

**IMPLEMENTASI PEMELIHARAAN ESKALATOR MENGGUNAKAN
METODE *RELIABILITY CENTERED MAINTENANCE* (RCM) (STUDI
KASUS UJUNG BERUNG TOWN SQUARE(UBERTOS))**

Ditulis Oleh:

Putri Wira Puspitasari

Pembimbing:

Deni Hamdani, S.E., M.Si

ABSTRAK

Eskalator di Ujung Berung *Town Square* (UBERTOS) merupakan fasilitas utama yang mendukung mobilitas pengunjung. Namun, eskalator sering mengalami gangguan meskipun telah dilakukan pemeliharaan rutin, sehingga menyebabkan *downtime* tinggi dan menurunnya efisiensi operasional. Penelitian ini bertujuan untuk menerapkan metode *Reliability Centered Maintenance* (RCM) guna meningkatkan keandalan eskalator melalui strategi pemeliharaan yang optimal. Metode yang digunakan adalah deskriptif kuantitatif, dengan pendekatan *Failure Mode and Effects Analysis* (FMEA) untuk mengidentifikasi potensi kegagalan serta RCM *Decision Worksheet* untuk menentukan tindakan pemeliharaan yang tepat. Analisis difokuskan pada Sistem Rem (*Brake System*) dan Rantai Penggerak (*Drive Chain*) sebagai komponen dengan tingkat kegagalan tertinggi. Sebelum penerapan RCM, Sistem Rem mengalami 11 kegagalan dalam enam bulan, dengan *downtime* 38,5 jam, sedangkan Rantai Penggerak mengalami 8 kegagalan dengan *downtime* 28 jam. Setelah penerapan RCM, frekuensi kegagalan Sistem Rem menurun menjadi 4 kejadian, *downtime* berkurang 89,9%, sedangkan pada Rantai Penggerak, kegagalan menurun menjadi 4 kejadian, dan *downtime* berkurang dengan sangat signifikan yakni 92,9%. Secara keseluruhan, metode RCM berhasil menurunkan total *downtime* dan meningkatkan keandalan sistem, serta mengoptimalkan efisiensi pemeliharaan di UBERTOS.

Kata Kunci: Eskalator, *Reliability Centered Maintenance* (RCM), *Failure Mode and Effects Analysis* (FMEA), pemeliharaan, *downtime*.

**IMPLEMENTATION OF ESCALATOR MAINTENANCE
USING THE RELIABILITY CENTERED
MAINTENANCE (RCM) METHOD (CASE STUDY AT
UJUNG BERUNG TOWN SQUARE (UBERTOS))**

Written By:

Putri Wira Puspitasari

Supervide By:

Deni Hamdani, S.E., M.Si

ABSTRACT

The escalator at Ujung Berung Town Square (UBERTOS) is a key facility that supports visitor mobility. However, the escalator frequently experiences malfunctions despite routine maintenance, leading to high downtime and decreased operational efficiency. This research aims to implement Reliability Centered Maintenance (RCM) methods to enhance the escalator's reliability through optimal maintenance strategies. The method used is quantitative descriptive, with a Failure Mode and Effects Analysis (FMEA) approach to identify potential failures and an RCM Decision Worksheet to determine appropriate maintenance actions. The analysis focuses on the Brake System and Drive Chain as components with the highest failure rates. Before the implementation of RCM, the Brake System experienced 11 failures over six months, resulting in a downtime of 38.5 hours, while the Drive Chain had 8 failures with a downtime of 28 hours. After applying RCM, the failure frequency of the Brake System decreased to 4 incidents, and downtime was reduced by 89.9%. Similarly, the Drive Chain's failures were reduced to 4 incidents, with downtime significantly decreased by 92.9%. Overall, the RCM method successfully reduced total downtime, improved system reliability, and optimized maintenance efficiency at UBERTOS..

Keywords: Escalator, Reliability Centered Maintenance (RCM), Failure Mode and Effects Analysis (FMEA), maintenance, downtime.