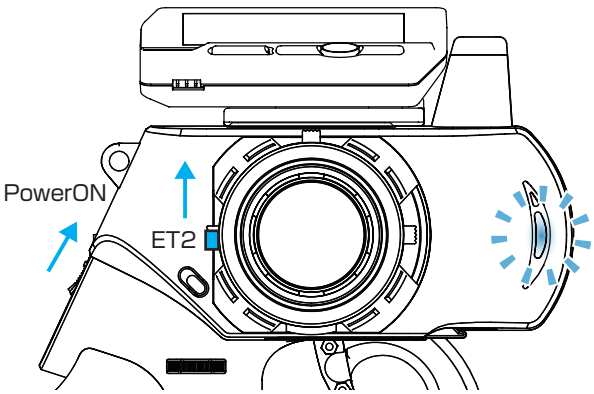
※ Refer to p.13 pairing Operation when not using the Xpansion unit.

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.24) A receiver does not work normally in a different mode.

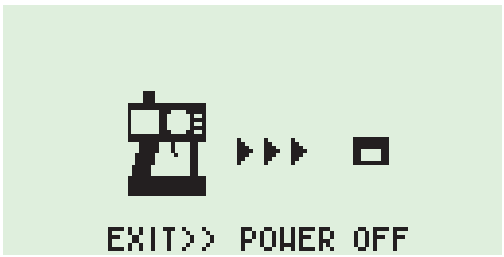
1. Preparing the Transmitter

① While pushing the ET2 lever up, power on.
The pilot LED lights up, release ET2 lever.



② Displays the initial screen, then pairing display is shown. (indicating transmitter is transmitting the pairing signal.)

<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.

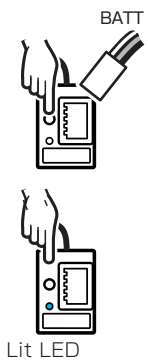


2. Preparing the Receiver

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)

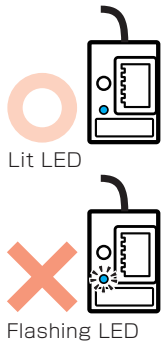


3. Preparations for Operation

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.



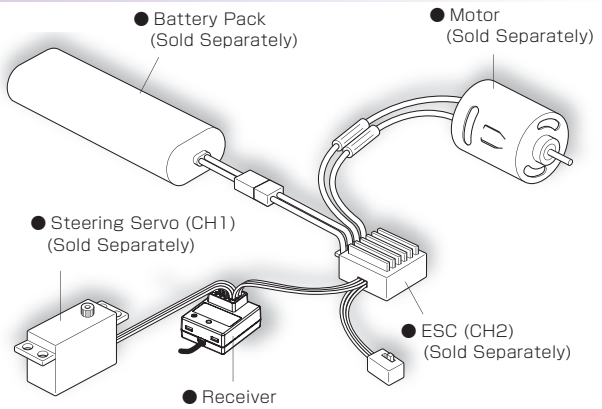
⚠ During this process, your car may become uncontrollable if the ESC has not been adjusted. As a precaution, set your car so that its wheels do not touch the ground.

⚠ 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.

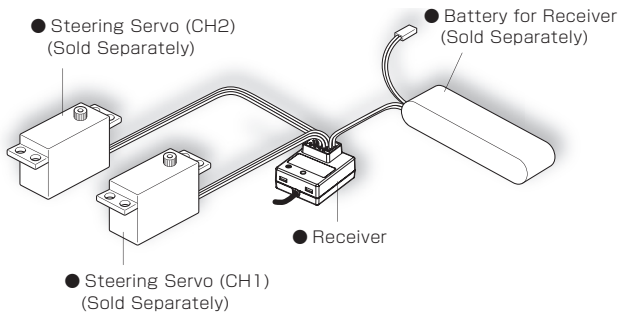
⚠ If the mode is changed (General or France), please conduct pairing procedures with the receiver you are using again.

④ Set the Fail-Safe Function (p.15) .

● For an Electric Car



● For a Glow Engine Car



⚠ 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 MiniZ MHS)

Case of using the Xpansion unit

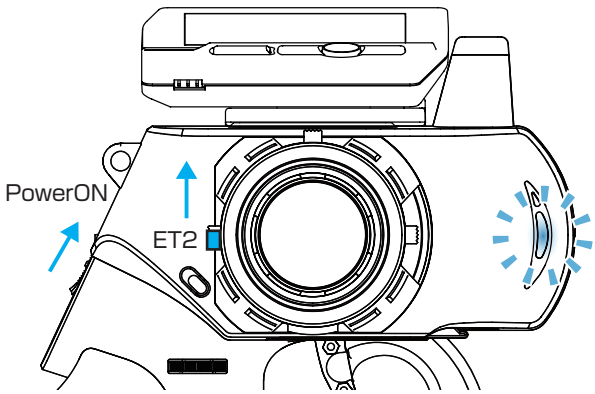
※ Refer to p.13 pairing Operation when not using the Xpansion unit.

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.24) A receiver does not work normally in a different mode.

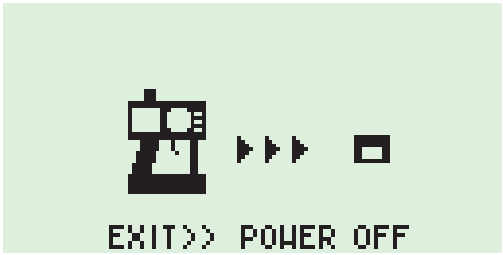
1. Preparing the Transmitter

① While pushing the ET2 lever up, power on.
The pilot LED lights up, release ET2 lever.



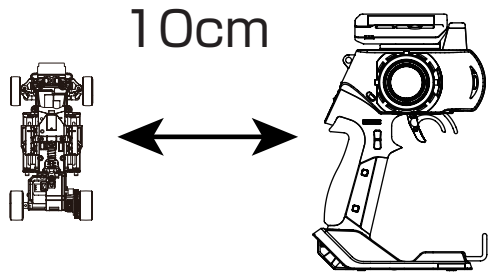
② Displays the initial screen, then pairing display is shown. (indicating transmitter is transmitting the pairing signal.)

<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.



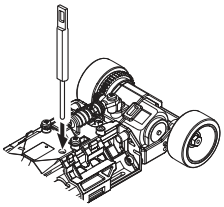
2. Preparing the Mini-Z

① Bring distance of EX-2 and MiniZ close to about 10cm.

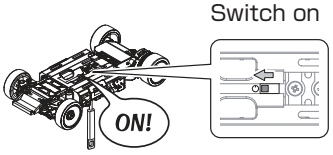


② Switch on MiniZ while pushing the setup button of Mini-Z.

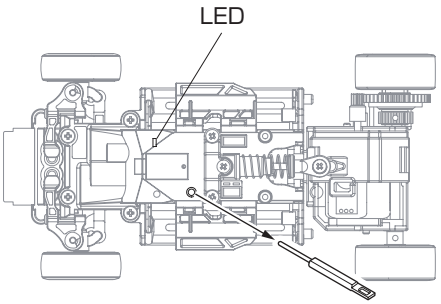
Pushing setup button



Switch on



③ After the Mini-Z's LED has lit up, release the setup button. Then c heck that the Mini-Z's LED lights up again (indicating pairing completion)



3. Preparations for Operation

① Switch off MiniZ.

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

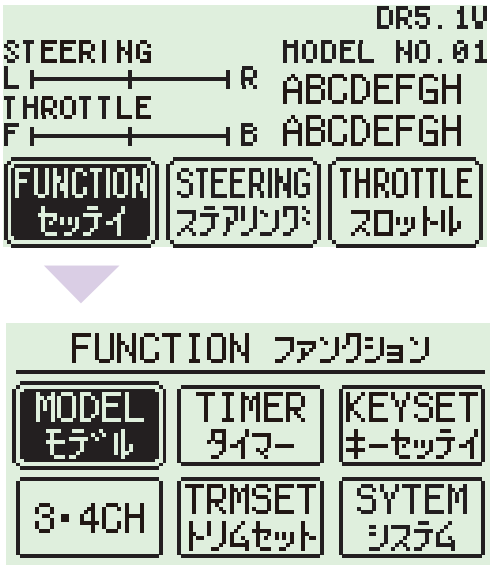
④ Bring distance of EX-2 and MiniZ close to about 30cm. Switch on the Mini-Z and check that the receiver LED is lit. If the LED flashes, the Mini-Z is not getting the EX-2 signal and the pairing procedure should be repeated.

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

■ TOP MENU

■□□ FUNCTION

This an index which displays the 6 different function menus.



Model Menu (MODEL)

Operations such as selecting or copying a model.

Timer Menu (TIMER)

Operating timer-related functions.

Key set Menu (KEY SET)

Modify system-related functions such as key assignment.

3CH/4CH Menu (3/4ch)

Modify settings related to 3CH and 4CH.

Trim set Menu(TRIM SET)

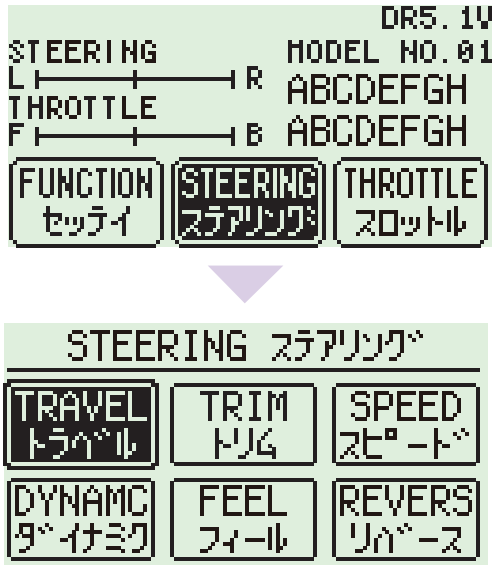
Easy adjust function for steering trim and balance.

System Menu (System)

Modify system-related functions such as VR information or calculator.

□■□ STEERING

This an index which displays the 6 different function menus.



Steering Travel

Modify the overall amount of steering movement.

Steering Trim

Modify the neutral position of the steering angle.

Steering Turn Speed

odify the speed of the steering's movement.

Steering Dynamics

Modify the movement speed ratio which corresponds to steering angle and Modify how much the steering initially turns from neutral position.

Steering Feel

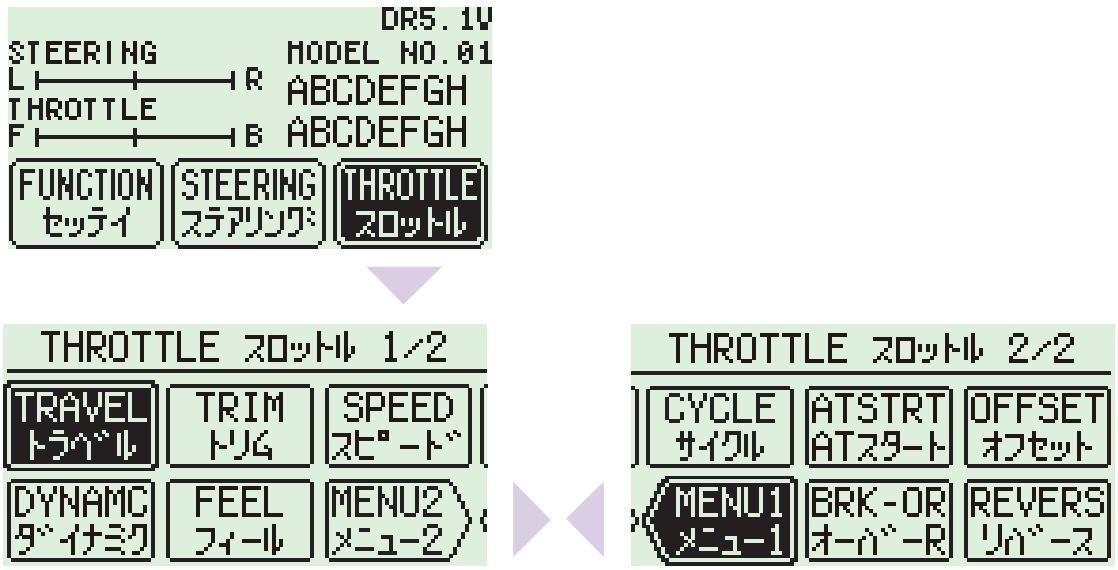
Modify the feeling of the steering's movement.

Steering Reverse

Modify the steering direction.

□□■ THROTTLE

This an index which displays the 10 different function menus.(Separeted 2 pages.)



Throttle Travel

Modify the maximum throttle movement.

Throttle Trim

Modify the neutral position of the throttle.

Throttle Turn Speed

Modify the speed of the throttle's movement.

Throttle Dynamics

Modify the movement speed ratio which corresponds to throttle angle and Modify how much the throttle initially moves from the neutral position.

Throttle Feel

Modify the feeling of the throttle movement.

MENU2

Jump menu to throttle menu 2.

MENU1

Jump menu to throttle menu 1.

Brake Override

Modify the maximum amount of braking and steering travel assigned to a switch.

Throttle Reverse

Modify the throttle direction.

Throttle Cycle

Modify the amount of brake pumping and acceleration.

Throttle Auto-Start

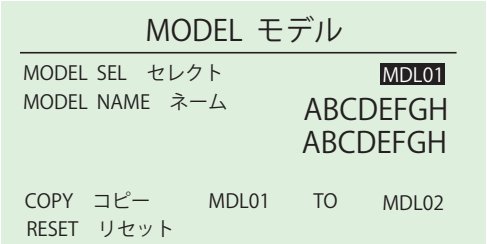
Set the amount of automatic startup for the throttle.

Idle Up

Modify the neutral position of the throttle trigger or neutral braking.

Model menu

Save various settings as model memories Up to 20 model memories can be named and stored.



▶ MODEL SEL
Switch between different model memories.

▶ MODEL NAME
Names the model memories.

▶ MODEL COPY
Copies model memories.

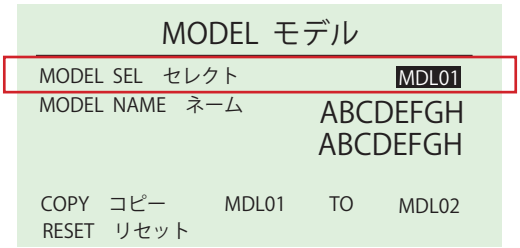
▶ MODEL RESET
Resets model memories.

▶ MODEL SEL

Switch between different model memories.

【Example】
If you have multiple cars, it is convenient to have a separate model memory for each one. Even in the case of only one car, you could save specific settings for different courses as different model memories as well.

Select the model to be used.



【Setting Range】 MODEL:01 - 20 Setting

All of the various settings are registered under a model memory.

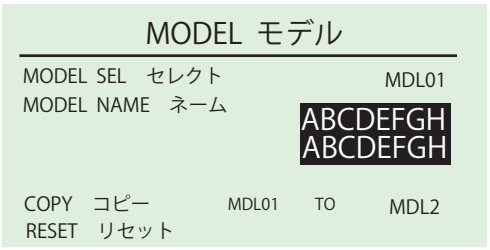
The settings which will be switched by Model Select are...
1)Steering Setting
2)Throttle Setting
3)3CH Setting
4)4CH Setting
5)Steering and Throttle Response
6)Steering and Throttle Feel
7)Setup Functions (ET1-ET5, BT1 function assignments)
8)Stopwatch Settings

Switching model memory while driving may cause setting mismatches and lead to an uncontrollable model. Please place the car on a stand or switch it off before switching model memories.

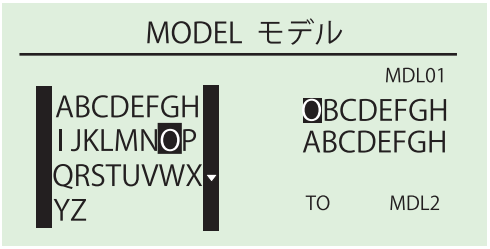
Model selection changes and modulation mode changes are not linked. Refer to p.24 changing the modulation mode.

▶ MODEL NAME

This function is used to name the model memory that is currently in use. Distinguish each model memory with different names, which may also be edited. The set model name will be displayed on the initial screen and model select screen.

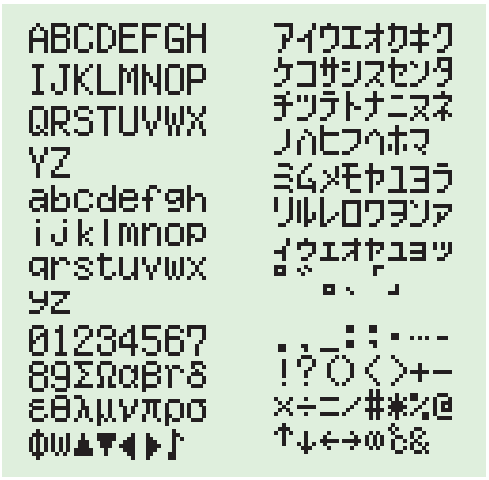


Choose one character at a time from the left side.



【Setting Range】 40Setting Range Maximum 16 characters.

《Selectable Characters》



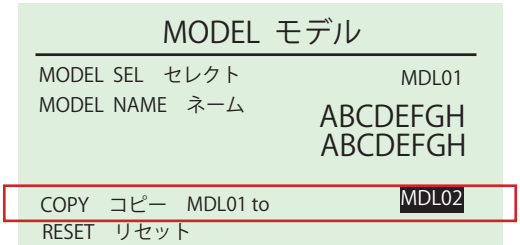
To delete a character, overwrite the character to be deleted by using the blank space at the end of each page of characters.

MODEL COPY

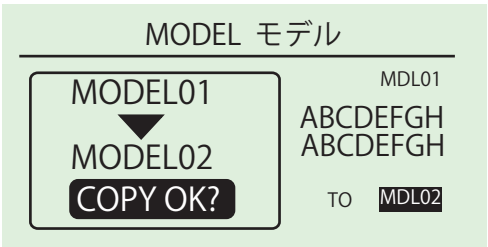
Copies the current model memory to a different model memory.

【Example】
When changing settings on the same car to match driving conditions, it is convenient to copy the original memory before modifying it. This function also allows you to try out new settings while keeping your original one.

Select the model memory to copy to, then hold the ENTER key to copy.



Small window [COPY OK?] appears, then push the ENTER key.



【Setting Range】 MODEL:01 - 10Setting

When selecting the model memory to copy to, that model memory's name will be displayed.

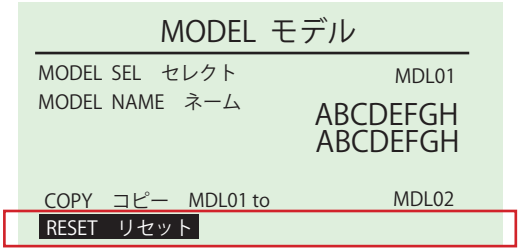
The settings which will be switched by Model Select are...
1)Steering Setting
2)Throttle Setting
3)3CH Setting
4)4CH Setting
5)Steering and Throttle Response
6)Steering and Throttle Feel
7)Setup Functions (ET1-ET5, BT1 function assignments)
8)Stopwatch Settings

The contents of the model memory that is being copied to will be overwritten. Overwritten data cannot be recovered, so be careful to avoid undesired memory overwrites.

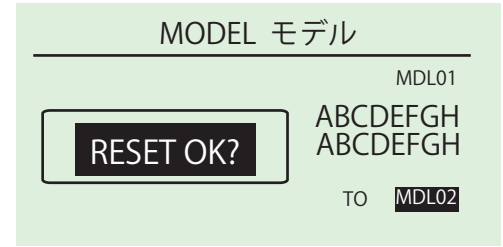
MODEL RESET

Return the current model memory to default factory setting values.

Select [RESET] (hold ENTER key) to reset.



Small window [RESETOK?] displayed, then push the ENTER key.



Deleted data cannot be recovered. Be careful to avoid undesired resets.

TIMER Menu

Operating Timer-related functions.

《Functions》

▶ TRGSTART Trigger Start

Prepares the stopwatch for activation via the throttle movement.

▶ LAP HISTORY

Displays the lap times recorded by the stopwatch.

▶ ALARM

Alarm will sound after the set amount of time has elapsed.

ALARM STOP

Sets an alarm buzzer to the continue sound mode (CONTINUE) or to the sound stop mode(STOP).

P.ALM

Sets a warning buzzer to sound at a set time prior to the alarm.

NAVI

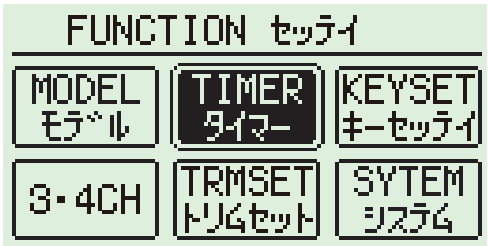
Adjusts the lap navigation settings.

START/STOP

Assigns a key to activate/deactivate the stopwatch. (Required)

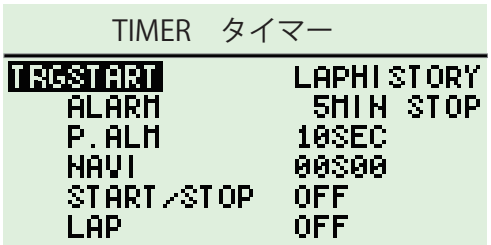
LAP

Assigns a lap key.



▶ TRGSTART Trigger Start

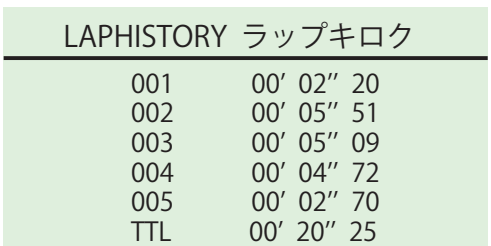
Move the cursor to [TRGSTART] and hold the ENTER key. TRGSTART will switch to READY for a brief moment, then push assigned [START/STOP]key or move throttle trigger.



When the [START/STOP] key is set to OFF, it does not activate.

▶ LAP HISTORY

Displays the lap times recorded by the stopwatch. Scroll down when the R key is pushed, and scroll up the L key is pushed.When pressing the BACK key, you are returned to the Timer screen.

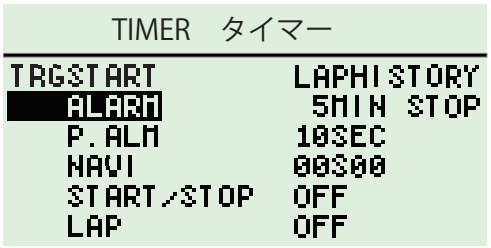


100 lap times are memorized.

Only the last recorded lap times may be checked and previously recorded results will not be saved. (Even if the transmitter is switched off, the last recorded times will remain in the memory.)

▶ ALARM

Move the cursor to setting the various parameters.



【Setting Range】 MIN（minuite） SEC（second）

ALARM

: 1 MIN ～ 99 MIN（Default : 5 MIN）

Alarm will sound after the set amount of time has elapsed.

※ Convenient for setting the anticipated race completion time.

ALARMSTOP

: STOP / CONT（Default : STOP）

Sets an alarm buzzer to the continue sound mode (CONTINUE) or to the sound stop mode(STOP).

※ STOP Buzzer sound stop about 5 seconds.

※ CONT Until the START/STOP key is pressed the Buzzer sound will continue.

P.ALM

: 0 ～ 30 SEC（Default : 10 SEC）

Sets a warning buzzer to sound at a set time prior to the alarm.

※ Convenient for setting a warning for when a race is about to end.

NAVI

: 0 SEC 00 ～ 99 SEC 99（Default : 0 SEC 00）

Adjusts the lap navigation settings.

※ Convenient for setting a target lap.

START/STOP

: OFF、ET1 ～ 5、BT1（Default : OFF）

Assigns a key to activate/deactivate the stopwatch. (Required)

LAP

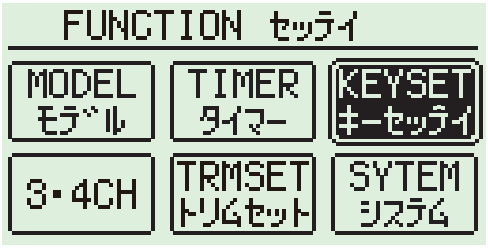
: OFF、ET1 ～ 5、BT1（Default : OFF）

Assigns a lap key.

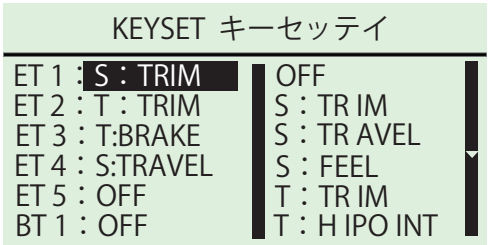
Configuration of the Timer function, settings aside from switching [START/STOP] to OFF are required.

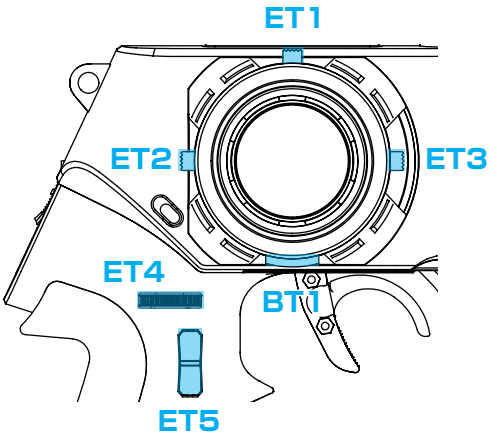
KEYSET Key setting

Assign a key (ET1- ET5, BT1) to a function.



If you select a key, the item is displayed to the right.
It is assigned to a key by choosing an item.





※ To use (ET4, ET5), No,10526 Expert grip is required.

【Setting Range】 ○ : Assignment Possible

設定機能	ET1～5	BT1
OFF (No Assignment)	○	○
S:TRIM (Steering Trim)	○	x
S:TRAVEL (Steering Travel)	○	x
S:FEEL (Steering Feel)	○	x
T:TRIM (Throttle Trim)	○	x
T:HIPOINT (Throttle High Point)	○	x
T:BRAKE (Throttle Brake)	○	x
T:FEEL F (Throttle Feel F)	○	x
T:FEEL B (Throttle Feel B)	○	x
T:OFFSET (Throttle Offset)	○	○
T:OFSTKY (Throttle Offset Key)	○	x
T:BRAKEOR (Throttle Override)	○	○
T:AUTOST (Throttle Auto-Start)	○	○
TIMER (Timer)	○	○
LAPTIME (Lap Time)	○	○

【Default】

ET1 : S:TRIM
ET2 : T:TRIM
ET3 : T:BRAKE
ET4 : OFF
ET5 : OFF
BT1 : OFF

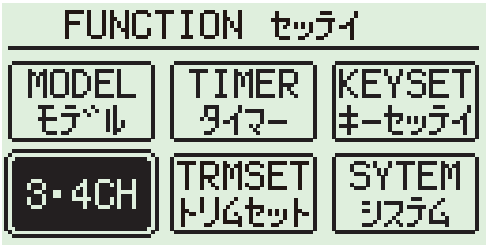
【Non-choice item】

The entry of 3/4CH is displayed only when a key is set to 3/4CH function setting.

3(4) : POS (3・4 CH／Control)
3(4) : SMMODE (3・4 CH／4WS Mixing Mode)
3(4) : SMCENT (3・4 CH／4WS Mixing Center)
3(4) : SMTRVL (3・4 CH／4WS Mixing Travel)
3(4) : AMMODE (3・4 CH／Amp Mixing Mode)
3(4) : AMTH (3・4 CH／Amp Mixing Throttle Hold)
3(4) : TMBRAKE (3・4 CH／Throttle Mixing Brake)
3(4) : TMCENT (3・4 CH／Throttle Mixing Center)
3(4) : TMHIPO (3・4 CH／Throttle Mixing High Point)
3(4) : TMDELAY (3・4 CH／Throttle Mixing Delay)
3(4) : TMSTEER (3・4 CH／Throttle Mixing Steering)
3(4) : TMON (3v CH／Throttle Mixing ON/OFF)

3・4CH　3・4ch Menu

Settings related to 3CH and 4CH operations.



《Functions》

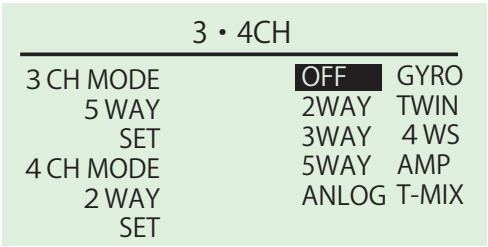
▶ MODE

OFF	GYRO
2WAY	TWIN
3WAY	4WS
5WAY	AMP
ANLOG	T-MIX

▶ SET

Set the usage choice for channels 3 and 4 modes.

The MODE of 3CH or 4CH s selected from the right.
Change the setting of the item chosen with the SET key.



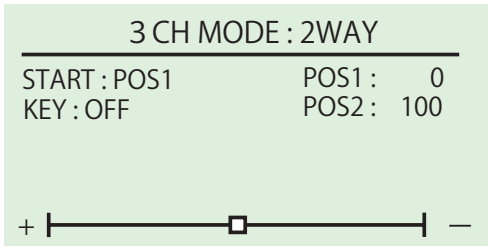
The functions which may be set are the same for both 3CH and 4CH. Set them to match the desired purpose.

【Default】
3CH MODE : 5WAY
4CH MODE : 2WAY

▶ 2WAY MODE

Modify the 2-interval output settings.

【Example】
May be used to activate/deactivate an engine starter unit or a semi-trailer's support legs.

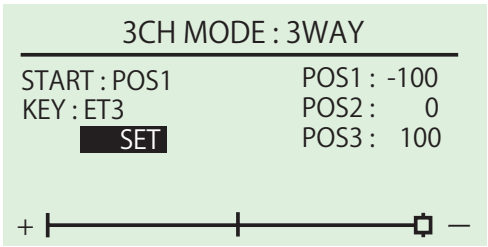


【Setting Range】
START : POS 1、POS 2 (Default : POS 1)
Sets the starting position.
KEY : OFF、ET1～5 (Default : OFF)
Assigns a key to use for switching positions.
POS 1 : -100～100 (Default : 0)
Sets Position 1's output position.
POS 2 : -100～100 (Default : 100)
Sets Position 2's output position.

▶ 3WAY MODE

Modify the 3-interval output settings.

【Example】
May be used for gear changing operations or when you wish to set a 3-interval control scheme for the servo.



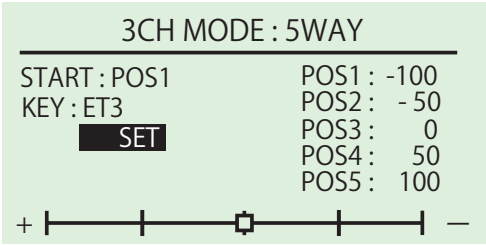
【Setting Range】
START : POS 1、POS 2、POS 3 (Default : POS 1)
Initial position is configurated.
KEY : OFF、ET1～5 (Default : OFF)
Assigns a key to use for switching positions.
POS 1 : -100～100 (Default : -100)
Sets Position 1's output position.
POS 2 : -100～100 (Default : 0)
Sets Position 2's output position.
POS 3 : -100～100 (Default : 100)
Sets Position 3's output position.

3・4CH 3・4ch Menu

▶ 5WAY MODE

Modify the 5-interval output settings.

【Example】
May be used for gear changing operations or when you wish to set a 5-interval control scheme for the servo.



【Setting Range】

START : POS 1、POS 2、POS 3、POS 4、POS 5 (Default : POS 3)
Sets the starting position.

KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns a key to use for switching positions.

POS 1 : -100 ～ 100 (Default : -100)
Sets Position 1's output position.

POS 2 : -100 ～ 100 (Default : -50)
Sets Position 2's output position.

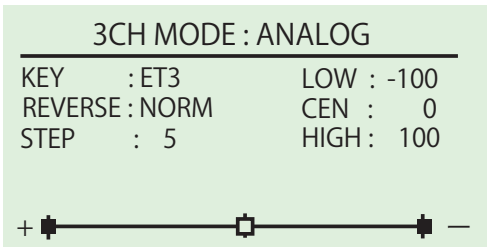
POS 3 : -100 ～ 100 (Default : 0)
Sets Position 3's output position.

POS 4 : -100 ～ 100 (Default : 50)
Sets Position 4's output position.

POS 5 : -100 ～ 100 (Default : 100)
Sets Position 5's output position.

▶ ANALOG MODE

These settings are to enable continuous output for channels 3 or 4.



【Setting Range】

KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns a key to use for switching positions.

REVERSE : NOR (通常)、REV (逆向き) (Default : NORM)
Sets operation direction.

STEP : 1 ～ 25 (Default : 5)
Sets the amount of change for the operation.

LOW (Low Position) : -100 ～ 0 (Default : -100)
Sets the lowest value for the operation range.

CEN (Center Position) : LOW ～ HIGH (Default : 0)
Sets the neutral position for the operation range.

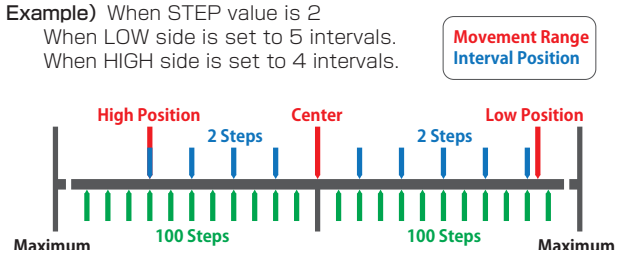
HIGH (High Position) : 0 ～ 100 (Default : 100)
Sets the highest value for the operation range.

【How to Use Analog Settings】

Low Position Side: :
Between LOW and CEN are 100 steps within which the intervals can be adjusted.

High Position Side: :
Between CEN and HIGH are 100 steps within which the intervals can be adjusted.

Example) When STEP value is 2
When LOW side is set to 5 intervals.
When HIGH side is set to 4 intervals.



P Center position is the staring position.

P Low/High positions cannot be exceeded. Operations which try to do so will stop just before the Low/High positions.

▶ GYRO MODE

This function modifies the setting for using gyro receiver.

【Example】
When using KR-212FHG Gyro receiver, this function allows for an easy setting.

【How to set Gyro mode】
GYRO is configurated to channels 3/4 control modes.
ET3 : 3ch control (Steering gyro gain control)
ET5 : 4ch control (Throttle gyro gain control)
Adjust it to moderate gyro gain while running.

P Specification of channel 3 and 4 of the gyro mode memory (storage) is memorized.

P To use (ET4, ET5), No,10526 Expert grip is required.

⚠ **The functions which may be set are both 3CH and 4CH.**

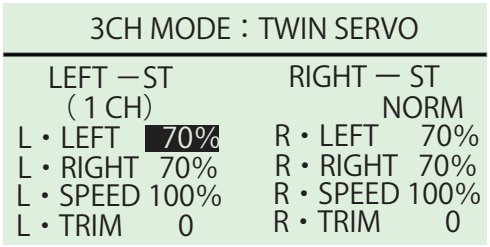
⚠ **When the 3ch/4ch mode is changed from GYRO mode to another mode or OFF, the 3ch mode will return to the setting for (OFF).**

⚠ **Please prepare the gyro system (ex. KR-212FHG) separately. The gyro effect is not provided only in the main system of transmitter.**

TWIN SERVO MODE

This function modifies the setting for using 2 steering servo. Using left steering servo 1ch, and right steering servo 3ch or 4ch.

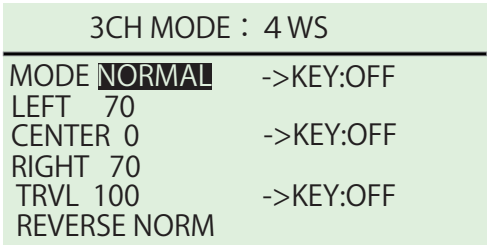
【Example】
Ackerman control is possible when using for drift cars using twin servos.



【Setting Range】
LEFT-ST（1CH）
L-LEFT : 30 ～ 100%（Default: 70%）
Sets the highest value for the 1CH servo left operation.
L-RIGHT : 30 ～ 100%（Default: 70%）
Sets the highest value for the 1CH servo right operation.
L-SPEED : 1 ～ 100%（Default: 100%）
Sets the steering speed for the 1CH servo operation.
L-TRIM : -50 ～ 50（Default: 0）
Sets the neutral position for the 1CH servo operation range.
RIGHT-ST
NORM（Nomal）、REVS（Reverse）(Default: NORM)
Sets operation direction of 3CH or 4CH servo.
R-LEFT : 30 ～ 100%（Default: 70%）
Sets the highest value for the 3(4)CH servo left operation.
R-RIGHT : 30 ～ 100%（Default: 70%）
Sets the highest value for the 3(4)CH servo right operation.
R-SPEED : 1 ～ 100%（Default: 100%）
Sets the steering speed for the 3(4)CH servo operation.
R-TRIM : -50 ～ 50（Default: 0）
Sets the neutral position for the 3(4)CH servo operation range.

4WS

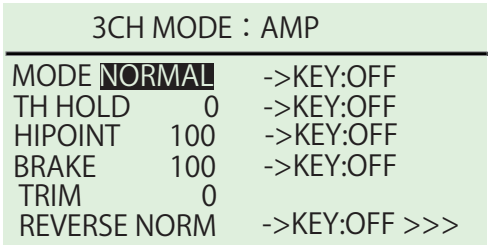
This function is related to an R/C car's 4-wheel steering feature. If 3CH or 4CH is assigned to control the rear axle, it will operate in conjunction with 1CH (steering). The direction of the rear axle steering may also be changed.



【Setting Range】
MODE （Default: NORMAL）
NORMAL (front and rear axles turn in the same direction)
REVERSE (front and rear axles turn in opposite directions)
F STEER (steer front axle only)
R STEER(steer rear axle only)
LEFT : 0 ～ 100（Default: 70）
Adjusts the rear axle servo movement range when steering is turned to the left.
CENTER : -50 ～ 50（初期値 : 0）
Adjust the rear axle servo's neutral position.
RIGHT : 0 ～ 100（Default: 70）
Adjusts the rear axle servo movement range when steering is turned to the right.
TRAVEL : 0 ～ 150（Default: 100）
Adjusts the overall amount of movement of the rear axle servo when the steering is at full lock.
REVERSE : NORM（Normal）、REVS（Reverse）(Default: NORM)
Sets operation direction of 3CH or 4CH servo.
MODE → KEY : OFF、ET1 ～ 5（Default: OFF）
Assigns ET keys to be used for 4WS Mixing MODE.
CENTER → KEY : OFF、ET1 ～ 5（Default: OFF）
Assigns ET keys to be used for 4WS Mixing CENTER.
TRVEL → KEY : OFF、ET1 ～ 5（Default: OFF）
Assigns ET keys to be used for 4WS Mixing TRAVEL.

▶ AMP Mixing MODE

Used when the front and rear wheels are controlled by separate ESCs and motors. If 3CH or 4CH is set to the front-wheel drive function, it will operate in conjunction with 2CH's throttle operations.



【Setting Range】

MODE (Default: NORMAL)
NORMAL(drives both front and rear wheels)
BURN(drives rear wheels only)
DIG(drives front wheels only)
F HOLD(drives front wheels at a set speed)
R HOLD(drives rear wheels at a set speed)

TH HOLD : -100 ～ 100 (Default: 0)
This function adjusts the set speed used for (F HOLD) and (R HOLD) selected in Amp Mixing Mode.[F HOLD] adjusts the front wheel drive while [R HOLD] adjusts the rear wheel drive.
※ This setting is activated when F HOLD or R HOLD mode is selected.

【Example】 May be used for rock crawlers, etc.

HIPOINT : 0 ～ 150 (Default : 100)
Adjusts the maximum amount of throttle to be applied to the front wheels. Equivalent to the [Throttle High Point] function.
※ This setting is activated when NORMAL, DIG, or R HOLD mode is selected.

P This makes it easy to adjust the amount of maximum throttle, particularly on a glow engine car.

P If the amp mixing high point is set low and the amp mixing trim is set to a high value toward acceleration, the resulting throttle movement may be extraordinarily small.

⚠ On glow engine cars, an overly high setting value will increase load on the servo and lead to it being damaged. Check carefully while adjusting.

⚠ On electric cars, a setting value that is too small may cause problems with the ESC settings. Make adjustments starting from the default setting (100).

⚠ Brake will not operate if the value is set to 0.

BRAKE : 0 ～ 150 (Default: 100)
Modify the maximum amount of reverse (brake) to be applied to the front wheels.
Equivalent to [Throttle Brake] function.
※ This setting is activated when NORMAL, DIG, or R HOLD mode is selected.

⚠ On glow engine cars, an overly high setting value will increase load on the servo and lead to it being damaged. Check carefully while adjusting.

⚠ On electric cars, a setting value that is too small may cause problems with the ESC settings. Make adjustments starting from the default setting (100).

⚠ Brake will not operate if the value is set to 0.

TRIM : -50 ～ 50 (Default : 0)
Adjusts the neutral position of the front wheels.

P The setting position cannot exceed what is set by [High Point] or [Brake].

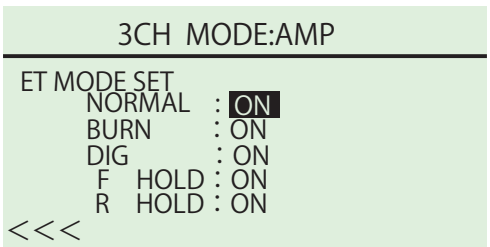
REVERSE : NORM (Normal)、REVS (Reverse)
Changes the movement direction of the front wheels. (Default: MORM)

P For electric cars, the throttle is set by the ESC so there is no need to set this function. However, some older ESCs will not function properly unless reverse is also set.

MODE → KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns ET or BT keys to activate the various front wheel drive modes.
TH HOLD → KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns ET keys to be used for the set speed used for TH HOLD.
HIPOINT → KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns ET or BT keys to adjust HIPOINT value.
BRAKE → KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns ET or BT keys to adjust BRAKE value.
REVERSE → KEY : OFF、ET1 ～ 5 (Default : OFF)
Assigns ET or BT keys to changes the movement direction of the front wheels.

【Setting Range】

ET MODE SET
Assigns ET or BT keys to activate the various front wheel drive modes.



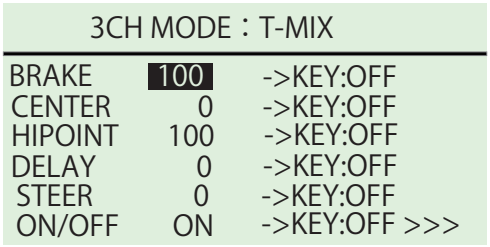
NORMAL : ON、OFF (Default : ON)
BURN : ON、OFF (Default : ON)
DIG : ON、OFF (Default : ON)
F HOLD : ON、OFF (Default : ON)
R HOLD : ON、OFF (初期値 : ON)

P Assigning these keys may be convenient for rock crawlers or when you need to adjust Amp Mixing settings.

▶ T-MIX Throttle Mixing MODE

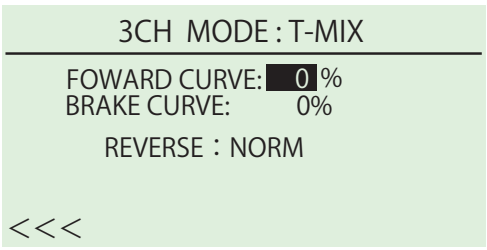
Mainly used for 1/5 scale R/C cars where the left/ right front wheels' braking operation is controlled by an independent servo.
If 3CH is assigned to front right wheel brake and 4CH is assigned to front left wheel brake, they will operate in conjunction with 2CH (throttle) and 1CH (steering).

【Example】
Simplifies adjustment of the independent brake channel (servo) on 1/5 scale R/C cars.



【Setting Range】
BRAKE : 0 ～ 150 (Default : 100)
Modify the maximum amount of front brake servo movement.
CENTER : -50 ～ 50 (Default : 0)
Modify the front brake servo's neutral position.
HIPOINT : 0 ～ 150 (Default : 100)
Modify the maximum amount of throttle to be applied to the front brake servo.
※ To avoid operating only the brakes, set value to 0.
DELAY : 0 ～ 100 (Default : 0)
Delays the operation of the front wheel servo brake.
STEER : -100 ～ 100 (Default : 0)
Modify the amount of brake applied by the front wheel brake servo in relation to steering input.
ON/OFF : ON、OFF (Default : ON)
Enables Throttle Mixing to be activated via ET keys.
BRAKE → KEY : OFF、ET1 ～ 5 (Default : OFF)
CENTER → KEY : OFF、ET1 ～ 5 (Default : OFF)
HIPOINT → KEY : OFF、ET1 ～ 5 (Default : OFF)
DELAY → KEY : OFF、ET1 ～ 5 (Default : OFF)
STEER → KEY : OFF、ET1 ～ 5 (Default : OFF)
ON/OFF → KEY : OFF、ET1 ～ 5 (Default : OFF)

These setting must be set for both front right brake (3CH) and front left brake (4CH).



【Setting Range】
FORWARD CURVE : -100% ～ 100% (Default : 0%)
BRAKE CURVE : -100% ～ 100% (Default : 0%)

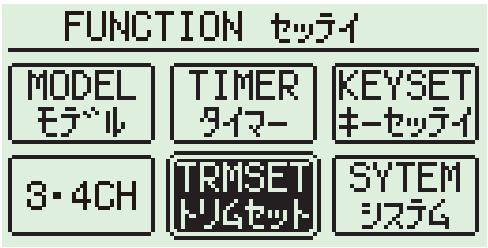
Positive values (+1 to +100) equal high initial response followed by mild response.
Negative values (-1 to -100) equal a mild initial response followed by high response.

REVERSE : NORM、REVE (Default : NORM)
This function reverses the front brake servo's movement direction. It is useful for when servo output movement does not match inputs after the servo has been installed.

Use of Throttle Mixing Steering may increase load on the servo and cause increased wear or damage. Check the servo while adjusting.

TRIM SET

The convenient function that can set trim and travel while operating steering wheels.



▶ STEER AUTO TRIM

① Move the cursor to "SET" and push the ENT key, "SET" will start blinking.
※ At this time, the steering trim becomes 0 forcibly.
② Hold the steering wheel of the transmitter to the position that you want to make neutral.
Set the steering neutral position by pushing the ENT key while holding the position.



As for this function, only the numerical value of the steering trim changes. Does not influence the numerical value of the steering subtrim.

After pushing "SET", the steering servo moves because the neutral position has changed.
Release the steering handle, the servo moves to the new neutral position.

▶ STEER AUTO BALANCE LEFT

① Move the cursor to "SET" and push the ENT key, "SET" will start blinking.
※ At this time, the steering travel(L) becomes 100 forcibly.
② Hold the steering wheel of the transmitter to the position that you want to make the Left end point.
Set the steering travel(L) position when pushing the ENT key while holding the position.

As for this function, only the numerical value of the steering tavel(L) changes. Does not influence the numerical value of the steering travel and travel(R). When the quantity of movement is short, set automatic balance again after increasing steering travel.

After pushing "SET", the steering servo moves because the travel(L) position has changed.
Release the steering handle, the servo moves to the neutral position.

Use of Steering auto balance may increase load on the servo and cause increased wear or damage. Check the servo while adjusting.

When operating the steering wheel to the right in steering auto balance(L), it will not set correctly. Be careful to the direction of operation.

▶ STEER AUTO BALANCE RIGHT

① Move the cursor to "SET" and push the ENT key, "SET" will start blinking.
※ At this time, the steering travel(R) becomes 100 forcibly.
② Hold the steering wheel of the transmitter to the position that you want to make the Right end point.
Set the steering travel(R) position when pushing the ENT key while holding the position.

As for this function, only the numerical value of the steering tavel(R) changes. Does not influence the numerical value of the steering travel and travel(L). When the quantity of movement is short, set automatic balance again after increasing steering travel.

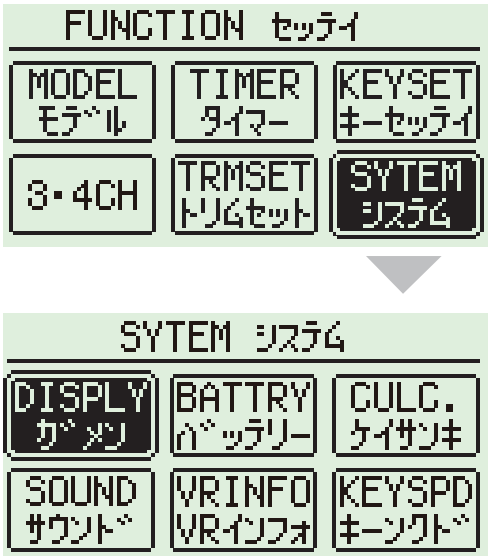
After pushing "SET", the steering servo moves because the travel(R) position has changed.
Release the steering handle, the servo moves to the neutral position.

Use of Steering auto balance may increase load on the servo and cause increased wear or damage. Check the servo while adjusting.

When operating the steering wheel to the left in steering auto balance(R), it will not set correctly. Be careful to the direction of operation.

SYSTEM MENU

Menu related to various system settings.



▶ DISPLAY MENU

Setting about LCD display.



【Setting Range】

CONTRAST : 1 ～ 5 (Default : 4)

Adjusts the contrast of the LCD.

LCD levels become light when the numerical value is reduced.

LCD contrast will characteristically be darker when warm and lighter when cold. Make corresponding contrast adjustments if this is a concern for you.

LIGHTMODE

Backlight mode of the LCD : OFF、ON、KEY-ON

Sets the light activation mode.(Default: KEY-ON)

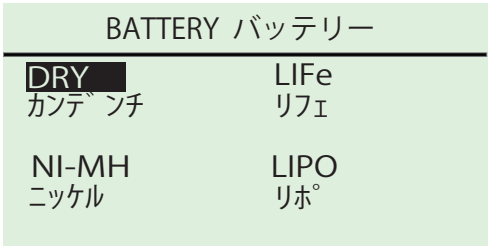
LIGHTTIME : 1 ～ 60 (Default: 5)

Sets the time between a key operation (other than steering or throttle) and the LCD turning off when [LIGHT MODE] is set to [KEY-ON].

When the backlight is set to [KEY-ON], it will only be activated by ET/BT key operation, not by steering or trigger operation.

▶ BATTERY

Select the type of battery used.



【Setting Range】

DRY(Alkaline Batteries),

Primary warning buzzer 4.0V or less

Second warning buzzer, movement stop 3.8V or less

LIFE(Li-Fe Battery)

Primary warning buzzer 6.2V or less

Second warning buzzer, movement stop 6.0V or less

NI-MH(Ni-MH Battery)

Primary warning buzzer 4.0V or less

Second warning buzzer, movement stop 3.8V or less

LIPO(Li-Po Battery)

Primary warning buzzer 7.0V or less

Second warning buzzer, movement stop 6.0V or less

According to the selected power source type, a low voltage warning will be displayed. Transmitter signals will not be cut at this time, but problems with control may be experienced. Stop operation immediately and replace batteries.

When setting a battery type by mistake, the warning message can be canceled by pushing and holding the BACK key to display the initial screen. Please set it to right battery again.

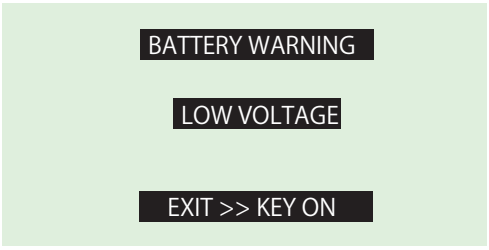
Change Power Management After Switching Battery Type!

If the battery used does not match the Power Management setting, the battery may be over-discharged and damaged. This may also result in fire, so make sure you pay special attention.

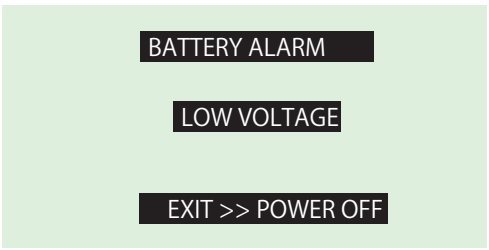
! WARNING ! Warning Display

▶ Battery Level Warning

During driving, this warning will be displayed if the battery voltage is below the required level.
You may still operate the model, but it is recommended to replace the battery immediately
※ In the case of DRY/Ni-MH setting, the LED (blue) of the main body of EX-2 flashes on and off, too.

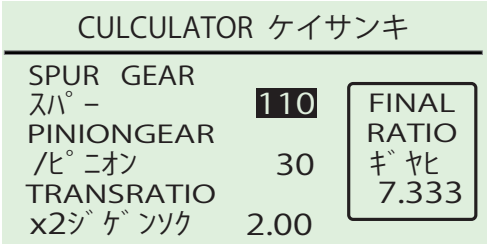


Furthermore, when the power supply voltage decreases, it is displayed and normal operation will not be able to continue. Switch it off immediately, and replace the batteries immediately.



▶ CALCULATOR

calculate the gear ratio.



【Setting Range】
SPUR GEAR : 1～999 (Default : 110)
PINIONGEAR : 1～999 (Default : 30)
TRANSRATIO : 1.00～99.99 (Default : 2.00)

【How to use】
When the spur, pinion and transmission ratio are inputted, the gear ratio is automatically calculated and shown in the picture right side of the displays.

▶ SOUND

Adjusts the sound level of the transmitter buzzer.



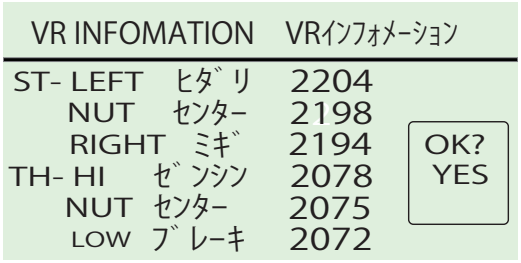
【Setting Range】
BUZZER TONE : 1～7
(Default : 2)
BUZZER PATTERN : 1～7
(Default : 1)
BUZZER VOLUME : 0～5
(Default : 5)

▶ VR INFORMATION

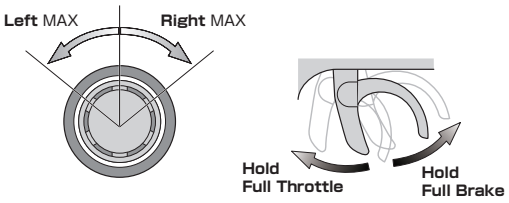
Adjust the potentiometer of the steering and throttle.
※ Please set it by all means.
○ When using EX-2 for the first time.
○ When changing a steering unit for a different product or when putting it back together.
○ When changing a grip unit for a different product or when putting it back together.
○ When changing a grip unit for a different product or when putting it back together.

1, Select [FUNCTION] on the initial screen and push the ENTER key.
2, Select [SYSTEM] on the function screen and push the ENTER key.
3, Select [VR INFO] on the system screen and push the ENTER key.
4, Move the wheel slowly to the full left and right lock (numbers will change as the steering is moved) and release the wheel back to neutral.
5, Move the trigger slowly to the full throttle and full brake positions (numbers will change as the throttle is moved) and release the trigger back to neutral.
6, Select the "YES" on the right side of the display screen.

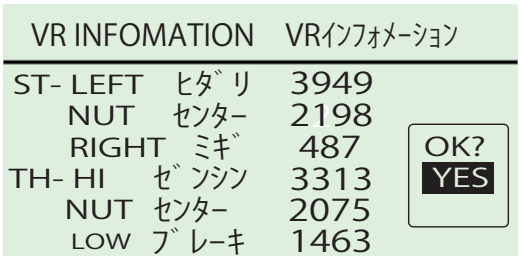
3, Example before setting



4,5, Move slowly to full stroke, then release.



6, Small window [Yes] comes active.



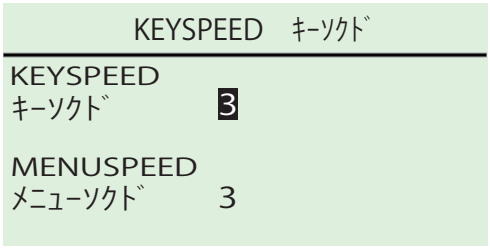
※ When operating the VR INFORMATION and pressing the BACK key will cancel the operation.

⚠ Do not operate steering wheel and throttle trigger while pressing ENTER, as this may change the data values and affect subsequent operations. If this function is not adjusted properly, improper operation may result.

⚠ VR Information timing may vary depending on usage. If problems persist even after using VR Infomation, contact KO Propo Customer Service Department to arrange repairs. (We recommend that you contact KO Propo Customer Service Department if you are not sure what the problem is.)

▶ KEYSPEED

Adjusts the delay between operations if the ET/BT key is pressed repeatedly.



【Setting Range】
KEYSPEED : OFF ～ 5
(Default : 3)
MENUSPEED : OFF ～ 5
(Default : 3)

OFF:Key Repeat Disabled.
The larger value will shorten the delay time.

The ET/BT keys speed is fixed and can not be independently changed.

▶ OPERATION ALARM

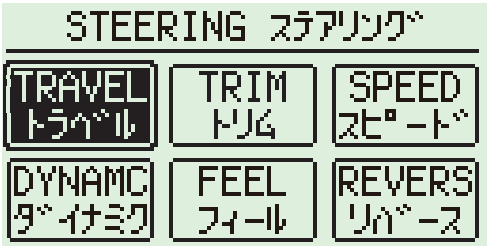
When there is no input to the transmitter in over three minutes, the EX-2 alarm will sound. The alarm is canceled when operating steering wheel, throttle trigger, ET, BT key, ENT key, L R key, BACK key.

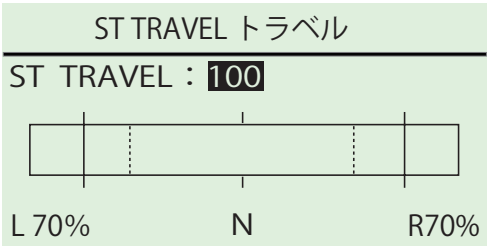
※ This function setting can not be changed nor turned off.

STEERING

TRAVEL

Modify the overall amount of steering movement.





▶ ST TRAVEL
Modify the overall amount of steering movement.

▶ L (BALANCE)
Modify the left steering angle end point.

▶ R (BALANCE)
Modify the right steering angle end point.

▶ ST TRAVEL Steering Travel

Adjust the overall amount of steering servo movement when the steering wheel is at full lock.

【Setting Range】
ST TRAVEL : 0 ～ 150
(Default : 100)

Since the Balance setting value is a ratio of the Travel setting value, if the latter is modified the actual movement value and the displayed graphic will also change.(the Travel value will not change).

Steering will not operate if the Travel value is set to 0.

▶ ST BALANCE L R Steering BalanceL R

Adjust the left/right steering angles independently. This enables the turning radii to match up during cornering.

【Setting Range】
ST BALANCE L : 30 ～ 100
(Default : 70)
ST BALANCE R : 30 ～ 100
(Default : 70)

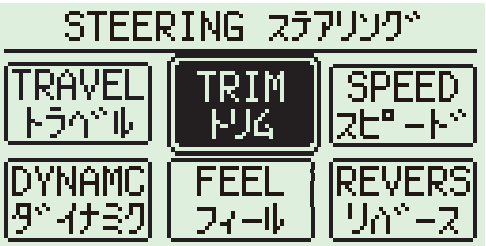
The set percentage is a ratio of the value set by the Steering Travel.

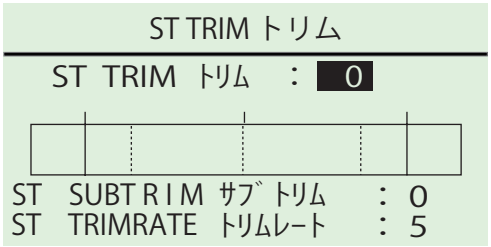
Steering balance can be adjusted by using the steering wheel and ET key!
f an ET key that is assigned to steering trim is pressed while the steering is turned over halfway in either direction, the balance of the direction of the turn can be adjusted.

If the trim is set to a large value, a large left/right value discrepancy may result. If adjusting steering balance for the first time, follow the procedures below.
① Set trim value to 0.
② Adjust sub trim so that the car drives in a straight line when steering is in neutral position.
③ Use steering travel to match the overall steering angle range.
④ Use steering balance to match the left/right turning radii.
⑤ If the car does not drive straight at this point, use trim to correct.

TRIM MENU

Adjusts the neutral/center position of the steering angle range.





▶ ST TRIM　Steering Trim
Modify the neutral position of the steering angle.

▶ ST SUBTRIM　Steering Subtrim
Modify the overall steering angle range.

▶ ST TRIMRATE　Steering trim rate
Modify the amount of movement which corresponds to one click of the Trim button.

▶ ST TRIM

Adjusts the neutral/center position of the steering angle range.

【Setting Range】
ST TRIM : L50 ～ 0 ～ R50
(Default : 0)

Setting adjustments prior to driving should be carried out with the sub trim, not the trim.

The setting range cannot exceed what is set by [Steering Travel] or [Steering Balance].

▶ ST SUBTRIM

Adjust the position of the overall steering angle range. Use this to match the neutral position when installing the steering servo.
※ Also refer to Trim and Sub Trim Operation.(p.17)

【Setting Range】
ST SUBTRIM : L80 ～ 0 ～ R80
(Default : 0)

【Example】
The servo horn position can be adjusted by the linkages, etc. when the servo is installed onto the model, but in case this does not set the neutral position, this function can be used to set it from the transmitter.

If the sub trim value becomes large, adjust the servo horn position or linkages so that the value becomes closer to 0. If the sub trim value is too large, dead zones could result and the servo may not operate at the extremities of its movement range.

▶ ST TRIMRATE

Adjusts the amount of movement associated with one click of the trim button.

【Setting Range】
ST TRIM RATE : 1 ～ 10
(Default : 5)

Although the amount of movement of one interval can be adjusted, the lower the number the smaller the amount of movement.

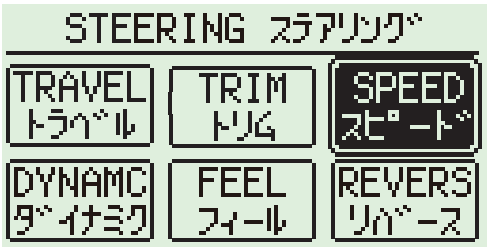
The overall number of intervals does not change, so a change in trim rate will result in a change in the range in which the trim can be used to make corrections.

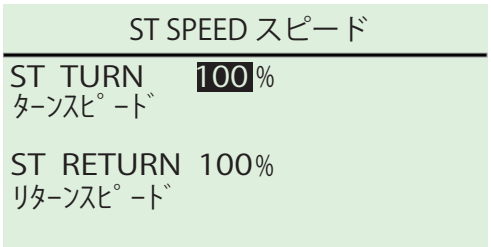
If the trim rate is changed when the trim is already set, the trim may be thrown off. If the trim setting is 0 then this does not apply.)

Lower trim rates enable fine adjustments, but the effects may not be apparent depending on the servo used. If there is a lot of slop in the linkage or servo saver, fine trim adjustments could cause the user to constantly worry about the trim settings. In that case, please reexamine the linkages, etc

ST SPEED　Steering SPEED

Modify the speed of the steering　servo movement.





▶ ST TURN　Steering Turn Speed

Modify the speed of the steering's turn movement.

▶ ST RETURN　Steering Return Speed

Modify the speed of the steering's return movement.

▶ ST TURN　Steering Turn Speed

This function limits the maximum speed of the steering servo by adjusting the steering turn direction [TURN] setting.

【Setting Range】
ST TURN SPEED : 1 ～ 100%
(Default : 100%)

【Example】
You can set the speed to be slow during initial turning, then subsequently faster.

Take into account such factors as the servo used, car, driving surface, etc. when adjusting all settings. Conduct test drives to find the best setting values.

Effective speed values are dependent on the speed characteristics of your selected servo.

▶ ST RETURN　Steering Return Speed

This function limits the maximum speed of the steering servo by adjusting the steering return direction [RETURN] setting.

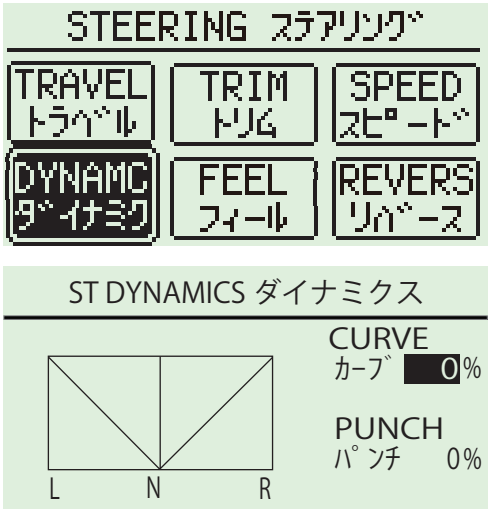
【Setting Range】
ST RETURN SPEED : 1 ～ 100%
(Default : 100%)

Take into account such factors as the servo used, car, driving surface, etc. when adjusting all settings. Conduct test drives to find the best setting values.

Effective speed values are dependent on the speed characteristics of your selected servo.

DYNAMC Steering Dynamics

Settings related to steering control.



▶ CURVE Steering Curve
Modify the movement speed ratio which corresponds to steering angle.

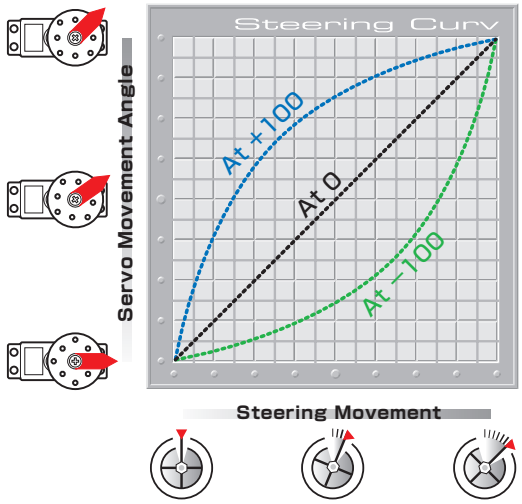
▶ PUNCH Steering Punch
Modify how much the steering initially turns from neutral position.

▶ CURVE Steering Curve

This function adjusts the ratio of the steering angle to servo movement speed (Curve Characteristics). Choose between (+) Quick Curve and (-) Mild Curve.

【Setting Range】
ST CURVE : -100 ～ 0 ～ 100%
(Default : 0%)

【Example】
Modify the movement speed ratio which corresponds to steering angle.



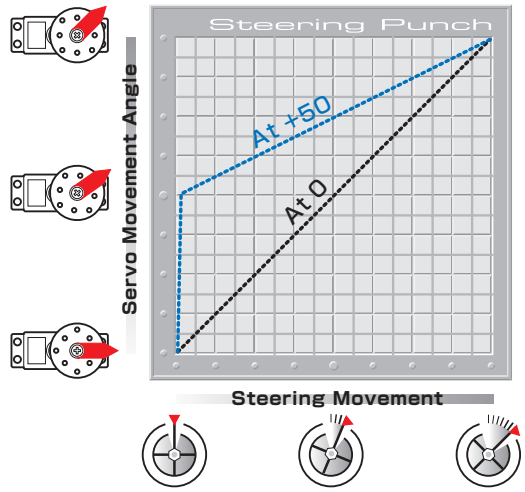
- As the graph shows, servo movement speed can be changed according to wheel movement angle.Positive values (+1 to +100) equal high initial response followed by mild response. Negative values (-1 to -100) equal a mild initial response followed by high response.
- When using this in conjunction with other functions such as [Steering Speed], adjust one at a time to confirm their effects to produce an effective overall setting.
- To adjust only the steering's initial response, use the [Steering Punch] function.

▶ PUNCH Steering Punch

This function quickens the steering's initial response and can be used to instill a strong turning movement when the steering initially moves from neutral.

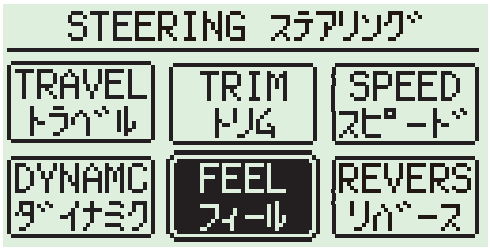
【Setting Range】
ST PUNCH : 0 ～ 50%
(Default : 0%)

- The larger the value, the stronger the amount of turning movement.
- This could be effective if steering linkages have a lot of slop, but please note that it does not improve straight-line performance.
- When using this in conjunction with other functions such as [Steering Speed], adjust one at a time to confirm their effects to produce an effective overall setting.



FEEL Steering feel MENU

FEEL function provides changing the moving peformance of steering servo.





▶ ST FEEL Steering Feeling
Adjust steering feeling.

▶ TH FEEL F Throttle feel F
Refer to "Throttle Feel F" (p.52)

▶ TH FEEL B Throttle feel B
Refer to "Throttle Feel B" (p.52)

▶ ST FEEL Steering Feel

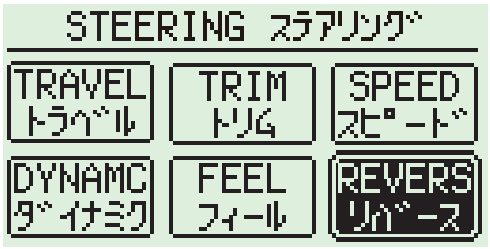
FEEL function provides changing the cornering peformance feeling.

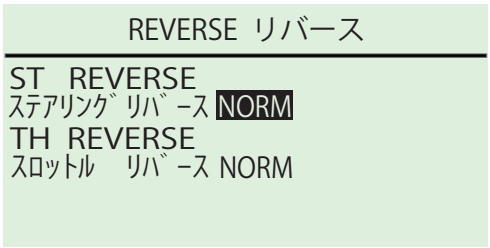
【Setting Range】
ST FEEL : -50 ～ 0 ～ 50%
(Default: 0%)

Take into account such factors as the servo used, car, driving surface, etc. when adjusting Steering feel settings.
Conduct test drives to find the best setting values.

REVERSE Steering Reverse

Modify the steering direction.





▶ ST REVERSE Steering reverse

【Setting Range】
ST REVERSE :NORM（Normal）、REVS（Reverse）
(Default : NORM)

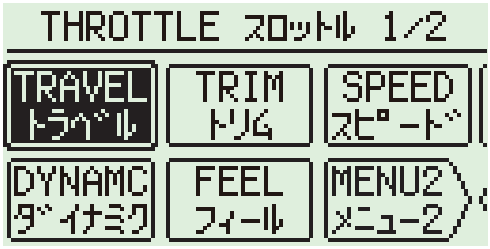
TH REVERSE :
Refer to "Throttle Reverse" (p.53)

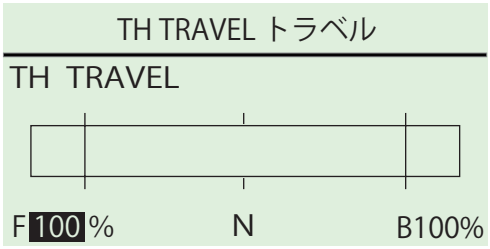
Steering direction varies from car to car and should be checked when the R/C equipment has been installed.

THROTTLE

TRAVEL Throttle Travel

Settings related to throttle control.





▶ TH TRAVEL F Throttle Travel F

Modify the maximum amount of throttle movement (towards forward acceleration).

▶ TH TRAVEL B Throttle Travel B

Modify the maximum amount of throttle brake movement.

▶ TH TRAVEL F Throttle Travel F

Adjust the maximum amount of throttle forward acceleration movement.

【Setting Range】
TH TRAVEL F : 0 ～ 150
(Defaul : 100)

- The key setting displays [T:HIPOINT].
- On glow engine cars, an overly high setting value will increase load on the servo and lead to it being damaged. Check carefully while adjusting.
- On electric cars, a setting value that is too small may cause problems with the ESC settings. Make adjustments starting from the default setting (100).
- If the throttle travel F is set low and the trim is set to a high value toward acceleration, the resulting throttle movement may be extraordinarily small.

⚠ Throttle will not operate if the High Point value is set to 0.

▶ TH TRAVEL B Throttle Travel B

Adjust the maximum amount of brake movement.

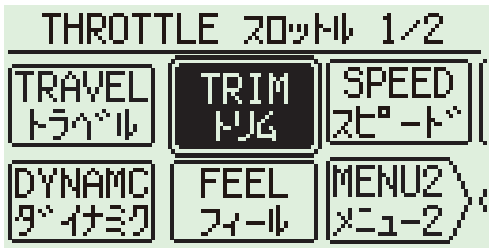
【Setting Range】
TH TRAVEL B : 0 ～ 150
(Default : 100)

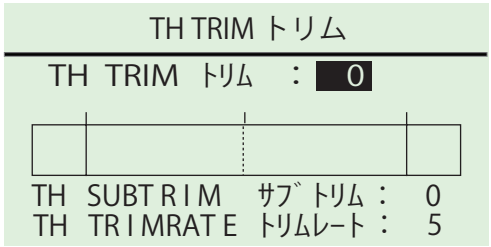
- The key setting displays [T:BRAKE].
- On glow engine cars, an overly high setting value will increase load on the servo and lead to it being damaged. Check carefully while adjusting.
- On electric cars, a setting value that is too small may cause problems with the ESC settings. Make adjustments starting from the default setting (100).
- If the throttle travel B is set low and the trim is set to a high value braking, the resulting throttle movement may be extraordinarily small.

⚠ Throttle will not operate if the High Point value is set to 0.

TRIM　Throttle Trim

Settings related to throttle control.





▶ TH TRIM　Throttle Trim

Modify the neutral position of the throttle.

▶ TH SUBTRIM　Throttle Subtrim

Modify the overall throttle movement range.

▶ TH TRIMRATE　Throttle Trimrate

Modify the amount of movement which corresponds to one click of the throttle trim button.

▶ TH TRIM　Throttle Trim

Adjusts the neutral/center position of the throttle range.

【Setting Range】
TH TRIM : F50 ～ 0 ～ B50
(Default : 0)

Setting adjustments prior to driving should be carried out with the sub trim, not the trim.

The setting range cannot exceed what is set by [Throttle Travel F] or [Throttle Travel B].

▶ TH SUBTRIM　Throttle Subtrim

Adjust the position of the overall throttle movement range. Use this function when the neutral position cannot be centered with only linkage adjustment.Also refer to Trim and Sub Trim Operation. (p.17)

【Setting Range】
TH SUBTRIM : F80 ～ 0 ～ B80
(Default : 0)

【Example】
The servo horn horn position can be adjusted by the linkages, etc. when the servo is installed onto the model, but in case the neutral position cannot be centered, this function can be used to set it from the transmitter.

If the sub trim value becomes large, adjust the servo horn position or linkages so that the value becomes closer to 0. If the sub trim value is too large, dead zones could result and the servo may not operate at the extremities of its movement range.

TH TRIMRATE　Throttle Trimrate

Adjusts the amount of movement associated with one click of the throttle trim button.

【Setting Range】
TH TRIM RATE : 1 ～ 10
(Default : 5)

Although the amount of movement of one interval can be adjusted, the lower the number the smaller the amount of movement.

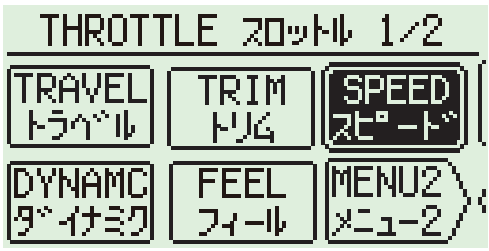
The overall number of intervals does not change, so a change in trim rate will result in a change in the range in which the trim can be used to make corrections.

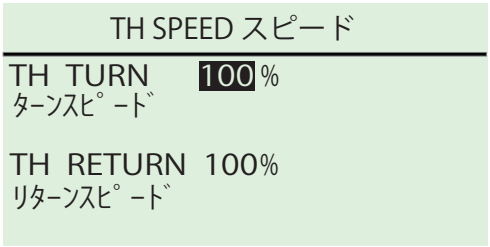
If the trim rate is changed when the trim is already set, the trim may be thrown off. If the trim setting is 0 then this does not apply.)

Lower trim rates enable fine adjustments, but the effects may not be apparent depending on the servo used. If there is a lot of slop in the linkage or servo saver, fine trim adjustments could cause the user to constantly worry about the trim settings. In that case, please reexamine the linkages, etc.

TH SPEED　Throttle Speed

Settings related to throttle control.





▶ TH TURN　Throttle Turn Speed

Modify the speed of the throttle's movement (towards forward acceleration).

▶ TH RETURN　Throttle Return Speed

Modify the speed of the throttle's return movement.

▶ TH TURN　Throttle Turn Speed

This function delays the conversion of the throttle control signal to make the car easier to control.

【Setting Range】
TH TURN SPEED : 1 ～ 100%
(Default : 100%)

【Example】
If the car spins or otherwise does not drive straight when the throttle is applied suddenly, limiting the throttle speed can be effective.

P This product enables you to set throttle speed to either POSITION or SPEED. (Depending on the POSITION setting, SPEED's modifiable settings may change.)

P Effective speed values are dependent on the speed characteristics of your selected servo.

▶ TH RETURN　Throttle Return Speed

This function delays the conversion of the throttle control signal to make the car easier to control.
※ The [TURN] direction is adjusted with [Throttle Turn Speed].

【Setting Range】
TH RETURN SPEED : 1 ～ 100%
(Default : 100%)

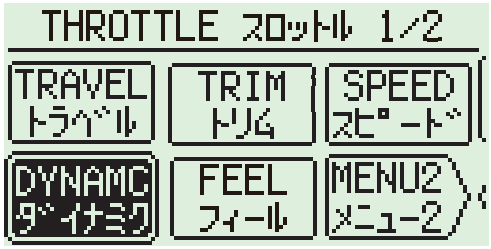
【Example】
If the car spins or otherwise does not drive straight when the throttle is applied suddenly, limiting the throttle speed can be effective.

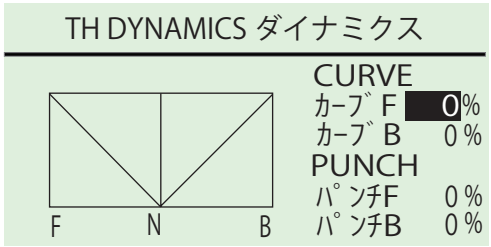
P This product enables you to set throttle speed to either POSITION or SPEED. (Depending on the POSITION setting, SPEED's modifiable settings may change.)

P Effective speed values are dependent on the speed characteristics of your selected servo.

DYNAMC Throttle Dynamics

Settings related to throttle control.





▶ CURVE F Throttle Curve Forward

Modify the movement speed ratio which corresponds to how much throttle is applied.

▶ CURVE B Throttle Curve Brake

Modify the movement speed ratio which corresponds to how much throttle brake is applied.

▶ PUNCH F Throttle punch Forward

Modify how much the throttle initially accelerates from neutral position.

▶ PUNCH B Throttle punch Brake

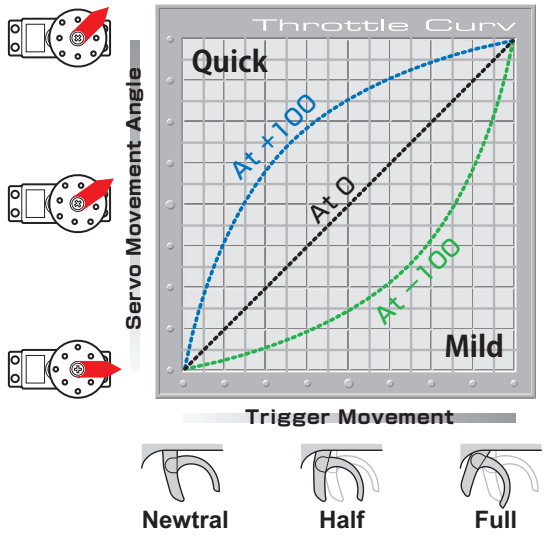
Modify how much the brake initially accelerates from neutral position.

▶ CURVE Steering Curve

This function sets the signal conversion rate to a curve to enable quicker or milder response. Likewise, braking can also be set to a braking curve.

【Setting Range】
TH CURVE F : -100 ～ 0 ～ 100%
(Default : 0%)
TH CURVE B : -100 ～ 0 ～ 100%
(Default : 0%)

- When [Throttle Punch] is activated, the characteristics of the throttle curve value is also added to the Throttle Punch value.
- Positive values (+1 to +100) equal high initial response followed by mild response.
  Negative values (-1 to -100) equal a mild initial response followed by high response.
- When using this in conjunction with other functions, adjust one at a time to confirm their effects to produce an effective overall setting.
- This function adjusts only the curve. Use the [Throttle Punch] function if you wish to adjust the initial response.

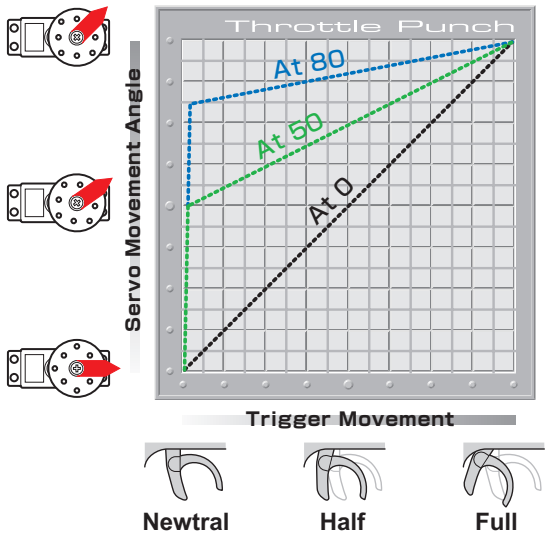


▶ PUNCH Throttle Punch

This function quickens the throttle's initial response and can be used to instill a sense of power when the throttle initially moves from neutral.

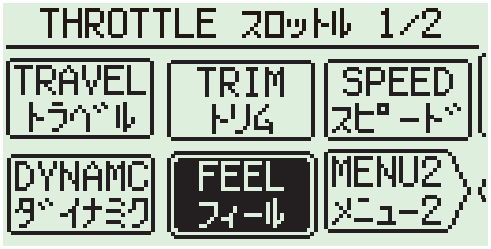
【Setting Range】
TH PUNCH F : 0 ～ 50%
(Default : 0%)
TH PUNCH B : 0 ～ 50%
(Default : 0%)

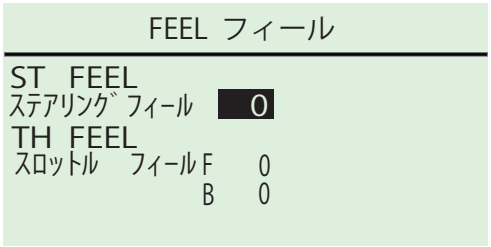
- The larger the value, the larger the amount of throttle movement. However, depending on other settings, the throttle operation may become jagged.
- If using this in conjunction with other functions such as [Throttle ABS], confirm the operation before using.



FEEL Throttle feel MENU

FEEL function provides changing the throttle feeling.





▶ ST FEEL Steering Feeling

Refer to "Steering Feel " (p.47)

▶ TH FEEL F Throttle feel F

Adjust forward throttle feeling.

▶ TH FEEL B Throttle feel B

Adjust brake feeling.

▶ TH FEEL Throttle feel

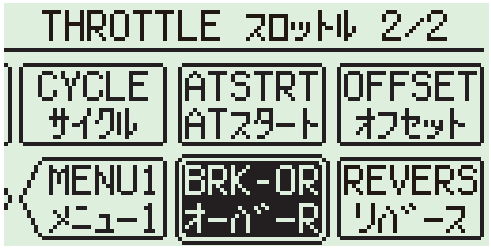
FEEL function provides changing the throttle feeling.

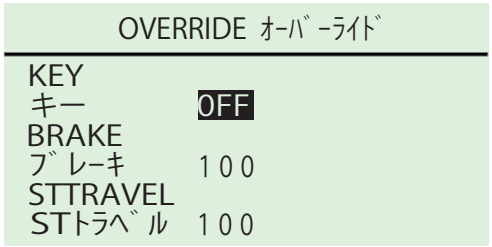
【Setting Range】
TH FEEL F : -50 ～ 0 ～ 50%
(Default : 0%)
TH FEEL B : -50 ～ 0 ～ 50%
(Default : 0%)

Take into account such factors as the servo used, car, driving surface, etc. when adjusting throttle feel settings.

OVERRIDE　Throttle Override

Arrange another maximum brake setting and steering travel setting, which can be activated/deactivated by the ET lever or BT button.





▶ KEY　キー

Assigns a key to be used to activate/deactivate the override.

▶ BRAKE　ブレーキ

Sets the brake override's brake setting.

▶ ST TRAVEL　ステアリングトラベル

Adjust the steering angle according to the driving conditions to make the car easier to control.

【Setting Range】
KEY : OFF、ET1 ～ 5、BT1
(Default : OFF)
BRAKE : 0 ～ 150
(Default : 100)
ST TRAVEL : 0 ～ 150
(Default : 100)

【Example(throttle brake override)】

If a change in driving conditions is foreseen, the throttle brake setting can be changed during driving.

【Example(Steering travel override)】
Convenient for changing the steering angle on straights to give the car better straight-line stability.

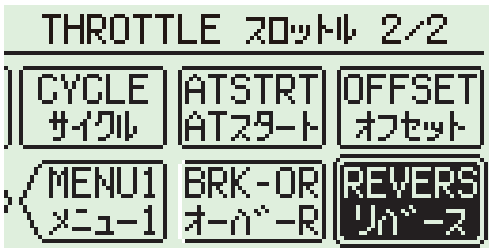
[OR] Display on the Function Monitor!
Operating the key that is assigned by [KEY] will result in [OR] being displayed on the initial screen's function monitor. If that key is pressed while at the initial screen, [OR] will disappear from the function monitor.

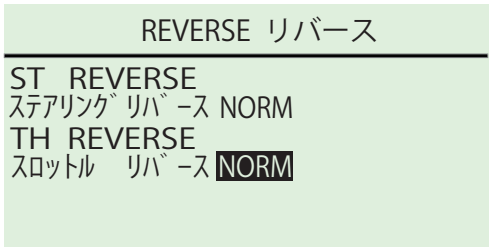
When you only want to change the brake override set point, the numerical value of the steering travel override becomes effective at the same time.
Please input the same numerical value for the steering travel and the steering travel override when you do not want to change a value of the steering travel.

When you only want to change the Steering travel override set point, the numerical value of the brake override becomes effective at the same time.
Please input the same numerical value throttle travel B and the brake override when you do not want to change a value of the brake travel.

REVERSE　Throttle Reverse

Modify the throttle direction.





▶ TH REVERSE　Throttle reverse

【Setting Range】
ST REVERSE :
Refer to "Steering Reverse" (p.47)

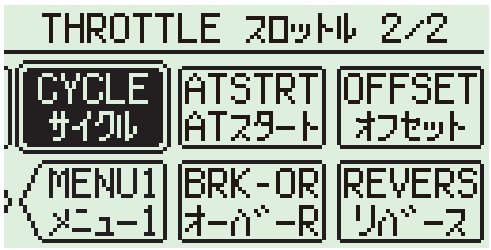
TH REVERSE :
NORM（Normal）、REVS（Reverse）
(Default : NORM)

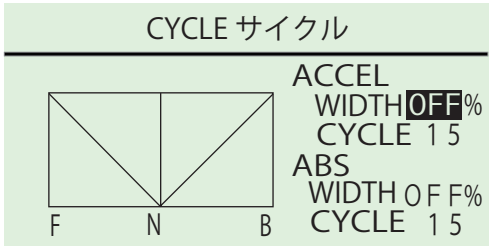
Throttle direction varies from car to car and should be checked when the R/C equipment has been installed.

For electric cars, the throttle is set by the ESC so there is no need to set this function. However, some older ESCs will not function properly unless reverse is also set.

CYCLE Throttle Cycle

Add a change to the operation of throttle brakes.





▶ ACCEL Throttle Acceleration

Modify the amount of acceleration burst of the throttle.

▶ ABS

Modify the amount of brake pumping.

▶ ACCEL Throttle Acceleration

Just like professional drivers who are capable of precise throttle inputs, this function enables fine throttle adjustments to allow quicker cornering.

【Setting Range】
WIDTH : OFF ～ 100%
(Default : OFF)
CYCLE : 1 ～ 30
(Default : 15)

【Example】
By setting the throttle to feather automatically, the car could be made to grip and corner faster on low-grip surfaces.

[CYC] Display on the Function Monitor!
If [WIDTH] is not set to OFF, [CYC] will be displayed on the initial screen's function monitor. If the key assigned to CYCLE is pressed while at the initial screen, [CYC] will disappear from the function monitor.

Setting [WIDTH] to 0 will deactivate Acceleration.

If [CYCLE] is set at a large value, the servo's operation frequency will increase.

Take into account such factors as the servo used, car, driving surface, etc. when adjusting all settings. Conduct test drives to find the best setting values.

▶ ABS

To prevent tires from locking up during sudden braking, brake pumping will be applied.

【Setting Range】
WIDTH : OFF ～ 100%
(Default : OFF)
CYCLE : 1 ～ 30
(Default : 15)

【Example】
This function is effective when your car's wheels lock up under braking and disturbs the car's balance. It will help enable smooth cornering performance.

[CYC] Display on the Function Monitor!
If [WIDTH] is not set to OFF, [CYC] will be displayed on the initial screen's function monitor. If the key assigned to CYCLE is pressed while at the initial screen, [CYC] will disappear from the function monitor.

Setting [WIDTH] to 0 will deactivate ABS.

If [CYCLE] is set at a large value, the servo's operation frequency will increase.

Take into account such factors as the servo used, car, driving surface, etc. when adjusting all settings. Conduct test drives to find the best setting values.

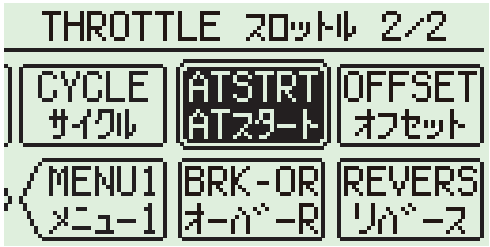
For electric cars, it may be easier to understand if the throttle channel is connected temporarily to the servo to check ABS operation instead of to the ESC.

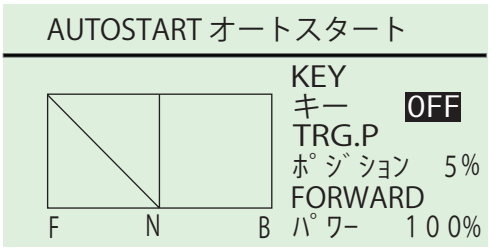
When "ACCEL" and "ABS" either one or both become effective, "CYC" is displayed at the same position of the initial screen.

Setting a large [CYCLE] or [WIDTH] value may increase the servo's power consumption and also shorten its lifespan.

ATSTRT Throttle Auto-Start

This function sets the throttle output to a fixed level at startup, regardless of how much the throttle trigger is pulled.





【Setting Range】
KEY : OFF、ET1 ～5、BT1
(Default : OFF)
TRG.P : 5 ～ 100%
(Default : 5%)
FORWARD : 0 ～ 100%
(Default : 100%)

【Example】
Launching from the starting line.

① Assain KEY (ET1-5/BT1).

② Operate an assigned key and validate [autostart].

③ Operate the throttle trigger and the launching starts when throttle trigger reaches [TRG.P].

The function will not operate until the throttle trigger reaches the set position.

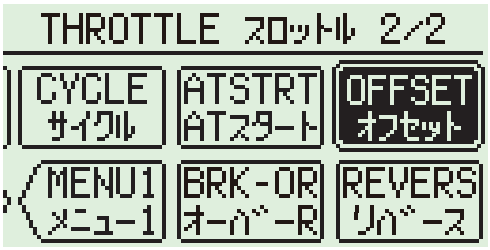
When the throttle is released, the function is deactivated and the throttle returns to normal operation.

[AUT] Display on the Function Monitor!
If the key assigned to Auto-Start is pressed, [AUT] will be displayed on the initial screen's function monitor. If this key is pressed while at the initial screen, [AUT] will disappear from the function monitor.

Normally, full throttle is set for launching from the starting line. However, tire and surface conditions may mean full throttle will not be effective. Conduct tests and make adjustments

OFFSET　Throttle OFFSET

Used to offset the throttle's neutral position.





▶ **OFFSET　Throttle OFFSET**

Sets the amount of neutral offset.

▶ **MODE　OFFSET MODE**

Choice N.BRK (neutral brakes) or I.UP (idol up.)

▶ **OFFSETKEY　Throttle OFSET KEY**

Assigns a key to be used to change the amount of neutral offset.

▶ **KEY**

Assigns a key to be used to activate/deactivate the OFFSET Function.

▶ **BUTTON**

Sets the method of activation.

TGLE : If a key is assigned to Idle Up, press once to activate and press again to deactivate.

PUSH : It is only activated when the key is pushed and held. The operations is deactivated when Key is released.

【Setting Range】

OFFSET (Neutral brake) : -100 ～ OFF
(Default : OFF)
OFFSET (Idle up) : -100 ～ OFF ～ 100
(Default : OFF)
MODE : N.BRK、I.UP
(Default : N.BRK)
OFFSETKEY : OFF、ET1 ～ 5
(Default : OFF)
KEY : OFF、ET1 ～ 5、BT1
(Default : OFF)
BOTTON : TGLE、PUSH
(Default : TGLE)

【Example(Neutral brake)】

This function enables a light brake application at the moment when the throttle position changes from acceleration to deceleration.

【Example(Idle up)】

Raising the idling has the effect of improving a glow engine car's launch performance. It is also useful for canceling the neutral brake of a motor with strong cogging and preventing engine stalls when glow engine cars enter the pit for refueling.

[OFS] Display on the Function Monitor!

If the key assigned to OFFSET is pressed, [OFS] will be displayed on the initial screen's function monitor. If this key is pressed while at the initial screen, [OFS] will disappear from the function monitor.

Throttle can be operated even when Idle Up is activated. The throttle travel F/B point does not change during this time.

Cannot use the function of "N.BRK" and "I.UP" both at the same time.

When the EX-2 is turned off in the state of the OFFSET effect and transmitter is switched back on again, the function of OFFSET becomes invalid due to the safety precautions. Please activate effect again in KEY which you assigned it to.

When setting value of the OFFSET to a very large value, there may become some mistakes by an ESC that has a reverse funtion and may operate in the reverse mode.

■ Glossary

This section explains terms which appear in this instruction manual as well as terms which are common in the radio control hobby.

2.4GHz	A radio frequency range which is higher than previous ones such as 27MHz and 40MHz. However, this also means it is also more direct and signal transmission may be difficult if there are interfering objects between the transmitter and receiver.
4WS	A feature which changes the steering angle of all four wheels according to the driving condition to enable greater stability.
7.2V Servo	A servo which uses a separate power source for its motor. In the case of electric R/C cars, KO Propo's unique system sees the servo draw power from the 7.2V battery used for running the car.
27MHz	One of the radio frequency ranges used for the R/C hobby. 12 bands exist for both ground-based and airborne R/C models.
40MHz	One of the radio frequency ranges used for the R/C hobby. 8 bands and 5 bands are assigned for use with ground-based and airborne R/C models respectively.
AC Charger	A battery charger which plugs into the standard 100V wall socket (in Japan). It often requires charging times of several hours or more.
Alarm	A buzzer sound emitted by the transmitter. It may be used as a warning notification, etc.
Amp	See ESC.
Analog Servo	A type of servo which uses analog-type integrated circuits (IC).
Backlight	Since LCDs do not generate their own light and are difficult to see in dark places, this light is placed beneath it to illuminate the display.
Band	Another word for radio frequency. This can be set with frequency crystals and different crystals can dictate the frequencies used in a certain frequency range.
Band ID Tag	An item which indicates to others the frequency that a particular user is using.
Brake Pumping	The repeated action of applying and releasing the brakes.
Carburetor	A device which mixes air and fuel in an engine and governs engine RPM.
Center Trim	A trim which only adjusts the position of neutral without disturbing the overall range of travel.
Channel	Refers to the number of servos, etc. which can be controlled by a transmitter or their individual signal numbers.
Clutch	A device which is used to engage/disengage an engine's drive shaft with the transmission.
Connector	An electric circuit contact unit which can be connected/disconnected.
CPU	The core of a computer which performs digital calculations for various uses. Also sometimes called an MPU.
Crystal	A device which sets the frequency used by a transmitter. 27MHz and 40MHz systems require crystals for changing frequencies while DSSS and FHSS 2.4GHz systems do not.
Cursor	A marker on the display which indicates the position in the text which can be controlled at that time.
Cycle	A process which returns to the beginning and repeats itself.
Databank	A module containing additional memory which may be used to increase the amount of model memory.
DC Charger	A battery charger which uses a 12V battery or other stable 12V power source.
DDS	Acronym for Direct Digital System. Previous transmitters transmitted an analog signal, but transmitters such as Eurus and EX-1, which use DDS, transmit a digital signal to enable lag-free, direct control.
Dead Zone	An area in which transmitter wheel or trigger movement does not result in servo operation. It could be caused by worn out components and may be resolved using VRADJ.
Delay	When an operation is slow, or has been slowed.

Digital Servo	A type of servo which uses digital-type integrated circuits (IC).
Discharger	A device which forcibly discharges remaining electricity from batteries such as Ni-Cd.
DSSS	Acronym for Direct Sequence Spread Spectrum. It is a type of spread spectrum transmission system which uses the 2.4GHz band.
Duty Cycle	A ratio between two operations.
EEPROM	A type of memory in which stored data is not deleted when the power is turned off. This product features this type of memory.
ESC	An acronym for Electronic Speed Controller, which controls the speed of the motor on an electric-powered R/C car.
ET	An acronym for Electric Trim. Button Trim is similarly shortened as BT.
Fail-Safe Adapter	A device which sets the servo horn to a predetermined position to prevent the car from going out of control when signal interference is experienced.
FET Servo	A high-end servo in which the motor features field-effect transistors as opposed to bipolar transistors.
FHSS	Acronym for Frequency-Hopping Spread Spectrum. Like DSSS, it is a type of spread spectrum transmission system.
Frequency Range	A range of radio wave frequencies such as 27MHz, 40MHz, 2.4GHz, etc.
High Frequency ESC	An ESC which utilizes a high frequency to control the motor. Nearly all current ESCs are high frequency types, but older ESCs which are not also exist. There are ESCs to match either brushed or brushless motors.
ICS (Interactive Communication System)	This system is unique to KO Propo and enables two-way communication with a PC. By using the Interface Kit (sold separately), the transmitter's internal memory data may be edited on a PC.
Internet	A global communications network which connects smaller networks made up of multiple PCs. This network enables the release of information via websites around the world, communication via E-mail, etc.
Jog Dial	A type of rotating dial which has no stops. Each click of the dial equates to a one point adjustment to the data to be modified and it is convenient for making large adjustments at one time.
LCD	Acronym for Liquid Crystal Display. The screen is used to display letters, numbers, etc.
LED	Acronym for Light Emitting Diode. It is a type of semi-conductor which uses electricity to generate light.
Linkage	A component which connects the servo to another part of the car chassis.
Lithium-Ferrite (Li-Fe) Battery	A type of battery which is quick to charge and is good for repeated recharges. They are also less susceptible to natural discharging and are easy to manage, making them safer compared to other types of lithium batteries.
Lithium-Polymer (Li-Po) Battery	A type of lithium battery which is lightweight and available in various sizes. They are equipped with balance connectors since there is a risk of fire/explosion if they are overcharged.
Megahertz (MHz)	A unit of frequency. 1000 Hertz (Hz) = 1 Kilohertz (kHz), 1000 kHz = 1 MHz.
Memory	A term which refers to a location where information is temporarily stored (on a PC for example). Transmitters feature non-volatile memory where the stored information is not erased when power is turned off (refer to EEPROM).
Mixing	A feature which combines the signals for multiple operations or effects into a more efficient output signal.
Monitor	A function which checks the operation of each channel.
Neutral	The position of the transmitter controls when they are not operated, or the position of the servo horn at that time.
Neutral Brake	A feature where braking is applied when the throttle is returned from forward acceleration to neutral position. Also called “drag brake.”
Ni-Cd	A type of battery which can be recharged for repeated use. Other types of rechargeable batteries include Ni-MH and Li-ion.

Ni-MH	Compared to Ni-Cd batteries, Ni-MH batteries have a larger capacity. They are more environmentally-friendly since it does not contain Cadmium, but they are also more susceptible to damage from overdischarging.
Noise	Electrical interference. Since it is a type of frequency, it could cause the receiver to operate in error.
Override	When a high-priority (1CH / 2CH) function setting is switched to a low-priority one.
Pairing	The act of writing a 2.4GHz transmitter's ID into a receiver so that the receiver only chooses to receive that transmitter's signals. This must be done once before a transmitter is used.
PC Interface	An adapter used to connect a transmitter to a PC to enable the adjustment of the former's settings on the latter.
Preset	The act of specifying a setting position in advance.
Propo	Japanese language abbreviation of "proportional." Refers to an R/C transmitter or the transmitter/receiver combination.
Pushrod	A rod-shaped linkage.
Quick Recharger	A charger which could recharge Ni-Cd, Ni-MH, etc. batteries in a short amount of time.
R/C Equipment Tray	A tray/deck on an R/C car chassis on which the receiver servo, etc. are installed.
Receiver (RX)	A device which receives radio signals from the transmitter and passes them on to the servo and ESC. Use of the same type of signal as the transmitter is required.
Regulator	A circuit which stabilizes the input voltage to the level of the required voltage.
Reset	Returning the settings to the original preset condition.
Response	The time between a transmitter input and a receiver reaction.
RF Module	A component which generates and transmits radio frequencies. They exist in 27MHz, 40MHz, 2.4GHz (DSSS), and 2.4GHz (FHSS) types, with some transmitters allowing modules to be interchanged.
Rubber Grommet	A rubber component attached to the servo case ears which protects the servo from vibrations.
Servo	A device which translates the transmitter's radio signals into mechanical rotational movement.
Servo Saver Horn	A horn which features an internal shock absorber. This is included in the kit.
Spec List	A list which describes the makeup, performance, etc. of a piece of R/C equipment.
Spline	Another word for "universal." Due to the offset integrated into the output shaft's groove and the horn's hole, this will precisely match their positions when spun.
Sub Trim	Adjusts the overall steering angle range. ※Refer to Trim and Sub Trim Usage
Swing	A repeated action between two set points.
Torque	A measure of the force at work in the rotating shafts of motors, servos, etc.
Transmitter (TX)	A device which sends out radio waves to a receiver linked to servos, ESCs, etc. to control an R/C model.
Travel	The angle/amount of servo horn movement.
Trigger	A mechanism on a transmitter which looks like a gun trigger, the operation of which controls the throttle.
Trim	A mechanism which adjusts the neutral position of each channel.
VR	Acronym for Variable Resistor. An electrical component which senses the position of the steering, throttle, etc.
Website	Places on the internet on which information is disseminated. They are accessed via PC software called web browsers. Some websites are also known as homepages.
Wheel	A mechanism on a transmitter which is rotated left and right to control steering.
Width	The range within which the ABS or throttle operates.

■ Repair Policy

All KOPROPO systems will have a serial number for each region that it is sold in.
This will be used to know where the system was purchased. So if you need any service the Tx will have to be sent back to the region from where it was originally purchased. All repair service must be sent to the region where it was originally purchased. KO Japan will only accept international repairs from the regional distributor.

www.kopropo.co.jp

■ FCC 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.
Modifications not expressly approved by this company could void the user's authority to operate the equipment.
interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment andreceiver.
- 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.

- list of external antennas (antenna type, max gain, necessary cable length, connector type, ···)
- statement of professional installation
- notification that the amplifier can be used only in a system which it has obtained authorization

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter within a host device,
except in accordance with FCC multi-transmitter product procedures.

■ Specifications

■ Transmitter: KT-415FH
Control Type: Steering wheel + Throttle trigger
Number of Channels: 4
Power Source: R03/AAA/UM4 battery x4
Current: Below 150mA
Dimensions:240.5×163×107.2mm
(including protrusions)
Weight: 510g (not including batteries)
※ No,80561 Standard Edition
Modulation Type: FHSS
Transmission Frequency Range:
HSS mode ; 2404-2476MH z
MHS mode ; 2404-2460MH z

■ ■Receiver: KR-241FH
※ No,80561 Standard Edition
Receiver Modulation Type: FHSS
Number of Channels: 4
Receiver Frequency Range: 2.4GHz
Operating Voltage: 4.8V – 7.4V
Neutral Balance: 1.5 mSec
Dimensions: 29.3×24.4×16.0mm
Weight: 7.8g

※Note:Receiver will be changed by Product Model.

KO PROPO
EX-II

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