Australian Government

AURETU007 Overhaul air conditioning and HVAC system compressors

Release: 1

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Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to overhaul and return air conditioning and heating, ventilation and air conditioning (HVAC) system compressors to original manufacturer tolerances and clearances. It involves preparing for the task, dismantling and evaluating the compressor, carrying out the overhaul process, reassembling and testing the compressor, and completing workplace processes and documentation.

It applies to those working in an automotive service and repair industry. The air conditioning and HVAC system compressors include those fitted to agricultural machinery, heavy commercial vehicles, light vehicles or mobile plant machinery.

Licensing requirements apply to this unit. Users are advised to check with relevant regulatory authority.

Competency Field

Electrical

Unit Sector

Technical - Air Conditioning and HVAC

Elements and Performance Criteria

Elements Elements describe the essential outcomes.	**Performance Criteria** Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.
1. Prepare to dismantle air conditioning	1.1 Job requirements are determined from workplace instructions 1.2 Australian automotive code of practice: Control of refrigerant

Elements Elements describe the essential outcomes.	**Performance Criteria** Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.
compressor	gases during manufacture, installation, servicing or de-commissioning of motor vehicle air conditioners is sourced and interpreted 1.3 Dismantling information is sourced and interpreted 1.4 Dismantling options are analysed and those most appropriate to the circumstances are selected 1.5 Hazards associated with the work are identified and risks are managed 1.6 Dismantling tools and equipment are selected and checked for serviceability
2. Dismantle and evaluate compressor and components	2.1 Compressor is dismantled in a logical sequence according to manufacturer and workplace procedures, and ***safety and environmental requirements***, and without causing unnecessary damage to components or systems 2.2 Components are cleaned for evaluation according to workplace procedures and safety and environmental requirements 2.3 Components are measured and compared with manufacturer specifications and serviceability is determined 2.4 Component repair method is determined 2.5 Unserviceable parts are identified and replacement parts sourced
3. Carry out overhaul	3.1 Overhaul information is sourced and interpreted 3.2 Overhaul options are analysed and those most appropriate to the circumstances are selected 3.3 Overhaul tools and equipment are selected and checked for serviceability 3.4 Components are machined, repaired and replaced as required, and adjustments are carried out according to manufacturer specifications, workplace procedures, safety and environmental requirements, and Australian automotive code of practice
4. Assemble compressor and components	4.1 Compressor is assembled according to manufacturer specifications, workplace procedures, and safety and environmental requirements 4.2 Tolerances and clearances are measured against manufacturer specifications and necessary adjustments are made 4.3 Assembly of compressor is completed within workplace timeframes and without causing damage to other components or systems 4.4 Post-assembly testing is carried out according to workplace

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	procedures and safety and environmental requirements, and any problems detected as having been introduced during the assembly process are rectified
5. Complete work processes	5.1 Final inspection is made to ensure work is to workplace expectations and compressor is presented ready for use or storage 5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 5.3 Tools and equipment are checked and stored, and any faulty electrical equipment is identified, tagged and isolated according to workplace procedures 5.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate sources of information relevant to compressor efficiently.
Reading skills to:	• interpret and assess information from manufacturer and workshop literature when seeking air conditioning and HVAC system compressor specifications and procedures.
Writing skills to:	• legibly and accurately fill out workplace documentation when reporting diagnostic findings, making repair recommendations, and recording parts and material used.
Oral communication skills to:	• clarify instructions, report evaluation findings and make overhaul recommendations.
Numeracy skills to:	• measure air conditioning and HVAC system components and use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate distances, areas, volumes, tolerances and deviations from manufacturer specifications • match refrigerant types and identification numbers to workplace instructions, vehicle and component part lists, and code of practice requirements

Skills	Description
	• interpret weight measurements, including tare and gross weights, and readings on digital and analogue pressure gauges • interpret measurements of temperature and pressure relating to air conditioner and HVAC system performance.
Planning and organising skills to:	• plan own work requirements and prioritise and sequence actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.
Technology skills to:	• use precision measuring equipment, such as vernier calipers and micrometers • use specialised air conditioning and HVAC system compressor overhaul equipment.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for:
	  • working with refrigerants at boiling point given risk of frostbite
	  • working with system lubricants, including carcinogenic oils
	  • handling flammable refrigerants
	  • using personal protective equipment (PPE)
	  • identifying fire safety equipment
	• environmental requirements, including procedures for preventing loss of refrigerant to the atmosphere.

Unit Mapping Information

Equivalent to AURETU4007 Overhaul air conditioning system components

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1