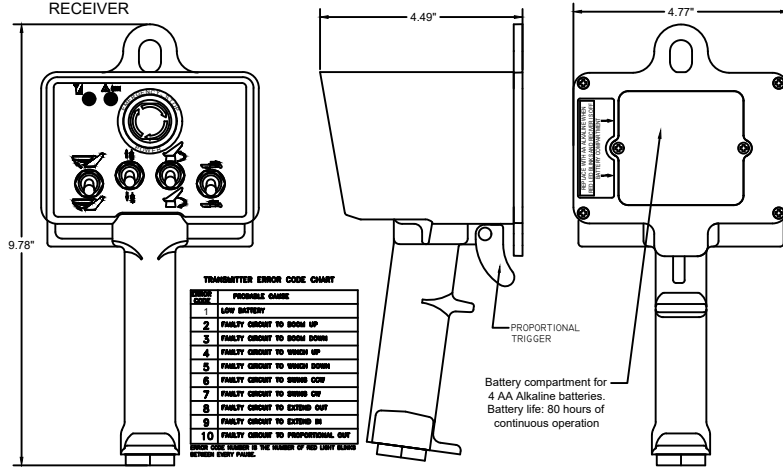


SALES KIT, PROP MINI CRANE GUIDER W/ VC 95 RX

INCLUDING:

- 1 EA TRANSMITTER
- 1 EA RECEIVER

TRANSMITTER:



TRANSMITTER ERROR CODE CHART

CODE	PROBABLE CAUSE
1	LOW BATTERY
2	FAULTY CIRCUIT TO BOOM UP
3	FAULTY CIRCUIT TO BOOM DOWN
4	FAULTY CIRCUIT TO WINCH UP
5	FAULTY CIRCUIT TO WINCH DOWN
6	FAULTY CIRCUIT TO SWING CW
7	FAULTY CIRCUIT TO SWING CCW
8	FAULTY CIRCUIT TO EXTEND OUT
9	FAULTY CIRCUIT TO EXTEND IN
10	FAULTY CIRCUIT TO PROPORTIONAL OUT

NOTE: CHECK NUMBER IN THE NUMBER OF RED LIGHT FLASHES WITHIN ERROR PULSE.

TRANSMITTER SPECIFICATIONS:

FCC ID: P4U-MNTA1 IC: 4534A-MNTA1
 Power supply: 4 AA batteries
 Operating temperature: -40°C to +85°C
 Storage temperature: -55°C to +100°C
 RF Frequency: 902-928 MHz RF Transmit power (EIRP): 10 mW

OPERATION

- Power must be applied to the receiver module for the system to work.
- Releasing the E-STOP will turn on the transmitter. Pressing the E-STOP will turn off the transmitter. Pressing the E-STOP will also turn off all outputs as a safety feature. If the transmitter goes out of range for more than 2 seconds, all outputs will turn off as a safety feature.
- To operate the crane, toggle a function switch, then pull trigger. If trigger is pulled more than halfway and then a toggle switch is activated, the output to valve will be disabled. This feature is designed to for smooth crane operation. Pump output comes on with every output.
- To save battery life, the transmitter will turn off when it is idle (no functions are used) for period greater than 15 minutes, irrespective of receiver status. The user must press and release the E-STOP at this point to restore transmitter operation.

INDICATOR LED'S

- The transmitter has two indicators, the red BATTERY indicator and the green TRANSMIT indicator. The green TRANSMIT indicator blinks rapidly whenever there is communication between the transmitter and the receiver. It will slowly when no functions are used.
- The red BATTERY indicator starts blinking once every second when the battery voltage is low and requires batteries replacement.
- The transmitter & receiver modules can identify problems with the system in the form of an error code. Check the red indicator to diagnose system problems. Then, refer to the ERROR CODE CHART in this manual for explanation of the error codes. The green LED indicator will blink on the receiver during active operation.

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 teach the ID code to the receiver, use the following procedure. ***Please note that if this procedure is interrupted before it has completed, the system may have intermittent operation:**

1. Turn the transmitter and receiver off
2. Press and hold the BOOM RAISE 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
On older model receivers, Place a jumper across the TEACH ID jumper inside the receiver. The green LED will go from blinking to steady. Remove the jumper and store it on one pin
6. Teach complete

CLONING:

WARNING! - This feature can pose a safety hazard for operators if both transmitters are used simultaneously- use with CAUTION!

Occasionally, it is desirable to have more than one transmitter work with a single receiver. This is accomplished by a process called cloning. Cloning allows an additional transmitter (B) to have the same ID code as the original transmitter (A). If this feature is desired, use the following procedure:

1. Make sure both transmitters and the receiver are off
2. On Transmitter A, hold switches BOOM RAISE, BOOM RETRACT, release E-STOP and keep holding switches for couple of seconds and release. Green and red LEDs will blink together at this point
2. On Transmitter B, hold switches BOOM LOWER, WINCH UP, BOOM CCW, BOOM RETRACT, release E-STOP and keep holding switches for couple of seconds and release. Green and red LEDs will blink together at this point
3. Wait for few seconds until the green LED starts to blink together for Transmitter A, which indicates Cloning success.
4. Turn both the transmitters off
5. Synchronize one of the transmitters to the receiver using SYNCHRONIZING TRANSMITTER AND RECEIVER instructions above

If the cloning feature has been invoked and is no longer desired, the ID code of one of the transmitters needs to be changed. This will unclone the transmitters.

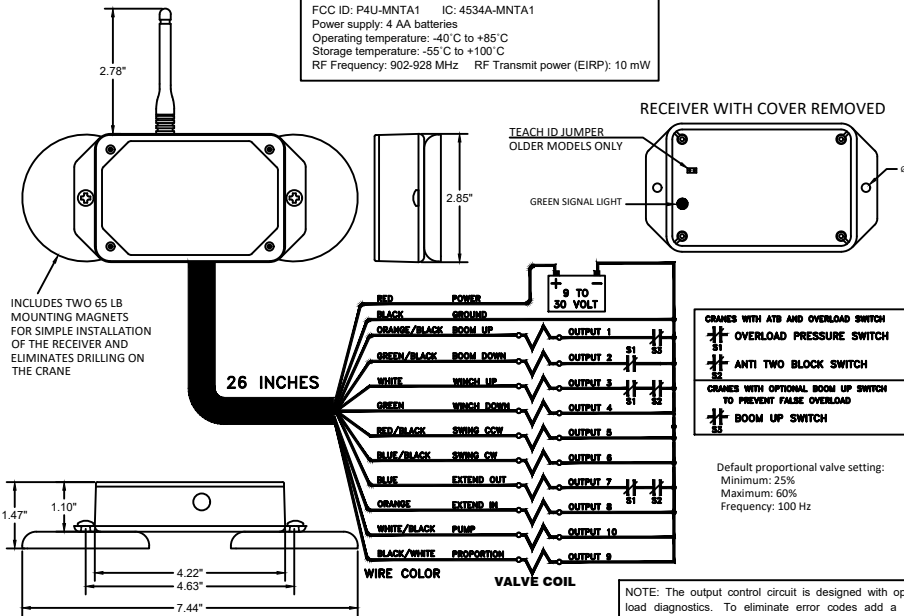
If this is desired, use the following procedure:

1. Make sure the transmitter is off.
2. Press and hold switches BOOM LOWER, WINCH DOWN, BOOM CW, BOOM RETRACT and release E-STOP and switches after couple of seconds. LEDs will start toggling.
3. Press any switch and release, GREEN LED should be blinking rapidly.
4. ID change Sequence complete.

PROPORTIONAL OUTPUT CALIBRATION:

To calibrate the proportional output, make sure the transmitter and receiver are matched, then follow these procedures:

1. Turn receiver off.
2. Release the E-STOP switch on transmitter to turn transmitter on
3. Toggle BOOM UP, WINCH DOWN and ROTATION CW simultaneously. At this point, Red light blinks rapidly to indicate entering the calibration mode.
4. Apply power to the receiver.
5. Toggle EXTENSION OUT switch, Red lights blinks slowly to indicate entering the Minimum calibration stage.
6. Toggle any function switch and slowly pull the trigger to desired position to set Minimum speed required for the crane or measure Voltage or current at the valve coil.
7. Toggle EXTENSION OUT, then release the function switch to save Minimum setting. At this point, Red light blinks rapidly to indicate entering the Maximum calibration stage.
8. Toggle any function switch and slowly pull the trigger to desired position to set Maximum speed required for the crane or measure Voltage or current at the valve coil.
9. Toggle EXTENSION OUT, then release function switch to save Maximum setting. At this point, Red light blinks slowly to indicate entering the valve dither frequency calibration stage.
10. Toggle BOOM UP once for 60 Hz, twice for 100 Hz and 3 times for 200 Hz. Number of green LED blinks will confirm the frequency.
11. Toggle EXTENSION OUT switch to save frequency. The Red light will turn off to indicate that calibration is complete.
12. Remove receiver power wait for 10 seconds then turn receiver on to reset new values inside the receiver.



RECEIVER:

RECEIVER SPECIFICATIONS:

FCC ID: P4U-MNTA2 IC: 4534A-MNTA2
 Power supply voltage: 9-30 VDC
 Operating temperature: -40°C to +85°C
 Storage temperature: -55°C to +100°C
 Outputs: 5.0A each, 20A Max, sourcing
 RF Frequency: 902-928 MHz

REVISION		DATE	BY	CHKD BY
1	ISSUE			
SALES KIT, PROPORTIONAL MINI GUIDER SYSTEM				
REVISED BY: [Signature]				
DATE: [Date]				
DRAWN BY: [Signature]				
DATE: [Date]				
CHECKED BY: [Signature]				
DATE: [Date]				
CADD DRAWING DO NOT REUSE UNLESS				
FULL	VIEW	DATE	PROJECT	ISSUE NO.
		10-01-01		100-103-1-E-31A