



Australian Government

Department of Education, Employment and Workplace Relations

AURM341051B Perform torquing and fastening

Release: 1

AURM341051B Perform torquing and fastening

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	<p>This unit of competency describes the skills and knowledge required to torque and fasten competition vehicle components according to supplier and team specifications.</p> <p>It requires the ability to prepare components, select tools and use fastener securing methods.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
------------------------	---

Application of the Unit

Application of the unit	<p>This unit applies to individuals who undertake torquing and fastening in a motorsports environment.</p>
--------------------------------	--

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

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. Assessment of performance is to be consistent with the evidence guide.
---	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Read and interpret component supplier and team torquing and fastening specifications 1.2. Observe occupational health and safety (OHS) requirements, including regulatory requirements, equipment and system isolation requirements, and personal protection needs, throughout the work 1.3. Check tools and equipment for safe and effective operation 1.4. Clean and lay out work area for job requirements 1.5. Report problems with the work area and/or the operation of the equipment to appropriate persons
2. Fasten components	2.1. Select materials according to application 2.2. Inspect and prepare components for assembly 2.3. Use installation sequences and techniques to assemble components, including applying/installing gaskets, sealants, adhesives and/or lubricants 2.4. Tension fasteners in stages and sequence to team/component supplier specifications 2.5. Check during and after installation to ensure accurate and complete fitting 2.6. Fit mechanical fastener securing devices 2.7. Check sealant and liquid locking adhesive cure times observed, if applicable 2.8. Report problems with the components to appropriate persons
3. Clean up work area and complete record keeping	3.1. Return tools to storage 3.2. Tag and shelve/store surplus components 3.3. Remove all surplus material from work area 3.4. Clean up all spillage from work area and vehicle 3.5. Complete team/component supplier documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

REQUIRED SKILLS AND KNOWLEDGE

Required skills

Required skills include:

- technical skills to the level required to use the workplace technology related to torquing and fastening, including tools, equipment, calculators and measuring devices
- communication skills to the level required to communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with technical supervisors, other technicians and workers, and to report work outcomes and problems
- literacy skills to the level required to collect, organise and understand information related to torquing and fastening operations, work orders, plans, checklists and safety procedures
- numeracy skills to the level required to use mathematical ideas and techniques to correctly complete measurements and procedures to team specifications
- problem-solving skills to the level required to use pre-checking and inspection techniques to anticipate torquing and fastening problems in order to work efficiently and effectively
- team skills to the level required to work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity
- planning skills to the level required to plan and organise activities, including the preparation and layout of the work area and the obtaining of equipment and materials to avoid any backtracking, work flow interruptions or wastage

Required knowledge

Required knowledge includes:

- types, characteristics, uses and limitations of fasteners used in motorsport/performance enhancement, including material stress
- the types, characteristics, uses and limitations of mechanical locking devices (e.g. lock wire and lock tabs) and chemical/liquid fastener locking devices (e.g. liquid locking compounds/adhesives), including shelf life expiry
- torquing principles, applications, methods, techniques and preparation of components for assembly
- regulatory requirements relating to securing of fasteners
- record keeping techniques
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including OHS, personal safety and environment, relevant to performing torquing and fastening

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

Assessors must be satisfied that the candidate can competently and consistently:

- interpret and apply team requirements, controlling body and category rules and supplementary regulations
- correctly apply and use safety equipment and personal protective equipment
- follow task instructions, operating procedures and inspection processes to:
 - minimise the risk of injury to self and others
 - prevent damage to competition vehicle or equipment
 - achieve required outcomes within team time and quality standards
- correctly fasten a minimum of six (6) different components/sub-assemblies which include:
 - identifying compatibility/incompatibility of materials, adhesives, fittings and fasteners for the application
 - selecting and applying assembly, torquing and fastening techniques
 - ensuring that the assembly satisfies the specification
 - and where the components/sub-assemblies necessitate, the use of a range of fasteners, sealants and fasteners securing devices
- work effectively with others
- modify activities to cater for variations in workplace context and environment.

Context of, and specific resources for assessment

- The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
- Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
- Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
- Where applicable, reasonable adjustment must be made to work environments and training situations to

EVIDENCE GUIDE	
	<p>accommodate ethnicity, age, gender, demographics and disability.</p> <ul style="list-style-type: none"> • The following resources should be made available: <ul style="list-style-type: none"> • process equipment, materials, work instructions and deadlines • access to components, fasteners, assemblies, tools and equipment.
Method of assessment	<ul style="list-style-type: none"> • Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • 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	<p>Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.</p>

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. **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

RANGE STATEMENT	
regional contexts) may also be included.	
Torque measurements and fastener tensions	<p>Torque measurements and fastener tensions are undertaken using:</p> <ul style="list-style-type: none"> • conventional torque wrenches • angular torque tools • strain gauges
OHS requirements	<p>OHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include:</p> <ul style="list-style-type: none"> • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • team insurance requirements • material safety management systems • controlling body requirements • manufacturer/component supplier specifications • local safe operating procedures
Legislative requirements	<p>Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:</p> <ul style="list-style-type: none"> • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • OHS • the environment • equal opportunity • anti-discrimination • duty of care

RANGE STATEMENT	
	<ul style="list-style-type: none"> • health regulations
Tools and equipment	<p>Tools and equipment may include:</p> <ul style="list-style-type: none"> • torque (tension) wrenches • angular torque tools • dial test indicators • feeler gauges • special service tools • general hand tools • strain gauges • vertical height gauges • gauge blocks
Materials	<p>Materials may include:</p> <ul style="list-style-type: none"> • type and grade of fastener • liquid locking adhesive and primers • gasket and/or sealant • lock wire/lock tabs or other mechanical fastener securing devices
Fasteners	<p>Fasteners may include:</p> <ul style="list-style-type: none"> • threaded fasteners • quick release fasteners • sheet metal fasteners (e.g. rivets)
Information and procedures	<p>Information and procedures may include:</p> <ul style="list-style-type: none"> • controlling body rules, category rules and supplementary regulations • team procedures and standards related to: <ul style="list-style-type: none"> • performing torquing and fastening • competition vehicle assembly • reporting and communication • use of tooling and equipment • emergency service contacts and team persons emergency contacts • team emergency and event procedures for accidents or injury • work instructions, including worksheets, material safety data sheets (MSDS), assembly procedures, plans, drawings, designs and checklists • manufacturer/component supplier

RANGE STATEMENT

	<p>specifications and application procedures for test equipment and material</p> <ul style="list-style-type: none"> • Australian Design Rules (where applicable) • safety body publications • environmental, hazardous chemicals and dangerous goods legislation and local requirements relating to the disposal and use of fuels, lubricants, coolants and cleaning agents
--	--

Unit Sector(s)

Unit sector	Motorsport
--------------------	------------

Co-requisite units

Co-requisite units		

Competency field

Competency field	
-------------------------	--