

IMPLEMENTASI HOSE RADIATOR STAINLESS PADA SISTEM PENDINGIN MESIN PLTD SAPUDI UNTUK MENINGKATKAN EFISIENSI

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ABSTRAK

Sistem pendingin pada mesin Pembangkit Listrik Tenaga Diesel (PLTD) berperan penting dalam menjaga kestabilan suhu kerja mesin agar tetap optimal. Pada PLTD Sapudi, hose radiator berbahan karet yang digunakan sebelumnya memiliki keterbatasan terhadap suhu tinggi dan tekanan, sehingga sering mengalami penurunan performa dan kebocoran yang berdampak pada efisiensi kinerja mesin. Penelitian ini bertujuan untuk mengimplementasikan penggunaan hose radiator berbahan stainless steel sebagai pengganti hose karet, serta mengevaluasi pengaruhnya terhadap efisiensi sistem pendingin dan kinerja mesin.

Metode penelitian yang digunakan meliputi pengamatan langsung terhadap performa sistem pendingin sebelum dan sesudah implementasi hose stainless, pengukuran suhu cairan pendingin, tekanan sistem, serta frekuensi perawatan dan penggantian komponen. Data yang diperoleh dianalisis secara kuantitatif dan kualitatif untuk menilai peningkatan efisiensi dan penghematan biaya operasional. Material stainless terbukti lebih tahan terhadap korosi dan tekanan tinggi, sehingga mendukung peningkatan keandalan sistem pendingin secara keseluruhan. Dengan demikian, implementasi hose radiator stainless pada PLTD Sapudi terbukti efektif dalam mendukung efisiensi energi dan meningkatkan kinerja mesin.

Kata kunci: Hose radiator stainless, sistem pendingin, PLTD Sapudi, efisiensi operasional, kinerja mesin.

IMPLEMENTATION OF STAINLESS RADIATOR HOSE IN THE SAPUDI PLTD ENGINE COOLING SYSTEM TO IMPROVE EFFICIENCY

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ABSTRACT

The cooling system in a Diesel Power Plant (PLTD) engine plays a crucial role in maintaining optimal engine operating temperature stability. In the Sapudi Diesel Power Plant (PLTD), the previously used rubber radiator hoses had limitations in their ability to withstand high temperatures and pressures, resulting in frequent performance degradation and leaks, which impacted engine efficiency. This study aimed to implement the use of stainless steel radiator hoses as a replacement for rubber hoses and to evaluate their impact on cooling system efficiency and engine performance.

The research methods used included direct observation of cooling system performance before and after the implementation of stainless steel hoses, measurements of coolant temperature, system pressure, and frequency of maintenance and component replacement. The data obtained were analyzed quantitatively and qualitatively to assess efficiency improvements and operational cost savings. Stainless steel has been shown to be more resistant to corrosion and high pressure, thus improving the overall reliability of the cooling system. Therefore, the implementation of stainless steel radiator hoses in the Sapudi Diesel Power Plant has proven effective in supporting energy efficiency and improving engine performance.

Keywords: Stainless steel radiator hoses, cooling system, Sapudi Diesel Power Plant, operational efficiency, engine performance.