KO PROPO

EX-10 HELIOS

Instruction Manual

KO PROPO Professional Controller
EX-10 HELIOS

TECHNOLOGY FOR WORLD

KO PROPO
DIGITAL PROPORTIONAL SYSTEM

Instruction Manual

Read First

Thank you for purchasing the EX-10 Helios. Read this manual carefully in order to obtain maximum performance from the unit. Keep this manual handy.

How to find information in this manual

●**Please understand the basic uses of "How to use the transmitter".**

In addition, please locate the item in the main menu and the function menu to master each function.

●**Please see "Feature" pages to find out about the new additional functions.**

Here is an explanation of the new functions.

LCD screen and key operation	(P16)
Change menu	(P17)
Indicator and warnings	(P18)
Response mode	(P19)
D.S.C (Direct Servo Control)	(P20)
Multi access port	(P21)
Data pack	(P22)
Trim and sub trim	(P23)
Wheel tension adjustment, phone terminal	(P24)

Notes on application, exportation and modification of the products.

1,These products are only for the control of models.

2,If the products are exported from Japan, the prior approval of the Ministry of Radio/Telecommunications is required regarding the country of destination. If these products are re-exported from other countries, it may be subject to restrictions on such re-export and prior approval of government authorities may be required

3,KO is not responsible for any use of this product that is not in compliance with applicable laws and disclaims all responsibility for any modification or alteration of the product.

Other notes

● It is illegal to reproduce the contents of this manual without permission.
● The contents of this manual are subject to future changes without notice.
● Although every effort has been made to ensure the accuracy of the information contained in this manual, please contact us if you have any questions or if you find any errors.
● We cannot assume any responsibility for any damages arising from its usage.

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For the safe Usage of this Unit

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

Explanation of warnings and signs

Meanings of warning and signs

In this manual, following warnings and signs should be noted carefully.

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

Meaning of picture indications

Warning

🚫 **Prohibited matters** Not allowed to do.	⚠ **Enforcement matters** Must carry out!

Meaning of picture indications

⚠ **Warning!**	⚠	Be certain to use only KO Propo genuine crystal sets (transmitter and receiver). ※ Other crystals may vary in frequency, which could lead to misoperation or loss of control.
⚠ **Warning!**	🚫	Prevent metal parts in the model (Car, or Boat) from touching caused by vibration.
⚠ **Warning!**	🚫	This product is only designed for surface radio control models. Do not use for any other purpose.
⚠ **Warning!**	⚠	If a nicad battery pack is used in the transmitter, be sure to charge properly before use. ※ If batteries are not fully charged, the model may run out of control.
⚠ **Warning!**	⚠	Be sure to connect all equipments correctly. ※ If connections are loose, the model may run out of control. ※ The vibration may damage the servo and the model may run out of control
⚠ **Warning!**	⚠	Be sure to install a receiver with thicker double sided tapes. ※ A strong shock or vibration may result in the model running out of control.
⚠ **Warning!**	🚫	Do not cut or bundle the aerial wire with other cords. ※ It may result in decreasing the sensitivity of a receiver and may result in the model running out of control.
⚠ **Warning!**	⚠	When operating each servo, check that there is no unnecessary force on the push rod. ※ It may damage the servo or increase the consumption of batteries.
⚠ **Warning!**	⚠	Be sure to use grommets and to prevent the servo from touching any metal or carbon plates directly. ※ The vibration may damage the servo and the model may run out of control.

Notes Before Installation

Caution

⚠ Caution! 🚫 Be careful not to reverse the polarity of the transmitter and the receiver. Reverse polarity could damage the unit.

⚠ Caution! ⚠ Be sure to use genuine KO Propo products e.g. transmitter, receiver, ESC and other optional parts.
※ We cannot assume any responsibility for the use of other companies' products with this unit.

Notes on Driving (Sailing)

Warning

⚠ Warning! ⚠ When turning on the power switch, be sure that the frequency band is available.
※ The models using the same frequency will run out of control

⚠ Warning! 🚫 Do not use this unit in thunderstorms.
※ There is a possibility of lightning striking the antenna.

⚠ Warning! 🚫 Do not use the transmitter in the rain or in a location where water might get on it.
※ The unit may become wet, which causes loss of control.

⚠ Warning! 🚫 Do not run the model in the following places.
①Near to other radio control car circuits. (within 3km)
②Near to people or on the road.
③The surface of the water where there are actual sized boats.
④Near to electric wires and communication facilities.
※ In the case of the model running out of control, it will be very dengerous.

⚠ Warning! 🚫 Do not run the model when you experience difficulties in concentration due to tiredness, alcohol or medication.
※ The mis-judgement may result in accidents.

⚠ Warning! ⚠ Be sure to extend the aerial of the transmitter to full length.
※ The emission of incorrect signals will cause the model to run out of control.

⚠ Warning! 🚫 Do not allow any plastic parts to come in contact with fuel and exhaust.
※ Doing so causes risk of damage.

⚠ Warning! ⚠ Be sure to confirm that the model memory is matched to the models currently running.
※ Not doing so may cause the model to run out of control.

⚠ Warning! ⚠ When you make functional changes, be sure to stop the engine or disconnect the motor lead wire.

Caution

⚠ Caution! ⚠ Always turn on the switch on the transmitter first, followed by the receiver. When turning off the switch, always turn off the receiver first, followed by the transmitter.
※ If you don't follow the correct order, the receiver may get interference.

⚠ Caution! ⚠ Attach a band plate when you operate the unit.
※ Display your frequency clearly to other people.

⚠ Caution! 🚫 Do not touch the engine, motor, ESC where heat is generated.
※ May result in burning.

⚠ Caution! 🚫 Because the transmitter emits high-frequency energy, do not touch the antenna while the transmitter is in use.

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Notes on Driving (sailing)

Warning

! Warning! ⚠ In the case of an electric-powered car, be sure to disconnect the nicad battery afterwards.
※ It may cause fire or the model to run out of control in case of the switch being left on.

! Warning! ⚠ When storing the transmitter, batteries, and models, be sure to keep them out of the reach of children.
※ It may result in damage and/or bodily injury from the chemicals.

Caution

! Caution! ⚠ Be sure to disconnect the battery from the transmitter when not in use for a long time.
※ It may damage the transmitter if you leave the battery in the transmitter for a long time.

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

Notes on Charging Nicad Battery and Hydropack (sold separately)

Danger

! Danger! 🚫 Do not short the battery terminals.
※ It is dangerous because it may cause the outbreak of fire or explosion.

! Danger! 🚫 Never incinerate the batteries.
※ It is very dangerous because they may explode.

! Danger! ⚠ Be sure to use KO Propo charger and to use correct charging current. (1A)
※ Avoid over charging the battery. Over charging does not only damage the battery, but can cause excess heat build-up and possibly fire, which results in serious accidents.
※ There is a possibility that the auto cut-off function will fail to operate by other company's chargers.

! In the case of liquid leaking from battery, Avoid eye/skin contact with the liquid. Burns and blindness may occur. Apply large amounts of water and contact a doctor immediately for treatment.

! Danger! ⚠ Do not apply a big shock to the batteries.
※ It may damage the battery and result in short circuits and possibly a fire.

! Danger! 🚫 Do not dismantle or modify the battery.
※ Dismantling the battery may cause liquid to leak out and it is very dangerous

! Danger! 🚫 Do not wet batteries and do not charge wet batteries.
※ It may cause excess heat build-up and damage.

Nicad batteries are recyclable.
Please support recycling.

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PROFESSIONAL CONTROLLER

Antenna

Throttle A.B.S. indicator

Throttle acceleration indicator

Hook

ET1 Lever

Throttle speed indicator

(-) Minus key

Steering Wheel

(+)Plus key

Jog Dial

(-) (+)

12x4 LCD Display

```
1:
VOLTEAG10.5V
MENU MASTER
OPT. 0:00
```

Et3 Lever

Enter Key

Power indicator

ET2 Lever

Back key

BT2

Power Switch

Throttle trigger

Mode Change Switch

High Speed

Normal

There is a switch in the back when the RF module is removed. Please refer P15 for the details

ET4 Lever

ET5 Lever

BT1

Factory default setting
ET1: Steering trim
ET2: Throttle trim
ET3: Throttle brake
ET4: Steering travel
ET5: Not Assigned
BT1: Not Assigned
BT2: Not Assigned

Charging

Phone Terminal

D.S.C(Direct Servo Controll Terminal)

RF Module

Multi Access Port

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These screens are displayed when the main menu is opened.

Please see each reference page about a detailed operation method after each screen is opened.

Initial screen
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

ENTER

Minus Key

Plus Key

Jog Dial

Enter Key

Back Key

Change menu
```
MENU
>MASTER
 CUSTOM1
 CUSTOM2
```
P17
P26

Add menu
```
MENU
>INS
 DEL
 MOVE
```
P26

Delete menu
```
MENU
 INS
>DEL
 MOVE
```
P27

Move menu
```
MENU
 INS
 DEL
>MOVE
```
P27

JOG

Power alarm
```
MENU
>POWER ALARM
 OPTION
```
P28

Option menu*
```
MENU
 POWER ALARM
>OPTION
```
P29

Format (note)
```
MENU
 POWER ALARM
 OPTION
>FORMAT
```
P28
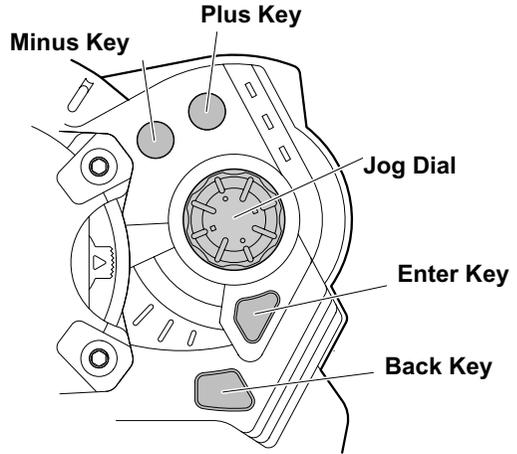
The menu is displayed when 'Enter' is pressed from the initial screen.
The following 11 kinds of settings can be done in the main menu.

Change Menu
Add Menu
Delete Menu
Move Menu
Power Alarm
Option Menu: LCD Contrast
Option Menu: Buzzer Set: Buzzer Tone
Option Menu: Buzzer Set: Alarm Buzzer
Option Menu: Buzzer Set: Custom Tone
Option Menu: Back Light Setting
Format (note)

Use Jog Dial or (+) (-) keys to change each screen.
Press 'Enter' key to open each setting screen.

∗
Option Menu:
LCD Contrast
```
OPTION MENU
>CONTRAST
 BUZZER
 BACK LIGHT
```
P29

Buzzer Set   ∗∗
```
OPTION MENU
 CONTRAST
>BUZZER
 BACK LIGHT
```
P29

JOG

Back Light
```
OPTION MENU
 CONTRAST
 BUZZER
>BACK LIGHT
```
P30

ENTER

∗∗
Option Menu: Buzzer Set:
Buzzer Tone
```
BUZZER
>BUZZER TONE
 ALRM BUZZER
 CUSTOM TONE
```
P29

JOG

Alarm Buzzer Set
```
BUZZER
 BUZZER TONE
>ALRM BUZZER
 CUSTOM TONE
```
P29

Custom Tone Editor
```
BUZZER
 BUZZER TONE
 ALRM BUZZER
>CUSTOM TONE
```
P31

ENTER

Option Menu divides into three items when it is opened.
In addition, an item is divided into the buzzer settings.

(note) This format is displayed only when the Data Pack is installed.

These screens are displayed when the function menu is opened.

Please see each reference page about a detailed operation method, after each screen is opened.

The function menu opens when Jog Dial or (+), (-) keys are operated from an initial screen.
28 kinds of the right are all function menus.

＊All of 28 function menu will be displayed when Master is been set for the menu.
In Custom 1 and Custom 2, only the set content is displayed.
To display all, please refer Change Menu (P17 P26) and return display menu to the Master.

advice

Can not return to initial screen.
● You can return to the initial screen if you keep pushing the back key from any screen that is displayed.

Having assumed that the function name is chosen from the display on the list of the functions from the menu with the Jog Dial, and 'Enter' is pressed. This action opens that particular function.
The following screen will be opened when function name is chosen by Jog Dial or (+), (-) keys then Enter is been pressed.

Screen	Function
>MODEL SELCT	Model Select
ET:POSITION	ET Position
SUB:TRIM	Sub Trim
ABS	A.B.S
TH:SPEED	Throttle Speed
TH:PUNCH	Throttle Punch
TH:CURVE	Throttle Curve
TH:BRAKE	Throttle Brake
TH:HIPOINT	Throttle High Point
TH:PRESET	Throttle Pre Set
TH:ACCEL	Throttle Acceleration
ST:SPEED	Steering Speed
ST:PUNCH	Steering Punch
ST:CURVE	Steering Curve
ST:BALANCE	Steering Balance
ST:TRAVEL	Steering Travel
AUTO:START	Automatic Start
MODEL.COPY	Model Copy
MODEL.NAME	Model Name
MEM.RESET	Memory Reset
ADJUST VR	Adjust Volume
CH.SELECT	Channel Select
REVERSE	Reverse Switch
TRIM RATE	Trim Rate
SET UP	Select Up
UP TIMER	Up Timer
DOWN TIMER	Down Timer
LAP TIMER	Lap Timer

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Model Select
```
MODEL SELCT
1>
2:
3:
```
P32

Throttle Brake
```
TH:BRAKE
        B 100
```
P41

Steering Balance
```
ST:BALANCE
 LEFT   70%
 RIGHT  70%
```
P50

Channel Select
```
CH.SELECT
>SELECT  2CH
```
P57

ET Position
```
ET1:ST TRIM
         0
ET2:TH TRIM
         0
```
P33

Throttle High Point
```
TH:HIPOINT
       F 100
```
P42

Steering Travel
```
ST:TRAVEL
        100
```
P51

Reverse Switch
```
REVERSE
>ST   REVERS
 TH   REVERS
```
P58

Sub Trim
```
SUB:TRIM
>ST       0
 TH       0
```
P34

Throttle Preset
```
TH:PRESET  ≥
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
P43

Automatic Start
```
AUTO:START ≥
>START  OFF
```
P52

Trim Rate
```
TRIM.RATE
>ST TRIM  10
 TH TRIM  10
```
P59

A.B.S
```
ABS        ≥
>WIDTH     0
 POS   B  60
 CYCLE    98
```
P35/36

Throttle Acceleration
```
TH:ACCEL   ≥
>WIDTH     0
 POS.LOW   5
 POS.HIGH 50
```
P44/45

Model Copy
```
MODEL.COPY
 COPY TO  2
```
P53

Set Up
```
SET UP     ≥
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
P60

Throttle Speed
```
TH:SPEED
>SPEED
 POSITION
 MODE
```
P37/38

Steering Speed
```
ST:SPEED
>SPEED
 POSITION
 MODE
```
P46/47

Model Name
```
MODEL.NAME

1:_
```
P54

Up Timer
```
UP TIMER   ≥
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
P61

Throttle Punch
```
TH:PUNCH
>F       0%
 B       0%
```
P39

Steering Punch
```
ST:PUNCH
         0%
```
P48

Memory Reset
```
MEMORY RESET
>NO
 YES
```
P55

Down Timer
```
DOWN TIMER ≥
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
P62

Throttle Curve
```
TH:CURVE
>F       0%
 B       0%
```
P40

Steering Curve
```
ST:CURVE
         0%
```
P49

Adjust Volume
```
ADJUST VR
>NO
 YES
```
P56

Lap Timer
```
LAP TIMER  ≥
>ET1-ST TRIM
 ET2-TH TRIM
 ET3 BRAKE
```
P63

How To Insert Batteries 1

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How to open the cover.

(1)Pressing in the direction of the arrow of ①.

while pushing the part in the arrow of ②.
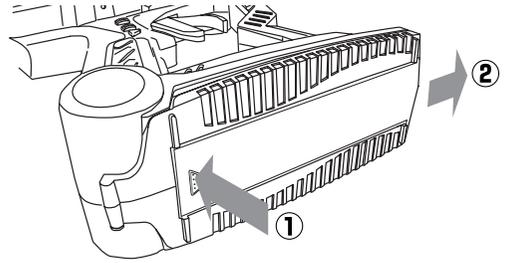
How to insert batteries. (option)

(1)The direction is matched to the display of the plus or minus of the dry battery box, and eight AA size batteries are put.

(2)The direction of the terminal of the dry battery box and the terminal of the transmitter is matched and it pushes it into the interior.

(3)The battery cover is closed

⚠ Warning! ⚠

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

1.2V AA Ni-cd   Ni-MH
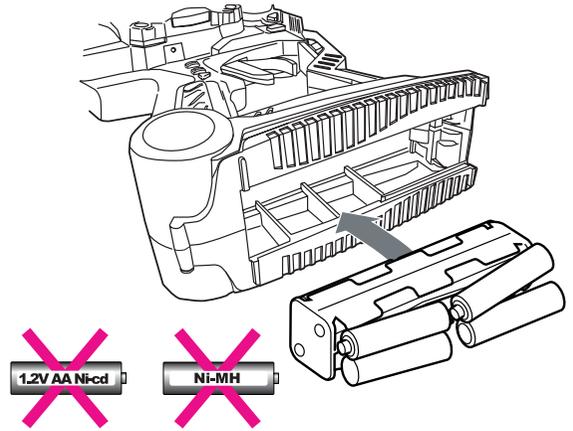
How to insert battery pack (option)

(1)The connector is inserted noting the direction as shown in figure.

(2)Insert battery pack and close the cover.

(3)Be careful not to trap the cord.

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

Facing correct direction
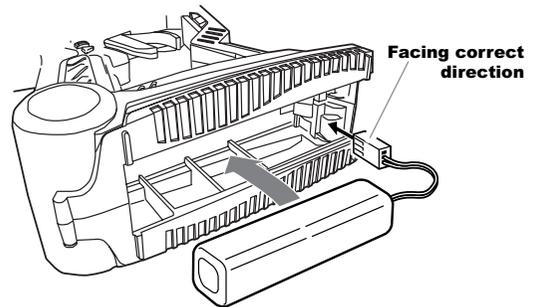
About Charging (only for battery packs)

Connect AC Mains charger or DC 12V charger (KO Propo products) as shown in figure.

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

⚠ Warning! ⚠

Do not charge when dry cell batteries are used.
The transmitter will be damaged due to the liquid leakage and the explosion of cells when charging it.

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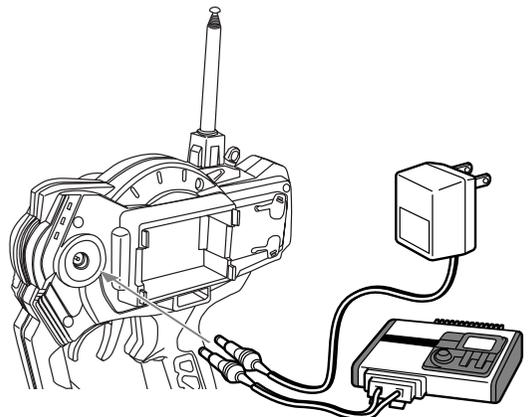
About Discharging Battery Pack

● Please note the battery pack can not be discharged using charging jack.
● Please remove battery pack from main unit for discharging.

Color Pad and Replace Grip

How to remove pad or grip.
Pull in the direction of the arrow (2), the pad removes using your fingernail (1).
After expanding the lower side (3), the whole grip pulls the in direction (4) of the arrow.

How to attach pad or grip.
Do this in the reverse order of the removal procedure. The lower side of the pad is slid in. Then using your fingernail the upper side (1) of the pad is inserted into the transmittor case.
Slide the grip onto the case and then push the six tabs into the case using your fingernails. If it is not easy to insert the tabs into the case, push them in by using a minus driver etc. Do not using anything that will damage the case. Finally, push the guide pins that exists in the lower side (3) into the case.
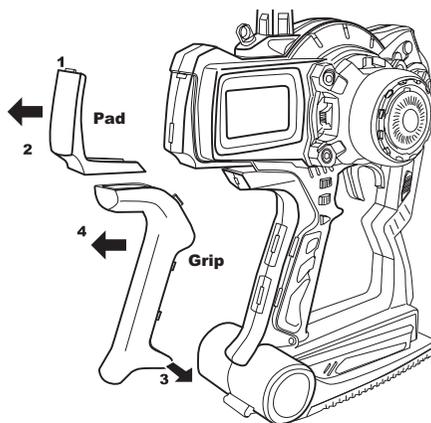
Changing the RF Module and Crystals

● Change the RF Module for changing the frequency range.
● Change the crystals for changing the frequency. (band)
● Be sure to turn off the switch when you change the RF Module or crystals.
● Insert the crystal properly.
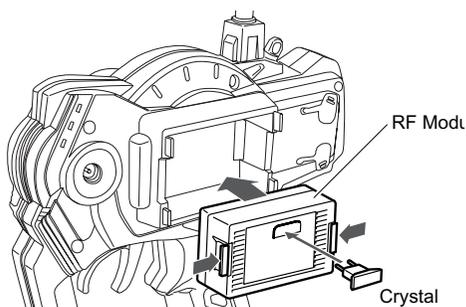
RF Modu

Crystal

⚠ Warning! ⚠

When changing the crystals, be sure to use genuine FM-type transceiver crystals from KO Propo. Crystals from other manufacturers may operate at slightly different frequencies, resulting in loss of control.

⚠ Caution! 🚫

Only the RF Module for EX-10 Helios can be used.

How to Use Transmitter-1

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Preparation

Insert dry cells or battery pack into the transmitter (P12)
※Be sure to charge battery pack before use.

advice

The battery will last longer if the crystal is pulled out or the RF module is detached when only the transmitter is operated.Moreover, when there is no management of the bands at a particular course etc. , it is advised to remove the crystal or the RF module to prevent conflicts with other vehicles. (Please refer P20 D.S.C page)

Switching the Power On

A blue power indicator at the right of the main body lights up when the power of the transmitter is on and the LCD display is displayed with the start sound.

Changing the display or settings.

In case of LCD contrast is too blight or too dark.

Open the main menu and then open the CONTRAST from OPTION to adjust.   **Reference page   P29**

Changing the setting of the backlight of the LCD.
(The backlight is [Auto] at factory default.)
Open the main menu and then open the BACK LIGHT from OPTION to set up.   **Reference page   P28 P31**

Want to change pitch of the buzzer beep or change the melody.
Open the main menu and then open the BUZZER from OPTION to set up.   **Reference page   P29 P30**

Change settings of operations.

Change operation mode of response.
Use Mode Switch (detach RF module from main body) and CH.SELECT of function menu (P57).   **Reference page   P19**

Change function assignment of ET lever or BT button.
Open the function menu and perform SET UP.   **Reference page   P60**

The buzzer sounds if it doesn't operate it for a long time. I want to change this setting.
Change the setting of POWER ALARM of the main menu. At shipment from factory, the alarm will sounds when the unit does not operate for more than 3 minutes.   **Reference page   P28**

Change the menu list of initial screen that it is displayed when Jog Dial or (+), (-) keys are operated.
Other than MASTER, the setting can be changed to CUSTOM 1 or CUSTOM 2 at which you can change the display items by yourself.   **Reference page   P17**

Operation concerning memory.

Reset a specific model memory to factory default setting.

Select MEM.RESET from the function menu and press enter. (Current model memory will be initialized.)

Transferring model memory setting to other model memory.

Select MODEL.COPY from the function menu and press enter.

Please execute the format in the main menu when you use the Data Pack.

The format appears in the menu only when the data pack is installed.

Use the optional feature.

I want to set it up without emitting signals from the transmitter.

DSC function can be used connecting DSC cable (option) to the DSC port.(D.S.C=Direct Servo Controller)
This is able to be operated by the power entering through the DSC by inserting the DSC Jack in the DSC port.

I want to list many functions for set up.
I want to record more than 25 settings in the data.
I want to edit the custom tones by using the PC.

If you use the interface adaptor and the PC interface for MAP Multi Access Port (optional), most settings of the main unit in the transmitter can be done with the PC, and the settings of the transmitter can be preserved in PC.

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In this machine, assume most settings to be an operation system. That is using the Jogdial and the "Enter", "Back" key to enable an intuitive operation.
Moreover, the newly adopted change menu system can be efficiently used for more set screens.

Name of key

Plus Key

Minus Key

Jog Dial

Enter Key

Back Key

Names on Initial Screen

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

Present model memory number and model name.

Power-supplyvoltage

Menu list that has been selected.

Operation timer (adjusting time display)
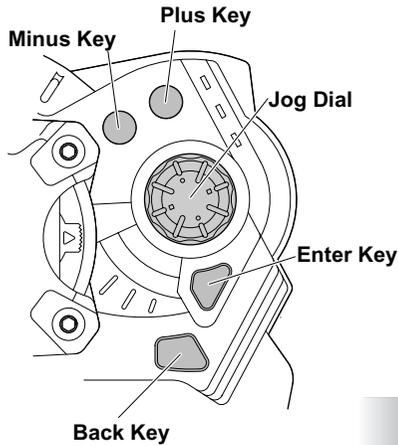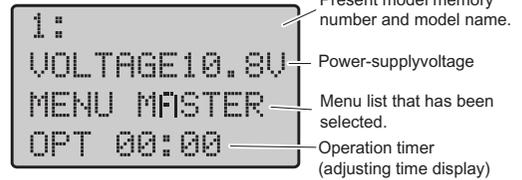
Each key can be operated by pressing on it.
The Jog Dial can be operated by rotating left or right.

From an initial screen

Enter key: The main menu opens when "Enter" is pushed.
Back key: Nothing happens.
+.- keys: The function menu will open.
Jogdial: The function menu will open.
Press +.- keys together: Reset Operation timer

A key function, besides an initial display

Enter key: Used mainly to select and to decide.
Back key: Used mainly when you cancel or want to return to the previous screen.
+.- keys: Used to increase or decrease a movement and to the set value (figure).
Jog Dial: Can be used like +.- keys but a quick operation can be done
Press +.- keys together: Reset a value of asetting. (however it is not for all functions)

Main menu

● **This menu is opened when "Enter" is pushed from an initial screen.**
● **From here the settings related to the system can be set. The content set by this menu is not independent in each model memory.**

Page mark

```
MENU
>MASTER
 CUSTOM1
 CUSTOM2
```

∗ **About Page mark**

There is more content in the display below.

There is more content in the display above.

There is more content in the display above and below.

It is likely to be displayed not only in main menu but in the function menu.
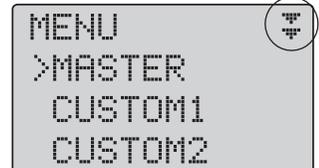
Function menu

●**This is a menu that opens when Jog Dial or +.- keys are operated from the Initial screen. The position that was opened the last time is memorized while the power supply has been turned on.**
●**Set an independent content for each model memory. Although there are lots of functions, the displayed function is customizable by the menu list switch (Page 17). (Change Menu System)**

```
>MODEL SELCT
 ET:POSITION
 SUB:TRIM
 ABS
```
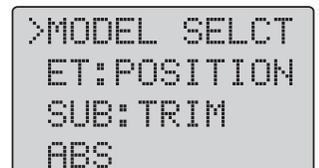
Change Menu

In this unit there are a lot of functions. Hence, the newly developed Change Menu System was installed. This system was made to be able to quickly call up the more commonly used operations by switching the Menu List in the register.

About Change Menu

By registering the contents into CUSTOM1 or CUSTOM2, the menu becomes a very easily managable system.
Functions can be added/deleted and placed in the order that you would like for quick and easy access.
For instance, CUSTOM1 can have a lot of items used for practice. CUSTOM2 registers the items used for the race.

●The switch of the item used can be easily made by three actions. (Enter, Jog, Enter)
●If Master is used, all items are displayed.
●Unregistered item functions are also effective. (Just not displayed)

Change Menu Procedure

Here is an explanation of the procedure for the switching menus.
Select the menu that you want to display in the main menu.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
MASTER is used

1 Press the enter key from the initial screen to display the main menu.

ENTER

2 Following three menu items MASTER, CUSTOM1 and CUSTOME2 will be displayed at the first screen of main menu. Select the item you want to use by Jog Dial or +.- keys then press enter.

```
MENU
  MASTER
>CUSTOM1
  CUSTOM2
```
JOG

ENTER

3 The screen returns to the initial screen. The name of function menu has been changed to the name that has selected.

```
1:
VOLTAGE10.8V
MENU CUSTOM1
OPT 00:00
```
Changed to CUSTOME1

In the example of the display, notice the switches from MASTER to CUSTOM1.

Please see main menu P26 about detailed operation methods such as the item additions and editing each menu.

advice — Can not return to initial screen.

●Whatever the display screen is on, it will return to the initial screen if you keep pressing the back key.

advice — Can not select CUTOM2!

●CUSTM2 can not be selected at factory default settings because there are no items registered. It can be used if you register or add items in the menu contents. (Add menu P26)

About the display of each indicator.

Throttle A.B.S Indicator

Throttle Acceleration Indicator

Throttle Speed Indicator

Power Indicator

Throttle Speed Indicator
When Throttle Speed (P37) is activated, it flashes. Also, if the function On/Off of the Throttle Speed is allocated in the ET and a button, it will flash.

Throttle A.B.S. Indicator
When Throttle A.B.S (P35 36) is activated, it will flash. Also, if the function On/Off of the Throttle A.B.S. is allocated in the ET and a button, it will flash.

Throttle Acceleration
When Throttle Acceleration (P44) is activated, it flashes. Also, if the function On/Off of the Throttle Acceleration is allocated in the ET and the button, it will flash.

The three indicators (other than the power indicator) will flash regardless of a set value when it is turned on with the ET and a button. It is not limited that the function works.

Power Indicator
When the power is turned on, it lights up.When it flashes, the voltage has droped below 9V. (battery alarm)

Warning Display

Battery Alarm   **This is displayed when the power supply voltage drops to 9V or less.**

```
BATTERY
      ALARM

         9.0V
```

The characters BATTERY ALARM will flash. The power indicator will also flash. The alarm buzzer will sound and the backlight will compulsorily be turned off. VOLTAGE on the LCD will continue to flash until it returns to an initial screen for any key operation.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

After it returns to an initial screen, Flashing VOLTAGE and Flashing power indicator are released if the voltage is more than the warning voltage for one minute.

Data Pack Error **This is displayed when there is something wrong with the Data Pack while in use.**

```
DATA PACK
   ERROR !!
```

DATA PACK ERROR!! flashes.
After any key is operated, Model 0 is displayed.

```
0:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

Please see model selection (P32) about the display of model memory 0.

Memory Error   **When a malfunction occurs to the access of the memory, this will be displayed.**

```
MEMORY
      ERROR
```

MEMORY ERROR!! flashes.
After any key is operated, model memory (model memory 1) will operate at the initial condition.
If the power is turned on again and it is normal, it operates by an the original setting.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

If this message does appear frequently, send the transmitter to our service department for repairs.

Power Alarm **The alarm sounds when nothing is operated and it exceeds the set time.**

The factory setting is set at three minutes.
The time can be set at Main Menu: Power Alarm (P28)
The sound of the alarm can be set at Main Menu: Option: Buzzer (P29)

Movement mode (Response mode)

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> In this unit, the response of the signal can be switched to three stages. The operation mode switch can be set with the mode switch setting in the back of RF module compartment and the selected number of channels at CH.SELECT setting.

1 Normal Response

This can be changed by adjusting the mode switch to the normal side.
In this case, the number of channels set with CH.SELECT is not related.This response (Speed) mode is compatible with past types, it can be used with all receivers and servos. (note 1)
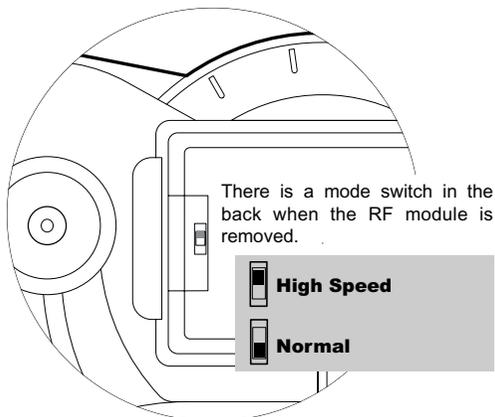
There is a mode switch in the back when the RF module is removed.

High Speed

Normal

2 *Super HSR High Speed Response* Super High Speed Response

The mode switch is set to the high-speed side, and it operates in this mode when the number of channels by CH.SELECT is three channels.
The response is equal to that of the Mars R. The receiver and the servo for the Super High Speed Response are needed for use.

3 *Advanced HSR High Speed Response* Advanced High Speed Response

The mode switch is set to the high-speed side, and it operates in this mode when the number of channels by CH.SELECT is two channels.
This will offer fastest response time that exceeds Mars R performance.
The receiver and the servo for the Advanced High Speed Response are needed for use.

⚠ Warning! ⚠

Check the setting mode of the main unit if it is suitable for the receiver and the servo before use.
※It will cause the model to run out of control when using it by the combination that doesn't correspond.

Please operate the mode switch when the power switch of the main unit is set to OFF.The mode doesn't change even if the power switch is ON. Please confirm CH.SELECT without fail, and set a present number of channels when switching to a high-speed side. There is danger of malfunctioning when neither the correspondence receiver nor the servo are used.

(note 1) ※ In the Normal Mode, the receiver must be matched to the modulation method (FM/AM) of the RF module on the transmitter side.
※ It is an upper compatibility for this mode. The Advance High-Speed correspondence receiver and the servo can be used fro any mode.
And the Super High-Speed corresponding model can be used even in a normal mode.

Advanced High Speed Correspondence Model	Receiver:	KR-302F
	Servo:	All types of Digital Servos
Super High Speed Correspondence Model	Receiver:	KR301F, KR302F
	Servo:	Digital Servos and Power FET Servos (analog servos but not all)

About D.S.C(Direct Servo Control)

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

1 **Turn off the power switch of the transmitter and connect the DSC cable to the DSC terminal.**

※Please insert firmly. The power supply of the main body becomes unstable if their is a loose connection and a memory error might occur.
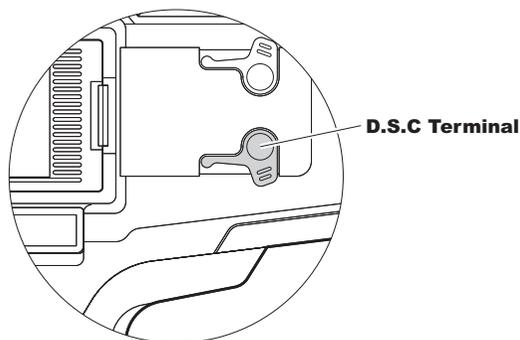
2 **The power supply of the transmitter enters when the DSC cable is connected.**

※However, because the power supply is not supplied to the RF module part of the transmitter, the electric waves are not launched.

D.S.C Terminal

3 **The other side of the DSC cable is connected to the receiver. (The crystal of the receiver is pulled out.)Then the receiver can be used. Be sure to connect it to the battery channel of the receiver.**

※Please note the operation mode when using a receiver which not included in this unit. Please see P19 about the operation mode.
※Receivers that will work with this function should be a KO Propo genuine product which is compatible with DSC.

●For Engine Cars
 ※It is necessary to connect the power supply by using a twin connector. (The servo doesn't work if the power supply is not connected.)

●For Electric Cars
 The servo doesn't work if the power supply is not connected to ESC.
 ※There is danger where the motor turns suddenly during the setting. Be sure to remove the wires from the motor.

Example of connecting receiver (KR-302F)

Antenna lead

Connect DSC to the battery channel

BATT
Battery

CH1
Steering Servo

CH2
ESC or Throttle Servo

CH3

4 **Once you are finished using DSC, turn off the receiver side first then DSC Jack should pulled out.**
※The servo might shake off and damaged if transmitter side switched off first.
※DSC compatible receivers: KR297FZ (discontinued) / KR301F / KR302F

Using DSC

Be sure to uninstall receiver crystal. (It may malfunction.)
Be sure not to switch on the transmitter in any case.
The electric waves will be launched from the transmitter as soon as you pull out the Jack of the DSC.When the power supply is turned on while using DSC, the electric waves are launched.
Be sure to switch the transmitter OFF when you using DSC.

Multi Access Port

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

Data Pack (optional)

Please refer to 'about Data Pack' P22. Optional Data Pack is connected with the multi access port.
The 9 model memory in the main unit can have an additional 16 model memory.Therefore 25 in total model memory can be used.
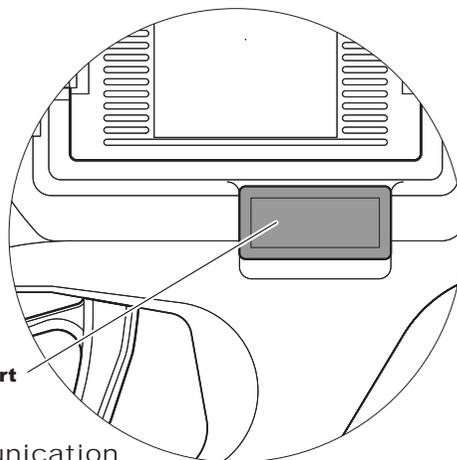
Multi Access Port

This corresponds to the two way communication system I.C.S.(Interactive Communication System)

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

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Data Pack

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In this unit, 9 car model memory is standard. However, it is possible to add another 16 car model memory by using a Data Pack (option). The Data Pack can be attached to the Multi Access Port.

●**Using Data Pack**

The power switch of main unit should be Off when detaching or attaching the Data Pack.

Slowly push it into the multi access port of the main unit. The connector pin on the transmitter side can be damaged if forcibly applied. The Data Pack will be recognized automaticly if installed correctly. However, it is necessary to format it before actually using it. Please format it. The format of the main menu is displayed to recognize the Data Packing.
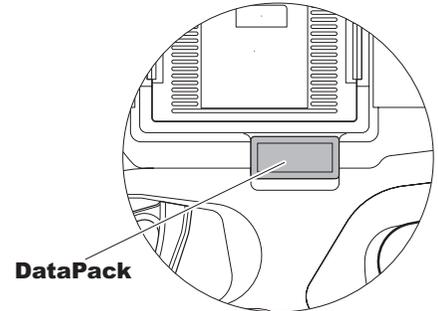
DataPack

●**Format**

1 From the Main Menu (enter key from the initial screen), use Jog Dial or +.- keys to scroll and the Format will be displayed at the end. (Please note that it will not be displayed when Data Pack is not installed.)

```
MENU        ⏚
  POWER ALARM
  OPTION
 >FORMAT
```

ENTER

```
DATAPACK
        FORMAT?
 >NO
  YES
```

JOG ⊖ ⊕

2 [DATAPACK FORMAT?] will be displayed when you press Enter key from the FORMAT. Move the cursor to YES and press Enter key to start formatting.

```
DATAPACK
        FORMAT?
  NO
 >YES
```

3 The status of the format is displayed, and once it is finished COMPLETE will flash on the screen. The screen returns to the menu once any key is pressed.

ENTER

```
DATAPACK
        FORMATNG

  [..        ]
```

   ＊You can confirm that the model memory has increased if model select (P32) of the function menu is opened from an initial screen.
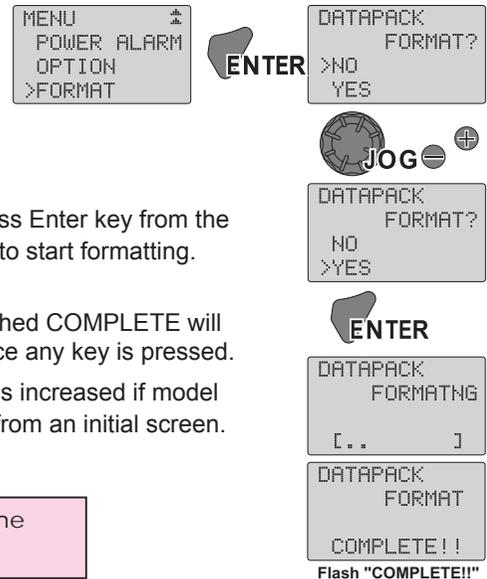
●**Note on Data Pack usage.**

Please note that all content is deleted when the Data Pack that has already been formatted.

```
DATAPACK
        FORMAT

  COMPLETE!!
```
Flash "COMPLETE!!"

The model memory of Data Pack is displayed as a sign of the alphabet from A-P. If it is necessary to remove the Data Pack and that model memory is already used, please return the number of the model memory to model memory (1-9) on the main unit by the Model Select function, turn off the power and remove the Data Pack. The Data Pack error is displayed when the model memory is in this state but the Data Pack is not installed.

There are 2 methods to return to a normal display as follows.

1 The content of model memory 0 is a backup of the model memory in the Data Pack that was used previously. Copying the content to the Model Memory of the main unit with the Model Copy (P53) , the Model Memory changes into the number at the copy destination.

2 It is not possible to return to the display of memory 0 that comes out again in the display though it returns normally even if the model is switched by the Model Select (P32). The content of the memory is lost.

   Please see Model Select (P32) about the display of model memory 0 etc.

Model Memory A
```
A:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
Data Pack Error
```
DATA PACK
   ERROR !!
```
Model Memory 0
```
0:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

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> When the procedure for setting center is mistaken, the setting may become rather complicated. The Sub Trim is a convenient function for this. Please refer the Sub Trim on P34 about the method of operating Sub Trim (method of call up).

Purpose of Sub Trim

Normally the servo is installed after it has been connected with the receiver and the neutral is confirmed on the transmitter. The car doesn't necessarily run straight when actually running therefore it is necessary to correct the neutral position of the steering servo. Also the throttle servo of a gas car, it is necessary to correct a neutral position of the carburetor after the servo is installed.

Originally, the function to correct this neutral position is called a trim. However the correction by the trim not only is done first but can also be due to a tweeked chassis or consumption the tire, etc. The problem occurs when this is corrected by the normal trim. At the steering wheel trim when it is made to run straight, a right and left radius of gyration becomes different. At the throttle trim of the engine car, the position of the maximum amount of the brake or the maximum open position of the carburetor moves. The trim usually used is a method that is called "Center Trim", and only a central position (neutral) moves for that.

However if you trying to correct it only by a Center Trim, this may cause a new problem too. So ordinary the trim function is provided in the name of Sub Trim.

These are the names of some trim functions, but a reasonable setting can be done by using them together.

Center Trim

Figure on the right above is the working of the Sub Trim.

The position of the edge of the operation nucleus moves too when the Sub Trim is moved. On the other hand, the trim adopts a Center Trim, the position of the edge doesn't change though a central position (neutral) moves.

This means the position of the edge of a right and left rotation corner doesn't change. However, adjusting a neutral position using a large amount of trim, a right and left balance will be shifted.

✱ Sub Trim can be called up from the function menu. But steering trim can be allocated to the ET lever at the SET UP.

Sub Trim

✱ At the initial state, the steering trim is allocated to ET1 and throttle trim to ET2.

Trim (Center Trim)
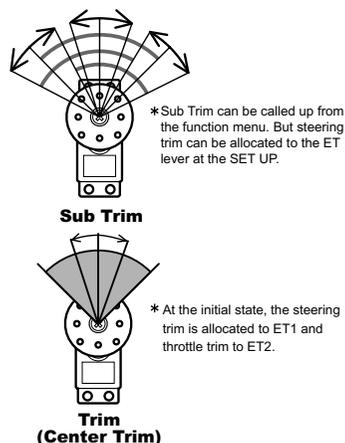
The Actual Setting Order

1 During the linkage process make sure to try to set the servo horn as close to neutral as possible then perform the sub trim operation and do not set the Sub Trim to a large value.

2 The test running is done, and the neutral is confirmed. You can also corrects it here by the Sub Trim. When the neutral is decided, a right and left radius should be adjusted by Steering Balance (P50) and the overall turning angle should be adjusted by the Steering Travel (P51).

3 The gap of neutral position at an actual practice or a race, should be corrected by the Trim (Center Trim). When the value of this trim (central trim) increases again, adjust the Sub Trim then make Trim (Center Trim) at 0 before running.

Point

● In setting up the car before running, use the Sub Trim without using the trim.

● Do installation correctly in order to make set value of the Sub Trim small.

● When the neutral shifts while running, correct it by the Trim (Center Trim).

Adjustment of Steering Tension

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

   ※It may become loose near the neutral position when
     weakening it too much, and it doesn't run straight. In
     that case, please return it to a moderate tension.
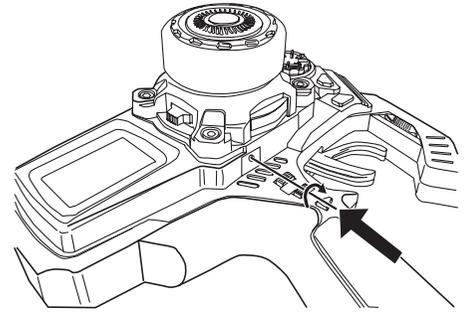
Wheel Extension (optional)

A driving position of the steering wheel can be changed by using the Wheel Extension Unit (optional).

Earphone Jack

The buzzer sound can be clearly confirmed by using the earphone jack. Commercially available Φ3.5earphone for radios can be used. (MONO type can be used. With STEREO type, only one side will be heard.)
This is useful when you cannot hear the buzzer sound due to other outside noises. The Buzzer sound can be heard from the transmitter even when the earphone jack is connected.

Earphone Jack
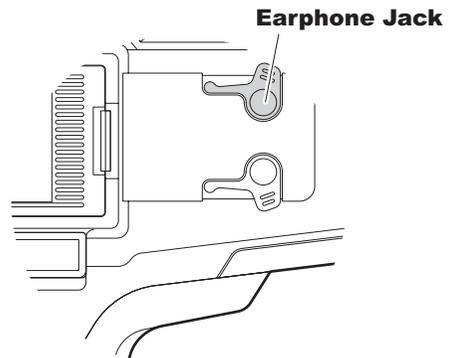
Response Mode Compatibility Table

		Normal	Super High Speed	Advanced High Speed
● Compatible				
✕ Incompatible				
Receiver				
	KR-297FZ(Discontinued)	●	✕	✕
	KR-301F	●	●	✕
	KR-302F	●	●	●
Analog Servo				
	PS-401	●	✕	✕
	PS-712FET	●	✕	✕
	PS-713FET	●	✕	✕
	PS-2173FET	●	●	✕
	PS-2174FET	●	●	✕
	PS-2113FET	●	●	✕
Digital Servo				
	PDS-947FET	●	●	●
	PDS-2123FET	●	●	●
	PDS-2143FET	●	●	●
	PDS-2144FET	●	●	●
	PDS-2343FET	●	●	●
	PDS-2344FET	●	●	●
ESC				
	EZ-1000	●	●	●
	KSC-1000FR	●	●	●
	KSC-1100FR	●	●	●
	KSC-1200F	●	●	●
	VFS-2000	●	●	●
	VFS-2000J	●	●	●
Others				
	Fail Safe Adapter(FSA-1)	●	●	✕

Main menu (1)

This is the menu displayed when "Enter" is pushed from the initial screen.

▰MAIN-MENU

Change menu system

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
⟨ENT⟩ / ⟨BACK⟩
```
MENU        ▼
>MASTER
 CUSTOM1
 CUSTOM2
```
⟨ENT⟩
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

⟨JOG⟩ or ⟨⊕⊝⟩

```
MENU        ▼
 MASTER
>CUSTOM1
 CUSTOM2
```
⟨ENT⟩
```
1:
VOLTAGE10.8V
MENU CUSTOM1
OPT 00:00
```

⟨JOG⟩ or ⟨⊕⊝⟩

```
MENU        ▼
 MASTER
 CUSTOM1
>CUSTOM2
```
⟨ENT⟩
```
1:
VOLTAGE10.8V
MENU CUSTOM2
OPT 00:00
```

⟨JOG⟩ or ⟨⊕⊝⟩

to Menu addition
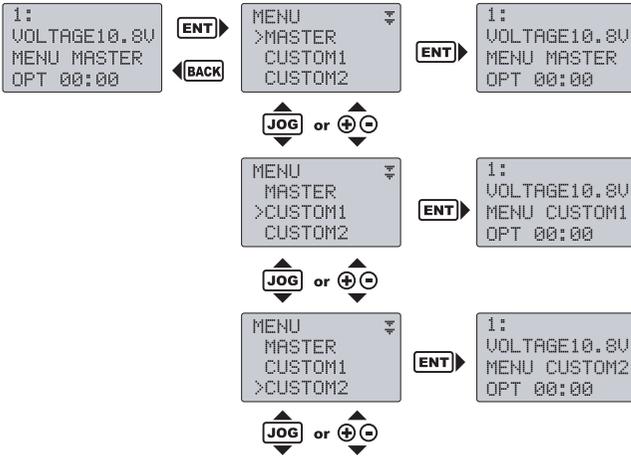
The first screen of the main menu becomes a selection of the change menu system.
Displayed MASTER, CUSTOM1, and CUSTOM2 are the names of the menu screen respectively.

Selection is made by pushing "Enter" after it moves to the menu name you want to select. Using the cursor with the Jogdial or the +.- keys, the display returns to its initial menu.

The menu is not changed when returning to an initial screen by pushing the back key.

> ＊If the menu displayed is blinking, it is not registered in the menu at all and it is not possible to select it.
> ＊In the state of the first stage, as for CUSTOM1, only MODEL.SELECT is registered.
> ＊In the state of the first stage, CUSTOM2 is empty.(It is not possible to select it.)

▰MAIN-MENU

Menu addition

Add the item to the menu list.
It is possible to add it to CUSTOM1 and CUSTOM2.(It is not possible to add it to MASTER.)

⟨JOG⟩ or ⟨⊕⊝⟩
```
MENU        ⬍
>INS
 DEL
 MOVE
```
⟨ENT⟩ / ⟨BACK⟩

⟨JOG⟩ or ⟨⊕⊝⟩
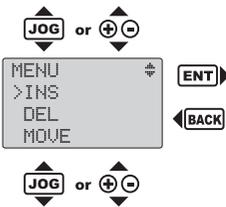
①　Menu name selection

Select the added menu name. Move the cursor to either of CUSTOM1, CUSTOM2 with Jogdial or the the +,- key and push "Enter".
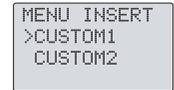
```
MENU INSERT
>CUSTOM1
 CUSTOM2
```
Selected CUSTOM1

②　Function name selectin

Select the function name that you want to be added and push "Enter"..
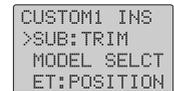
```
CUSTOM1 INS
>SUB:TRIM
 MODEL SELCT
 ET:POSITION
```
Selected SUB:TRIM

The added function name is on the list to the right. However, the one registered in the menu list is not displayed.

MODEL SELCT	TH:HIPOINT	AUTO:START	SET UP
ET:POSITION	TH:PRESET	MODEL.COPY	UP TIMER
SUB:TRIM	TH:ACCEL	MODEL.NAME	DOWN TIMER
ABS	ST:SPEED	MEM.RESET	LAP TIMER
TH:SPEED	ST:PUNCH	ADJUST VR	
TH:PUNCH	ST:CURVE	CH.SELECT	
TH:CURVE	ST:BALANCE	REVERSE	
TH:BRAKE	ST:TRAVEL	TRIM RATE	

③　Additional position

Decide the position where the function selection should be with Jogdial or the +, - key and insert by pushing "Enter". Insertion is fixed, and the screen returns to the selection of the function name.
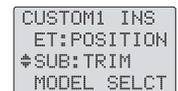
```
CUSTOM1 INS
 ET:POSITION
⬍SUB:TRIM
 MODEL SELCT
```
SUB:TRIM has been selected on this screen. It tries to insert SUB:TRIM after ET:POSITION on this screen.

> **It is possible to add it continuously by repeating. Push the "Back" key when stopping it. (Or, jump to an initial screen at dash when the "Back" key and "Enter" are pushed at the same time.)**

This becomes the order. (Displayed on the right)

```
MODEL SELCT
ET:POSITION
SUB:TRIM
```
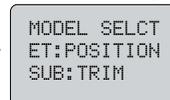
This is the menu displayed when "Enter" is pushed from the initial screen.

MAIN-MENU

Delete Menu Delete the function from the menu list.
CUSTOM1 and CUSTOM2 can be deleted.(It is not possible to delete contents of MASTER)

JOG or ⊕⊖

MENU
 INS
>DEL
 MOVE

[ENT]
[BACK]

JOG or ⊕⊖
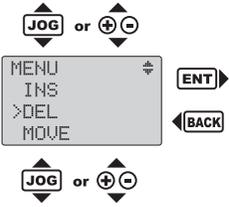
1 Select list name
Select the added list name.
Move the cursor to either of CUSTOM1 or CUSTOM2 with Jogdial or +/- key and push "Enter"

MENU DELETE
>CUSTOM1
 CUSTOM2

In this screen the CUSTOM1 is selected.

2 Select function name
The cursor moves with Jogdial or the +/- key. Select the function name that needs to be deleted and press "Enter". Even if the deletion ends, it is possible to delete it continuously.

CUSTOM1 DEL
 MODEL SELCT
>ET:POSITION
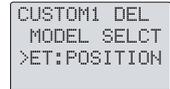
In this screen the ET:POSITION is selected.

It is possible to delete it continuously by repeat. When stopping it, press the Back Key. (Or, jump to an initial screen when the Back key and Enter are pressed at the same time.)

MAIN-MENU

Move Menu The order of making it move the item of the menu list and display is changed.
The CUSTOM1 and CUSTOM2 can be editable. (MASTER cannot be edited)

JOG or ⊕⊖

MENU
 INS
 DEL
>MOVE

[ENT]
[BACK]

JOG or ⊕⊖
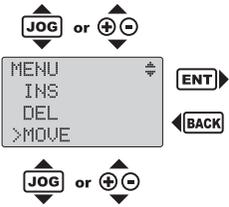
1 Select List Name
Select the menu to be edited. Move the cursor to either CUSTOM1 or CUSTOM2 using Jog Dial or +/- keys and press Enter jey.

MENU MOVE
>CUSTOM1
 CUSTOM2
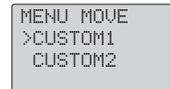
In this screen the CUSTOM1 is selected

2 Select Function Name
The cursor will be moved using Jog Dial or +/- keys. Select the name of function and press Enter key.

CUSTOM1 MOVE
>MODEL SELCT
 ET:POSITION
 SUB:TRIM
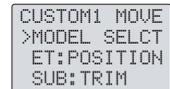
In this screen the MODEL SELECT is selected.

3 Selection of Movement Zone
Decide the movement zone of the selected function using Jog Dial or +/- keys and press Enter key.
The screen returns to the function name of +/- when the insertion is fixed.

CUSTOM1 INS
 SUB:TRIM
⬍MODEL SELCT
 ET:POSITION
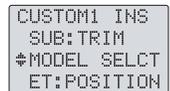
In this screen the MODEL SELECT is to be inserted after SUB:TRIM.

After it is fixed, it becomes like the figure as right.

ET:POSITION
SUB:TRIM
MODEL SELCT
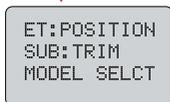
It is possible to move it continuously by repeat. When stopping it, press the Back Key. (Or, jump to an initial screen when the Back key and Enter are pressed at the same time.)

MAIN MENU (3)

This is the menu displayed when "Enter" is pushed from the initial screen

MAIN-MENU

Power Alarm   Set the power alarm.

If nothing is operated, the alarm sounds after a set time.

⟨JOG⟩ or ⊕⊖

```
MENU          ↕
>POWER ALARM
 OPTION
```

⟨ENT⟩
⟨BACK⟩

```
POWER ALARM
          3m
```

Three minutes are set on this screen.

⟨JOG⟩ or ⊕⊖

Alarm Setting

Change the setting with Jog Dial or the +.- keys.
Initial value OFF, Minimum Setting 1 minute, Maximum Setting 5 minute, Interval 1 minute.
The setting is fixed when 'Enter' or the Back key is pressed after it sets it returns to the main menu display.

The power alarm is effective when you have forgotten to turn off the power of the transmitter. The alarm sounds when either the steering wheel, throttle or key operation has not been used for a set time, informing you that the transmitter is still switched on.

MAIN-MENU

OPTION MENU   Open option menu.
In option menu, set the system of the LCD contrast etc.

In option menu, the display changes as shown in the figure below.

```
MENU          ↕
 POWER ALARM
>OPTION
```

```
OPTION MENU
>CONTRAST
 BUZZER
 BACK LIGHT
```

Set the LCD contrast. (There is detailed explanation on P29.)

⟨JOG⟩ or ⊕⊖

⟨ENT⟩
⟨BACK⟩

The cursor moves with Jog Dial or the +.- keys after opening option menu.

```
OPTION MEN
 CONTRAST
>BUZZER
 BACK LIGH
```
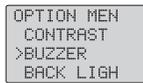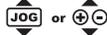
It is a setting related to the buzzer.
In addition, it divides into sub menu. (There is detailed explanation on P29.)

⟨JOG⟩ or ⊕⊖

```
OPTION MEN
 CONTRAST
 BUZZER
>BACK LIGH
```
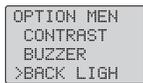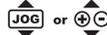
The lighting of the backlight setting. (There is detailed explanation on P31.)

MAIN-MENU

FORMAT   This is a menu to initialize the Data Pack.
This menu appears when the Data Pack has been detected by the system, and it is not displayed when it is not detected.

```
MENU
 POWER ALARM
 OPTION
>FORMAT
```

⟨ENT⟩
⟨BACK⟩

```
DATAPACK
       FORMAT?
>NO
 YES
```
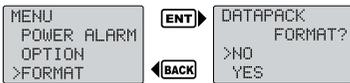
Data in the Data Pack is deleted when formatting it. Data cannot be retrieved even if it formated by mistake. Pressing YES confirms that you want to execute the format.

⟨JOG⟩ or ⊕⊖

```
DATAPACK
       FORMAT?
 NO
>YES
```

To format, select YES/NO with the cursor and press 'Enter'.

⟨ENT⟩

[.] will be increased

```
DATAPACK
       FORMATNG

[..       ]
```
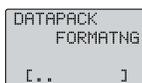
The status is displayed when YES is selected and 'Enter' is pressed from the format the Data Pack screen.

```
DATAPACK
       FORMAT

COMPLETE!!
```
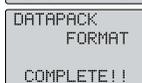
blink "COMPLETE!!"

COMPLETE!! will be displayed and flashing when format is completed.
The display returns to the menu once any key is pressed.

Please format it when you use a new Data Pack.

This is the menu displayed when "Enter" is pushed from the initial screen.

MAIN-MENU OPTION

CONTRAST (LCD Contrast) Adjust contrast of LCD display.

```
OPTION MENU
>CONTRAST
 BUZZER
 BACK LIGHT
```
ENT ►
◄ BACK
```
LCD CONTRAST

[ ||||||||   ]
```

Use "Jog dial" key or "+,-" keys. to adjust contrast of LCD display.
You can adjust contrast at 8 stages.

> Adjusting the contrast to a very light setting in a high temperature room may cause characters to become invisible at low temperatures out doors. Please be careful.

MAIN-MENU OPTION

BUZZER Settings about the buzzer sound which a system makes. Three settings for the buzzer.

```
OPTION MENU
 CONTRAST
>BUZZER
 BACK LIGHT
```
ENT ►
◄ BACK
```
BUZZER
>BUZZER TONE
 ALRM BUZZER
 CUSTOM TONE
```

1 BUZZER TONE Adjust An interval of a buzzer. An interval of normal beep sound changes.

2 ALARM BUZZER Buzzer sounds in various functions, but it is set as the buzzer tone from the factory.

3 CUSTOM TONE You can edit or create the tone.

1 BUZZER TONE

```
BUZZER TONE

+:TONE UP
-:TONE DOWN
```
JOG or ⊕⊙ — Jog Dial or +,- keys to adjust the interval of the buzzer..

2 ALARM BUZZER
Push "Enter" key at each item, cursor will change from ► to ✳ .
after change cursor use Jogdial or +,- keys to change the setup.

```
BUZZER
 BUZZER TONE
>ALRM BUZZER
 CUSTOM TONE
```
ENT ►
◄ BACK
```
ALRM BUZZER
>UP.T    SYS
 LAP.T   SYS
 DOWN.T  SYS
```
ENT ►
◄ BACK
Up Timer

```
ALRM BUZZER
*UP.T    SYS
 LAP.T   SYS
 DOWN.T  SYS
```
JOG or ⊕⊙
```
ALRM BUZZER
*UP.T    CS1
 LAP.T   SYS
 DOWN.T  SYS
```

JOG or ⊕⊙

```
ALRM BUZZER
 UP.T    SYS
>LAP.T   SYS
 DOWN.T  SYS
```
Lap Timer

```
ALRM BUZZER
 UP.T    SYS
 LAP.T   SYS
>DOWN.T  SYS
```
Down Timer

```
ALRM BUZZER
>POWER   SYS
 BATTERY SYS
 STARTUP SYS
```
Power Alarm

```
ALRM BUZZER
 POWER   SYS
>BATTERY SYS
 STARTUP SYS
```
Battery Alarm

```
ALRM BUZZER
 POWER   SYS
 BATTERY SYS
>STARTUP SYS
```
Startup

SYS: System default tone	
CS1: Custom Tone 1	
CS2: Custom Tone 2	
CS3: Custom Tone 3	
CS4: Custom Tone 4	
CS5: Custom Tone 5	
CS6: Custom Tone 6	

UP.T	UP Timer
LAP.T	Lap Timer
DOWN.T	Down Timer
POWER	Power Alarm
BATTERY	Battery Alarm
STARTUP	Startup

The sound that comes from various scenes can be selected from 7 different kind of sounds. The 6 custom tones can be edited by yourself to compose your favorite melodies. Please refer 3 (Custom Tones). There is no melody registered from CS1 to CS6 at factory default settings.

MAIN MENU (5)

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3 Custom tone editor

```
BUZZER
 BUZZER TONE
 ALRM BUZZER
>CUSTOM TONE
```
ENT ▶   ◀ BACK

```
CUSTOM TONE
>CUSTOM1
 CUSTOM2
 CUSTOM3
```
JOG or ⊕⊖

ENT

1 Move the cursor to the custom(1 to 6), using Jog Dial or "+,-" keys.

Back to select number   ◀ BACK
```
CUSTOM1
 1
 __
```

2 In this example there is no data yet.

Change data pointing cursor ◀ JOG ▶ or ◀ ⊕⊖ ▶

Return to Select number   ◀ BACK
```
CUSTOM1
 1
 Z
 1
```
The upper part is an interval.
The lower part is length of a sound.

3 Use Jog dial or "+,-" keys to choice the sounds. and push Enter key. (A to Z.see down for details)

ENT

Return to Select number   ◀ BACK
```
CUSTOM1
 1
 Z
 1
```

4 Cursor move to the next row to choice the lenght of the sounds. (1 to 8)

ENT

Display the position of sounds now.
Return to Select number   ◀ BACK
```
CUSTOM1
 2
 Z_
 1
```

5 When you push Enter key, cursor will move to next line.

＊ Push reset key (push + and - keys Together) to clear the data after the cursor.

A real interval and relation with indication of sound.

Interval

Name of musical pitch	G	A♭	A	B♭	B	C	C#	D	E♭	E	F	F#	G	A♭	A	B♭	B	C	C#	D	E♭	E	F	F#	G	A♭
LCD indication	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

In LCD indication. ・ (Point) means Long silence (a rest).

Length of a sound

Note								
LCD indication	1	2	3	4	5	6	7	8

Length of each note is fixed. Tempo becomes ♩=120

The input example
```
CUSTOM1
 9
FHJ・FHJ・_
44444444
```

This is the menu displayed when "Enter" is pushed from the initial screen.

MAIN-MENU OPTION

BACK LIGHT

Set the lighting method of the backlight.
Can choose from "AUTO" and "OFF".

```
OPTION MENU
 CONTRAST
 BUZZER
>BACK LIGHT
```
[ENT] ▶

◀ [BACK]

```
BACK LIGHT

         AUTO
```
[ENT] ▶

[BACK] ▶

AUTO: lighting the display until key function is
done. or, when "auto display" is active.
When any key is not pressed,the light will go
off. (around 3 sec.)
(Factory default is AUTO.)
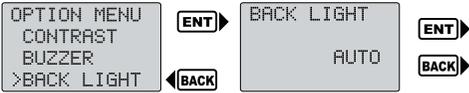
Change Setting ◀[JOG]▶ or ◀⊕⊖▶   **Setting will change when you pushed Enter key or Back key.**

```
BACK LIGHT

          OFF
```
[ENT] ▶

[BACK] ▶

OFF: Back lights are always off.

Setting of backlight doesn't turn on even the in "Auto" setting, besides a Function Key, ET lever, BT button.

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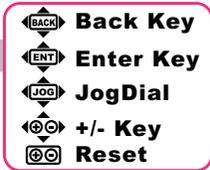
MODEL SELECT

Select model memory

You can save the settings for 9 cars.

[How to open the screen]

1 Use Jog dial or "+,-" keys to select MODEL SELECT at function menu. Then push the "ENTER" key.
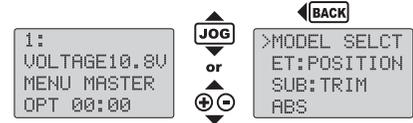
2 In MODEL SELECT Screen. Control Jog dial or +,- keys to move the cursor at left side

3 Push Enter at the MODEL number to select.

4 Back to function menu with out any changes when push BACK key.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG
or
⊕⊖

◀BACK
```
>MODEL SELCT
ET:POSITION
SUB:TRIM
ABS
```

ENT   BACK

```
MODEL SELCT
1>
2:
3:
```

JOG or ⊕⊖

● You can put a name at Model memory (max 10 character)
 * Memory of unit display at 1 to 9. A to P for Data Pack.
● You can assign each car a memory number.
● Even the same car can have multiple numbers, due to changes to the settings at every course.

⚠ **Caution!** 🚫 Can cause of out of control opperation when Changing Model memory while running.

Model memory 0(Zero)

Model 0 will be displayed when you do the following.

1 When model memory in data pack was used, and it was switched off, and data pack was pulled, and then switched on.

2 When removing the DATA PACK while using MODEL MEMORY of DATA PACK
Model memory 0 use for avoid Lost the data.

Model memory 0 is used for avoid Lost the data.

Do the following procedure to back to Ordinarily MODEL MEMORY. It will not come back unless this operation is done.

★**Use the Model select function to change to other Model memory.**
   (Data in Model memory 0 will lost)
★**Copy the Setup of MEMORY 0 to other memory by using MODEL**
   COPY (page 53)

advice

● **Setup a Function menu that can save at MODEL MEMORY**
● **Can not set per Model memory,see the setup at main menu (see page 26).**

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Usage of the transmitter

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ET POSITION

Confirm Position of ET lever.

Can confirm the function name and value of setup
Can not adjust the setup from this function.

[How to open the screen]

1 From initial screen. use "Jog dial" key or "+,-" keys. to
open Function menu.
Select ET POSITION then push ENTER.

2 At ET POSITION the displayed function name assigned
and the value of each setup is shown.

3 Push BACK key to return to initial screen.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG
or
⊕⊖

◀BACK

```
MODEL SELCT
>ET:POSITION
 SUB:TRIM
 ABS
```

ENT   BACK

```
ET1:ST TRIM
          0
ET2:TH TRIM
          0
```

JOG   or   ⊕⊖
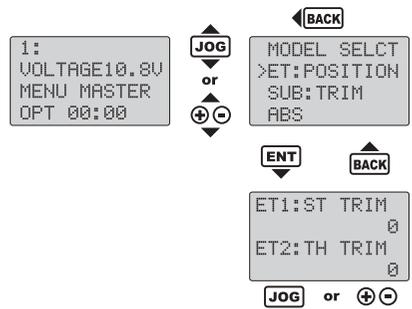
●Can change the assigned button to other button when use SET UP function (see page 60)
●When controling the ET,the Auto display will activate,

AUTO DISPLAY
DIRECT SET

When the lever which a function is assigned to is controlled, contents are displayed automatically.

If a function is assigned to an ET lever, the control contents of a controlled lever are displayed automatically.

[Sample]

```
AUTO DISPLAY
 ET1-ST TRIM
       R   1
```
ET1 : Display Steering Trim.

```
AUTO DISPLAY
 ET4-TRAVEL
        100
        99%
```
ET4 : Steering Travel.

> **An original screen is returned to in about 3 seconds.**
> **Push BACK key to return to the original screen.**

●AUTO DISPLAY didn't function when display the MAIN MENU (see page 26)
●AUTO DISPLAY didn't function when display the SET UP (see page 60)
●Can adjust the Steering balance to a Push ET that's assigned to the Steering trim and control the steering to the right
or to the left. It's called **Direct set.**

```
DIRECT SET
ST:BALANCE
 LEFT    70%
*RIGHT   71%
```

advice

● When persentage is 0. the function was not working

sample: Steering travel is 0

```
AUTO DISPLAY
 ET4-TRAVEL
         0
        99%
```
Steerring wheel is not working in this case.

SUB TRIM

Adjust the steering and throttle

Can't set the center point of neutral position of the servo, only when using the linkage in the car.

[How to open the set-up screen.]
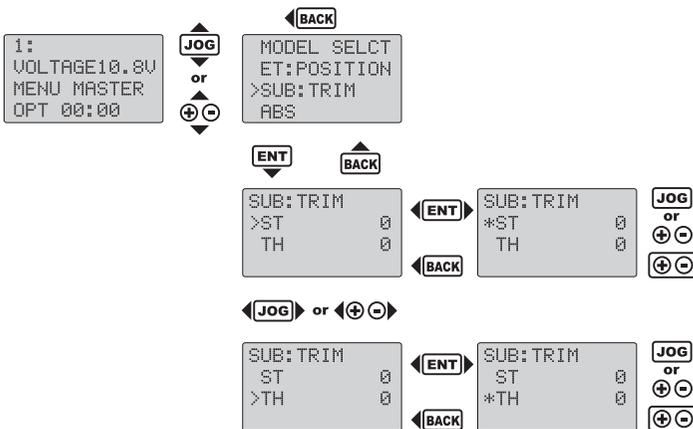
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG
or
+⊖

◀ BACK
```
MODEL SELCT
ET:POSITION
>SUB:TRIM
 ABS
```

ENT   ▲ BACK

```
SUB:TRIM
>ST        0
 TH        0
```
◀ENT▶
```
SUB:TRIM
*ST        0
 TH        0
```
JOG
or
+⊖
+⊖
◀BACK

◀ JOG ▶ or ◀+⊖▶

```
SUB:TRIM
 ST        0
>TH        0
```
◀ENT▶
```
SUB:TRIM
 ST        0
*TH        0
```
JOG
or
+⊖
+⊖
◀BACK

1 From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys. to choose the "ABS" from Menu list.

3 Push "Enter" key. to enter setup menu. use "Jog dial" key or "+,-" keys. to adjust the value.

4 The cursor will change from ▷ to ✳ . Adjust the value using by Jog dial or +,- keys.
✳Push + and - keys together to reset the value to 0.

5 Push Enter or Back key to done the setup.

6 Push Back key to return to Initial screen.

●**What is sub trim**
Usually set the neutral of servo when put at car the servo, then adjust linkage. Use Sub trim to fine adjustment

●**Different of trim and sub trim**
Sub trim are not only the center point of servo, it is changed also the movement angle.

SubTrim   Trim
                        (Center Trim)
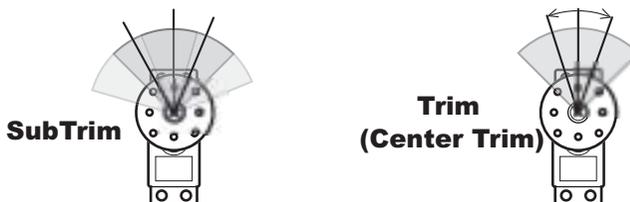
See page 23 for more details

advice

●**When value of the sub trim gets bigger,please adjust the linkage and make it a smaller the value.**

BACK **Back Key**
ENT **Enter Key**
JOG **JogDial**
+⊕⊖ **+/- Key**
⊕⊙ **Reset**

Pumping brake will activate,when using brake at throttle.

Locking the brakes using a pumping action is effective when brakes begin to fade.
As a result, cornering becomes possiblily smoother.

[How to open the set-up screen.]
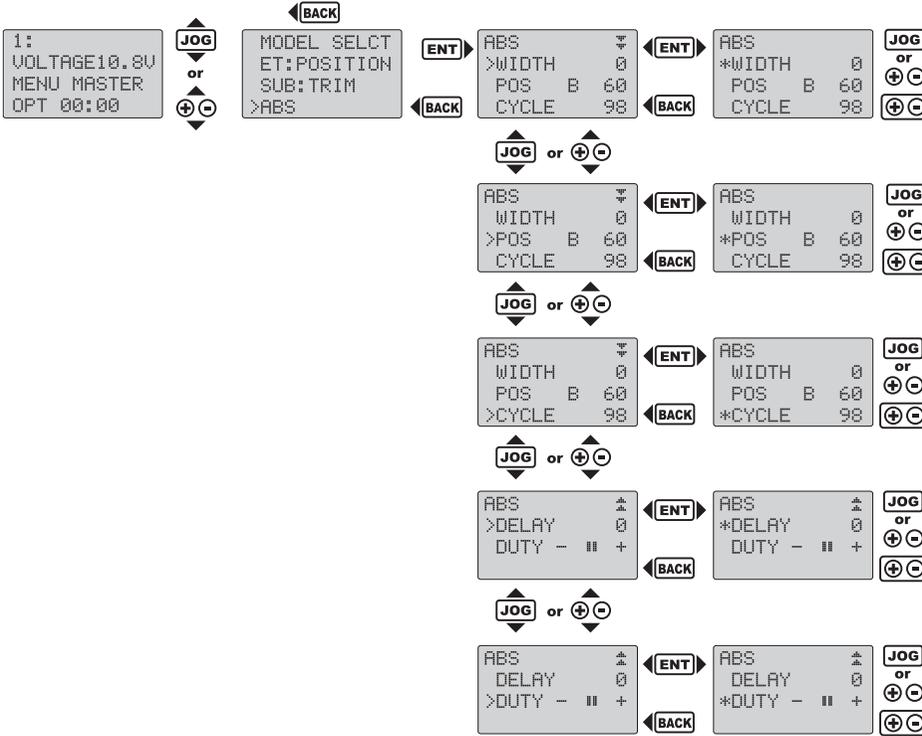
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ⊕⊖
BACK
```
MODEL SELCT
ET:POSITION
SUB:TRIM
>ABS
```
ENT
BACK
```
ABS
>WIDTH    0
POS  B  60
CYCLE    98
```
ENT
BACK
```
ABS
*WIDTH    0
POS  B  60
CYCLE    98
```
JOG or ⊕⊖ ⊕⊖

JOG or ⊕⊖
```
ABS
WIDTH    0
>POS  B  60
CYCLE    98
```
ENT
BACK
```
ABS
WIDTH    0
*POS  B  60
CYCLE    98
```
JOG or ⊕⊖ ⊕⊖

JOG or ⊕⊖
```
ABS
WIDTH    0
POS  B  60
>CYCLE    98
```
ENT
BACK
```
ABS
WIDTH    0
POS  B  60
*CYCLE    98
```
JOG or ⊕⊖ ⊕⊖

JOG or ⊕⊖
```
ABS
>DELAY    0
DUTY - ‖ +
```
ENT
BACK
```
ABS
*DELAY    0
DUTY - ‖ +
```
JOG or ⊕⊖ ⊕⊖

JOG or ⊕⊖
```
ABS
DELAY    0
>DUTY - ‖ +
```
ENT
BACK
```
ABS
DELAY    0
*DUTY - ‖ +
```
JOG or ⊕⊖ ⊕⊖

1 From initial screen, use "Jog dial" key or "+,-" keys. to open Function menu.

2 Use "Jog dial" key or "+,-" keys. to choose the "ABS" from Menu list.

3 Push "Enter" key. to enter setup menu. use "Jog dial" key or "+,-" keys. to adjust the value.

● **ABS indicator begins to blink when ABS is active.**
● **Can adjust the 5 parameter in ABS function.**
● **Full brake is depended on to throttle brake (see Page 41).**

ABS Indicator
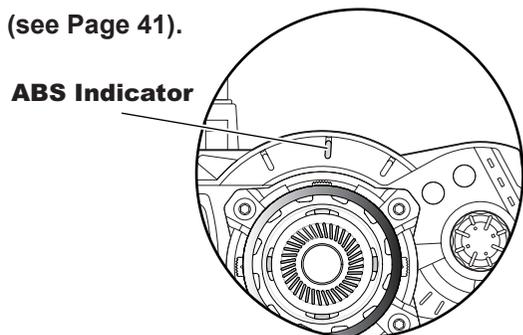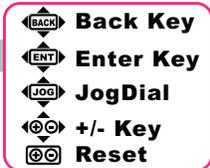
ABS width and position

●Set pumping

●ABS movement will change with volume of throttle trigger and position of width. Based on Position of throttle trigger when width is 100. The servo moves back to the set position. The servo doesn't move back to the point set when it uses small values in width.

●The movement of servo gets bigger, when the values of the position setup are small.

●ABS doesn't function when setting 0 to width, and then setting the position to 100.


```
                                              ABS
Time
Brake Max
Operating
Trigger
                        Braking
Neutral
Time
Brake Max
                                              Width
Servo
movement
Pos (beginning)   A    B
Neutral                     A : B=Duty
                 Cycle
Setting
  ABS.WIDTH   50
  ABS.POS     30
```
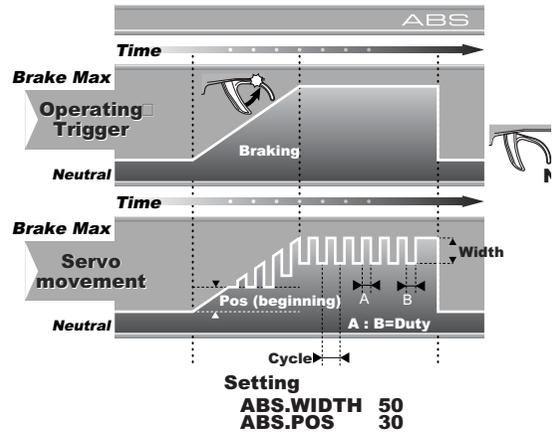
ABS Cycle

Set cycle of pumping action.

When making large the values, the servo moves fast and cycle become short.

ABS Delay

Set delay of ABS Action.

Makes a strong braking action when the delay is set at this function.

ABS Duty

Set ratio of time to brake and time to release the brake with 7 stages.

advice

· ·

●**It will be easy to understand when servo connected instead of ESC at throttle channel.**

●**ABS function is dependent on the specification of the servo.**

· ·

TH SPEED (Throttle speed) 1

⬚ **Back Key**
ENT **Enter Key**
JOG **JogDial**
⊕⊖ **+/- Key**
⊕⊖ **Reset**

37

Reaction velocity of a throttle is made late.

To slow the change of the signal, to make it easier to control the car.

[How to open the set-up screen.]

```
TH:SPEED
 MODE   1WAY
```

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
Initial screen

JOG or ⊕⊖

```
ET:POSITION
SUB:TRIM
ABS
>TH:SPEED
```
Function menu

ENT / BACK

```
TH:SPEED
>SPEED
 POSITION
 MODE
```
TH SPEED

JOG or ⊕⊖

```
TH:SPEED
 SPEED
 POSITION
>MODE
```

ENT / BACK

JOG or ⊕⊖

```
TH:SPEED
 MODE   2WAY
```

JOG or ⊕⊖

```
TH:SPEED
 MODE   3WAY
```
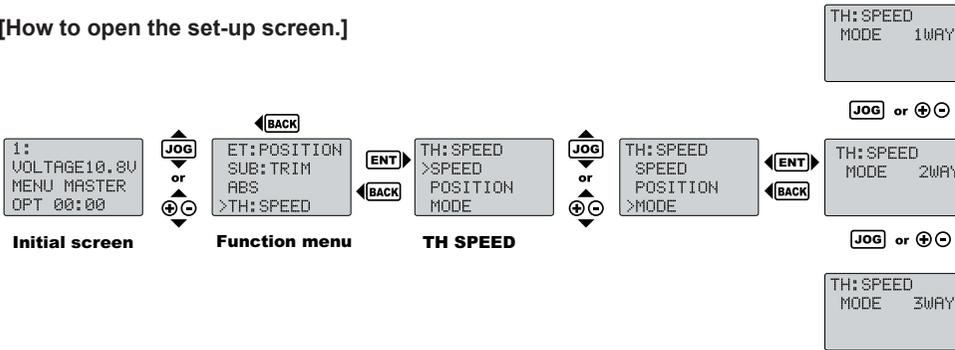
Setup of SPEED and POSITION will change on setup of MODE.

MODE 1WAY

```
TH:SPEED
>SPEED
 POSITION
 MODE
```
ENT / BACK
```
TH:SPEED
 SPEED   100
```

In 1 WAY. can not select POSITION.

MODE 2WAY

```
TH:SPEED
>SPEED
 POSITION
 MODE
```
ENT / BACK
```
TH:SPEED
>SPEED.L 100
 SPEED.H 100
```
ENT / BACK
```
TH:SPEED
*SPEED.L 100
 SPEED.H 100
```
JOG or ⊕⊖

JOG or ⊕⊖

JOG or ⊕⊖
```
TH:SPEED
 SPEED.L 100
>SPEED.H 100
```
ENT / BACK
```
TH:SPEED
 SPEED.L 100
*SPEED.H 100
```
JOG or ⊕⊖

```
TH:SPEED
 SPEED
>POSITION
 MODE
```
ENT / BACK
```
TH:SPEED
 POS1    30

 TH.POS:L
```
JOG or ⊕⊖

Indication of TH.POS changes by a position of trigger

```
TH:SPEED
 POS1    30

 TH.POS:H
```
JOG or ⊕⊖

MODE 3WAY

```
TH:SPEED
>SPEED
 POSITION
 MODE
```
ENT / BACK
```
TH:SPEED
>SPEED.L 100
 SPEED.M 100
 SPEED.H 100
```
ENT / BACK
```
TH:SPEED
*SPEED.L 100
 SPEED.H 100
```
JOG or ⊕⊖

JOG or ⊕⊖
```
TH:SPEED
 SPEED.L 100
>SPEED.M 100
 SPEED.H 100
```
ENT / BACK
```
TH:SPEED
 SPEED.L 100
*SPEED.M 100
 SPEED.H 100
```
JOG or ⊕⊖

JOG or ⊕⊖
```
TH:SPEED
 SPEED.L 100
 SPEED.M 100
>SPEED.H 100
```
ENT / BACK
```
TH:SPEED
 SPEED.L 100
 SPEED.M 100
*SPEED.H 100
```
JOG or ⊕⊖

```
TH:SPEED
 SPEED
>POSITION
 MODE
```
ENT / BACK
```
TH:SPEED
>POS1    30
 POS2   100
 TH.POS:L
```
ENT / BACK
```
TH:SPEED
*POS1    30
 POS2   100
 TH.POS:L
```
JOG or ⊕⊖

JOG or ⊕⊖
```
TH:SPEED
 POS1    30
>POS2   100
 TH.POS:L
```
ENT / BACK
```
TH:SPEED
 POS1    30
*POS2   100
 TH.POS:L
```
JOG or ⊕⊖

```
TH:SPEED
 POS1    30
*POS2   100
 TH.POS:L
```

```
TH:SPEED
 POS1    30
*POS2   100
 TH.POS:H
```

Indication of TH.POS changes by a position of trigger

TH SPEED (Throttle speed) 2

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Throttle speed

When controling the throttle quickly, the car might be out of control.
Use this function to limit the throttle speed.

In this function you can set the Speed, Position, and Mode.
The Speed and Position setup will depend at the mode setup.

★This function will effect the pulling of the trigger. It is not effective for Brake control.

MODE   Choose from 1 to 3 WAY

1 WAY: Use full area for the throttle trigger control
2 WAY: Divide to 2 areas the throttle trigger control
3 WAY: Divide to 3 areas the throttle trigger control

POSITION   Set the divition of area

★The value of Position 1 are always same or smaller then position 2.

SPEED   Set each speed of each area

A setting item changes by setting value
Normally 100 is the Setting value. When making it smaller, the value reaction of servo gets smaller too.

Throttle Speed Indicator

MODE = 2way

Neutral
Effect range of L
Effect range of H
Changing point
Hi Point

MODE = 3way

SPEED.L
SPEED.M
SPEED.H
POS1
POS2
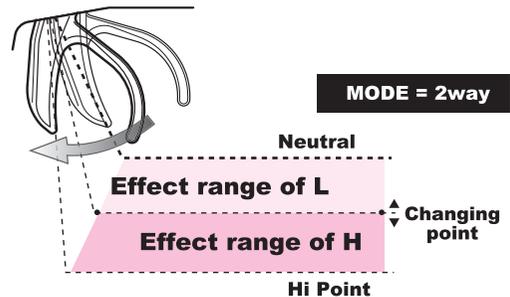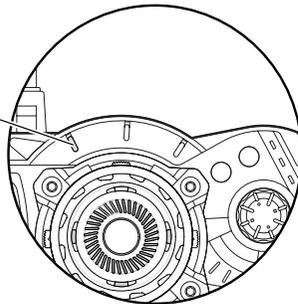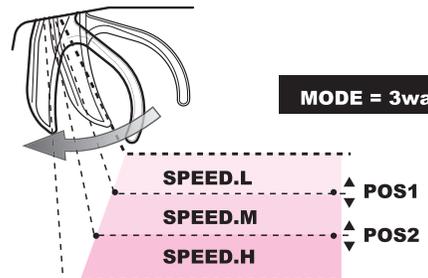
★ **To control trigger position is needed.**
★ **If throttle trigger is active, the throttle indicator will flash.**
★ **Can set at ET the speed of each aria (see page 60)**
 ＊**The value can be set at ET when setting the TH:SPEED at 100%**
★ **Can assign ON/OFF function at ET or BT button.**
 ＊**Even if the values are not effective, the light will be blinking when this function is ON.**

advice ●

● Gas cars and electric cars using ESCs will see the same performance enhancements.

TH PUNCH (Throttle punch)

To adjust only an initial reaction of throttle.

When move the throttle to forward or to brakes you can skip the first field.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or +/-

```
SUB:TRIM
ABS
TH:SPEED
>TH:PUNCH
```
ENT / BACK

```
TH:PUNCH
>F      0%
 B      0%
```
ENT / BACK

```
TH:PUNCH
*F      0%
 B      0%
```
JOG or +/-

JOG or +/-

```
TH:PUNCH
 F      0%
>B      0%
```
ENT / BACK

```
TH:PUNCH
 F      0%
*B      0%
```
JOG or +/-
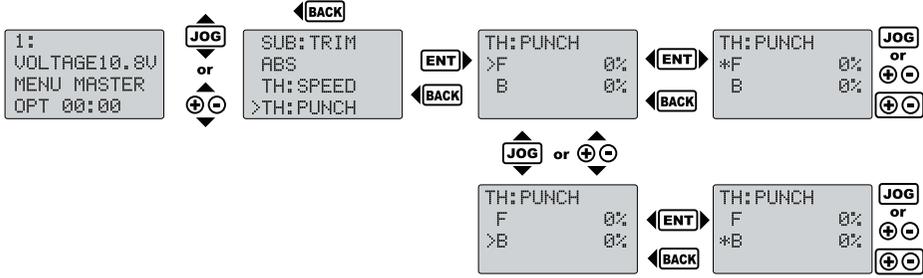
When Push "Enter" at each Item . the cursor change to *.

① From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

② Use "Jog dial" key or "+,-" keys to choose the "TH:PUNCH" from Menu list. and then push "Enter" key.

③ Use Jog Dial or +,- keys to choice F(forward) or B(Brakes). Then push "Enter" to cursor change from > to *. and can adjust the value using Jog dial or +,- keys.To reset, when cursor display *, push +,- keys toghter.

④ Push "Enter" key the cursor returns to >. When pushing Back Key after that the display will return to menu list.

●Setting value of throttle punch is in proportion to initial movement. But using a combination of other setting, the throttle will move like a switch between two points.
●When using combination with ABS function, please check the movement carefully before use.
●This function is useful to avoid time-lag of clutch engagement in gas cars.
●Can put the initial punch to Forward and braking of ESC, in an electric car.

Throttle Punch

100 Setting
50 Setting
0 Setting

Servo Movement

Triger operation

Neutral   Half   Full Throttle
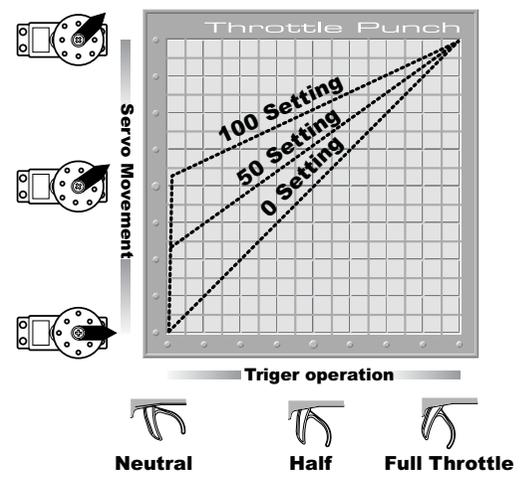
advice

●This function is useful to avoid time-lag of clutch engagement in a gas car.
●Can adjust starting point of brakes of a gas car.
●Can put the initial punch to Forward and braking of ESC, in an electric car.

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TH CURVE (Thorottle curve)

Put the curve on actual servo operation to the trigger operation of the throttle.

The throttle operation can be made quick or mild by hanging a curve to a signal. Also, can make the brakes quick or mild by hanging a curve.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or +⊕⊖
BACK

```
ABS
 TH:SPEED
 TH:PUNCH
>TH:CURVE
```
ENT
BACK

```
TH:CURVE
>F        0%
 B        0%
```
ENT
BACK

```
TH:CURVE
*F        0%
 B        0%
```
JOG or +⊕⊖

JOG or +⊕⊖

```
TH:CURVE
 F        0%
>B        0%
```
ENT
BACK

```
TH:CURVE
 F        0%
*B        0%
```
JOG or +⊕⊖
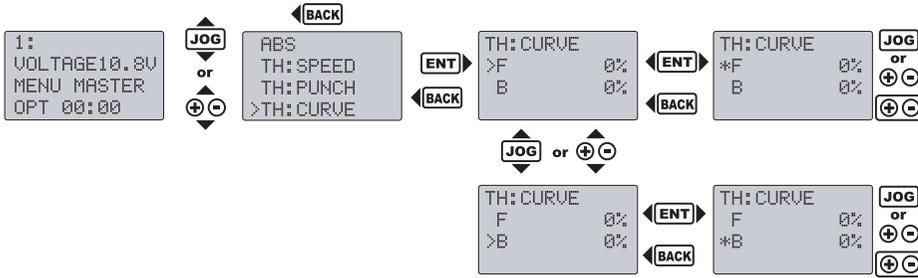
To change the value of each item, push "Enter" at each item to cursor changes to *.

① From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

② Use "Jog dial" key or "+,-" keys. to choose the "TH:CURVE" from Menu list and then push "Enter" key.

③ Push Enter key to start setup the Thorottle curve.

● When pushing Enter key at F(Forward) or B(Brakes), the cursor changes ⫶ to ⁂ and then you can adjust the value using by Jog dial or +,- keys.

+100 Setting

Throttle Curv

Quick
+100 Setting
0 Setting
-100 Setting
Mild

Servo Movement

Trigger operation

Neutral   Half   Full Throttle
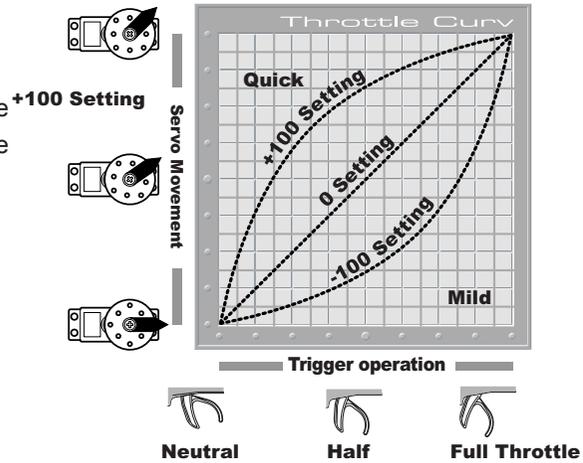
● Setting value : + makes quick - makes mild.
● Quick curve : sensitive at initial response
● Mild curve : insensitive at initial response

advice

● When other functions are used together, please set up while confirming movement.
● Only the curve can adjust at this function. To adjust throttle punch (Page 39) to make a bigger the initial movement .

TH BRAKE (Throttle Brake)

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Adjust only the brake of throttle.

Adjust only the brake of throttle. maximum brake will change.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG
or
⊕⊖

BACK

```
TH:SPEED
TH:PUNCH
TH:CURVE
>TH:BRAKE
```

ENT
BACK

```
TH:BRAKE
       B 100
```

JOG
or
⊕⊖
⊕⊖
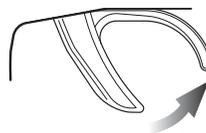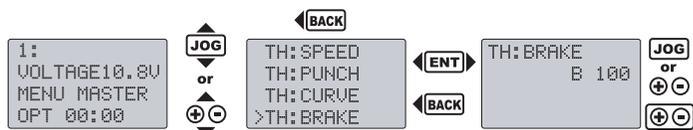
To Adjust the movement of servo, of the time that push the trigger.

1 From initial screen, use "Jog dial" key or "+,-" keys to open the Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "TH:BRAKE" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys, to adjust the value.

● When you make a large value for a gas car, a burden on the Servo will increase. Please check the movement while adjusting the value.

● In an Electric car, a value set too small the ESC will not show better performance. Please start from 100 (factory setting) setup.

●This function can be assigned and adjusted to ET lever. But it becomes a relative value over the value set up on this screen. (It is assigned to ET-3 at the time of factory shipments.) Keep in mind that a brake does not work even if it enlarges the numerical value, when a setup is 0.

●When assigning ET lever, the contents of operation are automatically displayed only by operating a lever. (AUTO Display) and Keep in mind that a brake does not work even if it enlarges the numerical value of this function, when a setup with ET lever is 0%.

Minimum value is 0, but doesn't operate the braking.

---

advice ●Can change the assigned button (ET-3) to other buttons when using SET UP function (see page 60)

TH HIPOINT (Throttle high points)

Sets only the value of forward movement, on the throttle.

Sets only the value of forward movement on the throttle. Electric car uses the highest point of ESC. Gas cars use "High".

[How to open set-up screen]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ⊕⊖

```
TH:PUNCH
TH:CURVE
TH:BRAKE
TH:HIPOINT
```
◀BACK ENT▶ ◀BACK

```
TH:HIPOINT
      F 100
```
JOG or ⊕⊖ ⊕⊖
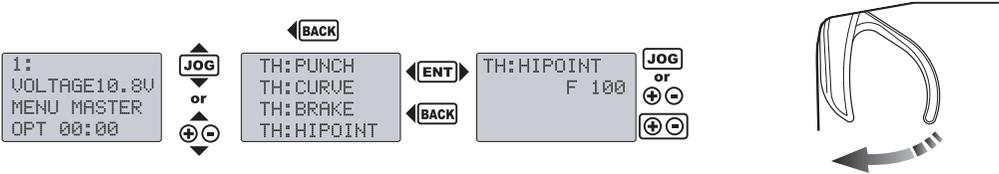
To Adjust the movement of servo, of the time that pull the trigger

1 From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "TH:HIPOINT" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.

●Set only the value of forward movement on the throttle. It is easy to set up especialy on a gas car.
●Creating a large value for a gas car, puts an increased burden on Servo. Please check the movement while adjust the value.
●In an Electric car, when set value is too small the ESC can not show a better performance. Please start from 100 (factory setting) setup.

Minimum value is 0, but doesn't operate to forward.

advice
●**Throttle trim is a center trim. When a small the value of "TH HIPOINT" is made,and then a large value is set to an advance direction of the trim, the amount of operation will be extremely small.(Please see page 23 about Center trim)**

TH PRESET (Throttle Preset)

BACK — Back Key
ENT — Enter Key
JOG — JogDial
+⊙⊖ — +/- Key
⊕⊙ — Reset

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Move the throttle servo to set point, using by ET or BT button.

Use this function to set at ET or BT button.

Can move to a point you set when control the button assigned.

[How to open the set-up screen.]
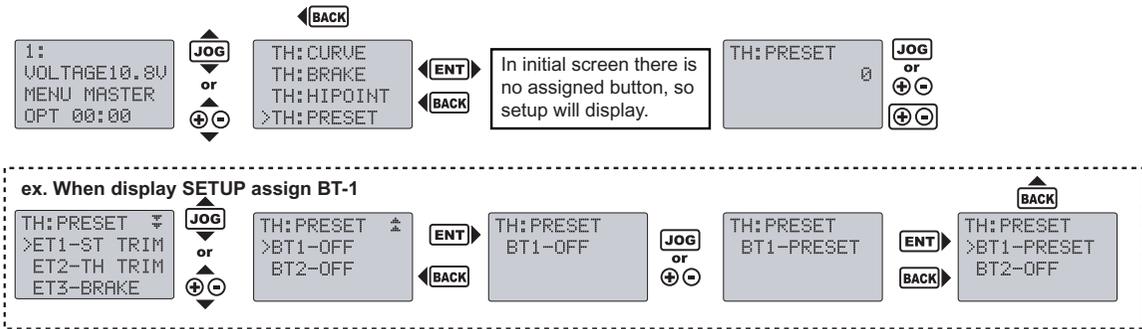
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ⊕⊖

```
TH:CURVE
TH:BRAKE
TH:HIPOINT
>TH:PRESET
```
BACK / ENT / BACK

In initial screen there is no assigned button, so setup will display.

```
TH:PRESET
        0
```
JOG or ⊕⊖ / ⊕⊖

ex. When display SETUP assign BT-1

```
TH:PRESET  ⏬
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
JOG or ⊕⊖

```
TH:PRESET  ⏫
>BT1-OFF
 BT2-OFF
```
ENT / BACK

```
TH:PRESET
 BT1-OFF
```
JOG or ⊕⊖

```
TH:PRESET
 BT1-PRESET
```
ENT / BACK

BACK

```
TH:PRESET
>BT1-PRESET
 BT2-OFF
```

1 From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "TH:PRESET" from Menu list.

3 Use "Jog dial" key or "+,-" keys to choose the "TH:PRESET" from Menu list.

● The range can setup 0 to F150 and 0 to B150

● Other functions for the throttle are not affected by this function. (If set at F100 when control ET or BT button, the throttle will move to the set point, even TH:HIPOINT are 0.)

● This is useful for Engine cut, Idling up, Full brake, Move Backward

---

⚠ Caution! 🚫 Trigger will not function and throttle is fixed at a point while controlled by the ET or BT button that is assigned as preset.

⚠ Caution! 🚫 Please check the movement before use, to avoid lost control.

advice

● **You can change the button assignment at SET UP function (See page 60)**

TH ACCEL (Throttle Acceleration) 1

BACK **Back Key**
ENT **Enter Key**
JOG **JogDial**
+/- **+/- Key**
Reset **Reset**

Set a swing at forward part of throttle.

The expert driver using a delicate throttle work.
In this function you can automatically have faster cornering with the car.

[How to open the set-up screen.]
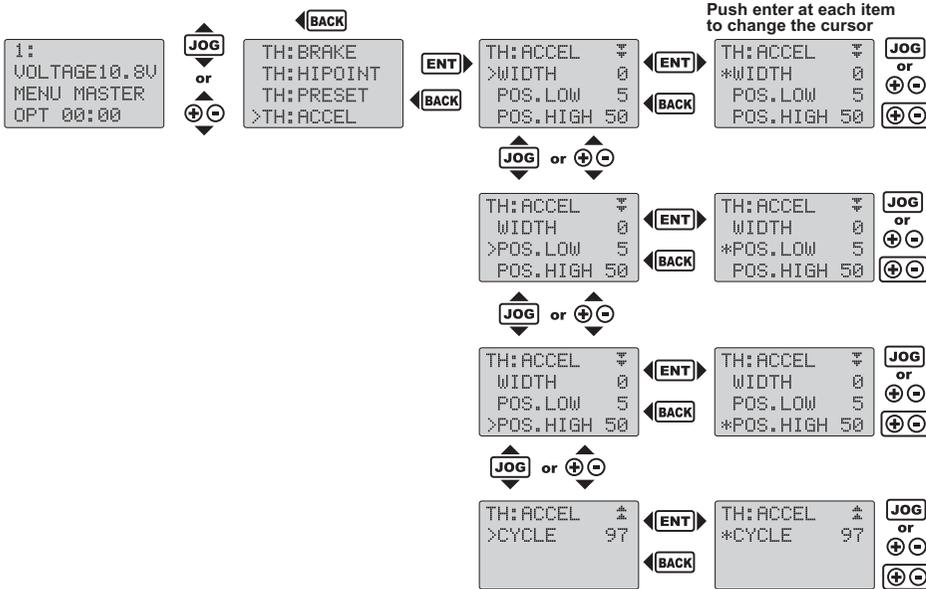
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG or +/-

BACK
```
TH:BRAKE
TH:HIPOINT
TH:PRESET
>TH:ACCEL
```

ENT
BACK

Push enter at each item to change the cursor

```
TH:ACCEL
>WIDTH      0
 POS.LOW    5
 POS.HIGH  50
```

ENT
BACK

```
TH:ACCEL
*WIDTH      0
 POS.LOW    5
 POS.HIGH  50
```

JOG or +/-

JOG or +/-

```
TH:ACCEL
 WIDTH      0
>POS.LOW    5
 POS.HIGH  50
```

ENT
BACK

```
TH:ACCEL
 WIDTH      0
*POS.LOW    5
 POS.HIGH  50
```

JOG or +/-

JOG or +/-

```
TH:ACCEL
 WIDTH      0
 POS.LOW    5
>POS.HIGH  50
```

ENT
BACK

```
TH:ACCEL
 WIDTH      0
 POS.LOW    5
*POS.HIGH  50
```

JOG or +/-

JOG or +/-

```
TH:ACCEL
>CYCLE     97
```

ENT
BACK

```
TH:ACCEL
*CYCLE     97
```

JOG or +/-

1 From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "TH:ACCEL" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.

Throttle Accelation

Time

Maximum

Operating Trigger

Pull the triger

Neutral

Time

Maximum

Servo movement

PosH
Width
PosL

If you set this fanction that POS L 10 POS H 80 the effect shown

Neutral

Cycle
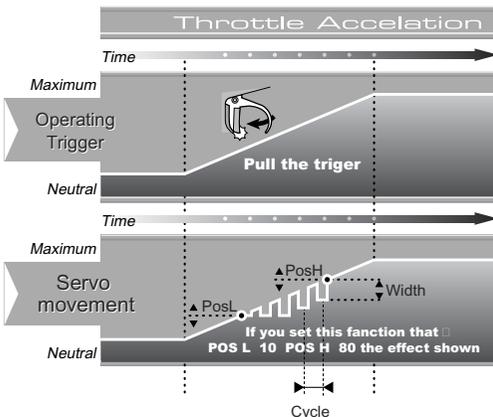
● Accelaration is off When WIDTH set at 0.

● Accelaration is off when POS.LOW and POS.HIGH are same

● Indicator will flash when the throttle accelaration is ON.

Throttle Accelaration Indicator

TH ACCEL (Throttle Acceleration) 2

BACK Back Key
ENT Enter Key
JOG JogDial
+/- Key
Reset

45
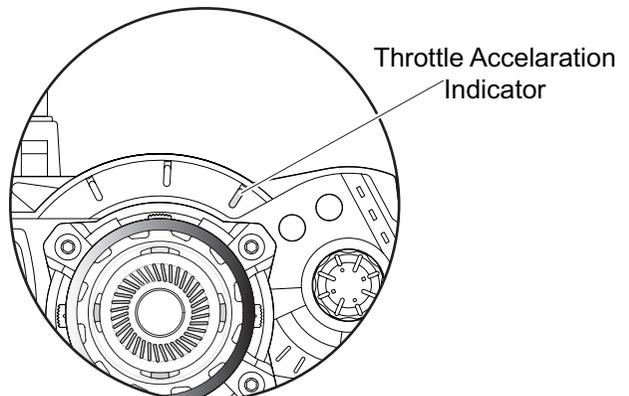
Setting Item

WIDTH(Width)	Set the swing width
POS.LOW(Low Position)	Set the lower part of throttle trigger for swing action
POS.HIGH(High Position)	Set the upper part of throttle trigger for swing action
CYCLE(Cycle)	Set the cycele of swing action

Range of setting value

Setting Item	Maximum	Minimum	Initial value	
ACCEL.WIDTH	100	0	0	
ACCEL POS.LOW	100	0	5	(Can not set higher value than POS.HIGH)
ACCEL POS,HIGH	100	0	50	(Can not set lower value than POS.LOW)
ACCEL CYCLE	100	1	97	

● Start a swing action with the throttle trigger in a position between POS.LOW and POS.HIGH.

● Set the swing width at WIDTH. This function can adjust during running, when assign to an ET (from ET1 to ET5) the "WIDTH" (set the "WIDTH" to 100)

● "CYCLE" can adjust during running the cycle of swing action. Assigning this function to an ET (from ET1 to ET5).

● You can assign this to the BT1 or BT2, on/off of functions.

＊When activated with on/off at BT button, even if the settings are not effective (ex. "WIDTH" is 0),the Throttle Acceleration Indicator will be flashing.

★**An Ideal setup isn't know till an actual run. This will vary due to other factors such as Servo, Car, road surface, etc.**

⚠ **Caution!** 🚫 **When setting a large value at set up, increasing the Consumption of electric currents will cause damage to servo.**

advice

To use ET or BT with other functions, modify them at "SET UP" function (page 60).

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ST SPEED (Steering speed) 1

Altering the Speed of the steering servo.

Limiting the max speed of the steering servo. You can separately set the Turn and Return. Dividing between the center of neutral and maximum rudder angle, it is possible to set each angle. (2 WAY)

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[How to open the set-up screen.]

1 From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "ST:SPEED" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.
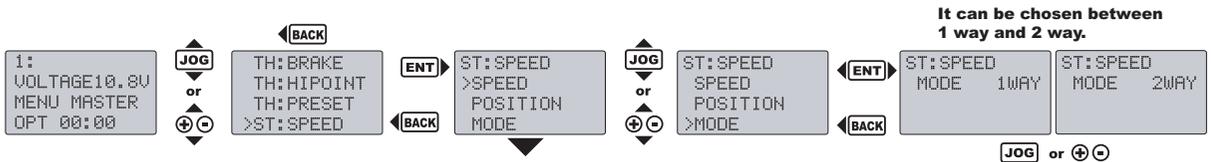
It can be chosen between 1 way and 2 way.

Displayed contents at "SPEED" and "POSITION" are change by setting value of MODE.

1WAY

Can not set "POSITION" at 1 WAY mode.

2WAY

Use Steering to move to TURN2.

Can change the value, where cursor are pointing.

Use Steering to move to RETURN2.

TURN1 at bottom row, By steering can change to TURN2.

RETURN1 at bottom row, By steering can change to RETURN2

ST SPEED (Steering Speed) 2

BACK Back Key
ENT Enter Key
JOG JogDial
+◉+ +/- Key
◉◉ Reset

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2Step Steering Speed

Time

Maximum

Operating Wheel

Turning   Returning

N

Neutral

Time

Maximum

Servo movement

Turn1   ←Turn2   Speed changing point
          Return2
          Speed   ← Return1

Neutral   Turn1 20   Turn2 100   Return1 80   Return2 100   Setting

The speed range of Turn1
The changing point can be adjusted
The speed range of Turn2

Neutral

Turn

End

speed range of Return1
The changing point can be adjusted
speed range of Return2

Neutral

Retn

End

Display contents at "1 way" and "2 way" are different by setting item of MODE.

●1WAY: Turning is the same speed in whole area. You can set each TURN and RETURN speed.
In 1 WAY, there is a displayed POSITION but it doesn't function. (Can't be chosen)

●2WAY: Set the position by assigning it to two areas.

★An Ideal setup isn't know till an actual run. This is due to
changes in various factors (Servo, Car, road surface, etc.)

advice

● **The results of this function will differ due to speed spec of servo.**

ST PUNCH (Steering Punch)

Only an initial response of a steering is made quick.

Skip the first field of response when you begin to cut the steering.

[How to open the set-up screen.]
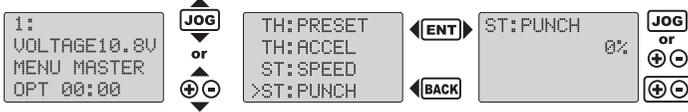
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or +/-
```
TH:PRESET
TH:ACCEL
ST:SPEED
>ST:PUNCH
```
ENT / BACK
```
ST:PUNCH
        0%
```
JOG or +/-

1 From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "ST:PUNCH" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.
To reset the value Push "+,-" keys at the same time.

4 Push Back key or Enter key to return at menu list.

● **When a large value is set, the moving volume becomes big.**
● **This is effective at the steering linkage, but doesn't improve straightness.**

Steering Punch

Servo Movement

100 Setting

0 Setting

Wheel Angle
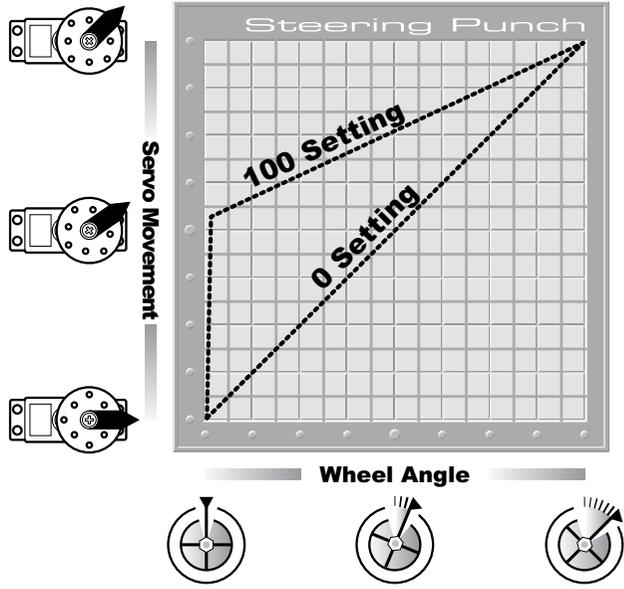
advice

● **When using this with other functions, please check the effects one by one.**

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ST CURVE (Steering Curve)

Adjusting the steering servo turning angle with the wheel operation.

Put a curve in the servo movement according to the steering operation.
You are able to set a quick curve or a mild curve.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ⊕⊖
```
TH:ACCEL
 ST:SPEED
 ST:PUNCH
>ST:CURVE
```
◄ENT
◄BACK
```
ST:CURVE
          0%
```
JOG or ⊕⊖
⊕⊖

1 From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "ST:CURVE" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys. to adjust the value.

4 Push Back key or Enter key to return at menu list.

● **Change the movement angle of a servo according to the angle of the wheel (see figure).**

● **At + side (+1 to +100), reacts greatly at the start, and a response becomes loose later.**

● **At - side (-1 to -100), reacts loosely at the start, and a response becomes big later.**

Servo Movement

Steering Curve

+100 Setting
0 Setting
-100 Setting

Wheel Operation
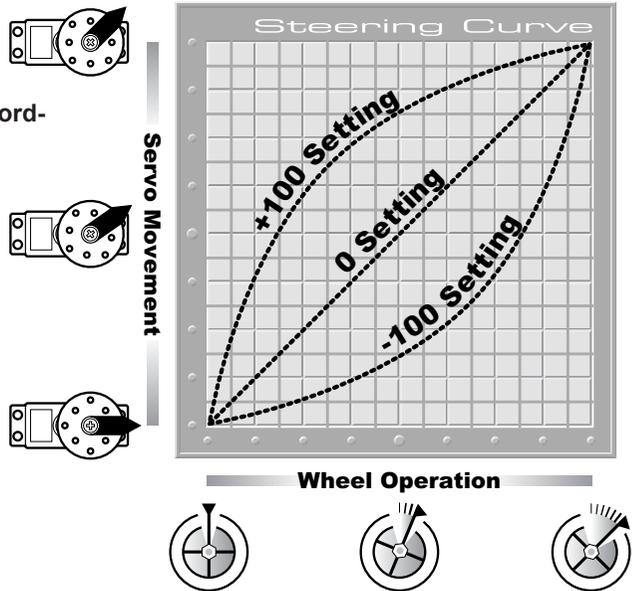
advice

● **When using with other functions, please check the effect one by one.**
● **Adjust the steering punch (see page 48) to change initial reaction of steering.**

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ST BALANCE (Steering Balance)

Adjusting the steering servo turning angle in the left and right directions independently. (Steering Balance)

Adjust the steering servo turning angle in the left and right directions independently when turnig the wheel fully.

[How to open the set-up screen.]
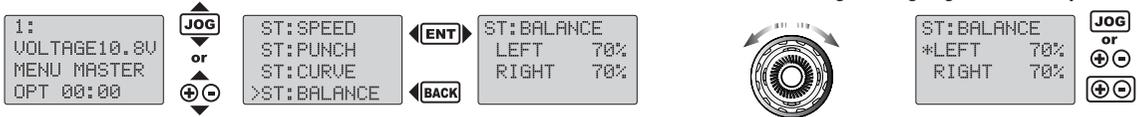
The cursor is changed by operating the steering wheel and a set value can be changed using Jog Dial or +.- keys.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
▲
JOG
or
⊕⊖
▼

```
ST:SPEED
ST:PUNCH
ST:CURVE
>ST:BALANCE
```
◀**ENT**▶
◀**BACK**

```
ST:BALANCE
LEFT    70%
RIGHT   70%
```

```
ST:BALANCE
*LEFT    70%
 RIGHT   70%
```
JOG
or
⊕⊖
⊕⊖

1 From initial screen. use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "ST:BALANCE" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.

4 A setting value has a reset key (+, - simultaneously held down), and is initialized to 70%.

5 Press "Back Key",to get back to function menu list screen.

> **Steering will show up on the screen,to turn left or right when an Et button is assigned to steering trim.**

advice ·

● When adjusting the steering balance.

1 Make 0 the Trim.

2 Adjust sub trim to run straight at neutral position.

3 Adjust the steering balance for each turning radius.

4 Adjust the steering travel for full rudder angle.

5 Adjust the trim when it doesn't run straight.

   Also see Sub trim (page 23 and page 34)

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ST TRAVEL(Steering Travel)

Adjust the total movement of steering.

Adjust the movement of steering servo when you move the steering wheel.

[How to open the set-up screen.]
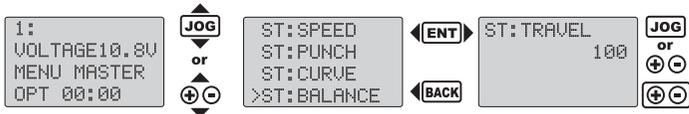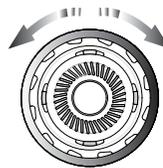
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG
or
⊕⊙

```
ST:SPEED
ST:PUNCH
ST:CURVE
>ST:BALANCE
```
◀ENT▶
◀BACK▶

```
ST:TRAVEL
        100
```
JOG
or
⊕⊙
⊕⊙

① From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

② Use "Jog dial" key or "+,-" keys to choose the "ST:TRAVEL" from Menu list.

③ Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value. Initial value is 100. Maximum value is 150. Minimum value is 0.

④ Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.

⑤ Press "Enter Key" or "Back Key" to get back to function menu list screen.

● ET4 is assigned initialy for steering travel. When ET4 is accessed, an Indication such as the one to the right appears on the screen.

● The number displayed is a ratio for a number set up at steering travel function.

ET-4 ⟶

```
AUTO DISPLAY
  ET4-TRAVEL
         100
        100%
```
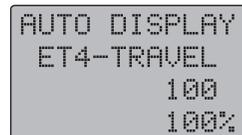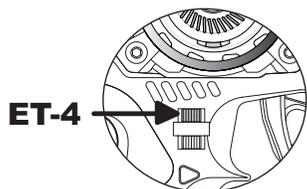
Steering will not function, when the value of steering travel is 0.

advice

● **Use Steering balance (see page 50) to adjust Right and left individually.**
● **Do not set at excessive angle.**
＊ **It will cause of damage to the servo due to an overload.**

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AUTO START
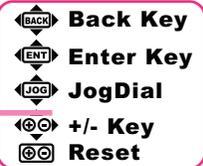
Throttle volume is set automatically from a starting postion.

When this function is set up properly at a starting fixed position, the throttle can be set at a position where the throttle will be pulled.
If a throttle is returned once, setting is removed and normal throttle control becomes possible once again.

[How to open the set-up screen.]

Return at Back key, But ready are still existing. ◄ BACK

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ▲▼ ⊕⊖

```
ST:PUNCH
ST:CURVE
ST:BALANCE
>AUTO:START
```
ENT / BACK

```
AUTO:START ▾
>START   OFF
```
⊕⊖

```
AUTO:START ▾
>START READY
```

Reset then start blinking "READY"

JOG or ⊕⊖

Set Throttle position.

```
AUTO:START ▲
>PRSET  F 0
 TH:POS   5%
```
◄ ENT ► / ◄ BACK

```
AUTO:START ▲
*PRSET  F 0
 TH:POS   5%
```
JOG or ⊕⊖ ⊕⊖

JOG or ⊕⊖

Set trigger position to start function

```
AUTO:START ▲
 PRSET  F 0
>TH:POS   5%
```
◄ ENT / ◄ BACK

```
AUTO:START ▲
 PRSET  F 0
*TH:POS   5%
```
JOG or ⊕⊖ ⊕⊖

1 Pull the trigger to turn on the TH:POS function.

```
AUTO:START ▾
>START    ON
```

**2** When back the trigger display OFF.

1 ↔ **2**

① From initial screen, use "Jog dial" key or "+,-" keys to open the Function menu.

② Use "Jog dial" key or "+,-" keys to choose the "AUTO:START" from Menu list.

③ Once reset at first screen. AUTO START function will be in the waiting mode.
Use Jog dial or + ,- keys to move at setup screen
(You can not move to setup screen while "READY" is flashing.)

④ Push enter key to change the cursor to edit each item.
The setup value can be reset by push reset key.

⑤ Push Enter or Back key to return to Menu list.

●PRESET : Position of throttle when function the AUTO START
Initial Value F 0 Max F150 Min F 0
●TH:POS : Position to start AUTO START
Initial Value 5% Max 100% Min 5% or OFF

When the light comes back on and off, it is in still effect.

advice ·

●Please check the movement before use.

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MODEL.COPY

BACK Back Key
ENT Enter Key
JOG JogDial
+/- Key
Reset

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Copying data in Model memory to another Model memory.

Save the current Model memory to other Model memory.
You can select setup a match to the condition of the track.
It would be wise to be copy the memory before changing settings.

[How to open the set-up screen.]

"No" is selected and press enter key , return to menu list screen.

Press "Enter Key" or "Back Key,toreturn to Menu list screen.

A copy place is chosen.

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG or +/-

```
ST:BALANCE
ST:TRAVEL
AUTO:START
>MODEL.COPY
```

ENT / BACK

```
MODEL.COPY
  COPY TO  2
```

ENT / BACK

```
MODEL.COPY
  COPY TO  2
>NO
 YES
```

ENT / BACK

ex. To Copy Data of MODEL MEMORY1 to MODEL MEMORY2

JOG or +/-

```
MODEL.COPY
  COPY TO  2
 NO
>YES
```

BACK / ENT

```
MODEL.COPY
  COPY TO  2


 CPMPLETE
```

WhenModel copy is finished a blinking "COMPLETE" will appear in LCD.

"Yes" is selected and press "Back Key",cursor.

① From initial screen use "Jog dial" key or "+,-" keys to open Function menu.

② Use "Jog dial" key or "+,-" keys, to choose the "MODEL.COPY" from Menu list.

③ Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to the Select Model Memory number.

④ Use "Jog dial" key or "+,-" keys then push "Enter" key
When YES is Selected, push "ENTER" key: Do MODEL COPY then "COMPLETE" is displayed.
When NO is Selected, push "ENTER" key: Back to Menu list
When YES is Selected, push "BACK" key: Cursor will move to NO
When NO is Selected, push "BACK" key: Beep sound

⑤ Push "ENTER" key or "BACK" key to Return to Menu list. If Model Copy was performed properly, "COMPLETE" will be displayed at screen.

This is useful when used in the following situations.

● Save the Current data and then try the New setup.
● Move the data from Data Pack
● You can swap the other data to the memory
 * You can copy the Data, but the setup data can not be copied to the unit.

Overwritten data can not be restored. Please confirm your actions before executing them.

MODEL.NAME(Model Name)
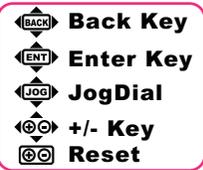
Putting a name in the Model memory.

Adding a name for an Identified model memory.

[How to open the set-up screen.]
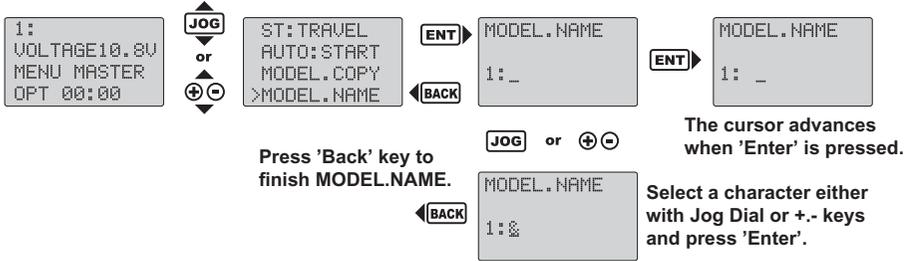
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG
or
⊕⊖

```
ST:TRAVEL
AUTO:START
MODEL.COPY
>MODEL.NAME
```
ENT▶
◀BACK

```
MODEL.NAME
1:_
```
ENT▶

```
MODEL.NAME
1: _
```

The cursor advances when 'Enter' is pressed.

Press 'Back' key to finish MODEL.NAME.
◀BACK

JOG   or   ⊕⊖

```
MODEL.NAME
1:&
```
◀BACK

Select a character either with Jog Dial or +.- keys and press 'Enter'.

1 From initial screen, use "Jog dial" key or "+,-" keys to open the Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "MODEL.NAME" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.

4 Letters can be inputed up to 10 characters.
Push enter after select.

●All usable letters:

　　& ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
　　ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz ·
　　ｦｧｨｩｪｫｬｭｮｱｲｳｴｵｶｷｸｹｺｻｼｽｾｿﾀﾁﾂﾃﾄﾅﾆﾇﾈﾉﾊﾋﾌﾍﾎ
　　ﾏﾐﾑﾒﾓﾔﾕﾖﾗﾘﾙﾚﾛﾜﾝﾞﾟ　(Space)

●When entering or editing the name, use Jog dial or +, - key to move the cursor to edit or enter the characters.

●You can use at initial screen and model select to select that model name.

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MEM.RESET(Memory reset)

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Format the model memory to factory settings.

Model memory will be reset back to the factory settings.
This will Format all data of model memory.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG
or
⊕⊝

```
AUTO:START
MODEL.COPY
MODEL.NAME
>MEM.RESET
```

ENT
BACK

```
MEMORY RESET
>NO
 YES
```

When "NO": End at push "ENTER" or "BACK" keys
When "YES": Push "BACK" key to cancel the operation.
Push "ENTER" key to do MEM.RESET function.
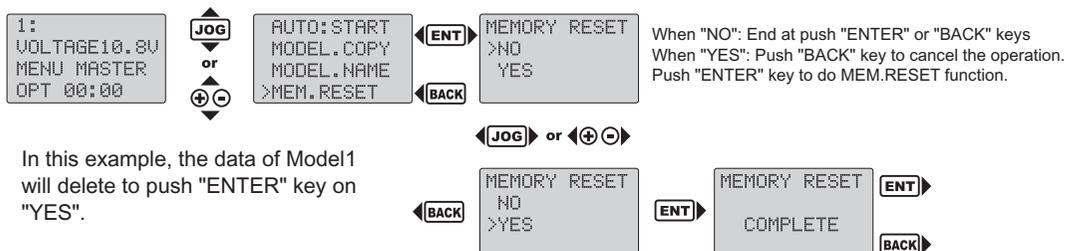
In this example, the data of Model1
will delete to push "ENTER" key on
"YES".

JOG or ⊕⊝

BACK

```
MEMORY RESET
 NO
>YES
```

ENT

```
MEMORY RESET

COMPLETE
```

ENT
BACK

1 From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "MEM.REST" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to choose Yes/No.

4 To go back to menu list, push the back key.
If "Yes" is selected, press "Enter Key" and model memory will be deleted.

●Only the model memory in use is erased.
●Settings of the main menu isn't deleted.

> **Erased data can not be restored. Please confirm it before the execution.**

advice •

●**Use the data pack to save the setup.**

• •

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Recalibrating the information system to a used VR .

[How to open setup screen]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ⊕⊖
```
MODEL.COPY
MODEL.NAME
MEM.RESET
>ADJUST VR
```
ENT / BACK
```
ADJUST VR
>NO
 YES
```

◄JOG► or ◄⊕⊖►

Done ◄BACK
```
ADJUST VR
 NO
>YES
```
ENT► Do ADJUST VR
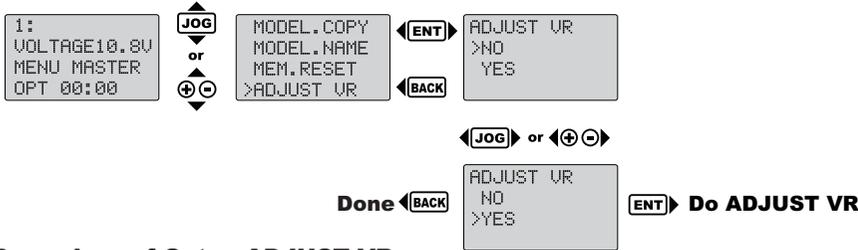
Procedure of Setup ADJUST VR

Control Steering
Full Turn to left

Control Trigger
Pull the Trigger to full foward

Cancel BACK
```
ADJUST VR ST
NUTRAL   121
LEFT     121
RIGHT    121
```
ステアリング

Cancel BACK
```
ADJUST VR ST
NUTRAL   253
LEFT     253
RIGHT    121

ADJUST VR ST
NUTRAL    13
LEFT     121
RIGHT     13
```

Cancel BACK
```
ADJUST VR ST
NUTRAL   121
LEFT     253
RIGHT     13
```
ENT
```
ADJUST VR TH
NUTRAL   116
FORWORD  116
BRAKE    116
```
Throttle

```
ADJUST VR TH
NUTRAL   206
FORWORD  206
BRAKE    116

ADJUST VR TH
NUTRAL    72
FORWORD  116
BRAKE     72
```
ENT
```
ADJUST VR

  COMPLETE
```
ENT► / BACK►

When display "COMPLETE" Push "ENTER" key or "BACK" key to Done.

Control Trigger
Push the Trigger to full back.

Control Steering
Full Turn to Right

✳ **These numbers are samples. Your values will differ.**
Trigger can be canceled with back key after operation till "Enter" is pushed. (Nothing is Over-writen in the memory)
Beep sound indicates that steering or trigger operation data is abnormal and/or no operation was performed.

1 From initial screen use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "ADJUST VR" from Menu list.

3 Move to yes/no to control "Jog dial" key or "+,-" keys.

4 Push Back key to return to Menu list.
Select No: Return to Menu list
Select Yes: Do the Adjust VR.

● When "ENTER" is pushed and you don't want to do this function, do not to touch Steering wheel or throttle trigger.
● The cancellation of this function is to press "BACK" while follwing the step above.
● The use of this function will depend on your frequency of use and your operation method.
● When this function can not fix your problems, please send this unit to our service department to repairs.

advice
●Can cause trouble when this function is performed incorrectly.
●We recommend sending this to our service department for repair, when you are not familiar with this function.

CH.SELECT(Channel Select)

⊞ Back Key
⊞ Enter Key
⊞ JogDial
⊕⊖ +/- Key
⊙⊙ Reset

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Set the number of channels to use.

The response mode for a system is set up here.

Select 2 Channel or 3 channel. Also select the switch behind the module.
When the switch is in High response mode:
     2channel : Advanced High Speed Response
     3channel : Super High Speed Response

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or ⊕⊖ →
```
MODEL.NAME
MEM.RESET
ADJUST VR
>CH.SELECT
```
← ENT / BACK →
```
CH.SELECT
>SELECT  2CH
```
END / BACK
JOG or ⊕⊖ →
```
CH.SELECT
>SELECT  3CH
 SET UP  FIX
```
← ENT →
```
CH.SELECT
 SELECT  3CH
>SET UP  FIX
```
END / BACK
JOG or ⊕⊖
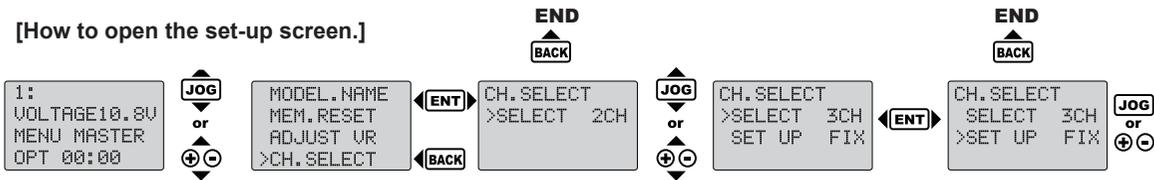
Push Enter to Move between Item to Item
Push Back to return to menu.
Use Jog dial to control CH3 Select Function

1 From initial screen, open the function menu. Use "Jog dial" or "+, -" key.

2 At the menu list, move the cursor to the CH.SELECT. Use "Jog dial" or "+, -" key, then push Enter.

3 To control Jog dial to select 2 or 3 channel.
When selecting 3 channels, the "setup" will display at lower part of screen. Then you can select the control function for the 3rd channel.

4 Push Back key to return to menu list.

> When setting of 3CH are in "FIX":Signal in itself is fired, but can't control a signal because it was fixed
> When assign to BT or ET, the function has a switch movement or can be assigned a reverse switch to change movement directions.

●**The movement of channel 3 can be adjusted by the max and min of rudder angle (switch-movement).**

●**About Response mode: This unit can select from 3 kinds of response modes.**

- Normal Response
- High Response
  - Super High Speed Response
  - Advanced High Speed Response
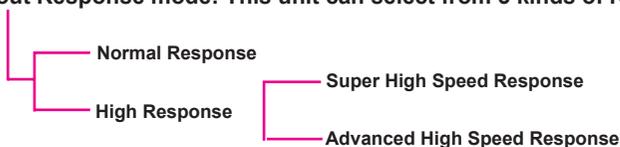
Normal Response
This mode can use all types of servos and receivers.

Super High Speed Response
This mode is adopted to the MARS-R. Old receivers and servos can't be used at this mode, but the response is improved.

Advanced High Speed Response
This mode can show the original speed. Digital servos are required for this mode.

advice

●**Please see page 19 about details of the response mode.**

REVERSE (Reverse Switch)

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Set the direction of movement for each channel.

You can set the direction of movement for each channel.

Use this function when the turing direction of servo is opposite to the wheel/trigger operation.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or +/-
```
MEM.RESET
ADJUST VR
CH.SELECT
>REVERSE
```
ENT / BACK
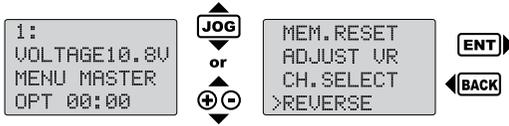
Can change selected Channel

2CH

```
REVERSE
>ST    REVERS
 TH    REVERS
```

JOG or +/-

```
REVERSE
 ST    REVERS
>TH    REVERS
```
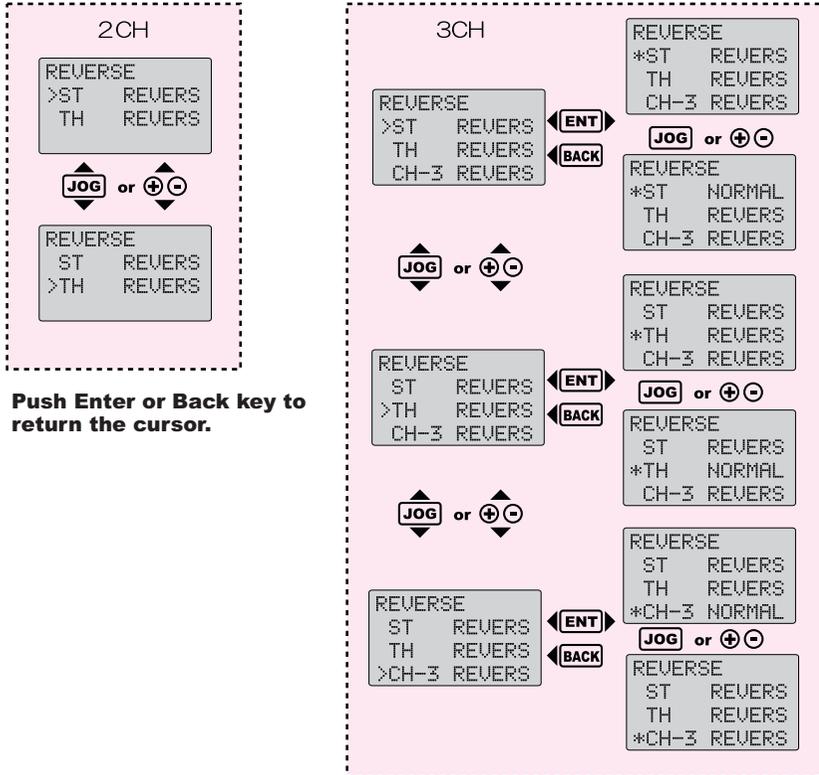
Push Enter or Back key to return the cursor.

3CH

```
REVERSE
>ST    REVERS
 TH    REVERS
 CH-3  REVERS
```
ENT / BACK
JOG or +/-
```
REVERSE
*ST    REVERS
 TH    REVERS
 CH-3  REVERS
```

JOG or +/-
```
REVERSE
*ST    NORMAL
 TH    REVERS
 CH-3  REVERS
```

```
REVERSE
 ST    REVERS
>TH    REVERS
 CH-3  REVERS
```
ENT / BACK
JOG or +/-
```
REVERSE
 ST    REVERS
*TH    REVERS
 CH-3  REVERS
```

JOG or +/-
```
REVERSE
 ST    REVERS
*TH    NORMAL
 CH-3  REVERS
```

```
REVERSE
 ST    REVERS
 TH    REVERS
>CH-3  REVERS
```
ENT / BACK
JOG or +/-
```
REVERSE
 ST    REVERS
 TH    REVERS
*CH-3  NORMAL
```

JOG or +/-
```
REVERSE
 ST    REVERS
 TH    REVERS
*CH-3  REVERS
```

1 From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "REVERSE" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.
  ∗ The menu for 3ch will be displayed, when selected (page 57).

4 Push back key to back to menu list.

● In an electric car, an ESC will adjust the Throttle. When reverse isn't set up, it will not work normally with older ESC.
● The movement direction of the steering is independent for each car. Check the setup after you mount your servo to the car.

TRIM RATE (Trim Rate)

Back Key
Enter Key
JogDial
+/- Key
Reset

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Adjust the movement volume of one step of Trim.

Total steps of Trim are 100. Adjust the movement volume of one step of Trim.

[How to open the set-up screen.]
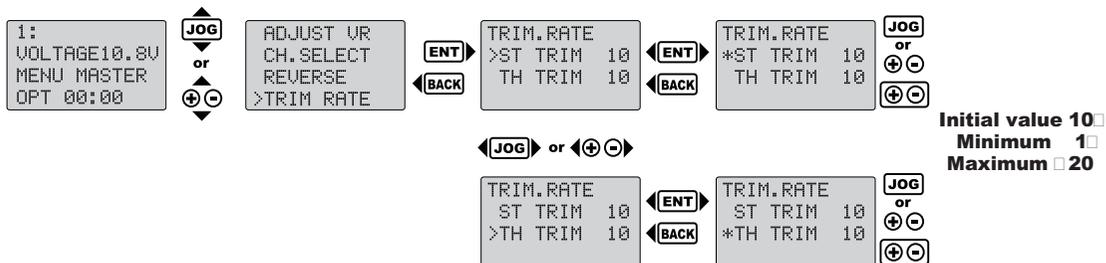
```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG or +/-

```
ADJUST VR
CH.SELECT
REVERSE
>TRIM RATE
```
ENT / BACK

```
TRIM.RATE
>ST TRIM  10
 TH TRIM  10
```
ENT / BACK

```
TRIM.RATE
*ST TRIM  10
 TH TRIM  10
```
JOG or +/-

JOG or +/-

```
TRIM.RATE
 ST TRIM  10
>TH TRIM  10
```
ENT / BACK

```
TRIM.RATE
 ST TRIM  10
*TH TRIM  10
```
JOG or +/-

Initial value 10
Minimum   1
Maximum 20

1 From initial screen, use "Jog dial" key or "+,-" keys to open Function menu.

2 Use "Jog dial" key or "+,-" keys to choose the "TRIM.RATE" from Menu list.

3 Push "Enter" key to enter setup menu. Use "Jog dial" key or "+,-" keys to adjust the value.

4 Press "EnterKey or "Back Key",change cursor ✳ to ⊱.And press "Back Key " to return to the function menu list screen.

●**1 step of trim variable. Movement volume becomes small if the trim value is a small number.**

●**The number of total step doesn't change. When changing the trim rate, the range of the trim will change.**

●**Can cause to out of setting the trim, when the change is applied to a setting that has already been adjusted.**

advice ●

　　　　●**Can perform a close adjustment when you make the rate to the trim small. Some of servos will not be effected by this.**
　　　　●**Please do a review of your linkage, before performing a particular trim setting.**

SET UP

Assign a function to an ET, or a BT

You can assign various functions to an ET or to a BT.

Some of functions are assigned in the factory settings, but they can be customized.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```
JOG
or
+/-

```
CH.SELECT
REVERSE
TRIM RATE
>SET UP
```
ENT
BACK
Do set up

```
SET UP
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
JOG or +/-
Select Item

ENT
BACK
```
SET UP
 ET1-ST TRIM
```
JOG or +/-
Select item with cursor to assign the function.

```
SET UP
 ET1-TRAVEL

 ET4-TRAVEL
```

If the functions are already used, Function name will flash. The Redundant function name will be displayed in the lower screen.

```
SET UP
 ET1-ST TRIM
>ET2-TH TRIM
 ET3-BRAKE
```

```
SET UP
 ET1-ST TRIM
 ET2-TH TRIM
>ET3-BRAKE
```

```
SET UP
>ET4-TRAVEL
 ET5-OFF
```

```
SET UP
 ET4-TRAVEL
>ET5-OFF
```

```
SET UP
>BT1-OFF
 BT2-OFF
```

```
SET UP
 BT1-OFF
>BT2-OFF
```
JOG or +/-

Indication contents of each function.

OFF:	None
ST TRIM:	Steering Trim
SUB TRIM:	Steering Sub Trim
TRAVEL:	Steering Travel
BRAKE:	Trottle Brake
TH.SP-L:	Throttle Speed (Low Speed)
TH.SP-M:	Throttle Speed (Medium Speed)
TH.SP-H:	Throttle Speed (High speed)
ABS.W:	ABS (Width)
ABS.P:	ABS (Position)
ABS.C:	ABS (Cycle)
ACCEL.W:	Throttle acceleration (Width)
ACCEL.C:	Throttle acceleration (Cycle)
TH TRIM:	Throttle Trim
TH SPEED:	Throttle Speed On/Off
ABS:	ABS On/Off
ACCEL:	Throttle acceleration On/Off
UPTIM:	Up Timer
LAPTIM:	Lap Timer
DOWNTIM:	Down Timer
PRESET:	Preset the Throttle
CH3:	3 channels control

Function name that can assign to each ET and BT.

ET1-ST TRIM	ET2-TH TRIM	ET3-BRAKE	ET4-TRAVEL	ET5-OFF	BT1-OFF	BT2-OFF
SUB TRIM	OFF	TH.SP-L	BRAKE	ST TRIM	CH3	CH3
TRAVEL	TRAVEL	TH.SP-M	TH.SP-L	TH TRIM	PRESET	PRESET
BRAKE	BRAKE	TH.SP-H	TH.SP-M	SUB TRIM	DOWNTIM	DOWNTIM
TH.SP-L	TH.SP-L	ABS.W	TH.SP-H	TRAVEL	LAPTIM	LAPTIM
TH.SP-M	TH.SP-M	ABS.P	ABS.W	BRAKE	UPTIM	UPTIM
TH.SP-H	TH.SP-H	ABS.C	ABS.P	TH.SP-L	ACCEL	ACCEL
ABS.W	ABS.W	ACCEL.W	ABS.C	TH.SP-M	ABS	ABS
ABS.P	ABS.P	ACCEL.C	ACCEL.W	TH.SP-H	THSPEED	THSPEED
ABS.C	ABS.C	TH TRIM	ACCEL.C	ABS.W		
ACCEL.W	ACCEL.W	OFF	THSPEED	ABS.P		
ACCEL.C	ACCEL.C	TRAVEL	ABS	ABS.C		
OFF			ACCEL	ACCEL.W		
			UPTIM	ACCEL.C		
			LAPTIM	THSPEED		
			DOWNTIM	ABS		
			PRESET	ACCEL		
			CH3	UPTIM		
			OFF	LAPTIM		
			ST TRIM	DOWNTIM		
			TH TRIM	PRESET		
			SUB TRIM	CH3		

＊Function of 3 channels will appear if select at CH.SELECT menu.

＊OFF means not functioning.

1 From the initial screen, open the function menu by using the Jog dial or +, - keys.

2 From menu list, select SETUP then push the Enter key.

3 Select ET or BT to assign the function by Jog dial or +, - keys.

4 Use Jog dial or +, - keys to set the function name. If it is not already assigned.

5 Push back key: cancel the setup and return to Setup menu.
Push Enter key: accept changees of setup and return toSetup menu.

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Setup the uses of the UP timer.

"UP TIMER" is a Simple Timer that adds time, but you can also set the LAP navigation function.

**[How to open the setup menu]**

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG or **⊕⊖**

```
REVERSE
TRIM RATE
SET UP
>UP TIMER
```

ENT   **BACK**

```
UP TIMER    ≢
>00:00.00
```

They don't have an allotment with an initial situation, a setup screen is displayed.

If you assign it to BT1.

```
UP TIMER    ≢
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```

JOG or **⊕⊖**

```
UP TIMER    ≟
>BT1-OFF
 BT2-OFF
```

ENT / **BACK**

```
UP TIMER
 BT1-UPTIM
```

JOG or **⊕⊖**

ENT

```
UP TIMER    ≟
>BT1-UPTIM
 BT2-OFF
```

ENT

⊕⊖

Start

→ **Trigger Start**

```
UP TIMER    ≢
>    READY
```

"READY" will blink
When time data is display push reset key to clear the display

Start when pull the trigger.

There are two kinds of start methods.

→ **Key Start**
It starts with the assigned button.

In an example, if BT1 is pushed, it will start.
∗It can start, even if it is not a timer screen.

Start Counting

```
UP TIMER    ≢
>01:06.13
```

Stop

Control BT1
It can start, even if it is not a timer screen.

Pause

Push Enter key
Operation is possible only on a timer screen.
It can not change to a setting screen.

Restart

Control BT1
Or While pause and Timer screen was display push Enter key

Reset

⊕⊖
RESET

```
UP TIMER    ≢
>00:00.00
```

While stop the timer (Include Pause) push Reset key.

JOG
or
⊕⊖

Can set While timer is stop (Can not setup while pausing).

```
UP TIMER    ≟
>ALARM   OFF
 P.ALARM OFF
 NAVI    OFF
```

ENT / **BACK**

```
UP TIMER
*ALARM   OFF
 P.ALARM OFF
 NAVI    OFF
```

Set each item

JOG or **⊕⊖**

```
UP TIMER    ≟
 ALARM   OFF
>P.ALARM OFF
 NAVI    OFF
```

```
UP TIMER    ≟
 ALARM   OFF
 P.ALARM OFF
>NAVI    OFF
```

When setting NAVI, the button assigned to the rise timer needs to be reset-after pausing the operation on the timer screen. Stop the timer in order to reset the NAVI.
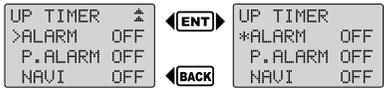
ALARM
Alarm is sounded after the counting setting time has expired.(Alarm tone can set (See page 29))
Initial Value Off Min.Value 1 min Max.Value 99 min

P.ALARM
Can set Pre Alarm before the Alarm
Initial Value OFF Min.Value 1 sec Max.Value 30 sec

NAVI
Set LAP Navigation
Initial Value OFF Min.Value 3.00 sec Max.Value 99.99 sec

1 Open the function menu and use Jog dial or "+, -" keys.

2 From menu list, use Jog dial or "+, -" keys and select the UP TIMER.

3 If no ET or BT is assigned it to the lap timer, Setup will be displayed.

4 Press the Enter or Back key to move the cursor back. Then push the back key to return at menu list.

∗Lap navigation function can set the target lap time.

You can start this with the same button as the "UP TIMER".

DOWN TIMER

Set Down timer

This is a timer that subtracts from time that you set up.
Use this when you need to time your refueling for a gas car.

[How to open the set-up screen.]

```
1:
VOLTAGE10.8V
MENU MASTER
OPT 00:00
```

JOG or **+ -**

```
TRIM RATE
SET UP
UP TIMER
>DOWN TIMER
```

BACK **ENT**

```
DOWN TIMER ≡
>      5m00s
 AUTO SET
      ******
```

They don't have an allotment with an initial situation, a setup screen is displayed

```
DOWN TIMER
>ET1-ST TRIM
 ET2-TH TRIM
 ET3-BRAKE
```
JOG or **+ -**

```
DOWN TIMER ·
 BT1-OFF
>BT2-OFF
```
ENT **BACK**

If assign to BT2

```
DOWN TIMER
 BT2-DOWNTIM
```
ENT

```
DOWN TIMER
 BT1-OFF
>BT2-DOWNTIM
```
ENT

JOG or **+ -**

Start

Control BT2 to start

It is not necessary to display the timer screen.

```
DOWN TIMER ≡
>      4m59s
 AUTO SET
      ******
```
Count indication

Reset start

Control BT2 to reset then re-start

It is not necessary to display the timer screen

Stop

```
DOWN TIMER ≡
>      0m00s
 AUTO SET
      ******
```
When Indicated 0m00s to the screen, the buzzer will alarm then timer will stop

Stop in time **+ -**

Reset key (push +, - key at the same time)

It is necessary to display the timer screen

Auto set Actual function to set the time that it takes to do a down timer.

JOG or **+ -**

```
DOWN TIMER ≡
      5m00s
>AUTO SET
      ******
```

Ready to start

Start at BT2

+ -
```
DOWN TIMER ≡
      ******
>AUTO SET
      READY
```
"READY" will blink

When push reset button in Down timer screen. Auto start function will wait for start.

Button

While counting
```
DOWN TIMER ≡
      ******
>AUTO SET
      0m59s
```

ENT
Do a pause and a start in turn whenever push a Enter key.

```
DOWN TIMER ≡
      1m01s
>AUTO SET
      ******
```
The time of the timer is set by operating BT2 (button or key that allocates the function) at the time of 1m00s or more (for one minute) it.
※Nothing is happened for one minute or less.

```
DOWN TIMER ≡
      ******
>AUTO SET
 PAUSE 0m02s
```
+ -
```
DOWN TIMER ≡
      5m00s
>AUTO SET
      ******
```
Stop auto set function when push reset key while paused.

※**Need to reset key operation if start Auto set then stop Less than 1 minute.**
(It will stop when powered-off)

JOG or **+ -**

Set up
```
DOWN TIMER ≡
>TIME  5m00s
 P.ALARM  0s
```
ENT **BACK**

Timer
```
DOWN TIMER ≡
*TIME  5m00s
 P.ALARM  0s
```
JOG or **+ -**
Initial value 5 min.
Min. value 1 min.
Max value 99 min 59 sec.

JOG or **+ -**

```
DOWN TIMER ≡
 TIME  5m00s
>P.ALARM  0s
```
ENT **BACK**

Pre-alarm
```
DOWN TIMER ≡
 TIME  5m00s
*P.ALARM  0s
```
JOG or **+ -**
Initial value 0 sec.
Min. value 0 sec.
Max value 59 sec.

1 Open the function menu, using Jog dial or "+, -" keys.

2 From menu list, use Jog dial or "+, -" keys and select the DOWN TIMER.

3 If no ET or BT assign it to lap timer, Setup will be displayed.

4 Time is subtraced from the set up on Down Timer.

● Use Auto set, then Run the car till empty the fuel. When setting the pre alarm, you can use it as a refueling timer.
● You need to assign any button to use this function.
● You can assign the custom tone for the alarm of Down timer function.(see page 29)

LAP TIMER

BACK Back Key
ENT Enter Key
JOG JogDial
+/- Key
Reset

63

You can count every lap by using Lap timer.

Set the Lap timer function and measurement point to record the lap.
There is no established key at an initial factory setting.

[How to open the set-up screen.]

They don't have an allotment with an initial situation, a setup screen is displayed.

If assign to BT2

Start / While counting

"READY" blink

Pull the Trigger, to start counting

Counter display
ENT Do Pause and restart in turn

Pause
Can not move the cursor during pause.

+- When Push the Reset key during pause. all lap record will clear.

Lap Records
Start counting when push the Assigned button.

Stop
Need to set Alarm time. A timer stops by controlling a button after time progress.

Alarm Time Setup — Lap Timer Alarm

Pre-Alarm Time — LAP Timer Pre-Alarm

Display Lap Time / Delete Lap record
Next time start recorded from displayed LAP In this case start recording from LAP 2.

Push "ENTER" button to change the cursor. Push "ENTER" or "BACK" button to cancel.

Cursor deletes the lap of * by the reset operation, and cursor returns to original.

Delete all Lap records.
While push "ENTER" button then Push together the "+ and -" button. to clear all LAP records

1 Open the function menu using Jog dial or "+, -" keys.

2 From menu list, use Jog dial or "+, -" keys and select the LAP TIMER.

3 If no ET and BT are assigned it to lap timer, the setup will be displayed.

4 You can record up to 80 laps. After 80 laps, over-writing of the 1st lap will occur.

advice
● The lap time records in the Lap timer will be save at same place. The set up is Independent at each memory setting.
● Can use custom tones for the alarm. (see page 29 and page 30)
● Can use 3 kind of timers at the same time. (UP Timer, Down Timer, Lap Timer)

Connecting the Receiver

| ⚠ Warning! | ⚠ | Be certain to use only KO Propo genuine FM crystal sets(transmitter and receiver). Never use crystals produced by other companies since such crystals may vary in frequency, which could lead to misoperation or out of control use. |

| ⚠ Warning! | ⚠ | Be sure to connect all equipment correctly. If connections are loosened by vibration,the model may run out of control. |

| ⚠ Warning! | ⊘ | Do not cut or bundle the aerial wire with other cords. It may result in decreasing the sensitivity of the receiver and may result in the model running out of control. |

| ⚠ Caution! | ⊘ | Be careful not to reverse the polarity of the transmitter and the receiver. Reverse polarity could damage the units. |

| ⚠ Caution! | ⚠ | Be sure to use genuine KO Propo products e.g. transmitter,receiver, ESC and other optional parts. * We cannot assume any responsibility for the use of other companies products with this unit. |

| ⚠ Warning! | ⚠ | Be sure to use grommets and be sure that the servo is not touching any metal plates directly. * The vibrations may damage the servo and the model may run out of control. |

● **Connecting the receiver**

KR-302F

Crystal replacement

Antenna Lead

BATT
Switch Harness
CH1
Steering Servo
CH3
CH2
ESC or Throttle Servo
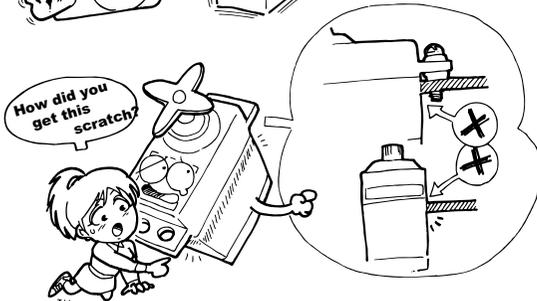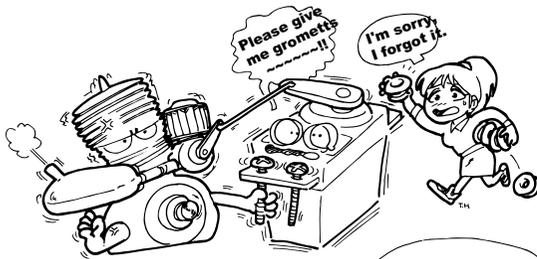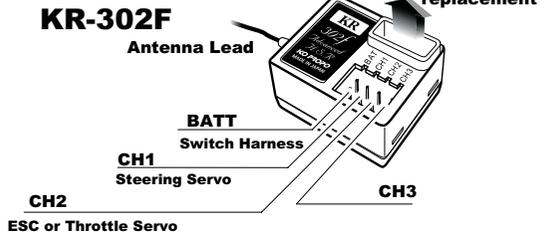
● **For an electric-powered car**
(FET servo + FET ESC)

Steering Servo
7.2V FET Servo

Receiver

Electric
Speed Controler
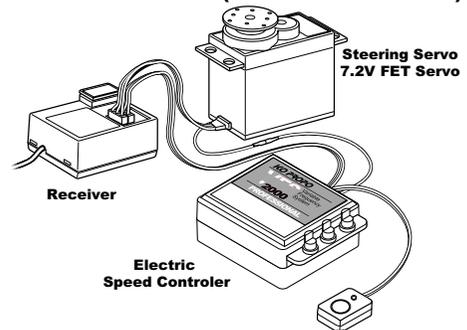
● **For a gasoline-powered car (6V servos)**

5N600mAh
6VNicd Battery

Switch Harness

Throttle Servo

Receiver

Steering Servo
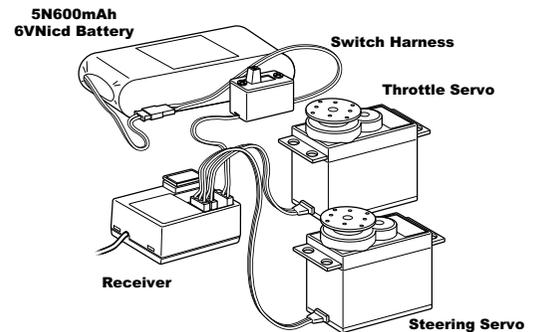
● **For a gasoline-powered car**
(7.2V FET Servos)

6N600mAh
7.2VNicd Battery

7V Reguletor
Switch Harness

Throttle
Servo

Steering
Servo

Receiver

Please give me gromets ~~~~!!

I'm sorry. I forgot it.

How did you get this scratch?

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KR-297FZ

Antenna Lead

BATT
Switch Harness

CH1
Steering Servo

CH2
ESC or Throttle Servo

KR-301F

Antenna Lead

CH1
Steering Servo

CH2
ESC or Throttle Servo

CH3

BATT
Switch Harness

KR-302F

Antenna Lead

BATT
Switch Harness

CH1
Steering Servo

CH2
ESC or Throttle Servo

CH3

With different models of receivers being used, the secquence of each channel and a battery channel changes. Please connect a connectors after a checking the display. Keep in mind that things may not operate even if you connect the Servo and ESC to a battery channel.

About frequency changes

● When the frequency to be used is exchanged in a frequency band.

The crystal of a transmitter and a receiver is exchanged for the frequency to be used.

● For changing the frequency band to be used.

Exchange of a frequency band is possible by exchanging the RF module. An exchangeable frequency band is restricted to the frequency band permitted in each country where it is used.

Notes on installing-1

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● **The Source of Noise and Electromagnetic Induction (Electric-powered car)**

Assume that all areas where large currents are flowing generating noise!

Locate antenna wires and receivers as far away from the motor, ESC, nicad batteries,and silicone wire as possible. Noise is a type of radio wave, and therefore is radiated (travel through the air) in the same fashion. Therefore, locating an antenna near a noise source increases the effect of the noise.
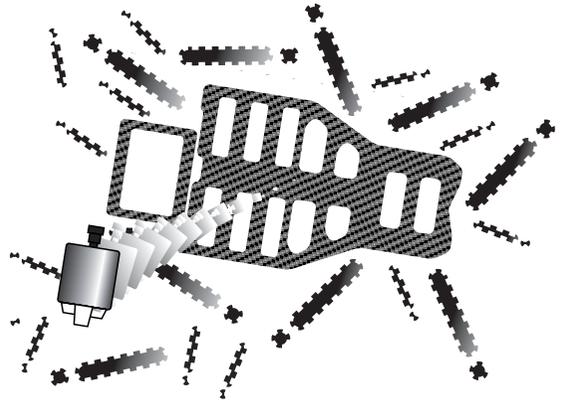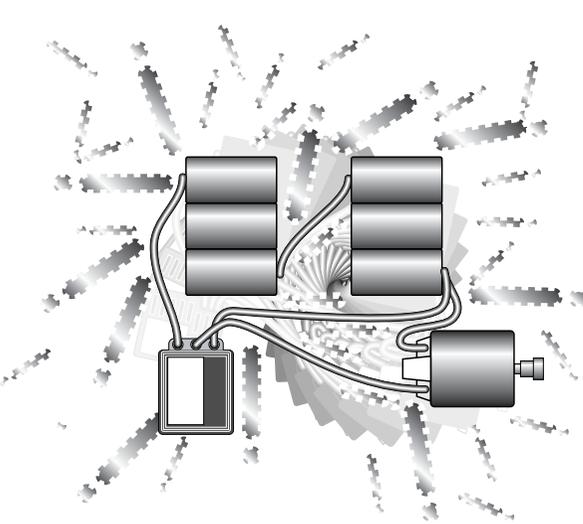
Metals and carbon can also conduct noise. As a result, you should never
closely attach the antenna wire to the plate and carbon chassis.

●**Distance Between the Receiver and Antenna Holder**

Install the antenna holder as near to the receiver as possible.

The easier it is for the antenna to pick up noise,the sensitivity of the receiver will decrease.
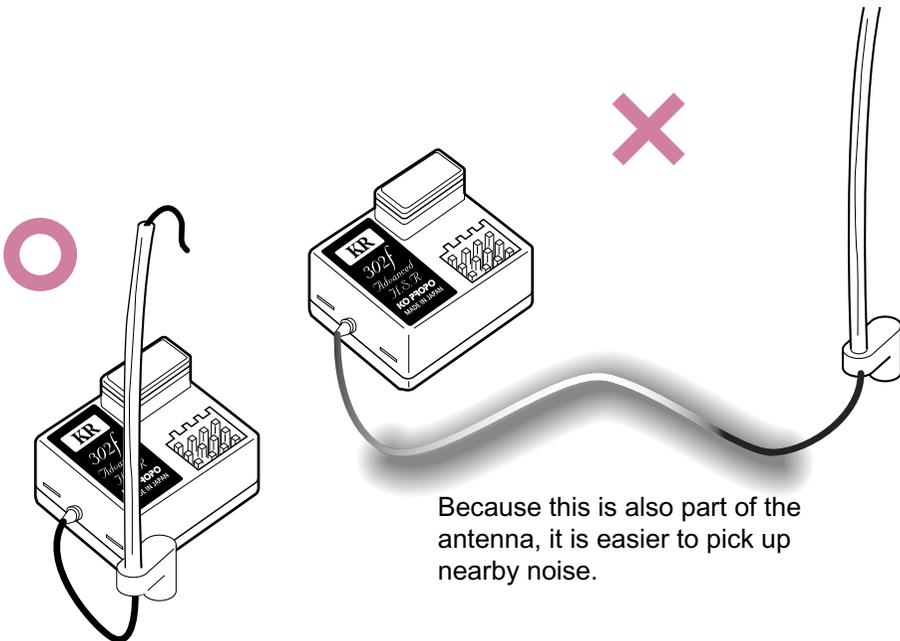
Because this is also part of the antenna, it is easier to pick up nearby noise.

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Notes on Installing the Receiver

●Notes on Installing Position (Do not install near the reciever.)

The installation position should be as far as possible from the motor, ESC, nicad batteries, silicone wires or other noise sources.Especially, do not route the silicone wires next to the receiver. (Must not be near to the crystal)
FET servo blue wire (7.2V wire) and switches can also generate noise, position them as far away as possible from the receiver and the antenna.

The silicone wire passes directly over the receiver.

Antenna

Do not allow the silicone wires to cross the antenna.

Do not route the wires near the antenna.

Do not position the antenna opening or the crystal near the nicad batteries, motor, or the carbon chassis.

Do not position the receiver or the antenna on the top of the motor or the nicad batteries.

When mounting the receiver and antenna on the "upper deck", position them as far away from the nicad batteries and motor as possible.

Mounting the Receiver (Electric-powered car)

●When fixing the receiver in place on the chassis or on the "mechanical plate", use two pieces of double-sided tape, one on top of the other, so that the receiver is cushioned somewhat.
Be sure that the crystal is on the high end when installing the receiver

Do not mount the receiver directly on the chassis or "mechanical deck"

Use two layers of double-sided tape.

Do not position the crystals on the bottom

Always position the crystal on the top

Notes on installing-3

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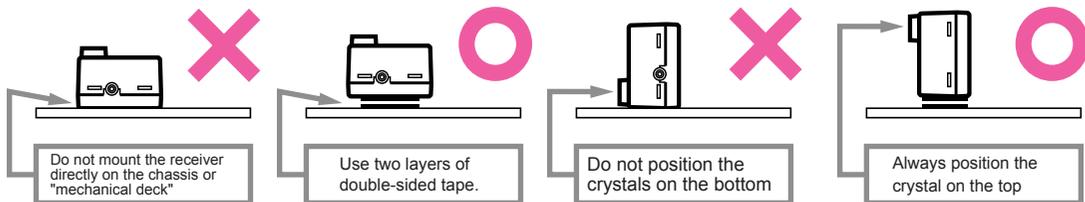
● Notes on Installing the Receiver (Gasoline-powered car)

Do not secure the receiver on the chassis or the "mechanical deck". Vibrations will cause the receiver to misfunction and may even cause internal damage to the receiver. Either use the bracket (receiver holder) provided with the kit or else, cushion the receiver with a sponge like material.

Bracket

Sponge

KR
302f
Active
Filter
KO PROPO
MADE IN JAPAN

BATT CH1 CH2 CH3
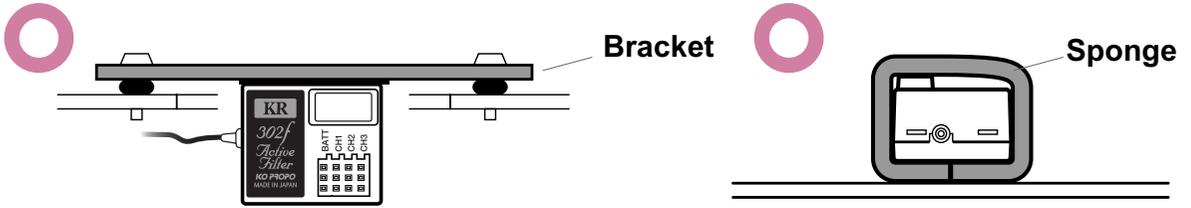
⚠ Warning! ⚠ Do not place in an area where the exhaust gas of an engine carries nor where high temperature prevail. * A receiver breaks down and it can become the cause of a reckless run.

● Notes on Antenna Installation

Please follow the instruction as in the illustration below when you mount the antenna holder to the metal or carbon chassis.When using on FRP or carbon hollow antenna on a racing car, etc., do not pass the antenna wire through the pipe, allow it to trail away loosely outside.

Piano wire

Aluminium holder

**Metal, carbon
(OK if FRP or plastic)**

**Soldered to
lug board**

Pipe

Aluminium holder

**Metal, carbon
(OK if FRP or plastic)**

Pipe

Plastic holder

Metal, carbon

**Do not secure
antenna wire
to the plate**

KO PROPO Professional Controller
EX-10 HELIOS
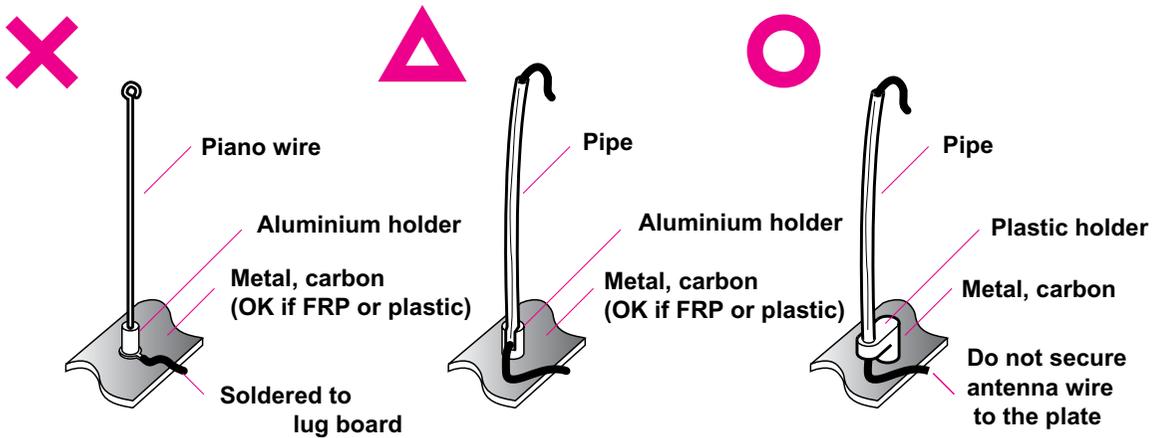
Main Specifications

Transmitter   KT-303H

Operation method	Wheel+ Triger
Number of channels	3 Channnels
Transmission Frequency	Any Band by changing crystals within the frequency range
Neutral pulse	1.5msec
Memory	EEPROM
Supply Voltage	8x AA size dry cel or 8 cells Nicad
Current consumpion	Less than 250mA

RF Module RF-501F for KT-303H

Transmission Frequency range	Any frequency range by switchung RF modules
Modulation method	FM-PPM

Receiver KR-302F

Reception method	FM-PPM
Number of channels	3 Channels
Reception frequency	Any Band by changing crystals within the frequency range
IF frequency	455KHz
Supply voltage	3.5 6.5V
Dimentions	29.3 × 24.4 × 16.4mm
Weigh	12.0 (excluding crystal)

KO PROPO
LATEST LEADING RADIO CONTROL TECHNOLOGY

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Terminology used in radio control mode usage.Please refer to the Index for terminology or wording of this transmitter.

7.2V Servo	The Servo that a motor becomes the other power supply. By a KO PROPO original system, it is expected that a power supply is taken out of a power supply for power (7.2V) in the case of an electric car
27Mhz	It is for one of the frequency band that it can use by radio control, ground, water model, and there are 12 channels.
40Mhz	One of the frequency bands that it can use by radio control. Eight bands for ground model. There are five bands for sky model.
Analog Servo	The general term of a model of machines. This Servo which uses an analog method for control IC of Servo.
Alarm	A signal to be used as a buzzer for the transmitter. It is used as means of warning.
Amplifier	ESC - Electronic Speed Controller
AM	An electric wave to send from a transmitter A signal form of an electric wave. There is FM as another method. AM is an abbreviated designation in English of an amplitude modulation method. When that is used, It is had to match a signal form of transmission and reception machine.
AC Charger	A charge container to connect to 100V outlet. There are many situations to cut more than several hours in charge.
Band plate	It is frequency and is selected with crystal glass. It can make a change by crystal glass exchange in the same frequency band.
Band	It is frequency and is selected with crystal glass. It can make a change by crystal glass exchange in the same frequency band
Backlight	By themselves LCD (a liquid crystal display) don't emit light, visibility isn't good by the time if it is dark. It is the lamp which is installed in the backside of liquid crystal to solve this (the emission of light source)
Center Trim	Even if the trim is adjusted, overall turning angle point will not be changed.
Connector	Electric point of contact unit of putting on and off type.
CPU	IC of a core of a computer used in various uses by digital operation processing.A microcomputer. It can be called MPU
Cycle	This is the space and period of repetition of a certain movement
Channel (CH)	Number of Servos which can be controlled with a transmitter one by one. Or it is a number of that individual signal
Carburetor	Fuel mixture device, turn number of engines are controlled.
Crystal	A component to set frequency of transmission and receiver.It is made from crystal.
Clutch	An output axis of an engine and the intermittent continuation device which there is between gearing devices.
Data Pack	It is the module which has memory for enlargement built-in. Usable model memory can be increased.
Digital Servo	The general term of a model of machines of the Servo which used a digital system for control of the IC of a Servo.
Delay	Act slowly.
DC Charger	The Charger which uses direct current for power supplies such as 12V battery or 12V stabilization power supply.
Duty	It is the ratio of two movements.
Dead Band	The field where Servo doesn't react to even if it controls foil and trigger.
Discharger	The circuit device which makes you discharge a residual quantity of a charge type battery of NiCad forcibly.
ESC	Abbreviation of an electric speed controller. It is a speed controller of a motor to use by electric car. Also called anamplifier.
EEPROM	A kind of memory. Contents written in aren't erased even if switched off. It is used for data pack in EEPROM others of memory in the main body
ET	An Abbreviation of electric trim. A button is abbreviated to BT.
FM	A signal form of an electric wave to send from a transmitter. FM is an abbreviated designation in English of a frequency modulation method
FET	An electric field effect transistor. Loss resistance is small, and in comparison with a normal transistor, a consumption electric current of oneself is small, too.
FET Servo	FET was used for a motor drive element instead of a conventional transistor, and it is being of high class Servo.

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Term	Description
Fast Charger	The Charger which charges a nickel-cadmium battery and a nickel metal hydride battery by a short time.
Fail safe adaptor	When it receives an interference electric wave, it is the device which it fixes Servo Horne at the position that a computer set up beforehand, and prevent reckless driving.
Frequency band	It is called the place that each frequency gathers, and shine, 27MHz zone (mega Hz), 40MHz zone.
High frequency ESC (an amplifier)	ESC of the method how frequency to drive a motor is high. Most are these systems, but the thing which isn't a high frequency system exists in past things.
High frequency (RF) module	An electric wave is made, and a circuit device to fire can be put on and off. When a frequency band to use (27MHz .40MHz) is changed, it is had to swap it.
Home Page	A place where it is mentioned that certain information is on the Internet. You can look using software on a personal computer called a Web browser.
Internet	The network where the communication network where plural personal computers were connected to was connected to on a large scale more. Information dispatch by a homepage and an E-mail are depended on in the world, and communication can be done.
Jog dial	A knob for data modification of a turn system not to have a stopper. If that is controlled every one click, by 1 point can do data modification, but is usable usefully when numerical value wants to be made a change in at a stretch
LCD	A cable address to mean liquid crystal indication device. It is used to display letters.
Linkage	Servo and connection mechanism to connect each mechanism to of a model.
Machine plate	The board which installs receiver Servo on a chassis of a car.
Mega Hz (MHz)	1000Hz =1 KHz (a kilohertz) 1000KHz =1MHz.
Memory	In a personal computer, it is used for a meaning called the preservation place in which information is stored temporarily. Although the information on the memory in this case will be lost if a power supply is shut off, the memory used for a transmitter etc. is called non-volatilized memory, and even if it shuts off a power supply, it holds information.
Neutral	The situation that separated a hand from a stick of a transmitter or a position of Servo Horne at that time.
NiCad (Ni-cd)	It is different from a dry cell, The battery which it is charged repeatedly, and can be used. There are NiMH or lithium ion as the battery which it is charged, and can be used repeatedly elsewhere
Noise	An electric noise. For a kind of electric wave, it makes jumps into a receiver and malfunctions.
Preset	Will set up a position in advance
PC interface	It is an adapter it converts a signal into, and to be connected to do setting of a transmitter with a PC.
Pumping Effect	Intermittent breaking action.
Push rod	Turnbuckles which are used for linkage.
Reset	Return setting contents of setting numerical value to an initial situation
Regulator	The circuit which stabilizes the input voltage to the necessary voltage.
Rubber Grommet	The rubber component which protects Servo from vibration, an edge of a Servo case can be possessed.
Receiver (RX)	The device which an electric wave of a transmitter is received, and send a control signal forth in Servo and ESC.
Response	It is time before machinery of the receiver side reacting since it controls a transmitter.
Servo	The device which converts a management signal of a transmitter into turn machine exercise. A Servo motor.
Speed controller	ESC
Swing	Campaign against coming and going between a certain set two points.
Spline	Exact location of the servo horn in to the neutral position.
Servo Saver Horn	The shock absorbing device that is installed or in place of servo horn.
Transmitter (TX)	Hand set that transmitter signal.
Turning Angle (Travel)	Turning angle of the servo horn.
Travel	It is a rudder angle, movement volume.
Trigger	Control mechanism of a transmitter. A piece pulled with a finger to control the speed or brakes.
Trim	The device which adjusts a neutral position of each channel signal.
VR	It means the volume that detects the position of the stick.
Wheel	Mechanism of the transmitter which it turns it from side to side, and control a steering.
Width	The thing of width which operates by ABS or Throttle Acceleration.
WEB Site	Home Page

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EX-10 HELIOS

PROFESSIONAL CONTROLLER

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