ABSTRAK

PT YPTI merupakan perusahaan yang bergerak dibidang industri manufaktur dengan mengandalkan mesin CNC sebagai mesin produksinya. Divisi *maintenance* PT YPTI masih menerapkan sistem *corrective maintenance* dan tidak memiliki persediaan *spare part* yang pasti. Berdasarkan data historis kerusakan mesin selama periode Januari 2018 – Desember 2019 mesin Hartford 3150 mengalami 34 kali kerusakan, mesin Hartford 3210 13 kali kerusakan dan Hartford 4210 20 kali kerusakan. Sering kali ditemukan kasus dimana terjadi kerusakan *part* mesin pada saat *shift* kedua pada malam hari namun tidak dapat diperbaiki saat itu juga dikarenakan Divisi *Maintenace* PT YPTI hanya bekerja pada *shift* pertama pada pagi hingga sore hari saja. Apabila kerusakan mesin tersebut membutuhkan penggantian *part*, maka akan langsung dilganti selama *spare part* yang dibutuhkan tersedia, akan tetapi jika tidak tersedia maka akan dilakukan pembelian yang menambah lamanya *downtime* mesin.

Penelitian ini bertujuan untuk menentukan stratgei pemeliharaan berdasarkan rata-rata waktu antar kerusakan mesin dengan pendekatan *Reliability Centered Maintenance* (RCM). Dari strategi pemeliharaan tersebut diperoleh interval waktu *preventive maintenance* mesin, perhitungan biaya pemeliharaan dan perencanaan persediaan *spare part*. Sehingga dapat mencegah terjadinya kerusakan pada *shift* kedua dan dapat mempersiapkan kebutuhan *spare part*nya agar meminimalisir terjadinya *downtime*.

Berdasarkan hasil pengolahan data interval waktu *preventive maintenance* untuk mesin Hartford 3150 selama 20 hari, Hartford 3210 selama 56 hari, dan Hartford 4210 selama 35 hari. Total biaya pemeliharaan untuk satu tahun, mesin Hartford 3150 senilai Rp. 61.466.925,00, Hartford 3210 senilai Rp. 42.526.191,00, Hartford 4210 senilai Rp. 35.288.601,00. Persediaan *spare part* dalam jangka waktu satu tahun untuk *part flexible coupling* sebanyak 24 pcs, *bearing* sebanyak 9 pcs, *oil seal* sebanyak 12 pcs, dan *air hose pneumatic* sepanjang 50 meter.

Kata kunci: Pemeliharaan, *preventive maintenance*, RCM, *downtime*, interval waktu penggantian

ABSTRACT

PT YPTI is a company engaged in the manufacturing industry by relying on CNC machines as production machines. The maintenance division still applies the corrective maintenance system and does not have a definite inventory of spare parts. Based on historical data of machine failures during the period January 2018 - December 2019, the Hartford 3150 machine suffered 34 damage, the Hartford 3210 engine was damaged 13 times and the Hartford 4210 malfunctioned 20 times. Oftentimes there are cases where there is damage to machine parts during the second shift at night but it cannot be repaired at that time because PT YPTI's Maintenance Division only works the first shift in the morning to evening only. If the machine failure requires a part replacement, it will be replaced immediately as long as the required spare part is available, but if it is not available, a purchase will be made which increases the length of machine downtime.

This study aims to determine the maintenance strategy based on the average time between machine failures using the Reliability Centered Maintenance (RCM) *approach. From this maintenance strategy, it is obtained the machine preventive maintenance time interval, the calculation of maintenance costs and spare part inventory planning. So that it can prevent damage to the second shift and can prepare the needs of its spare parts in order to minimize downtime.*

Based on the results of preventive maintenance time interval data processing for the Hartford 3150 machine for 20 days, Hartford 3210 for 56 days, and Hartford 4210 for 35 days. The total maintenance cost for one year, the Hartford 3150 machine is valued at Rp. 61,466,925.00, Hartford 3210 valued at Rp. 42,526,191.00, Hartford 4210 valued at Rp. 35,288,601.00. Supply of spare parts for a period of one year for flexible coupling parts of 24 pcs, 9 pcs of bearings, 12 pcs of oil seals, and 50 meters of air hose pneumatic.

Keywords**:** *maintenance, preventive maintenance, RCM, downtime, replacement time intervals*