

ABSTRAK

Nama : Muhammad Ihsan Hidayatullah
NPM : 062230200287
Jurusan : Teknik Mesin
Program Studi : D–III Teknik Mesin
Judul Laporan Akhir : Rekondisi Kompresor *Reciprocating* Tiga Silinder di Gedung *Maintenance and Repair* Teknik Mesin Politeknik Negeri Sriwijaya (Proses Perawatan)

(2025: xiii + 40 Halaman, 25 Gambar, 5 Tabel + 3 Lampiran)

Laporan ini membahas secara menyeluruh proses perawatan yang direncanakan setelah selesainya tahap rekondisi pada kompresor angin tipe reciprocating dengan spesifikasi kepala kompresor 7.5 HP dan motor listrik 7.5 HP. Di lingkungan pendidikan vokasi seperti Politeknik Negeri Sriwijaya Palembang, keberadaan kompresor memiliki peran yang sangat vital dalam menunjang kelancaran kegiatan praktikum dan pelatihan mahasiswa, khususnya di Jurusan Teknik Mesin yang membutuhkan suplai udara bertekanan secara kontinu. Rekondisi dilakukan sebagai upaya pemulihan fungsi dan peningkatan kinerja kompresor yang sebelumnya tidak mampu memenuhi kebutuhan suplai udara bertekanan untuk mendukung kegiatan praktik di Gedung Maintenance and Repair. Permasalahan yang dihadapi mencakup ketidakstabilan tekanan, kapasitas tangki yang tidak optimal, serta kerusakan pada beberapa komponen vital akibat penggunaan jangka panjang tanpa perawatan yang memadai. Oleh karena itu, proses rekondisi melibatkan penggantian komponen yang rusak, pemeriksaan menyeluruh terhadap sistem mekanik dan kelistrikan, serta kalibrasi ulang unit penggerak dan sistem pengaman. Setelah rekondisi selesai, disusunlah program perawatan preventif yang bertujuan untuk menjaga performa kompresor tetap optimal dalam jangka panjang. Kegiatan perawatan meliputi pemeriksaan sistem pelumasan, pengecekan dan pengencangan baut secara rutin, penggantian filter udara, pendeteksian dini terhadap potensi kebocoran, serta pengamatan tekanan kerja dan kondisi operasional secara berkala. Berdasarkan hasil evaluasi awal setelah rekondisi, kompresor menunjukkan peningkatan signifikan dalam stabilitas tekanan serta efisiensi operasional. Perawatan preventif yang direncanakan secara sistematis ini diharapkan dapat mengurangi risiko kerusakan mendadak, memperpanjang usia pakai kompresor, serta menjaga kelangsungan proses pembelajaran yang bergantung pada ketersediaan udara bertekanan. Dengan demikian, laporan ini memberikan gambaran penting mengenai hubungan antara rekondisi, perawatan, dan keandalan sistem kompresor.

Kata Kunci: kompresor, motor listrik, rekondisi, preventif, perawatan.

ABSTRACT

Reconditioning of a Three-Cylinder Reciprocating Compressor at the Maintenance and Repair Building Mechanical Engineering Department State Polytechnic of Sriwijaya (Maintenance Process)

(2025: xiii + 40 pp. + 25 Figures + 5 Tables + 3 Attachments)

Muhammad Ihsan Hidayatullah

NPM. 062230200287

DIPLOMA–III MECHANICAL ENGINEERING STUDY PROGRAM
MECHANICAL ENGINEERING DEPARTMENT
STATE POLYTECHNIC OF SRIWIJAYA

This report comprehensively discusses the planned maintenance process following the completion of the reconditioning stage on a reciprocating air compressor with a 7.5 HP compressor head and a 7.5 HP electric motor. In a vocational education environment such as the State Polytechnic of Sriwijaya Palembang, the presence of an air compressor plays a vital role in supporting practical and training activities for students, particularly in the Mechanical Engineering Department, which requires a continuous supply of compressed air. The reconditioning was carried out as an effort to restore functionality and improve the performance of a compressor that previously failed to meet the demand for compressed air supply needed for practical activities in the Maintenance and Repair Building. Issues encountered included unstable pressure, suboptimal tank capacity, and damage to several critical components due to prolonged use without adequate maintenance. Therefore, the reconditioning process involved replacing damaged components, thoroughly inspecting the mechanical and electrical systems, and recalibrating the drive unit and safety system. After the reconditioning, a preventive maintenance program was developed to ensure long-term optimal compressor performance. Maintenance activities include lubrication system inspection, routine checking and tightening of bolts, air filter replacement, early detection of potential leaks, as well as regular monitoring of working pressure and operational conditions. Initial evaluation results after reconditioning indicated a significant improvement in pressure stability and operational efficiency. This systematically planned preventive maintenance is expected to reduce the risk of sudden failures, extend the compressor's service life, and maintain the continuity of learning activities that depend on the availability of compressed air. Thus, this report provides valuable insight into the relationship between reconditioning, maintenance, and compressor system reliability.

Keywords : compressor, electric motor, recondition, preventive, maintenance.