

THE EFFECT OF SILENCER BOX WITH EGG TRAY AS AN
ALTERNATIVE SILENCER ON ENGINE NOISE REDUCTION

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ABSTRACT

The generator set engine with a capacity of 1300 Kva using a Sound Level Meter (SLM), obtained the results of noise measurements taken while operating are 92.63 dB and the results of measurements in the surrounding environment after the generator engine operates are 75.50 dB for 8 hours of work a day. Meanwhile, the Threshold Value (NAB) of noise levels for industrial premises with working hours of eight (8) hours per day is 85 dB (Permenkes no.70 thn 2016). In this study, the authors conducted a type of quasi-experimental research using the research design "Pre-test-Post Test With One group Design". Based on the results of the study, it can be seen that the use of Silencer Box with Egg Tray media (egg rack) thickness of 4 cm has succeeded in reducing noise to meet the threshold value (NAB). Silencer Box with Egg Tray media thickness variation of 4 cm has been able to reduce the Generator Set engine noise with results below the noise threshold value (NAB). So, the 4 cm thickness variation is recommended as a silencer media because of the efficiency of time in manufacturing and cheaper costs compared to Silencer Box with media thickness variations of 6 cm and 8 cm.

Keywords: Silencer Box, Egg Tray, Generator Set, Noise, Machine

PENGARUH *SILENCER BOX* DENGAN MEDIA *EGG TRAY* SEBAGAI ALTERNATIF PEREDAM SUARA TERHADAP PENURUNAN KEBISINGAN MESIN

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ABSTRAK

Mesin generator set dengan kapasitas 1300 Kva menggunakan Sound Level Meter (SLM), didapatkan hasil pengukuran kebisingan yang dilakukan saat beroperasi yaitu 92,63 dB dan hasil pengukuran di lingkungan sekitar setelah mesin genset beroperasi yaitu 75,50 dB selama 8 jam kerja dalam sehari. Sementara, Nilai Ambang Batas (NAB) kadar kebisingan untuk tempat industri dengan jam kerja delapan (8) jam perhari yaitu 85 dB (Permenkes no.70 thn 2016). Pada penelitian ini, penulis melakukan jenis penelitian eksperimen semu (Quasi Experiment) dengan menggunakan rancangan penelitian “Pre-test-Post Test With One group Design”. Berdasarkan hasil penelitian dapat diketahui bahwa penggunaan Silencer Box dengan media Egg Tray (rak telur) ketebalan 4 cm sudah berhasil menurunkan kebisingan sampai memenuhi nilai ambang batas (NAB). Silencer Box dengan media Egg Tray variasi ketebalan 4 cm sudah mampu menurunkan kebisingan mesin Generator Set dengan hasil di bawah nilai ambang batas kebisingan (NAB). Sehingga, variasi ketebalan 4 cm disarankan sebagai media peredam karena efisiensi waktu dalam pembuatan serta biaya yang lebih murah dibanding Silencer Box dengan media variasi ketebalan 6 cm dan 8 cm.

Kata Kunci: Silencer Box, Egg Tray, Generator Set, Kebisingan, Mesin