

# Mobile Fleet Air-Conditioning – Refrigerant Leakage Detection



Australian Government  
Department of Agriculture,  
Water and the Environment



## Refrigerant Leakage Detection



To be conducted only by automotive refrigerant handling licence (RHL) holders or trainee RHL holders under direct supervision of an automotive RHL holder.



To be conducted in conjunction with routine maintenance service procedures or commissioning of an air conditioning (AC) system or testing of an AC system post-repair. As per the Australian automotive code of practice.



To be used in compliance with mine site safety and environmental regulations/policies.



To be used in conjunction with manufacturers' recommendations and guidelines and/or scopes of work.



**Satisfy the above?**

## Methods for detection of refrigerant leakage

**First Stage Detection** – Conduct visual inspection of all accessible AC components, pipes, hoses and jointing for signs of oil sweating, corrosion, integrity and security.

**Second Stage Detection** – Conduct one or more of the following methods of leak detection.

Note: Using refrigerant as a trace gas during maintenance and repair is an offence under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*

### Dry Nitrogen Pressure testing

System pressurised to 250 PSIG (1750 kPa) for light vehicle and 300 PSI (2000 kPa) for heavy vehicle. System must hold standing pressure for (min) 30 mins. Method to be used in conjunction with a leak detection solution.

### Leak detection solution (Bubble leak detection)

Typically used with dry nitrogen pressure testing or full refrigerant charge before, and at completion, of all works. Observe all safety guidelines.

### Electronic leak detection

To be conducted with system under full charge, not running at the conclusion of all works. Recommended tip speed is as per manufacturers' specifications (general recommendation – 20 mm per second).

### Vacuum hold test

Pull a (min) vacuum of -29.80 inches of Hg. If system cannot 'hold a (max) vacuum' of -29.80 inches Hg (-100 kPa) for 5 minutes this indicates a leak or moisture present. Must be followed by nitrogen pressure testing.

### Dye leak detection

Dye leak detection must not be used as a diagnostic tool of the first resort. Add only the recommended dosage (if required) at completion (recommend 7ml/cc per kg of charge. This is for long term leak detection only. Only to be used as per equipment manufacturers' recommendations.

For further information visit [www.arctick.org/mining](http://www.arctick.org/mining)