

ABSTRAK

M Hadiatma : *Desain dan Uji Kinerja dongkrak Ulir Elektrik Daya angkat 1 Ton*. Tugas Akhir. Fakultas Teknik Universitas Negeri Medan. 2015

Dongkrak ulir mekanis merupakan suatu alat angkat yang digunakan oleh pengemudi mobil saat terjadi kerusakan, terutama pada saat roda kendaraan bocor atau kempes. Dongkrak ulir mekanis menggunakan mekanisme drat seperti baut untuk meninggikan titik penampang dalam proses pendongkrakkannya. Karena bentuk dan desainnya, maka tidak semua orang dapat dengan mudah menggunakan dongkrak ini terutama kaum wanita. Sehingga dilakukan pemodifikasian dongkrak ulir mekanis menjadi dongkrak ulir elektrik.

Pemodifikasian dongkrak ini dilakukan dengan cara menambahkan *gearbox* dan motor dc serta dudukannya kemudian menggunakan Saklar. Dalam perencanaan ini direncanakan daya penggerak menggunakan motor listrik DC putaran 150 rpm, daya 165 watt, dan torsi 10,5 N.m. dan perbandingan roda gigi 1: 9,714

Prinsip kerja dongkrak ulir elektrik adalah sumber tenaga berasal dari baterai mobil itu sendiri, kemudian dihubungkan dengan sakelar lalu putaran dari motor dc direduksi oleh *gearbox*/Roda gigi dan diteruskan ke batang ulir pada dongkrak, Dan dalam perencanaan ini hanya mampu mengangkat beban seberat 1 Ton.

Kata kunci: dongkrak, ulir, mekanis, *gearbox*, motor dc, dan elektrik

ABSTRACT

M Hadiatma: *Design and Test Performance screw jack 1 Ton Electric lift*.
Final Project. Faculty of Engineering, University of Medan. 2015

Mechanical screw jack is a lifting equipment used by the driver when there is damage, especially when the vehicle is leaking or deflated wheel. mechanical screw jack using mechanism such as threaded bolts to elevate the cross section point in the process. Because of the shape and design, it is not everyone can easily use this jack especially women. So done modifying the mechanical screw jack into electric screw jack.

Jack modification is done by adding a dc motor and the gearbox and then use the switch holder. In planning the driving force is planned using a DC electric motor rotation at 150 rpm, 165 watts power, and torque of 10.5 Nm and the gear ratio of 1: 9.714.

The working principle of an electric screw jack is the source of energy comes from the car battery itself, then connected to the switch and rotation of the dc motor is reduced by the gearbox / gears and passed on to the threaded rod on the jack, and in this plan is only capable of carrying over 1 Ton.

Keywords: jack, screw, mechanical, gearbox, dc motors, and electrical



ABSTRACT

Ardiansyah Fitra: *Elektrikal design screw jack lift 1 Ton*. Final Project. Faculty of Engineering, University of Medan. 2015

Mechanical screw jack is a lifting equipment used by the driver when there is damage, especially when the vehicle is leaking or deflated wheel. mechanical screw jack using mechanisms such as threaded bolts to elevate the cross section point in the process pendongkrakkannya. Because of the shape and design, it is not everyone can easily use this jack especially women. So done modifying the mechanical screw jack into electric screw jack.

Jack modification is done by adding a dc motor and the gearbox and then use the switch holder. In planning the driving force is planned using a DC electric motor rotation at 150 rpm and torque of 10.5 Nm and the gear ratio of 1: 9.714

The working principle of an electric screw jack is the rotation of the dc motor is reduced by the gearbox / gears and passed on to the threaded rod on the jack, while the power source coming from the car battery itself. And in this plan is only capable of carrying over 1 Ton.

Keywords: jack, screw, mechanical, gearbox, dc motors, and electrical