

## ***ABSTRACT***

*Electric motors are electrical machines that are widely used in production companies both small and large scale. Maintenance and repair of electric motors is important for the production process can run continuously and smoothly. The most electrical motor damage caused by winding insulation damage. The damage occurs due to several factors such as thermal stresses, mechanical stresses and environmental stresses.*

*This final project is a case study of electric motor type synchronous motor with 2500 HP output power, 4000 V voltage and 60 Hz frequency burned on the stator. This is caused by the decrease of insulation quality from winding on synchronous motor causing short circuit between phase and body motor. Step improvement on the synchronous motor is by way of stator rewinding.*

*Once the synchronous motor stator has been completed the next stage is the final test. This stage includes several measurements, namely core loss test, insulation resistance test, polarization index (PI) test, resistance test, surge comparison test, high potential test and check pole stator. The final measurement result of the synchronous motor stator 2500 HP stamp is good and meets the standard of Electrical Apparatus Service Association (EASA) so that it can be continued next step of assembly.*

*Keywords: synchronous motor, winding, rewinding, final test, Electrical Apparatus Service Association (EASA)*



## INTISARI

Motor listrik merupakan mesin – mesin listrik yang banyak digunakan dalam perusahaan produksi baik skala kecil maupun besar. Perawatan dan perbaikannya motor listrik merupakan hal penting agar proses produksi dapat berjalan kontinyu dan lancar. Kerusakan motor listrik terbanyak disebabkan oleh kerusakan isolasi *winding*. Kerusakan tersebut terjadi karena beberapa faktor seperti *thermal stresses*, *mechanical stresses* dan *environmental stresses*.

Proyek akhir ini berupa studi kasus tentang motor listrik jenis motor sinkron dengan daya output 2500 HP, tegangan 4000 V dan frekuensi 60 Hz yang terbakar pada bagian statornya. Hal tersebut disebabkan oleh menurunnya kualitas isolasi dari *winding* pada motor sinkron sehingga menyebabkan terjadi hubung singkat antara fasa dengan *body* motor. Langkah perbaikan pada motor sinkron tersebut adalah dengan cara *rewinding* stator.

Setelah stator motor sinkron selesai diperbaiki tahap selanjutnya adalah *final test*. Tahap tersebut meliputi beberapa pengukuran yaitu *core loss test*, *insulation resistance test*, *polarization Index (PI) test*, *resistance test*, *surge comparison test*, *high potensial test* dan cek *pole* stator. Hasil pengukuran *final test* stator motor sinkron 2500 HP tersebut sudah baik dan memenuhi standar *Electrical Apparatus Service Association (EASA)* sehingga dapat dilanjutkan ketahap berikutnya yaitu perakitan.

Kata kunci: motor sinkron, *winding*, *rewinding*, *final test*, *Electrical Apparatus Service Association (EASA)*