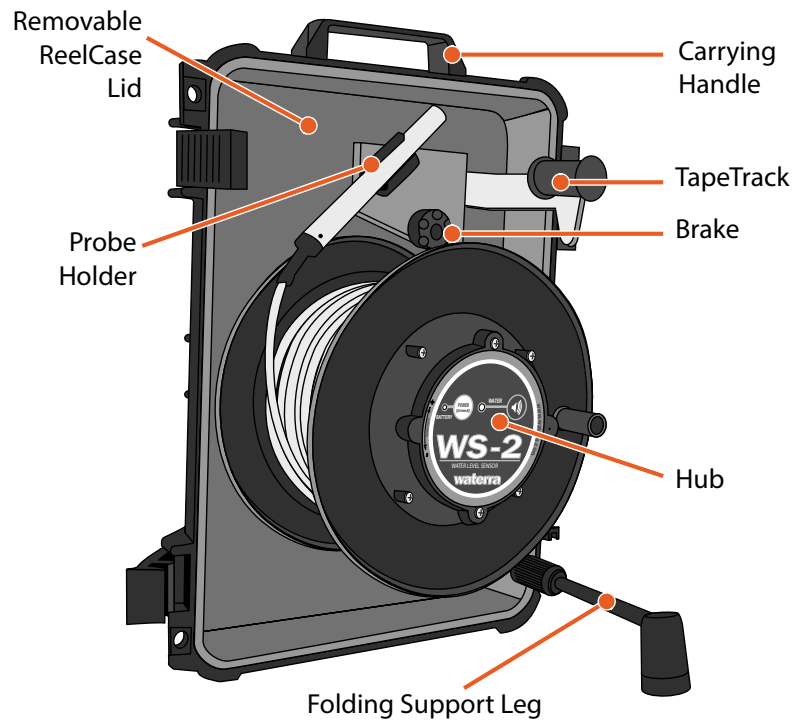


## WS-2 ReelCase Owner's Manual

## FEATURES

The **Waterra WS-2 ReelCase Water Level Tape** is designed to deliver the most compact and most durable water level indicator on the market today. Most damage to traditional water level indicators occurs while the meter is in transport to the field when the meter is dropped or another item falls onto the unit. The WS-2 ReelCase is a protective hardcase and meter in one, therefore the meter is always packaged properly for transport.



### conductor tape

The WS-2 ReelCase can accommodate 30, 50 or 75 meters of flat conductor tape wrapped on an open reel and mounted to the inside of the removable lid of the ReelCase.

### removable ReelCase lid

The removable ReelCase lid is the backbone of the WS-2's functionality as it also incorporates a carrying handle, a folding support leg, probe holder, brake and the sliding TapeTrack. The ReelCase Lid is self supporting and can stand on the ground or inside the ReelCase box, or be suspended from the well casing when the TapeTrack is deployed.

## electronics

The electronics of the WS-2 ReelCase are the same as in all other Waterra WS-2 meters. The electronics module, located in the hub of the reel, contains the batteries, electronic circuit board, buzzer, light, on/off membrane switch and sensitivity adjustment knob. The on/off switch has a built-in timer so that the unit will automatically turn itself off after three minutes. This feature is designed to extend battery life.

### WS-2 faceplate

When the WS-2 is turned on, the battery light will be illuminated continuously. Low batteries are indicated by a flashing signal from the battery light indicator.

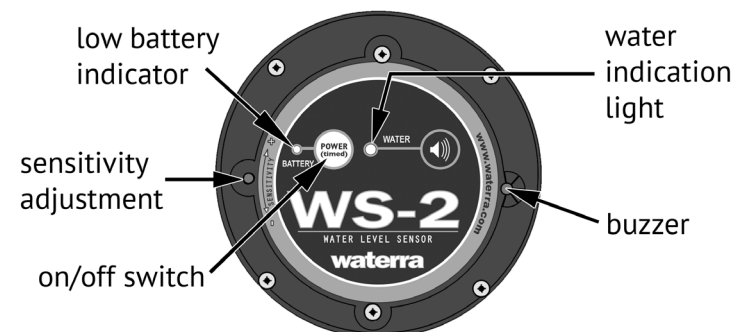
When the WS-2 water level probe contacts water, the buzzer will emit a continuous tone and the water light will illuminate.

In some groundwater conditions, the probe may not adequately detect the water in the well. This may be caused by low salinity. When this happens, the sensitivity of the unit can be adjusted by rotating the sensitivity adjustment knob located on the left side of the front hub panel.

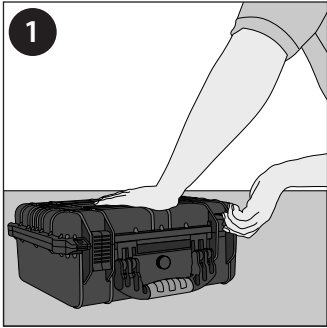
### adjusting the conductivity setting

In order to allow the WS-2 ReelCase to detect water of various salinity, the design includes a sensitivity adjustment knob. This knob is located on the left side of the front hub panel.

In monitoring wells where excessive bridging is experienced, the knob should be rotated to the left. Where water of low salinity is suspected, the knob should be rotated to the right. The optimum setting is obtained by adjusting the control knob to the point where the WS-2 is no longer emitting the water signal while the probe is immersed in the well. Then rotate the knob back in the opposite direction slowly, stopping when the water signal begins again.



## OPERATION



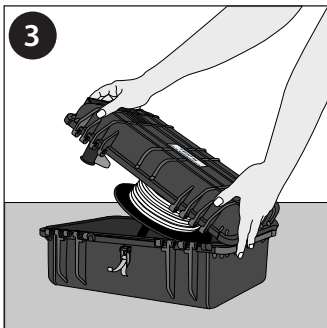
### lift latches

To access the WS-2 elements of the ReelCase, the operator must first open the ReelCase by lifting the two latches on the side of the case.



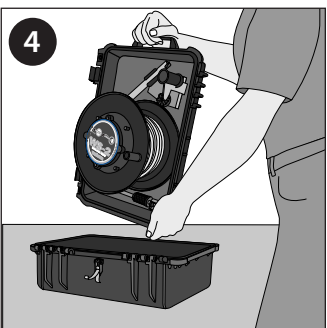
### lift other latch

To access the WS-2 elements of the ReelCase, the operator must first open the ReelCase by lifting the two latches on the side of the case.



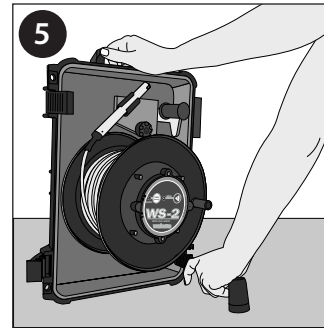
### rotate lid towards hinges

Once the latches are open, the ReelCase lid is opened and rotated towards the hinges.



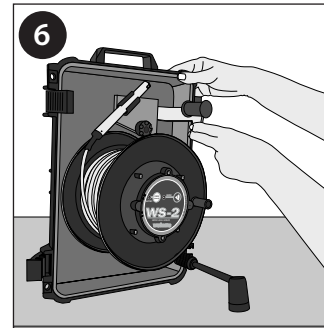
### release lid

Once the lid rotates past 100 degrees it should easily release from the box part of the case.



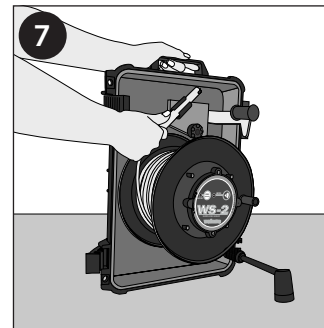
### deploy folding support leg

Operators will typically find it easiest to open the ReelCase meter by holding the handle on the lid in their left hand. Using the right hand, the folding support leg can easily be deployed by rotating it towards the latches on the lid.



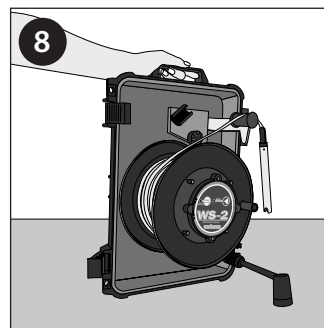
### deploy TapeTrack

At this point you may wish to deploy the TapeTrack. This can be done by gently pulling the stainless steel arm of the TapeTrack outwards with two fingers while resting your thumb on the arm support for leverage. Rotate the arm 90 degrees in the counter clockwise direction until the arm slides into the horizontal slot in the arm support.



### unclip probe

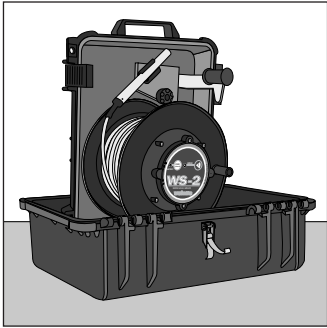
The probe can then be un-clipped from the probe holder and the reel brake can be released by rotating it in a clockwise direction.



### lower the tape

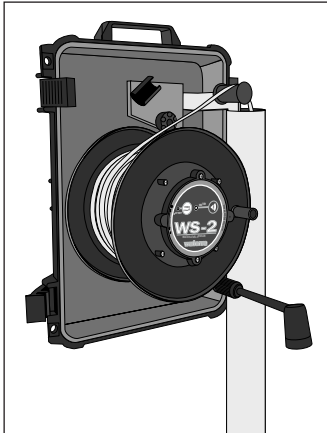
Feed the tape over the TapeTrack and then lower the probe by rotating the reel in the clockwise direction. Your meter is now ready to use.

## OPTIONAL



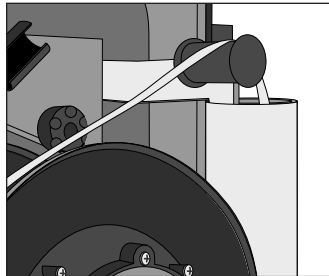
### stand ReelCase in box

Once the leg is deployed, the ReelCase lid will easily stand on the ground or inside the ReelCase box if the ground is very uneven or muddy. Always standing your ReelCase lid in the box will help to keep your meter clean.



### suspend reelcase on well

The TapeTrack can also be used to suspend the ReelCase Meter from aboveground casings.



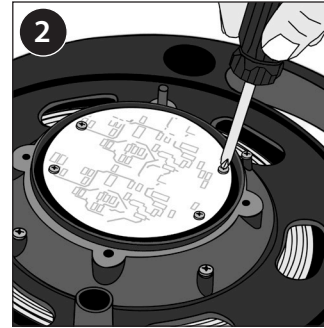
## BATTERY REPLACEMENT

Replace the batteries when the indicator light shows that they are worn or at least once per year.

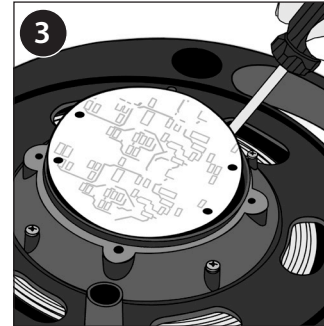


The batteries can be accessed by removing the two screws located on the Front Panel above and below the label. Remove these screws with a Phillips screwdriver and then carefully lift the Front Panel from the front hub. Turn the Front Panel upside down and place the two screws in the panel.

## BATTERY REPLACEMENT (cont'd)



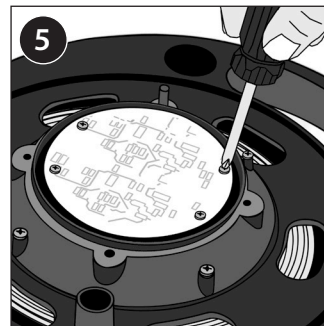
The battery pack is located on the rear side of the Main Circuit Board which is now exposed. You must remove the four screws which hold the Main Circuit Board in place to gain access to the battery pack. Remove the two screws at the top and the two screws at the bottom of the Main Circuit Board and place them in the Front Panel.



Remove the Main Circuit Board by using a small flat screwdriver and placing the blade of the screwdriver under the edge of the Main Circuit Board, alternating from the left side then the right side of the board. This will disconnect the board from the two connectors located on the back side.



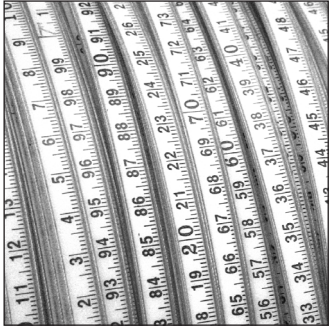
Once the Main Circuit Board is removed, turn it over and replace the worn AA cells with four fresh Duracell AA batteries. Be sure to orient the batteries in accordance with the directions supplied on the battery pack. Return the Main Circuit Board to the reel by carefully lining up the pins with the connectors (4 pin connector on the left, 6 pin connector on the right) and press the Main Circuit Board into position.



Replace the four screws in the Main Circuit Board. Replace the Front Panel to the hub and return the two screws to the correct holes, above and below the label. Care must be taken not to over tighten the screws. Over tightening may strip the threads from this part.

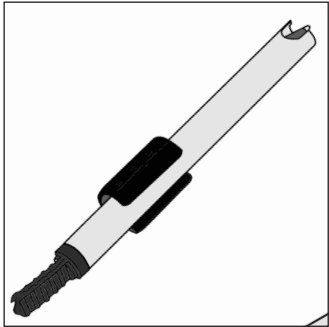
## ROUTINE MAINTENANCE

In order to maintain your WS-2 ReelCase in the best working order, some routine maintenance is required.



### damaged tapes

The flat tape should be inspected for cuts and abrasions on a regular basis. Severely damaged tapes should be replaced. Contact Waterra if this is required.



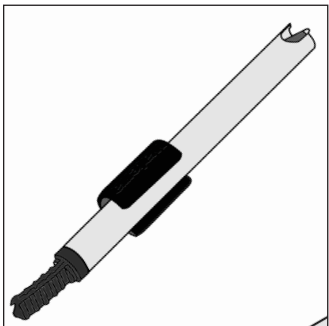
### routine cleaning

The tape should be completely spooled out of the reel and cleaned with a damp cloth. The reels will also need to be wiped down to remove sand and mud.

The probe tip should be cleaned on a regular basis with a toothbrush and water to remove any material that may accumulate there. A clean probe tip will increase meter accuracy.

## CLEANING AND DECONTAMINATION

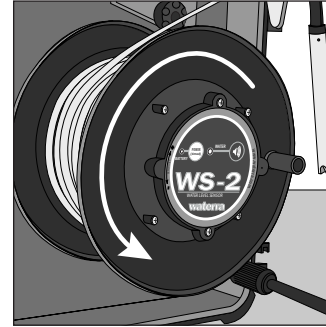
If the inside of the reel becomes contaminated or is excessively dirty, the tape and reel should be disassembled for a more thorough cleaning.



The flat tape can be cleaned by spooling the tape out of the reel into to a large bucket, allowing it to soak in a cleaning solution. The recommended detergent for this is Alkanox. Rinse the tape in clean water and pass the tape through a clean cloth as it is wound back into the reel.

## CAUTION

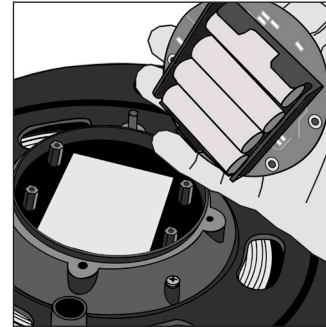
Here are a few tips for good operating practice.



### rewinding the tape

Be sure to wind the tape back onto the reel in the correct direction.

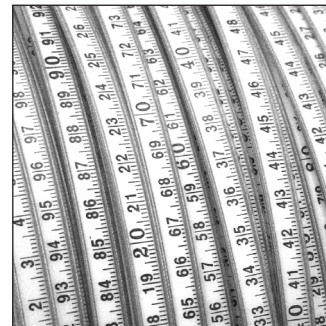
Check that the tape is wound onto the reel in an even manner. Do not allow the tape to accumulate on one side of the reel.



### water resistance

The WS-2 ReelCase is designed to be water resistant, however these units are not water-proof. **Do not immerse the WS-2 as this will damage the electronics and flood the unit.**

## PARTS LIST



- tape with probe

# WARRANTY

Waterra USA Inc. and Waterra Pumps Limited (“Waterra”) warranty all well probe parts to be free from defects in material and workmanship affecting its use for a period of 12 months following the date of purchase.

## exclusions and conditions

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The Waterra Warranty does not include shipping or an obligation to provide another unit while the original well probe is being repaired.

The Waterra Warranty does not apply to well probes used as rental equipment or to well probes contaminated by materials harmful to such products.

The Waterra Warranty does not apply to the tape or batteries used within the well probe.

The Waterra Warranty does not apply to parts failure due to neglect in cleaning or servicing the well probe nor does it cover failure of a part caused by misuse or inappropriate use of the well probe.

The Waterra Warranty is not valid if the well probe is not paid for in full within 60 days of the invoice date.

## returning well probes to Waterra

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Waterra requires that all customers notify Waterra prior to returning their well probe under the Waterra warranty program. The well probe will only be accepted if it has been thoroughly cleaned and decontaminated. Well probes must be properly packaged.

### Canada & International

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fax: 905.238.5704

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