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9940 Summers Ridge Road • San Diego, CA 92121-3091 • Phone:(858) 546-8327 • Fax:(858) 546-8150 • Email: inquiry@sontek.com • www.sontek.com

Technical Advisory/Recall Notice for SonTek HydroBoards in North America

Recently there have been a few failures in the field of the SonTek HydroBoard (used with the RiverSurveyor S5/M9) where the attachment point of the bridle to the board has come completely detached. This has been isolated as a manufacturing defect whereby the cups inserted into the board may not have been attached properly. As this can potentially cause loss of the instrument and board, it is important that any suspect boards be fixed as soon as possible.

While investigating these failures, a secondary issue arose whereby the long HydroBoard, even if manufactured properly, may run the risk of failure under excessive loading conditions should it dive or flip. Please consult the document "Guidelines for use of the SonTek HydroBoard" for details.

HydroBoards that are affected by this recall include

- All long (47"/119cm) HydroBoards
- Short (36"/91cm) HydroBoards without the white line on the side (see photos below)

Affected by recall (long & short versions)

Not affected by recall (short version only)

February 8, 2011

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Any affected HydroBoard will be first tested for the manufacturing defect at SonTek. If it is a short board and passes the test, it will be returned to you as is. Short boards that do not pass the test and all long boards will be repaired/replaced as necessary under warranty terms. We apologize for any inconvenience that this causes. Note that the repairs may cause the board to be cosmetically altered.

To obtain a Service Request number, please contact:

repairs@sontek.com
+1 858 546 8327

If there are any questions about the use of the SonTek HydroBoard or whether or not yours needs to be returned, please contact your local SonTek Representative or support@sontek.com.

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General guidelines for use of the SonTek HydroBoard with the RiverSurveyor S5/M9

The RiverSurveyor S5 and M9 systems can be mounted and deployed several ways including:

- Over the side of a manned boat. SonTek supplies a mounting bracket to facilitate this or customers can devise their own depending on their vessel.
- On a remotely operated boat. These are available from third party vendors. If interested in these options, please contact SonTek for more details
- On tethered boats or trimarans. Fort these, there are both third party options and SonTek supplied options including the two versions of the HydroBoard

This document focuses on the application of the SonTek HydroBoard. There are two models, commonly known as the "short" version and the "long" version. SonTek is commonly asked to provide guidelines regarding performance and operational limits of each.

Generally the longer HydroBoard exhibits superior handling characteristics and more stability in faster water than the shorter version. However, should the boat become unstable or dive, the long HydroBoard exhibits a much larger pull force than the short HydroBoard due to its larger surface area.

The below table outlines some recommended conditions under which the HydroBoards may be used. However, note that water velocity alone should not be used as the only parameter for determination of safe operating conditions. Surface conditions, presence of standing waves greater than 1 ft (30cm), large eddies, turbulent flow, wind, debris in the water are all conditions that can contribute to hazards:

Board Size	Recommended Nominal[1] water velocity	Recommended Maximum[2] water velocity	Maximum load[3] at nominal velocity	Maximum load[3] at maximum velocity
Short (36"/91 cm)	1.5 m/s (5 ft/s)	2.5 m/s (8.2 ft/s)	280 lbs (1250 N)	770 lbs (3425 N)
Long (47"/119 cm)	2.5 m/s (8.2 ft/s)	3.5 m/s (11.5 ft/s)	990 lbs (4400 N)	1930 lbs (8600 N)

[1]Nominal water velocity is defined as suitable for everyday use. The user needs to be aware that above these speeds, some precautions may need to be taken.

[2]Maximum water velocity is defined as the maximum threshold beyond which the boat may become unstable or the connection between bridle and HydroBoard may fail. Note that as long as the conditions are consistent, the boat may handle well above these velocities; however, a

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slight change in wind, a jerk of the tether, or debris could easily cause the board to flip or dive. The force in Newtons (N) divided by 9.8 will give you the mass in Kilograms (Kg).

[3]Maximum load assumes the worst case condition; that is, the board is fully perpendicular to the water flow direction. In most cases when the board dives it is at an angles less than 90 degrees. As such, the actual force is substantially less than the maximum load due to the actual angle angle and the buoyancy force of the boat (which pushes it upwards).

Safety considerations when operating the HydroBoard

Operators should inspect all fittings and connections on the board prior to each use and use a simple pull test to ensure nothing is loose. This includes ensuring that antennas, cables, and the M9 or S5 is securely fastened. Whenever tethering a floating object in moving water, operators should consider the following precautions:

- A suitable PFD or life-vest is recommended to be worn at all times. Many agencies issue their own guidance on what type to use.
- Make sure that the waterway is free from debris and possible obstructions that may collide with the HydroBoard. This includes other vessel traffic on the water way. If debris or other vessel traffic is present, it is recommended that one person be designated as a “spotter” to warn the operator of potential approaching hazards.
- Make sure the bank is safely accessible to launch the HydroBoard. Alternatively if the HydroBoard is to be lowered from a bridge or other structure then the lowering path needs to be free and clear of obstructions.
- Visually inspect the section for standing waves, large boils and eddies where there is a greater chance of a board flipping or diving. Generally, standing waves in excess of 30 cm (1 ft) are to be avoided
- Look for obstructions which may snag on the tether including low hanging branches or man-made objects such as handrails, etc. Either clear them in advance of the measurement or pick another section.
- Never wrap the tethering line around your hand or any part of your body. The instantaneous force of water or debris against the boat can greatly exceed a person’s body weight.
- E xcess line should be neatly coiled and held loosely in the hand while kept away from arms, legs, or anything attached to someone’s body. In the event of a dive or debris snag, the excess line can be quickly released (“Quick Release Method”) to allow the HydroBoard to shed excessive water force or float away from the debris.

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- The operator should carry a knife or other tool that can be used to cut the line in the event of an emergency.

What to do if the HydroBoard dives or there is a debris snag

- Operators should be prepared to have at least twice the amount of line necessary for a measurement, or 100 ft (30m) extra (whichever is less) ready to let loose in case of a debris snag or if the board dives underwater.
- In the case of a dive, the immediate reflex is normally to pull in on the line; however, this is not the correct reaction as it will make it more difficult to recover the HydroBoard. Instead, operators should employ the "Quick Release Method". In this procedure, excess line should be released quickly to allow the HydroBoard to resurface. Once it surfaces, the HydroBoard should then be moved to the closest bank as quickly as possible before another dive occurs
- If the HydroBoard flips and dives, the quick release method may not work as effectively. In this case, if the quick release does not work, try gradually releasing the line as you move to the bank as quickly as possible.
- If there is a large amount of debris caught on the HydroBoard, depending on the situation and the amount of force on the line, you can first try the quick release method. If the debris does not come loose and the force is too much for a person to hold, try gradually letting out more line as you quickly move to the bank. Alternatively if the force is too great and/or it will not be possible to make it to the bank, try to tie off any unused line to a structure strong enough to hold the force.
- If the HydroBoard is to be tied off, the user needs to take precaution against "snapback" effects in case the line breaks (particularly lines made from synthetic materials). The best thing is to stand to one side of the line while tying it off so that you are not in the direct path. Once tied off, you may need special assistance to recover the HydroBoard and instrument.