



RADIO MANUAL

TABLE OF CONTENTS

KAR-TECH RADIO

| <u>PAGE</u> | <u>DESCRIPTION</u> | <u>REF.NO.</u> |
|-------------|--|----------------|
| 1 | REPLACEMENT PARTS / WIRING DWG. 22067-2 RADIO REMOTE..... | 22163 |
| 2 | REPLACEMENT PARTS / WIRING DWG. 22067-1 RADIO REMOTE..... | 22162 |
| 3 | REPLACEMENT PARTS / WIRING DWG. 22067 RADIO REMOTE | 22085 |
| 4 | REPLACEMENT PARTS / WIRING DWG. 22066 RADIO REMOTE | 22084 |
| 5 | REPLACEMENT PARTS / WIRING DWG. 22069 RADIO REMOTE | 22075 |
| 6 | GENERAL INFORMATION & TROUBLESHOOTING GUIDE PG. 1 OF 6 | 20831A |
| 7 | GENERAL INFORMATION & TROUBLESHOOTING GUIDE PG. 2 OF 6 | 20831B |
| 8 | GENERAL INFORMATION & TROUBLESHOOTING GUIDE PG. 3 OF 6 | 20831C |
| 9 | GENERAL INFORMATION & TROUBLESHOOTING GUIDE PG. 4 OF 6 | 20831D |
| 10 | GENERAL INFORMATION & TROUBLESHOOTING GUIDE PG. 5 OF 6 | 20831E |
| 11 | GENERAL INFORMATION & TROUBLESHOOTING GUIDE PG. 6 OF 6 | 20831F |
| 12 | KAR-TECH RADIO SYNCHRONIZATION | 20831G ▲ |
| 13 | WARRANTY PAGE | 12-00073 |



MFG., INC.
CINCINNATI, OHIO

TITLE

TABLE OF CONTENTS

DATE

1-10-06A

SECTION

-

RADIO INSTALL. / MAINT

SUPERCEDES

11-10-05

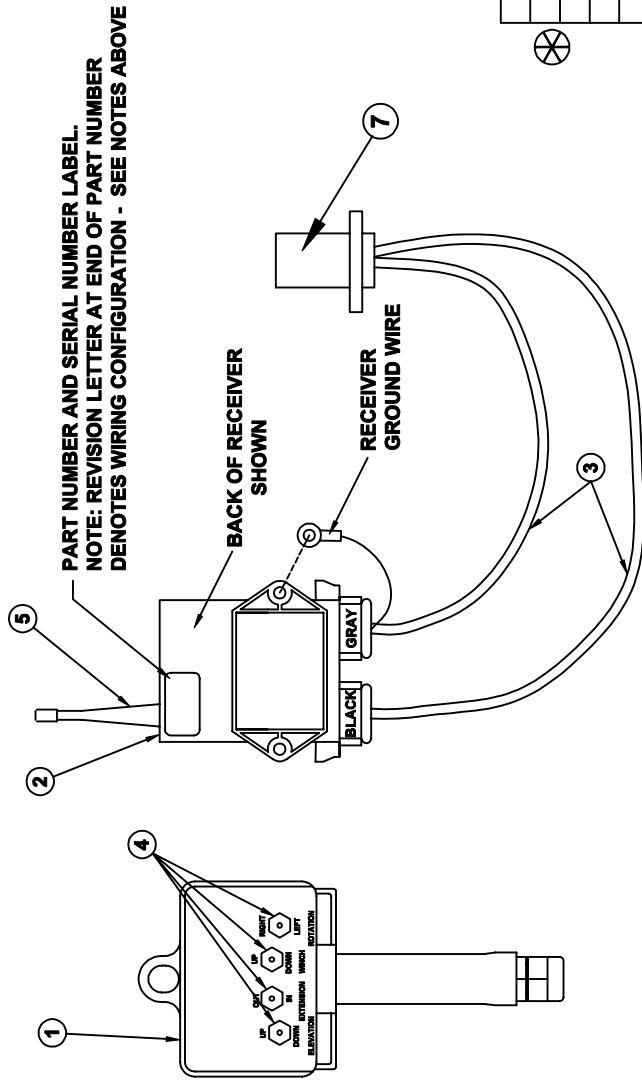
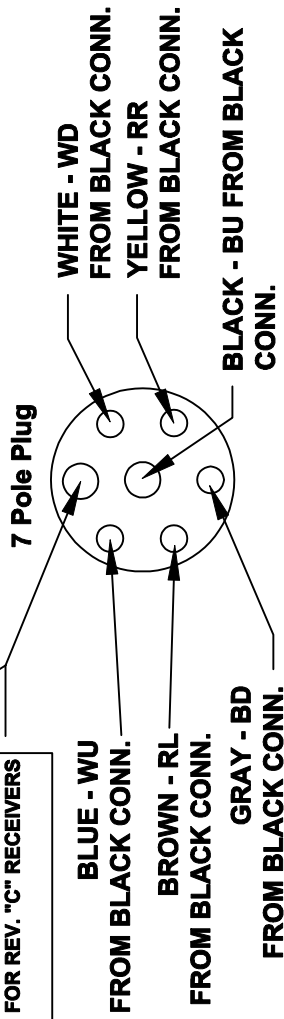
20832

22067-2 RADIO REMOTE ET6KR - ET8/10K

RED WIRE (ONLY)
12V+ FROM GRAY CONN.
USE THIS CONFIG. FOR REV. "D" RECEIVERS

RED & WHITE & ORANGE & BROWN WIRES
12V+ FROM GRAY CONN.
USE THIS CONFIG. FOR REV. "C" RECEIVERS
AND BELOW.

PLUG - BACKSIDE VIEW

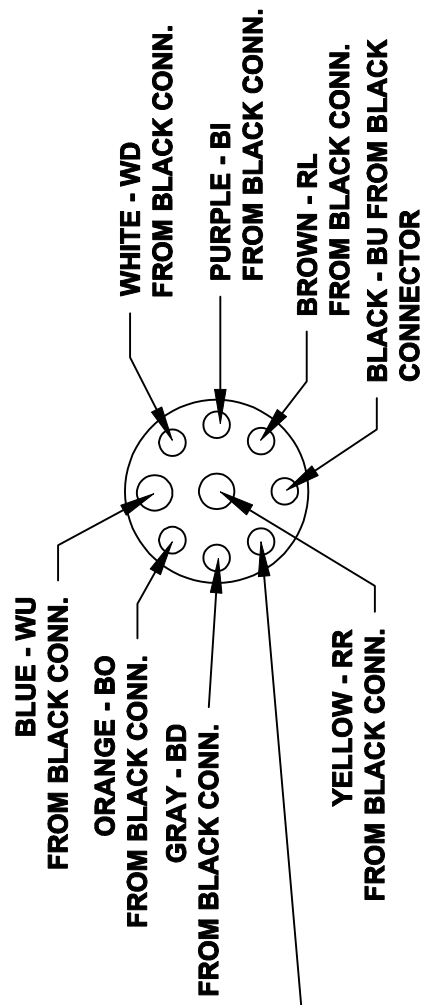


⊗ ITEM NOT SHOWN ON DRAWING

| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|----------|------------------------------|
| 7 | 1 | 24348 | PLUG 7 POLE |
| 6 | 1 | 22089 | MAGNET ASSEMBLY |
| 5 | 1 | 22088 | RECEIVER ANTENNA |
| 4 | 4 | 22087 | TOGGLE SWITCH & SEALING BOOT |
| 3 | 1 | 22119-2 | RECEIVER EXTERNAL HARNESS |
| 2 | 1 | 22067-RX | RADIO REMOTE RECEIVER |
| 1 | 1 | 22067-TX | RADIO REMOTE TRANSMITTER |

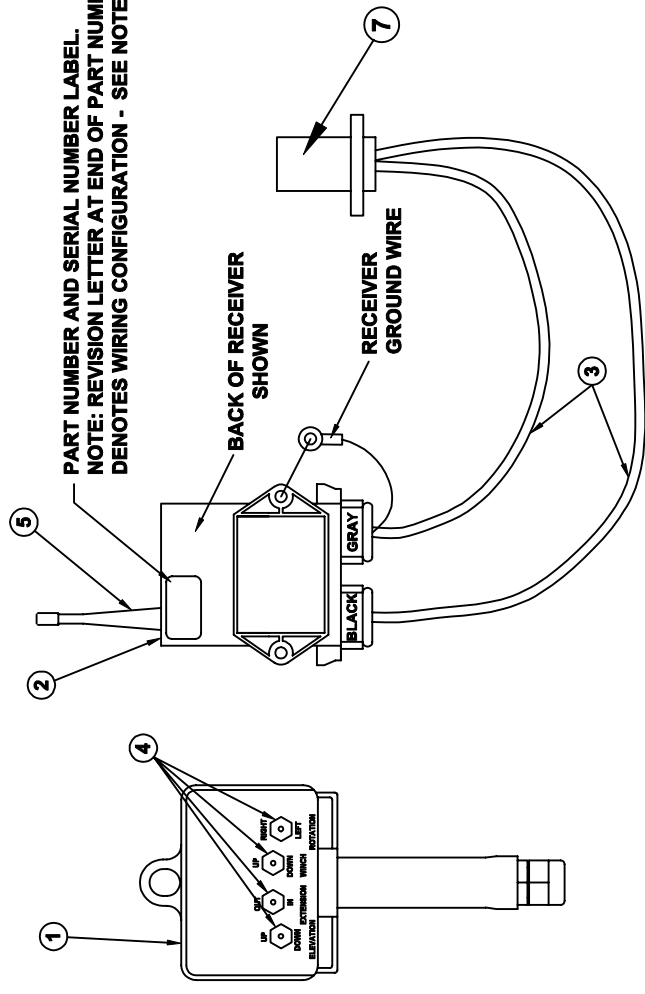
| | | | | | | | |
|--|-------|--|---------------------------|------------|-----------|---------|-------|
|  MANUFACTURING, INC. CINCINNATI, OHIO | TITLE | | REPLACEMENT PARTS DRAWING | DATE | 11-6-08C | SECTION | C400 |
| | | | ET6KR - ET8/10K | SUPERSEDES | 11-14-07B | | 22163 |
| | | | | | | | |

22067-1 RADIO REMOTE ET8/10KX ▲



PLUG - BACKSIDE VIEW

PART NUMBER AND SERIAL NUMBER LABEL.
NOTE: REVISION LETTER AT END OF PART NUMBER
DENOTES WIRING CONFIGURATION - SEE NOTES ABOVE



| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|----------|------------------------------|
| 7 | 1 | 26263 | PLUG 9 POLE |
| 6 | 1 | 22089 | MAGNET ASSEMBLY |
| 5 | 1 | 22088 | RECEIVER ANTENNA |
| 4 | 4 | 22087 | TOGGLE SWITCH & SEALING BOOT |
| 3 | 1 | 22119-1 | RECEIVER EXTERNAL HARNESS |
| 2 | 1 | 22067-RX | RADIO REMOTE RECEIVER |
| 1 | 1 | 22067-TX | RADIO REMOTE TRANSMITTER |

**VENTURO**
MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS DRAWING

DATE
11-06-08C

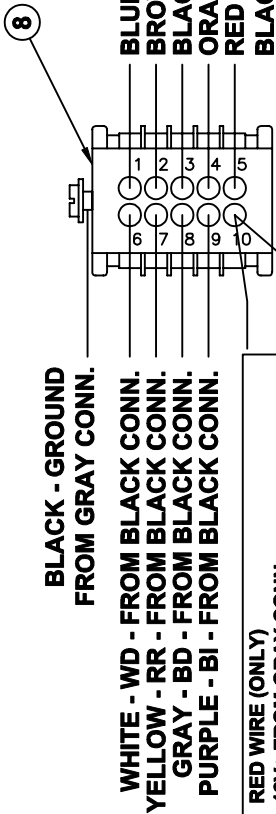
SECTION
C400

SUPERSEDES
11-14-07B

22162

22067 RADIO NON-PROP NO ENG CTRLS FOR ET CRANES

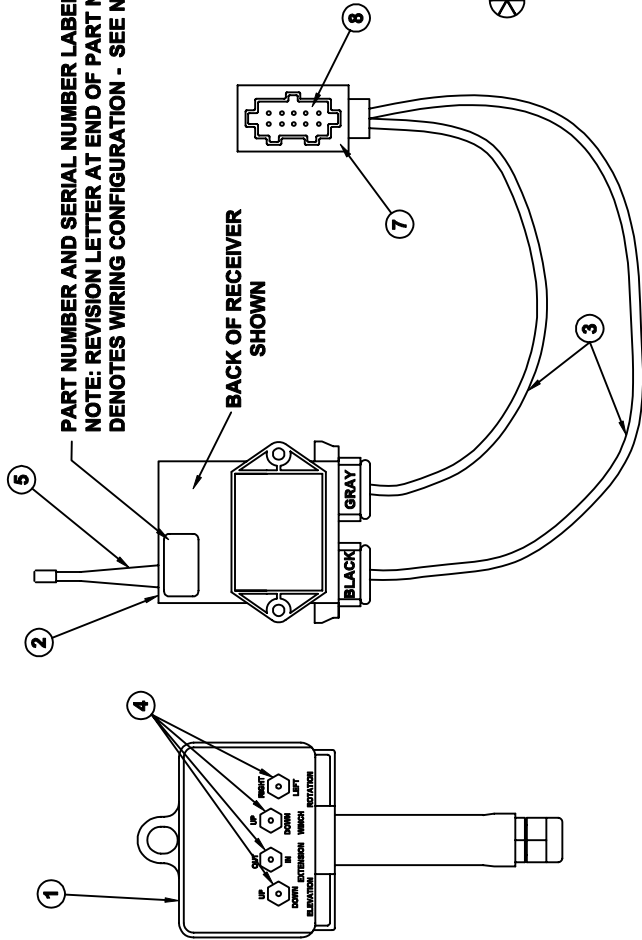
PLUG - BACKSIDE VIEW



RED WIRE (ONLY)
12V+ FROM GRAY CONN.
USE THIS CONFIG. FOR REV. "D" RECEIVERS

RED & WHITE & ORANGE & BROWN WIRES
12V+ FROM GRAY CONN.
USE THIS CONFIG. FOR REV. "C" RECEIVERS
AND BELOW.

PART NUMBER AND SERIAL NUMBER LABEL.
NOTE: REVISION LETTER AT END OF PART NUMBER
DENOTES WIRING CONFIGURATION - SEE NOTES ABOVE



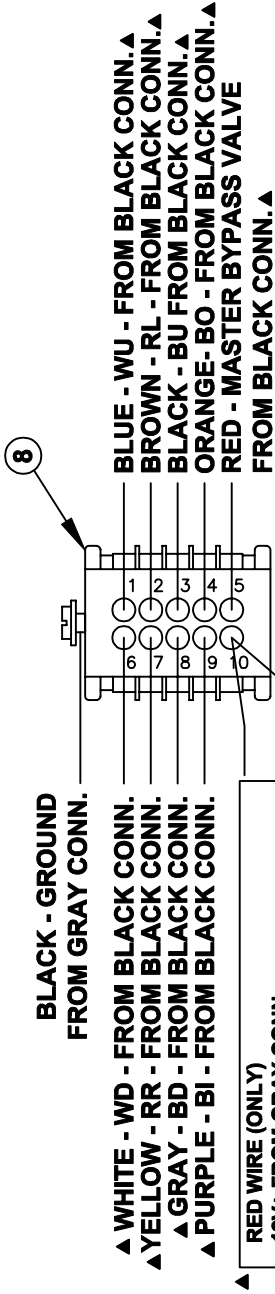
⊗ ITEM NOT SHOWN ON DRAWING

| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|----------|------------------------------|
| 8 | 1 | 19427 | MALE INSERT - 10 + 1 POLE |
| 7 | 1 | 19426 | PLUG CASE - 10 + 1 POLE |
| 6 | 1 | 22089 | MAGNET ASSEMBLY |
| 5 | 1 | 22088 | RECEIVER ANTENNA |
| 4 | 4 | 22087 | TOGGLE SWITCH & SEALING BOOT |
| 3 | 1 | 22086 | RECEIVER EXTERNAL HARNESS |
| 2 | 1 | 22067-RX | RADIO REMOTE RECEIVER |
| 1 | 1 | 22067-TX | RADIO REMOTE TRANSMITTER |

| | | | |
|---|---------------------------|-------------|---------|
| VENTURO MANUFACTURING, INC. CINCINNATI, OHIO | TITLE | DATE | SECTION |
| | REPLACEMENT PARTS DRAWING | 11-6-08F | C400 |
| ET ¹ 12/18/25K(X) | | SUPPERSEDES | 22085 |
| | | 11-14-07E | |

22066 RADIO NON PROP NO ENG CTRL FOR HT CRANES

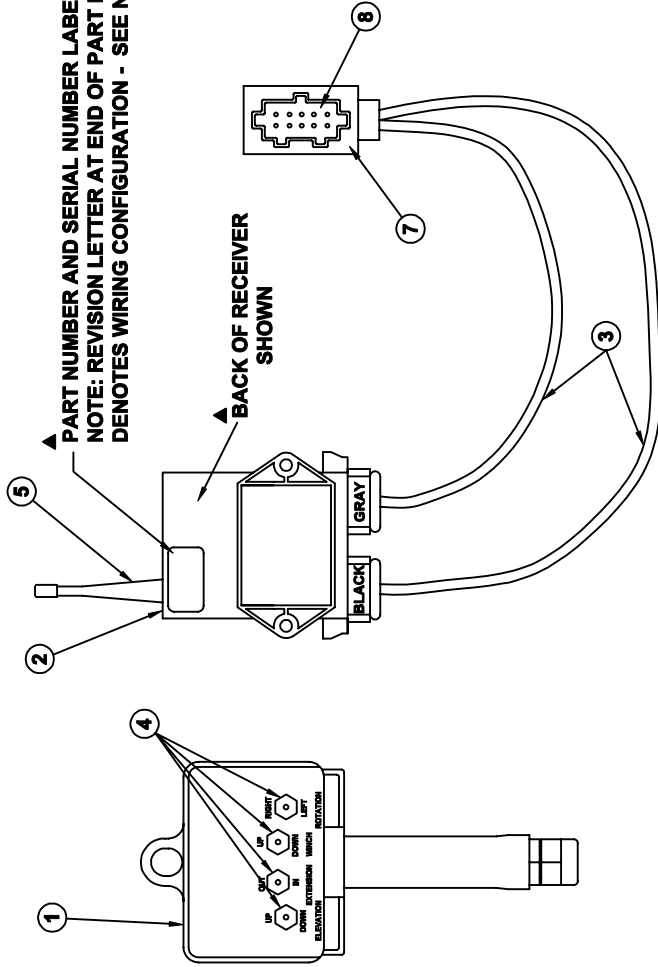
PLUG - BACKSIDE VIEW



▲ RED WIRE (ONLY)
12V+ FROM GRAY CONN.
USE THIS CONFIG. FOR REV. "D" RECEIVERS

▲ RED & WHITE & ORANGE & BROWN WIRES
12V+ FROM GRAY CONN.
USE THIS CONFIG. FOR REV. "C" RECEIVERS
AND BELOW.

▲ PART NUMBER AND SERIAL NUMBER LABEL.
NOTE: REVISION LETTER AT END OF PART NUMBER
DENOTES WIRING CONFIGURATION - SEE NOTES ABOVE

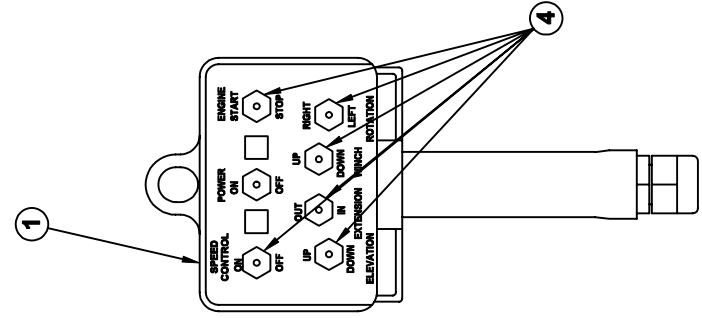


⊗ ITEM NOT SHOWN ON DRAWING

| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|----------|------------------------------|
| 8 | 1 | 19427 | MALE INSERT - 10 + 1 POLE |
| 7 | 1 | 19426 | PLUG CASE - 10 + 1 POLE |
| 6 | 1 | 22089 | MAGNET ASSEMBLY |
| 5 | 1 | 22088 | RECEIVER ANTENNA |
| 4 | 4 | 22087 | TOGGLE SWITCH & SEALING BOOT |
| 3 | 1 | 22086 | RECEIVER EXTERNAL HARNESS |
| 2 | 1 | 22066-RX | RADIO REMOTE RECEIVER |
| 1 | 1 | 22066-TX | RADIO REMOTE TRANSMITTER |

| | | | | |
|--|---|--|-------------------------------|------------------------|
|  MANUFACTURING, INC. CINCINNATI, OHIO | TITLE REPLACEMENT PARTS DRAWING | | DATE 11-12-07E | SECTION C400 |
| | HT CRANES - NON PROP NO ENG. CNTRLS | | SUPERSEDES 7-26-05D | 22084 |
| | | | | |

22069 PENDANT



| | | | |
|------|-----|----------|-----------------------------|
| 8 | 1 | 22472 | MALE INSERT - 16 + 1 POLE |
| 7 | 1 | 22471 | PLUG CASE - 16 + 1 POLE |
| 6 | 1 | 22089 | MAGNET ASSEMBLY |
| 5 | 1 | 22088 | RECEIVER ANTENNA |
| 4 | 6 | 22094 | TOGGLE SWITCH & SEALED BOOT |
| 3 | 1 | 22093 | RECEIVER EXTERNAL HARNESS |
| 2 | 1 | 22069-RX | RADIO REMOTE RECEIVER |
| 1 | 1 | 22069-TX | RADIO REMOTE TRANSMITTER |
| ITEM | QTY | PART NO. | DESCRIPTION |

| | | | |
|---|--|--------------------------------------|-------------------------------|
|  VENTURO MANUFACTURING, INC. CINCINNATI, OHIO | TITLE REPLACEMENT PARTS DRAWING | DATE 7-20-09C | SECTION C400 |
| | HT CRANES - PROP W/ ENG. CONT. | SUPERSEDES 7-26-05B | 22075 |

KAR-TECH RADIO INFO. AND TROUBLESHOOTING GUIDE**NORMAL FUNCTION OVERVIEW OF TRANSMITTER & RECEIVER**

The Proportional and Non-proportional transmitter and receivers send and receive messages from each other. In other words, they are truly “transceivers” in this respect.

RECEIVER

The receiver is equipped with a RED and GREEN LED.

FUNCTION OF RECEIVER – RED LED ERROR CODES**ERROR CODE #1**

The RED LED will flash in a steady **on, pause, off pause... cycle** when you are **NOT** transmitting a signal from the transmitter.

Although this is displayed as an error code #1, **THIS IS A NORMAL CONDITION.**

If, however, the operator is attempting to transmit a signal and the receiver is indicating error code #1, there is likely a problem with the transmitter – see Error Code Troubleshooting Guide for more information.

Further, the receiver RED LED also displays “**Error Codes**” **2 through 17** – see Error Code Troubleshooting Guide for more information.

If the receiver sets an error code the operator will then count the number of flashes in quick succession (between pauses) and then refer to the error code decal located just below the RED LED on the face of the receiver to determine which function is suspect or faulty. See “Error Code Troubleshooting Guide” for more details.

FUNCTION OF RECEIVER – GREEN LED

When the receiver receives a signal from the transmitter, a GREEN LED will begin to flash, indicating that the receiver is receiving a signal from the transmitter.



MFG., INC.
CINCINNATI, OHIO

TITLE
GEN. INFO & TROUBLESHOOTING GUIDE

DATE
1-10-06B

SECTION
-

KAR-TECH RADIOS

SUPERCEDES
12-14-05A

20831A

Red LED Error Code Indicator.

This indicator will display a single flash or a series of flashes, which correspond to the Error Code Chart to indicate the specific problem.

Note: Error code #1 indicates that there is no signal being received. This is a **NORMAL** condition, IF the operator is **NOT** actuating a toggle switch - See Error Code Troubleshooting in this manual for more information.

Error Code Chart

Green LED signal indicator will flash in response to incoming signal from transmitter.



TRANSMITTER

The transmitter is also equipped with a RED and GREEN LED.

FUNCTION OF TRANSMITTER – RED LED

The RED LED warns the operator that the transmitter batteries are getting low and will flash more and more quickly as the battery voltage weakens.

FUNCTION OF TRANSMITTER – GREEN LED

The GREEN LED light will flash quickly when communicating to the receiver, when actuating a toggle switch and very slowly when the toggle has been released, indicating that communications has been lost with the receiver.

BATTERIES AND CHARGING

BATTERY LOW INDICATIONS

The rechargeable and non-rechargeable transmitters have a “RED” LED, which flashes independently, to indicate that the battery voltage has dropped below the “normal” range.

CHARGING

Rechargeable batteries are available for our PROPORTIONAL transmitters only and are re-charged using the provided 12 Volt charger.

▲ ▲
The 12 Volt charger produces 100ma/hr of current. The transmitter battery is rated at 700ma, which means that it will take approximately 7 to 8 hours to fully charge your transmitter. See **CHARGING PROBLEMS** section for more information on charging duration etc.

The proportional transmitters may also be charged using the provided CAN (Communication Area Network) cord. See **CAN CORD ASSEMBLY** section for more information.



MFG., INC.
CINCINNATI, OHIO

TITLE
GEN. INFO & TROUBLESHOOTING GUIDE

KAR-TECH RADIOS

DATE
3-23-06C

SUPERCEDES
1-10-06B

SECTION
-

20831C

A third alternative would be to use the “optional” A/C charger – please contact Venturo Sales Dept. for this option.

The proportional transmitters have a screw-type protective cap at the base of the hand which is tethered to the transmitter. To charge the transmitter, remove the cap and screw on the [▲]12 Volt charger. Incidentally, the CAN Cord Assy. is connected to the transmitter in the same way.

Note: The Non-proportional transmitters use a disposable, 9-volt ▲ dry cell battery, which is accessible by removing the four screws securing the rear cover of the transmitter case.

CHARGING PROBLEMS

As rechargeable batteries age, the charging and discharging characteristics will change. The average life span for the transmitter battery is approximately 200 charge/discharge routines. Generally, as the batteries age they will charge faster and discharge more quickly, to the point where it will no longer hold a charge.

CYCLING BATTERIES

In most cases, the service life of the transmitter battery can be extended by “CYCLING”. The goal in CYCLING is to “FULLY DISCHARGE” the transmitter battery.

One method to accomplish this is to attach a rubber band around one of the function toggle switches and allow the transmitter batteries to fully discharge, until the Green LED light on the transmitter is no longer illuminated. It is recommended that the transmitter batteries be cycled periodically – once every six months should be fine.

CAUTION:

Please insure that the corresponding receiver is disconnected from the trucks power supply, while attempting to cycle the transmitter battery. This will prevent inadvertent actuation of the crane.



MFG., INC.
CINCINNATI, OHIO

TITLE
GEN. INFO & TROUBLESHOOTING GUIDE

DATE
3-23-06C

SECTION
-

KAR-TECH RADIOS

SUPERCEDES
1-10-06B

20831D

Next, fully charge the transmitter battery and repeat this process one more time. This action should improve the duration between future routine charges.

Please contact Venturo Tech Support if you need more information or have questions. Ph. 1-800-226-2238 ext 128

OUTSIDE AIR TEMPERATURES BELOW 32 deg. F.

The outside air temperature will affect the duration required to charge the transmitter battery.

Generally, the lower the “charge state”, when initiating the recharge AND the colder the ambient temperature, the longer it will take to recharge.

In fact, if the “charge state”, when initiating the recharge, is too low, it may NOT be possible to recharge the transmitter battery under these conditions. It is then recommended that the transmitter be warmed to room temperature and then “Cycled” in order to attempt to revive the battery.

- ▲ Note: Replacement rechargeable transmitter **batteries, P/N 22059** and 12 volt **chargers, P/N 22141** for proportional radio remotes are available through Venturo. Contact Venturo’s Sales Dept. for more information. Ph. 1-800-226-2238

CAN (Communication Area Network) CORD ASSEMBLY

For Proportionally controlled cranes only, we provide a 25’ CAN cord.

Two primary functions:

1. To recharge the transmitter batteries
2. To “link” the transmitter and receiver, providing R.F. (Radio Frequency) “FREE” communications – beneficial for mining applications etc.



MFG., INC.
CINCINNATI, OHIO

TITLE
GEN. INFO & TROUBLESHOOTING GUIDE

KAR-TECH RADIOS

DATE
3-23-06B

SUPERCEDES
1-10-06A

SECTION
-

20831E

RADIO SYNCHRONIZATION PROCEDURE

Please call Venturo Technical Support if you need assistance synchronizing a replacement transmitter etc.

Ph. 1-800-226-2283 ext. 128

ERROR CODE TROUBLESHOOTING GUIDE

The following error codes are printed on a decal located on the face of the receiver. This guide expands on each error code to give the operator tips for locating the "root cause" of a given error code. Please contact Venturo Tech Support should you need further assistance.

- 1. RADIO SIGNAL PROBLEM** - This description is somewhat misleading and should be considered "normal" when the operator is "NOT" transmitting a signal.
- 2. OVERLOAD (PRESSURE SW ON)** – The Overload Pressure switch is "NOT" interfaced with your radio system. If you receive an error code "2", this likely indicates that there is a wiring problem with the receiver harness. Please check the security of the "Brown Wire" inside of the receiver harness plug. This wire is joined to the red, white and orange wires and must receive +12 volts. Another possibility is that the incorrect harness was shipped; please contact Venturo Tech Support for further assistance.
- 3. ATB SWITCH OFF** – The ATB SWITCH is "NOT" interfaced with your radio system. If you receive an error code "3", this likely indicates that there is a wiring problem with the receiver harness. Please check the security of the "Orange Wire" inside of the receiver harness plug. This wire is joined to the red, white and brown wires and must receive +12 volts. Another possibility is that the incorrect receiver harness was shipped; please contact Venturo Tech Support for further assistance.
- 4. LOW TRUCK BATTERY** – This error code is self-explanatory, please check the condition of the truck battery. Also, it is worth noting that you should operate the crane with the truck "running" in order to keep the battery in a good state of charge while operating the crane.
- 5. BLANK – NO ERROR CODE**



MFG., INC.
CINCINNATI, OHIO

TITLE
GEN. INFO & TROUBLESHOOTING GUIDE

KAR-TECH RADIOS

DATE
12-14-05A

SUPERCEDES
11-11-05

SECTION
-

20831F

6. **WRONG TRANSMITTER OR BAD ID** – You will receive this error code if you are attempting to use a transmitter that is not synchronized with your receiver, i.e. if you have replaced the
7. transmitter etc. Please follow the Synchronization Guide to mate the new transmitter to your original receiver.
8. **TRIGGER ON BEFORE FUNCTION SWITCH** – This error code relates “ONLY” to “PROPORTIONAL” cranes and will be displayed any time that the operator pulls the trigger “BEFORE” actuating a “TOGGLE SWITCH”. This is a safety device to prevent a function from “jumping” too fast from a stationary position. In other words, the operator must “first” actuate a toggle switch and then begin pulling the trigger. This is a common error for first time operators and will not do damage to the radio system.
9. **ERROR CODES 9 THROUGH 16** – These error codes represent “CRANE FUNCTIONS” i.e. Winch Up, Winch Dwn. Etc. If you receive one of these error codes, refer to the wiring schematic for your crane and investigate the specific function in question. Call Venturo Tech Support for further assistance.
17. **FAULTY CIRCUIT TO PROP OUTPUT** – Error code 17 may indicate a problem with the connection from the receiver to the proportional valve coil. Please check the wiring from the receiver to the proportional valve coil. A second possibility may be that your radio is not properly configured for your crane. For example, if you have an HT25KX crane, (which is a hydraulic crane) your radio may be programmed for an ET25KX crane, which is an electric crane. Please contact Venturo Tech Support for further assistance. Ph. 1-800-226-2238 ext. 128



MFG., INC.
CINCINNATI, OHIO

TITLE
GEN. INFO & TROUBLESHOOTING GUIDE

KAR-TECH RADIOS

DATE
1-10-06A

SUPERCEDES
12-14-05

SECTION
-

20831G



VENTURO CRANES LIMITED WARRANTY POLICY

Venturo products are built to last...we guarantee them.

As a purchaser of any new Venturo product covered by warranty, you will receive 1 year of the most complete coverage available...and, at no added cost to you.

1-Year Limited Warranty Policy

This limited policy warrants new products of Venturo to be free from defects in material and workmanship for a period of one (1) year from date of original installation. OEM products or accessories purchased by Venturo as part of or offered with our product will carry the OEM manufacturer's respective warranty. Our warranty covers:

- ***Repair or replacement of product***
- ***Labor to repair or replace product***
- ***Freight to return and/or replace product***

We shall not be liable for any contingent liabilities arising out of the improper function of any products. Warranty shall become void if the product is improperly installed, modified, damaged, abused or used for application other than intended use. There is no warranty of merchantability, fitness for a particular purpose, warranty arising from course of dealing or usage of trade, or any other implied or expressed warranty, except as made specifically herein. This warranty supersedes all previous warranties, written or implied.

Warranty Claims

Venco Venturo Industries LLC will make a good faith effort for prompt correction or other adjustment with respect to any product, which proves to be defective after our inspection and within the warranty period. Before any repairs are attempted or before returning any product, your Venturo Distributor is required to obtain a warranty claim number. This number is necessary for any claim to be considered. To obtain a warranty claim number, Venturo requires the model and serial number. Only authorized Venturo Distributors can perform warranty. For the name and address of your local Venturo Distributor call the **Warranty Claim Department - 513-772-8448**.

WARNING - It is the responsibility of the installer to ensure the installation is completed according to the manufacturer's recommendations, ensure the ultimate user understands how to operate product in a safe manner, and understands the need for regular service and maintenance by an authorized Venturo Distributor. No modifications or alterations may be made to any Venturo product without the expressed written consent of Venco Venturo Industries LLC. Installation of any Venturo product must be done by an authorized Venturo Distributor, to the standards of the industry; including maintenance, service and affixing of all instruction, safety and warning decals. Users should be instructed as to the safe operation at time of delivery. Maintenance, service, operation and safety warning decals are available on request from Venco Venturo Industries LLC.

VENCO VENTURO INDUSTRIES LLC
12110 BEST PLACE | CINCINNATI, OHIO 45241
P: 800-226-2238 | F: 513-326-5427
www.venturo.com