

ABSTRAK

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ANALISA EFISIENSI PENGARUH PENAMBAHAN FUEL FILTER MESIN CATERPILLAR C15 DENGAN BAHAN BAKAR B30 DI PUSAT LISTRIK LAIWUI.

(Studi kasus pada Mesin Caterpillar C15 PLTD LAIWUI).

Bahan bakar merupakan salah satu komponen terpenting dalam sistem motor bakar. PLTD Laiwui menggunakan bahan bakar diesel yang di pasok dari Depot Pertamina Ternate. Bahan bakar diesel yang digunakan yaitu Biosolar jenis B-30. Dalam proses bisnis penyaluran tenaga listrik ke pelanggan, PLN dituntut untuk menjaga mutu dan kehandalan tenaga listrik. Sehingga gangguan di mesin harus dicegah sebisa mungkin. Banyak faktor penyebab mesin trip, apabila tidak ditindaklanjuti atau dicegah maka proses produksi pada pembangkit dapat terganggu dan merugikan perusahaan apabila hal seperti ini sering terjadi. Pada kasus ini Mesin Caterpillar C15. Sejak PLN menggunakan Biosolar B30, mesin ini sangat protektif, sehingga sering terjadi trip terutama pada tekanan bahan bakar (Low Differential Fuel Pressure dan fuel pressure) dan sejak memakai bahan bakar biosolar (B30), kondisi fuel filter juga sering kotor dan cepat diganti.

Studi penelitian dilakukan di Pembangkit Listrik Tenaga Diesel (PLTD) Laiwui Dilakukan pada saat mesin beroperasi normal dan menggunakan BBM Bisolar (B30). Pengujian dilakukan pada mesin Caterpillar C15. Dari hasil Analisa dan didapat akar permasalahannya yaitu mesin sering trip karena low Pressure pada system bahan bakar, hal ini disebabkan karena filter yang kotor. Dari hasil Analisa peneliti membuat rencana untuk memodifikasai system bahan bakar pada mesin terpillar C15 di PLTD Laiwui5 odifikas

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ABSTRACT

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ANALISA EFISIENSI PENGARUH PENAMBAHAN FUEL FILTER MESIN CATERPILLAR C15 DEGAN BAHAN BAKAR B30 DI PUSAT LISTRIK LAIWUI.
(Case study on caterpillar machine C15 PLTD LAIWUI).

Fuel is one of the most important components in the combustion motor system. The Laiwui PLTD uses diesel fuel supplied from the Pertamina Ternate Depot. The diesel fuel used is Biosolar type B-30. In the business process of distributing electric power to customers, PLN is required to maintain the quality and reliability of electric power. So that disturbances in the engine must be prevented as much as possible. There are many factors that cause trip machines, if not followed up or prevented, the production process at the plant can be disrupted and harm the company if something like this often happens. In this case the Caterpillar C15 Engine. Since PLN uses Biosolar B30, this engine is very protective, so there are often trips, especially at fuel pressure (Low Differential Fuel Pressure and fuel pressure) and since using biosolar fuel (B30), the condition of the fuel filter is also often dirty and quickly replaced.

The research study was conducted at the Laiwui Diesel Power Plant (PLTD) conducted when the engine was operating normally and using Bisolar Fuel (B30). Tests were carried out on the Caterpillar C15 machine. From the results of the analysis and the root of the problem, the engine often trips because of the low pressure on the fuel system, this is due to a dirty filter. From the results of the analysis, researchers made plans to customize the fuel system on the Caterpillar C15 engine at the Laiwui PLTD. The modification that was made was to add a Fuel Filter to the fuel system before entering the engine. After completion, a performance test is carried out for 1 week and the results are compared with the data before modifications are made.

As a result of the addition of a fuel filter to the Caterpillar c15 engine at the Laiwui Power Center, one of the factors caused by the engine's trip was due to low fuel filter pressure caused by dirty fuel filters. With the addition of a fuel filter in the main pipe installation, preventing fuel deposits from entering the engine so that the engine can operate safely. With the addition of this fuel filter, it can also maintain fuel pressure according to the standard needed by the engine. So that the engine can operate normally and optimally, and can increase the life of the fuel filter so that the replacement of the fuel filter for each machine can be carried out on time during Monthly Maintenance (P3)

Keywords : Catterpillar C15 Engine, Diesel Engine, biosolar (B30), Fuel Filter.