ABSTRAK

Alat berat merupakan alat yang didesain untuk membantu memudahkan pekerjaan manusia dalam sekala besar. Salah satu jenis alat berat yg sering di temui yaitu jenis *excavator* dengan kapasitas 20 ton tipe PC 200-8M0. Bahan bakar yang digunakan yaitu jenis bahan bakar solar B30 yang berarti kandungan solar 70% dan 30% biosolar atau minyak nabati. Masalah yang sering terjadi pada sistem bahan bakar excavator yaitu kerusakan pada *fuel filter* tidak sesuai dengan jadwal perawatan, yang mengakibatkan jadwal perawatan terganggu. Dengan adanya penambahan *preliminary fuel filter* diharapkan jadwal perawatan lebih sesuai dan proses filtrasi bekerja secara optimal. Metode yang digunakan untuk mengetahui penyebab kerusakan *fuel filter* yaitu metode Uji *cleanliness* ISO 4406 untuk mengetahui tingkat kebersihan bahan bakar berdasarkan ukuran partikel yg terkandung didalam bahan bakar. Hasil dari uji *cleanliness* menunjukkan ISO Code setelah proses filtrasi mendekati standard ISO Code yang ditentukan namun masih di atas dari standard mutu yang ditentukan. Dengan adanya penambahan preliminary fuel filter dan hasil *Uji Clenliness* menghasilkan kesimpulan bahwa akar masalah kerusakan filter disebabkan ukuran partikel yang terkandung di dalam bahan bakar tidak sesuai dengan standard mutu yang mengakibatkan kerusakan filter lebih cepat dan biaya perawatan lebih besar. Dengan adanya penambahan *preliminary fuel filter* jadwal perawatan lebih teratur dan biaya perawatan lebih kecil.

**Kata Kunci :** *Excavator*, *preliminary fuel filter*, uji *cleanliness*

*ABSTRACT*

*Heavy equipment is a tool designed to help facilitate human work on a large scale. One type of heavy equipment that is often encountered is the type of excavator with a capacity of 20 tons, PC type 200-8M0. The fuel used is the type of diesel fuel B30 which means that the diesel content is 70% and 30% biodiesel or vegetable oil. The problem that often occurs in the excavator fuel system is that the damage to the fuel filter is not in accordance with the maintenance schedule, which results in the maintenance schedule being disrupted. With the addition of a preliminary fuel filter, it is hoped that the maintenance schedule will be more appropriate and the filtration process will work optimally. The method used to determine the cause of damage to the fuel filter is the ISO 4406 cleanliness test method to determine the level of cleanliness of the fuel based on the size of the particles contained in the fuel. The results of the cleanliness test show that the ISO Code after the filtration process is close to the specified ISO Code standard but is still above the specified quality standard. With the addition of a preliminary fuel filter and the results of the Clenliness test, it can be concluded that the root of the problem of filter damage is due to the particle size contained in the fuel that is not in accordance with quality standards which results in faster filter damage and higher maintenance costs. With the addition of a preliminary fuel filter, the maintenance schedule is more regular and maintenance costs are lower.*

***Keywords:*** *Excavator, preliminary fuel filter, cleanliness test*