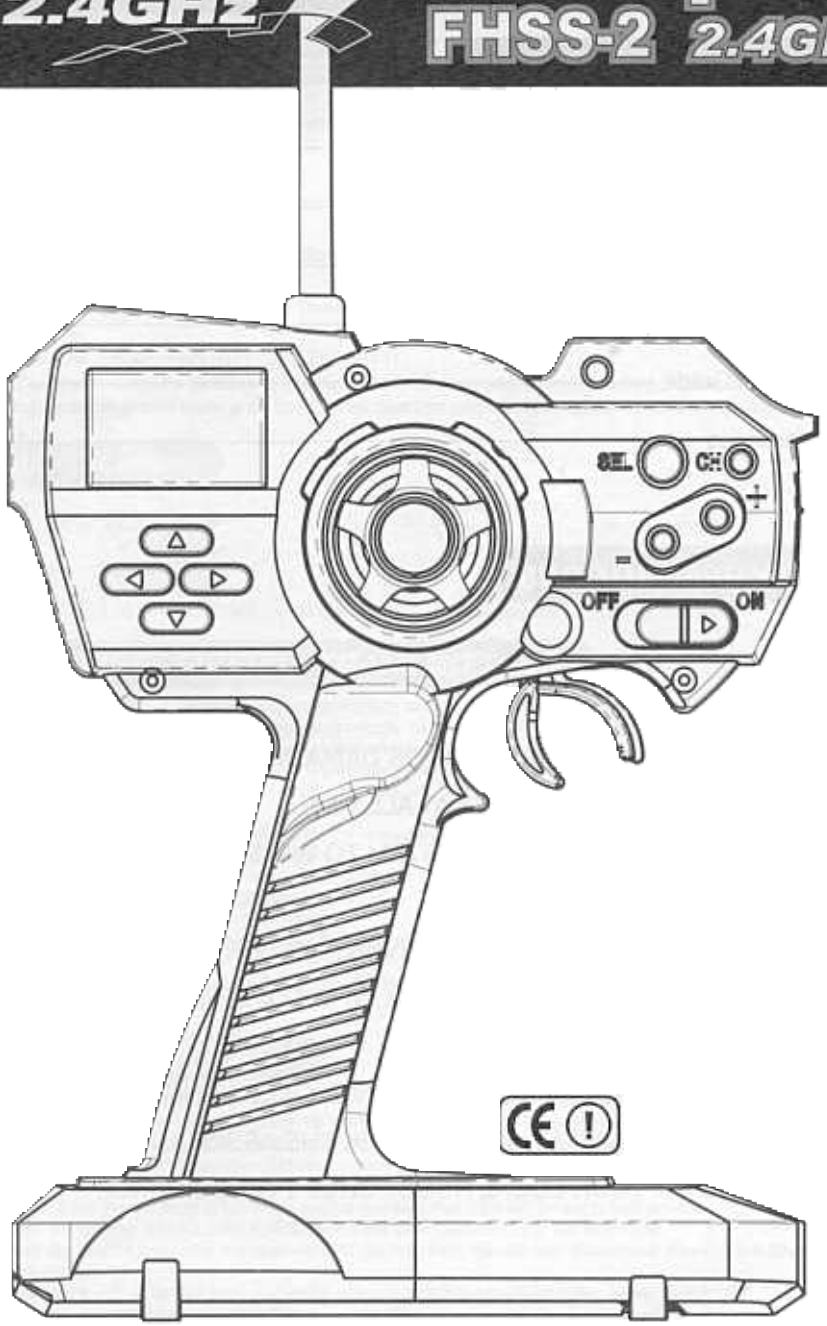
AIRTRONICS 2.4GHz

MX-Sport

FHSS-2 2.4GHz



3 CHANNEL COMPUTER RADIO SYSTEM

Instruction Manual Content

SAFETY PRECAUTIONS

- YOUR MODEL CAN CAUSE SERIOUS DAMAGE OR INJURY SO PLEASE USE CAUTION AND COURTESY AT ALL TIME.
- DO NOT EXPOSE THE RADIO SYSTEM TO WATER OR EXCESSIVE MOISTURE.
- PLEASE WATER PROOF THE RECEIVER AND SERVOS BY PLACING THEM IN A WATER TIGHT RADIO BOX WHEN OPERATING R/C BAST MODELS.
- IF YOU HAVE LITTLE OR NO EXPERIENCE OPERATING R/C MODELS, WE STRONGLY RECOMMEND YOU TO SEEK THE ASSISTANCE OF EXPERIENCED MODELERS OR YOUR LOCAL HOBBY SHOP FOR GUIDANCE

BEFORE OPERATING

Features

- LCD screen displays digital adjustments and settings
- Four edit keys for setup
- 10 model memory (#0-9)
  Use up to three letters, numbers, or symbols to easily identify models.
- Dual Rate Steering (D/R Steering)
  Steering angle can be changed using digital trim.
- Digital Trim
  Steering Trim, Throttle Trim, Adjustable Throttle ATL, and D/R steering can all be adjusted using digital trim switches.
- Switch function reassignment (DT1, DT2, DT3, DT4)
  Allows for assignment of a function to any digital trim switches (digital trim switches , rocker switches).
  All switches are digital so there is no need to readjust trim position for different models after initial setup.

Tx Specifications

Receiver:

Model:	RX-371
Frequency:	2.4GHz ISM Band
Power supply:	DC 4.8~6.0V
Weight:	9.5 grams
Dimensions:	1.03"(L) x 1.16"(W) x 0.62"(H)

Transmitter

Model:	MX-SG FHSS-2
Power supply:	8AA alkaline dry cells DC 12V or 8 cell NiCd pack
Weight:	405 gm
Frequencies:	2.4GHz ISM Band

BINDING (RECEIVER to TRANSMITTER)

After installing the FHSS-2 Receiver, you are now ready to bind them together. Binding is the proses that will match the FHSS-2 Receiver to Transmitter electronically as a match set. You can bind additional FHSS-2 Receiver to your Transmitter to operate many other cars, trucks and/or boats.
Throttle Fail Safe is a feature that will move the throttle servo to a preset position that you set. If no user preset is added, the Fail Safe will set it-self to the neutral throttle position.
BINDING:

1. Turn the power switch to the ON position on the Transmitter.
   Transmitter LED will turn on after 6 seconds.
2. Depress and hold the FHSS-2 Receiver Binding button.
3. Turn the power switch to the ON position on the FHSS-2 Receiver and continue holding the Binding button.
   The DSSS Receiver LED will flash slowly.
4. Release the Binding button on the FHSS-2 Receiver after 2 seconds.
5. Depress and hold the Binding button on the transmitter until the LED on the FHSS-2 Receiver flashes rapidly.
6. Binding is now complete. Both Transmitter and Receiver LED will now stay on.
7. Operate the controls to confirm.

THROTTLE FAIL SAFE

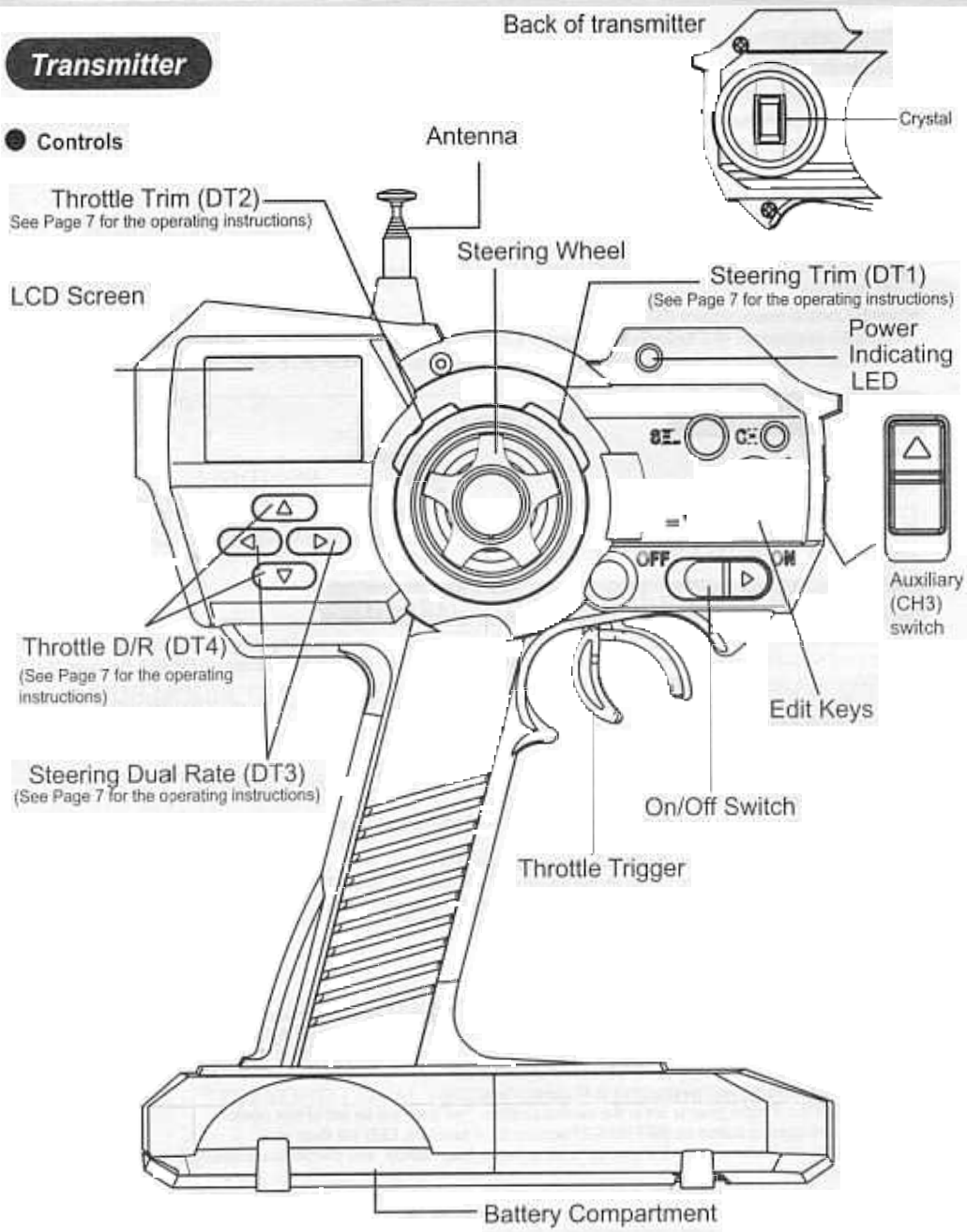
After binding of the Transmitter and Receiver, you can set the Throttle Fail Safe feature

1. Turn the power switch to the ON position on the transmitter. Confirm Transmitter LED is on.
2. Turn the power switch to the ON position on the FHSS-2 Receiver. Confirm FHSS-2 Receiver LED is on.
3. Move controls to confirm connection between transmitter and receiver.
4. Move throttle lever to your desired Fail Safe position and hold.
   NOTE: If the throttle lever is left in the neutral position. Fail Safe will be set at that positon.
5. Depress the binding button on the FHSS-2 Receiver for 4 seconds. LED will flash slow
6. Release the throttle lever after the receiver LED starts to flash rapidly, and discontinue pressing the Binding button on the receiver.
7. Confirm that the Throttle Fail Safe is working properly by turning the transmitter power switch OFF. The servo should move to the preset fail safe position. Turn the transmitter power switch back on to confirm full control.

MX-SPORT BEFORE OPERATING

Transmitter

● Controls



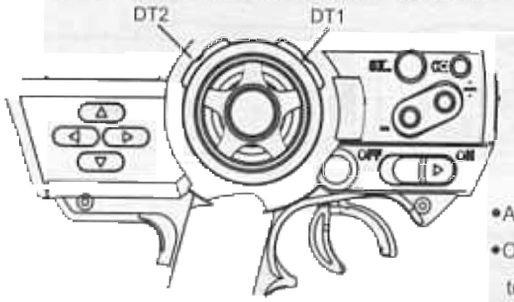
Turning the transmitter off:

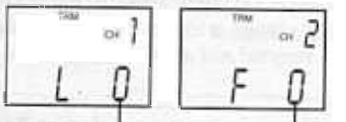
Wait at least two seconds before turning off the transmitter if any adjustments were made using the trim switches or edit keys. If power is turned off within two seconds after any adjustments were made, they will not be stored in memory.

● *Digital Trim Switch Operation (Throttle Trim and Steering Trim)*

(Initial settings : DT1-Steering Trim; DT2-Throttle Trim)

Move the switch left or right to adjust the setting.





Steering Trim Position Throttle Trim Position

L = Left steering trim
R = Right steering trim
F = Forward throttle trim
B = Brake trim (backward)

- A tone will sound to indicate each step.
- Once the minimum or maximum value is reached the tone will still sound but no changes are being made.

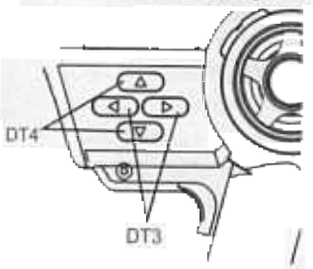
Trim Operation When using the digital trim, adjustments have no influence on maximum servo travel in order to prevent linkage binding.

When a D/R Steering or D/R Throttle value is less than 100%, the digital trim adjustments may affect servo travel end point.

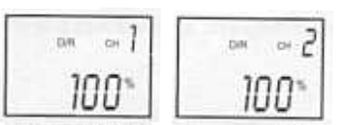
● *Rocker Switch Operation (D/R Steering and Throttle ATL)*

(Initial settings : DT3-D/R Steering; DT4-Throttle D/R)

Push the switch left/right or up/down to adjust the current value.



- A tone will sound to indicate each step
- Once the minimum or maximum value is reached the tone will still sound but no changes are being made.



Steering D/R rate Throttle D/R

MX-SPORT BEFORE OPERATING

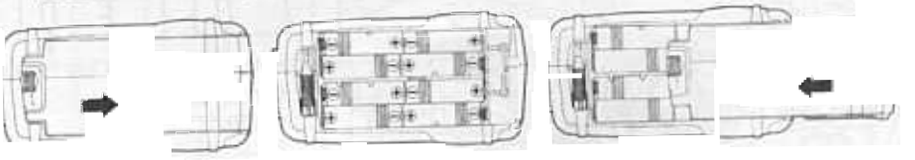
● *Battery Replacement*

For dry cell battery system

Load the eight batteries in accordance with the polarity marking on the battery holder. (8AA Size Batteries)

Battery Replacement

1. Remove the battery cover from the transmitter.
2. Remove the old batteries.
3. Insert the eight new AA batteries according to the polarity markings.
4. Replace the battery cover.
5. Slide the power switch to the ON position and check the LCD for the battery voltage.
   If voltage is low, or if the transmitter fails to turn on, check that the batteries are properly inserted and are making sufficient contact.



❗ Always check the voltage of the transmitter before use.

⚠ *Caution*

❗ Always be sure to insert the batteries correctly according to the markings or the transmitter may be damaged.

❗ When the transmitter will not be used for a long time, remove the batteries to prevent leaks and corrosion. If a leak should occur, clean the battery compartment and contacts thoroughly, making sure all contacts are corrosion free.

Low Battery Alarm:

An alarm will sound if the transmitter voltage drops below 8.5V. This alarm is meant as a safety feature only. The transmitter should not be operated below 9.0V. If the low battery alarm sounds, replace batteries immediately with fresh AA batteries to prevent loss of control.

● *Data Backup*

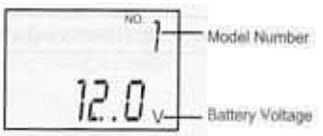
The data for every function of the transmitter is stored in a memory chip that does not require a battery backup.

INITIAL SETUP

Transmitter Setup

● *Slide the on/off swich to the ON position.*

Display when power is turned ON



● *Model Number Check*

When the power is turned on the currently selected model number is displayed. To setup a different model number, please use the Model Setup Function found on page 12.

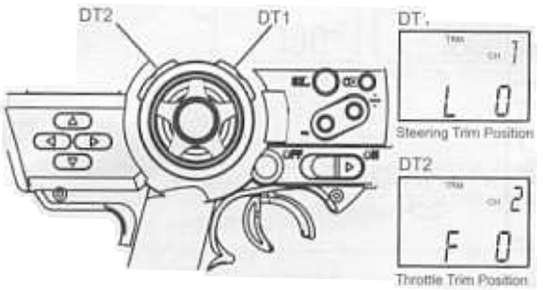
● *Digital Trim Setup*

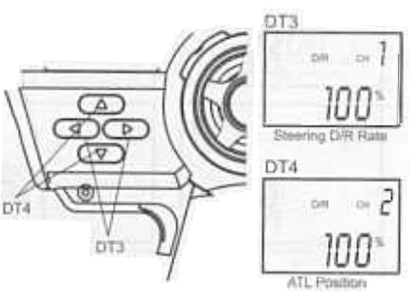
-Steering trim (DT1)

Initially, steering trim is assigned to DT1 (page 04) Manipulate the DT1 switch to make sure that the steering trim value is displayed and operates. After verifying that the value changes, reset trim value to center (0).

-Throttle trim (DT2)

Initially, steering trim is assigned to DT2 (page 04). Manipulate the DT2 switch to make sure that the throttle trim value is displayed and operates. After verifying that the value changes, reset trim value to center (0).





Dual rate steering (DT3)

Initially, D/R steering is assigned to DT3 (page 04) Manipulate the DT3 switch to make sure that the D/R steering value displays and operates. After verifying that the value changes, reset the D/R steering rate to 100%.

Adjustable throttle ATL (DT4)

Initially, ATL is assigned to DT4 (page 04) Manipulate the DT4 switch to make sure that the ATL value displays and changes. After verifying that the value changes, reset the ATL rate to 100%.

MX-SPORT TRANSMITTER FUNCTIONS

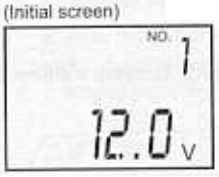
Servo Reverse / REV

REV reverses the direction in which the servos respond related to transmitter operation for all three channels: steering (CH1), throttle (CH2), and auxiliary (CH3).

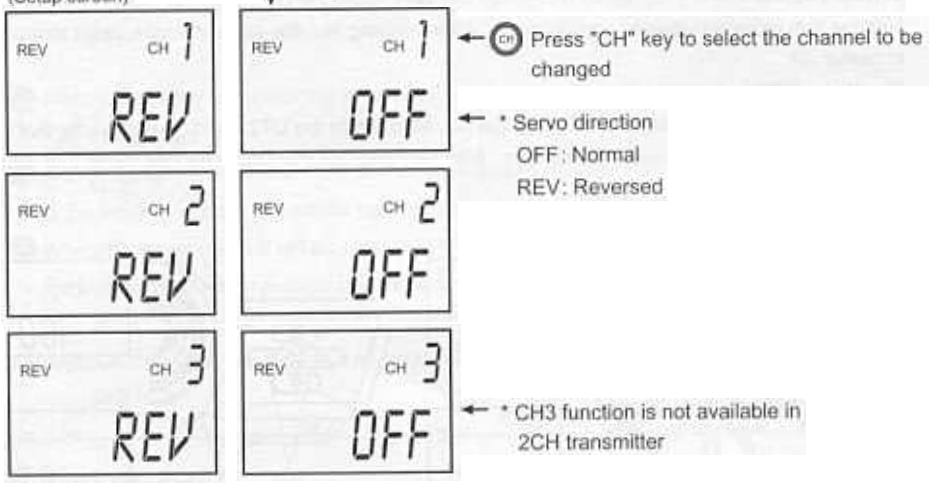
NOTE: After reversing servos, all trim adjustments will shift to the opposite side of center.

Screen Check

(Initial screen)



(Setup screen)



Press the "SEL" key repeatedly to scroll to the "REV" screen.

Press "CH" key to select the channel to be changed

* Servo direction
OFF : Normal
REV: Reversed

* CH3 function is not available in 2CH transmitter

● Servo Reverse (REV) Setting

1. Press the "SEL" key to select the desired function, REV (see drawing above).
2. Select channels 1, 2, or 3 using the "CH" key. (Channel 1 corresponds to steering, channel 2 corresponds to throttle, and channel 3 corresponds to auxiliary.)
3. Use the "+" or "-" key to reverse the servo direction. (Use the same method to change either channel).
4. After finishing adjustments, press the "SEL" key repeatedly to return to the initial screen.

End Point Adjustment / EPA

EPA is used to adjust the maximum servo travel for each channel. Always check linkages while adjusting EPA.

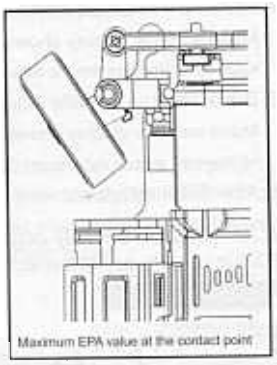
EPA should be used when adjustments are being made to left/right steering angle and throttle high/brake side during linkage setup.

Steering End Point Adjustment
Adjusts the maximum angle resulting in a different turning radius.

Throttle End Point Adjustment
Adjusts the amount of overall throttle & brake throw.

Warning

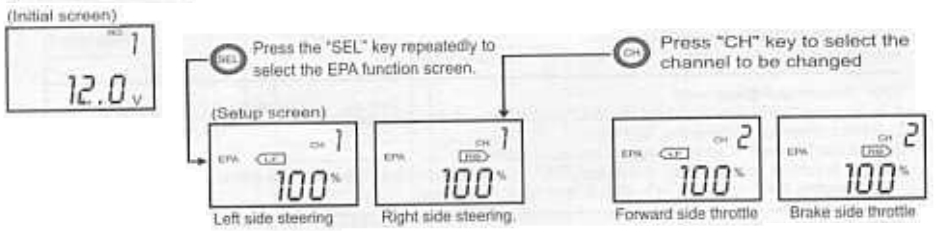
Do not use overly large EPA values as this will cause binding to occur and will result in servo failure.



Warning

The servo may malfunction and the model may lose control if excessive force is applied to the servo horn during steering operation.

Screen Check



EPA range
0 To 120% for each channel and direction
Adjustmemt buttons - Use "+" and "-" keys for changing values. Pressing and holding the "+" or "-" key for more than 1 second will increase the speed of value change

EPA Steering Adjustment

1. Set the steering D/R to its maximum value of 100%.
2. Pres the "SEL" key repeatedly to select EPA (see drawing above).
3. Select channel 1 using the "CH' key
4. Left side steering
   - Make sure the display shows "CH1". Turn the steering wheel all the way to the left and then use the "+" and "-" keys to adjust the steering angle.
5. Right side steering
   - Make sure the display shows "CH1". Turn the steering wheel all the way to the right and then use the "+" and "-" keys to adjust the steering angle.
6. After finishing adjustments, press the "SEL" key repeatedly to return to the initial screen.

MX-SPORT TRANSMITTER FUNCTIONS

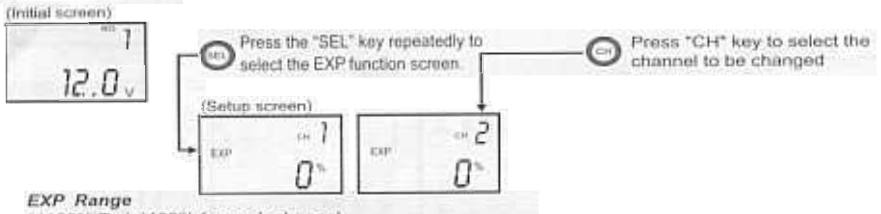
● *EPA Throttle Adjustment*

1. Set the throttle D/R (DT4) to its maximum value (100%).
2. Press the "SEL" key repeatedly to select EPA.
3. Select channel 2 using the "CH" key.
4. Forward throttle adjustment
   - Make sure the display shows "CH2". Pull the throttle trigger all the way back and then use the "+" and "-" keys to adjust maximum forward throttle amount. If using an Electronic Speed Controller, set value to 100%.
5. Brake/reverse Throttle Adjustment
   - Make sure the display shows "CH2". Push the throttle trigger all the way forward and then use the "+" and "-" keys to adjust maximum brake amount. If using an ESC (Electronic Speed Controller), set value to 100%.
6. After finishing adjustments, press the "SEL" key repeatedly to return to the initial screen.

● *EXP (exponential) adjustment*

EXP is used to adjust the sensitivity of control response near center for each channel (Ch 1 or Ch 2).

Screen Check



EXP Range

(-)100% To (+)100% for each channel.
Adjustment buttons — use "+" or "-" keys for changing values.

EXP Steering Adjustment

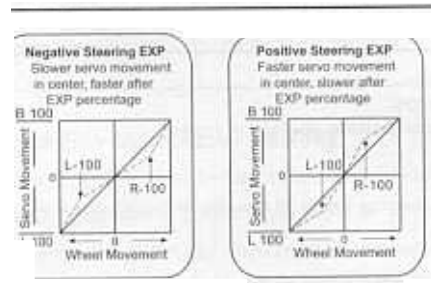
1. Press the "SEL" key to select the EXP function (see drawing below).
2. Select channel 1 using the "CH" key.
3. Use the "+" and "-" keys to adjust the EXP value.
4. After finishing adjustments, press the "SEL" key repeatedly to return to the initial screen.

   ※ Steering EXP will work in both left and right directions.

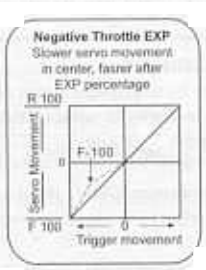
EXP Throttle Adjustment

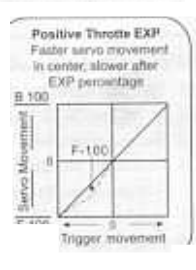
1. Press the "SEL" key repeatedly to select the EXP function (see drawing below).
2. Select channel 2 using the "CH" key.
3. Use the "+" and "-" keys to adjust the EXP value.
4. After finishing adjustments, press the "SEL" key repeatedly to return to the initial screen.

   ※ Throttle EXP only works in forward direction.



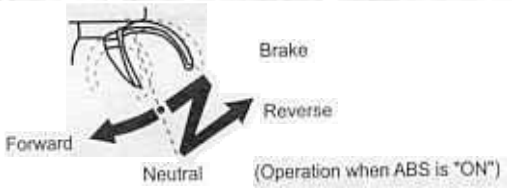
EXP Steering





EXP Throttle

Anti-Lock Braking System / ABS

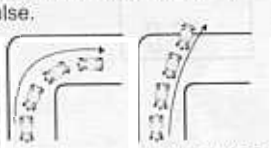


(Operation when ABS is "ON")

Applying the brakes while cornering can cause understeering or oversteering to occur due to brake lockup. Understeering or oversteering can be reduced by using the ABS function. Using the ABS function, when the brakes are applied the throttle servo will pulse, producing the same effect as pumping the brakes in a full size vehicle.The ABS function has settings for slow, normal, and fast pulse.

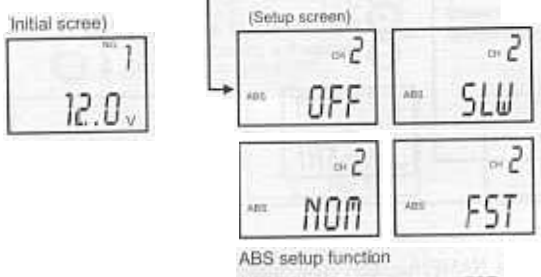
Operation

-The throttle servo will pulse with ABS function on when brakes are applied.



Screen Check

Press the "SEL" key repeatedly to select the ABS function screen.



ABS setup function

CH2 ABS : OFF/SLW/NOM/FST

ABS OFF: When brakes are applied (trigger pushed forward), NO PULSING.
ABS SLW: when brake are applied (trigger pushed forward), SLOW PULSING.
ABS NOM: when brake are applied (trigger pushed forward), MEDIUM PULSING.
ABS FST: when brake are applied (trigger pushed forward), FAST PULSING.

ABS adjustment

1. Press the "SEL" key repeatedly to select the ABS function (see drawing above)
2. Change the ABS setting using the "+" or "-" keys.
3. After finishing adjustments, press the "SEL" key repeatedly to return to the initial screen.

OFF: ABS off	NOM: ABS with medium pulse
FST: ABS with fast pulse	SLW: ABS with slow pulse

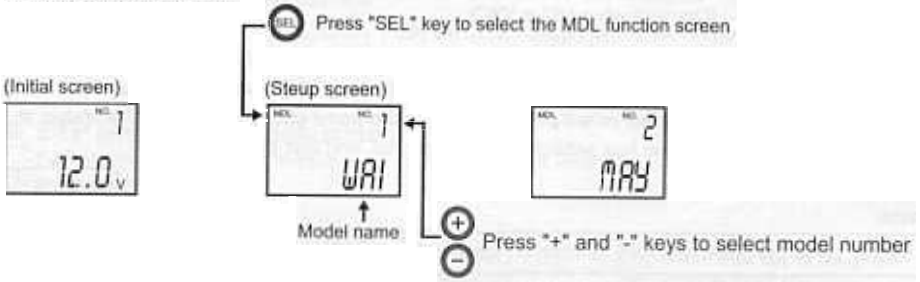
NOTE: *If the throttle servo is not strong enough, the ABS feature will not function properly, and your servo could be damaged.*

Model Name / NAME

This function allows for the assignment of a name (three characters, numbers or letters) to each of the 10 model memories (#0-9).

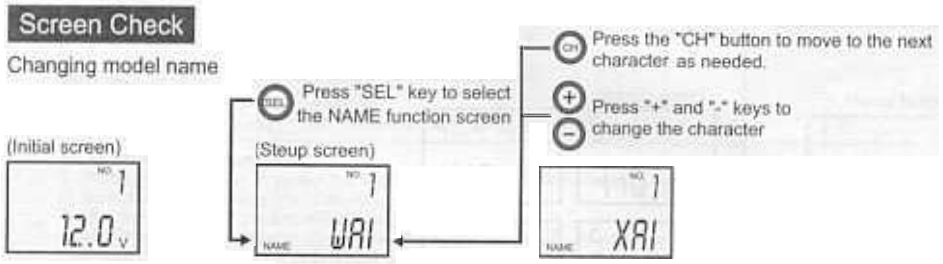
Screen Check

Selecting model number



Screen Check

Changing model name



Model Name Assignment

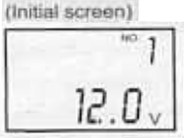
1.Press the SEL" key repeatedly to select the NAME function (see drawing above)
2. Select the character you want to change using the "CH" button.
3. use the "+" or "-" keys to change the character to the desired character.
4. Repeat steps 2 and 3 to assign the model name.
5. After finishing adjustmens wait at least two seconds before turning off.
※ The character you want to change will blink.

FUNCTION GUIDE

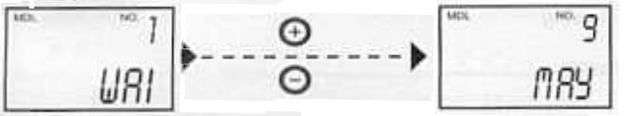
AIRTRONICS Get The Advantage

Turn on Transmitter (This is a map of the different functions and where to find them.)

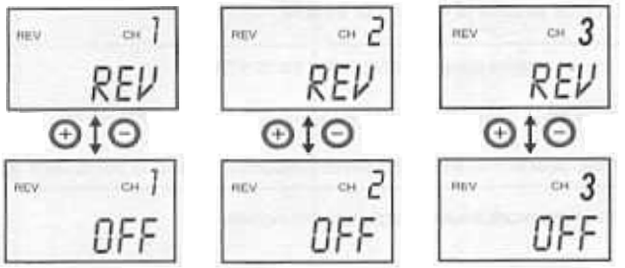
(Initial screen)



SEL ↓ Model select / MDL



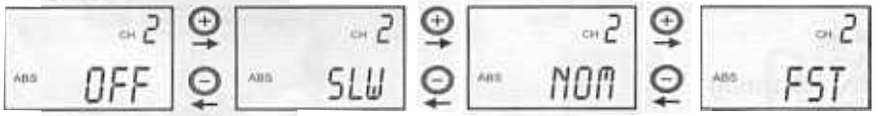
SEL ↓ Servo reverse / REV



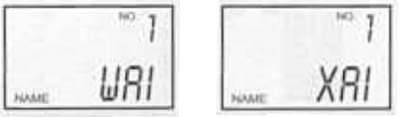
SEL ↓ End point adjust /EPA

SEL ↓ EXP function

SEL ↓ ABS function / ABS



SEL ↓ Model name /NAME



MX-SPORT REFERENCES

Terms

ABS (Anti-lock Braking System)- To eliminate wheel lockup under braking which might result understeering or oversteering.

Throttle D/R - Use to adjust the amount of travel available to the braking side of the throttle trigger or servo.

CH1 (Channel 1 Use to control steering.

CH2 (Channel 2) - Use to control throttle.

CH3 (Channel 3) - Used for auxiliary control. Often used for forward/reverse direction control.

D/R (Dual Rate) - Used to adjust the total amount of steering or throttle.

DT (Digital Trim) - Digital switches used to make adjustments on the transmitter.

EPA (End Point Adjustment) - EPA is used to adjust the maximum servo travel for each channel / ser

REV (Servo Reversing) - Reverses the direction in which the servo responds, related to transmitter operation.

Servo - Electric motors used to do physical work inside a radio control vehicle.

Power Alarm

Low battery Alarm

An alarm will sound if the transmitter voltage drops below 8.5V and the LCD screen will show "LOW" (see drawing below).

This alarm is meant as a safety feature only. The transmitter should not be operated below 9V.

LCD screen

Audible alarm : Continuous tone

Warning

If the battery alarm sounds, turn off the car then transmitter as soon as possible to prevet loss of control.

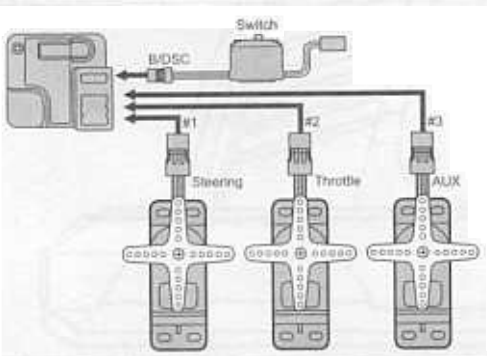
REFERENCES

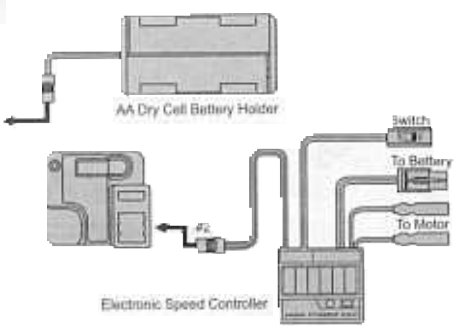
Troubleshooting

If you experience problems with your system, including erratic control or short range control problems, check the following table for probable causes. If none of the followig suggestions fix the problem, return the unit to the service department.

Problem	Possible Cause	Solution
Transmitter will not turn on or voltage is low	Dead or low batteries	Replace batteries
	Batteries inserted incorrectly	Check orientation of batteries, ensure that they are inserted according to the markings
	Faulty contacts	Ensure that contacts are not damaged and are making good contact with the batteries
	Corroded or dirty contacts	Check contacts for corrosion, clean if necessary
Decreased range of control or erratic control		Ensure the antenna is screwed all the way in

Receiver and Servo Connections





Airtronics, Inc.
18480 Bandilier Circle
Fountain Valley, CA 92708

www.airtronics.net