

Aron takes a reading



Rattle and hum

Resonance and vibration in alloy trailer boats is to be expected, but it doesn't have to be tolerated. In the following report, we evaluate the new Vibra-Stop Bush Kit developed by Aron Henley at Henley Marine and Electrical. The results speak for themselves.

Vibra-Stop is a new product that has been developed for aluminium boats to reduce vibration and resonance through the hull. Developed in conjunction with White Pointer Boats, Vibra-Stop vastly improves on-board comfort levels while under way.

Aluminium is inherently a noisy material, the by-product of vibration. Vibration is also hard on alloy boats and particularly on-board electronics and fittings, often causing fittings to shake loose. With outboard engines there are three main components that directly attribute to increased noise levels; the first

is the power-head or engine of the outboard motor; the second is the gearbox; and the third is the propeller. Any one of these three can make the difference between a smooth and quiet engine and a harsh engine. By insulating the outboard engine from the aluminium boat, it is possible to eliminate a large percentage of the induced resonance and vibration running through the boat. The Vibra-Stop Bush Kit uses urethane to insulate the motor from the aluminium boat as opposed to the popular use of nylon (cutting board type material). Urethane has excellent noise-absorbing properties, unlike nylon.

The Vibra-Stop Bush Kit consists of:

- 4 x stainless-steel cup washers
- 4 x urethane stepped bushes
- 4 x aluminium tubes
- 2 x urethane backing pads
- 1 x earth lead and stud
- 2 x anodised aluminium keys (depending on outboard engine configuration)

Noise levels are measured in decibels.



For example, we talk at about 70 decibels. Decibels are measured on an exponential scale. When the decibels go up a little, the noise actually goes up a lot. The decibel (dB A) scale is logarithmic, and therefore a difference of 10 decibels corresponds to a difference in sound pressure to a factor of 10.

The human ear and brain, however, perceive this as being twice as loud; hence 69dB A sounds twice as loud as 59dB A, and 99dB A is 16 times louder than 59dB A.

Provided below are some typical sounds and their dB A levels.

SOUNDS	DB SPL
ROCKET LAUNCHING	180
JET ENGINE	140
THUNDERCLAP, AIR-RAID SIREN (1 METRE)	130
JET TAKEOFF (200FT)	120
ROCK CONCERT, DISCOTHEQUE	110
FIRECRACKERS, RAILWAY TRAIN	100
HEAVY TRUCK (15 METRE), CITY TRAFFIC	90
ALARM CLOCK (1 METRE), HAIR DRYER	80
NOISY RESTAURANT, BUSINESS OFFICE	70
AIR-CONDITIONING UNIT, CONVERSATIONAL SPEECH	60
LIGHT TRAFFIC (50 METRE), AVERAGE HOME	50
LIVING ROOM, QUIET OFFICE	40
LIBRARY, SOFT WHISPER (5 METRE)	30
BROADCASTING STUDIO, RUSTLING LEAVES	20
HEARING THRESHOLD	0

In order to prove Vibra-Stop's ability to reduce noise levels and vibration, resulting in a more comfortable boating experience, Henley Marine fitted the Vibra-Stop Bush Kit to *Trade-A-Boat's* 7.2m SouthernSportz alloy boat. The boat runs a late model Mercury 200HP Optimax two-stroke engine.

The first step was to record decibel levels and vibration readings from the SouthernSportz before fitting the kit. These tests were carried out using a decibel meter measuring in dB A, and an accelerometer measuring vibration in metres per second.