

## ABSRTAK

PT. Putra Nugraha Sentosa (PNS) merupakan perusahaan yang bergerak dibidang percetakan buku dan *packaging*. PT PNS memiliki 2 rantai produksi yang berfokus pada cetak offset *sheat* dan *roll*. Rantai cetak offset *sheat* memiliki permintaan yang stabil pada jenis produk kemasan dan sampul sehingga intensitas produksinya cukup padat. Pada rantai produksi cetak offset *sheat* memiliki 2 mesin cetak yang memproduksi produk cetak sampul buku dan kemasan. Berdasarkan observasi yang dilakukan bahwa mesin yang sering mengalami permasalahan dan mengganggu *production timing* yaitu mesin *Heidelberg CD 102*. Mesin cetak *Heidelberg CD 102* pada Tahun 2021 mengalami kegagalan selama 81,63 jam dan frekuensi kerusakan sebanyak 54 kali dengan sumbangsi sebesar 77% dari total *downtime* rantai offset *sheat* di tahun 2021. Meskipun penerapan perawatan preventif telah diterapkan oleh PT. Putra Nugraha Sentosa, namun fakta di lapangan belum maksimal. Penelitian ini diharapkan dapat meningkatkan keandalan mesin.

*Reliability Centered Maintenance* adalah metode yang digunakan pada penelitian ini. Metode perawatan ini menggunakan informasi yang berkaitan dengan keandalan suatu mesin/komponen untuk memperoleh strategi perawatan yang optimal dan mudah untuk dilaksanakan. Informasi tersebut diantaranya sistem kerja, batasan sistem, fungsi sistem dan kegagalan fungsional pada mesin. Berdasarkan hasil analisis kegagalan dan perhitungan *Risk Priority Number* menggunakan *Failure Mode and Effect Analysis* didapatkan komponen yang paling kritis.

Hasil analisis metode *Reliability Centered Maintenance* diperoleh komponen paling kritis adalah *SLT card modul*, *Solenoid valve*, Selang pneumatik, Pneumatik impresi dan *Bearing*. Setelah dilakukan perhitungan interval waktu perawatan komponen diperoleh interval perawatan *SLT card modul* 279,19 jam, *Solenoid valve* 250,38 jam, Selang pneumatik 235,03 jam, Pneumatik impresi 183,07 jam dan *Bearing* 622,57 jam. Setelah dilakukan *reliability* pada komponen tersebut maka terjadi peningkatan pada komponen *SLT card modul* sebesar 66,65%, *Solenoid valve* sebesar 98,91%, Selang pneumatik sebesar 89,09%, Pneumatik impresi sebesar 97,84% dan *Bearing* 74,04%.

**Kata Kunci:** *Preventive Maintenance, Reliability Centered Maintenance, Failure Mode Effect Analysis, Interval Waktu Perawatan, Reliability*

## **ABSTRACT**

*PT. Putra Nugraha Sentosa (PNS) is a company engaged in book printing and packaging. PT PNS has 2 production floors that focus on sheet and roll offset printing. The offset sheet printing floor has a stable demand for types of packaging and cover products so that the production intensity is quite dense. On the offset sheet printing production floor, there are 2 printing machines that produce book covers and packaging. Based on observations made that the machine that often experiences problems and interferes with production timing is the Heidelberg CD 102 machine. The Heidelberg CD 102 printing machine in 2021 failed for 81.63 hours and the frequency of damage was 54 times with a contribution of 77% of the total floor downtime, offset sheet in 2021. Although the implementation of preventive maintenance has been implemented by PT. Son of Nugraha Sentosa, but the facts on the ground are not optimal. This research is expected to increase the reliability of the machine.*

*Reliability Centered Maintenance is the method used in this research. This maintenance method uses information related to the reliability of a machine/component to obtain an optimal maintenance strategy that is easy to implement. The information includes work systems, system limitations, system functions and functional failures on the machine. Based on the results of the failure analysis and the calculation of the Risk Priority Number using the Failure Mode and Effects analysis, the most critical components were obtained.*

*The results of the analysis of the Reliability Centered Maintenance method obtained that the most critical components are the SLT card module, Solenoid valve, pneumatic hose, impression pneumatic and bearing. After calculating the component maintenance time interval, the SLT card module maintenance interval is 279.19 hours, Solenoid valve 250.38 hours, Pneumatic hose 235.03 hours, Pneumatic impression 183.07 hours and Bearing 622.57 hours. After reliability was carried out on these components, there was an increase in the SLT card module component by 66.65%, Solenoid valve by 98.91%, Pneumatic hose by 89.09%, Pneumatic impression by 97.84% and Bearing 74.04%.*

**Keywords:** *Preventive Maintenance, Reliability Centered Maintenance, Failure Mode Effect Analysis, Maintenance Time Interval, Reliability*