

## ABSTRAK

**Latar Belakang:** Proses pengecatan karoseri merupakan salah satu tahapan penting dalam industri manufaktur karoseri karena sangat menentukan kualitas akhir produk karoseri CV. GARUDA JAYA Sumatera Utara menghadapi permasalahan berupa ketidaksesuaian kualitas hasil pengecatan serta rendahnya efektivitas mesin cat yang berdampak pada meningkatnya produk cacat dan waktu henti mesin. **Tujuan:** untuk menganalisis pengendalian kualitas pada proses pengecatan karoseri serta meningkatkan efektivitas mesin cat dengan menggunakan metode **Statistical Process Control (SPC)** dan **Total Productive Maintenance (TPM)**. Metode **SPC** digunakan untuk mengidentifikasi dan mengendalikan variasi proses melalui peta kendali, sehingga dapat diketahui apakah proses pengecatan berada dalam kondisi terkendali secara statistik. Sementara itu, metode **TPM** diterapkan untuk menganalisis dan meningkatkan efektivitas mesin cat melalui perhitungan Overall Equipment Effectiveness (OEE) yang mencakup aspek ketersediaan, kinerja, dan kualitas. Data penelitian diperoleh melalui observasi langsung, wawancara, dan dokumentasi proses produksi. **Hasil:** penelitian menunjukkan bahwa terdapat beberapa penyebab utama terjadinya cacat pengecatan yang berasal dari faktor mesin, metode kerja, dan perawatan yang belum optimal. **Kesimpulan:** **SPC** mampu membantu perusahaan dalam memantau dan mengendalikan kualitas proses secara berkelanjutan, sedangkan penerapan **TPM** dapat meningkatkan nilai OEE mesin cat karoseri di CV. GARUDA JAYA Sumatera Utara.

**Kata kunci:** Pengendalian kualitas, Statistical Process Control, Total Productive Maintenance, Pengecatan karoseri, Overall Equipment Effectiveness

## ***ABSTRACT***

***Introduction:*** The painting process is a crucial stage in the coachbuilding industry as it significantly determines the final quality of the product. CV. GARUDA JAYA Sumatera Utara faces several problems related to painting quality inconsistencies and low effectiveness of painting machines, which result in an increased number of defective products and machine downtime. This study aims to analyze quality control in the coach painting process and to improve the effectiveness of painting machines by applying **Statistical Process Control (SPC)** and **Total Productive Maintenance (TPM)** methods. The ***Method:*** is used to identify and control process variations through control charts to determine whether the painting process is statistically under control. Meanwhile, the ***TPM*** method is applied to evaluate and improve machine effectiveness by calculating Overall Equipment Effectiveness (OEE), which consists of availability, performance, and quality factors. Research data were collected through direct observation, interviews, and documentation of the production process. ***Results:*** indicate that several main causes of painting defects originate from machine conditions, work methods, and inadequate maintenance practices. The implementation of ***SPC*** assists the company in continuously monitoring and controlling process quality, while the application of ***TPM*** improves the OEE value of the coach painting machines. ***Conclusion:*** the integration of ***SPC*** and ***TPM*** is proven to be effective in enhancing quality control and increasing the effectiveness of painting machines at CV. GARUDA JAYA Sumatera Utara.

**Keywords:** Quality Control, Statistical Process Control, Total Productive Maintenance, Coach Painting, Overall Equipment Effectiveness