



RADIO SYSTEM MANUAL

Included in this manual:

VENTURO WIRELESS RADIO SYSTEMS

- ET & HT NON-PROPORTIONAL SYSTEM # 24470
- ET PROPORTIONAL SYSTEM # 24471
- HT PROPORTIONAL SYSTEM # 24472

VENCO VENTURO LLC
12110 BEST PLACE | CINCINNATI, OHIO 45241
800-226-2238



This manual also available online at www.venturo.com.

WIRELESS RADIO SYSTEMS

INST-24475 - 8/3/2026 (Rev: NEW0)

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12-00073_VNT1 WARRANTY PAGE

Description and Specifications - 24470 Radio System

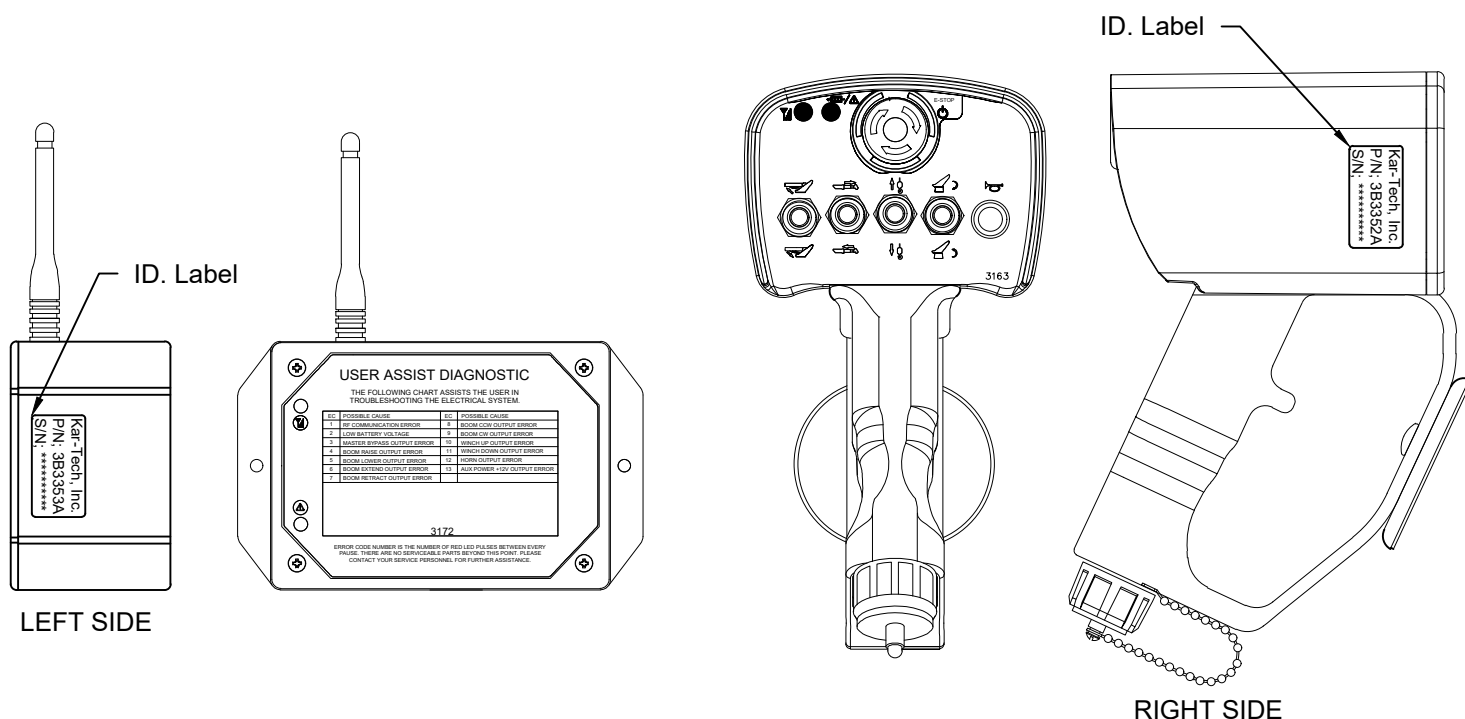
The 24470 Radio system consists of a transmitter, a receiver and a transmitter charger. The system provides remote outputs for winch, boom elevation, boom extension, boom rotation, and horn.

Specifications

RF transmit power (EIRP)	100mW
RF frequency	900 MHz
Transmitter power	Rechargeable 3.7V Li-ion battery located behind back cover plate
Transmitter operation time	30 to 40 hours continuous with full charge (see battery section)
Receiver power	9 to 30 VDC
Receiver outputs	5 A maximum each; 20 A system maximum
Transmitter operating environment	-20°C to +60°C
Receiver operating environment	-40°C to +85°C
Approved TX chargers	CAN car charger 23908-CHG, CAN wall charger 24470-ADP

Open-load diagnostics note: The receiver output control circuit includes open-load diagnostics. Disable unused outputs using the programming feature.

Regulatory notice: This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: the device may not cause harmful interference and must accept interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved may void the user's authority to operate the equipment.



For assistance, contact Venturo Technical Support at 1-800-226-2283



VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE
DESCRIPTION AND SPECIFICATIONS
24470 RADIO SYSTEM

DATE
07-21-26
SUPERSEDES
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SECTION
-
35331

Description and Specifications - 24471 Radio System

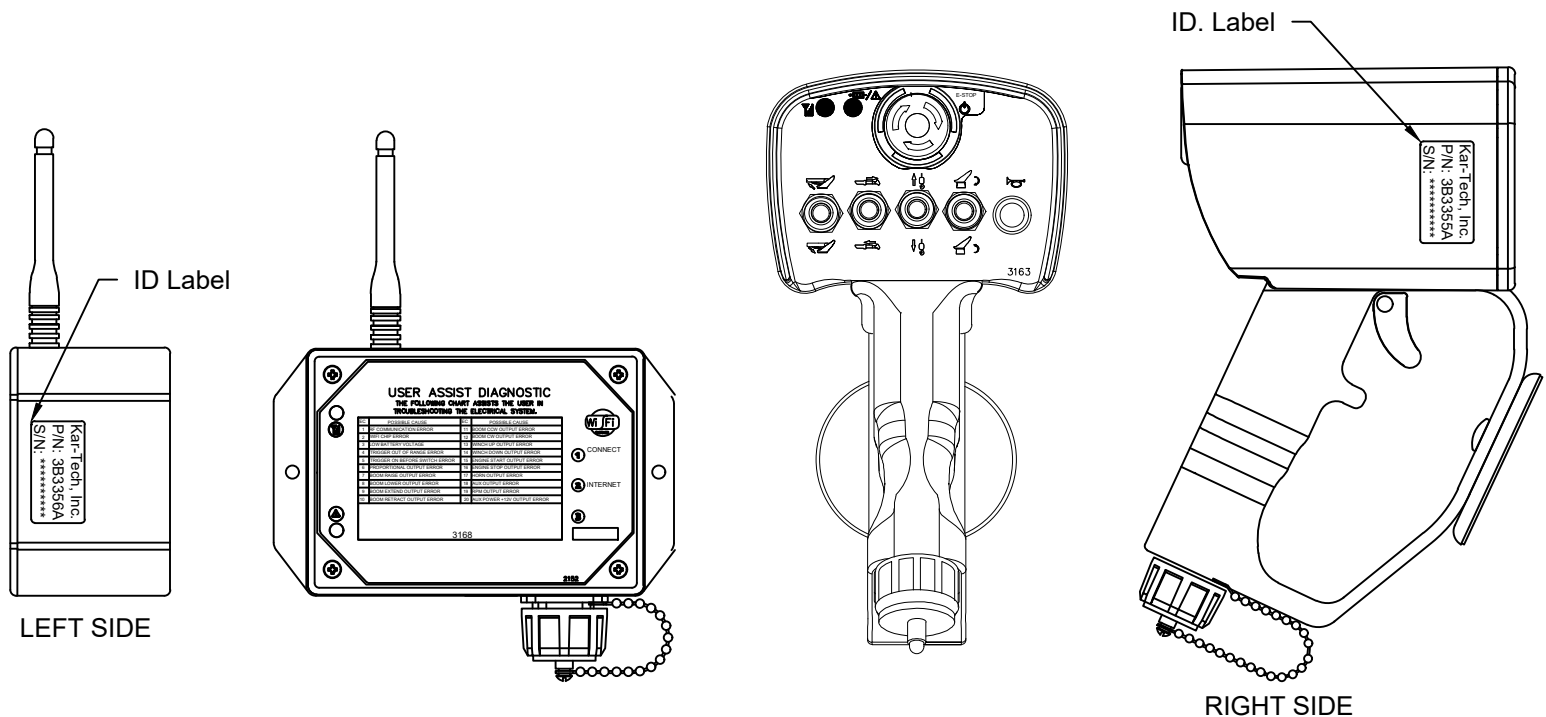
The 24471 Radio System complete kit includes a transmitter, receiver, and transmitter car charger. The system provides a configurable horn output along with proportional remote outputs for winch, boom elevation, boom extension, and boom rotation.

Specifications

Receiver power	9-30 VDC
RF transmit power (EIRP)	100 mW
RF frequency	902-928 MHz
Receiver outputs	5 amp maximum each
Transmitter power	Rechargeable 3.7V Li-ion battery located behind the back cover
Transmitter operation time	20 hours continuous runtime with full charge (see battery section)
Transmitter operating environment	-20°C to +50°C
Receiver operating environment	-40°C to +85°C
Approved TX chargers	CAN car charger 23908-CHG, CAN wall charger 24470-ADP

Open-load diagnostics note: The receiver output control circuit includes open-load diagnostics. Disable unused outputs using the programming feature.

Regulatory notice: This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: the device may not cause harmful interference and must accept interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved may void the user's authority to operate the equipment.



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VENCO VENTURO LLC
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TITLE
DESCRIPTION & SPECIFICATIONS

24471 RADIO SYSTEM

DATE
07-17-26

SUPERSEDES
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SECTION
-

35362

Description and Specifications - 24472 Radio System

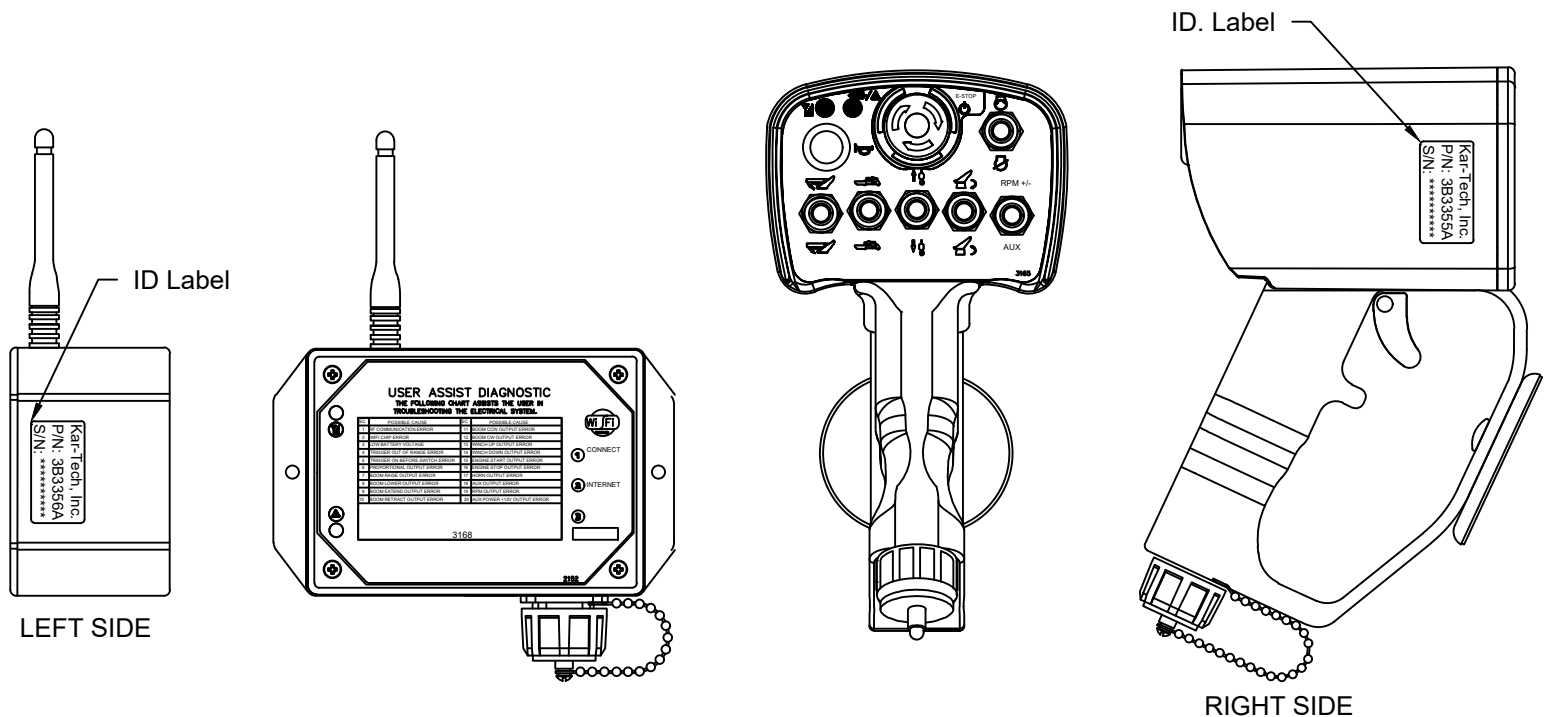
The 24472 Radio System complete kit includes a transmitter, receiver, and transmitter car charger. The system provides configurable outputs for the horn, auxiliary/RPM, and engine start/stop functions, along with proportional remote outputs for winch, boom elevation, boom extension, and boom rotation.

Specifications

Receiver power	9-30 VDC
RF transmit power (EIRP)	100 mW
RF frequency	902-928 MHz
Receiver outputs	5 amp maximum each
Transmitter power	Rechargeable 3.7V Li-ion battery located behind the back cover
Transmitter operation time	20 hours continuous runtime with full charge (see battery section)
Transmitter operating environment	-20°C to +50°C
Receiver operating environment	-40°C to +85°C
Approved TX chargers	CAN car charger 23908-CHG, CAN wall charger 24470-ADP

Open-load diagnostics note: The receiver output control circuit includes open-load diagnostics. Disable unused outputs using the programming feature.

Regulatory notice: This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: the device may not cause harmful interference and must accept interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved may void the user's authority to operate the equipment.



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TITLE
DESCRIPTION & SPECIFICATIONS

24472 RADIO SYSTEM

DATE
07-17-26

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SAFETY WARNINGS

DANGER — Unintended machine motion can cause death or serious injury.

Before installation, programming, synchronization, troubleshooting, or service, secure the controlled equipment, remove the load where applicable, and keep personnel clear of all moving parts. Perform functional tests only in a safe area with the equipment supported and hazards controlled.

WARNING — The Radio control system is not a substitute for safe machine design.

The installer is responsible for integrating the receiver outputs into a compliant control system with proper interlocks, emergency stop behavior, circuit protection, and machine-specific safety devices.

WARNING — Only one cloned transmitter may be powered on at a time.

If transmitters are cloned, they cannot be used simultaneously. Before operation, verify that only the intended transmitter is powered and that all unintended transmitters are off.

CAUTION — Output diagnostic behavior.

Unused outputs or high-impedance inputs may produce diagnostic blink codes or leakage voltage. Disable unused outputs through programming or provide the required load/pull-down resistor as applicable.

Safety Checklist Before Release to Service

- Verify receiver power, ground, and outputs are protected and correctly wired.
- Verify E-STOP behavior with the controlled equipment in a safe test condition.
- Verify each transmitter switch commands the intended machine function and direction.
- Verify no unintended function is active when transmitter switches are released.
- Verify error-code behavior and low-battery indication are understood by the operator.
- Verify the operator has received instructions covering signal loss, charging, sleep time, shutdown, and storage.

Regulatory notice: This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: the device may not cause harmful interference and must accept interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved may void authority to operate the equipment.

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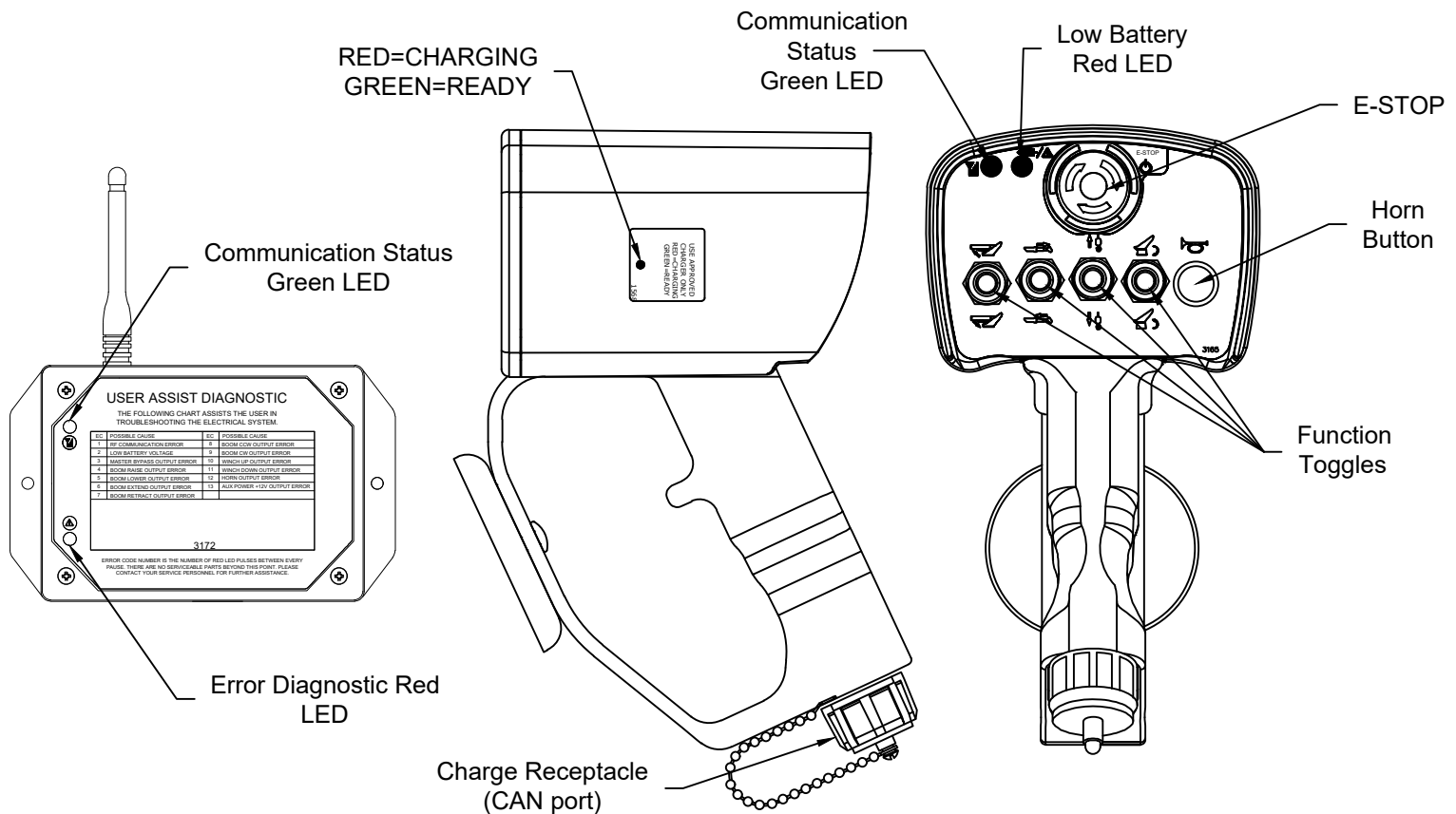


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TITLE	DATE	SECTION
SAFETY WARNINGS	07-21-26	-
2447* RADIO SYSTEMS	SUPERSEDES -	35332

System Operation - 24470 Radio System

- To turn on the transmitter, release the E-STOP.
- To turn off the transmitter, press the E-STOP.
- Power must be applied to the receiver module for the system to operate
- Ensure the battery charge level is sufficient for safe operation.
- There are red and green LEDs both on the face of the transmitter and inside the receiver case.
- The transmitter's red LED blinks 1 time per second if the battery is low and needs to be charged.
- A power saving feature turns off the transmitter after 15 minutes if no buttons are pressed.
- There are red and green LEDs both on the keypad of the transmitter and inside the receiver case. The green LED will blink rapidly when the transmitter and receiver are communicating, will blink slowly if there is no communication, and will double blink when connected but transmitter remains idle (no switch is held on transmitter).
- The red LED on the receiver will blink if there is a shorted or open output. Refer to the ERROR CODE CHART tables located on the receiver and in this manual and count the number of blinks to determine the output with the fault.
- To operate an output, toggle the switch for the desired function.



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TITLE
RADIO SYSTEM OPERATION

24470 RADIO SYSTEM

DATE
07-22-26

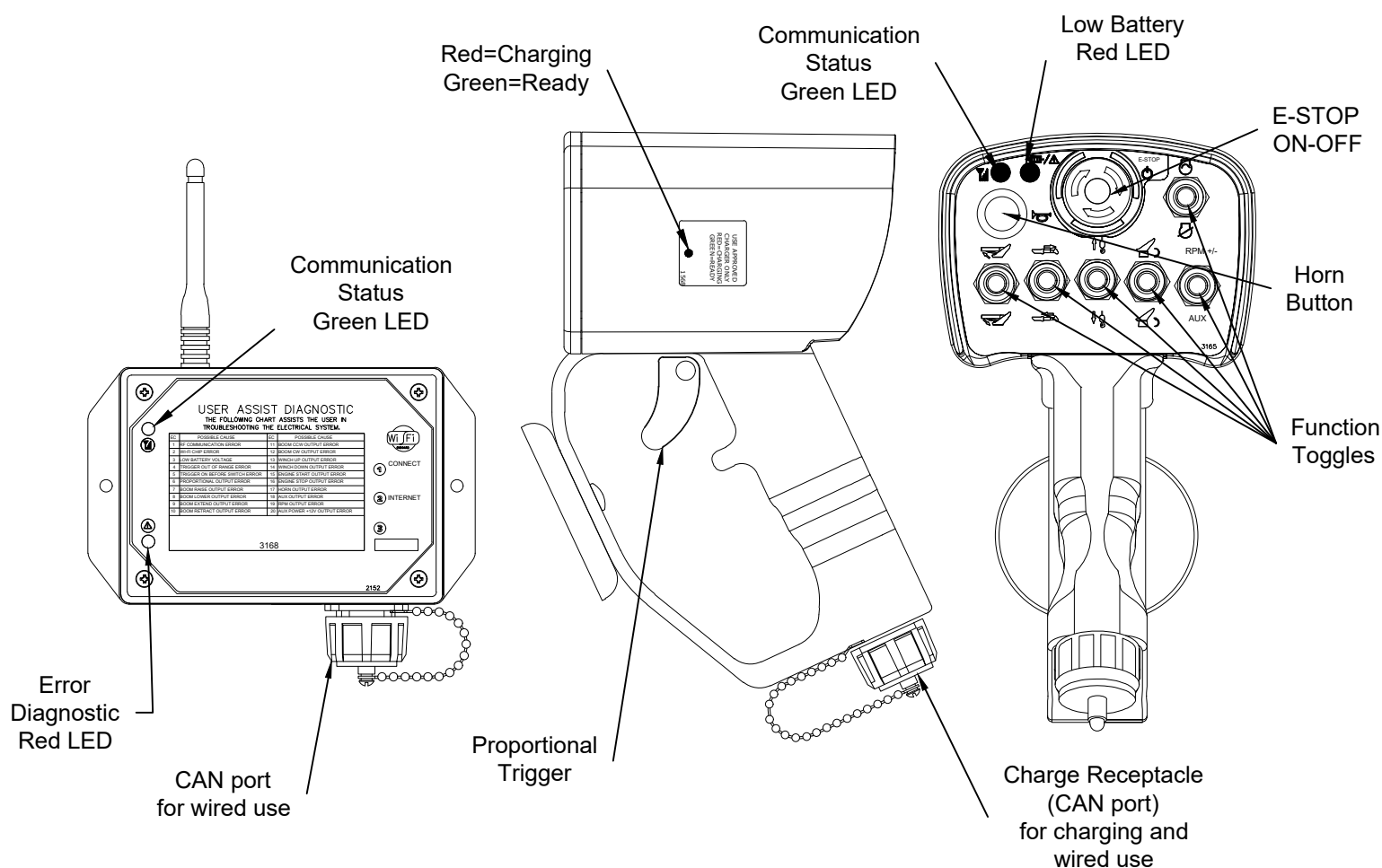
SUPERSEDES
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SECTION
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35333

System Operation - 24471 & 24472 Radio Systems

- To turn on the transmitter, release the E-STOP.
- To turn off the transmitter, press the E-STOP.
- Power must be applied to the receiver module for the system to operate.
- Ensure the battery charge level is sufficient for safe operation.
- There are red and green LEDs both on the face of the transmitter and inside the receiver case.
- The transmitter's red LED blinks once per second if the battery is low and needs to be charged.
- A power saving feature turns off the transmitter after 15 minutes of inactivity when the receiver is off. The transmitter will not go to sleep while the receiver is powered on.
- The green LED will blink rapidly when the transmitter and receiver are communicating, will blink slowly if there is no communication, and will double-blink when connected but transmitter remains idle (no switch is held on transmitter).
- The red LED on the receiver will blink if there is a shorted or open output. Refer to the ERROR CODE CHART tables located on the receiver and in this manual and count the number of blinks to determine the output with the fault.
- To operate a proportional output, toggle the switch for the desired function, then pull the trigger to the desired level. The output will not function if the trigger is pulled before the function is selected.



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TITLE	SYSTEM OPERATION
24471 & 24472 RADIO SYSTEMS	

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Inspection & Cleaning - 2447* Radio Systems

SAFETY FIRST

Before any cleaning, inspection, or repair, place the crane and remote-control system in a safe state: transmitter OFF, E-STOP engaged, crane master power OFF, receiver OFF, and equipment secured against unintended movement.

Inspection Details

- Transmitter: Check that buttons, switches, trigger (where equipped), E-STOP, battery indicator, transmit/status indicator, housing, labels, and CAN/charging receptacle are clean, secure, and undamaged.
- Receiver and wiring: Check receiver mounting, connectors, harness, and seals. Look for corrosion, moisture, chafing, loose terminals, or broken wire conditions.

INTERVAL	ACTION	ACCEPTANCE
Before each shift	Verify E-STOP action, transmitter power-up, green transmit/status indication, and required crane functions at low speed in a clear area.	Functions respond correctly; releasing controls stops motion. Remove from service if any control sticks, acts intermittently, or fails to stop.
Weekly or as needed	Clean transmitter housing with a damp cloth and mild detergent. Do not pressure wash, soak, or use solvents.	Housing is clean; labels, buttons, and indicators remain legible and intact.
Weekly or dusty service	Clean around trigger and switch openings using clean, dry compressed/canned air. Apply only a small amount of light machine oil at the trigger pivot if movement is not smooth.	Trigger returns freely with no binding, grit, or excessive oil residue.
Monthly	Inspect switches, buttons, E-STOP, LEDs/lights, enclosure screws, strain reliefs, CAN receptacle, charger/CAN cable, receiver connector, and harness routing.	No looseness, corrosion, cracked plastic, bent pins, water intrusion, damaged insulation, or missing hardware. Repair or replace as required.
Battery / charging	Charge the rechargeable transmitter battery when low-battery indication appears or before long jobs. Inspect charging cable and connector before use.	Low-battery indicator should not be ignored. Store charged equipment in a clean, dry location away from extreme heat or cold.
After service or repair	Perform a full functional check: power-up sequence, E-STOP, each motion/function, receiver indication, and CAN/wired operation if equipped.	Return to service only after normal operation is confirmed.

Remove from service if any of the following conditions are observed:

Intermittent or unintended command, sticking control, damaged E-STOP, cracked enclosure, missing fastener, loose connector, damaged cable, unreadable safety label, or unexplained receiver error.

Cleaning care notes:

Use a soft damp cloth, mild dish-soap solution, dry compressed/canned air.

Do not immerse, pressure wash, or spray solvents into any components.

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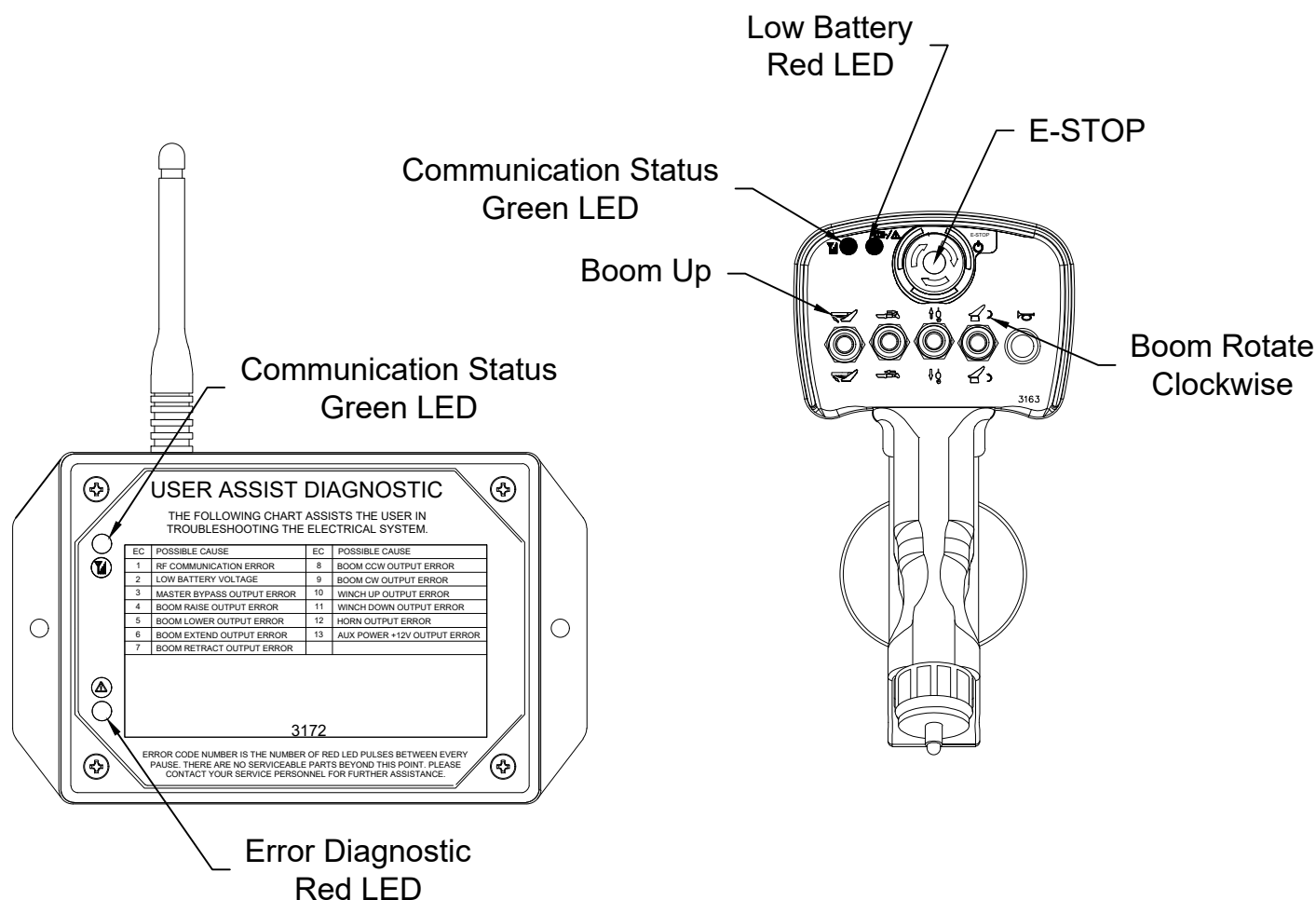
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TITLE	DATE	SECTION
INSPECTION & CLEANING	07-28-26	-
2447* RADIO SYSTEMS	SUPERSEDES	35363
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Radio System Synchronizing - 24470-RX & -TX

Each transmitter and receiver pair is synchronized together at the factory. If a replacement transmitter is needed, synchronizing is required. Use the following procedure:

1. Make sure both the transmitter and receiver are off.
2. Toggle and hold the BOOM UP and BOOM CW switches on the transmitter and release E-STOP, wait a few seconds until the red and green LED begin to blink. Release the switches.
3. Apply power to the receiver and wait for a few seconds until only the green LED begins to blink on the transmitter
4. Synchronize complete



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TITLE
RADIO SYSTEM SYNCHRONIZING

24470 RADIO SYSTEM

DATE
07-22-26

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35335

Radio System Synchronizing - 24471 & 24472 Radio Systems

Transmitter and Receiver Synchronization:

Each radio remote system is designed to operate with a unique radio ID code and RF channel sequence. Each receiver is programmed to respond only to the transmitter with the correct ID code/RF channel sequence for which it is set. This feature allows multiple systems to work in close proximity to one another without interference.

In the event that a transmitter becomes damaged and a new one is needed, the receiver can be reprogrammed to respond to the new transmitter. To synchronize the new ID code to the receiver, use the following procedure.

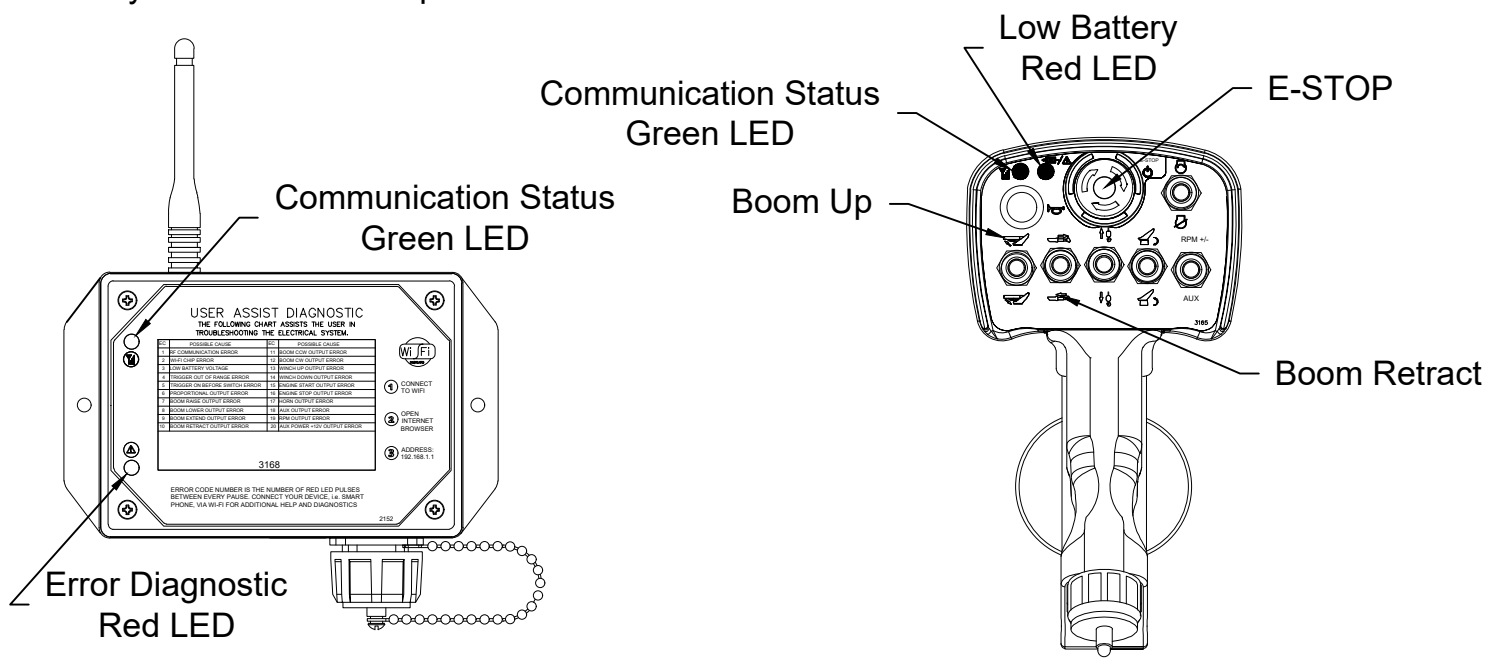
***Please Note: If this procedure is interrupted before it has completed, the system may display intermittent operation.**

Synchronize by CAN:

- Plug the CAN cable into the CAN port on both the receiver and transmitter and operate a function on the transmitter until the LEDs on the front panel go from steady to flashing for at least 5 seconds. The units will be synchronized at this point.

Synchronize by Radio:

1. Turn the transmitter and receiver off
2. Press and hold the BOOM UP AND BOOM RETRACT switches
3. Release the E-STOP. Wait until the green LED begins blinking
4. Release the switches. Both LEDs should blink at this point
5. Apply power to the receiver. The green LED should go from steady to blinking on the transmitter
6. Synchronization complete



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TITLE	DATE	SECTION
RADIO SYSTEM SYNCHRONIZING	07-23-26	-
24471 & 24472 RADIO SYSTEMS	SUPERSEDES -	35349

Transmitter Battery Information

BATTERY INDICATOR:

The red BATTERY indicator starts blinking once every second when the battery voltage is low and requires charging. Plug in the transmitter as soon as possible after seeing the low battery indicator. See BATTERY CHARGING below.

BATTERY CHARGING:

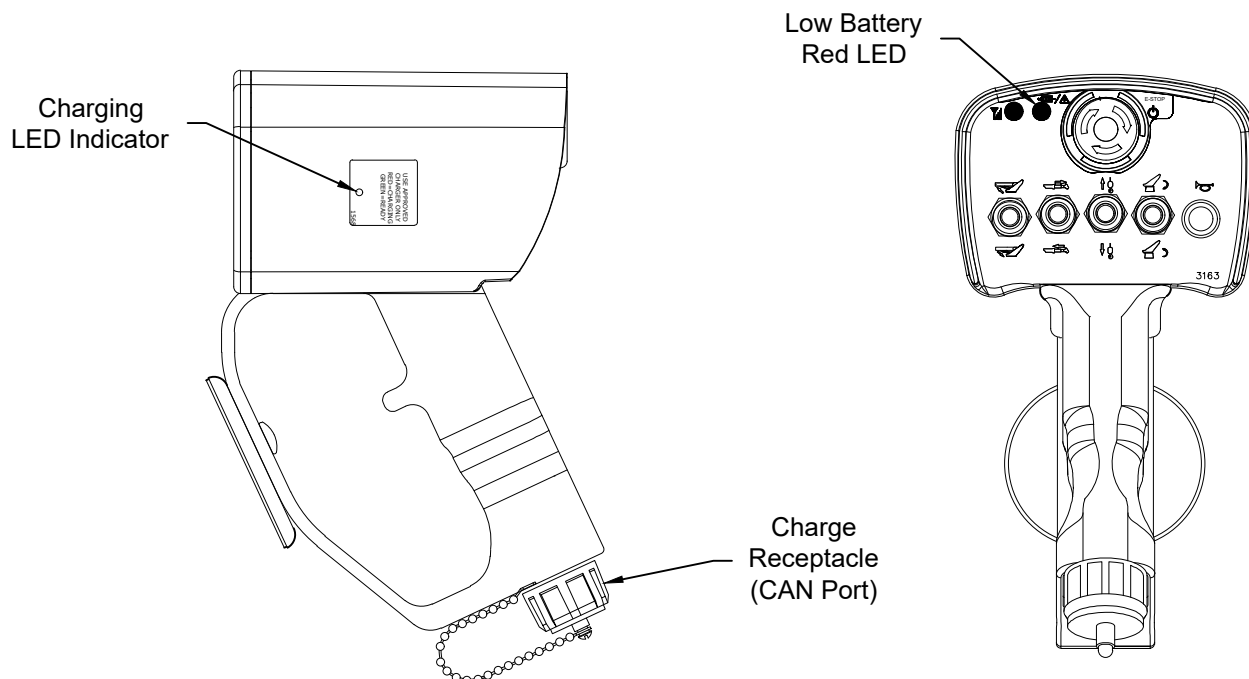
The 3.7V Li-ion battery can be charged by plugging the optional AC wall charger or standard DC cigarette charger (minimum 2A @ 12.6VDC) into the port. Proportional systems 24471 and 24472 can be charged via the optional CAN cable p/n 23908-CAN. Red and green LED indicators on the side of the transmitter indicate the status of the charger: A red LED indicates that the battery is charging and a green LED indicates that the battery is fully charged.

IMPORTANT BATTERY INFORMATION:

When the battery is new, the run-time of the transmitter will be shorter until it has gone through the drain/charge cycle several times. After this point, the unit's current drain should allow at least 20 hours of run-time before a recharge is needed.

The temperature that the transmitter battery is exposed to affects performance and useful life. It is strongly recommended you keep within the following limits:

- A. Charging: -0 degrees to +40 degrees C
- B. Storing: -20 degrees to +50 degrees C



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TITLE
TRANSMITTER BATTERY INFO

2447* RADIO SYSTEMS

DATE
07-22-26

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35336

System Programming - 24470 Radio System

Programming Output Functions (Horn and Winch Configuration)

This procedure allows the user to configure the horn button functionality and select the desired winch operating mode (hydraulic or electric).

Important: Ensure all receiver outputs are connected to a load and that no error codes are present before beginning.

OUTPUTS MAY CYCLE WHILE PROGRAMMING

Enter Programming Mode

Turn OFF both the transmitter and receiver.

Press and hold the following transmitter switches: BOOM UP BOOM RETRACT WINCH DOWN.

While continuing to hold these switches, turn the transmitter ON by releasing the E-STOP.

Release all switches.

Verify that the transmitter red LED is blinking, indicating that programming mode has been entered.

Turn the receiver ON.

Verify that the receiver red LED begins blinking rapidly, indicating that it is ready to accept programming changes.

Select Winch Mode

Press and release BOOM EXTEND to enter the winch configuration menu.

The receiver red LED will change its blink rate to acknowledge the selection.

Select the desired winch type:

Hydraulic Winch: Press and release WINCH DOWN.

The PUMP output will operate with the winch outputs.

Electric Winch: Press and release WINCH UP.

The PUMP output will not operate with the winch outputs.

Press and release BOOM EXTEND to save the winch setting and advance to the horn configuration menu.

The receiver red LED will again change its blink rate to acknowledge the selection.

Select Horn Output:

Momentary Mode (Factory Default): Do not press the HORN switch.

If the HORN output is to be latched (push on/push off) for using as Auxiliary/Compressor, press and release Horn switch.

Press and release BOOM EXTEND, the red LED will change it's blinking speed to confirm your choice.

Press and release the E-STOP before transmitter shuts down. The receiver's red LED should blink indicating that the settings were accepted and then the green LED should start to only blink.

Note:

If the receiver does not blink the red LED, the programming was not accepted. Start from the beginning and go slowly. Keep a distance of 2-3 feet from the receiver when programming.

Factory settings are:

PUMP output with WINCH output (Hydraulic Winch), and HORN is not latched.

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TITLE

SYSTEM PROGRAMMING

DATE

07-22-26

SECTION

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24470 RADIO SYSTEM

SUPERSEDES

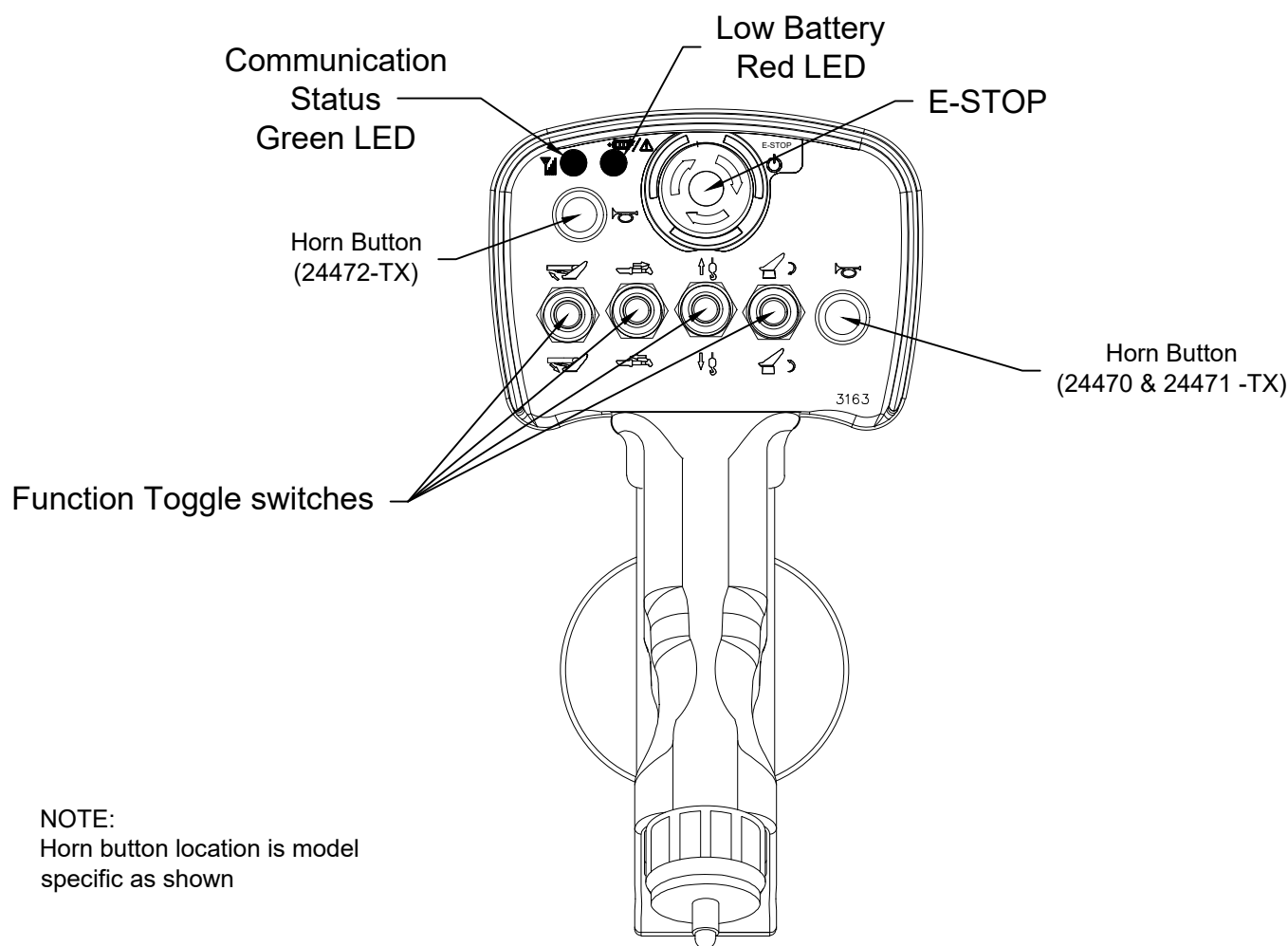
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35338

Transmitter Sleep Timer - 24471-TX & 24472-TX

All transmitters have the ability to change the sleep time from the default to user's preference. The transmitter is factory set to turn off (sleep) after 15 minutes. To change the time the transmitter waits before going to sleep, use the following procedure:

1. With the transmitter off, hold switches BOOM UP, WINCH UP, BOOM CCW, and BOOM EXTEND, release E-STOP and still hold others for greater than 2 seconds.
2. Release the switches when both LED's blink once per second
3. On the transmitter, hold and release these switches to adjust the sleep time:
 - A. BOOM LOWER = 15 minutes
 - B. WINCH DOWN = 30 minutes
 - C. BOOM CW = 60 minutes
 - D. BOOM RETRACT = 120 minutes
 - E. HORN = SLEEP DISABLED.
4. Sleep time programming complete



NOTE:
Horn button location is model
specific as shown

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TITLE
TRANSMITTER SLEEP TIMER

2447* RADIO SYSTEMS

DATE
07-22-26

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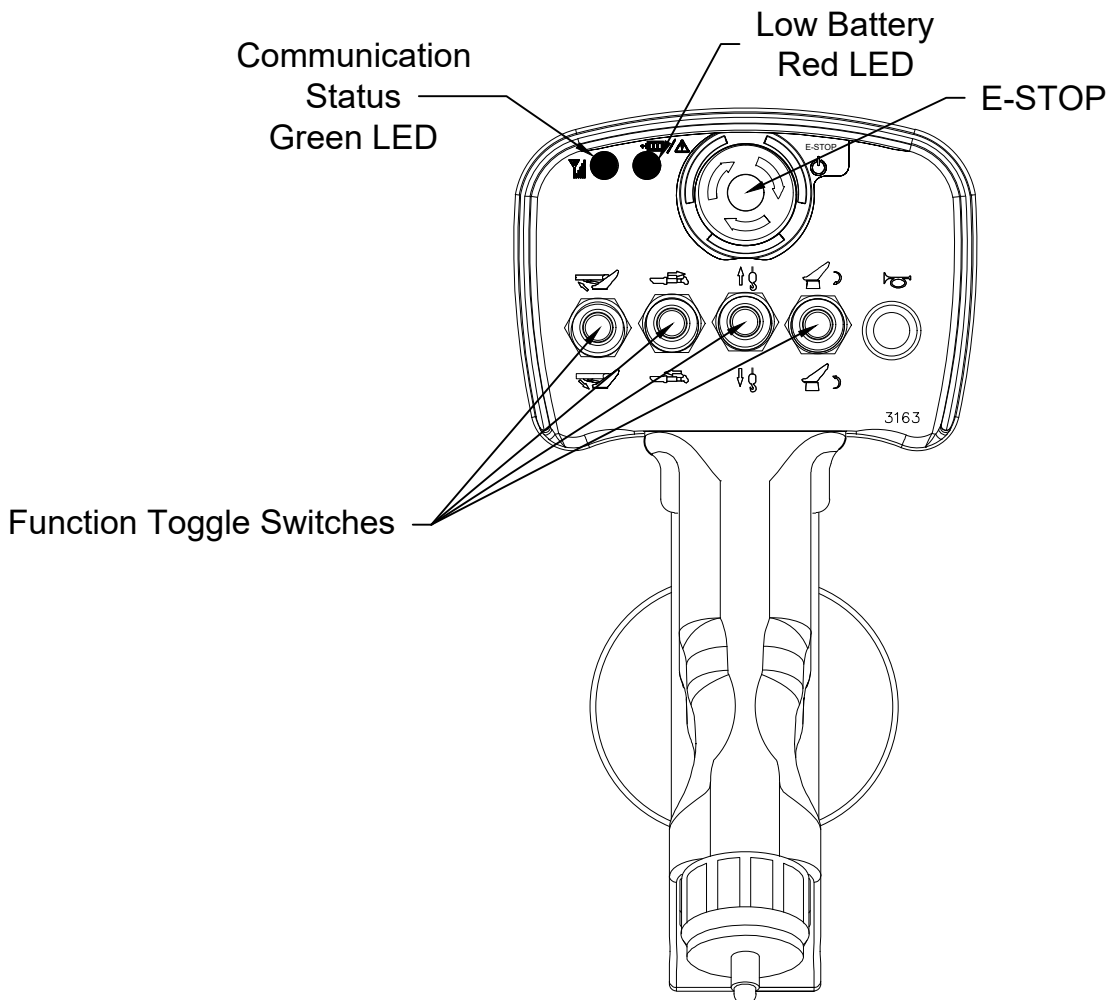
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35339

Transmitter Sleep Timer - 24470-TX

All transmitters have the ability to change the sleep time from the default to user's preference. The transmitter is factory set to turn off (sleep) after 15 minutes. To change the time the transmitter waits before going to sleep, use the following procedure:

1. With the transmitter off, hold switches BOOM UP, BOOM EXTEND, WINCH UP, and BOOM CW, release E-STOP and still hold others for greater than 2 seconds.
2. Release the switches when both LED's blink once per second
3. On the transmitter, hold and release these switches to adjust the sleep time:
 - A. BOOM LOWER = 15 minutes
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 - D. BOOM RETRACT = 120 minutes
 - E. HORN = SLEEP DISABLED.
4. Sleep time programming complete



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TITLE
TRANSMITTER SLEEP TIMER

24470 RADIO SYSTEM

DATE
07-22-26

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35340

Troubleshooting - 24470 Radio System

The Red LED on the receiver will blink if there is a shorted or open output. Refer to the ERROR CODE CHART tables (located on the receiver and at the bottom of this page), and count the number of blinks to determine the output with the fault.

- The transmitter's red LED blinks 1 time per second if the battery is low and needs to be charged.
- The charging LED will be red and will stay on while charging, and when the charge is completed the charging LED will turn green and stay on.
- It will take longer to charge if the transmitter is on during charging.

Error Code (Flash Code) Chart

EC	POSSIBLE CAUSE
1	RF COMMUNICATION ERROR
2	LOW BATTERY VOLTAGE
3	MASTER BYPASS OUTPUT ERROR
4	BOOM RAISE OUTPUT ERROR
5	BOOM LOWER OUTPUT ERROR
6	BOOM EXTEND OUTPUT ERROR
7	BOOM RETRACT OUTPUT ERROR

EC	POSSIBLE CAUSE
8	BOOM CCW OUTPUT ERROR
9	BOOM CW OUTPUT ERROR
10	WINCH UP OUTPUT ERROR
11	WINCH DOWN OUTPUT ERROR
12	HORN OUTPUT ERROR
13	AUX POWER +12V OUTPUT ERROR

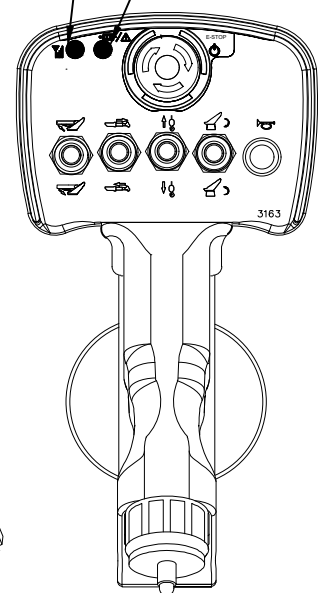
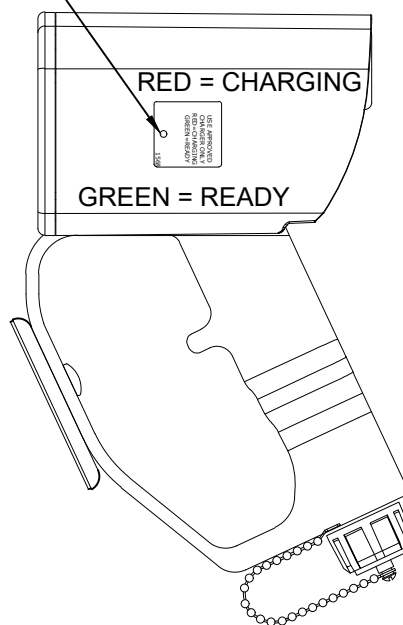
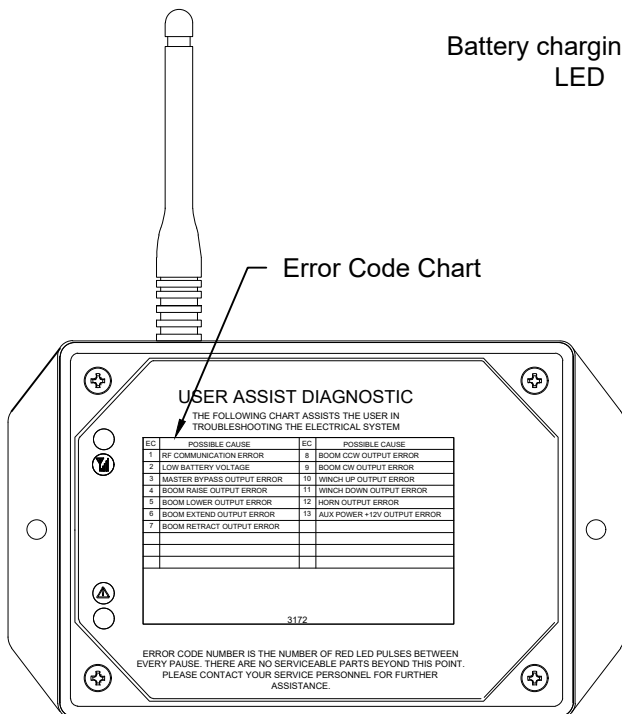
Number of Flashes

Battery charging status
LED

Communication Status
Green LED

Low Battery
Red LED

Error Code Chart



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TITLE
TROUBLESHOOTING

24470 RADIO SYSTEM

DATE
07-22-26

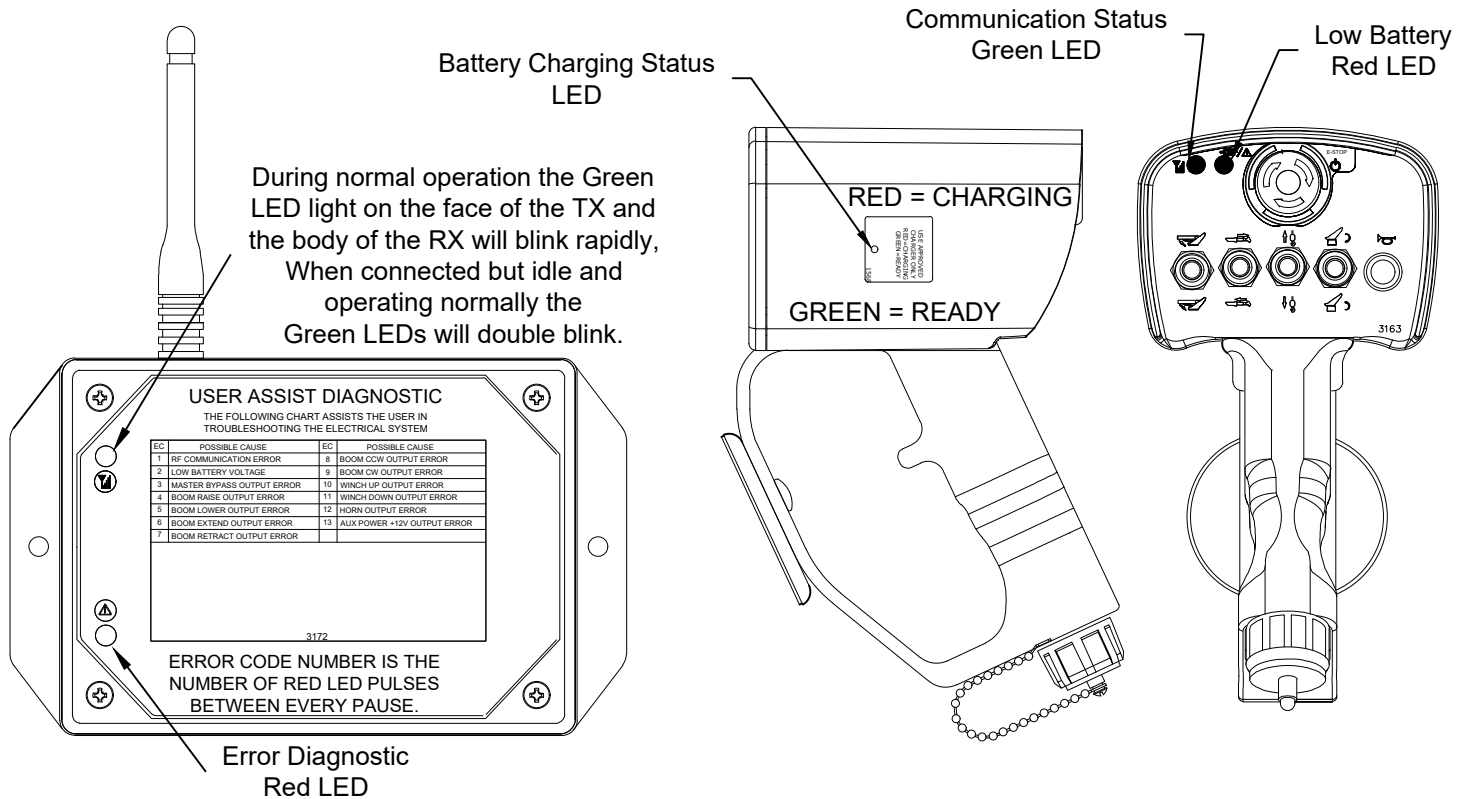
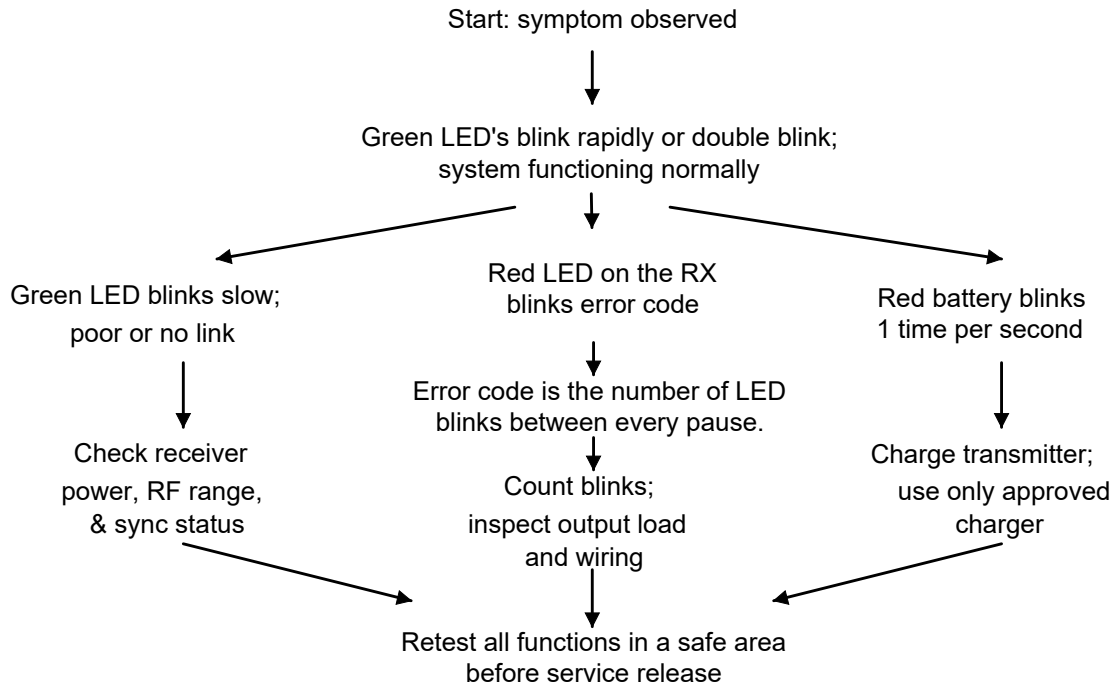
SUPERSEDES
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35341

Troubleshooting Flow Chart - 24470 Radio System

Diagnostic Flow



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TITLE
TROUBLESHOOTING FLOW CHART

24470 RADIO SYSTEM

DATE
07-22-26

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35342

Troubleshooting Tips - 24470 Radio System

Flashes/EC	Probable Cause	Troubleshooting Tip
1	RF communication error	Verify receiver power and ground, check range/obstructions, confirm transmitter is on, and synchronize transmitter/receiver if a replacement transmitter was installed.
2	Low Battery Voltage	Measure receiver supply under load. Inspect battery/source voltage, fuse, power feed, ground, and connector condition.
3	Master Bypass output error	Inspect Brown/Red output wiring at pin 7 and connected load. Check for short/open condition.
4	Boom Raise output error	Inspect Brown Elevation Up / Boom Raise output wiring at pin 3 and valve coil/load.
5	Boom Lower output error	Inspect Brown/Black Elevation Down / Boom Lower output wiring at pin 11 and valve coil/load.
6	Boom extend output error	Inspect Orange Extension Out / Boom Extend output wiring at pin 4 and valve coil/load.
7	Boom retract output error	Inspect Orange/Black Extension In / Boom Retract output wiring at pin 12 and valve coil/load.
8	Boom CCW output error	Inspect Blue Rotation Left / Boom CCW output wiring at pin 2 and valve coil/load.
9	Boom CW output error	Inspect Blue/Black Rotation Right at pin 10 and valve coil/load.
10	Winch Up output error	Inspect Yellow Winch Up output wiring at pin 1 and valve coil/load.
11	Winch Down output error	Inspect Yellow/Black Winch Down output wiring at pin 9 and valve coil/load.
12	Horn output error	Inspect Yellow/Red Horn output wiring at pin 15 and horn/auxiliary load.
13	Aux Power +12V output error	Inspect Red/Black Aux Power +12V output wiring at pin 8, downstream wiring, and connected circuit.

LED Error Indications

Receiver red LED flashes indicate shorted or open outputs. Count the number of red-light flashes between pauses and compare to the chart below.

General Troubleshooting Procedure

- Start with power: confirm receiver input is 9–30 VDC, polarity is correct, and ground is solid.
- Verify transmitter battery condition and charging LED behavior.
- Observe green LED behavior to determine whether the transmitter and receiver are communicating.
- For red LED output errors, disconnect the suspected load only if safe to do so, inspect wiring, then reconnect and retest.
- After correction, cycle transmitter/receiver power and perform a controlled function test.

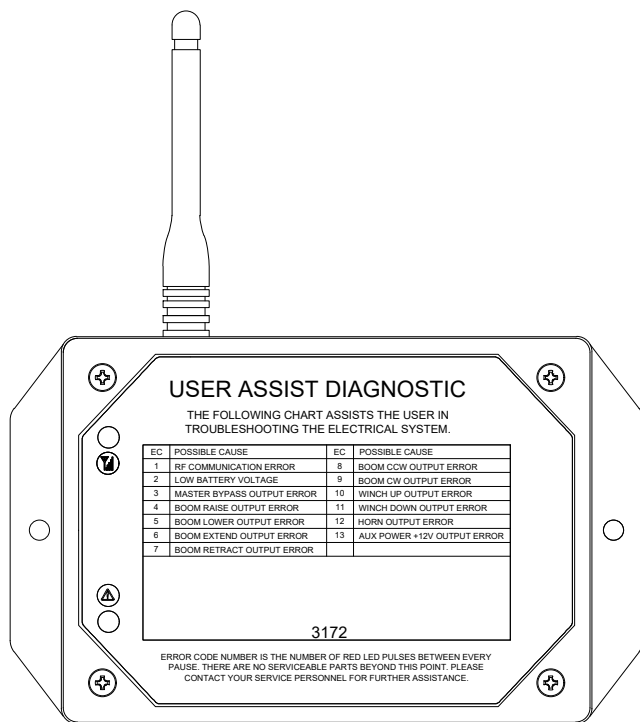
For assistance, contact Venturo Technical Support at 1-800-226-2283



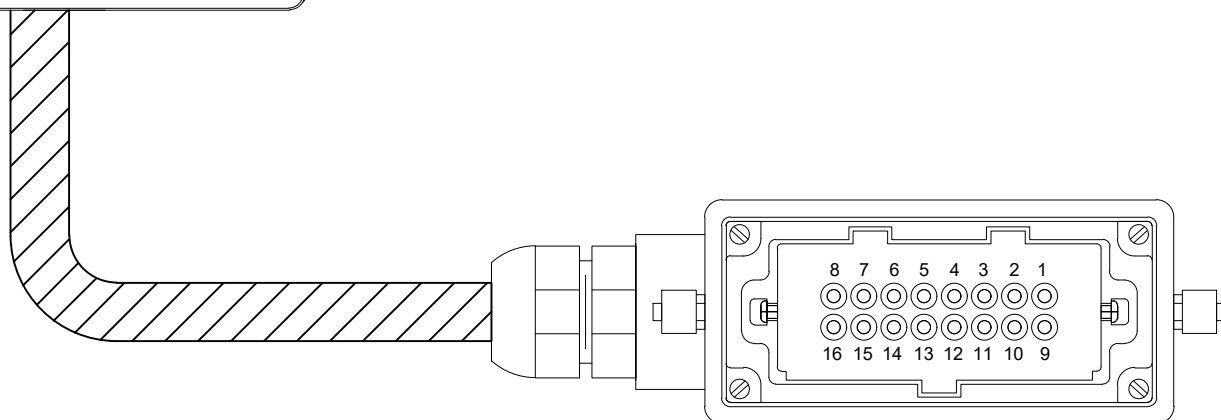
VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE	DATE	SECTION
TROUBLESHOOTING TIPS	07-22-26	-
24470 RADIO SYSTEM	SUPERSEDES	35343
	-	

Receiver Wiring - 24470 Radio System



16 PIN CONNECTOR WIRING		
PIN#	WIRE COLOR	FUNCTION
1	YELLOW	WINCH UP OUTPUT
2	BLUE	ROTATION LEFT OUTPUT
3	BROWN	ELEVATION UP OUTPUT
4	ORANGE	EXTENSION OUT OUTPUT
5	-	-
6	-	-
7	BROWN / RED	MASTER BYPASS OUTPUT
8	RED / BLACK	AUX POWER +12V
9	YELLOW / BLACK	WINCH DOWN OUTPUT
10	BLUE / BLACK	ROTATION RIGHT OUTPUT
11	BROWN / BLACK	ELEVATION DOWN OUTPUT
12	ORANGE / BLACK	EXTENSION IN OUTPUT
13	-	-
14	-	-
15	YELLOW / RED	HORN OUT PUT
16	RED	SYSTEM POWER +12V
-	BLACK	SYSTEM GROUND (SHELL / HOUSING)



For assistance, contact Venturo Technical Support at 1-800-226-2283



VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE
RECEIVER WIRING
24470 RADIO SYSTEM

DATE
07-22-26
SUPERSEDES
-

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-
35334

Replacement parts - 24470 Radio System



24470-RX-ET
24470-RX-HT



24470-TX



24470-ESS



23908-CHG



24470-TOG



24470-TOGBT



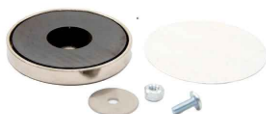
24471-CCR



24471-CRC



22155(HORN)



22089



24470-ADP



23908-BAT

24470 RADIO SYSTEM REPLACEMENT PARTS

PART#	DESCRIPTION
24470-ESS	EMERGENCY STOP SWITCH
22089	REPLACEMENT CUP MAGNET W/ HARDWARE
24470-TOG	TOGGLE SWITCH (ON)-OFF-(ON), SCREW CONNECT TERMS, W/ BOOT & HARDWARE
24470-TOGBT	SEALING BOOT ONLY, BLACK, TOGGLE -15/32NS
22155	PUSH BUTTON SWITCH, GREEN
23908-BAT	BATTERY; TRANSMITTER
24470-TX	HT & ET NON PROP RADIO TRANSMITTER (900 MHZ)
24470-RX-ET	RADIO RECEIVER; ET NON PROP, 16 OUTPUT DRIVERS (900 MHZ, POTTED)
24470-RX-HT	RADIO RECEIVER; HT NON PROP, 16 OUTPUT DRIVERS (900 MHZ, POTTED)
23908-CHG	CAN CAR CHARGER - 12 V - VEHICLE / AUX PLUG
24471-CCR	SEALED 5 PIN CAN RECEPTACLE
24471-CPC	TRANSMITTER CAN PORT CAP
24470-ADP	110 VOLT A/C WALL CHARGER (OPTIONAL ACCESSORY)



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CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS

24470 RADIO SYSTEM

DATE
06-02-2026

SUPERSEDES
-

SECTION

-

35344

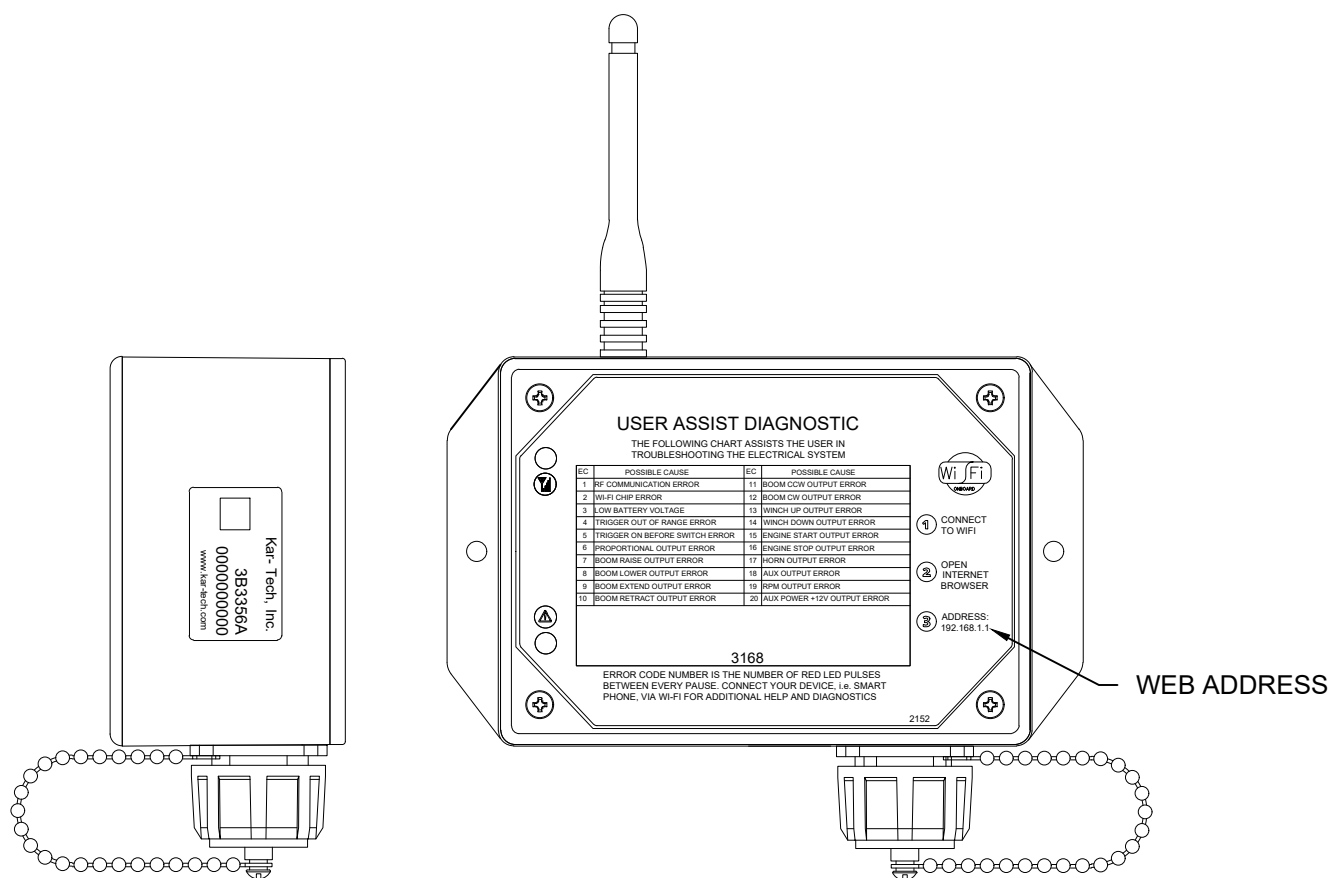
Wi-Fi Portal Access: 24471 & 24472 Radio Systems

USING INTERNAL WIFI GATE:

The GATE creates a Wi-Fi access point which allows you to connect to any device with Wi-Fi and web browser such as smart phones, pads or personal computers. It supports Google Chrome, Internet Explorer, Firefox and IOS Safari and allows user to configure, diagnose and troubleshoot the system.

ACCESSING THE CONTROL PANEL

1. Turn on the power to the receiver.
2. Use your device and look for the available **WiFi networks**. A network under the name of **VENTURO3B335** should be available at this point. Connect to the network, **password is 3B3356X1**. If the Gate is not used for 5 minutes after power up it will automatically turn off. Recycle power to receiver to turn it back on.
3. Once the connection is established, open a web browser on your device. Kar-Tech recommends using the Chrome browser.
4. **Enter the address http://192.168.1.1** in the address bar.



For assistance, contact Venturo Technical Support at 1-800-226-2283



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TITLE
WI-FI PORTAL ACCESS
24471 & 24472 RADIO SYSTEMS

DATE
07-23-26
SUPERSEDES
-

SECTION
-
35350

Wi-Fi Portal - Main Screen; 24471 & 24472 Radio Systems

After gaining access to the gate you will land at the main screen.
From the Main Screen, you can access the following features.

- Calibration - Contact Venturo for Calibration assistance.
- Diagnostics - Used to aid troubleshooting by showing remote communications, system I/O status, proportional output information, transmitter battery level, receiver voltage, pressure reading, transmitter/receiver IDs, and active channels.
- Histogram - Shows which error codes are active and how many times each specific error code has been active. This feature can be used to troubleshoot machine wiring and other problems.
- Wi-fi configuration - Contact Venturo for configuration assistance.

Main Screen



For assistance, contact Venturo Technical Support at 1-800-226-2283

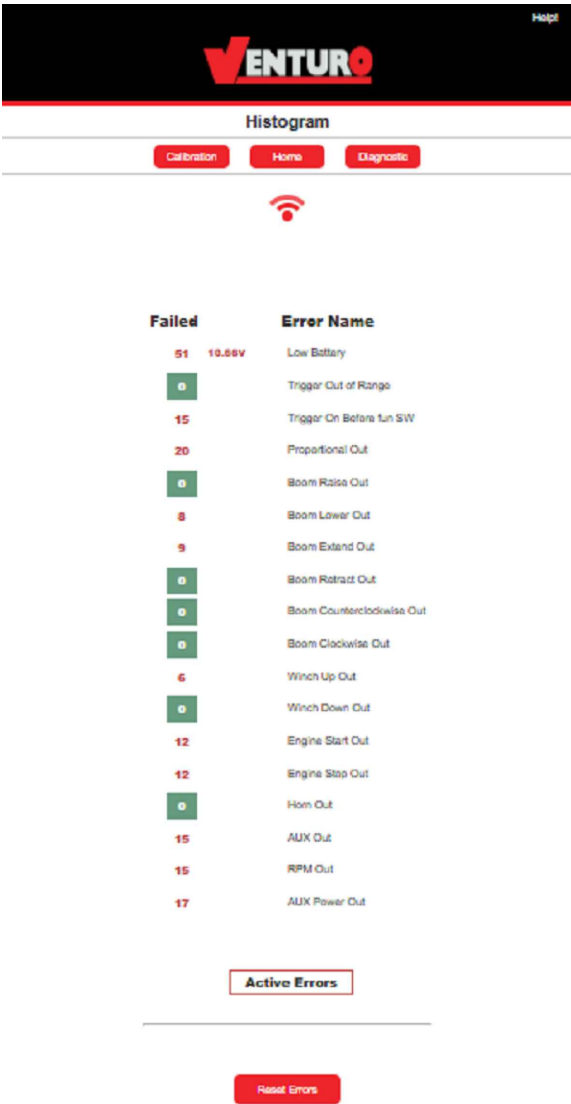
 VENCO VENTURO LLC CINCINNATI, OHIO	TITLE Wi-Fi PORTAL MAIN SCREEN	DATE 07-23-26	SECTION -
	24471 & 24472 RADIO SYSTEMS	SUPERSEDES -	35351

Wi-Fi Portal - Histogram Screen; 24471 & 24472 Radio Systems

- The Histogram screen shows which error codes are active and how many times each specific error code has been active.
- This feature can be used to troubleshoot machine wiring and other problems.
- Tapping the Reset button resets the error code counts.
- Contact Venturo to reset error codes.
- Tap the Home button to return to the main menu.

Note: The GATE is not a precision measurement instrument.

Histogram Screen



For assistance, contact Venturo Technical Support at 1-800-226-2283



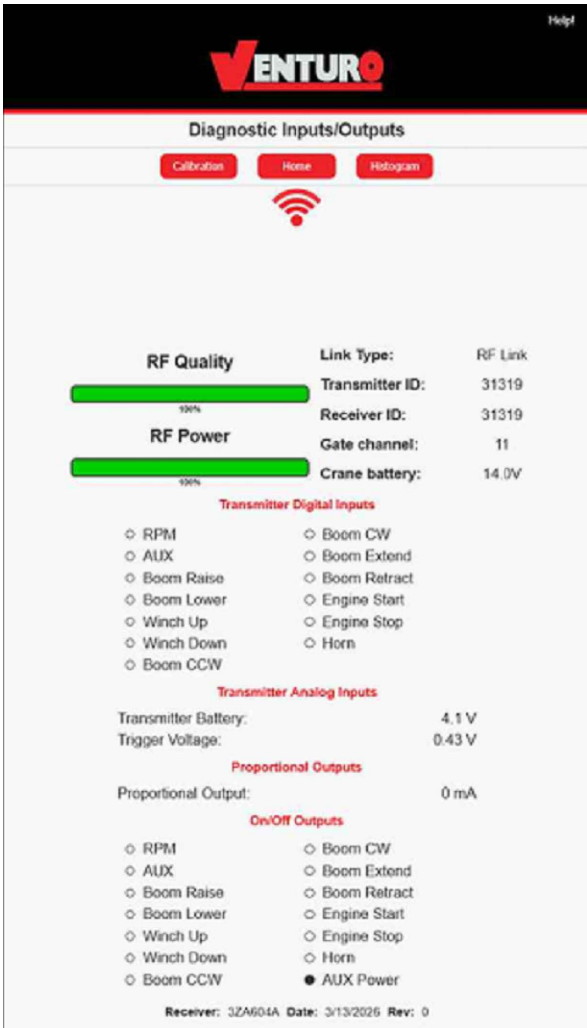
VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE	DATE	SECTION
Wi-Fi PORTAL HISTOGRAM SCREEN	07-23-26	-
24471 & 24472 RADIO SYSTEMS	SUPERSEDES	35353
	-	

Wi-Fi Portal - Diagnostics Screen; 24471 & 24472 Radio Systems

- The diagnostic page shows the present state of remote communications, and the system outputs on / off status.
- When the round circle next to a label is dark, the corresponding ON/OFF input or output is sensed to be active or ON.
- It shows the info of the proportional output, transmitter battery level, receiver operating voltage and the value of the pressure in PSI when operated.
- It also shows the information of the current transmitter and receiver ID and their respective channels they both are currently communicating.

Diagnostics Screen



For assistance, contact Venturo Technical Support at 1-800-226-2283



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CINCINNATI, OHIO

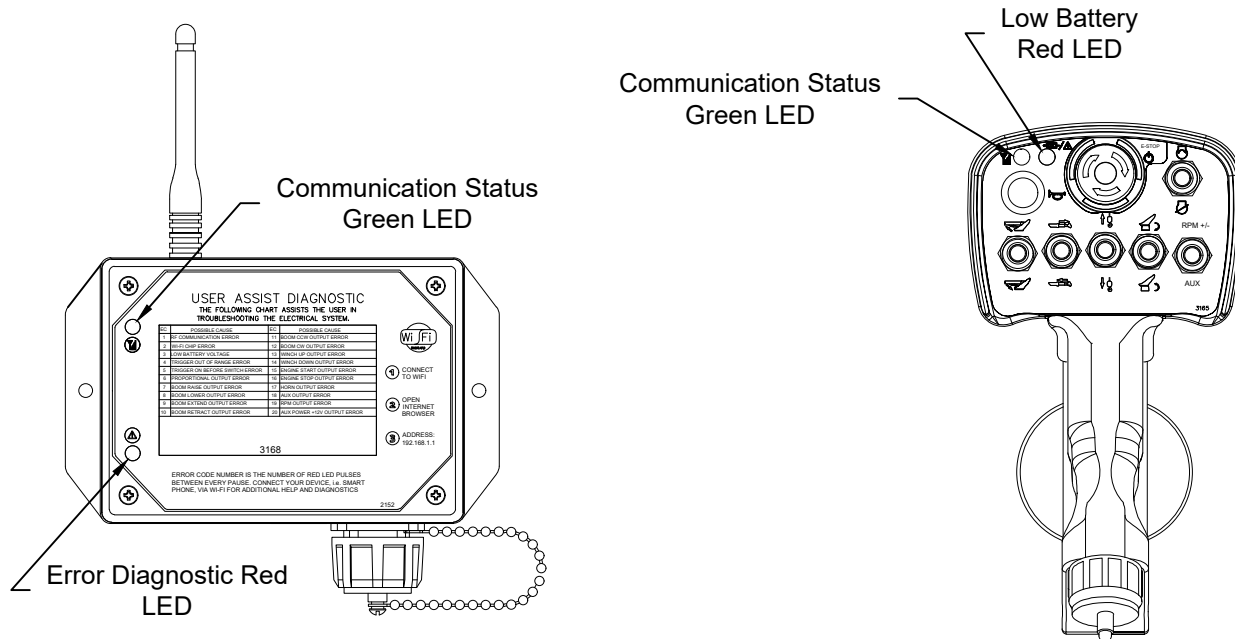
TITLE	DATE	SECTION
Wi-Fi PORTAL DIAGNOSTICS SCREEN	07-23-26	-
24471 & 24472 RADIO SYSTEMS	SUPERSEDES	35354
	-	

Troubleshooting - 24471 & 24472 Radio Systems

The transmitter has two indicators, the red BATTERY indicator and the green TRANSMIT indicator. The green TRANSMIT indicator blinks rapidly (2x/second in RADIO mode, 5x/second in CAN mode) whenever there is communication between the transmitter and the receiver. It will double-blink when no functions are used.

- The red BATTERY indicator starts blinking once every second when the battery voltage is low and requires charging. Plug in the transmitter as soon as possible after seeing the low battery indicator. See TRANSMITTER BATTERY INFORMATION page.
- The receiver module can identify problems with the system in the form of an error code. Check the red indicator on the receiver to diagnose system problems. Then, refer to the ERROR CODE CHART below and on the receiver for an explanation of the error codes. The green LED indicator will blink on the receiver during active operation.

EC	POSSIBLE CAUSE	EC	POSSIBLE CAUSE
1	RF COMMUNICATION ERROR	11	BOOM CCW OUTPUT ERROR
2	WI-FI CHIP ERROR	12	BOOM CW OUTPUT ERROR
3	LOW BATTERY VOLTAGE	13	WINCH UP OUTPUT ERROR
4	TRIGGER OUT OF RANGE ERROR	14	WINCH DOWN OUTPUT ERROR
5	TRIGGER ON BEFORE SWITCH ERROR	15	ENGINE START OUTPUT ERROR
6	PROPORTIONAL OUTPUT ERROR	16	ENGINE STOP OUTPUT ERROR
7	BOOM RAISE OUTPUT ERROR	17	HORN OUTPUT ERROR
8	BOOM LOWER OUTPUT ERROR	18	AUX OUTPUT ERROR
9	BOOM EXTEND OUTPUT ERROR	19	RPM OUTPUT ERROR
10	BOOM RETRACT OUTPUT ERROR	20	AUX POWER +12V OUTPUT ERROR



For assistance, contact Venturo Technical Support at 1-800-226-2283



VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE
TROUBLESHOOTING

24471 & 24472 RADIO SYSTEMS

DATE
07-24-26

SUPERSEDES
-

SECTION

-

35356

Troubleshooting Tips - 24471 & 24472 Radio Systems

LED Error Indications

Receiver red LED / display error codes indicate communication, voltage, trigger, Wi-Fi, and output circuit faults

Flashes/EC	Probable Cause	Troubleshooting Tip
1	RF communication error	Charge/check transmitter; verify receiver power; move transmitter closer; teach/ synchronize if needed.
2	Wi-Fi chip error	Cycle receiver power; if GATE will not appear or error returns, service receiver/GATE module.
3	Low Battery Voltage	Measure receiver supply under load; inspect power, ground, fuse and battery/charging source.
4	Trigger out of range	Release trigger, cycle E-STOP, retest; Contact Venturo to recalibrate proportional min/max values if needed.
5	Trigger on before switch error	Release trigger fully; select function first, then pull trigger.
6	Proportional output error	Inspect proportional output wiring, load/coil, short-to-ground, open circuit, and calibration setting.
7	Boom Raise output error	Inspect Boom Raise output circuit and valve coil/load.
8	Boom Lower output error	Inspect Boom Lower output circuit and valve coil/load.
9	Boom Extend output error	Inspect Boom Extend output circuit and valve coil/load.
10	Boom Retract output error	Inspect Boom Retract output circuit and valve coil/load.
11	Boom CCW output error	Inspect Boom CCW / rotation-left output circuit and valve coil/load.
12	Boom CW output error	Inspect Boom CW / rotation-right output circuit and valve coil/load.
13	Winch Up output error	Inspect Winch Up output circuit and valve coil/load.
14	Winch Down output error	Inspect Winch Down output circuit and valve coil/load.
15	Engine Start output error	Inspect Engine Start output circuit, relay/coil, and associated wiring.
16	Engine Stop output error	Inspect Engine Stop output circuit, relay/coil, and associated wiring.
17	Horn output error	Inspect Horn output circuit and horn/auxiliary load.
18	Aux output error	Inspect auxiliary output circuit and connected load.
19	RPM output error	Inspect RPM output wiring, load, and calibration/configuration setting.
20	Aux Power +12V output error	Inspect +12 V auxiliary power output, downstream wiring, and connected circuit.

General Troubleshooting Procedure

1. Start with power: confirm receiver input is 9-30 VDC, polarity is correct, and ground is solid.
2. Verify transmitter battery condition. Red BATTERY indicator flashes once per second when charging is required.
3. Observe communication: green TRANSMIT LED blinks rapidly during transmitter/receiver communication and double-blinks when no functions are used.
4. For output errors, make the machine safe, inspect the suspected output wiring and load/coil for shorts or opens, then reconnect and retest.
5. For proportional operation, select the function first, then pull the trigger. If the trigger is pulled first, release it and begin again.
6. After correction, cycle transmitter/receiver power and perform a controlled function test.

Using Internal GATE for Diagnostics

Power the receiver, connect to Wi-Fi network VENTURO3B335 using password 3B3356X1, then browse to <http://192.168.1.1>. Use Histogram to view/reset active error counts, Diagnostics to check communications, I/O, battery level, receiver voltage and pressure. If GATE is not used within 5 minutes after power-up, recycle receiver power to turn it back on.

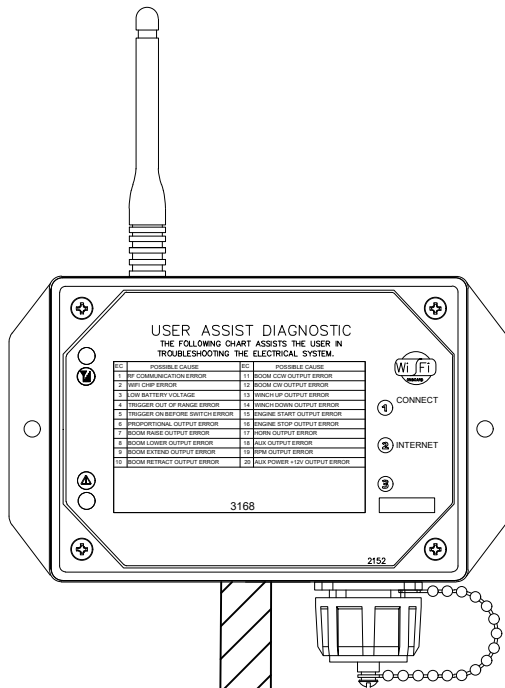
For assistance, contact Venturo Technical Support at 1-800-226-2283



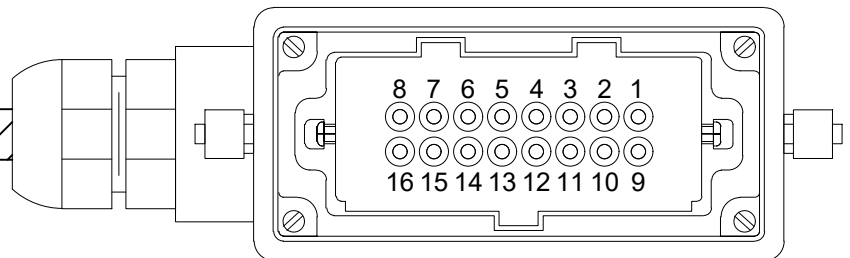
VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE	DATE	SECTION
TROUBLESHOOTING TIPS	07-24-26	-
24471 & 24472 RADIO SYSTEMS	SUPERSEDES	35359
	-	

Receiver Wiring - 24471 & 24472 Radio Systems



16 PIN CONNECTOR WIRING		
PIN#	WIRE COLOR	FUNCTION
1	YELLOW / BLACK	WINCH UP 12V OUTPUT
2	ORANGE / BLACK	BOOM CCW ROTATION 12V OUTPUT
3	ORANGE	BOOM ELEVATION UP 12V OUTPUT
4	BROWN	BOOM EXTENSION 12V OUTPUT
5	BLACK / RED	ENGINE START 12V OUTPUT
6	BROWN / RED	ENGINE RPM 12V OUTPUT
7	BLUE	PROPORTIONAL OUTPUT
8	RED / BLUE	AUX +12V OUTPUT
9	BROWN / BLACK	WINCH DOWN 12V OUTPUT
10	BLUE / BLACK	BOOM ROTATION RIGHT 12V OUTPUT
11	YELLOW	BOOM ELEVATION LOWER 12V OUTPUT
12	RED / BLACK	BOOM RETRACT 12V OUTPUT
13	BLUE / RED	ENGINE STOP 12V OUTPUT
14	YELLOW / RED	AUX POWER 12V OUTPUT
15	ORANGE / RED	HORN 12V OUTPUT
16	RED	SYSTEM POWER +9-30V
-	BLACK	SYSTEM GROUND (SHELL / HOUSING)



CAN CONNECTOR	
PIN	DESCRIPTION
A	POWER (9-30V)
B	GROUND
C	CAN H
D	CAN L
E	GROUND

For assistance, contact Venturo Technical Support at 1-800-226-2283



VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE	DATE	SECTION
RECEIVER WIRING	07-23-26	-
24471 & 24472 RADIO SYSTEMS	SUPERSEDES	35357
	-	

Replacement Parts - 24471 & 24472 Radio Systems



24470-ADP



23908-CHG



24471-TX



24472-TX



24471-RX



22089



24470-TOG



24470-TOGBT



22155



24471-CCR



24471-CRC



24470-ESS



24471-TRGA



23908-BAT



23908-CAN

24471 AND 24472 RADIO SYSTEMS REPLACEMENT PARTS

PART#	DESCRIPTION
24470-ESS	EMERGENCY STOP SWITCH
22089	REPLACEMENT CUP MAGNET W/ HARDWARE
24470-TOG	TOGGLE SWITCH (ON)-OFF-(ON), SCREW CONNECT TERMS., W/ BOOT & HARDWARE
24470-TOGBT	SEALING BOOT ONLY, BLACK, TOGGLE, 15/32-NS
22155	PUSH BUTTON SWITCH, GREEN
23908-BAT	BATTERY, TRANSMITTER
24471-TX	ET PROPORTIONAL RADIO TRANSMITTER (900 MHZ)
24472-TX	HT PROPORTIONAL RADIO TRANSMITTER (900 MHZ)
24471-RX	RADIO RECEIVER, HT & ET PROP, 16 OUTPUT DRIVERS (900 MHZ, POTTED)
23908-CHG	CAN CAR CHARGER, 12V, VEHICLE/AUX PLUG
24471-CCR	SEALED 5 PIN CAN RECEPTACLE
24471-CPC	TRANSMITTER CAN PORT CAP
24470-ADP	110-VOLT A/C WALL CHARGER (OPTIONAL ACCESSORY)
23908-CAN	CAN CABLE, 25 FT (OPTIONAL ACCESSORY, PROPORTIONAL ONLY)
24471-TRGA	TRIGGER ASSEMBLY (PROPORTIONAL ONLY)



VENCO VENTURO LLC
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS

24471 & 24472 RADIO SYSTEMS

DATE
07-24-26

SUPERSEDES
-

SECTION
-

35358



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.

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