



COOLCHANGE

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Tips for reducing RAC equipment faults

A report into *Leaks, maintenance and emissions of refrigeration and air conditioning equipment* was commissioned and published by the Department of Agriculture, Water and the Environment in February 2021.

According to the authors, the Expert Group, refrigeration and air conditioning equipment, as one of the major cross cutting technologies present in all sectors of the economy, produced more than 11 per cent of Australia's greenhouse gas emissions in 2019.

The extensive international and domestic literature review undertaken for this report, identified the most common faults in refrigeration and air conditioning equipment, as listed below:

- Sub-optimal refrigerant charge (over or undercharge, refrigerant leakage)
- Dirty condensers and mechanical issues (fouling, faulty fan)
- Dirty evaporators and mechanical issues (fouling, ice-up, obstructions, faulty fan)
- System capacity (no heat load calculation, disconnect between owner and designer, safety margins) and mismatched components
- Control systems, sensors and wiring issues
- Poor equipment location
- Liquid line issues (including restrictions)
- Degraded and contaminated refrigerant
- Minimal or no documentation (installation, commissioning baseline data, operation, maintenance)
- Excessive heat load (refrigeration only)
- Air conditioning airflow: Air distribution, duct sizing, dampers and fans
- Air conditioning airflow: Filters
- Air conditioning duct insulation and leakage.



>> See next page for top tips to reduce RAC equipment faults.

Tips for reducing RAC equipment faults *continued*

How can these faults be minimised?

- Maintain good installation and commissioning practices, equipment monitoring and metering for fault detection that supports equipment to perform as designed.
- Undertake maintenance through skilled and licensed technicians with appropriate knowledge and understanding of common and accepted best practice.
- Carry out best practice maintenance procedures that test and inspect all potential faults in a system, not just the single call out issues.
- Set key targets for preventative maintenance that aim to eliminate refrigerant leaks and reduce energy use.

The full report can be accessed at:

www.environment.gov.au/protection/ozone/publications/leaks-maintenance-emissions-refrigeration-air-conditioning-equipment



When is a single head not a single head?

A single head split system air conditioner has a single outdoor unit with a single head.

Split system air conditioners with multiple heads, or indoor units from the same outdoor unit, are different to a single head system. These systems involve additional, more complex pipework configurations, switching and other features. Pipework, which contains refrigerant under high pressure, is often the source of system failure, so the more complex the pipework, the more likely the risk of failure.

Similarly, a variable refrigerant volume or a variable refrigerant flow system does not come within the definition of a single head split system air conditioner.

The Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995 outlines the scope of works under the restricted heat pump installation and decommissioning licence. This states that work must only be conducted on 'a single head split system air conditioner of less than 18 kW'.

For systems which exceed this definition, a full refrigeration and air conditioning licence is required. This is because the training which underpins the restricted heat pump installation and decommissioning licence is limited to installation and decommissioning of a single head split system air conditioner of less than 18 kW. Any other system configuration, or works associated with a single head split system, requires a full refrigeration and air conditioning licence.

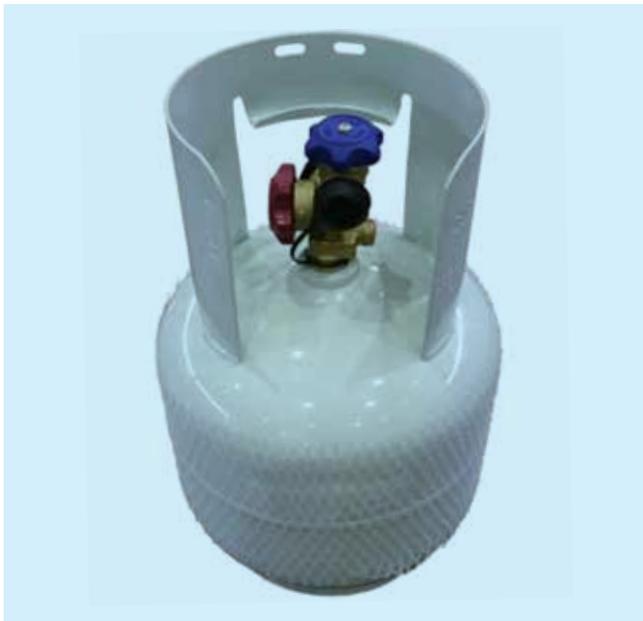
Not all cylinders are the same – the difference between a recovery/pump down and reclaim cylinder

A holder of a refrigerant trading authorisation (RTA) must have, and maintain, equipment that is adequate for the activities they perform under that RTA. For most RTAs this will include having a recovery/pump down and/or a reclaim cylinder to ensure refrigerant is recovered correctly.

However, sometimes there is confusion about the difference between a 'recovery/pump down cylinder' and a 'reclaim cylinder'. Both cylinders may be appropriate to the RTA holder, depending on the activities they perform.

Recovery/pump down cylinder

A recovery/pump down cylinder can be used to remove refrigerant from a system, store it within the cylinder and return the refrigerant to the system. These cylinders are used during service and repairs of equipment, allowing the technician to put the refrigerant back into the equipment after the completion of work.



Reclaim cylinder

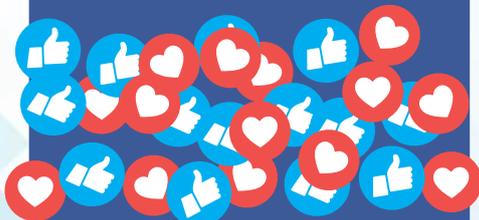
A reclaim cylinder is for a single purpose, to capture and store refrigerant that is to be returned to a refrigerant wholesaler for destruction or (in some cases) to reprocess the recovered refrigerant to new product specifications.



This cylinder is specific to R32 refrigerant.

Note: Technicians using these types of cylinders are to check the MPa rating of the cylinder against the refrigerant being recovered/pumped down or reclaimed for compatibility. Refer to your cylinder supplier or relevant material safety data sheets for this information.

Social media is working for smart businesses

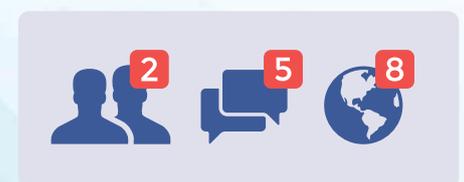


Is your business on Facebook, Instagram, Twitter or LinkedIn? Smart tradies are turning to social media advertising to connect with existing and new customers.

ARC started on the social media path to support industry and licensed businesses five years ago. Why? To help build up licensed businesses by driving consumers to your door. Since then, it's been great to see so many businesses jumping on board, promoting their services on social media and generating leads for their businesses.

Between November 2020 and February 2021, ARC utilised Facebook advertising, Google AdWords and online banner advertising to promote the use of licensed technicians and authorised businesses to consumers and educate them on the differences between licences.

This advertising blitz has been a huge success, with more than 52,000 people visiting the RTA business directory website www.lookforthetick.com.au. It's the best result for our advertising, and a goal we look to achieve for permit holders each year.



What makes a good licence scheme?

Depending on the state or territory, technicians and businesses in the refrigeration and air conditioning (RAC) industry may be required to hold multiple licences, both state-based and national.

Licences exist for a number of reasons including safety, consumer protection, and, in the case of the RAC industry permit scheme, the environment.

But what makes a good licence scheme?

All governments in Australia follow the principles of good regulation. This ensures that before creating new regulation (like licensing), government takes into account principles which cover off on areas such as:

- What is the demonstrated need?
- What options are there?
- Which option has the greatest net benefit for the community?

In 2014 a review of current licence schemes, both national (RAC industry permit scheme) and state-based (occupational) was undertaken by the Council of Australian Governments (COAG). The review concluded that the licence scheme with the greatest net benefit was the RAC industry permit scheme. It is a national, qualifications-based scheme, underpinned by nationally endorsed training, codes of practice and compliance. It is also administered as a Government/Industry model, which, the review stated, has higher participation rates than schemes that are purely government models (like state-based occupational schemes).

And while the RAC industry permit scheme is environment-based, its reliance on the training requirements and practices established by other jurisdictional and Commonwealth agencies helps to support health, safety and occupational outcomes.



Non-compliance – the top two tips

At a permit condition check, ARC Field Officers have been noticing the following two issues as the main reasons for non-compliance.

1 No records, or incomplete records for:

- Equipment maintenance (for recovery unit, vacuum pump and leak detector)
- Cylinder leak testing
- Refrigerant (purchased/sold/recovered)

At a permit condition check, refrigerant trading authorisation (RTA) holders are required to provide evidence of up-to-date records (for the last two quarters) showing the amounts of refrigerant purchased, sold (bulk amounts only i.e., cylinders) and recovered/reclaimed (for destruction) during each quarter. In addition, records showing quarterly equipment maintenance on equipment such as recovery units, vacuum pumps and leak detectors is required, and quarterly records showing leak testing has been conducted on refrigerant cylinders. To help technicians and businesses with their record keeping, ARC provides free templates for all RTA reporting requirements on our website. Visit www.arctick.org/refrigerant-trading-authorisation/business-reporting-templates-and-guides/

2 No RTA number on advertising

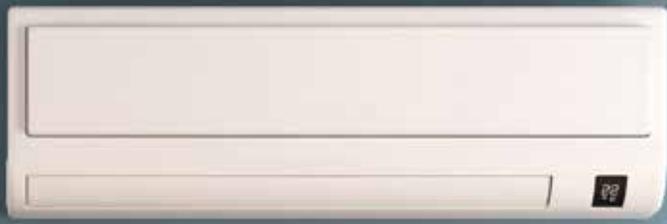
It is mandatory for RTA holders to display their RTA number on any advertising promoting services permitted under the RTA and any invoices, receipts and quotes for work carried out under the RTA.

Including your RTA number on advertising, invoices, receipts and quotes helps consumers with their decision to engage an authorised business who employs licensed technicians to carry out refrigeration and air conditioning services. This also ensures businesses that have a RTA can be easily separated from businesses that don't.



Suspected offences

ARC undertakes initial assessment of alleged non-compliant activity around Australia and provides reports to the Department of Agriculture, Water and the Environment, which is responsible for enforcement. A total of twenty-four suspected offences were reported to the ARC between October and December 2020, relating to deliberate refrigerant emissions and unlicensed activity. Twelve are still being assessed, with the remaining twelve completed. Of the completed assessments, four were referred to the Department for potential enforcement action. The remaining cases required no further action as no non-compliant activity was evident. Ongoing non-compliance can put your permit at risk. Over 70 businesses lost their permits last year, which meant they couldn't legally purchase refrigerant.



A reminder for restricted licence holders – don't work outside the scope of your licence

It is critical that holders of restricted licences do not provide services beyond the scope of works permitted by the licence.

It's an offence for a refrigerant handling licence holder to breach a condition of their licence and a penalty of up to \$2,200 may apply. Working outside the scope of a licence could also result in a licence cancellation or suspension.

If anyone is aware of licensed technicians working outside the scope of their licence, please let the ARC know by lodging a complaint at www.arctick.org/information/lodge-a-complaint/

Licence entitlements are listed on the ARC website at www.arctick.org/licensing/licence-types/



It's your Cool Change – what do you want to read about?

The Cool Change newsletter is the most widely read publication in the industry, informing technicians about issues and topics relevant to you.

With no advertising and no cost to read, it's industry's newsletter... so what do you want to read about?

Send ARC an email at coolchange@arctick.org. We would love to hear from you and learn about any issues/topics you would like us to cover.

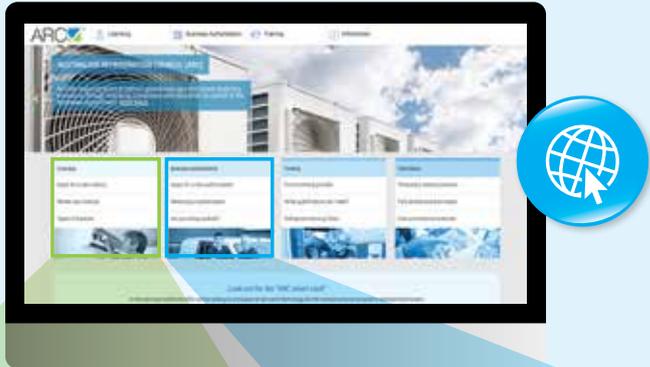


Renewing soon? Double check before you submit

Using the online application and renewal facility at www.arctick.org is a quick and effective way to renew your permit. However, there are two key areas where permit holders sometimes get caught up.

1. Existing permit holders applying for a new permit, instead of renewing

When renewing online make sure you click on the correct section of the website. See below image for a guide. Renewing your permit rather than submitting a new application will save you time and streamline your renewal process.



2. Renewing your RTA instead of your RHL, and visa versa

Sometimes when a business has both a RTA and RHL, the wrong permit is renewed. This is particularly relevant for owner-operator businesses where the one person holds both the RTA and the RHL. Make sure you check the reminder notice you receive from the ARC, it will identify the specific permit that is due for renewal.

IMPORTANT: When you are renewing a RHL or RTA and you are not sure if you chose the correct permit, or if your payment went through correctly, **do not complete another application.** Contact the ARC on 1300 884 483 to confirm. The ARC can check if you have applied for the appropriate permit and paid the correct fee.

Information at your fingertips

The ARC website is a one-stop-shop for technicians including everything you need to know about your licence/authorisation, technical resources, codes of practice, free promotional materials for your business plus much more.

On the website you will also find a variety of fact sheets and detailed responses to frequently asked questions (FAQ) on a range of topics.

If you have any suggestions for how we can better help you, please contact us at enquire@arctick.org.

Fact Sheets www.arctick.org/information/fact-sheets/
FAQ www.arctick.org/information/faqs/



www.arctick.org