



Maintain pressurised irrigation systems

AHCIRG206A

By the end of this topic, you should be able to:

- Carry out pre-season and post-season maintenance
- Carry out routine maintenance activities on pressurised irrigation delivery systems
- Maintain system components
- Record and report maintenance activities

What is an irrigation system?

- An irrigation system is a system of components which supplies and distributes water.
- This includes micro-irrigation systems and spray irrigation systems
 - Systems range from manual operation and monitoring to fully automated with computer control and monitoring

Micro-irrigation systems may include	Spray irrigation systems may include
• Mains pressure • Low pressure • Below or above ground • Sprays systems • Drip emitter trickle • T-tape • Mini-sprinklers • Capillary pop ups • Gear driven sprinklers	• Travelling irrigators (soft hose, hard hose boom type) • Centre pivot • Linear move • Powered side roll hand shift permanent (installed) • Bike shift/easy shift

What is an irrigation system?

- A pressurised irrigation system consists of many components, including:

Equipment	Definition
Drip tape	Water distribution system that operates at very low pressure.
Emitter	Two main types: Allow water to seep into the root zone or direct water into the air. Includes pop-up sprinklers.
Filter	Removes debris from systems.
Fittings	Used to join pipes together. Poly fittings have barbed ends which are pushed into the pipes to connect them together.
Gate valve	Used primarily as a shut-off valve, as opposed to flow control.
Master valve	Ensures that at the end of the watering cycle the water is turned off at a central valve.
Poly pipe	Provides an outlet for water to travel through.
Pump	Deliver waters to irrigation system.

- Between seasons, a range of problems may affect a pressured irrigation system, including:
 - Damage to poly pipe or sprinklers
 - Mulch and vegetation covering sprinklers and valve boxes
 - Ants and dirt blocking sprinkler heads
- As part of pre-season checks, you will rectify such problems
 - Cleaning filters using chlorine
 - Removing mulch using gardening gloves
 - Trimming small branches and weeds using secateurs

- To reduce the amount of work required at a pre-season check, you should maintain the system post-season.
- This may include tasks such as:
 - Flushing the system
 - Cleaning the system
 - Closing down the system
 - Undertaking required repairs and other maintenance/service/replacements

- To determine if a pressurised irrigation system is performing well, measure and calculate the water output and distribution
 - Remember that friction between the moving stream of water in the internal walls of the pipes and fittings causes pressure loss as water moves through the system
- When visually inspecting an irrigation system, check for leaks, operating faults and dry areas.

- When undertaking any observations, tests, repair and other maintenance/service/replacements, be sure to observe:
 - Manufacturer and design specifications (e.g. operator's manual)
 - Enterprise standards and maintenance programs/schedules
 - Legislation (e.g. environmental, WHS)
 - Directions from your supervisor
 - Be sure to ask questions if you require clarification
 - Apply active listening

Testing an irrigation system

- To test an irrigation system, undertake the following steps:
 - Open the furthestmost solenoid valve
 - Open the main valve
 - Allow the system to run until the water is clear
 - Turn off the furthestmost solenoid
 - Check for leaks along the mainline, especially around control valves
 - Leave joints exposed until pressure tested
 - Turn off main valve
 - Turn on each station individually using the controller

- Items that are commonly replaced due to wear or blockage include:
 - Drip line tapes
 - Emitters
 - Filters
 - Outlets
 - Pump screens
 - Sprinklers
 - Strainers

Ratchet clips are the most commonly replaced components of pressurised irrigation systems

- To maintain pop-up sprinklers, complete the following:
 - Remove nozzle and insert flushing cap
 - Dig a hole around the sprinkler to provide working room
 - Unscrew pop-up and unscrew riser
 - Turn on the system to flush pipes
 - Reattach riser
 - Open flushing driver and flush system again
 - Replace filter
 - Clean and reattach nozzle

- To repair a poly pipe, complete the following:
 - Isolate the system
 - Locate the hole in the pipe
 - Dig a hole around the pipe to provide working room
 - Cut out the damaged section of pipe
 - Reconnect the cut pipes using joiners and clamps/clips
 - Test joint for leaks

- You will not always be able to undertake repairs yourself.
 - You may need to record and report damaged or faulty items, such as:
 - Pumps
 - Valves
 - Electrical components
 - Computer systems

- Record your observations and maintenance activities in the maintenance book
 - Be sure to report any identified hazards to your supervisor within a timely fashion
 - Ensure your reports are clear, being mindful of people's varying backgrounds and abilities
- If you notice damage/blockages caused by pests and/or vermin, take note of the following:
 - The location of the damage
 - Be specific – identify the section of the system that has been affected
 - The type of damage

- As part of clean-up processes, you should:
 - Maintain, clean and store tools and equipment according to manufacturer's specifications
 - Report faults that are discovered
 - Dispose of materials that cannot be reused or recycled
 - Ensure you implement environmentally safe practices
 - Follow Safety Data Sheet (SDS) requirements for hazardous chemicals, residues and oils/grease
 - Record and report work outcomes to your supervisor

- If you are required to store a pressurised irrigation system, follow these steps:
 - Dismantle equipment
 - Load equipment onto vehicle
 - Transport equipment
 - Store equipment without damage