

From: Robbie Laird / WHOI
Date: March 4, 2014 1:29:13 PM MST

Hi

Looking for information on the transducer array setup for a 3.5kHz system. More specifically, I'm wondering if anyone has experience in (successfully) pressurizing the transducer tank.

Many of us have a "tank" inside the ship in which an array of 3.5kHz transducers are installed – probably Massa TR-75s. The theory, as I understand it, is that even when one has 12 transducers, a 10kW depth sounder produce more power than they array can transfer into the water, so it cavitates. The standard solution seems to be build a watertight tank and pressurize is slightly. Anybody who thinks they cannot live without this? Anybody who thinks it's a total waste of time?

I did find some nice pictures here:

<https://www.unols.org/committees/rvtec/TechTopics/2010/transducers.html> so clearly some of us are not pressurizing the well.

While we are at it, is there anything one can do to make it quieter _inside_ the ship? (other than just turning it down.) Foam lining, flex mount for the array, ??? The chirp is not as bad as the old CW pulse, but it still drives the crew batty.

Robbie Laird
WHOI/SSSG

From: Rich Findley / RSMAS
Date: March 4, 2014 2:09:47 PM MST

All,

We have been using pressurized tanks for our 3.5 kHz transducers as far back as I can remember. This was the recommended installation method provided by Raytheon for the old PTR/CESP/LSR system they manufactured. I will try and find the old manuals and reference material I used when we designed our tanks. Note that cavitation will occur with 16 transducer arrays as well. The same problem can exist with 12 kHz transducers also.

As I remember it is a fairly straightforward calculation of the pressure needed on the transducer face to prevent cavitation.

Regards,
Rich Findley

From: J. Scott Ferguson / UH
Date: March 4, 2014 3:16:50 PM MST

As described by Tim McGovern in 2010 the Kilo Moana's tank is definitely not pressurized. It's possible there is cavitation but the resulting data seem to be clean with no complaints by system users.

From: Steve Poulos / UH
Date: March 4, 2014 5:25:42 PM MST

When we installed the Kilo Moana 3.5 array, I recall, we ended up calculating about 1 atmosphere of head pressure would be sufficient - so we added a standing water pipe roughly 15 feet higher (easily done in the KM struts) - but never finished putting on the lid .
Steve Poulos