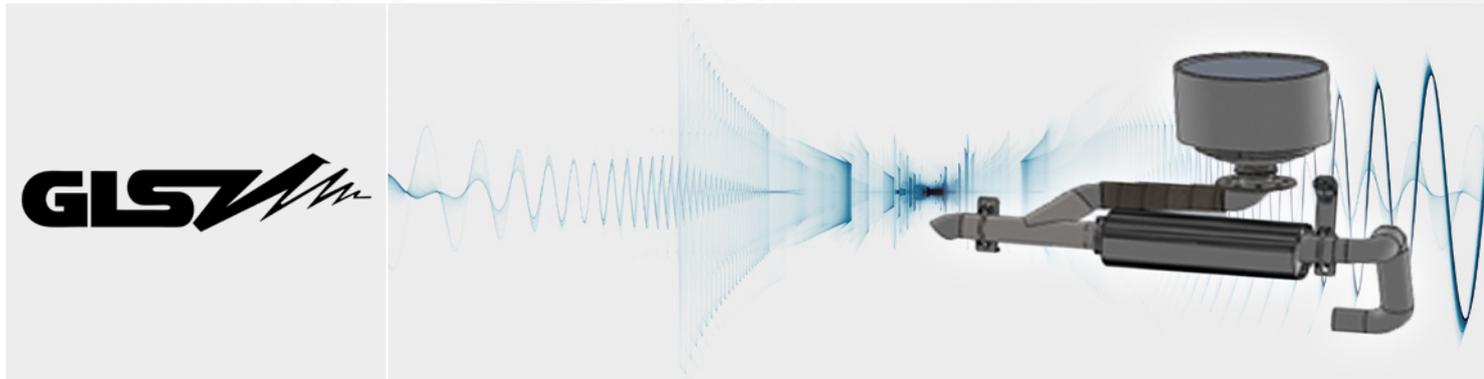


# Big Tanks, Quiet as a Mouse? US Army Uses Simulation to Reduce Noise Inside Ground Vehicles



## Challenge

After teaming up with the US Army (TARDEC), GLSV was looking for a way to develop an efficient Active Noise Cancellation (ANC) system to reduce intake and exhaust noise and high-performance fan noise for fans and blowers in military ground vehicles and power generation applications.

## Benefits

Using ESI VA One, GLSV was able to design, analyze, and validate the development of active noise control (ANC) systems for cancellation of exhaust and fan noise in all phases of the development cycle. The main benefit? Reducing the time in the product development cycle.

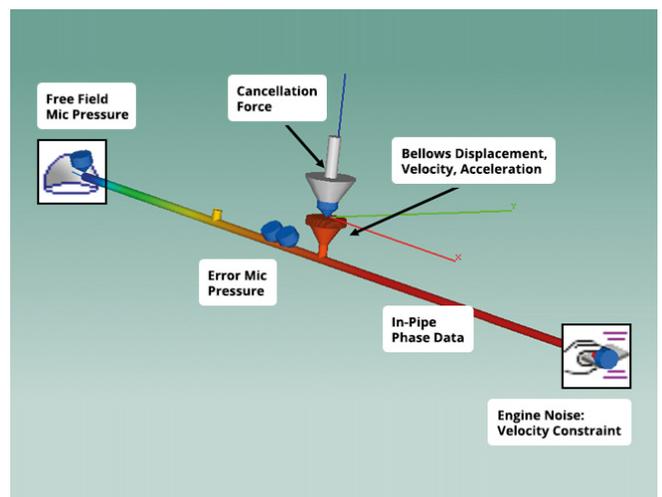
## Story

Founded in 1996, Great Lakes Sound & Vibration (GLSV) opened their doors to solve acoustic, shock, and vibration problems. Today they are a multi-functional engineering company that features a strong background in defense, marine, automotive, off-highway and recreational vehicle markets. Their strength lies in their diversity and ability to solve challenging problems that require a broad range of knowledge and varied capability. When GLSV teamed up with the United States Army Tank Automotive Research, Development and Engineering Center (TARDEC), the goal was to develop Active Noise Cancellation (ANC) system for reducing intake and exhaust noise and high-performance fan noise for fans and blowers used in military ground vehicle and power generation applications.

*"ESI VA One not only guided us towards efficient, optimal vibro-acoustic solutions, but also led the way in assessing active noise control methodology".*

**Greg Kangas**  
Engineering Project Leader  
Great Lakes Sound & Vibration

Having used ESI VA One before, GLSV knew the simulation software would be the best tool for the job. GLSV used VA One to design, analyze, and validate the development of Active Noise Cancellation (ANC) systems for cancellation of exhaust and fan noise in all phases of the development cycle. They are developing ANC systems for low frequency (up to 300 Hz) exhaust and intake systems, as well as mid frequency (up to 1400 Hz) fan applications. In addition, GLSV used VA One to develop and validate active control schemes, integrate the ANC system into exhaust and fan duct systems, determine the sizing of speaker components, establish how much power was required to produce anti-noise, and create optimal placement and geometry of the integrated ANC system. GLSV will continue to utilize VA One to accurately size ANC system for new applications, cutting down in development time by eliminating iterations, which equals a reduction time of roughly 75% for GLSV applications.



Active noise control – Virtual Test Configuration.



for more information  
[www.glsv.com](http://www.glsv.com)

