



Australian Government

AURMTS3001 Construct hose and pipe assemblies for competition vehicles

Release 1

AURMTS3001 Construct hose and pipe assemblies for competition vehicles

Modification History

Release	Comment
Release 1	Replaces AURM340607B Construct hose and pipe assemblies for competition vehicles Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required construct hose and pipe assemblies for competition vehicles. It requires the ability to prepare for and use analytical and organisational knowledge, judgement and problem-solving skills in the construction of hose/pipe assemblies for competition vehicles. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit applies to individuals who calculate material requirements, select components and construct and test hose and pipe assemblies for competition vehicles in a motorsport environment.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Use team instructions, supplementary regulations and component supplier specifications to determine job requirements, including design, quality, materials, equipment and quantities 1.2. Observe workplace health and safety (WHS) requirements, including regulatory requirements, equipment and system isolation requirements, and personal protection needs, throughout the work 1.3. Check specifications and seek clarification, where required 1.4. Organise hose/pipe type and fittings according to application 1.5. Organise tooling and equipment and check for safe and effective operation 1.6. Clean and lay out work area for job requirements 1.7. Report problems with the work area or the operation of equipment to appropriate persons 1.8. Identify procedures for minimising waste material
2. Construct hose/pipe assemblies	2.1. Measure and calculate hose/pipe length 2.2. Cut hose/pipe length 2.3. Bend hose/pipe to conform to fitting requirement 2.4. Install and secure fittings in accordance with component supplier specifications and procedures or team requirements 2.5. Clean and pressure-test assembly
3. Clean up work area and complete record keeping	3.1. Return tooling to storage 3.2. Tag and shelve/store surplus components and consumables 3.3. Remove surplus material from work area 3.4. Clean up 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

Required skills include:

- technical skills to the level required to use workplace technology related to the construction of hose/pipe assemblies for competition vehicles, including tooling, equipment, calculators and measuring devices, and to use pre-checking and inspection techniques to anticipate assembly problems
- communication skills to the level required to communicate ideas and information to enable clarification of requirements and coordination of work with site managers, supervisors or other workers, and to report work outcomes and problems
- literacy skills to the level required to collect, organise and understand information related to team requirements, manufacturer specifications, plans and safety procedures, including interpreting hose/pipe and fitting charts
- numeracy skills to the level required to use mathematical ideas and techniques to correctly complete measurements and calculations required during the construction of hose/pipe assemblies for competition vehicles (e.g. flow rates and pressures)
- problem-solving skills to the level required to anticipate changing information requirements or influences
- team skills to the level required to work with others to foster the team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- planning skills to the level required to plan and organise activities, including preparation and layout of the worksite, and coordination of equipment, systems and material to avoid backtracking, workflow interruptions or wastage

Required knowledge

Required knowledge includes:

- types of and selection of hoses/pipes and fittings, including:
 - sizing of hoses/pipes and fittings, such as Army-Navy (AN) thread dash number, Society of Automotive Engineers (SAE) and National Pipe Thread (NPT)
 - swaged and reusable fittings
 - hose/pipe material and construction
 - hose/pipe material fuel/lubricant/chemical compatibility
- supplementary regulations
- component supplier specifications
- techniques to:
 - locate and layout hose/pipe assembly

REQUIRED SKILLS AND KNOWLEDGE

- measure and cut hoses/pipes
- bend and flare pipes
- assemble hose/pipe
- flush and test hose/pipe assemblies
- protect methods for hose/pipe assemblies
- workplace guidelines:
 - acceptable tolerance levels
 - safety policies and procedures
 - procedures for reporting equipment faults and component defects
 - team requirements and job specifications
 - storage and maintenance of hoses/pipes
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, reporting and recording procedures, relevant to constructing hose and pipe assemblies

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
- 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 or others
 - prevent damage to competition vehicle or equipment
 - achieve required outcomes within team time and quality standards
- correctly construct and test hose/pipe assemblies according to application on a minimum of two (2) occasions, covering each of the following:
 - identify suitable hose/pipe and fittings for the application
 - select and apply construction and assembly techniques
 - test assembly to required specification
- 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 accommodate ethnicity, age, gender, demographics and disability.
- The following resources should be made available:

EVIDENCE GUIDE	
	• hose/pipe construction and testing tooling and equipment • computing, operational and inventory support systems • materials, equipment and information on work specifications • customer requirements • organisational procedures • safety procedures and regulations • quality standards.
Method of assessment	• 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	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

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. Essential operating conditions that may be present with training and assessment (depending on the work

RANGE STATEMENT

situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Techniques

Techniques may include:

- measuring
- calculating
- cutting
- bending
- flaring
- assembling
- testing

Components

Components may include:

- braided hose (fabric, metal and Kevlar covered)
- replaceable hose ends and fittings
- metal pipe
- flared and ferrule fittings

WHS requirements

WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include:

- material safety management systems
- controlling body requirements
- manufacturer specifications
- local safe operating procedures
- 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

Legislative requirements

Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:

- award and enterprise agreements

RANGE STATEMENT

	• industrial relations • Australian standards • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care • health regulations
Tooling and equipment	Tooling and equipment may include: • component supplier tooling • test equipment • hand tooling • measuring devices • calculators
Information and procedures	Information and procedures may include: • controlling body rules, category rules and supplementary regulations • team procedures and standards relating to: • constructing hose/pipe assemblies • 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 • safety requirements • work instructions, including worksheets, material safety data sheets (MSDS), assembly procedures, plans, drawings, designs and checklists • manufacturer/component supplier specifications and application procedures for test equipment and material • 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
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Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Fabrication
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