

PENJADWALAN PERAWATAN DENGAN MENGGUNAKAN RELIABILITY CENTERED MAINTENANCE DAN RELIABILITY BLOCK DIAGRAM PADA MESIN QINCUAN 1 DAN QINCUAN 2

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ABSTRAK

PT Java Taiko Drum Industries sebagai perusahaan bidang industri manufaktur pembuatan drum plastik. Mesin Qincuan 1 dan Qincuan 2 adalah objek yang diteliti karena memiliki kerusakan yang terjadi pada perusahaan. Gangguan pada mesin *qincuan* 1 dan *qincuan* 2 terjadi secara fluktuatif, dimana gangguan mesin *qincuan* 1 paling tinggi terjadi pada bulan Januari 2018 dengan breakdown 4,42%, sedangkan gangguan paling rendah terjadi pada bulan Februari 2018 dengan breakdown 2,41%. Sedangkan mesin *qincuan* 2 paling tinggi terjadi pada bulan Desember 2018 dengan breakdown 20,34%, sedangkan gangguan paling rendah terjadi pada bulan Februari 2018 dengan breakdown 6,24%. Tujuan penelitian ini menentukan nilai reliability mesin *qincuan* 1 dan *qincuan* 2, menentukan interval waktu perawatan guna meningkatkan kehandalan 80%, menentukan faktor kegagalan mesin dengan metode FMEA, dan menentukan kebijakan perawatan mesin dengan metode RCM. Hasil penelitian ini menunjukkan interval waktu perawatan pada mesin *qincuan* 1, komponen blowpin usulan perawatan 15 hari, komponen heater usulan perawatan 18 hari, komponen mould usulan perawatan 22 hari, komponen motor extrude usulan perawatan 19 hari, komponen hidrolik usulan perawatan 21 hari, dan komponen gear box sebesar usulan perawatan 8 hari. Sedangkan pada mesin *qincuan* 2 menunjukkan interval waktu perawatan, komponen blowpin usulan perawatan 15 hari, komponen heater usulan perawatan 22 hari, komponen mould usulan perawatan 18 hari, komponen motor extrude usulan perawatan 10 hari, komponen hidrolik usulan perawatan 19 hari, dan komponen gear box usulan perawatan 12 hari. Representasi RBD mesin *qincuan* 1 dan *qincuan* 2 disusun berdasarkan struktur fungsi komponen gear box dan motor extrude memiliki struktur fungsi seri. Komponen heater, blowpin, moulding, dan hidrolik memiliki struktur fungsi paralel. Nilai keandalan mesin *qincuan* 1 yaitu 0,9267 dan nilai keandalan mesin *qincuan* 2 yaitu 0,9407.

Kata kunci: *Reliability Centered Maintenance, Failure Modes and Effects Analysis, Reliability Block Diagram*

ABSTRACT

PT Java Taiko Drum Industries as a manufacturing industry company manufacturing plastic drums. The Qincuan 1 and Qincuan 2 machines are the objects studied because of the vulnerability that occurs in the company. Disturbances in qincuan 1 and qincuan engines occur fluctuatively, where the engine interference highest qincuan 1 occurs in January 2018 with a breakdown of 4.42%, while the lowest disturbance occurs in February 2018 with a breakdown of 2.41%. While the engine highest qincuan 2 occurs in December 2018 with a breakdown of 20.34%, while the lowest disturbance occurs in February 2018 with a breakdown of 6.24%. The purpose of this study is to determine the reliability value of qincuan 1 and qincuan 2 engines, determine the maintenance time interval to increase 80% reliability, determine the engine failure factor with the RBD method, and determine engine maintenance policy using the RCM method. The results of this study indicate the maintenance time interval on qincuan 1 machine, blowpin component with the proposed 15-day treatment, heater component with the proposed 18-day treatment. mold components with proposed 22-day maintenance, extrude motor components with proposed 19-day maintenance, hydraulic components with 21-day maintenance proposal, and gear box components as big as the proposed 8-day maintenance. Whereas the qincuan 2 machine shows the maintenance time interval, blowpin component with 15 days maintenance proposal, heater component with 22 days maintenance proposal. mold components with proposed 18-day maintenance, extrude motor components with proposed 10-day maintenance, hydraulic components with proposed 19-day maintenance, and gear box components with 12-day maintenance proposal. Representation of the Qincuan 1 and Qincuan 2 RBD engines is arranged based on the function structure of the gear box and extrude motors having a series function structure. The heater, blowpin, molding and hydraulic components have a parallel function structure. The reliability value of qincuan engine 1 is 0.9267 and the reliability value of qincuan engine 2 is 0.9407.

Keywords: *Reliability Centered Maintenance, Failure Modes and Effects Analysis, Reliability Block Diagram*

