

quietRIDE™

THE SCIENCE BEHIND THE SILENCE

Sea Ray



A CLOSER LOOK AT THE EXCLUSIVE QUIET RIDE TECHNOLOGY
THAT REDUCES NOISE, VIBRATION AND HARSHNESS (NVH)
UP TO 50 PERCENT ON A SEA RAY

UNDERSTANDING QUIET RIDE™

Quiet Ride is a system of technological advances exclusively available on Sea Ray boats that reduces Noise, Vibration and Harshness (NVH) by up to 50%. Conversations are easier, fatigue is reduced, concentration is enhanced. The natural world feels more natural, more intimate, and you experience the wonder that drew you to boating in the first place. Here's how Sea Ray did it.

THE CHALLENGE:

Maximum performance requires sacrificing the comfort of the ride, because an engine at full throttle generates significant sound and vibration energy.

"The Next Wave initiative challenged our engineering and design teams at Sea Ray to reject several of the industry's universally accepted truths. One of those truths? Boating is loud."

Jonathan Converse, Engineering Manager
Sea Ray Manufacturing, Tellico Lake Facility

THE METHOD:

Engineers measured 48 points on Sea Ray sport boats at idle and full cruising speed to isolate the sources of decibels, vibration energy and harshness. Computer models stripped down the boat to its individual parts for an in-depth sound and vibration analysis.

"Vibration can flow almost seamlessly through a boat's individual components. That's why we needed to analyze its root causes. From there, the data gave us a detailed road-map to how we could dampen and interrupt that flow at the source."

Bill Gowan, Director of Engineering
Sea Ray – Product Development and Engineering

INTERPRETING THE DATA:

Trends in the data revealed a new paradigm in boat design: performance and a comfortable ride aren't mutually exclusive if you can reduce vibration energy at the source. To accomplish this, engineers started from the literal drawing board, redesigning new Sea Rays with integrated Quiet Ride technology.

"Early on, we realized that add-ons or 'quick-fixes' would only mask the fundamental problem. To truly innovate, we needed to re-invent the Sea Ray design. In fact, we needed to re-invent the design of a boat itself."

Hedison Mui, Structural Engineering Manager
Sea Ray – Product Development and Engineering

THE SOLUTION:

Quiet Ride* technology is a first in the boating industry. Exclusive to select Sea Ray SLX models, it uses a multi-pronged approach to dampen NVH at its root sources.

ENERGY-DISSIPATING HULL LAMINATE:

When vibration and noise energy makes contact with Sea Ray's specially engineered hull laminates, it converts into heat energy, which water whisks away. This exclusive design breakthrough effectively allows potential noise and vibration to escape into the water rather than coming up through the deck.

FULL-BEAM BULKHEADS:

Within the engine's well-insulated compartment, full-beam bulkheads trap and isolate energy, concealing noise from the rest of the boat. All cavities in the boat's structure that allow easy noise movement are blocked off to prevent sound from traveling any farther and surfacing elsewhere on the boat.

BONDED STRUCTURE AND BUFFERED HULL:

To prevent noise from traveling through hollow spaces, the hull is buffered with acoustical insulation. Cavity-free liners inhibit low frequency noise and hulls, liners and decks are structurally bonded to reduce vibration.

TUNED TRANSOM®:

As engine vibration's first point of contact, the Tuned Transom* from Omni Products short-circuits energy at the source to dampen excessive noise. This design, exclusively used on Sea Ray boats, borrows vibration-abating technology from space shuttles and jet engines.

*Available on 250 SLX, 270 SLX, 300 SLX and 350 SLX

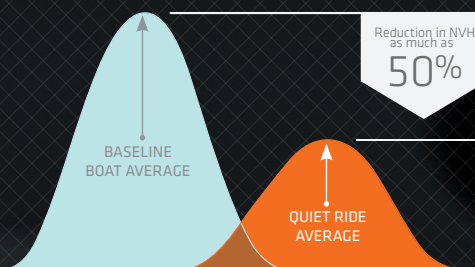
FIT AND FINISH:

Closed-cell compressible foam provides an NVH barrier between the gunwale molding and deck. Neoprene isolators between fuel tanks and mounting brackets offer extra noise absorption, while heavy-duty magnets, latches, bumpers and gaskets ensure silence from opening and closing components. Wind-struck edges are carefully faired to let the wind slip silently past.

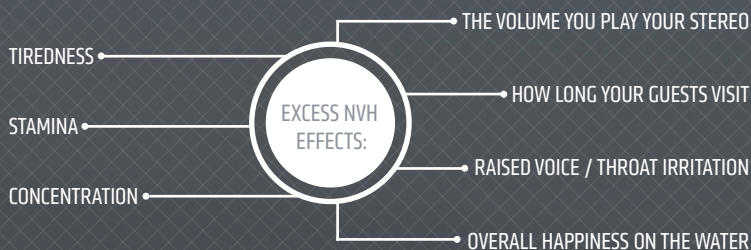
THE RESULTS:

Initial tests saw up to a 50 percent reduction in NVH.

DECIBEL COMPARISON AT FULL CRUISING SPEED:
Baseline Boat Average: 86.2—**Roughly as loud as a lawn mower** from 15 meters away
Quiet Ride Average: 79.4*—**Roughly as loud as a normal passenger car** at 65 mph
*A 6 decibel decrease means half the amplitude



The level of noise, vibration and harshness experienced within the interior of a moving boat or vehicle. Sources of NVH can come from the engine, wind speed and surface contact with water.



79.4^{dB}



Sea Ray engineers used a decibel meter to measure decibel levels at multiple isolated points on a Sea Ray. This specially designed instrument calculates precise decibel levels for an accurate sound reading.

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Quiet Ride technology is available on Sea Ray
SLX models from the 250 SLX and larger.

Sea Ray 