Australian Government

Department of Education, Employment and Workplace Relations

AURT222631A Install air conditioning systems

Release: 1

AURT222631A Install air conditioning systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the competence required to install air conditioning systems.

Application of the Unit

Application of the unit	Work involved includes installation of air conditioning systems fitted to light vehicles, plant and equipment, heavy vehicles or marine craft (low voltage). The unit includes identification and confirmation of work requirement, preparation for work, installation and charging of the air conditioning systems and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment. Work is carried out in accordance with award provisions.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to install air conditioning systems	1.1. Nature and scope of work requirements are identified and confirmed 1.2. OH&S requirements, including individual State/Territory regulatory/licensing requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as schematic diagrams, manufacturer/component supplier instructions, workshop manuals and specifications, and tooling required, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for air conditioning components are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with air conditioning and refrigerants are observed
2. Install air conditioning systems	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Fittings/materials are selected 2.3. Air conditioning systems are installed using tooling and techniques 2.4. Air conditioning system installation is completed without causing damage to any component or system 2.5. Installation is tested prior to placing in service and results are documented in accordance with enterprise policies and procedures 2.6. Installation is carried out according to industry regulations/ guidelines, OH&S legislation, legislation and enterprise procedures/policies
3. Charge air conditioning system with refrigerant and lubricating oil	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications, industry codes of practice and legislation 3.2. Charging of the air conditioning system is completed without causing damage to any component or system 3.3. System is performance tested using approved

ELEMENT	PERFORMANCE CRITERIA
	methods and equipment 3.4. Charging of the system is carried out according to manufacturer/component supplier specifications, industry regulations/guidelines, OH&S legislation, legislation and enterprise policies/procedures
4. Vehicle/equipment is prepared for deliver to customer	4.1. Installation schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure the system is functional, without leaks and work is to workplace expectations 4.4. Vehicle/equipment is cleaned to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures • apply analytical skills required for identification and analysis of technical information • apply plain English literacy and communication skills in relation to dealing with customers and team members • apply questioning and active listening skills for example when obtaining information from customers • apply oral communication skills sufficient to convey information and concepts to customers • apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance • interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal • establish safe and effective work processes which anticipate and/or resolve

REQUIRED SKILLS AND KNOWLEDGE
problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage • use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • use workplace technology related to the installation of air conditioning systems, including the use of specialist tooling, computerised technology and communication devices and the reporting/documenting of results
Required knowledge
A working knowledge of: • OH&S legislation and environmental regulations/ requirements, equipment, material and personal safety requirements • identification of application, purpose and operating principles • types and layout of service/repair manuals (hard copy and electronic) • industry codes of practice • air conditioning installation procedures • nature and characteristics of refrigerant • leakage test and performance procedures • system electrical circuits • damage that may occur to electronic control units by poor work practices

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting installation in accordance with the workplace and manufacturer/component supplier requirements • completing leak test and performing tests on the system • accurately interpreting test results • completing installation within workplace timeframes • vehicle/equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the installation of air conditioning systems • equipment, hand and power tooling appropriate to the installation of air conditioning systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Work requirements	Work involved includes installation of air conditioning systems fitted to light vehicles, plant and equipment, heavy vehicles or marine craft (low voltage): • refrigerant leak detecting • refrigerant gassing

RANGE STATEMENT	
	• component and system testing • performance testing • post-installation adjustments and checks
OH&S	OH&S requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice

RANGE STATEMENT	
Tooling and equipment	Tooling and equipment may include hand tooling, refrigerant leak detecting equipment, refrigerant recovery and/or recycling equipment, thermometers, ram-air fan, refrigerant re-gassing equipment and air conditioning system kits
Materials	Materials may include spare parts, refrigerant, refrigerant oils and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the installation of air conditioning systems • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Technical

Co-requisite units

Co-requisite units		

Competency field

Competency field	