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Identifikasi dan perbaikan masalah kopling terbakar pada sepeda motor tipe manual kopling dengan menggunakan metode six sigma = Problem identification and corrective action on burned clutch of manual clutch type motorcycle using six sigma method

Arief Rachman Hakim, author

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Abstrak

Skripsi ini bertujuan untuk mendapatkan solusi dan alternatif perbaikan masalah keluhan konsumen kopling terbakar yang terjadi pada sepeda motor tipe manual kopling yang berdampak pada akselerasi mesin menjadi kurang, susah melakukan perpindahan gigi, dan suara mesin berisik. Metode yang digunakan digunakan adalah Six Sigma yang terdiri dari tahapan Define, Measure, Analyze, Improve, Control (DMAIC). Aktivitas yang dilakukan pada tahap define adalah identifikasi masalah, menetukan Critical To Quality (CTQ), Logic Tree Diagram, SIPOC diagram.

Tahap measure melakukan pemetaan proses, pengukuran terhadap kemampuan proses (Cp). Tahap analyze melakukan analisa terhadap kemungkinankemungkinan yang menyebabkan masalah dengan diagram tulang ikan (sebabakibat), Failure Tree Analysis (FTA) dan Failure Mode Effect and Analysis (FMEA). Tahap improve melakukan perbaikan dari hasil-hasil analisa penyebab masalah. Tahap control melakukan monitoring terhadap perbaikan-perbaikan yang telah dilakukan, dengan menggunakan Statistical Process Control (SPC).

Dari tahapan perbaikan diatas didapatkan faktor yang mempengaruhi terjadinya kopling terbakar adalah working load spring clutch lemah, jarak pengarah rod clutch lifter pada Cover R Crank Case menyimpang dan jarak dudukan Lever Comp, Clutch pada Cover R Crank Case menyimpang. Berdasarkan tahap perbaikan yang dilakukan, metode six sigma sangat efektif dalam menyelesaikan masalah keluhan konsumen diatas ini diidentifikasikan dengan naiknya nilai indeks kemampuan proses (Cp), menurunnya angka kegagalan proses dalam Part Per Million (PPM) dan naiknya nilai sigma level.

.....The purpose of this final project is to get the solution and the alternative corrective actions on market quality claim's burned clutch which occurs to the manual clutch type motorcycle. It has negative effects on engine acceleration decline, difficulty in changing gear position, and higher level of engine noise. The method used in analyzing and solving the problem is Six Sigma, which includes the phases of Define, Measure, Analyze, Improve, Control (DMAIC). The activities on Define phase are problem identification, Critical to Quality decision making, Logic Tree Diagram and SIPOC Diagram formulation.

The next step is Measure phase, which involves the activities of process mapping and Capability Process Index (Cp) measurement. The third step is Analyze phase. The activities done on this step are potential problem analysis using Fishbone diagram (cause and effect diagram), Failure Tree Analysis (FTA) and Failure Mode Effect and Analysis (FMEA). The phase is followed by Improve phase, including the activities of corrective action execution on the basis of potential problem analysis done on prior step. The final step is Activity Control phase; that is performing the monitoring action to the improvement outcome, using Statistical Process Control (SPC).

The conclusion obtained from doing those former activities is that the factors causing the burned clutch problem are as follows (1) the lack of spring clutch's working load, (2) the inappropriate distance between

rod clutch lifter's hole's position to the surface of Cover R Crank Case, and (3) the inappropriate distance between Bracket Lever Comp, Clutch position to the surface of Cover R Crank Case. Due to the completion of problem identification and corrective action, it can be concluded that six sigma method is very effective on problem solving, especially on the case of market quality claim's burned clutch. It is indicated by the increase of capability index value (Cp), the decrease of defect process index value in parts per million (PPM) and the increase of sigma level value.