



## **ABSTRACT**

*Engine Trainer by Toyota Kijang 3K is one of the trainers which assist the learning process in the automotive laboratory. Toyota Kijang 3K engine has found a several breakdown such as an unstable engine and occur the sounds that was rough when the engine worked. To overcome these problems, done by reconditioning on Toyota Kijang 3K engine.*

*The reconditioning process is an improvement activity carried out on that machine. In the reconditioning process, there are four stages of the process that was done the identify of the damage, the preparation of tools, overhaul process, and testing process. The overhaul process includes dismantling, checking, measuring, replacing, repairing, assembling, and adjusting. In the engine reconditioning process, only repaired the main components of the engine that is the stand, the mechanism of the crank, and cylinder blocks.*

*According to the results of the test, the engine which before did not work on the normal condition, after doing the recondition, the engine can operated normally. That matter can be proven by the result of the compression pressure test which corresponding with the standart of the Toyota Kijang 3K in between 9 kg/cm<sup>2</sup> until 11 kg/cm<sup>2</sup> with the differences of the pressure with each of the cylinder less than 1,0 kg/cm<sup>2</sup> and when the engine operated there is no rough sounds that occur. The causes of the unstable engine is the losses of the compression pressure on the one of the cylinder and the causes of the engine that occur the rough sounds due to the wear on the component of the crank mecanism.*

*Keywords : Engine recondition, Engine overhaul, Crank mechanism*



## INTISARI

*Engine Trainer* Toyota Kijang 3K merupakan salah satu trainer yang membantu proses pembelajaran di laboratorium otomotif. Pada mesin Kijang 3K, ditemukan beberapa kerusakan antara lain kerja mesin yang tidak stabil timbul suara kasar saat mesin bekerja. Untuk menangani kedua permasalahan diatas, dilakukan rekondisi pada mesin Kijang 3K.

Proses rekondisi merupakan kegiatan perbaikan yang dilakukan pada mesin tersebut. Pada proses rekondisi, dilakukan empat tahapan proses yaitu identifikasi kerusakan, persiapan alat, proses *overhaul*, dan proses pengujian. Proses *overhaul* meliputi pembongkaran, pemeriksaan, pengukuran, penggantian, perbaikan, perakitan, dan penyetulan. Pada proses rekondisi mesin, hanya dilakukan perbaikan pada komponen utama mesin yaitu katup dan dudukannya, mekanisme engkol, dan blok silinder.

Berdasarkan hasil pengujian, mesin yang sebelumnya tidak bekerja dengan normal setelah dilakukan rekondisi, mesin dapat kembali beroperasi dengan normal. Hal tersebut dapat dibuktikan dengan hasil pengujian tekanan kompresi yang sesuai standar Toyota Kijang 3K yaitu antara 9 kg/cm<sup>2</sup> sampai 11 kg/cm<sup>2</sup> dengan perbedaan tekanan masing-masing silindernya kurang dari 1,0 kg/cm<sup>2</sup> dan ketika mesin beroperasi tidak timbul suara kasar. Penyebab mesin tidak stabil adalah hilangnya tekanan kompresi pada salah satu silinder dan penyebab mesin timbul suara kasar karena ada keausan pada komponen mekanisme engkol.