ABSTRAK

Alat angkat berperan penting dalam mekanisme transportasi suatu barang dari satu tempat tempat lain. Alat berat pada umumnya memiliki sistem hidrolik sebagai penunjang fungsi dari *steering system*. Pada sistem hidrolik terdapat *demand valve* sebagai mengatur penstabil aliran oli dari *steering pump* menuju ke *system steering* yang sesuai dengan *pressure signal* yang diberikan oleh *demand valve* agar *steering system* selalu konstan. Ditemukan adanya abnormal pada *pressure* yang dihaslikan *demand valve* yang menyebabkan *steering wheel* menjadi berat dan sulit manuver, dari pengambilan data yang diperoleh pada unit SHANTUI SL50WN-SL50L1NMN014494 bahwa *pressure* yang dihasilkan pada saat *engine low rpm* (714 RPM) adalah 2.6 bar dan pada saat *engine high rpm* (2147 RPM) adalah 6 Bar. *Pressure/*tekanan yang dihasilkan *demand valve* tidak mendapatkan nilai standar unit, oleh karena itu dilakukan pengencekan *demand valve* pada komponen *demand valve* yang dimana ditemukan adanya *defect* pada *spool valve* (berupa *scratch* pada *body spool* sehingga menyebabkan *pressure* dan *flow* oli hidrolik jadi tidak optimal. Maka dilakukan pergantian komponen *demand valve* dan menambahkan *filter screen/strainer* untuk mengembalikan performa unit agar berfungsi optimal dan mengurangi *chance* masuknya kotoran ke *demand valve*. Berikut hasil yang didapat dari hasil pergantian *demand valve*, *output pressure demand valve* sebesar 2.6 bar (minimum) dan 6 bar (maksimum) kemudian *pressure* yang dihasilkan *steering cylinder* yaitu 4.5 bar (minimum) dan 5 bar (maksimum).

Kata Kunci *: Alat Angkat, Demand Valve, Sistem Hidrolik, Steering System, Steering Wheel*

ANALYSIS OF DEMAND VALVE FAILURE AT HYDRAULIC STEERING SYSTEM PRESSURE IN SL50WN WHEEL LOADER UNIT

ABSTRACT

Lifting equipment plays an important role in the mechanism of transportation of a good from one place to another. Heavy equipment generally has a hydraulic system to support the function of the steering system. In the hydraulic system, there is a demand valve as a stabilizer for oil flow from the steering pump to the steering system in accordance with the pressure signal given by the demand valve so that the steering system is always constant. It was found that there was an abnormality in the pressure caused by the demand valve which caused the steering wheel to be heavy and difficult to maneuver, from the data collection obtained on the SHANTUI SL50WN-SL50L1NMN014494 unit that the pressure produced when the engine was low rpm (714 RPM) was 2.6 bar and when the engine was high rpm (2147 RPM) was 6 Bar. The pressure generated by the demand valve does not get a standard unit value, therefore a demand valve check is carried out on the demand valve component where a defect is found on the spool valve (in the form of a scratch on the body spool causing the pressure and flow of hydraulic oil to not be optimal. So replace the demand valve component and add a filter screen/strainer to restore the performance of the unit to function optimally and reduce the chance of dirt entering the demand valve. The following results are obtained from the replacement of the demand valve, the output pressure demand valve is 2.6 bar (minimum) and 6 bar (maximum) then the pressure generated by the steering cylinder is 4.5 bar (minimum) and 5 bar (maximum).

Key word : Lifting Equipment, Demand Valve, Hydraulic System, Steering System Steering Wheel