Alban Engine Power Systems

Consultant's Corner: Generator Noise Control

Understanding and controlling gen set noise

Effectively controlling sound levels produced by operating generator sets is becoming a higher priority. Numerous governmental agencies are enacting noise ordinances, aiming to cut noise pollution. This directly affects gen set installation design.

Understanding noise

Noises are quantified by their sound pressure, and most commonly measured in decibel levels heard by humans, noted as dB(A).

The relationship between decibel level is logarithmic. In terms of loudness, doubling the sound pressure roughly equates to a 6 dB(A) increase. However, doubling the distance from the noise reduces the noise level by fifty percent (50%). Typical noise level ratings are noted in *Table 1*.

Table 1
Typical noise levels

Common sounds	Sound pressure
Jet engine	160
Riveting	140
Punch press	120
City traffic	100
Busy office	80
Normal speech	60
Quiet suburb	40
Whisper	20
Threshold of hearing	0

Note: Loudness is also affected by the frequency of sound, but to a much less degree than sound pressure. It's important to note that decibel levels are not additive. For example, two gen sets operating do not produce a 2X decibel level, but increase total sound level to by 3 dB(A).

Controlling gen set noise

Noise from gen sets can be effectively controlled with good engineering practices at installation. *Table 2* estimates the relative effectiveness of various sound barriers.

Table 2
Aproximate sound level reduction dB(A)

Original machine	0
Vibration isolators	2
Baffle	5
Absorption material only	5
Rigid sealed enclosure	15-20
Enclosures and isolators	25-30
Enclosure, absorption, and isolators	35-40
Double walled enclosure, absorption, and isolators	60-80

Note: Designers must consider two noise sources--the actual mechanical noise of the gen set and the exhaust noise. Exhaust silencers can be specified by the following site descriptions.

Attenuating mechanical noise can be completed with a combination of sound dampening design and by isolating vibration produced by the operating gen set. Table 2 shows the sound level reduction possible. Completely sealed enclosures are included as a reference, but openings for piping, airflow, etc. will adversely affect these reduction levels.

Call us

We have aided in the design an installation of generator sets, and can offer you the expertise and software, such as EPG Designer, to help you control noise emissions from gen sets. If you need assistance in this area, please call us. We would be glad to help.

For More Information Call 800-443-9813

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