

EXZES

INSTRUCTION MANUAL



SANWA

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TRANSMITTER

- **DATA MEMORY** : 3 kinds of data memory are available in response to setting.
- **TRIM MEMORY** : Trim positions of steering and throttle can be memorized.
- **ADJUSTABLE RATE CONTROL** : Characteristics of steering and throttle can be adjusted freely from mild to quick.
- **ADJUSTABLE RATE CONTROL POINT** : Variable point of adjustable rate control can be altered.
- **STEERING DUAL RATE A BLAKE TRIMMER** : Even during running the amount of motion of the the steering servo can be easily adjusted.
- **END POINT ADJUSTMENT** : Adjustments of amounts of hi-brake of the throttle and left/right steering can be adjusted independently.
- **STARTING POSITION SWITCH** : Idle-up at engine start can be done just by one switch.
- **MODEL SELECT** : Which can call 3 kinds of established data.
- **STOP-WATCH WITH ALARM** : Useful for lap-time, fuel-measure and training.
- **DISPLAY SWITCH** : It can do the setting of functions on the display without wave-transmission.
- **DIRECT SERVO CONTROL** : It can adjust the linkage of R/C car without wave-transmission.
- **REVERSE SWITCH** : It can alter the servo direction of the movement which is needed for linkage.
- **DISPLAY OF POWER VOLTAGE** : The supplied voltage is displayed, digitally, ranging from 8 to 13.1V at every 0.1V.
- **COMMAND SIGNAL ON-OFF SWITCH** : Provides the capability to switch the input signal beeper either OFF, or to ON when ever a key is pressed.
- **BATTERY ALARM** : A beep warning battery shortage of transmitter.
- **STICK TENSION ADJUSTMENT** : which can adjust spring tension.
- **INTERCHANGEABLE MODULES SYSTEM** : frequency can be changed 27MHz to 40MHz.
- **3 CHANNEL.**
- **TRIM RATE ADJUSTMENT** : You can adjust the of rate of one pitch of the trim movement.

RECEIVER

- Ultra compact, light weight for FM 3ch micro receiver.
- Input voltage upto 8.4V.
- Characteristic of reduced voltage is improved compared with conventional receiver and with longer running time.
- The circuit is devised with narrow band, a receiving band effective against CB interference and dead point.
- The length of antenna is designed at 50cm. It is much easier to mount on the R/C CAR.
- Plug-in crystal system.
- Direct Servo Control.

SERVO

I) ERG-XZ (EXCLUSIVE FOR NICADS VERSION)

With newly developed coreless motor and aluminum final gear for longer durability. Ultra response and speed in spite of 6V version.

II) ERG-XR (EXCLUSIVE FOR NICADS VERSION)

With newly developed coreless motor and aluminum final gear for longer durability. Ultra hi-torque and speed in spite of 6V version.

III) SRM-141HR (EXCLUSIVE FOR NICADS VERSION)

Small-sized with coreless motor for Electric racing car and aluminum final gear for longer durability and ultra response and speed.

Servo-mount design to be mounted to chassis directly.

FET AMP

I) SUPER VORTEX - 212HF

- Instantaneous Maximum Current-2200A.
- Continuous Maximum Current-580A.
- Ultra high powered FET amp with Temp-FET.
- 1/10 on Road, 1/10 EP Buggy.
- Exclusive Micro-computer (8 bit single chip).
- One-touch pressing under ease operation.
- Power save function is improving.

II) SUPER VORTEX-207HF

- Instantaneous Maximum Current-1380A.
- Continuous Maximum Current-380A.
- Ultra high power FET amp with Temp-FET.
- 1/12 on Road, 1/10 Formular Car.
- EEPROM memory.
- Heat protector.
- Soft switching system.
- Instant throttle control.

COMPONENT OF RADIO SET

RADIO SET

A) Transmitter

Model Number : SRD-3173TS
 Display : Digital
 Modulation : FM-PPM
 Power supply : Um-3 dry cells x 8pcs
 Option : Tx nicads 8N-600
 Weight : 685g

(B)Receiver

Model Number : SRC-2305RZ (CAR USE)
 SRC-3305RZ (BOAT USE)
 Receiving system : FM-PPM
 Power supply : Nicads battery DC4.8 to 8.4 (Car use only)
 Dimension : 48L×30W×19H (mm)
 Weight : 29g

(C)Servo

1.ERG XR (Exclusive for Nicads)

Speed : 0.07sec/60° (6V)
 Torque : 5.3kg.cm (6V)
 Dimension : 39L×20W×37.4H (mm)
 Weight : 58g

2.ERG XZ (Exclusive for Nicads)

Speed : 0.1sec/60° (6V)
 Torque : 7.7kg.cm (6V)
 Dimension : 39L×20W×37.4H (mm)
 Weight : 59g

3.SRM-141HR (Exclusive for Nicads)

Speed: 0.07sec/60° (6V)
 Torque : 2.3kg.cm (6V)
 Dimension : 36L×15W×32.5H (mm)
 Weight : 31g

(D)FET AMP

1.SUPER VORTEX-212HF

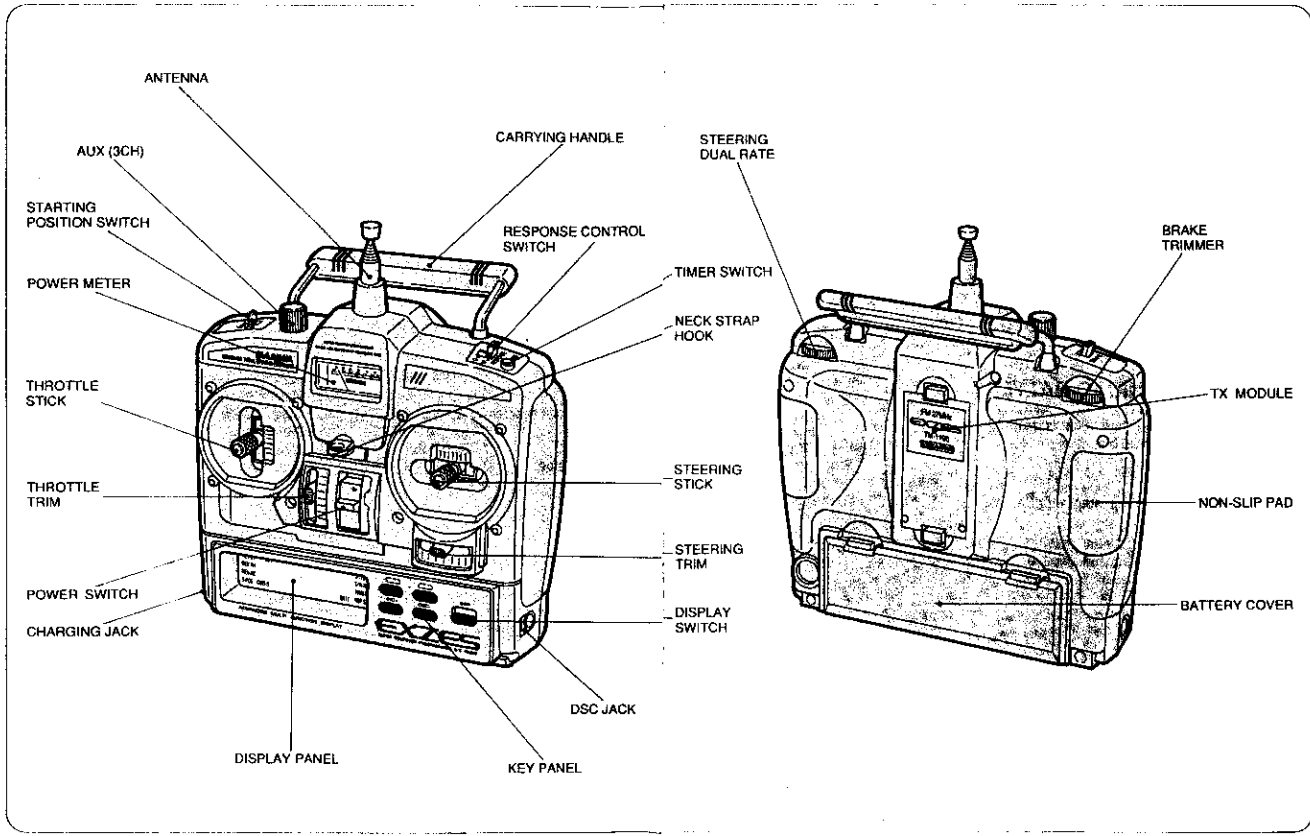
Used power supply: Nicads 7.2 to 8.4V
 Instantaneous : 2200A
 Maximum Current
 Continuous current: 580A
 Maximum current
 LOSS RESISTANCE: 0.001ohm
 Dimension : 41L×48W×16.1H (mm)
 Weight : 51g (without connector lead and switch)

2.SUPER VORTEX-207HF

Used power supply: Nicads 7.2 to 8.4V
 Instantaneous : 1380A
 Maximum Current Continuous
 Maximum current : 380A
 Loss Resistance: 0.0017ohm
 Dimension : 41L×39.5W×16.1H (mm)
 Weight : 37g (without Connector lead and switch)

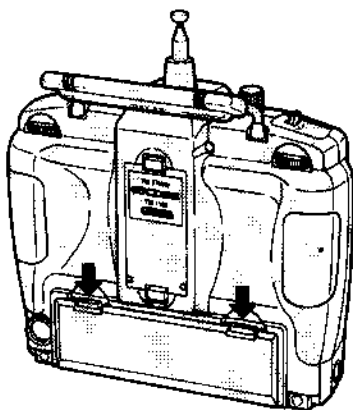
	ENGINE RACING	ENGINE BUGGY	EP RACING	EP BUGGY	BOAT
(A)TRANSMITTER	SRD-3173TS	←	←	←	←
(B)RECEIVER	SRC-2305RZ	←	←	←	SRC-3305RS
(C)SERVO	ERG-XR×2	ERG-XZ×2	SRM-141HR×1	ERG-XR×1	ERG-XZ×2
(D)AMP			SUPER VORTEX 207HF	SUPER VORTEX 212HF	
(E)NICADS	5N-500A	←	←	←	←
(F)CHARGER	OE-20C	←	←	←	←
(G)ACCS	DSC HARNESS	←	←	←	←
	DSC S/HARNESS	←	←	←	←
	ABSORBER	←	←	←	←
	HORNSET	←	←	←	←
	MANUAL	←	←	←	←

TRANSMITTER

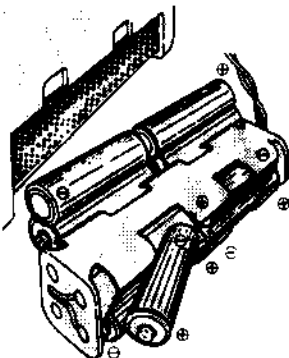


METHOD OF REPLACING BATTERIES

- 1** Press the tab on the battery lid, then pull back and remove the battery cover.



- 2** Withdraw the battery case inside, and insert eight UM-3 batteries in accordance with the polarity indicated on the bottom of the case.

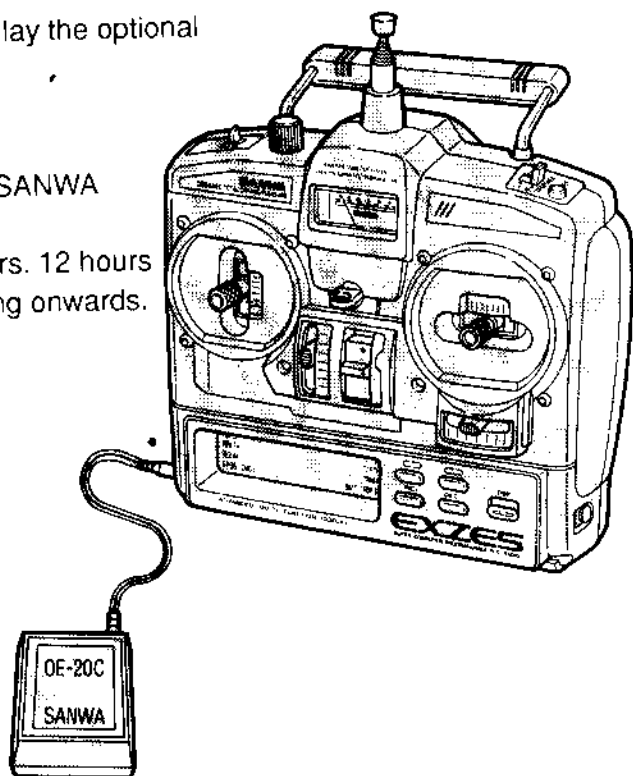


- 3** Insert the battery case into the transmitter, and close the battery cover.

OPTIONAL TX NICAD BATTERY

- 1** Take the dry battery cartide out and lay the optional Tx Nicad battery in its place.

- 2** Be sure to charge the battery with SANWA genuine charger. The initial charging requires 16 hours. 12 hours is needed from the second charging onwards.



RX BATTERY

- Use 5N-500AA for the power source to the engine-car, boat transmitter.
- Share the power-battery for the power source to the electric-car transmitter of two-way power source.

1 Charge 5N-500A Nicad battery for engine-car with Sanwa genuine charger.

2 The initial charging requires 10 hours. 8 hours is needed from the second charging onwards. Charging after a long interval requires 10 hours just as the initial one.

	CHARGING AFTER LONG INTERVAL AND INITIAL CHARGING	SECOND CHARGING
OPTION TX NICAD 8N-600AA	16H	10H
RX NICAD 5N-500AA	10H	8H



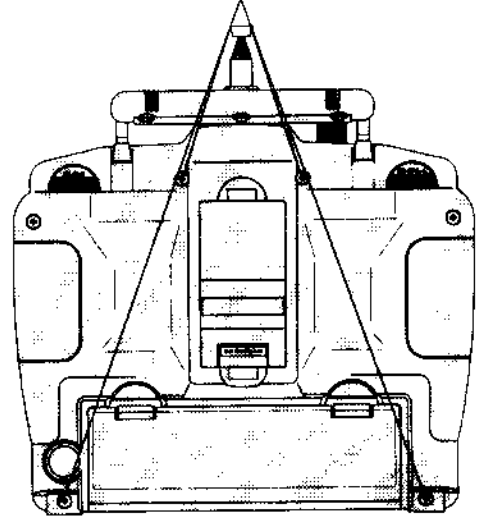
NOTE:

- A low storage of the battery of the transmitter will sound an alarm.
At the alarm running must be discontinued and the battery exchanged (or recharged).
- Pay attention to the polarity (+,-) of battery.
- Charge Nicad battery with Sanwa Genuine charger. Charging with other chargers may be the cause of shorter battery life and ineffective charging.
- In charging, be sure to switch OFF the transmitter, receiver, and amplifier.
- Never use loose Nicad battery on the market in the dry battery cartridge or it may cause malfunction such as bad contact.

HOW TO ADJUST THE STICK SPRING TENSION

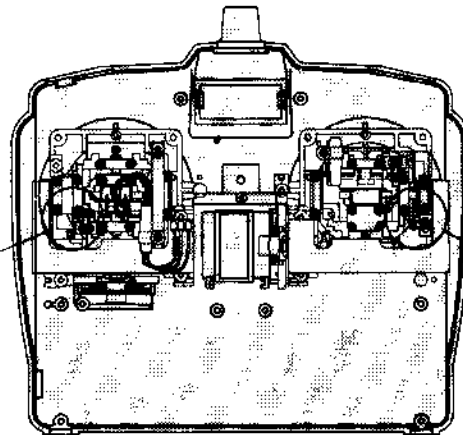
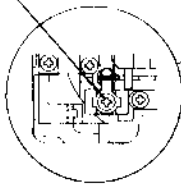
- 1** Dismount the transmitter module and battery.
- 2** Remove the four machine screws, and you can open the back lid.

REMOVE
THE MACHINE SCREWS

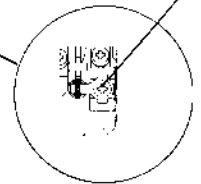


- 3** Turn the tension adjuster screw of each stick to set it to your desired spring tension. Turning the adjuster screw clockwise increase the tension; turning it counterclockwise decreases the tension.

FOR
STEERING

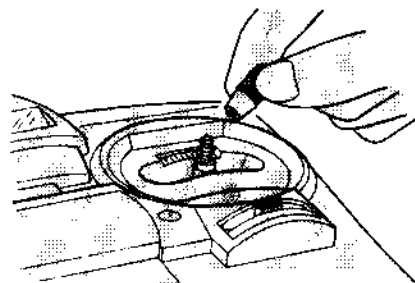


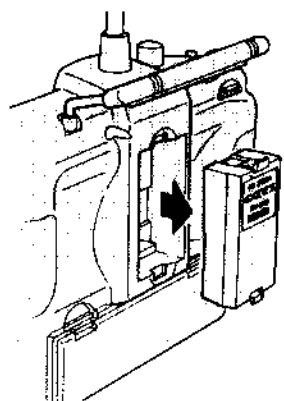
FOR
THROTTLE



ADJUSTING THE STICK LENGTH

Release the stick by turning it clockwise and install the attached spacer.





- 1** Remove RF module from the Exzes body.
- 2** Take the crystal from the RF module and insert the one desired instead.
- 3** Attach RF module onto the transmitter body and make sure to move power meter.

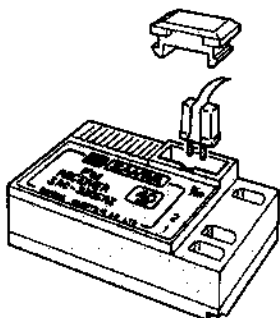
NOTE:



- RF module is exclusive for Exzes, so has no interchangeability with other RF modules.
- RF module should be installed firmly. Unstable attachment may cause malfunction. See that it is stable.
- Change the band ribbon of the transmitter every time the band is exchanged.
- Match the crystals of both the transmitter and the receiver by checking their indications.

METHOD OF REPLACING RX CRYSTALS

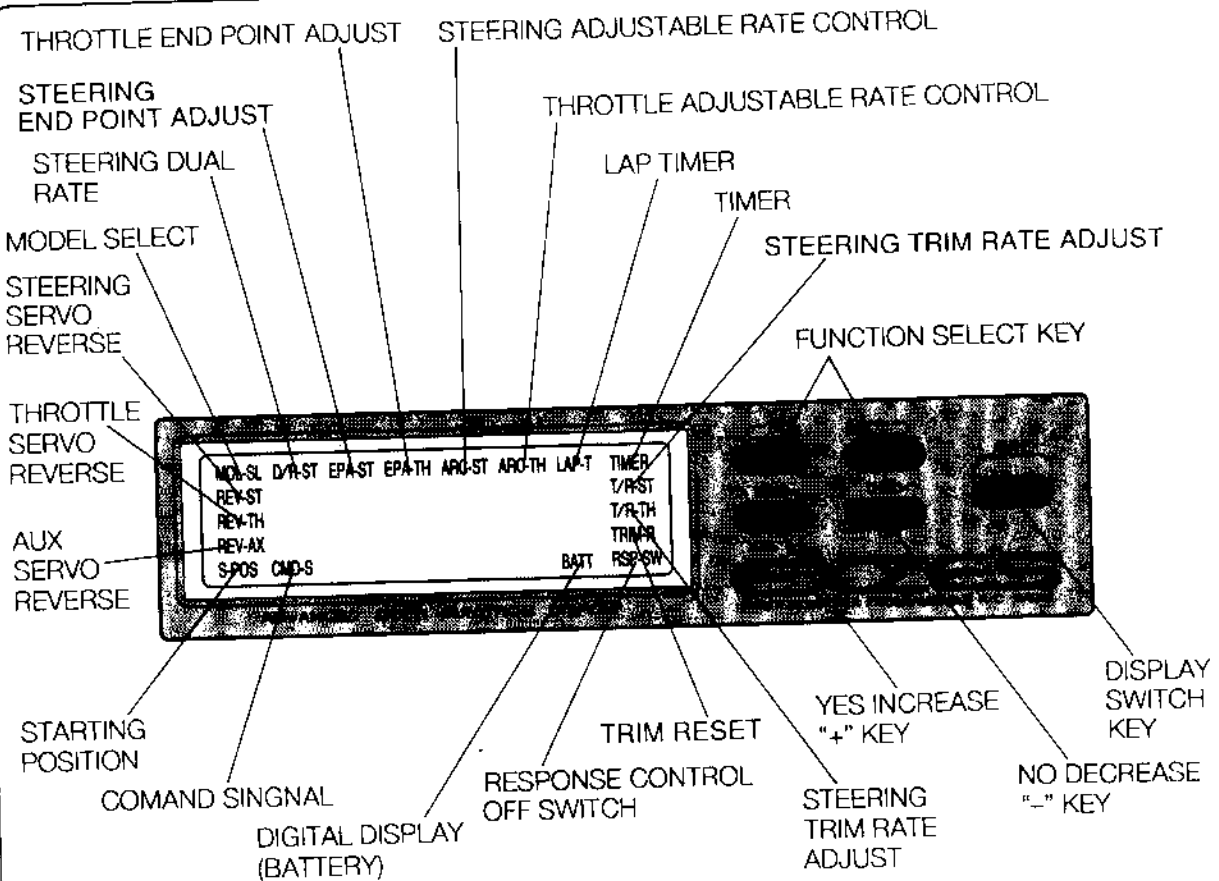
- 1** Take the crystal cap off the transmitter.
- 2** Exchange it with desired crystal.
- 3** Never fail to attach the crystal cap for protection of the crystal.



DISPALY PANEL

Exzes takes pride in its multiple function display that gives its operator all the functions at sight and enables the various function set in numerical control and the store, copy, and reproduction of data confirmed on its display panel.

DISPALY PANEL



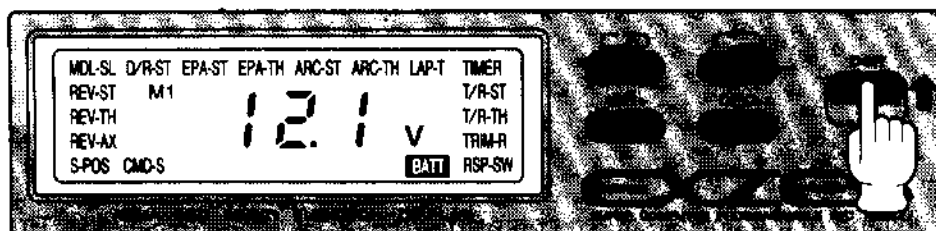
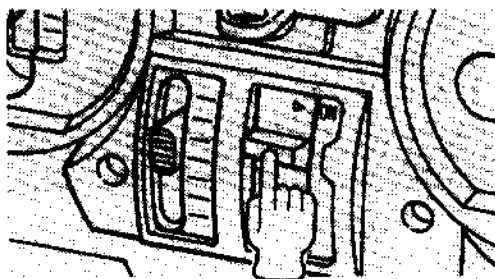
NOTE:

Continue a beep warning battery shortage of transmitter when the back-up lithium battery has dropped and indicate ERR on the display.

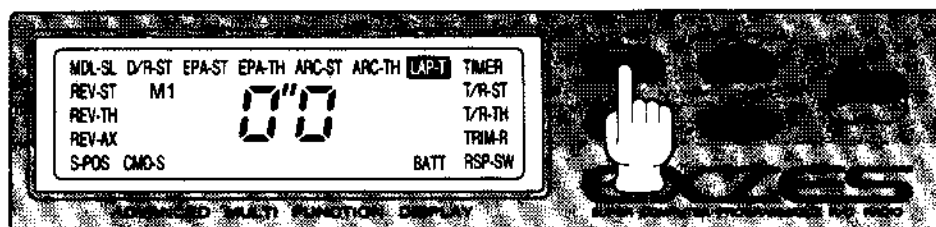
Be sure to contact our service center for exchanging the back-up lithium battery or the extinction of the back-up lithium battery storage will obliterate input data and also wipe out what has been established at the time of factory shipment. The back-up term of the lithium battery is around 5 years.

OPERATION OF DISPLAY PANEL

- 1 Turn ON the power-switch or the display switch.
 ●The alarm sends out a beep.

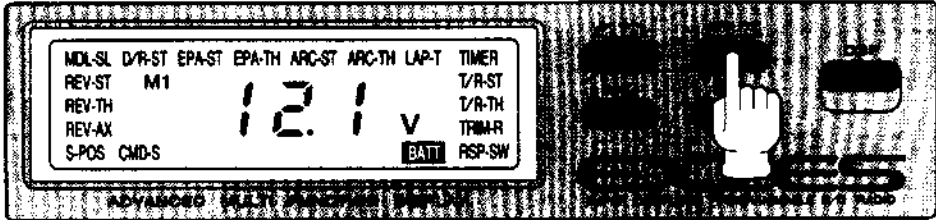


- 2 Press the function select key allows the cursor to move to the left and press the function select key allows the cursor to move to the right.

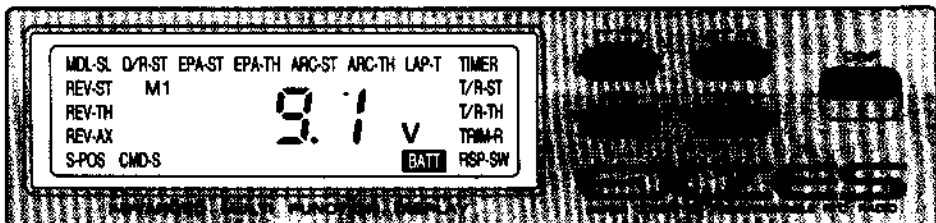


DIGITAL INDICATION OF POWER SOURCE VOLTAGE (BATT)

Press one of function select key and move the cursor to BATT.



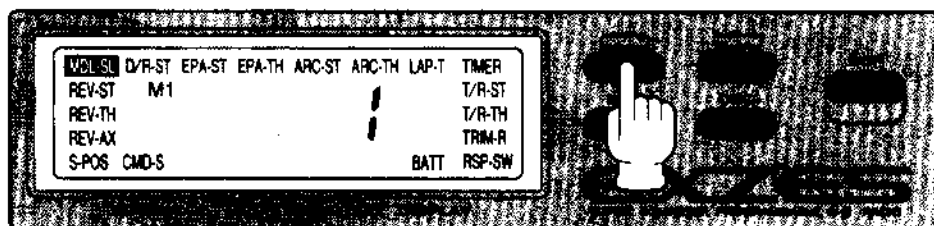
When the voltage of the power source comes down to 9.1V an alarm Sounds. Press either function select key, INC+ key or DEC - key in order to stop beep sound during driving. But when the voltage of power source comes down by further 0.2V, at the alarm, running must be discontinued and the battery must be exchanged (or recharged).



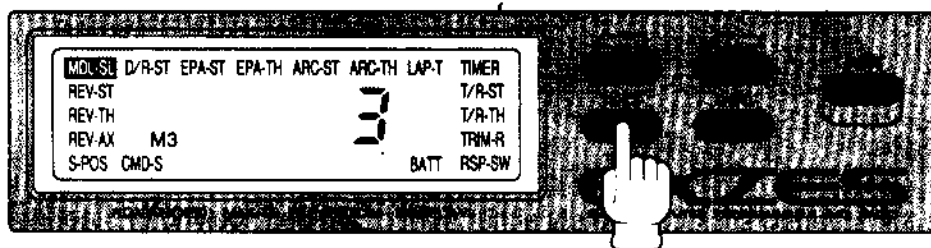
MODEL SELECT(MDL-SL)

Exzes has the memory capacity of up to three types of data (data for three different RC cars) and model select is the function which can input three types of data, M1, M2, and M3 into the memory and reproduce any one of them at one's convenience.

- 1 Press one of the function select key to move the cursor onto MDL-S.



- 2 Press either the INC+ key or the DEC- key to select the model.



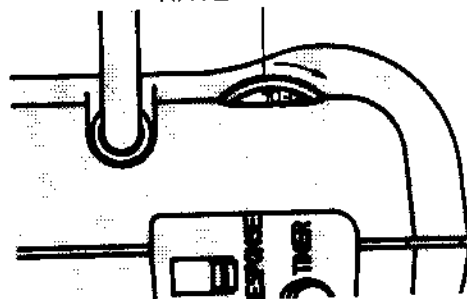
➡ Model select function is very useful for memorizing the data meeting the various factors for a RC car such as varied setting data of different circuits, road condition of the same circuit, motors(engines), tires, and suspensions.

STEERING DUAL RATE(D/R ST)

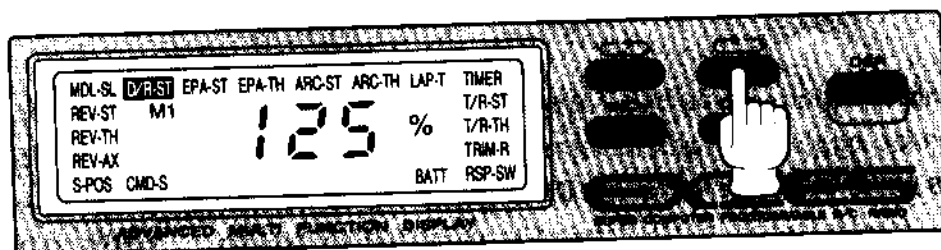
This function should be applied under the condition of either understeering with a deficient steering angle or oversteering with an excessive one.

- 1 Set the steering dual rate trimmer at 10.

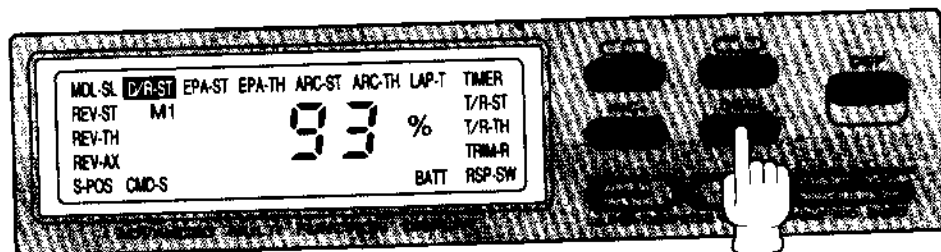
STEERING DUAL RATE TRIMMER



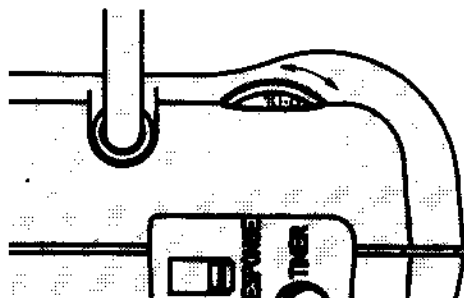
- 2 Press one of the function select keys to move the cursor onto D/R ST.



- 3 Move the steering stick completely either right or left until locking of steering kage for RC car and adjust either INC+ key or DEC- key.



- 4** The steering dual rate in right side will control the adjustment for the steering dual rate in running



If you do not use steering dual rate trimmer, set the steering dual rate trimmer at 10 and adjust INC+ key or DEC - key

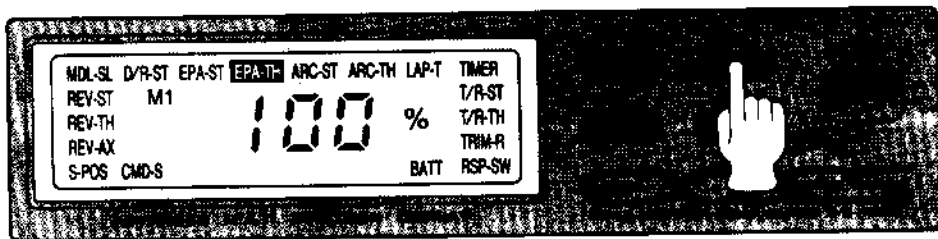
END POINT ADJUSTMENT (EPA)

This function should be applied for adjustments of amounts of brake of the throttle and left/right steering.

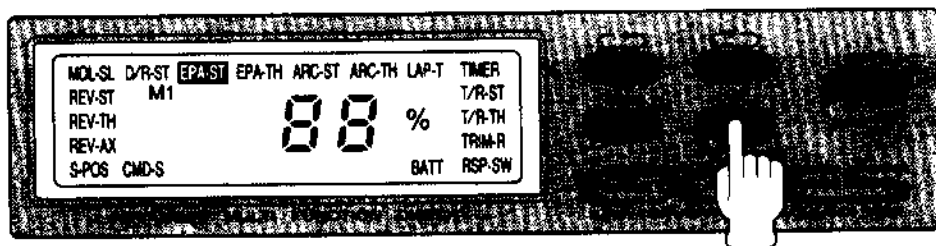
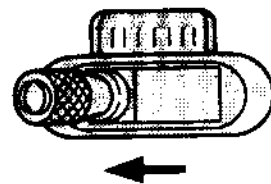
STEERING EPA

This function should be applied when the cornering radius differs for the right cornering and the left one owing to the differences in the rolling characteristics of the linkage and chassis or the diameter of tires.

- 1 Press one of the function select key to move the cursor onto EPA-ST.

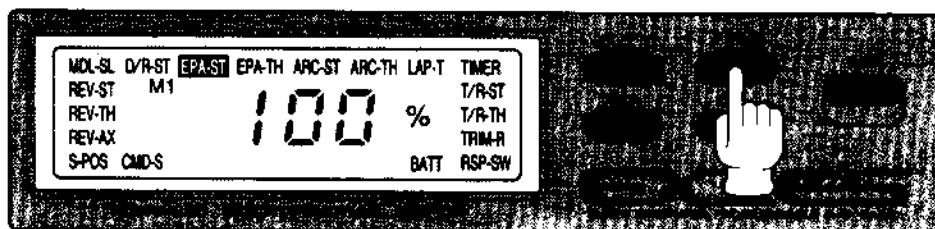


- 2 Turn the steeringwheel to the right and set the right steering angle with the INC+ key and the DEC- key when you set the steeringwheel to the right and vice-versa in case of the steeringwheel to the left.

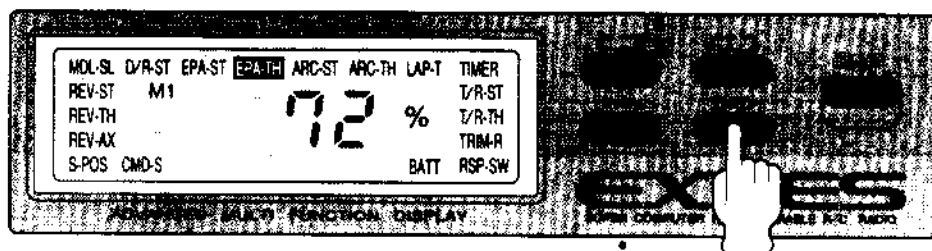
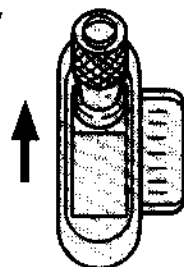


THROTTLE EPA

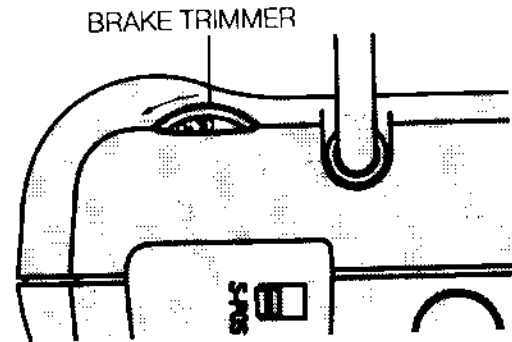
- 1** Press one of the function select key to move the cursor onto EPA-TH.
position.



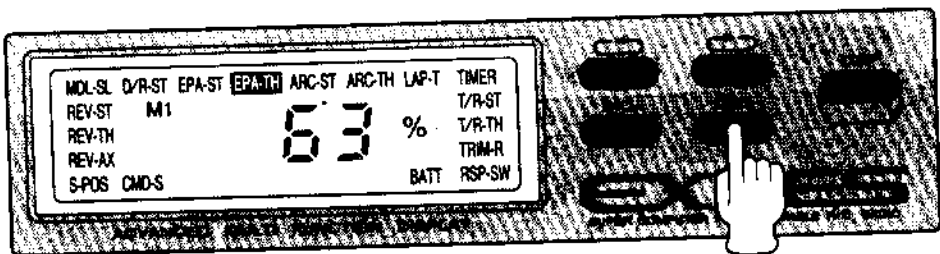
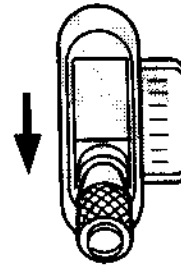
- 2** Set the throttle stick into high position (upper) and adjust either INC+ key or DEC+ key when you set the high (upper) position at the throttle. When using FET amp, set the value at 100% and when using low speed, set the



- 3** Set the brake trimmer at 10.

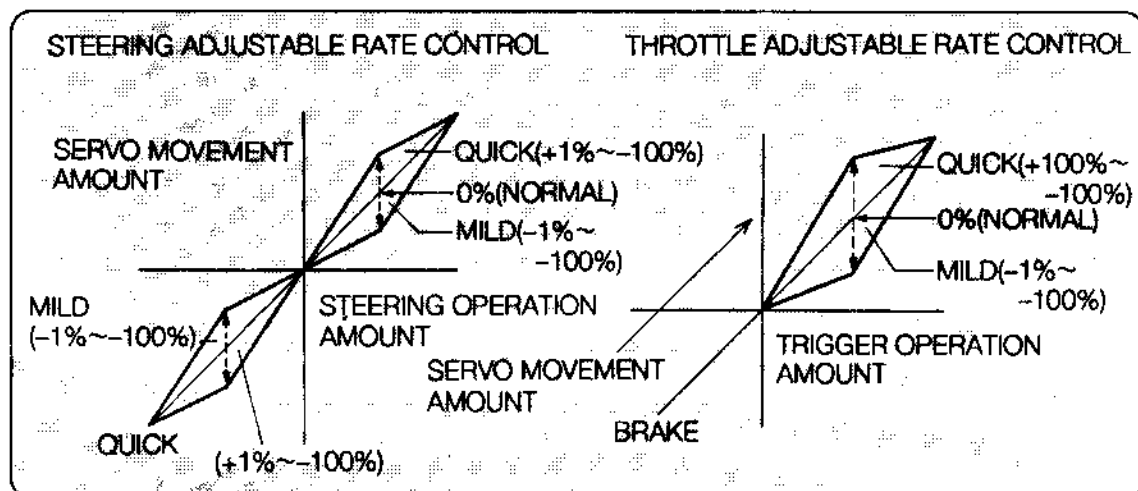


- 4** When you adjust the amount of break for engine car, set the throttle stick into lo (lower) and adjust it with INC+ key or DEC- key and adjust exactly the amount of brake in running.



ADJUSTABLE RATE CONTROL

This function allows the proportional system to freely control various factors that a driver should deal with, such as the steering characteristics and power-response of a RC car, and road conditions.



EXAMPLE: TO ADJUST THE STEERING PART



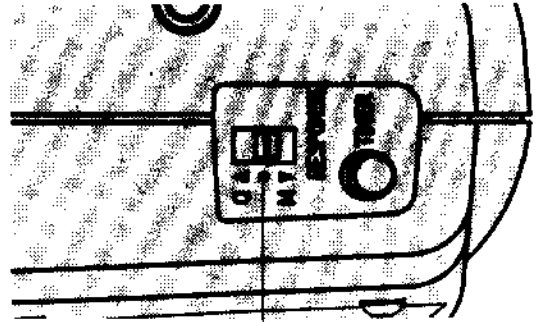
This function is linked with response control switch and usually set the as under.

QUICK(5%) NOMAL(0%) MILD(-8%)

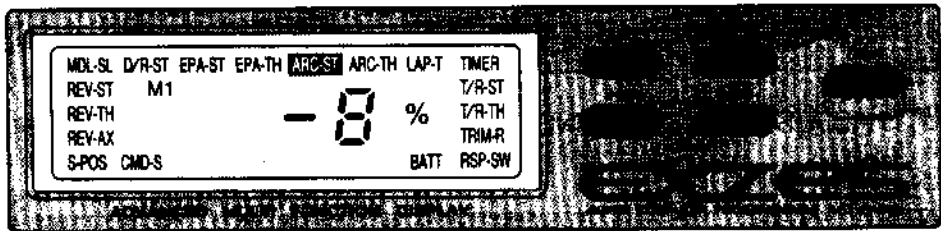
RESPONSE CONTROL SWITCH

According to all-time record of SANWA quick response system stick-work becomes very sharp and Adjustment rate control is improved more. In order to expand the range of setting, variable points of adjustable rate control can be altered.

- 1 Run the RC car at normal position of response control switch. When the setting of RC car is right, the response is better than EXERD or EXERD GEMINI. you find that The stick response of Exerd and Exerd gemini is -5% therefore you feel milder at position of Mild (-8%).

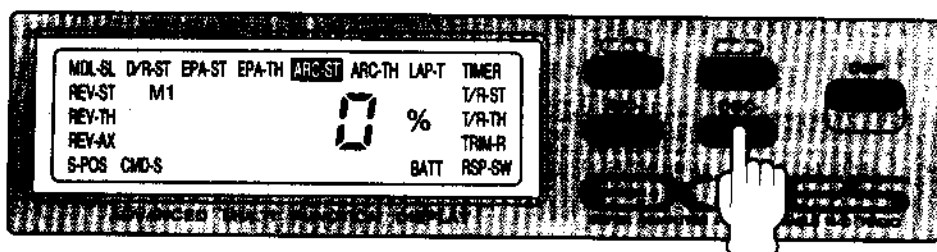


NORMAL POSITION



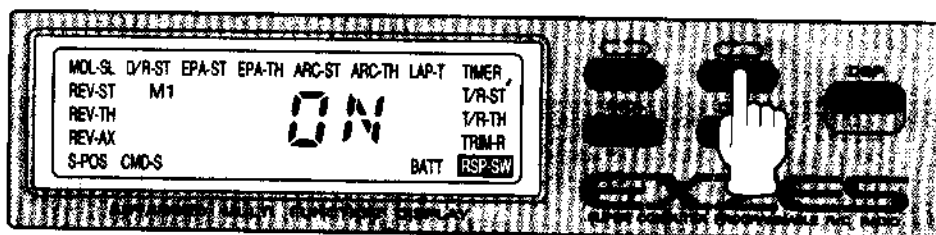
- 2 Set the response control switch at Quick. you feel better movement at front but if the setting is not good, you can have good performance..

- 3** Variable points of adjustable rate control can be altered in proportion such as Quick (5%), Normal (0%) and Mild (-8%). EXAMPLE: When Quick is set at 0%, Normal (-5%), Mild(-13%). When Mild is set at 0%, Quick (13%), Normal (8%)

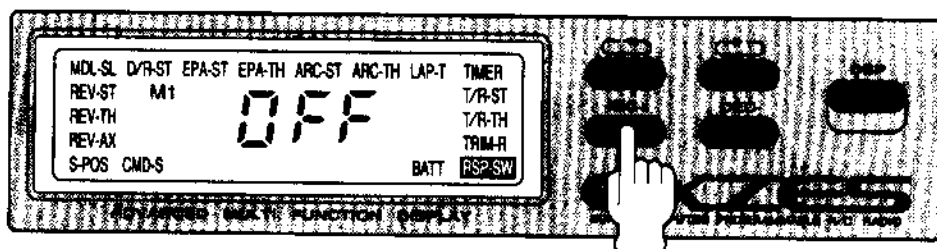


- 4** The setting position of Quick (5%), Normal (0%) and Mild (-8%) generally make a best performance.

- 5** When not using response control switch, press one of function select key and move the cursor onto RSP-SW.



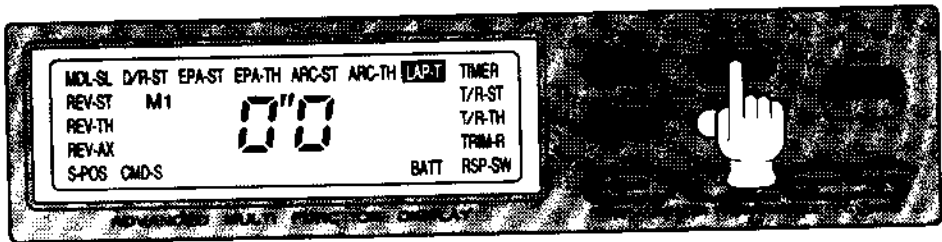
- 6** Press INC+ key in order to change current indication to OFF.



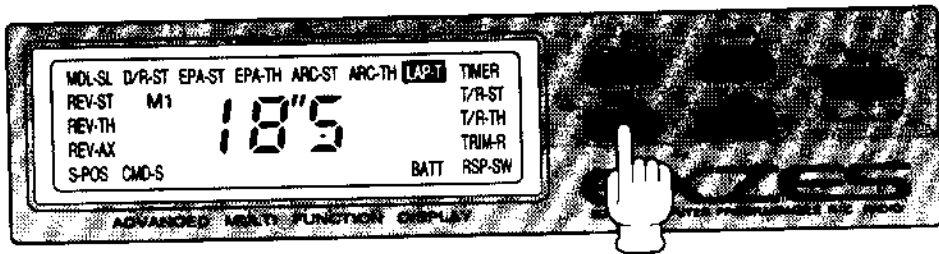
LAP TIMER(LAP-T)

This function should be applied when the set time is passed, the alarm sounds. Please take advantage of time-attack, practice of stable running, and etc.

- 1 Press one of function select key and move the cursor to LAP-T.



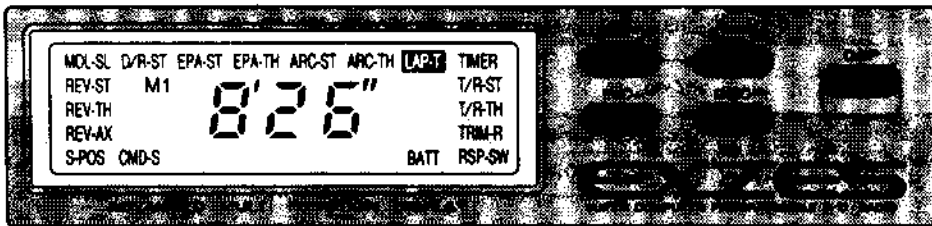
- 2 Press INC+ key in order to set your required lap time.
EXAMPLE: Continue to press INC+ key in order to set lap time 18'15".



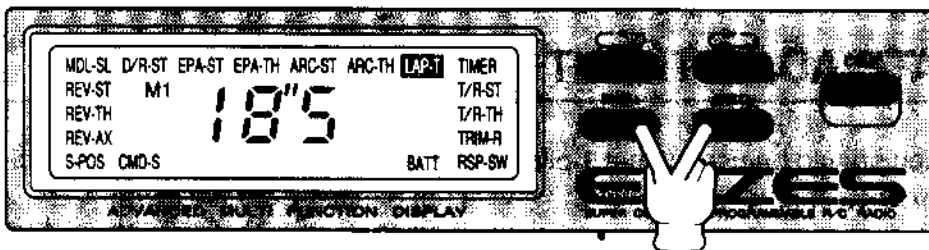
- 3** Press timer-switch on the right upper part of transmitter in order to start to measure the running time. The running time is indicated on display panel. Alarm sounds at 10 seconds after set time of 18'5" if the alarm sounds, the running time reaches the time of mark. If the alarm sounds before the mark, the running time is time-up. If the alarm sounds after the mark, the running time is time down.



- 4** Press timer-switch again after running in order to obtain your running time.



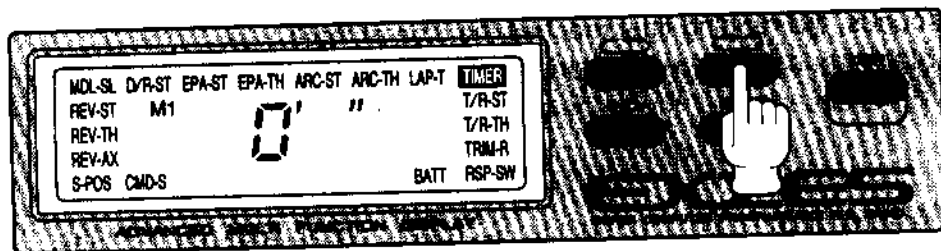
- 5** Press INC+ key/DEC- key at the same in order to indicate set time when your round again. (Press them one more time in order to indicate 0"0.)



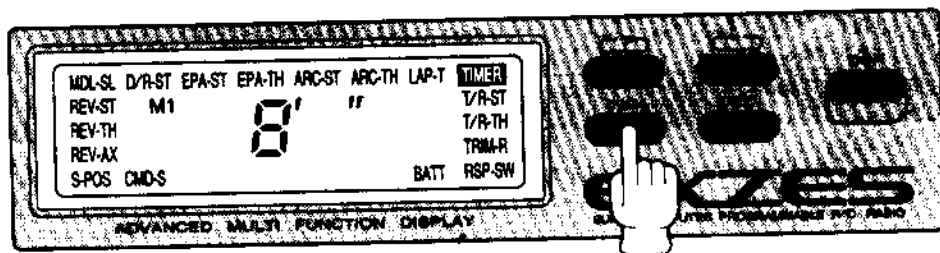
TIMER

This function should be used to measure the running time of an EP car and Fuel-consumption and the like of an engine.

- 1 Press one of the function select key to move the cursor onto timer.



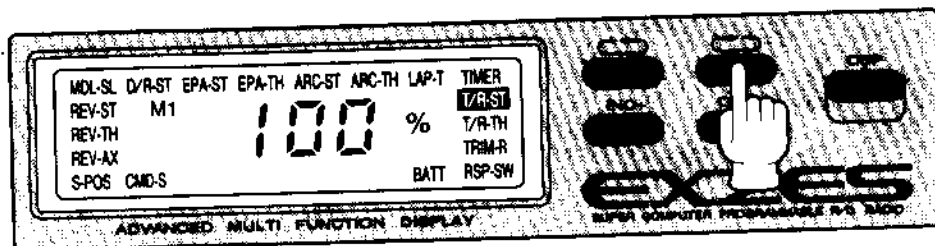
- 2 press INC+ key to set the time.



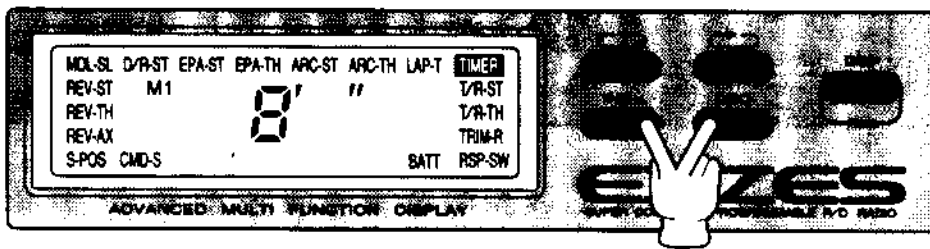
TRIM RATE ADJUSTMENT

This function should be used to set 1 pitch of the servocontrol amount for each trim of steering throttle.

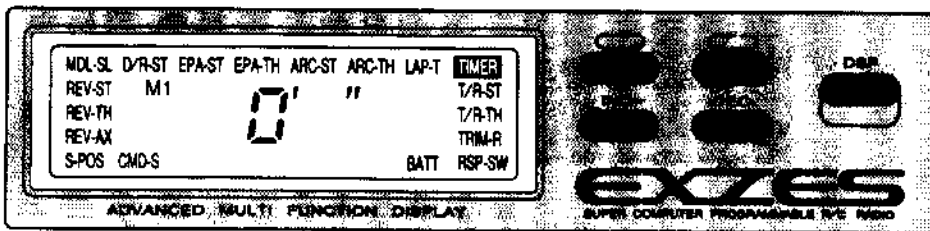
- 1 Press one of the function select key and move cursor to T/R-ST(T/R-TH).



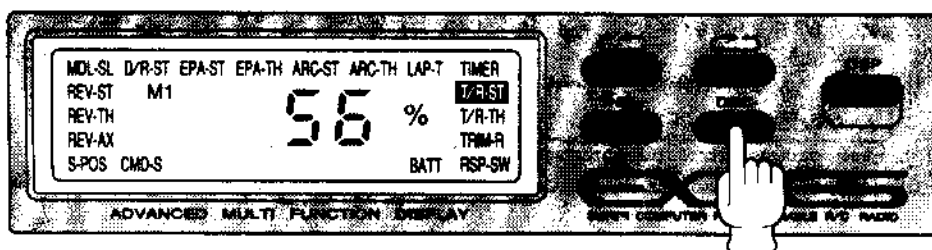
- 3** Pressing the timer switch button on the right upper part of the transmitter allows the timer to start. The alarm sounds at 10 seconds before the set time onward, after the set time, the timer switches to the up-timer. Press INC+ key/DEC- key at the same time to stop to measure the running time and will put the indication back to the set numeral. The measurement of running time can not be stopped by pressing timer switch.



- 4** The timer measures as the up-timer when the set time is not specified.



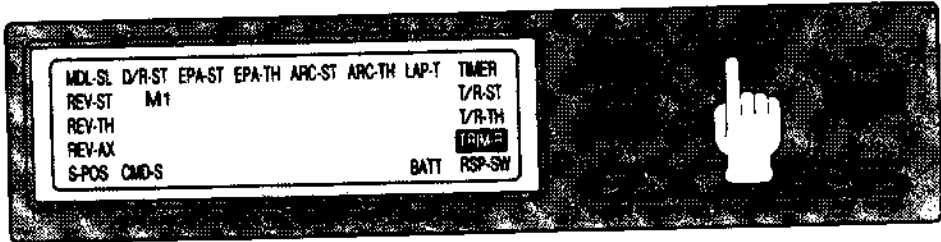
- 2** Press DEC- key to set the 1 pitch of the servocontrol amount for trim. Press INC+ key/DEC- key together to reset (100%).



ONE TOUCH TRIM MEMORY

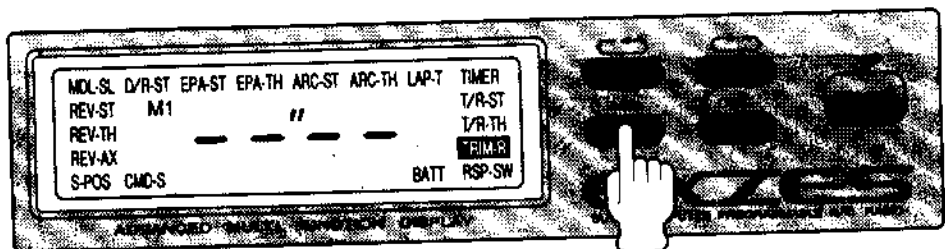
This function memorizes the neutral positions of the steering and the throttle. The input of the neutral positions makes the steering and the throttle go back to their memorized neutral positions regardless of their trim position, when the power switch is turned ON.

- 1 Press one of the function select key to move the cursor onto TRIM-R.

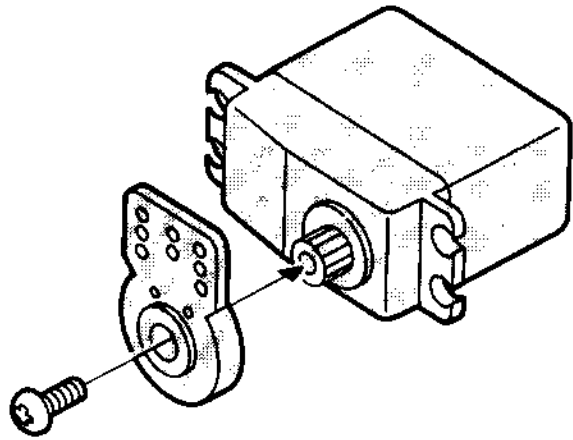


- 2 Set the steering-trim/each trim at the center.

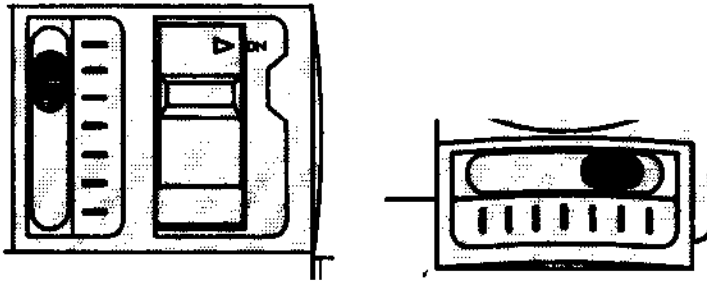
- 3 Press INC+ key to set the neutral position.



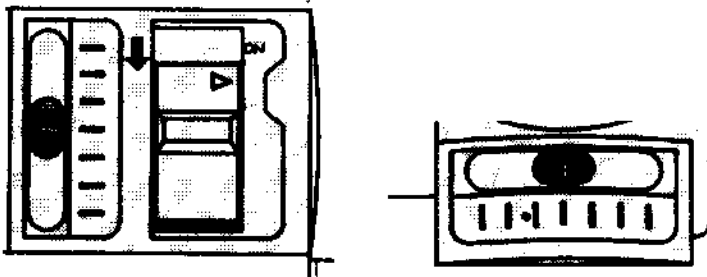
- 4** Fix the servo-saver-horn at the angle best suited for the neutral position.



- 5** Establish the neutral position of the steering-servo on the each trim.



- 6** Turn off the power switch of the transmitter and set the each trim at its central position.

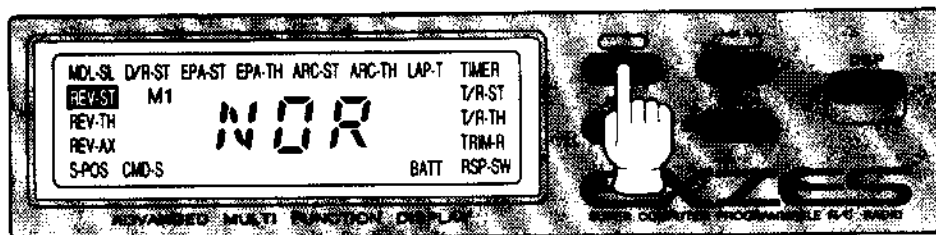


- 7** Turning the power switch of the transmitter ON will generate the memorized trim position.

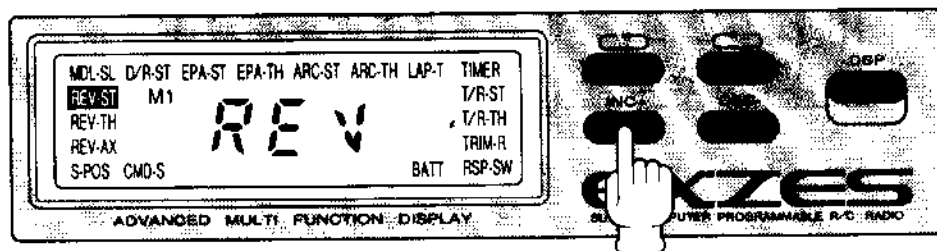
SERVO REVERSE (REV-ST, REV-TH, REV-AX)

This function should be used to change the direction of the servo movement.

- 1 Press one of the function select keys to move the cursor onto REV-ST.



- 2 Press either the INC+ key or DEC- key to change the direction of the servo movement.

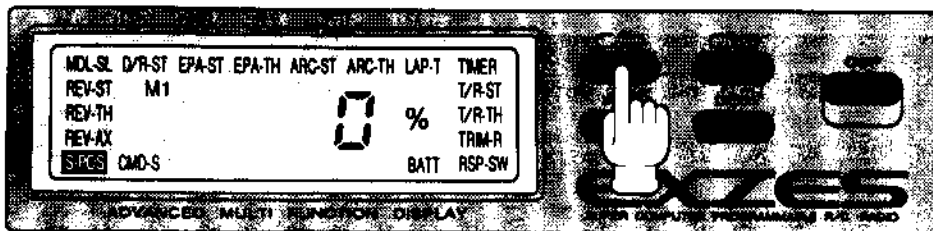


- 3 Set the REV-TH and REV-AX as well.

STARTING POSITION SWITCH (S-POS)

This function improves the starting efficiency of the engine by increasing the idling of the engine at starting time.

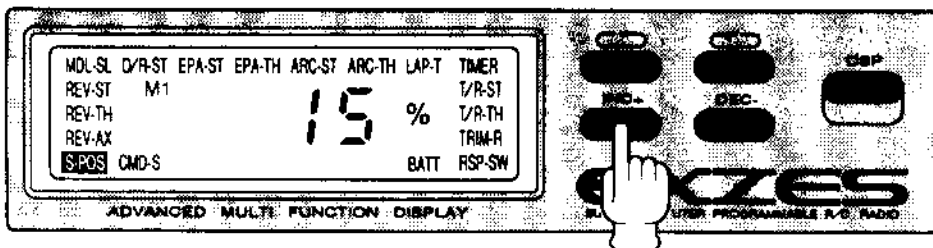
- 1 Press one of the function select keys to move the cursor onto S-POS.



- 2 Press and on the starting-position switch.



- 3 Set the starting-position a little higher than the slow position with INC+ and DEC- keys.



NOTE:

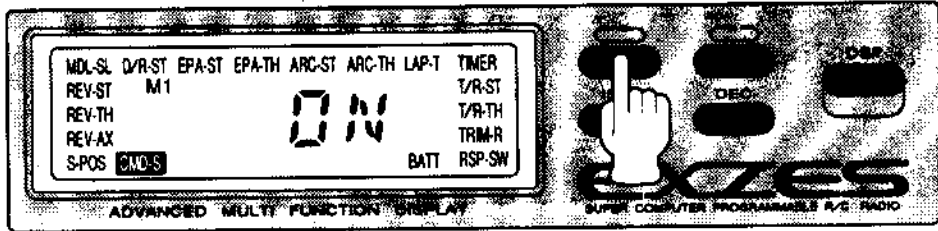
Setting the starting-position over 1% will sound an alarm.



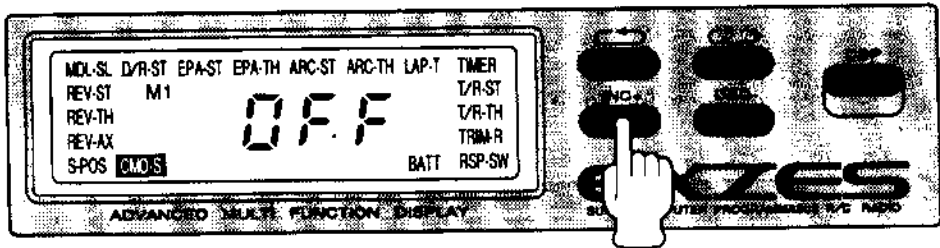
COMMAND SIGNAL ON-OFF SWITCH

This function can turn ON-OFF the signal sound which rings for prevention of mistakes in pressing keys.

- 1 Press one of the function select key to move the cursor onto CMD-S.



- 2 Pressing either the INC+ key or the DEC- key generates the changeover between ON-OFF.



DIRECT SERVO CONTROLLER

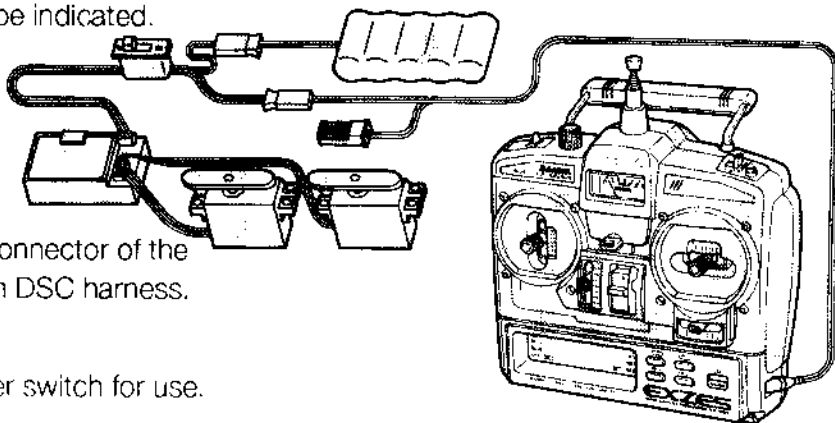
This should be used to adjust linkages and the like while using the same band.

How to handle direct-servo-controller when switch-harness equipped with DSC for engine-cars is in use.

- 1 Connect the attached DSC harness to the DSC jack on the side of the transmitter.
●LCD display will be indicated.

- 2 Join the charging connector of the switch-harness with DSC harness.

- 3 Turn ON the receiver switch for use.

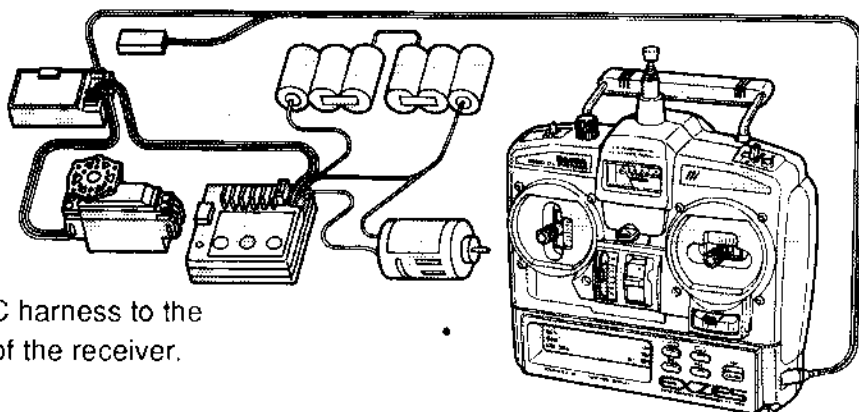


How to handle direct-servo-controller when the FET amplifier is in use.

- 1 Connect the attached DSC harness to the DSC jack on the side of the transmitter.
●LCD display will be indicated.

- 2 Connect the DSC harness to the battery channel of the receiver.

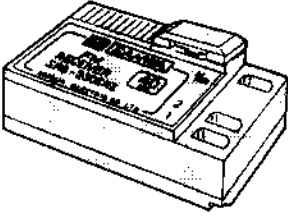
- 3 Turn ON the power switch of the FET amplifier for use.



NOTE:



For use of DSC, connect the Nicad battery for electric RC cars to the harness.

CONNECTOR POSITION OF RECEIVER

POSITION	SEC-2305RZ	SRC-3305RS
1	STEERING	RUDDER
2	THROTTLE	THROTTLE
3	— — — —	AUX
BATT (DSC)	BATTERY (DSC HARNESS)	BATTERY (DSC HARNESS)