



Australian Government

Department of Education, Employment and Workplace Relations

AURT301483A Recondition cylinder heads

Release: 1

AURT301483A Recondition cylinder heads

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the competence required to recondition cylinder heads, generally as part of engine reconditioning/repair.
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Application of the Unit

Application of the unit	<p>This unit of competence applies to engine reconditioning.</p> <p>The unit includes identification and confirmation of work requirement, preparation for work, dismantling and checking of cylinder heads, reconditioning, reassembly and testing of cylinder heads and completion of work finalisation processes, including clean-up and documentation.</p> <p>Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.</p> <p>Work is carried out in accordance with award provisions.</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units	

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake cylinder head reconditioning	1.1. Nature and scope of work requirements are identified and confirmed 1.2. OH&S requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, tooling and equipment 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 the work to be done are sourced and support equipment is identified and prepared
2. Dismantle cylinder head	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Cylinder head is dismantled without causing damage to any component or system 2.3. Cylinder head is dismantled using approved methods and tooling/equipment 2.4. Component parts are cleaned in preparation for evaluation 2.5. Dismantling/cleaning activities are carried out according to industry regulations/guidelines, OH&S legislation, legislation and enterprise procedures/policies
3. Use methods to check/test cylinder head	3.1. Specifications are sourced using manufacturer/component supplier specifications 3.2. Cylinder head is pressure and/or crack tested 3.3. Cylinder head and components are checked against manufacturer/component supplier specifications without causing damage to any component or system 3.4. Components are evaluated and measured according to manufacturer/component supplier specifications 3.5. Checking activities are carried out according to industry regulations/guidelines, OH&S legislation, legislation and enterprise procedures/policies
4. Recondition component parts	4.1. Component parts are reconditioned 4.2. Work is carried out to established industry guidelines

ELEMENT	PERFORMANCE CRITERIA
	4.3. Reconditioning activities are carried out according to industry regulations/guidelines, OH&S legislation, legislation and enterprise procedures/policies
5. Assemble cylinder head	5.1. Cylinder head is assembled without causing damage to any component or system 5.2. Assembly is carried out to comply with manufacturer/ component supplier specifications and established industry guidelines and Australian Standards 5.3. Assembly activities are carried out according to industry regulations/guidelines, OH&S legislation, legislation and enterprise procedures/policies
6. Carry out testing and adjustment procedures	6.1. Testing and adjustment is carried out to comply with manufacturer/component supplier specifications established industry guidelines and Australian Standards 6.2. Tests and adjustments are completed without causing damage to any component or system 6.3. Tests and adjustments are performed using industry approved procedures and equipment
7. Prepare cylinder head for use or storage	7.1. Work performed is documented 7.2. Final inspection is made to ensure surfaces are protected 7.3. Cylinder head is cleaned for use or storage to workplace expectations 7.4. 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

REQUIRED SKILLS AND KNOWLEDGE

- 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 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
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use workplace technology related to reconditioning cylinder heads, including the use of measuring equipment and communication devices, diagnostic and specialist tooling and equipment, computerised technology, and the reporting/ documenting of results

Required knowledge

A working knowledge of:

- OH&S regulations/requirements, equipment, material and personal safety requirements
- engine operating principles
- construction and operation of cylinder heads relevant to application
- types and layout of service/repair manuals (hard copy and electronic)
- measuring, adjusting and testing procedures
- working knowledge of reconditioning procedures
- personal safety requirements
- assembly/reconditioning procedures
- technical information
- equipment safety requirements
- enterprise quality procedures
- work organisation and planning processes
- manual handling techniques

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 is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations 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 the work in accordance with workplace requirements
- interpreting measurements and specifications
- carrying out reconditioning to manufacturer/component supplier requirements
- measuring and checking against manufacturer/ component supplier specifications
- completing a range of cylinder head reconditioning, assembly and testing procedures to manufacturer/ component supplier specifications
- cylinder head 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 reconditioning cylinder heads
- equipment, hand and power tooling appropriate to reconditioning cylinder heads
- activities covering mandatory task requirements

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • specifications and work instructions
Method of assessment	<p>Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package</p> <p>Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge</p> <p>Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies</p> <p>Assessment may be applied under project related conditions and require evidence of process</p> <p>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</p> <p>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</p> <p>Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role</p>
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
<p>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.</p>	
Cylinder heads	Cylinder heads may be of various configurations and components will include inserts, valves, valve

RANGE STATEMENT	
	guides and rocker gear
Reconditioning methods	<p>Reconditioning methods are to include:</p> <ul style="list-style-type: none"> • pressure checking procedures • crack testing procedures • tolerance checking procedures • surface finishing • seat cutting and replacement • guide replacement • valve grinding • assembly/reconditioning procedure • tensioning procedures • visual checking • use of tooling/equipment
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

RANGE STATEMENT	
	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
Tooling and equipment	Tooling and equipment may include hand tooling, power tooling, special equipment (valve facer, head planer/ grinder/miller, seat cutters, insert machine, guide machine) measuring equipment, testing equipment, tolerance checking equipment, personal and protective equipment, measuring equipment, lubricating equipment, gasket seals
Materials	Materials may include spare parts, lubricants and cleaning material
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	<p>Sources of information/documents may include:</p> <ul style="list-style-type: none"> • 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 reconditioning cylinder heads • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements

RANGE STATEMENT

	<ul style="list-style-type: none"> instructions issued by authorised enterprise or external persons Australian Standards
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Unit Sector(s)

Unit sector	Technical
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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