



Australian Government

AHCIRG340 Install irrigation pumps

Release: 1

AHCIRG340 Install irrigation pumps

Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to plan and sequence installation tasks, source, install and commission pump and flow control components, and complete irrigation pump installation.

The unit applies to individuals who install irrigation pumps under broad direction and take responsibility for their own work.

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

Pre-requisite Unit

Nil

Unit Sector

Irrigation (IRG)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and sequence installation tasks from instructions	1.1 Obtain drawings and specifications 1.2 Plan and sequence tasks 1.3 Select required tools and equipment and check for safe operation
2. Source irrigation system requirements	2.1 Select, fit and use appropriate PPE 2.2 Determine location of pump 2.3 Identify pump base requirements

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	2.4 Identify, order and collect materials and equipment 2.5 Check materials and equipment for acceptable condition and compliance
3. Install and commission pumping and flow control components	3.1 Set out and construct pump base 3.2 Install pump and pump controls 3.3 Connect suction and discharge lines and flow control devices 3.4 Connect delivery and distribution components to pump 3.5 Conduct pressure testing of pumping system 3.6 Adjust and set flow control devices 3.7 Test pump
4. Complete work	4.1 Clear work area and dispose of, reuse or recycle materials 4.2 Clean, check, maintain and store tools and equipment 4.3 Restore work site to meet environmental requirements 4.4 Complete documentation

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret textual information from a range of sources to identify relevant and key information about workplace operations
Writing	Document pump installation and commissioning activities
Numeracy skills	Measure pump base area
Navigate the world of work	Recognise and follow workplace requirements, including safety requirements, associated with own role and area of responsibility

Range of Conditions

This section specifies different 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.

Flow control devices must include at least two of the following:	• pressure switches • constant flow switches • variable speed drives.
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCIRG340 Install irrigation pumps	AHCIRG309 Install irrigation pumps	Performance criteria clarified Foundation skills added Assessment requirements updated	Equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCIRG340 Install irrigation pumps

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit. There must be evidence that the individual has installed irrigation pumps on at least one occasion, and has:

- followed drawings and specifications
- performed work-related calculations
- handled materials safely
- organised equipment and materials for installation work
- matched pump output and flow rate to pipe diameter
- set out and prepared the site
- positioned pumps and control devices
- used power tools and hand tools
- primed and operated pumps
- fixing and joining techniques
- identified and responded to operational problems
- monitored the performance of pumps
- adjusted and set pressure switches and air tanks to suit pump performance and site conditions.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- basic principles of hydraulics, flow versus pressure, energy loss due to friction
- discharge and flow rates
- installation procedures for irrigation pumps
- pump components and their principles of operation
- pump gauges and controls
- advantages and disadvantages of each pump type
- servicing requirements for pumps

- types of pumps and their application in irrigation, such as centrifugal, vertical turbine, submersible and propeller
- types of pumps suitable as booster and floating pumps
- characteristics and application of different valves, pipes and fittings, including fixing and joining techniques and methods
- impellers, rotors and stators
- types of valves
- properties of water, including pressure and flow rates
- pump performance and pressure testing
- automatic pump switches, including timers, pressure switches, constant flow switches and variable speed drives.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - a workplace setting or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - work instructions and workplace procedures applicable to installing irrigation pumps
 - irrigation pump operation and maintenance manual
 - irrigation pump installation equipment
 - personal protective equipment applicable to installing irrigation pumps
- specifications:
 - irrigation pump installation tools and equipment and procedures
 - recording procedures
- timeframes:
 - according to job requirements.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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