



# TRAIN ENGINEER WALK-AROUND CONTROL SYSTEM ART-5470

Congratulations on your purchase of the Aristo-Craft ART-5470 Train Engineer Wireless Radio Control System. This product has been manufactured to the highest standards using only quality components and, with proper care, should provide you with countless years of reliable service. Some of the more advanced features may be new to you, but with a little guidance, are easy to use and can add to your overall railroad operating pleasure while protecting your equipment.

## INTRODUCTION TO THE ART-5470

The Aristo-Craft ART-5470 Train Engineer wireless radio control system is designed to operate any DC powered model train without any modification to either the existing power supplies or locomotives, regardless of scale.

The unit is designed for easy operation, with only four wires to connect. Testing has shown that a 300-foot operating range is possible between transmitter and receiver. Since this is true a radio control system, no "line of sight" is necessary between the transmitter and receiver.

This, the third generation of the Train Engineer, has ten different frequencies, rather than only one as used in prior productions. **In addition to the ten frequencies, there are now ten different track addresses (channels) available for use per frequency.** Thus, it is now possible for one transmitter to control 100 different receivers, if all the channels and all the frequencies are utilized. There are no longer unique frequency crystals in the transmitter or receiver. Using a patented Aristo-Craft innovation, each frequency is digitally generated with a computer code that is user selectable. Frequency is the method by which a transmitter and receiver communicate.

## FEATURES

In addition to its wireless walk-around control of multiple trains and accessories, the ART-5470 offers several other features to both enhance your enjoyment and protect your valuable equipment. These include both linear and pulse width control, momentum, and directional change time delay.

The ART-5470 offers both linear and pulse width control (PWC). Linear operation directly controls track voltage on a one-to-one basis. PWC, on the other hand, sends the full voltage to the track at all times, but controls the "on and off" time that the voltage is sent out. When the transmitter is shut off, however, there is no voltage transmitted to the track at all. This has numerous advantages. First, it allows the train to start moving and "crawl along" at slower speeds by overcoming the inertia 1

### PLEASE NOTE:

In the Instruction manual the Train Engineer is referred to as it old part number ART-5470 with the Transmitter being ART-5473 and the receiver being ART-5471. The Current part numbers are; Train Engineer CRE-55470, Tran Engineer Transmitter CRE-55473, and the Train Engineer Receiver CRE-55471. All are sold under Aristo-Craft's "CREST" trade name.

While in testing the Train Engineer can transmit a R/F signal 300 feet, the practical range is typically between 50 and 75 feet.

train at rest. Second, because accessories such as smoke units and lights "see" a higher voltage, they perform better at reduced speeds than they would under linear control. Finally, your equipment will operate smoother and more reliably when your track is less than perfectly clean.

In real life, trains don't "jack rabbit" up to speed or "stop on a dime" so why should yours? The momentum control incorporated in the ART-5470 lets engineers increase and decrease the speed of their trains in a smooth and realistic manner. These gradual changes are also easier on your trains' motors and gears. Furthermore, this control is user adjustable to simulate various train lengths.

One of the hardest things on any train is a quick change in direction. This not only cause excessive wear on all moving parts, but can instantaneously strip the gears in the engine requiring that the equipment be returned to the factory for repair. Furthermore, even if no damage is done, it can cause a derailment. To alleviate these problems, the ART-5470 incorporates a time delay feature when changing directions.

When the directional buttons are pushed, the train gradually slows to a stop, changes directions, and returns to its prior speed. As with momentum, the delay period is user adjustable.

## COMPONENTS

The ART-5470 Train Engineer Wireless Radio Control System is a two piece set that includes:

### A) ART-5471, Receiver

#### Specifications:

- Frequency: 27MHz FM
- Input Range: 12 - 24V DC
- Output: 10 amp maximum, incl. optional fan

### B) ART-5473, Transmitter

#### Specifications:

- Frequency: 27MHz FM
- Range : (Max.) 300 feet

In addition you will need the following:

- 12-24V DC filtered power source for the receiver
- Batteries: four 1.5V "AA" Alkaline to power the transmitter

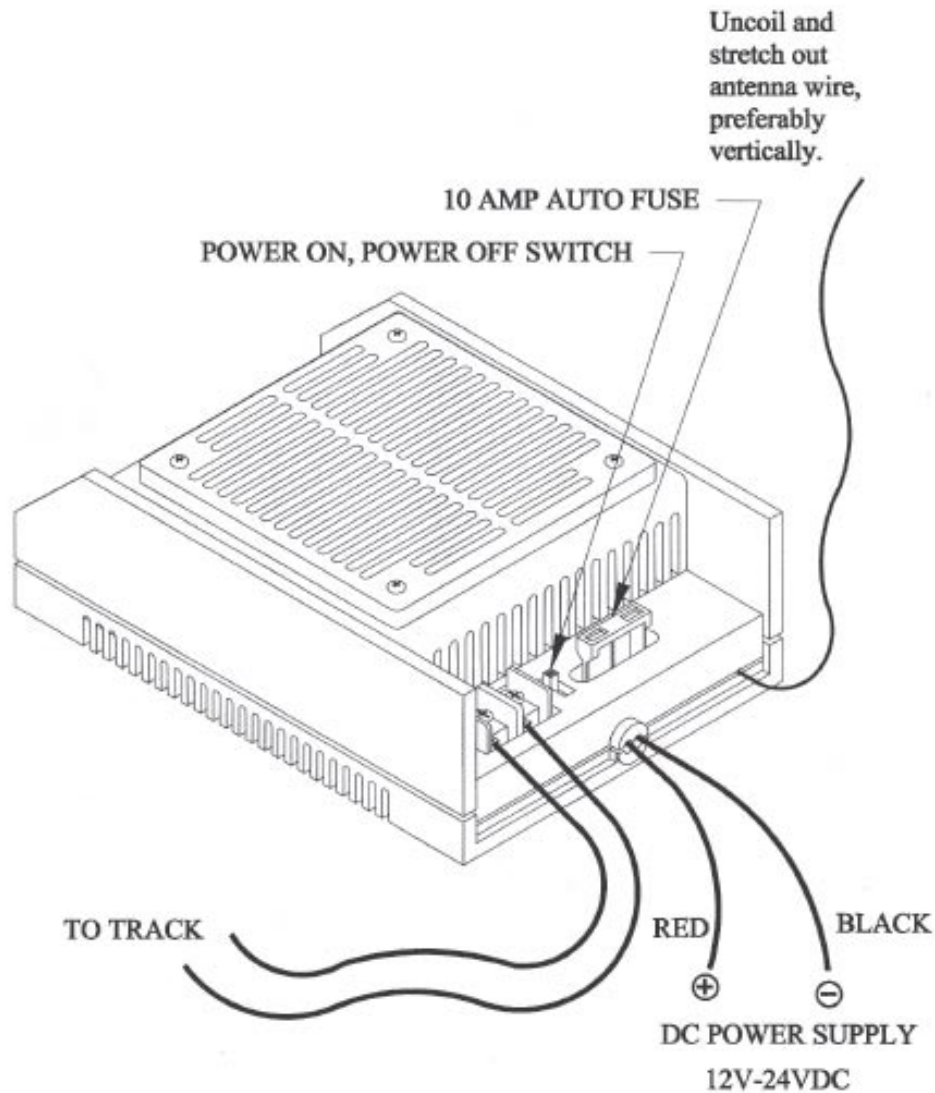
While any good, DC filtered power source of the noted voltage will serve to power the receiver, we strongly recommend the Aristo-Craft ART-5460 Ultima 10 amp power supply. This power supply has been especially designed to let your engines pull long trains through steep grades and/or run multiple engine lashups with ease.

2

## PLEASE NOTE:

In addition to the ART-5460 Ultima 10 amp power supply, now the CRE-55460 Ulitma power supply Aristo-Craft also produced the CRE-55465 13.5 to 15 amp and the CRE-55466 5 amp Elite Switching Power Supplies. All Aristo-Craft power supplies are sold under Aristo-Craft's CREST trade name.

# RECEIVER INSTALLATION



3

**PLEASE NOTE:**

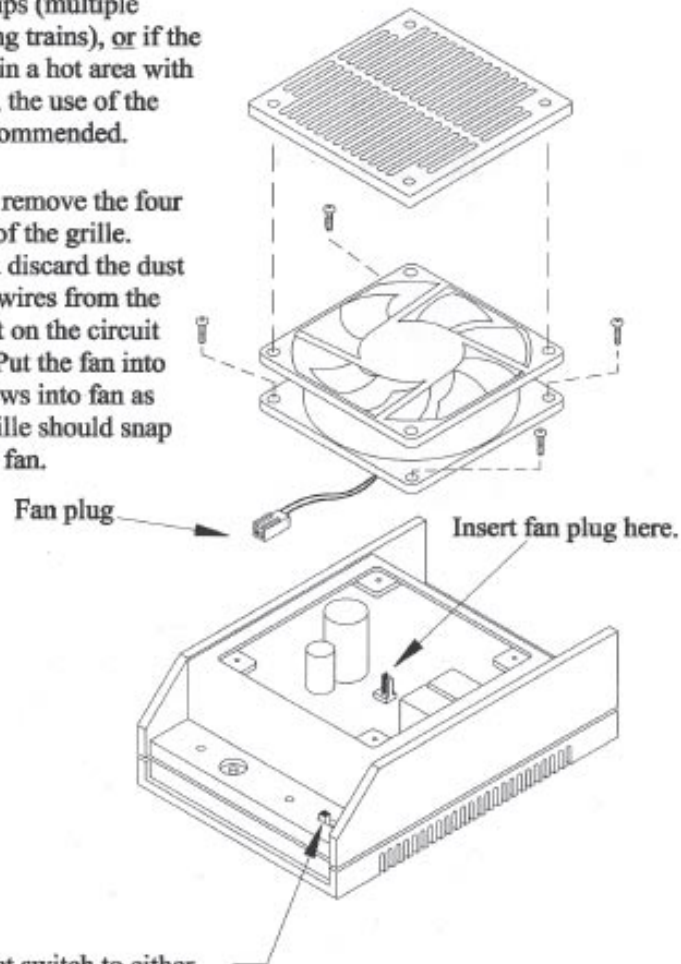
The wires for connecting the Receiver to the track (Track-to-Pack Connector Wires) now include an In-Line 10 AMP Glass Fuse on one wire. The fuse is for additional overload protection allowing better protection for the Receiver from overload from both power input (power supply) and feedback from power output (to track).



# RECEIVER FAN INSTALLATION

If track current is going to be more than 5 amps (multiple locomotives or long trains), or if the receiver is placed in a hot area with restricted air flow, the use of the optional fan is recommended.

To install the fan, remove the four screws in the top of the grille. Then, remove and discard the dust shield. Hook the wires from the fan into the socket on the circuit board as shown. Put the fan into place and put screws into fan as indicated. The grille should snap into the top of the fan.



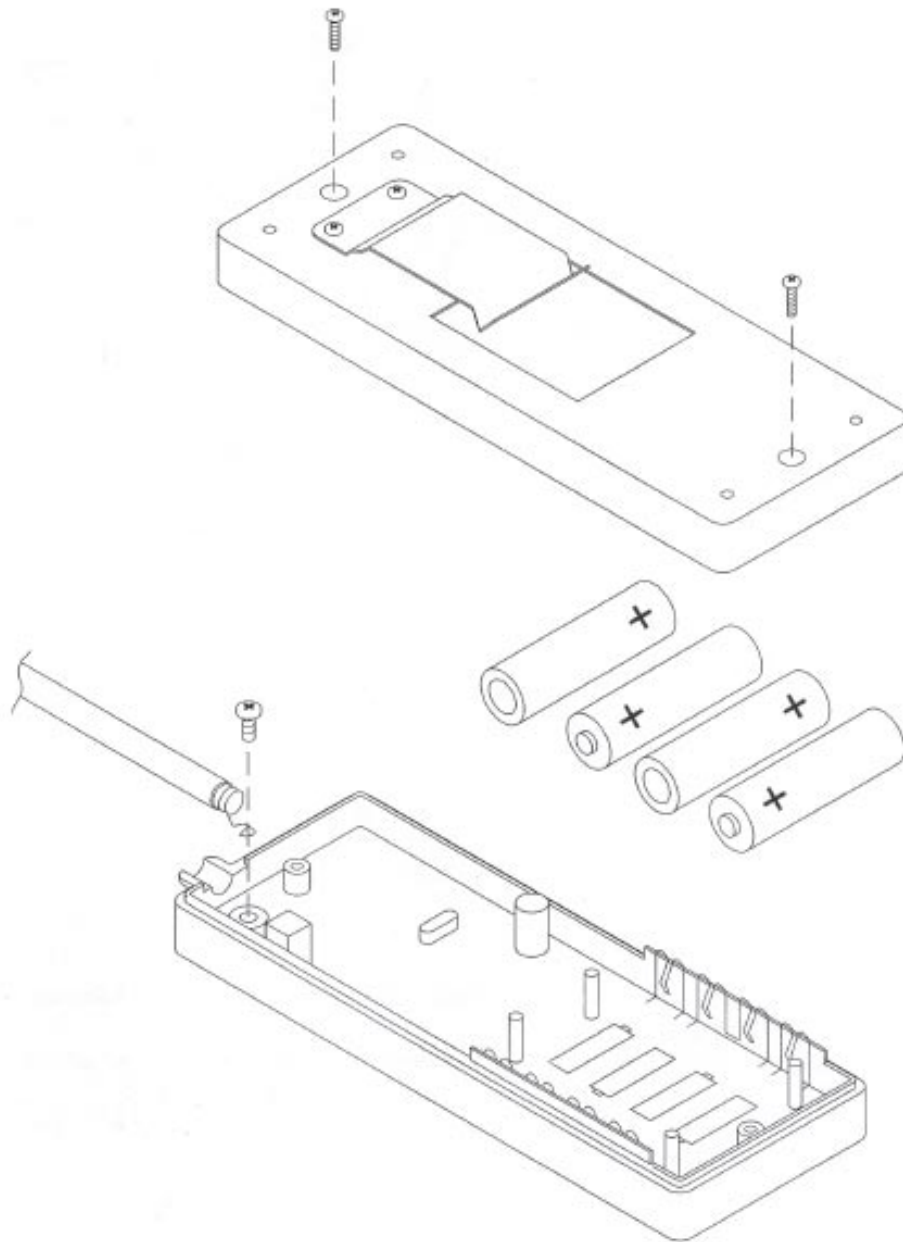
Set switch to either Linear or P.W.C. Please note that P.W.C. should not be used with non Aristo-Craft locomotives or sound systems. The Linear mode should be used with all non Aristo-Craft locomotives and sound systems. Linear is nothing more than DC current.

4

## **PLEASE NOTE:**

Only use the Aristo-Craft CREST CRE-55499 Train Engineer Fan for installation and connection to the Receiver. Do not connect any other fan to the Receiver.

While it is not recommended to use P.W.C. with non-Aristo-Craft locomotives Aristo-Craft locomotives can be used with the Receiver in either P.W.C. or Linear mode. Consult the manufacture and the instruction manual of your sound system before using with the Receiver in P.W.C. mode.

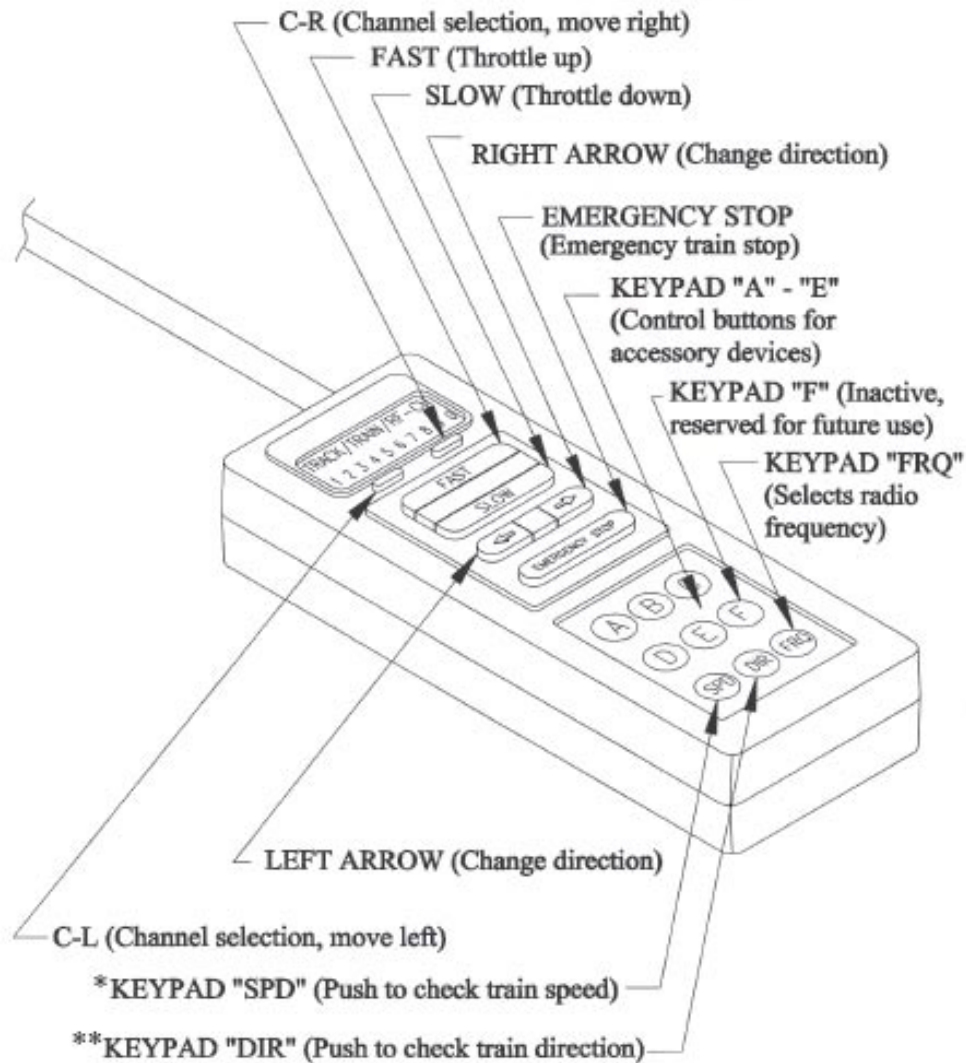


5

**PLEASE NOTE:**

Later production Transmitters have an extendable metal antenna which replaces the "Rubber Ducky" style antenna. Replacement Rubber Ducky and extendable metal antennas are available from Aristo-Craft. See page 8 for contact information.

# KEY PAD FUNCTIONS



## **CAUTION**

- If the lights flash quickly then go out when a button is depressed, the batteries are low and need replacing.
- When the batteries are removed, replace them within 30 minutes or the memory will be wiped out and it will be necessary to reprogram the system.
- If the antenna requires replacement, be sure to use the same type or the range may be adversely affected.
- Contact Aristo-Craft for replacement antennas.

6

## **PLEASE NOTE:**

\*KEYPAD "ON/OFF" SWITCH (2005 VERSION T.E. TRANSMITTER) The "ON/OFF" button replaces the "SPD" button. When "ON/OFF" button is turned on a red or green led (indicating Track Channel) will flash indicating batteries are good. If no command (no buttons on Transmitter are pushed) is given to the Transmitter, the Transmitter will automatically shut off after 10 minutes.

\*\*KEYPAD "ALL STOP" (2005 VERSION T.E. TRANSMITTER) The "ALL STOP" button replaces the "DIR" button. The "ALL STOP" button works similarly to the "EMERGENCY STOP" button. The difference "ALL STOP" sends the stop command to all Track Channels (10) on the frequency the Transmitter is utilizing when the "ALL STOP" button is pressed. "EMERGENCY STOP" sends the stop command only to the individual Track Channel on the frequency the Transmitter is utilizing when the "EMERGENCY STOP" button is pressed.

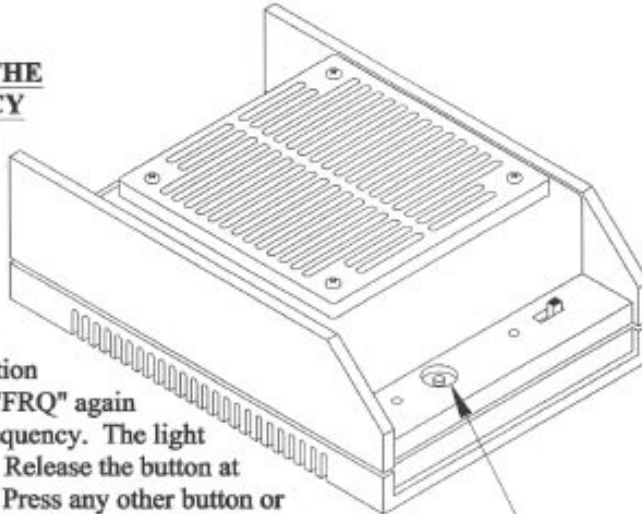
# LINKING THE TRANSMITTER AND RECEIVER

(1) Turn on power supply and make sure the switch to the rear of the unit is on. Keep the transmitter and receiver at least two feet apart while linking them.

(2)

## HOW TO SELECT THE TRACK FREQUENCY

To select the radio frequency, press the "FRQ" button and hold it down for 2 seconds. At that time a light will begin to flash at the present frequency location number (1-10). Press "FRQ" again to select the desired frequency. The light will move to the right. Release the button at the desired frequency. Press any other button or simply wait for the light to extinguish to select that frequency. The ten frequencies are: 27.065, 27.085, 27.105, 27.085, 27.105, 27.125, 27.145, 27.165, 27.195, 27.225, 27.255 MHz.



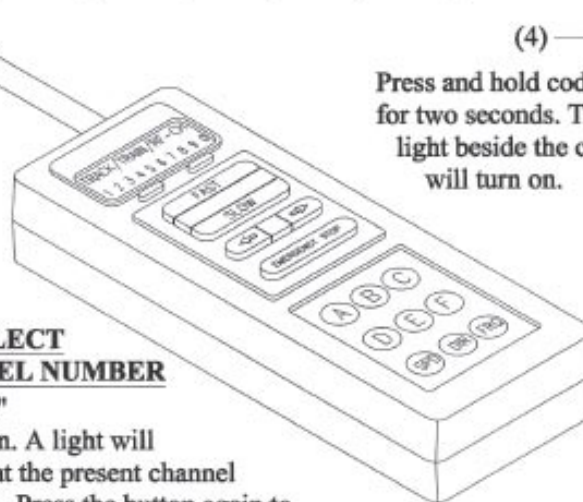
(4)

Press and hold code set button for two seconds. The code signal light beside the code set button will turn on.

(3)

## HOW TO SELECT THE CHANNEL NUMBER

Press the "C-L" or "C-R" button. A light will begin to flash at the present channel number (1-10). Press the button again to move to the left or right in order to select the desired channel. For interference free operation, when sharing a layout with others, the frequency, not the channel, should be changed and a unique frequency assigned to each Transmitter/Receiver combination.





(5) Press a button "A" - "E" on the keypad immediately. Wait for code signal light to flash, then release the button, and press another button "A" - "E". The light should go off. The first button pushed in this process sets the momentum of the system. The momentum control can help to prevent "jack rabbit" starts and sudden stops. If faster starts and stops are desired, button "A" should be the first button pressed when linking. Pressing "A" gives the fastest stops and starts, while pressing "E" gives the slowest stops and starts. The second button pressed when linking determines the time delay when changing the direction of the train. Pressing button "A" yields a delay of .5 seconds. Pressing "E" gives a delay of 2.5 seconds. All other letters lie between these delays in .5 second steps. **Note: On Series 2000, Rev. A, pressing the "A" button first removes the momentum function. The slowest stops and starts begin with button "B".**

(6) If there is more than one receiver, change either the frequency number and/or the channel number to your preference, for each additional receiver. It is desirable that it is the frequency that will be changed. While programming any receiver, be sure that all other receivers are turned off.

#### **\*HOW TO CHECK THE CURRENT DIRECTION**

Press the "DIR" button. The light will move to the left or to the right depending on the direction of the current.

#### **\*HOW TO CHECK THE SPEED OF THE TRAIN**

Press the "SPD" button and the number of lights that come on gives a relative indication of the speed of the train. The lights will not stay lit and the higher the speed, the faster they will extinguish. (Note, it is necessary to hold the fast or slow button for 2 seconds to change the number of lights displayed.)

#### **Limited Warranty**

All ARISTO-CRAFT TRAINS products are under warranty for five (5) years from the date of purchase against defects in workmanship and/or materials. Proof of purchase may be required by ARISTO-CRAFT TRAINS.

This warranty is void and does not apply to any products and/or parts and components which have been improperly installed by the purchaser/owner, abused or damaged in any way through improper operation such as but not limited to derailment, repairs or modifications performed by non-authorized service centers or technicians.

#### **Serviceing**

Should your ARISTO-CRAFT TRAINS product require warranty service, please return it in the original box, if possible, protected by a proper shipping carton. Send the product fully insured and prepaid. ARISTO-CRAFT TRAINS will not be responsible for any loss or damage incurred during shipping. Be sure to include a brief but thorough explanation of the problem, together with your name, street address (no Post Office Box please), city state or province and country, if outside of the United States. Also include a daytime telephone number so that we may contact you if necessary. Your return address should be clearly marked on the outside of the shipping carton.

Payment for shipping and handling, in the U.S. funds, is \$20.00 and should be included. Your check or money order should be payable to: Polk's Modelcraft Hobbies, Inc. Do not send cash. If your item is not covered by warranty service, you will be contacted and a repair estimate given before any work commences. Warranty covers manufacturer defects, not normal wear and tear.

The shipping address to be used for returns is as follows:

ARISTO-CRAFT TRAINS / Polk's Modelcraft Hobbies, Inc.  
Customer Service Department  
698 South 21st Street  
Irvington, NJ 07111 USA  
Tel: (973) 351-9800

Written confirmation of receipt of returned items will be sent with estimated repair time by the ARISTO-CRAFT TRAINS Customer Service Department.

8

#### **PLEASE NOTE:**

When having difficulty linking the Transmitter to the Receiver:

-Hold the Transmitter 6" from the Receiver during the linking process.

-If the Code Set light does not start blinking in step five (5), push and Hold the Code Set Button on Receiver, do not release the Code Set button after 2 seconds, and continue to hold the Code Set button when pressing the "A"- "E" button on the Transmitter Keypad. Release both buttons when Code Set Light starts blinking and continue with linking process.

-Separate the Receiver from power supply(s), other Receivers, and any other device that may cause R/F interference. One to two feet separation is usually adequate.

If Transmitter loses memory when turned on for 2005 production Transmitters:

Press the "ON/OFF" switch three times. The Transmitter may fall into a "Sleep State". Pressing the "ON/OFF" switch rapidly 3 times will wake the Transmitter from the "Sleep State".

\*See PLEASE NOTE Section on Page 6.