This device must accept any interference received, including interference that may cause undesired operation.

Do not dispose of the product as unsorted municipal waste.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Reorient or relocate the receiving antenna.

If, after taking these steps, the problem persists, please contact the manufacturer for technical assistance at...

**Industry Canada Statement**
This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) the user must accept any interference, including interference that may cause undesired operation of the device.

**Industry Canada Unlicensed Devices EIRP Statements for Removable Antennas**
Part 1: Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

Part 1 : Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isoémettrique équivalente (p.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Part 2: This radio transmitter (LOBSRF-310) has been approved by Industry Canada to operate with the antenna type listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Partie 2 : Cet émetteur radio (LOBSRF-310) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

**NOTICE:** The manufacturer is not responsible for any unauthorized modifications to this equipment made by the user. Such modifications could void the user's authority to operate the equipment.

**Industry Canada Statement**
This device complies with RSS-210 of Industry Canada.


**Industry Canada Statement**
This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

**FCC Statements**
15.19 - Two Part Warning
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, including interference that may cause undesired operation.

15.21 - Unauthorized Modification
NOTICE: The manufacturer is not responsible for any unauthorized modifications to this equipment made by the user. Such modifications could void the user's authority to operate the equipment.

15.105(b) – Note:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
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Cervis, Inc. Safety Precautions

 ✓ Read and follow all instructions.
 ✓ Failure to abide by Safety Precautions may cause equipment failure, loss of authority to operate the equipment, and personal injury.
 ✓ Use and maintain proper wiring. Follow equipment manufacturer instructions. Improper, loose, and frayed wiring can cause system failure, equipment damage, and intermittent operation.
 ✓ Changes or modifications made to equipment not expressly approved by the manufacturer will void the warranty.
 ✓ Equipment owner/operators must abide by all applicable Federal, State, and Local laws concerning equipment installation and operation. Failure to comply could result in penalties and could void user authority to operate the equipment.
 ✓ Make sure that the machinery and surrounding area is clear before operating. Do not activate the transmitter control system until certain that it is safe to do so.
 ✓ Turn off the mini console box transmitter and remove power from the machine unit before attempting any maintenance. This will prevent accidental operation of the controlled machinery.
 ✓ Use a damp cloth to keep units clean. Remove mud, concrete, dirt, etc. after use to prevent obstructing or clogging the buttons, levers, wiring, and switches.
 ✓ Do not allow liquid to enter the mini console box or machine unit enclosures. Do not use high-pressure equipment to clean the mini console box transmitter or machine unit. Liquid will damage the interior circuitry.
 ✓ Disconnect the radio machine unit before welding on the machine. Failure to disconnect the machine unit may result in destruction of or damage to the machine unit.
 ✓ Operate and store units only within the specified operation and storage temperatures defined in this document’s specifications.
 ✓ Keep high-energy radio frequency (RF) devices away from mini console box transmitters. Activating high-power communication radios, for instance, in close proximity to mini console box transmitters can cause interference and “false” circuit activation.
 ✓ Do not key two-way radios while using the mini console box transmitter.
1.0 Warrior MCB-9XW Transmitter (MCB-9XW)

The Warrior MCB-9XW transmitter is a compact remote control unit that interfaces with Warrior machine unit (MU) receivers. The MCB-9XW is available as either a three-joystick- or four-joystick transmitter, both powered by four type "AA" cell batteries. Each version includes two toggle switches, a push-pull Single-Pole/Single-Throw (SPST) Professional STOP switch, and a green multi-purpose pushbutton. Both MCB-9XW designs have four red diagnostic/status Light Emitting Diodes (LEDs) that indicate wireless link (or radio frequency, "RF") activity, Battery ("Bat.") condition, trolley/hoist "A" selection, and trolley/hoist "B" selection. The rugged MCB-9XW enclosure is made of glass-filled nylon designed to meet an IP55 ingress protection rating, as defined by IEC 60529.

Using line-of-sight Direct Sequence Spread Spectrum (DSSS) technology, the mini console box's (MCB's) transmission power permits a generous control distance in crowded radio environments. The rugged enclosure and water-resistant switches and joysticks ensure reliable operation in harsh weather environments – operating in temperatures as low as -4°F (-20°C) to a maximum of 158°F (70°C). Warrior MCBs transmit RF signals via an internal antenna, while status is conveyed to the user via the four LEDs.

MCB-9XW transmitter functions can be configured by manipulating the MU receiver DIP Switch (S01) mode settings.

Figure 1. Warrior MCB-9XW Three- and Four-Joystick Transmitters
Warrior MU-9X15 Features

- Three or Four 2-Step, Single-Axis Joysticks
- Two or Three Toggle Switches and an Activate Pushbutton
- 900MHz @ 100mW Operation
- Push/Pull Professional Stop Switch
- Four System Status/Diagnostics LEDs
- Operates Using Four “AA” Cell Batteries
- Mounting by Custom Shoulder Harness
2.0 Warrior MCB-9XW Layout

2.1 Standard Joysticks, Toggle Switches, and Pushbuttons

Table 1 lists the standard MCB-9XW switches.

Table 1. MCB-9XW Standard Switches

<table>
<thead>
<tr>
<th>Switch</th>
<th>Function</th>
<th>Type</th>
<th>Switch Type/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JS1 through JS4</td>
<td>Trolley/Hoist Motion Control</td>
<td>Analog Joystick</td>
<td>Single-axis, Two-step</td>
</tr>
<tr>
<td>S1</td>
<td>A/B Select</td>
<td>Toggle</td>
<td>Three-Position Maintained</td>
</tr>
<tr>
<td>S2†</td>
<td>Receiver Select</td>
<td>Toggle</td>
<td>Three-Position Maintained</td>
</tr>
<tr>
<td>S7</td>
<td>Aux/Select/Next</td>
<td>Toggle</td>
<td>Three-Position Momentary</td>
</tr>
<tr>
<td>S9</td>
<td>Horn/Start/ON</td>
<td>Pushbutton</td>
<td>Green, SPST</td>
</tr>
<tr>
<td>STOP</td>
<td>STOP</td>
<td>2-Position Maintained</td>
<td>Pull up to ENABLE; Push down to STOP</td>
</tr>
</tbody>
</table>

† – Available on Warrior Tandem Receiver systems.

2.2 LEDs

Table 2 lists the MCB-9XW LEDs. Table 3 lists advanced LED diagnostic functions.

Table 2. MCB-9XW LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Icon</th>
<th>Function</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td></td>
<td>Transmit indication (radio frequency or “RF”)</td>
<td>Flashes when message is sent Solid with switch motion</td>
</tr>
<tr>
<td>L2</td>
<td></td>
<td>Low Battery indication (“Bat.”)</td>
<td>Slow Blinks when &lt;2.2V</td>
</tr>
<tr>
<td>L3</td>
<td></td>
<td>A Selection</td>
<td>Lights when A trolley/hoist is selected</td>
</tr>
<tr>
<td>L4</td>
<td></td>
<td>B Selection</td>
<td>Lights when B trolley/hoist is selected</td>
</tr>
<tr>
<td>L7†</td>
<td>N/A</td>
<td>Receiver 1 Selected</td>
<td>Lights when Receiver 1 is selected</td>
</tr>
<tr>
<td>L8†</td>
<td>N/A</td>
<td>Receiver 2 Selected</td>
<td>Lights when Receiver 2 is selected</td>
</tr>
</tbody>
</table>

† – Available on Warrior Tandem Receiver systems.

Table 3. MCB-9XW Advanced LED Diagnostics

<table>
<thead>
<tr>
<th>LEDs</th>
<th>Indication</th>
<th>Diagnostic</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF</td>
<td>RF Solid</td>
<td>Transmitting, looking for receiver.</td>
</tr>
<tr>
<td>RF</td>
<td>RF Blinking</td>
<td>Transmitting to and receiving from the mounted receiver.</td>
</tr>
</tbody>
</table>
### 2.3 Neck/Shoulder Harness

The 1¾” wide neck/shoulder harness lets you conveniently and comfortably strap the MCB-9XW around your neck or shoulder for easy access and operation. Adjustable to lengths up to 60
inches (~1.5m), the harness conforms to most body lengths; and its rugged, heavy-duty construction and quick-release fasteners keep a single MCB-9XW securely against your body. Plus, its polypropylene webbing resists wear, and its bright orange color gives it high visibility against even the lightest colored garments.

### 2.3.1 Adjusting the Harness

Before you attach the harness to your MCB-9XW, adjust the blue strap to the most comfortable operating length for your individual body type.

The harness’ left strap features a 6” (152mm) long quick release hook-and-loop Nylon rip cord.

Connect the two parts of the rip cord together, and press down to secure the connection.
2.3.2 Attaching the Harness to the MCB-9XW

Both ends of the high-visibility orange straps feature a pair of heavy-duty metal button snaps at the ends.

To attach the harness to your MCB-9XW, locate the two T-shaped harness clips on the front of your MCB.

Thread the high visibility orange straps through the harness mounts—snap side up—past the first two (female) snaps.
Fold the strap over onto itself, and fasten the female snaps to their male counterparts.

✓ **Note:** You’ll know the snaps are secured when you hear a clicking sound.
When you have the harness securely together, hang it around your neck—or drape it over your shoulder—and begin operating your MCB-9XW.
3.0 MCB-9XW Battery Installation

Four “AA” cell batteries power the MCB-9XW mini console box units. When installing batteries, be sure to observe proper polarity—as marked on the inside of the compartment—to avoid damaging the unit. To replace or install batteries in the MCB:

1. Loosen the four Phillips battery compartment cover screws on the rear of the transmitter, and lift the cover from the MCB.
2. Install (or replace with) four fresh size “AA” cell batteries. Observe proper polarity by positioning the batteries as illustrated in Figure 2.
3. Replace the compartment cover, and tighten the four Phillips screws. Do not over-tighten these screws, **but make sure they are tight enough to properly seal the gasket.**

![Battery Cradle Polarity Labels](image)

*Figure 2. MCB-9XW Battery Installation*

**Caution!**
Be sure to observe proper polarity when placing batteries in the MCB-9XW battery compartment.

3.1 Low Battery and Auto Shutdown

**Low Battery Warning**

The MCB-9XW Low Battery Warning is factory set to activate when the power voltage reaches 2.2V. At this time, the **Bat LED** begins blinking once per second until the voltage reaches the 2.0V Auto-Shutdown voltage. Cervis, Inc. recommends replacing the batteries as soon as possible once the **Bat LED** begins flashing. Replacement batteries must be four new size “AA” cell batteries, and all four batteries must be made by the same manufacturer.

**Note:** If the transmitter is linked to a receiver, the receiver horn blows four times per minute when under Low Battery condition.

**Caution!**
Do not mix battery manufacturers when replacing the MCB-9XW batteries. Batteries must be fresh and all from the same manufacturer.

**Auto-Shutdown**

Auto-shutdown occurs when the power voltage drops to 2.0V. The MCB-9XW shuts down when 2.0V is reached. It will not activate until the used batteries are removed, and a fresh set of four “AA” batteries is installed. (Follow the directions in Section 3.0.)
4.0 Warrior MCB-9XW Operation

4.1 MCB-9XW System Startup

For the following procedure, assume that power is applied to the Warrior receiver. Stand close to the MU receiver when starting up the MCB.

1. Confirm that the STOP switch is pressed down (OFF).
2. Turn on the MCB by pressing and releasing the green Horn/Start pushbutton (S9). The RF/A Selection and Bat/B Selection LEDs should begin cycling.

3. Within one second, pull up the STOP switch.
4. Wait until the LEDs cycle and then the RF LED begins flashing.
5. Press the green Horn/Start pushbutton (S09). The MU receiver relay sounds the attached horn (or lights the light), and the Main Line Contactor (MLC) relays energize in the receiver.

The MCB-9XW is ready for crane operation.
Turn Off the Transmitter

Following are methods of turning off or disabling the MCB.

- Push the STOP switch down. This immediately shuts down the MCB-9XW and all machine unit outputs.
- Allow the unit inactivity timer to “time out.” In this case, shutdown occurs after four minutes of transmitter controls inactivity.

4.2 Associating an MCB-9XW with a Receiver

Warrior system transmitters are linked (or “associated”) to the receiver before the system is shipped, and the association process is locked by S01 DIP Switch 8 in the receiver being 0 (OFF). The receiver will only communicate with the transmitter it is associated with. When necessary, other Warrior transmitters can be associated to the receiver as additional spares or to replace damaged transmitters, but the receiver association ability must first be unlocked.

Two Methods to Unlock Association

Method 1: Manually change the position of DIP Switch 8 in the receiver. To unlock Association, change S1 DIP Switch 8 from its default position (0 – OFF) to (1 – ON). Unlocking with the DIP switch will unlock association until DIP Switch 8 is changed back to the 0 (OFF) or LOCKED position.

Method 2: Virtually unlock the receiver via the following steps. (There is no need to physically change S1 DIP Switch 8.):

1. Make sure the MCB-9XW and MU are associated and communicating, but the MLC should not be pulled-in.
2. Confirm that the STOP switch is pulled UP.
3. Press and hold the MCB Select/Next switch (S07) down (Figure 4).
4. Press the STOP button.

✓ Note: Once Virtual Unlock is performed, the next transmitter to be associated has a five-minute window-of-opportunity to associate.

Once the new (or different) transmitter is associated to that receiver, the receiver then locks.
4.2.1 Associating an MCB-9XW Using the DIP Switch Unlock Method.

This process unlocks receiver association, allowing the user to associate transmitters to the receiver until the DIP switch is set back to the locked position.

1. Set the receiver S01 DIP Switch 8 UP (ON).
2. If the receiver is OFF, the Horn/Light relay momentarily activates when it is powered. If the receiver is ON, the Horn/Light relay activates when DIP Switch 8 is moved.
3. Go to subsection 4.2.2.

Caution! Cervis, Inc. does not recommend leaving receivers in an unlocked state. Move DIP Switch 8 to the “0” (OFF) position once association is complete.

4.2.2 Associate an MCB-9XW to a Single Receiver

This process is required when either the MCB memory slot is empty or the user wishes to associate to a different receiver.

✓ Note: During this process, a receiver already in use with another MCB cannot be associated.

1. Confirm that the STOP switch is pressed DOWN.
2. Turn on the MCB by pressing and releasing the green Horn/Start pushbutton (S9) on the left side.
3. Within two seconds, pull the STOP switch UP (OFF to ON).
4. Within one second, while the B Select LED is active:
Press and hold the **Select/Next** switch (**S7**) **DOWN**,

Then press the green **Horn/Start** pushbutton (**S9**), and release both controls simultaneously.

MCB LEDs begin cycling from bottom to top, indicating that the MCB is in **Maintenance Mode**.

![MCB LED cycling](image)

**Note**: If you take too long to perform the next step, restart the process from Step 1.

5. Press and hold the **Select/Next** switch (**S7**) **UP**:

Then press/hold the green **Horn/Start** pushbutton (**S9**) for approximately five seconds.

Release both switches when LED A **Select** starts blinking.
6. The RF and B Selection LEDs light steadily, indicating that the MCB is attempting to locate all available Warrior receivers that the transmitter can link to.

7. Once the MCB has completed its search—and one or more receivers have been found—the RF and A Selection LEDs light steadily.

✔️ Note: If no receivers are available, the MCB will stay in scan mode either until it times out or is turned off.

8. A detected receiver’s Association LED indicator starts blinking, and the Horn/Light relay sounds the horn (or lights the light) it is connected to.

To select this receiver, flip the Select/Next switch (S7) UP.

The RF LED starts blinking rapidly, indicating that communication is established. The receiver identity (ID) is now stored in the MCB memory slot.
9. If the found receiver unit is **NOT** the receiver desired, press the **Select/Next** switch (S7) **DOWN** to scroll through the detected receivers until the desired receiver is found.

(The receiver indicates its selection by blinking its Association LED and/or pulsing the Horn/Light relay, sounding the horn or flashing the light.) Flip the **Select/Next** switch (S7) **UP** to select the receiver.

The **RF** LED starts blinking rapidly, indicating communication is established. The selected receiver ID is stored in the MCB memory slot.

10. Press the green **Horn/Start** pushbutton (S9) to pull in the MLC relay.

The MCB is now linked to the chosen receiver, and the attached device is ready for control.

**Notes:**

- If you purchase a spare transmitter, you will have to associate it using the association process described above.
- Transmitters for each newly purchased system are associated at Cervis, Inc. before shipping.
4.2.3 Associate an MCB-9XW to Tandem/Split Receivers

In Warrior tandem and split receiver systems, association is similar to the single-receiver association process, except that the transmitter must be associated with both receivers in the configuration. See the sample in Figure 5.

![Figure 5. Tandem/Split Receiver System Configuration](image)

In tandem receiver systems, the operator controls only receiver at a time and uses switch **S2** (not pictured in Figure 5) to alternate between receivers.

In split receiver systems, the operator controls both receivers simultaneously.

To begin the association process in either system configuration, apply power to both receivers to unlock the association window. Once powered on for the first time, the window is unlocked for two minutes.

Once association has started, the transmitter must be associated to both receivers or the attempt will be rejected.

### 4.2.3.1 Tandem Receiver Association Process

1. Confirm that the **STOP** switch is pressed **DOWN**.

2. Turn on the MCB by pressing and releasing the green **Horn/Start** pushbutton (**S9**) on the left side.
3. **Within two seconds**, pull the **STOP** switch **UP** (OFF to ON).

4. **Within one second**, while the **B Select** LED is active:

   Press and hold the **Select/Next** switch (**S7**) **DOWN**,

   Then, press the green **Horn/Start** pushbutton (**S9**), and release both controls simultaneously.

   MCB LEDs begin cycling from bottom to top, indicating that the MCB is in **Maintenance Mode**.

   ✓ **Note**: If you take too long to perform the next step, restart the process from Step 1.

5. Press and hold the **Select/Next** switch (**S7**) **UP**:

   Then, press/hold the green **Horn/Start** pushbutton (**S9**) for approximately five seconds.
Release both switches when LED A Select starts blinking.

6. The RF and B Selection LEDs light steadily, indicating that the MCB is attempting to locate all available Warrior receivers that the transmitter can link to.

7. Once the MCB has completed its search—and the first receiver has been found—the RF and A Selection LEDs light steadily.

✓ Note: If no receivers are available, the MCB will stay in scan mode either until it times out or is turned off.

8. The first detected receiver’s Association LED indicator starts blinking, and/or the Horn/Light relay sounds the horn it is connected to.

To select this receiver, flip the Select/Next switch (S7) UP.
9. The second detected receiver’s Association LED indicator starts blinking, and/or the Horn/Light relay sounds the horn it is connected to.

To select this receiver, flip the **Select/Next** switch (**S7**) **UP**.

10. The L7 and L8 (Receiver 1/2) Selection LEDs start blinking, and the RF LED lights solid, indicating that the transmitter is in **Unit Select Mode**.

The L7 and L8 LEDs continue blinking as long as switch **S2** remains in its center (neutral) position. Leave it in this position to control both receivers simultaneously.

Flip switch **S2 UP** to control receiver 1 (L7 LED flashes and L8 LED will be out).

Flip switch **S2 DOWN** to control receiver 2 (L8 LED flashes and L7 LED will be out).

Press the green **Horn/Start** pushbutton (**S9**) to select which Receiver(s) you would like to control.
**Note:** If you inadvertently flip switch S2 up or down while in normal operation mode, the MCB will return to Unit Select Mode. If this happens, press the green Horn/Start pushbutton (S9) to resume normal operation.

### 4.2.3.2 Split Receiver Association Process

**Note:** With this split receiver setup – after the first receiver is selected, the transmitter automatically detects the second receiver.

1. Make sure that the STOP button is pressed DOWN.

2. Press the green Horn/Start pushbutton on the left side to turn the transmitter on.

3. Wake (turn on) the transmitter by pulling the STOP button UP.

4. Within the first second, while the LED B is active…

Press and hold the Select/Next switch (S7) DOWN.

And press the green Horn/Start pushbutton (S9) on the left side.
Quickly release both controls. The MCB LEDs begin cycling (see below), indicating that the transmitter is in *maintenance mode*.

![MCB LEDs cycling](image)

**Note**: If you take too long to perform the next step, restart the process from Step 1.

5. While in maintenance mode, press and hold the **Select/Next** switch (S7) UP.

![Select/Next switch](image)

Then, press and hold the **Horn/Start** pushbutton (S9) on the left side. Hold both controls for approximately five seconds.

![Horn/Start pushbutton](image)

Release both buttons when LED A starts to blink.

![LED A blinking](image)

6. The **RF** and **B Selection** LEDs light steady, indicating that the transmitter is attempting to locate all available Warrior receivers within their two-minute unlocked association window.

![RF and B Selection LEDs](image)
7. Once the transmitter has completed its search—and one or more receivers have been logged in the transmitter’s memory—the RF and A Selection LEDs light steady.

![Image of transmitter with RF and A Selection LEDs illuminated]

✓ **Note:** If no receivers are available, the transmitter will stay in scan mode until it either times out or is turned off.

8. Next, the first detected receiver will start blinking its strobe LED indicator and/or sounding its audible alarm. The operator must then confirm or deny that selection.

![Image of receiver blinking strobe LED]

9. Press the Horn/Start pushbutton to pull in the MLC relays and confirm selection of receiver 1. This also applies power to the second receiver.

![Image of pushbutton and MLC relays]

10. The RF and B Selection LEDs light steady again, indicating that the transmitter is attempting to locate the second Warrior receiver within the two-minute unlocked association window.

![Image of transmitter with RF and B Selection LEDs illuminated]

11. Once the transmitter has completed its search—and receiver 2’s ID has been logged in the transmitter’s memory—the RF and A Selection LEDs light steady.
12. Next, receiver 2 will start blinking its strobe LED indicator and/or sounding its audible alarm.

13. Flip the Select/Next switch UP to store both receivers’ IDs in the transmitter.

14. Once the two desired receivers are stored, press the HORN/START button.

The transmitter launches into normal operating mode, communicating with both selected receivers.

4.3 Adjusting MCB-9XW Inactivity Timeout

The Warrior MCB-9XW ships from the factory configured with a standard four-minute inactivity timeout. To adjust the timeout interval length—from one minute to infinity (or no timeout)—in the field, follow these steps.

1. Confirm that the STOP switch is pressed DOWN.

2. Press and release the green Horn/Start pushbutton (S9) to turn on the MCB.
The **B Selection** LED lights steadily.

3. Pull the **STOP** switch up to the **ON** position.

4. **Within one second** of activating the MCB, while the **B Selection** LED is active:

   Press the **Select/Next** switch (**S7**) **DOWN**.

   Then press the green **Horn/Start** pushbutton (**S9**).

   MCB LEDs begin cycling from bottom to top, indicating that the MCB is in **Maintenance Mode**.

   ✓ **Note**: *If you take too long to perform the next step, restart the process from Step 1.*

5. Press and hold the **A/B Select** switch (**S1**) for five seconds.
The LEDs stop scrolling. Then, the **A Selection** LED lights solid, and the other LEDs go out.

This indicates that the timeout is set to four minutes (standard factory configuration).

6. To increase the timeout, flip the **Select/Next** switch (**S7**) UP and release it.

7. To decrease the timeout, flip the **Select/Next** switch (**S7**) DOWN and release it.

8. When the **RF** LED is lit solid, it indicates that a time of one minute will be added. When the **Bat** LED is lit solid = two minutes; **A Selection** LED = four minutes; **B Selection** LED = eight minutes.

   **Note:** This is a binary representation. So, if the **RF** and **A Selection** LEDs are lit solid—and the others are unlit—you have a five-minute timeout.

9. When the **RF** LED is blinking, the timeout = 20 minutes. When the **Bat** LED is blinking = 30 minutes; **A Selection** LED blinking = 45 minutes; **B Selection** LED blinking = 60 minutes; and all four LEDs blinking = infinite timeout.

10. Once you have chosen your desired timeout, press and release the green **Horn/Start** pushbutton (**S9**) to return to **Maintenance Mode**.

11. Press the green **Horn/Start** pushbutton (**S9**) again to return to operational mode.
4.4 Tilt Fault Mode

The MCB-9XW has an internal accelerometer that detects when the unit is in an angled position (up to 60° from level). If the MCB is tilted at 60° or greater for four seconds, the receiver Horn Relay energizes. If the unit remains in the tilted position for five seconds, the Horn Relay energizes again, and all motion commands stop.

To exit tilt fault mode, return the MCB to level and reset all controls to their neutral state. Remote machine control will become available again.

Cervis, Inc. ships all MCB transmitters with tilt fault mode enabled, as a safety feature. And while you can briefly maintain equipment motion control during the first three seconds of the warning period, you should return the transmitter to a level position before it expires.

However, if it is necessary to operate the MCB transmitter in an angled position for prolonged periods, you can disable the factory-set tilt fault mode as follows:

To Enable/Disable Tilt Fault Mode

1. Confirm that the STOP switch is pressed DOWN.
2. Press and release the green Horn/Start pushbutton (S9) to wake the MCB.
3. Pull the STOP switch up to the ON position.

✓ Note: Perform Step 3 within two seconds; otherwise, you must go back to Step 1.
4. The B Selection LED lights steadily for about 1.5 seconds after pushing the green Horn/Start pushbutton (S9).
5. Within one second of activating the MCB, while the B Selection LED is active:
Press the Select/Next switch (S7) DOWN.

Then, press the green Horn/Start pushbutton (S9).

MCB LEDs begin cycling from bottom to top, indicating that the MCB is in Maintenance Mode.

6. Tilt the MCB 60° or more.

7. After three seconds, the LEDs will flash in one of the following patterns:
   a. RF→BAT→A→B – sequence repeats (Tilt Fault Mode enabled)
b. \( RF/B \leftrightarrow BAT/A \) – sequence repeats (Tilt Fault Mode disabled)

8. Press and release the green Horn/Start pushbutton (S9) to alternate between patterns 6a and 6b.

9. Once you’ve selected the desired mode, return the MCB to its normal operating position.

10. Press the green Horn/Start pushbutton (S9) again to set the desired mode.
## 5.0 Warrior MCB-9XW Specifications

**Table 4. Warrior MCB-9XW Receiver Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td>Operating Voltage: 2.1VDC to 3.0VDC</td>
</tr>
<tr>
<td></td>
<td>Batteries: Four “AA” cell</td>
</tr>
<tr>
<td></td>
<td>Low V Warning: 2.2VDC</td>
</tr>
<tr>
<td></td>
<td>Auto-Shutdown: 2.0VDC</td>
</tr>
<tr>
<td></td>
<td>Inactivity Shutdown: Four Minutes</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Operating Temp: -40°F to 158°F (-40°C to 70°C)</td>
</tr>
<tr>
<td></td>
<td>Storage Temp: -40°F to 131°F (-40°C to 55°C)</td>
</tr>
<tr>
<td></td>
<td>Humidity: 0–95% non-condensing</td>
</tr>
<tr>
<td><strong>Radio</strong></td>
<td>Frequency: 904–926 MHz @ 100mW</td>
</tr>
<tr>
<td></td>
<td>License: No license required</td>
</tr>
<tr>
<td></td>
<td>Modulation: DSSS, channel hopping</td>
</tr>
<tr>
<td></td>
<td>Antenna: Internal</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Dimensions: Inches: 7.09 x 4.15 x 4.61 mm: 180.03 x 105.44 x 117.04</td>
</tr>
<tr>
<td></td>
<td>Material: Glass-filled nylon</td>
</tr>
<tr>
<td></td>
<td>Weight: ~2.5 lbs. (~1.13kg)</td>
</tr>
<tr>
<td></td>
<td>Durability: IP55</td>
</tr>
<tr>
<td></td>
<td>Hardware: Stainless steel</td>
</tr>
<tr>
<td><strong>Control Switches</strong></td>
<td>Joysticks: Three or Four (Model-dependent) 2-step Single Axis (digital)</td>
</tr>
<tr>
<td></td>
<td>Toggles: Three-position momentary or maintained</td>
</tr>
<tr>
<td></td>
<td>Stop: Professional pull-up/push-down</td>
</tr>
<tr>
<td></td>
<td>Pushbutton: Activation button (green)</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
<td>RF: Indicates wireless communication and switch motion</td>
</tr>
<tr>
<td></td>
<td>Battery: Indicates low battery voltage</td>
</tr>
<tr>
<td></td>
<td>A Selection: Indicates trolley/hoist A selection</td>
</tr>
<tr>
<td></td>
<td>B Selection: Indicates trolley/hoist B selection</td>
</tr>
<tr>
<td></td>
<td>Receiver 1/2†: Indicates receiver 1 or 2 selected</td>
</tr>
</tbody>
</table>

† – Available on Warrior Tandem System configurations.
Appendix A: Exposure to Radio Frequency Energy

Warrior MCB transmitter and receiver units contain radio transceivers. When active, an MCB transmitter sends out radio frequency (RF) energy through its internal antenna. The Warrior MCB transmitter complies with limits set by the United States Federal Communications Commission (FCC) for operating distance from human tissue.

Appendix B: RF Exposure Considerations

The radio module may be used in a variety of host applications that fall into two general categories:

1. **Mobile** applications: Any operating locations not on a human body. In mobile applications, the host application is typically fixed to mobile equipment, with either an internal or external antenna.

2. **Portable** applications: Applications where the transmitting equipment is located on the hand, arm, or other part of the human body. In portable applications, the equipment is typically held in the hand of an operator or affixed to either a belt or harness on the torso.

Equipment containing the radio module was evaluated for RF exposure hazards by two approaches:

1. Maximum Permissible Exposure (MPE) for mobile applications.
2. Specific Absorption Rate (SAR) for portable applications.

Required separation distances are measured from the actual location of the radiating part of the antenna. An antenna may be inside the host application, affixed to the host application enclosure, or at the end of an optional extension coaxial cable.

**Mobile Applications**

Equipment must be located at least 20cm away from areas likely to be occupied by an unaware person.

**Handheld Applications**

All operators of MCB equipment with any type of antenna require proper equipment operation training, and such training must include RF exposure safety instructions. Once training is completed, they are considered “aware persons.”

If the portable operating position is on the hand or arm, a 5mm separation is required between the radiating part of the antenna and nearby human tissue.

**Required Training**

All installers and operators of host applications that include an SRF310 radio frequency transceiver (RT) module must be trained to use proper RF safety precautions as presented in this appendix.
Figure 6. Warrior MCB-9XW Agency Label