



Australian Government

AURTTM006 Perform advanced machining and blueprinting of engine components

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 compare engine components to original manufacturer and component supplier specifications and match them in relation to weight, size and capacity. It involves preparing for the task, measuring and machining components to original manufacturer and component supplier specifications, and completing workplace processes and procedures.

It applies to those working in the automotive service and repair industry. The engine components include those in vehicles from all sectors of the industry.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Manufacture

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	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 blueprint engine	1.1 Job requirements are determined from workplace instructions 1.2 Information is sourced, procedures and methods are analysed, and appropriate tools are selected for machining and blueprinting

Elements	Performance Criteria
Elements describe the essential outcomes.	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.
	engines 1.3 Tools and measuring equipment are selected and checked for serviceability 1.4 Hazards associated with the work are identified and risks are managed 1.5 Cylinder block and cylinder head are <i>prepared</i> for blueprinting according to <i>safety and environmental requirements</i>
2. Measure components	2.1 Measurements, clearances and tolerances are sourced and interpreted from manufacturer and component supplier literature 2.2 Components are measured and clearances and tolerances are calculated according to workplace procedures
3. Machine components	3.1 Components are adjusted or machined to meet manufacturer and component supplier specifications according to workplace procedures and safety and environmental requirements, and following machinery safe operating procedures 3.2 Dummy assembly of engine is performed as required and clearances and tolerances are calculated according to workplace procedures 3.3 Further machining is carried out as required to achieve required clearances and tolerances 3.4 Engine is assembled according to job requirements and clearances, and tolerances are calculated again 3.5 Bright surfaces are treated with rust prevention solution and component is prepared for further process or storage according to workplace procedures 3.6 <i>Blueprinting schedule documentation</i> is completed according to workplace procedures
4. Complete blueprinting and machining process	4.1 Final inspection is made to ensure finished work complies with workplace requirements 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 4.3 Tools and equipment are checked and stored according to workplace procedures 4.4 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 appropriate sources of information efficiently.
Reading skills to:	- interpret engine component specifications from workshop literature - interpret machinery safe operating procedures from operating manuals.
Writing skills to:	legibly and accurately fill out workplace documentation when making recommendations and recording measurements and material used.
Numeracy skills to:	- interpret numerical information in manufacturer specifications, workshop literature, and machinery dials and gauges - use basic mathematical operations, including addition and subtraction, multiplication and division to: - convert metric dimensions to imperial, and imperial dimensions to metric - calculate tolerances and clearances.
Planning and organising skills to:	select best tooling option for the work and sequence procedure to reduce time and material wastage.
Technology skills to:	- operate machinery when adjusting or machining engine components - use metric and imperial precision measuring 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.

<i>Preparation</i> must include:	ensuring surfaces are clean and oil and water passageways are clear using appropriate tools, such as a rifle brush.
<i>Safety and environmental requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including: - procedures for selecting and using personal protective equipment (PPE) for: - handling engine blocks and sub-assemblies

	• using chemical cleaning agents • operational risk assessment and treatments associated with: • electrical safety of machinery • machinery movement and operation • environmental requirements, including procedures for trapping, storing and disposing of cleaning and lubricating fluids released during process.
Blueprinting schedule documentation must include:	• record of work performed, including tolerances and clearances achieved.

Unit Mapping Information

Equivalent to AURTTM3006 Perform advanced machining and blueprinting of engine components

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>