ABSTRAK

PT Wangsa Jatra Lestari merupakan perusahaan yang bergerak di bidang percetakan kemasan. Permasalahan yang dihadapi perusahaan adalah tingginya frekuensi kerusakan mesin yang menyebabkan *downtime* sehingga menghambat kelancaran proses produksi. Pada data *downtime* periode Maret 2025 hingga Februari 2026, mesin Mitsubishi LS4 memiliki tingkat *downtime* tertinggi, yaitu sebanyak 64 kali kerusakan (177,95 jam).

Penelitian ini dilakukan untuk mengidentifikasi komponen kritis, menentukan interval *preventive maintenance* menggunakan metode *Reliability Centered Maintenance* II (RCM II), serta merancang *dashboard* penjadwalan *maintenance* dan biaya sebagai media pendukung pengambilan keputusan. Penelitian diawali dengan identifikasi fungsi, kegagalan fungsi, dan mode kegagalan setiap komponen, kemudian dilakukan analisis menggunakan *Failure Mode, Effects, and Criticality Analysis* (FMECA) untuk menentukan tingkat kekritisan komponen berdasarkan nilai *Risk Priority Number* (RPN). Analisis *Reliability Centered Maintenance* II (RCM II) dilakukan melalui penyusunan RCM II *Decision Worksheet* untuk menentukan jenis tindakan perawatan yang sesuai. Penentuan interval *preventive maintenance* dilakukan berdasarkan analisis *Time to Failure* (TTF), *Time to Repair* (TTR), distribusi probabilitas, *Goodness of Fit*, *Mean Time to Failure* (MTTF), dan fungsi keandalan.

Hasil penelitian menunjukkan bahwa terdapat 11 komponen kritis pada mesin Mitsubishi LS4, yaitu *Gripper, Valve Selenoid, Gripper Pad, Baut Clamp Plate, Potensio Jogger, Bearing, Gear Inkey, Kontaktor, Gear Motor Air, Roll* DQ, dan *Roll* Z. Berdasarkan analisis RCM II diperoleh dua jenis tindakan perawatan, yaitu *Scheduled Discard* dan *Scheduled On-Condition*. Implementasi hasil penelitian dalam bentuk interval penjadwalan dan *dashboard* penjadwalan *maintenance* dan biaya mampu memberikan informasi jadwal *preventive maintenance*, komponen yang akan dirawat, serta estimasi biaya *maintenance* secara terintegrasi. Hasil penelitian menunjukkan penurunan *downtime* dari 177,95 jam menjadi 66,28 jam (63%) dan penurunan biaya dari Rp226.446.400 menjadi Rp155.384.200 (31%).

Kata kunci: *Downtime*, Biaya, RCM, FMECA, Penjadwalan

ABSTRACT

PT Wangsa Jatra Lestari is a company engaged in the packaging printing industry. The company faces a high frequency of machine failures, resulting in downtime that disrupts the production process. Based on downtime data from March 2025 to February 2026, the Mitsubishi LS4 printing machine recorded the highest downtime, with 64 failures totaling 177,95 hours.

This study aims to identify critical components, determine preventive maintenance intervals using the Reliability Centered Maintenance II (RCM II) method, and develop a maintenance scheduling and cost dashboard as a decision-support tool. The research began with the identification of component functions, functional failures, and failure modes, followed by Failure Mode, Effects, and Criticality Analysis (FMECA) to determine component criticality based on the Risk Priority Number (RPN). The RCM II Decision Worksheet was then used to determine the appropriate maintenance tasks. Preventive maintenance intervals were established based on Time to Failure (TTF), Time to Repair (TTR), probability distribution analysis, Goodness of Fit, Mean Time to Failure (MTTF), and the reliability function.

The results identified 11 critical components of the Mitsubishi LS4 printing machine. Based on the RCM II analysis, two maintenance tasks were recommended, namely Scheduled Discard and Scheduled On-Condition. The proposed maintenance intervals and dashboard provide integrated information on preventive maintenance schedules, component maintenance planning, and maintenance cost estimation. The proposed maintenance strategy reduced downtime from 177,95 hours to 66,28 hours (63%) and maintenance costs from IDR 226.446.400 to IDR 155.384.200 (31%).

Keywords: *Downtime, Cost, RCM, FMECA, Scheduling.*