ABSTRAK

Judul: *Evaluasi Tqi (Track Quality Index) Jalur Kereta Api Daerah Operasi 2 Bandung (Studi Kasus: Upt Resor Jalan Rel 2.8 Bandung),* ***Nama:*** *Lerwixs Sunjaya Debataraja,* ***Nim:*** *41118110064,* ***Dosen Pembimbing:*** Ir. Aditia Kesuma Negara D., S.T., M.Sc., IPM.AER, 2020.

Kereta api telah menjadi salah satu alternatif moda transportasi darat yang aman, nyaman dan ekonomis. Dalam pengoperasiannya, hal tersebut tergantung kepada kesempurnaan kondisi sarana dan prasarananya. Jalan rel sebagai prasarana transportasi memerlukan sistem perawatan yang baik demi kelancaraan kegiatan operasional. Perawatan geometri jalan rel yang direpresentasikan oleh nilai Indeks Kualitas Jalan Rel - Track Quality Index (TQI). Nilai TQI tersebut menggambarkan kualitas geometri jalan rel yang terdiri dari parameter-parameter antara lain: Pertinggian (cant), Angkatan (levelling), Listringan (lining), Lebar sepur (gauge).Untuk mempertahankan kondisi kemampuan pelayanan jalan kereta api maka perlu dilaksanakan Perawatan dan perbaikan prasarana perkeretaapian agar layak operasi sehingga dapat memberikan keselamatan, kenyamanan, keamanan dan ketepatan waktu perjalanan kereta api.

Data yang diperlukan dalam proses evaluasi perawatan jalan kereta api adalah Data Primer yaitu material jalan rel. Serta data sekunder yaitu jadwal perjalan Kereta Api dan data Track Quality Index (TQI) dari kereta ukur. Setelah data yang diperlukan sudah didapat, pengolahan data menggunakan Peraturan Kementerian Perhubungan dan Peraturan Dinas PT. Kereta Api Indonesia (Persero) No.10 Sehingga pengolahan data dapat maksimal dan sesuai peraturan yang ada di Indonesia.

Evaluasi komponen rel terpasang pada jalan rel kereta api dilakukan dengan menghitung daya angkut lintas jalan rel untuk satu tahun, kemudian membandingkan komponen jalan rel terpasang berdasarkan standar perencanaan jalan rel sesuai dengan klasifikasi kelas jalan rel. Dimana Passing Tonnage Jalan Kereta Api Resor 2.8 Bandung adalah sebesar 8.019.673,200 Ton/Tahun. Berdasarkan Peraturan Dinas No.10 yang dikeluarkan oleh PT. Kereta Api Indonesia, untuk passing tonnage tersebut masuk ke dalam klasifikasi jalan KA kelas III. Analisis Rel berdasarkan Tegangan terhadap Tegangan ijin Kelas Jalan = 956,88 kg/cm^2 < 1663 kg/cm^2 (memenuhi syarat). Berdasarkan analisa nilai modulus elastisitas bantalan berdasarkan nilai Fcu, Analisis Tegangan tahap Pratekan Awal masih memenuhi syarat dengan tegangan ijin tekan 200 kg/cm^2, Tegangan tahap Pratekan Efektif Bantalan masih memenuhi syarat dengan tegangan ijin tekan 200 kg/cm^2.

Pemeriksaan kualitas jalan rel dapat dilihat dari hasil kereta ukur yaitu Nilai Track Quality Index (TQI). Dimana nilai Track Quality Index (TQI) berupa panjang track pada pengukuran kedua pada jalur hulu di kategori I dan II mengalami peningkatan dibandingkan dengan pengukuran pertama dengan panjang track 1.895 m dari panjang track 11.162 m menjadi 13.057 m. Dan pada jalur hilir di kategori I dan II mengalami pengingkatan dengan Panjang 2.406 m dari Panjang track 10.710 m menjadi 13.116 m. Dan untuk perawatan selanjutnya difokuskan pada kategori III dan IV panjang track pada kategori III dengan panjang 2721 m (untuk hulu 1524 m dan hilir 1197 m) dan kategori IV dengan panjang 366 m (untuk hulu 67 m dan hilir 299 m).

Kata kunci: Metode perawatan, grafik perjalan kereta, Passing Tonnage, kelas jalan rel, keselamatan, Track Quality Index (TQI).

ABSTRACT

***Tittle**: The evaluation of TQI (Track Quality Index) Car Track Operation Region 2 Bandung (Case Study: Technical Executor Unit Resort Jalan Rel 2.8 Bandung), **Name**: Lerwixs Sunjaya Debataraja, **Register Number**: 41118110064, **Adviser**: Ir. Aditia Kesuma Negara D., S.T., M.Sc., IPM.AER, 2020.*

The train has been one of alternative of land transportation mode which is comfort and economical. In implementing, those are depending on the perfection of infrastructure condition. Jalan rel is as transportation infrastructure needs good maintenance system for the sake of the smoothness of operational activities. The geometric maintenance of track which is represented by Quality Index of Jalan Rel – Track Quality Index (TQI). Those TQI score describe geometric quality of Jalan Rel which contains of parameters, they are: Cant, Levelling, Lining,and Gauge. For maintaining the condition of train services, it is important to implement the Maintenance and Improvement ofrailroad infrastructure to be feasible in operating furthermore it could serve the safety, comfortness, safety and timeliness of the train expedition.

The data needed in maintenance evaluation process Jalan Kereta Api is Primer Data which is as the Jalan Rel material. The Secunder Data is the schedule of the train and Track Quality Index (TQI) of the measuring train. After the data have been obtained,the data processing use the regulations of Ministry of Transportation and official regulations of PT. Kereta Api Indonesia (Persero) No 10. Therefore, the data processing could be maximum and in accordance with the existing regulations in Indonesia.

The evaluation of rail component which is discharged on Jalan Rel Kereta Api was done by calculating the cross-carrying capacity for a year, then comparing the discharged component of Jalan Rel based on planning standard on Jalan Rel which is accordance with class classification. Where the passing tonnage on Jalan Kereta Api resort 2.8 Bandung is 8.019.673,200 Ton/year. Based on official regulations no. 10 which is issued by PT. Kereta Api Indonesia, for passing tonnage is included in the classs III railroad. Rail analysis is based on the voltage to the road class permit voltage = 956,88 kg/cm^2 < 1663 kg/cm^2 (requirements fulfilled). Based on the analysis of the value of tie's elasticity modulus which is based on Fcu value, the voltage analysis on the Primary Practice is still fulfil the requirements of compressive permit voltage is as 200 kg/cm^2, the voltage of tie's effective primary practice is still fulfil the requirements by the compressive permit voltage is as 200 kg/cm^2.

The investigation of quality on Jalan Rel can be seen by the result of measuring cart that is the value of Track Quality Index (TQI). The value of Track Quality Index is the length of the second upstream track measurement in catergory I and II was more increased than the first measurement with the length of the track is 1.895 m of 11.162 m total track and become 13.057 m. On the downstream track in category I and II was increased with the length of the track is 2.406 m of 10.710 m total track become 13.116 m. Furthermore for the next measurement will be focused on category III and IV. The length of track on category III is 2721 m length (for upstream is 1524 m and for downstream 1197 m) and category IV is 366 m length (for upstream is 67 m and for the downstream is 299 m).

Keyword : Maintenance Method, The Chart of Car Expedition, Passing Tonnage, Class of Jalan Rel, The Safety of Track Quality Index (TQI).