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Instruction manual for the M8 Transmitter.

Thank you

 AIRTRONICS
M18
Instruction Manual



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AIRTRONICS M18

THANK YOU FOR ELECTING TO JOIN THE AIRTRONICS FAMILY
Always remember that we are as close as your nearest telephone, FAX machine, or mail box.

These instructions are intended to acquaint you with the many unique features of this modern, state-of-the-art equipment. Please read them carefully so that you may obtain maximum success and enjoyment from its operation.

We ask that you pay particular attention to the design of the transmitter. Notice that it has been human engineered for the most natural and precise control of your choice of operating cars or boats.

Be certain to read all the material in this manual, as well as that in the Fundamentals and Guidelines Manual.

SAFETY FIRST FOR YOURSELF, FOR OTHERS AND FOR YOUR EQUIPMENT

"SAFETY FIRST" is more than just a slogan when operating radio controlled models. Thus, we urge, especially with respect to radio controlled aircraft that:

FOR YOUR SAFETY:

AT THE TRACK OR LAKE...

DO NOT OPERATE YOUR TRANSMITTER unless your frequency is "clear". The transmitting signal frequency and/or channel number is shown on the transmitter and YOU MUST NOT turn on your transmitter while someone else is operating their model on that same frequency.

WARNING: IF YOU DELIBERATELY OR ACCIDENTALLY TURN ON YOUR TRANSMITTER WHILE ANOTHER MODEL IS IN OPERATION, THAT MODEL WILL GO OUT OF CONTROL. The same will happen to yours, so observe "clearing" the frequency. Only one person using a given frequency at a time. DO USE FREQUENCY FLAGS for the frequency your system uses and attach the appropriate flags to your transmitter antenna. DO OBSERVE all of the rules of the operating or flying site.

FREQUENCY IDENTIFICATION AND DISPLAY SYSTEM

The Federal Communications Commission (F.C.C.) specifies radio frequencies in MHz units. For convenience, the frequencies are designated by CHANNEL number or by colors. The frequencies for each band are listed in MHz and are designated as indicated. Numbered channel markers on the transmitter identify the specific channel. A yellow wind streamer identifies a 75 MHz transmitter.

75 MHz	
Non-Aircraft Band	
CHANNEL	FREQUENCY (MHz)
61	75.410
62	75.430
63	75.450
64	75.470
65	75.490
66	75.510
67	75.530
68	75.550
69	75.570
70	75.590
71	75.610
72	75.630
73	75.650

74	75.670
75	75.690
76	75.710
77	75.730
78	75.750
79	75.770
80	75.790
81	75.810
82	75.830
83	75.850
84	75.870
85	75.890
86	75.910
87	75.930
88	75.950
89	75.970
90	75.990

27 MHz Surface		
CHANNEL	FREQ. (MHz)	SINGLE FLAG COLOR
1	26.995	Brown
1	27.045	Red
1	27.095	Orange
1	27.145	Yellow
1	27.195	Green
1	27.255	Blue

WARNING: The 75 MHz frequencies allocated for Model Radio Control use are exclusive; however, they are in close proximity to other types of radio usage in certain areas. Before operating your Model, check with the FCC Regional Office in your area to determine whether there is a potential danger or interference from other radio users. The FCC offices are usually listed in your telephone directory under the section designated to United States Government Offices. When dealing with the FCC, you should state the type of activity you are involved in (i.e., radio control of model boats or cars) and inquire if there are any commercial RF transmitters on or close to your frequency in Megahertz (MHz). Do not use R/C channel numbers since the FCC will not be able to correlate them with actual frequency. "Outside" radio interference may cause you to lose control of your model, possibly resulting in injury to yourself or others, or property.

SO REMEMBER:

1. DO NOT OPERATE your transmitter at the track or lake, until you are certain your frequency is "clear".
2. DISPLAY your frequency flag colors and channel identification on the antenna of your transmitter.
3. REMEMBER that flags do not usually state the frequency on them and sometimes the colors are hard to distinguish. If you have an eyesight limitation or defect such as color blindness, double check the frequency flag designations with someone else.
4. Turn your transmitter on only when you are sure no one else is using your frequency.
5. **WARNING:** Your model will go out of control and may cause some serious injury or damage if someone else turns on a transmitter on your frequency while you are operating your model.
6. Respect all the rules of the operating site.
7. At any time during the operation of your model, should you sense, feel or observe any erratic operation or abnormality, end your operation as quickly and safely as possible. DO NOT operate again until you are certain the problem has been corrected. TAKE NO CHANCES.

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M8 System Features

- **Narrow Band FM Receiver and Transmitter:** For the best possible radio link between the transmitter and your model.
- **New Airtronics "Z" Servo Connectors:** Allows connecting to components of most other brands without plug changes.
- **Transmitter RF Frequency Modules:** Allows quick and positive channel and / or band changes, even between heats.
- **Three Channel Operation:** For additional scale functions.
- **Advanced Case Ergonomics:** For comfortable operation, well balanced with perfect wheel and grip alignment.
- **Adjustable Grip Length:** Adjustable for any hand width.
- **Interchangeable Grip Position:** For left or right handed users.
- **Steering Wheel Tension:** Adjustable to exact point desired.
- **Rechargeable Battery:** Drop-in NiCd battery available.
- **Transmitter Battery Monitor:** Displays battery voltage digitally in 0.1 volt increments from 8.0 to 13.1 volts
- **Transmitter Battery Alarm:** Provides audio beeps when battery drops to 9.1 volts, steady tone when it drops to 8.9 volts.
- **Large Display Panel:** High visibility, large characters.
- **Dual Rates:** Available on both steering and throttle channels.
- **Exponential:** Available on both steering and throttle channels.
- **End Point Adjustments:** Available on both steering and throttle channels.
- **Digital Trim:** One degree trim changes possible while running. Includes Sub Trim, Trim Rate, and Trim Reset functions.
- **Servo Speed:** Steering and throttle servo speed variable.
- **Ten Model Memory:** Stores all operational data for 10 different models. Includes Model Copy and Model Clear functions.
- **Response Switch:** Adjust servo response time while under way.
- **Digital Timer:** Multipurpose programmable timer can be set for total ON time, lap time, or as interval timer.
- **Servo Reverse:** Sets direction of steering and throttle servo.
- **Starting Position:** Exclusive feature for glow engine powered models, sets the throttle at high idle for easier starting.
- **Command Signal:** Selects one of ten different tones to be heard during any trim and function key operations.
- **LCD Contrast:** Sets the brightness of the screen at the best level for different ambient lighting conditions.
- **Key Lock:** Turns off programming keys to prevent accidental change or loss of stored data by inadvertent operation.
- **Direct Servo Controller:** Allows setting of model linkages and all transmitter data without actual transmission taking place.
- **Fully Compatible:** With all Airtronics accessories and most of those available from all major R/C equipment manufacturers.

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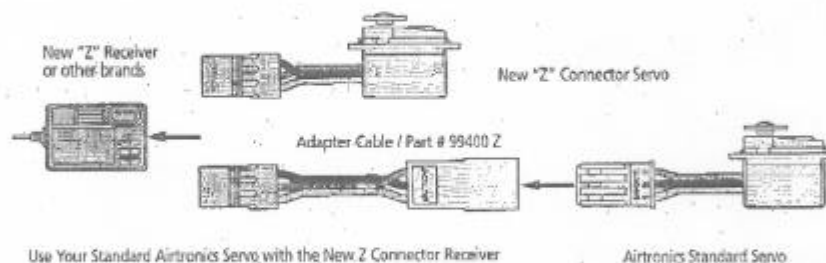
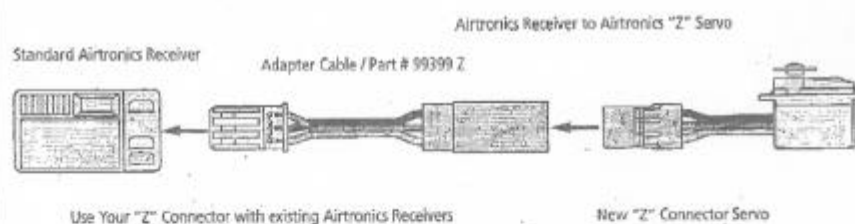
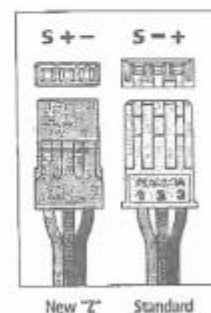
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Connectors

CAUTION!

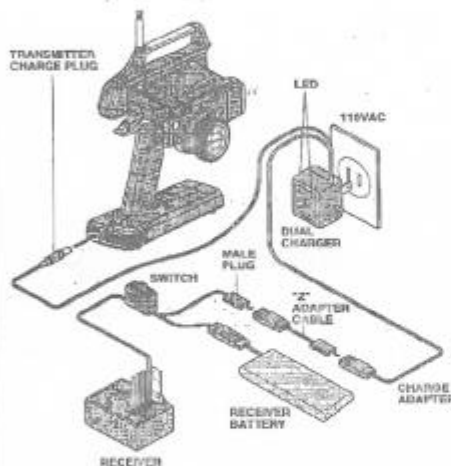
- Your M8 system uses Airtronics **New "Z" Connectors**. The receiver is blue in color and should be used only with "Z" connector equipped servos, speed control, switch harness or batteries.
- The receiver and all "Z" configured components use a different pin polarity than previous servos, speed controllers, switch harnesses and batteries and should not be used together.

To use your "Z" connector receiver with previous servos, etc. Conversion cable No. 99400Z must be used or new "Z" connectors installed by our service department.
To use previous receivers with "Z" connector servos, etc. Conversion cable No. 99399Z must be used.



NI-CD BATTERY CHARGING

- Before connecting the charger, both transmitter and receiver power switches must be in the "OFF" position.
- When using Ni-Cd batteries for the first time or they have not been used for long periods, they may not accept a full charge. If so, they should be discharged and re-charged two or three times.



Ni-Cd Charging Time (Charger No. 95033)
 Transmitter 700 mAh Battery 12 Hours
 Receiver 425 mAh Battery 10 Hours
 Whenever a quick charger is used, the charge rate should not exceed one ampere.

HANDLE POSITION:

You will find the MB to be especially well balanced, with the wheel and trigger aligned to maximize driving precision.

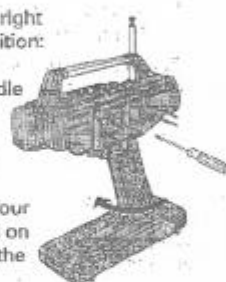
Adjusting the handle position:

- (1) Remove the RF module.
- (2) Loosen the four screws indicated on the back side of the transmitter, pull down on the handle.
- (3) With the handle positioned as desired, retighten the screws.



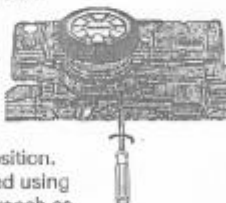
Switching left to right hand handle position:

- If you are left handed, the handle may be rotated as follows:
- (1) Remove the RF module
 - (2) Remove the four screws indicated on the back side of the transmitter.
 - (3) Pull down and remove the handle from the top section. It only needs to clear the top, use care not to pull the connecting wires loose.
 - (4) Rotate the handle 180 degrees and replace it back in the top section.
 - (5) Install and tighten the four screws.



STEERING WHEEL TENSION ADJUSTMENT:

The steering wheel tension is factory set to the softest position. It can be adjusted using a 1.5mm hex wrench as indicated; turn the screw in to increase tension.



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REPLACING CRYSTALS

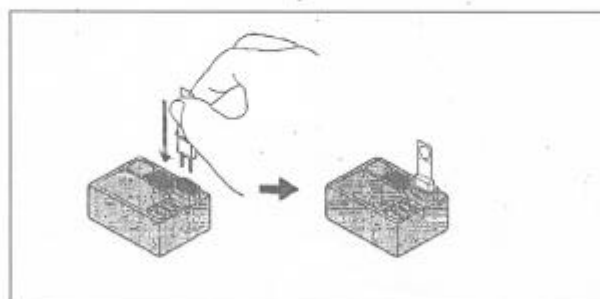
Transmitter:

(Note that Federal Regulations prohibit changing crystals in the 75 MHz band).

- (1) Remove the crystal cap, remove the installed crystal and replace it with the new one.
- (2) To change from the 27MHz to the 75 MHz band, or vice versa, it is necessary to change the transmitter RF module.
- (3) When changing the module, assure that it is firmly installed, improper or loose installation will cause malfunctions.
- (4) Be sure to use the crystal cover to protect the crystal.
- (5) Your M8 transmitter uses Airtronics RF Module No. 93927 for 27 MHz and No. 92976 for 75 MHz; they are not interchangeable with other modules.

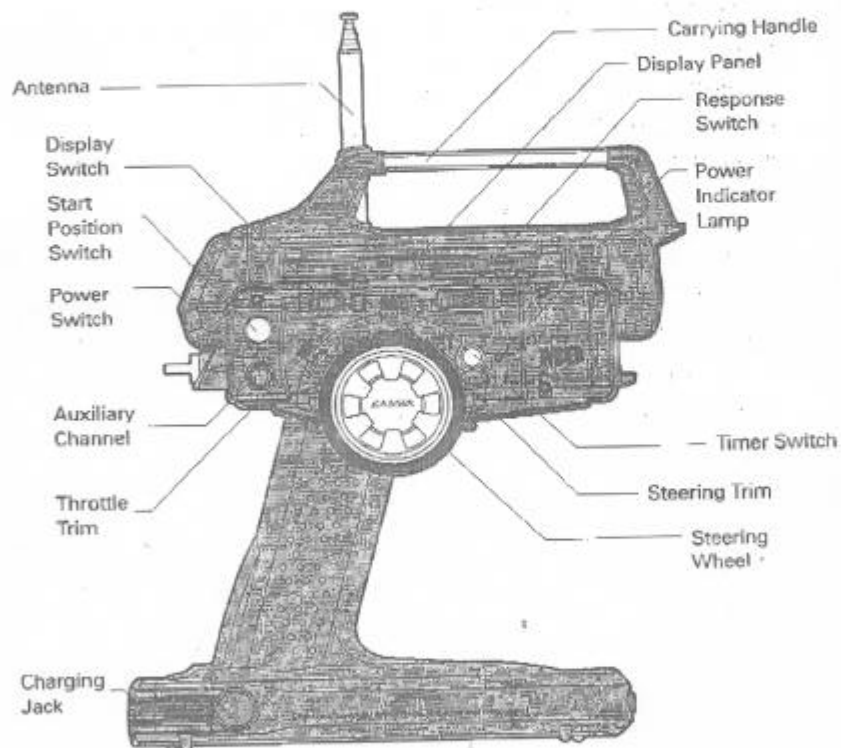
Receiver:

- (1) Remove the installed crystal and replace it with the new one.
- (2) Receiver frequency changes are possible only within the respective band. To change bands you must replace the receiver. Use Airtronics receiver No. 92837 for 27 MHz, No. 92836 for 75 MHz.
- (3) Be sure to install the silicone ring to protect the crystal from vibration and damage.



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Transmitter Features And Controls



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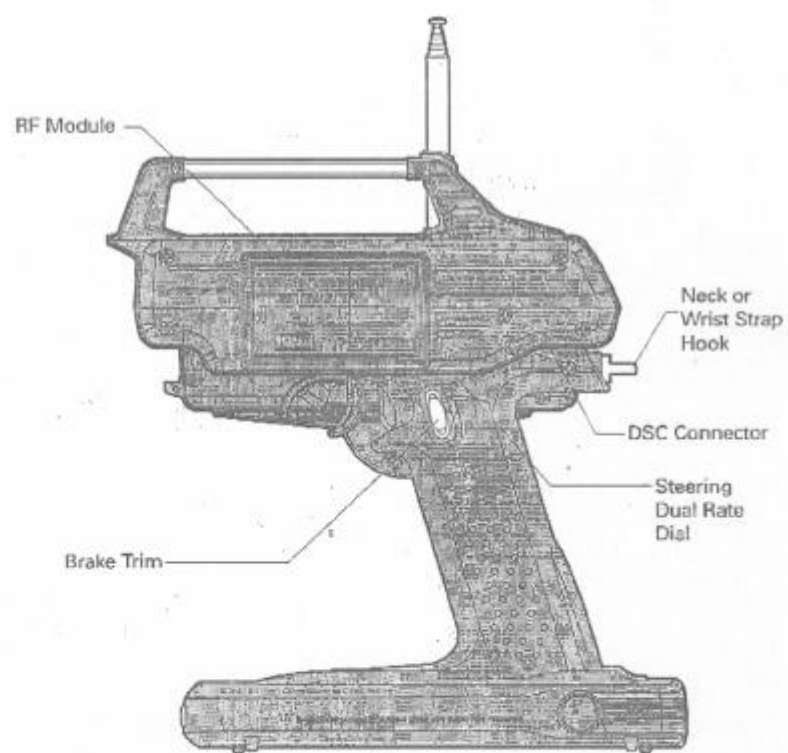
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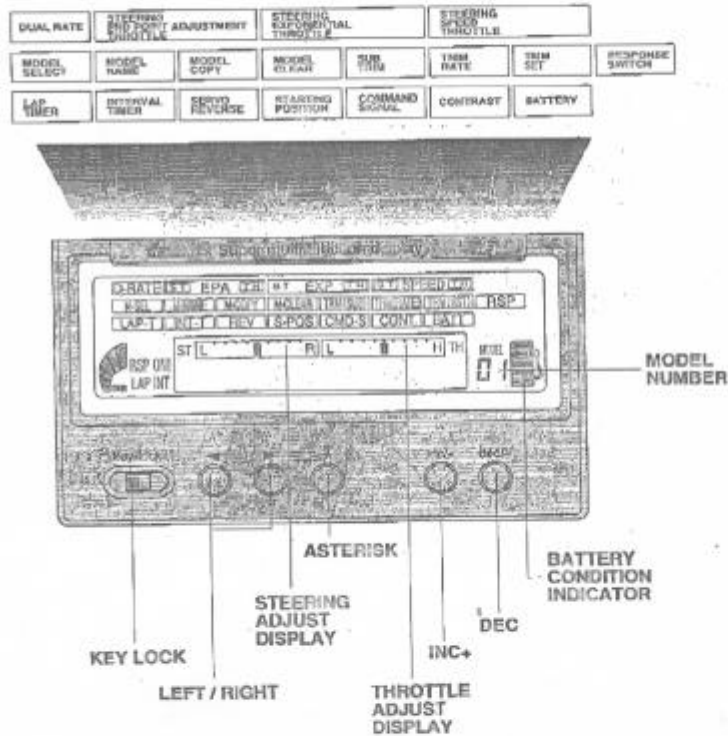
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DISPLAY PANEL

Your M8 transmitter's large multiple display shows it's many possible functions at a glance. It enables the various functions to be set into its extensive memory, stored, and copied, and provides instant confirmation of all data entered.

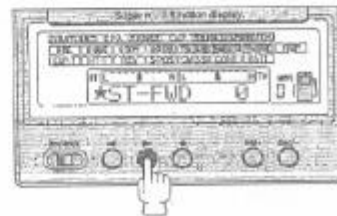


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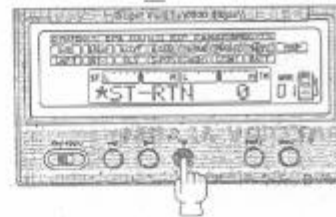
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BASIC OPERATION OF THE DISPLAY PANEL

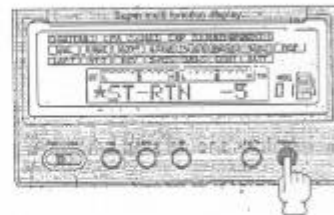
- (1) Using the Function Select Keys < >, move the cursor left or right, up or down, to the desired function name. Pressing the < > Keys at the same time moves the cursor up and down.



- (2) When the display shows an asterisk (*), you can scroll the menu for further functions.



- (3) The indicated value can be adjusted with the Inc.+ or Dec.- Keys. Depress both the Inc.+ and Dec.- Keys to reset to the original value.



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BATT (BATTERY)

The Battery Voltage is indicated in 0.1V steps from 8.0V to 13.1V.

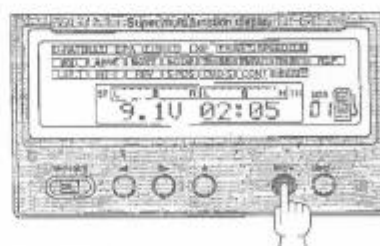
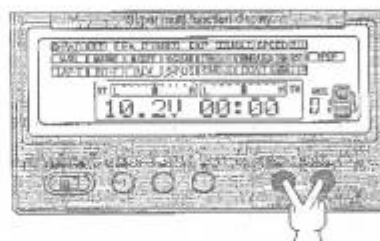
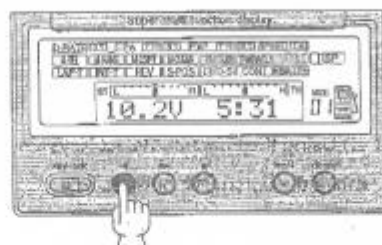
TIMER OPERATION

Under BATT, depressing the Inc.+ and Dec.- Keys simultaneously will reset the timer to indicate the transmitter operating time so that its battery life can be estimated.

Note: The transmitter operating time includes also the time the display is operational.

BATTERY ALARM

An audio alarm will sound when the transmitter's battery voltage drops to 9.1V. The alarm can be stopped by depressing any of the keys. The alarm will re-start when the voltage drops an additional 0.2V. Operation of the transmitter should stop when the second alarm is heard and the battery must be replaced or recharged. Continued operation will result in an out of control model.



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D-RATE (STEERING DUAL RATE)

This function is recommended to correct an under- or over-steering condition. It can be adjusted with the Steering Dual Rate Dial on top of the handle while driving your model.

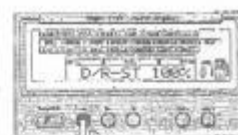
- (1) First adjust the steering to neutral
- (2) Set the Steering Dual Rate Dial to its center.



Dual Rate Dial

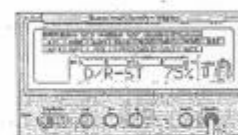


- (3) Depress the Function Select Key and move the cursor to D- RATE.



- (4) Turn the Steering Wheel clockwise or counter-clockwise and depress the Inc.+ or Dec.- Key until the steering linkage hits its stops, then decrease the indicated reading by 25%.

Caution: Do not hold the steering in its stopped condition for long as the servo will draw excessive current and possibly be damaged.



- (5) Adjust the Steering Dual Rate with the Steering Dual Rate Dial. Turning the dial to the right will increase the steering angle; turning the dial to the left will decrease it. Caution: If Steering Dual Rate is not desired, the dial should be kept at its full right position. Setting the Steering Dual Rate at 150% and the Steering EPA at 150% may increase the dead band (lack of sensitivity at center) of the steering servo.



ST-EPA (STEERING END POINT ADJUSTMENT)

This function is used to correct a model's turning radius if it differs from left to right.

(1) First adjust the Steering Trim, then the EPA.

(2) Depress the Function Select Key and move the cursor to ST-EPA.

(3) Turn the Steering Wheel clockwise and set the right steering angle with the Inc.+ or Dec.- Key as desired. Then turn the Steering Wheel counter-clockwise and set the left steering angle with the Inc.+ or Dec.- Key.

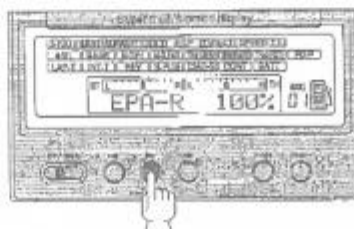
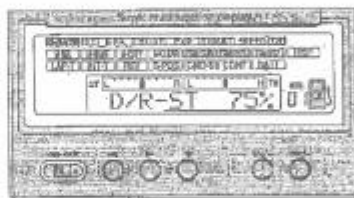
Note: The recommended standard setting is 100%.

Caution: When setting the Steering EPA, adjust the Steering Trim first.

Set the Steering Trim as follows:

- (1) Reset the trim
- (2) Set the servo neutral.
- (3) Adjust the servo center with the Sub-Trim.

Remember that setting the Dual Rate at 150% and the Steering EPA also at 150% may result in increased servo dead band.



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OPERATION OF THE DIGITAL TRIM

Your Airtronics M8 transmitter utilizes a Digital Trim system which eases adjusting the trims while operating your model. Changes as fine as one degree can be made. In addition, it has an Auto-Trim System which memorizes the trim position automatically after running the model.

STEERING TRIM

The Steering Trim is used to correct any inherent differences in the right and left turns of a model as determined by its mechanical characteristics.

Caution: When adjusting the Steering EPA, first adjust the Steering Trim as follows.

- (1) Reset the trim.
- (2) Set the servo neutral
- (3) Adjust the servo center with the Sub-Trim.

STEERING TRIM



THROTTLE TRIM

The M8's Center Trim is not affected by the settings of the throttle high or the amount of brake, therefore changing the neutral adjustment will not affect the brake setting.

THROTTLE TRIM



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