

TRAIN ENGINEER WALK-AROUND CONTROL SYSTEM

INSTRUCTION MANUAL ART-5470-01

1994 VERSION



ARISTO-CRAFT TRAINS INTRODUCTION

REV. 031594

Dear Model Railroader:

The ARISTO-CRAFT TRAINS ART-5470 TRAIN ENGINEER WALK-AROUND CONTROL SYSTEM is designed to allow Operation of any DC powered model railroad train by as a 'wireless walk-around' control system without any modifications to existing Power Supply or locomotives.

The ARISTO-CRAFT TRAINS ART-5470 TRAIN ENGINEER is fully compatible with *any gauge DC* model train: Z-N-HO-TT-O (2-rail)-#1/G. The ART-5470 TRAIN ENGINEER can be used with most any Power Supply (up to 10 AMP DC).

The ART-5470 TRAIN ENGINEER is designed for easy operation and only 4 wires need to be connected to begin operating as a 'wireless walk-around' Radio Controlled System. Testing has shown operational feasibility with distances of *300 feet* are possible between Transmitter and Receiver. Since the ART-5470 TRAIN ENGINEER uses "Wireless" Transmitting, there is no 'line-of-sight' required between Transmitter and Receiver.

In addition, multiple use of more than one TRAIN ENGINEER SYSTEM on the same/adjacent model railroad layout is easily possible. Simply change ID of Track channels on both the TRANSMITTER and RECEIVER by means of the DIP Switch. Then each TRAIN ENGINEER used will only control specific 2 channels. Imagine the operating possibilities the ART-5470 TRAIN ENGINEER will allow for any model railroader!!!

The ART-5470 TRAIN ENGINEER is designed now for future accessories that will allow operation of switchtracks and 'real-time' control of locomotive BELL and HORN. The ART-5470 is designed to be 'user-friendly' for many years of Model Railroading enjoyment.

Should you have any questions about operation, proper usage, or maintenance required on this ART-5470 TRAIN ENGINEER Control System or any other ARISTO-CRAFT TRAINS Model Railroad product, please contact us at the following address:

ARISTO-CRAFT TRAINS	PHONE: 973-351-9800
698 SOUTH 21ST STREET	FAX: 973-351-9700
IRVINGTON, NJ 07111	EMAIL: aristo@mindspring.com
	www.aristocraft.com

Our phone lines are open from 10:00 AM to 5:00 PM (EASTERN STANDARD TIME) Monday through Friday

The following instructions are intended to help you operate and understand all the features built into the ART-5470 TRAIN ENGINEER Control System.

Good Railroading!!!!

ART-5470 TRAIN ENGINEER CONTROL SYSTEM is a two-piece Set that includes ...

- A. ART-5471 RECEIVER – An Indoor/Outdoor (if protected), FCC-approved FM 2-channel Linear RECEIVER-10 AMP MAXIMUM OUTPUT, with attached soft wirelead antenna.
- B. ART-5473 TRANSMITTER – An Indoor/Outdoor, FCC-approved FM hand-held Transmitter Unit with flexible 'stick' antenna and 2-Channel Train Operation-Memory with EMERGENCY STOP Override Button, and 1 meter/39in. of Track Connector Wire.

... however, the TRAIN ENGINEER requires attachment of flexible antenna to ART-5473 TRANSMITTER by customer. Also insertion of 4 - 1.5V ALKALINE AA batteries (not included) into TRANSMITTER.

FEATURES

Realistic 'Wireless Walk-around' control of model railroad train with no modification to existing Power Supply or locomotive(s).

Memory capability allows continued operation of first TRACK Channel at preset speed/direction during changeover to second TRACK Channel.

Operational with most conventional DC track power supplies up to 10AMP MAXIMUM.

NOTE: DOES NOT need Pulse Width Control/PWC a feature of ARISTO-CRAFT TRAINS ART-5400 and ART-5450 Power Supply units. However, using PWC will not harm ART-5470 TRAIN ENGINEER.

TRANSMITTER easily fits into pocket or 'clip-on' to belt. TRANSMITTER and/or RECEIVER are available for separate purchase as replacement or to control additional train.

ART-5472 MINI-RECEIVER(s) allow 'keypad' operation of up to 5 switchtracks/accessories/locomotive sounds (optional).

ART-5474 AUXILIARY (wired) DISTRIBUTION PANEL allows 'keypad' operation of up to 5 switchtracks/accessories (optional).

ART-5470 TRAIN ENGINEER SYSTEM Specifications:

The ART-5470 TRAIN ENGINEER is a two-piece Set –

RECEIVER – ART-5471 ...

FREQUENCY: 27Mhz

IF FREQUENCY: single conversion 455Khz

TYPE OF EMISSION: FM (code type)

MAXIMUM SENSITIVITY: 10 DB at SINAD -12 DB

INPUT VOLTAGE: 15V – 20V DC

OUTPUT CONTROL CURRENT: 10A MAXIMUM

VOLTAGE: 0 to 20V DC (from Track Power Source)

TRANSMITTER – ART-5473 ...

FREQUENCY: 27Mhz BAND

ANTENNA INPUT POWER: 100mW

SPURIOS POWER UP TO: -55 DB

RF BAND WIDTH: -55 DB at ± 10Khz MAX.

MODULATION: FM (code type)

POWER SUPPLY: 4 - 1.5V AA ALKALINE Batteries (internal)

CURRENT: 100mA TYP.

INSTALLATION

1. Requires phillips-head screwdriver.

2. DO NOT TURN CONNECT any track DC power source until assembly is completed.

3. RECEIVER: Connect (supplied) wire leads from OUTPUT 0-18V terminals to normal connector on track. Polarity not important.

4. RECEIVER: Extend attached ANTENNA wire away from RECEIVER Unit. Do not allow interference with (any) Input/Output power wire leads. Vertical extension is optimum (for a longer distance to RECEIVER) but horizontal extension is sufficient.

5. RECEIVER: Connect wire leads from INPUT 18V - + terminals to terminals on Power Supply source. Power Supply terminal usually reads DC Track Power. DO NOT CONNECT TO ANY POWER SUPPLY AC TERMINAL.

6. RECEIVER: Keep POWER switch on RECEIVER in OFF position until TRANSMITTER ready.

7. Continue to keep DC Track Power Supply OFF also.

8. TRANSMITTER: using phillips-head screwdriver, remove 2 recessed phillips-head screws from backcover. Remove the backcover to insert 4 - 1.5V ALKALINE AA Batteries (not included).

8A. TRANSMITTER: Using phillips-head screwdriver and with backcover removed, also remove top left screw to attach Flexible Antenna by inserting screw through loop end of the Antenna.

8B. TRANSMITTER: Check positions of ON EDG DIP switch on circuit board.

1 2 3

UP/DOWN position of 1 2 3 must match CODE switch on RECEIVER.
ON 1 2 3

8C. TRANSMITTER: Replace backcover, allowing Antenna to protrude through top. Do not use excessive force to tighten screw(s).

9. Verify that both the TRANSMITTER on Backcover and RECEIVER on Rear Panel have same color circle/dot. This indicates that unit(s) have same FM frequency, ART-5470 TRAIN ENGINEER Set will not operate when units not same frequency.

9A. Verify that TRACK 1/2 Switch on both TRANSMITTER and RECEIVER are set for same TRACK.

10. At this time, turn to ON position DC Track Power Source (and turn control knob to Full power setting if applicable).

11. RECEIVER: Turn Power switch to ON position. RED POWER light will then illuminate on front panel of RECEIVER. If RED POWER light is not illuminated, turn OFF both RECEIVER Power Switch and DC Track Power Source, then ...

11A. RECEIVER: Reverse polarity from DC Power Source by changing Directional Forward/Reverse Switch on Power Supply. If DC Power Supply does not have Directional Forward/Reverse Switch, reverse wire leads on RECEIVER INPUT 18V terminals, then ...

11B. RECEIVER: Again turn to ON position both DC Track Power Source (see Item 9.) and RECEIVER Power Switch. RED POWER light should now illuminate properly and continuously during operation.

12. RECEIVER: AUX. is connection for ART-5474 AUXILIARY (wired) DISTRIBUTION PANEL (optional). **NOTE:** Additional Instructions will be included with ART-5474 AUXILIARY DISTRIBUTION PANEL when produced. See Item 19.

13. RECEIVER: CODE /ON 1 2 3 Switch use only to change ID for TRAIN ENGINEER if more than 1 complete ART-5470 TRAIN ENGINEER Set in use at same location. However, any change in DIP switch ID must also be done to TRANSMITTER. See Item 8B.

14. RECEIVER: SIGNAL light will illuminate to show that RECEIVER has accepted each signal transmission from TRANSMITTER.

14A. TRANSMITTER: Light will illuminate to show that TRANSMITTER has sent each signal transmission to RECEIVER. (**NOTE:** First-production TRANSMITTER has RED light but will be changed in future production to show GREEN as on RECEIVER.)

15. RECEIVER: TRACK 1/2 Switch allows operation of 2 separate train track blocks/loops/circles etc. with only 1 ART-5473 TRANSMITTER.. Changing TRACK 1/2 Switch on TRANSMITTER will only transmit to that specific TRACK 1 or TRACK 2 RECEIVER. See Item 9A.

16. With both TRANSMITTER and RECEIVER operational, place locomotive on track for operation.

17. Train Operation with TRAIN ENGINEER . . .

17A. TRANSMITTER: Depress FAST button and locomotive will gradually increase speed while the button is depressed, to voltage limit of Power Supply.

17B. TRANSMITTER: Depress SLOW button and locomotive will gradually decrease speed while the button is depressed until finally STOPS.

17C. TRANSMITTER: Direction Forward/Reverse is depicted by left/right arrows. Please remember that direction change is immediate and care should be taken not to change direction while train is moving at track speed. Suggest decrease speed until STOPPED, then change direction and increase speed setting.

17D. TRANSMITTER: EMERGENCY STOP/BRAKE is immediate STOP but ONLY on the TRACK 1/or TRACK 2 channel selected/in use.

18. TRANSMITTER: Memory function allows continuous operation at constant speed on level/downgrade/upgrade trackage and also direction for a specific TRACK channel even when the TRANSMITTER is changed to opposite TRACK channel. **NOTE:** Requires additional ART-5471 RECEIVER to operate second/additional TRACK. (OPTIONAL)

19. TRANSMITTER: Keypad with 5 buttons will allow for the operation of optional AUXILIARY functions (see Item 12.), not used at this time. **NOTE:** Additional Instructions will be included with ART-5473

LIMITED WARRANTY

Your new ARISTO-CRAFT TRAINS product is warranted for 180 days from 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 product and/or parts and components which have been improperly installed by purchaser/owner, abused or damaged in any way through improper operation, modified, or repaired by unauthorized service centers and/or non-factory authorized technicians.

*SERVICING:

Should your ARISTO-CRAFT TRAINS product require warranty service, be sure to take the following steps to assure proper servicing:

20. Return product in ORIGINAL BOX, then pack this ORIGINAL BOX in proper brown corrugated shipping carton. If not possible to use original box, pack product carefully in brown corrugated box, FULLY INSURED and PREPAID. ARISTO-CRAFT TRAINS will not be responsible for any damage or loss incurred during shipping.

21. Include a brief but thorough explanation of the problem(s) and the servicing that may be required.

22. Be sure to include your NAME, ADDRESS (no Post Office Box, please), CITY, STATE (or PROVINCE), COUNTRY (if outside USA), and postal ZIP CODE along with daytime phone number including Area Code, so that you may be contacted if it becomes necessary. All identification should be both INSIDE package and on OUTSIDE brown corrugated shipping carton.

23. Include proper payment for shipping/handling -

TRAIN ENGINEER ART 5470 Set and/or
any component price \$20.00 US

- with your (USA Bank Account only) check/Money Order payable in US Dollars (\$) to: Polk's Hobbies. ~~Please DO NOT SEND CASH - if your item is out of warranty, you will be contacted with amount of repair costs before repairs are started.~~

C.O.D. charges are additional cost.

24. Ship your item(s) to:

ARISTO-CRAFT TRAINS
698 SOUTH 21ST STREET
IRVINGTON, NJ 07111

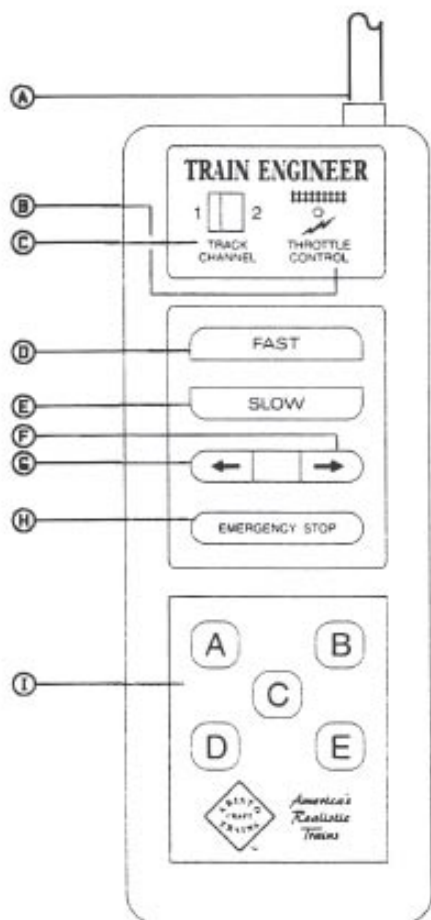
PHONE: 973-351-9800
FAX: 973-351-9700
EMAIL: aristo@mindspring.com
www.aristocraft.com

25. Immediate written confirmation of receipt of returned item(s) will be sent along with estimated repair time by ARISTO-CRAFT TRAINS Service/Repair Department.

***Due to technological changes not all components are available. Therefore this product may not be repairable.**



Fig - 1



Note Current Contact Information:

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- (A) ANTENNA
- (B) CONTROL LAMP
- (C) TRACK SELECTS/W
- (D) FAST
- (E) SLOW
- (F) REVERSE
- (G) FORWARD
- (H) EMERGENCY STOP
- (I) ADDITIONAL

Fig - 2

ARISTO-CRAFT TRAINS
ART-5473

FREQUENCY: 27 MHz
 MODULATION: FM
 POWER: 6V BATTERY (ALKALINE "AA" x 4)

FCC ID: BBGMT25E
Made in Korea

FOR USE WITH ART-5470 TRAIN ENGINEER
 WALK-AROUND CONTROL SYSTEM
 POLK'S MODEL CRAFT HOBBIES, INC.
 ARISTO-CRAFT TRAINS
 JERSEY CITY, NJ 07304 USA

"THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION."