



# Hot Air

## NEWSLETTER

December 2011

The Automotive Air-conditioning, Electrical and Cooling Technicians of Australasia

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## The carbon tax was a Yes Minister script (...there are certain things the independents don't need to know)

**Our meeting with independent member for Lyne, Rob Oakeshott – by VASA member Ian Higgins**

I had seen the ads about the carbon tax on TV, and listened to news items and interviews about it.

Only the biggest 500 polluters in Australia were going to have to pay it. No real problem for me then.

But then I heard through VASA that the government was going to put the carbon tax on refrigerants as well.

The price of R134a was going to more than double to over \$50 a kilo. Surely that can't be right, I thought.

I decided to find out for myself.

My business is in the electorate of Lyne which is represented by the independent Mr Rob Oakeshott, a big supporter of the carbon tax.

With the assistance of VASA and Mike Bennett from RRA we wrote to him to arrange an appointment. I had to follow up a few times to make sure they gave us some time.

We also had to provide

*One tenacious and angry VASA member proves that his independent member of parliament whose vote was crucial to the carbon tax being foisted on the Australian people, had no idea of the damage the tax would inflict on the automotive and the refrigerant industry*



Rob Oakeshott

background papers and an agenda for the meeting. These are all on the VASA website.

The upshot was that the earliest they could see us was the week after the vote in the House of Representatives, but we proceeded anyway.

I drove up from Taree on the morning of the meeting and met Mike who had come up from

Canberra. We went through what we wanted to say, and the questions we wanted Rob Oakeshott to answer.

The main question was why are you putting a massive tax on refrigerants when it is already illegal to emit them, when we already recover and either reuse or return, when we already have licensing and reporting, when there are no safe low GWP alternatives commercially available, and when almost all of the design and direction for our market comes from overseas?

Rob Oakeshott's office is in a nice part of Port Macquarie just on the water. We were a bit early and waited while he met with some other people. Hope they did better than us.

Time came and in we went, just us and Rob, who seems a very personable and likeable bloke.

But I can tell you he doesn't know anything about refrigerants and our industry.

It was pretty clear that he hadn't read the background papers we had sent. I know time is short and it must be hard being a politician, particularly an independent because they don't have many resources, but the lack of preparation was disappointing.

*continued next page*



## VASA directors will network to boost the network

The seven directors of VASA are going to be seen out and about among the members and potential members of VASA, in a novel approach to spread the word about the good work VASA does, and the benefits of being in the network.

Armed with a kit of VASA material and past issues of Hot Air, each director will door-knock two non-member workshops every month to meet the owner or manager and encourage participation in VASA. This means that a potential 168 workshops will receive a visit by a director each year.

Existing VASA members will not miss out. Each director will either phone or visit an existing member every month, to touch base, see if there are any issues of concern to the member, and encourage them to badge their business with the VASA symbol and take part in the annual VASA training event.

The directors will use their networking skills to gather information about workplace issues which may need more detailed investigation by the Board of Directors.

President Ian Stangroome, who introduced the directors' networking concept, believes that VASA must be 'seen to be seen' to satisfy the membership that good work is being done on their behalf, and to ensure future growth of the company.

*Ian Higgins at his workshop in Taree*



When we started to explain the impact of the tax, which will cost the industry about \$270 million in the first year and up from there, all he said was, "that can't be right".

We spent the next forty minutes explaining the impact of the carbon tax on our industry, on small business, on contractors, and equipment owners.

We showed him the increase in prices that will occur and why it will be a straight cost to everyone – but that the increases won't affect new equipment purchases like cars or refrigerators.

We even had to point out the

particular legislation changes that force us to pay this massive tax.

He only voted on it the week before.

Then we talked about all the great things this industry has done in phasing out CFCs and reducing emissions, and how the bureaucrats have just plain ignored us.

We explained recovery, recycling, reuse, and returning for destruction.

Rob Oakeshott seemed genuinely surprised. He really did not understand the wide-ranging impacts and costs on our industry,

and may have been snowed by the government throughout the whole process.

That confirmed for me that the carbon tax has been rammed through by the Labor/Green government with our industry roped in as a cash cow to milk for \$300 million each year.

Mr Oakeshott did commit to looking into it further and getting back to us. Haven't heard from him yet. I'll follow up.

Where does that leave us other than up the proverbial creek?

Stuffed, snookered and buggered, mate.

The laws are passed and the tax starts 1 July next year.

Every kilogram of R134a you buy is going to cost you at least \$30 more. The fridges buying R404A are going to pay an extra \$80 a kilo.

But we don't have to just cop it and shut up. We need to make some noise.

Every VASA member should write to their local politician and arrange a meeting.

VASA can help with form letters, background papers, and the agenda.

Mike will help too if you need him. If you live in a Labor electorate get them to explain their thinking on why it is a good idea to tax our industry so much given all the great things we already do, the barriers, and the fact that it is illegal to emit refrigerants.

If you live in a Liberal electorate explain the problems with the tax, the costs, all the regulations already in place, and ask for a guarantee they will repeal the changes to the Ozone Act when they win government.

## The Oakeshott upshot

Rob Oakeshott did indeed follow up the points raised at the meeting with the Minister for Climate Change and Energy Efficiency, Greg Combet, who wrote a response.

The letter was not a letter. It was a lecture on climate change and how great the tax is going to work.

Mr Combet completely ignored the points raised at the meeting, and instead delivered the same tired old lecture about how the carbon tax will change everyone's behaviour.

Politicians are very adept at not answering the issues which are raised by constituents, but instead attempt to snow-job the public with their copybook rhetoric.

The letter will be placed on the VASA website for all to read if you have the stomach for it. In the meantime, we don't feel like wasting space on a lecture from the government about climate change. We will publish in the box below, only those portions of the letter which addressed any of the concerns raised by Ian Higgins and Michael Bennett at the Oakeshott meeting.



## And you thought your member of parliament actually cares what you think?

"...a few and far between independent doomed to an early political death if you show any real independence. The MP is just a vote to get counted when they've rung the division bells. His or her parliamentary life is fully scripted. You'll be told what to ask in question time and have no chance to express a personal view except in a very rare conscience vote."

*Phillip Adams giving advice to would-be politicians in The Australian Magazine 19 November 2011*

## R-1234yf is just around the corner

The refrigerant maker Honeywell told a symposium in Phoenix Arizona US recently that saleable quantities of the new R-1234yf refrigerant mainly for use in vehicles will be available early in the first quarter of 2012.

The company is working with car makers in the US, Europe and Asia for implementation of the new low global warming refrigerant into their production facilities.

Honeywell lists R-1234yf benefits:

- lower lifetime greenhouse gas emissions
- dramatically shorter atmospheric lifetime
- compatibility with current automotive a/c systems
- superior cooling efficiency
- best ease of adoption
- safety for mobile applications

*Thanks to MACS Worldwide and Honeywell*

## The president wants a word



### New members

Member #959

Keith Davis

West Coast Auto

Air Conditioning Pty Ltd  
MANDURAH WA 6210

Member #960

Peter Arnold

Arnolds Autocare Pty Ltd  
SMITHTON TAS 7330

A topic raised often in recent years at VASA annual general meetings and forums is the skills deficiencies of auto electrical and air conditioning trainees as a result of an outdated curriculum in many TAFE colleges.

Senior VASA workshop owners complain that the type of training received at college bears little relationship to the requirements of the real world of workshops.

VASA approached the national body, Auto Skills Australia, which now sets all modules for TAFE colleges, to seek representation on any future committee dealing with subjects within VASA's range of expertise.

The approach has paid off, with VASA being invited to nominate a senior representative to serve on a committee which next year will draw up revised modules AUN and AUR in Auto Electrical Cert II and III.

Since the committee meets in Victoria, VASA has nominated a Victorian senior workshop member to take on the voluntary role.

An announcement on the nomination is expected before the end of this year.

President Ian Stangroome said the appointment was yet another example of VASA helping the industry and its members.

## Carbon tax, price, levy, whatever

Since the last edition of Hot Air the spectre of a Carbon Tax (oops, price, sorry) has become all but a reality. What does this mean for the professional a/c workshops?

For starters, it means a tax (oops, price, sorry again) will be applied on all fluorocarbon imports which will increase the price of the refrigerant we use by up to five times. It goes without saying, of course, that you will all have to change the way you operate.

I know for a fact that as a result of the implementation of this tax (oops again) all VASA workshops will have to change their ways to protect the environment.

For instance:

You will all now have to become trained as professionals in the auto air con business.

What's that you say? You are already trained and licensed professionals! Hmmm.

Well, at least, you had better start working to a strict code of practice to ensure you avoid the needless emission of refrigerant into the atmosphere.

What? You have willingly been working to a code of practice for ages, well bugger me.

What about recovering refrigerant for recycling or destruction?

You're joking – you've been doing it for years and spent good money on the equipment too!

Well, I reckon all workshops will now have to undergo a regular audit by an independent regulator.

What? You can't be serious? It already happens?

At least you will now have to use the vehicle manufacturers' recommended repair and service procedures.

Ah, you do that already too.

What will actually change in work methods in a professional a/c workshop as a result of the Carbon Tax, apart from dealing with the heavy impost of the cost of refrigerant?

How will you justify the price rise to your customers? Seems to me if you're all doing the right things already, won't there be a shift by some repairers to

use cheaper and perhaps dodgy repair and service methods or refrigerants of questionable quality and performance characteristics?

Won't that, in itself, lead to inefficient vehicle performance and hence increases in fuel consumption?

What about premature system component failure due to the use of contaminated refrigerant or poor service practices to cut costs?

Won't that increase carbon pollution due to energy and resource consumption in the manufacturing processes?

**Green refrigerants  
won't be so  
bloody green then,  
will they?**

Tell me again why the air conditioning industry needs this tax?

Like many VASA members, I've only been doing this for 30 years and for well over 20 years without venting barely a sniff of refrigerant.

Millions of vehicles are manufactured each year and they all contain a refrigerant of the car maker's choosing. We, at the end of the vehicle food chain, have no control over the type of refrigerant or how it is maintained, yet we are going to be slugged on every kilo of refrigerant we use to re-charge systems.

In my view, that's attacking the wrong end of the chain. You can bet that every car that is imported after the tax kicks in will be a little bit dearer to pay for the refrigerant charge, which may never be released into the atmosphere. It's all very hard to follow.

A carbon tax is not going to change anything because the professionals in our industry are already dealing with the situation more than adequately.

One outspoken Australian is famous for saying, "Please explain". Perhaps I'm missing something, but I just don't get it either.

Regardless of all this angst, Merry Christmas and a Happy New Year to you all.

*Best wishes  
Ian Stangroome  
VASA President*





# VASA Technical Bulletin

## Category: ELECTRICAL

### Volume 1 Bulletin 3

Every issue of Hot Air will revisit the RTP, in the order in which it was first delivered to members a decade ago. The technical information is as relevant now as it ever was. Members will find it a great resource for younger technicians, or those venturing into electrics and vehicle climate control repairs.

# ELECTRICAL – the principles of electricity

## Radiator/condenser fan speed control

The RTP will present systems relating to various modes of radiator and condenser fan control. This Bulletin is meant to provide grounding information on the basic methods of control.

### System 2 – Series/parallel switching

This is the most common method of fan speed control when the vehicle is fitted with dual fans. The system is logical in control but is more complex in control than resistor control systems.

While interpreting this text please keep in mind this system can readily be adapted to aftermarket dual fan systems and is strongly recommended for highway cycle vehicles.

#### *Principle of operation*

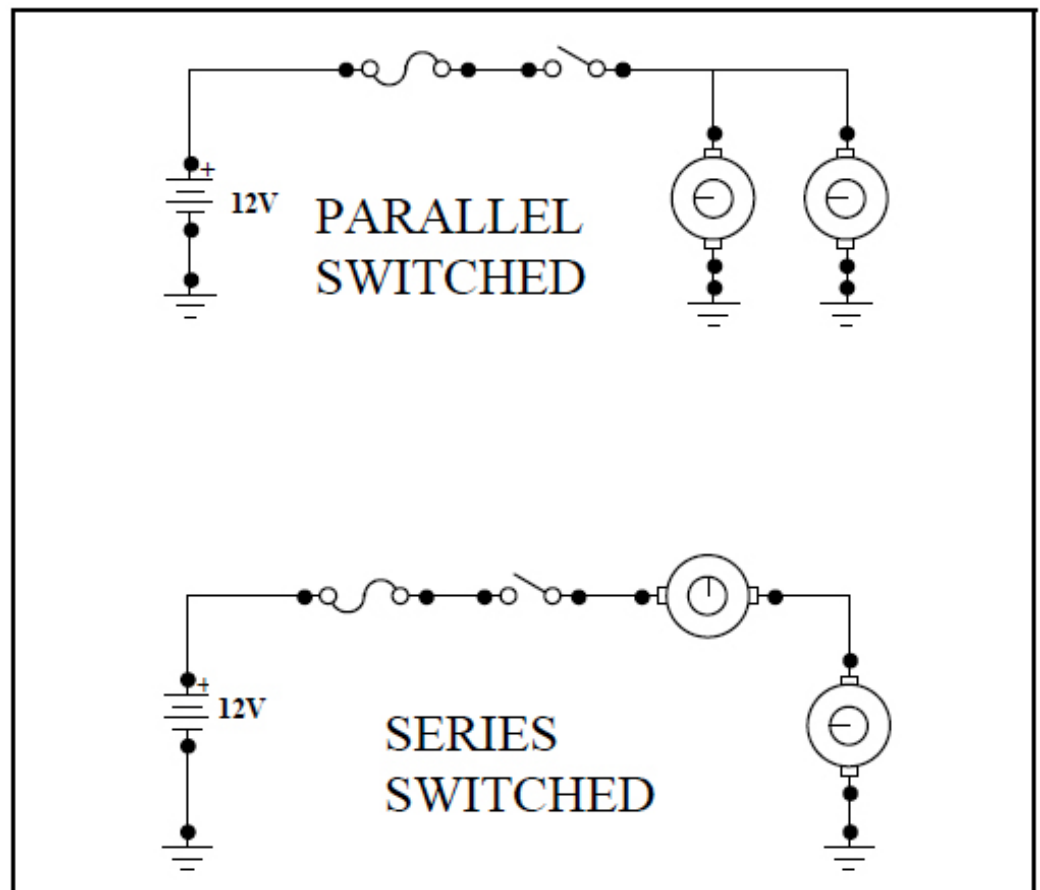
The basic principle of this system, as with the resistor controlled circuit, is that the total voltage drops across the circuit are always equal to the supply voltage (disregarding back EMF produced by the motors) for series circuits.

For parallel circuits, each component (fan) is supplied with 12 volts and independently earthed, therefore each fan uses 12 volts.

*The fans connected in parallel (top) will both operate on high speed.*

*(Both supplied with 12 volts and both directly earthed).*

*The bottom diagram show the fans connected in series in which case they will operate on low fan speed.*



### Switching

The next step is to provide switching to change the fans from a series mode (low fan speed on both fans) to parallel mode (high fan speed on both fans).

In principle this is done by using a changeover relay between the two fans to provide a direct earth for motor no. 1 and at the same time switch a relay in to provide a new supply for motor no. 2.

This high speed switching is controlled (switched) by either:

- Air conditioning on
- Medium pressure switch
- Medium pressure switch on plus engine overheat.



**IMPORTANT  
NOTE:**

*Many systems use switches and relays that are normally closed types - providing a failsafe if there is an open circuit in the switches or control circuits ie with the switches closed the relays are energised and pulled open. Technicians often use a changeover relay with 87 being a dead (not used) contact for this purpose.*

By far the most common is the third type achieved by either using conventional switches or as a function of the ECM/PCM.

ECM/PCM switched circuits follow the principles outlined in a future Falcon article although the switching is of course different to suit specific applications.

The text to follow is for a conventional system using radiator sensing water/coolant temperature switches and conventional medium pressure switches, often as a part of a binary/trinary switch.

The circuits and principles of operation outlined here are transferable to a majority of conventional air conditioning systems.

Consideration should be given to applying this system to control dual condenser fans especially where the vehicle is operating predominantly in "highway cycle" where fan air is sufficient to

provide adequate condensing and head pressure control.

When relating to genuine wiring diagrams/schematics the medium pressure switch is often referred to as a high pressure switch. Do not get this confused with a normal high pressure cut switch that controls compressor operation, that is, the vehicle may have two high pressure switches side by side.

In fact they are one high pressure, one medium pressure.

Many Nippon Denso dual speed control circuits will have two switches located next door to each other in the lines – one high pressure set at approximately 27 Kg/cm<sup>2</sup> (2700 to 3200 kPa) for compressor cut and the other high pressure set at approximately 17 kg/cm<sup>2</sup> (1700 kPa) for condenser fan/radiator fan switching.

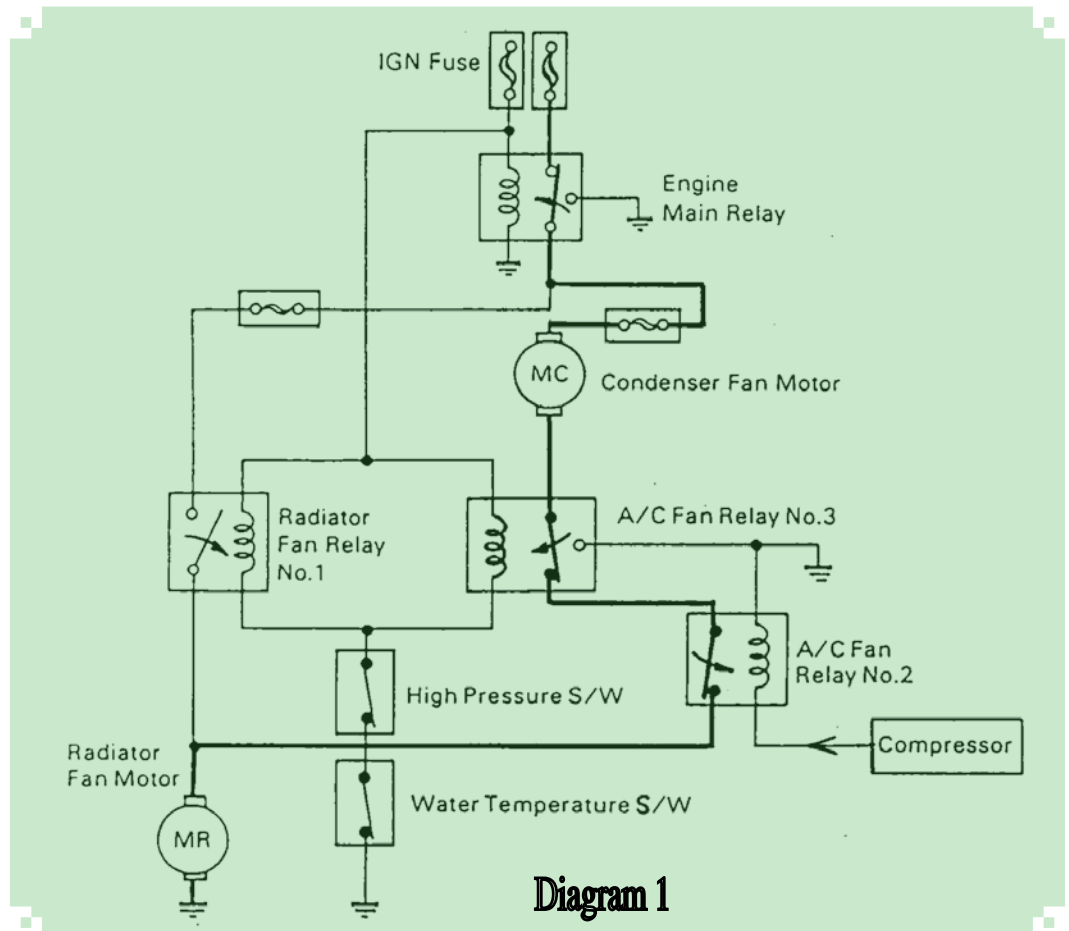
**System 2 – Fan operation for dual speed, series/parallel switched circuits – radiator and condenser fans**

*Low speed – series switched*

The radiator fan relay and the two air conditioning relays are switched according to the following diagrams to determine if the two fans are in series (low speed) or in parallel (high speed).

The three controlling parameters are:

1. The compressor
2. The medium (high) pressure switch
3. The water temperature switch



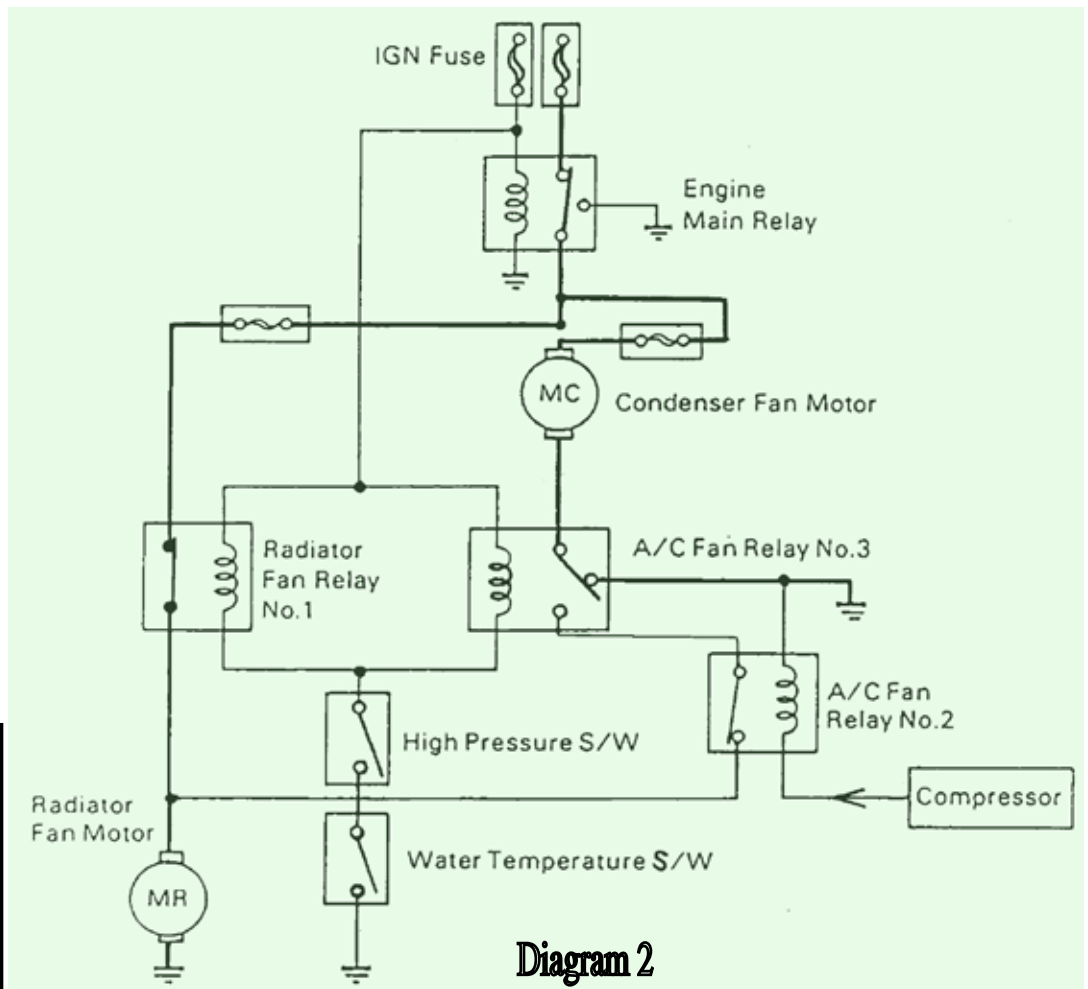
**Series connected - low speed, moderate engine temperature, normal head pressure**

Relays one and three are activated to connect the motors on series as indicated by the dark line.

The high pressure switch and water temperature switch are closed (in their normal position).

*In the next issue of Hot Air, the RTP will continue, with the highly popular bulletin on EF/EL Falcon fan wiring.*

*All RTP bulletins can be read online by members by logging in to [www.vasa.org.au](http://www.vasa.org.au)*



**Diagram 2**

**Parallel connected - high speed, high head pressure or engine overheat.**

When either the high pressure switch or the water temperature switch opens, relays one and three

deactivate (de-energise). This directly grounds the condenser fan motor (via a/c relay three) and brings in a new supply for the radiator fan (via radiator fan relay one.)

## Mitchell to fight on

VASA's Representative at Large, Mark Mitchell has promised he will stay on as the company's representative on Refrigerant Reclaim Australia (RRA) and Refrigerants Australia.

Mark has a well earned reputation as an active and forthright representative and is recognised for his wealth of knowledge on refrigerant and environmental issues.

He is up for re-election to the RRA board next October, but has vowed to stay on after 2012 if the carbon tax issue continues to jeopardise RRA initiatives and undo 20 years hard work setting up a world class refrigerant recovery and safe destruction system.

Mark attends these meetings interstate in a voluntary capacity, and at no cost to VASA members.

## HYDROCARBON REFRIGERANT USE NOT AS WIDESPREAD AS THOUGHT IN THE MINING INDUSTRY

The use of hydrocarbon refrigerants in remote mining camps might not be as widespread as the rumour mill would have the industry believe.

Information filtering through from field workers around Australia points to a growing concern by the bigger mining companies about the implications of using a flammable refrigerant in tightly controlled camps.

VASA has learned that one of Australia's biggest miners has a firm policy of sticking to the a/c manufacturers' specifications on refrigerants. The technicians working at their plants share the company's stance, believing that any deviation is seen as non-compliance in a safety critical area.

But quite apart from opinion on whether using HC refrigerant is good or bad, or that the risk factors are big or small, there appears to be growing evidence of system failures and unnecessary expense as a result of long term use of refrigerants other than those recommended by the car maker.

### Seized compressors

President Ian Stangroome, whose workshop is in South Australia, which turns a blind eye to the use of flammable refrigerants in systems not designed for them, says he has lost count of the number of compressors he has seen seized solid due to lack of lubrication in the system in which flammable refrigerants have been used.

He reports that there are still many so-called technicians without the required training, knowledge or experience working on air conditioning systems.

Many of them have no interest, inclination or desire to attain the appropriate professional credentials because, in adopting hydrocarbon refrigerants, they feel that they can do as they please without retribution or penalty.

Their sub-standard work practices work to the detriment of the highly trained professionals in the industry and the unwary consumer who really should be protected.

# VASA SERVICES



See Automotove Training Solutions chief trainer Grant Hand at his best on this air conditioning servicing DVD that comes with a 24-page workbook. VASA member price is \$40.

To order your copy, email [secretary@vasa.org.au](mailto:secretary@vasa.org.au) with your name, membership number and phone number and we will post it to you immediately along with your invoice.

## Members web access

Follow this simple logon procedure to [www.vasa.org.au](http://www.vasa.org.au)

1. On the front page of the site, there are two links, one in the top navigation bar and the other on the left hand navigation links. Click on one of the links.



2. Type your member number in the first box. In the password box type, in lower case, the first four letters of the suburb in which your membership has been listed.

If that doesn't work, please check your membership number and suburb and try again. Accuracy is essential. *After five password attempts the site will lock you out, and you will need to wait 10 minutes before trying again.*



One of the big benefits of being a VASA member is that you receive a free copy of the TaT magazine, and with it free access to the TaT assist service.

This is a web-only service, so to access technical help, members must go to [www.tat.net.au](http://www.tat.net.au) and log in, using the form which will be generated when you click this link on the left of your screen.

*If this is your first sign-in Click Here and enter the same email you gave with your subscription to generate your login details.*

In your case, as a VASA member, your email is already installed in the TaT system, so if it matches, you will be provided with your own password for all future visits.



When you access the TaT assist form, you must fill in as much detail as possible to give the experts enough information to consider your problem.

VASA members can also access a growing database of vehicle faults and solutions in the members' pages of the TaT website.

## New Code of Service for your workshop

**Customer Code of Service**

- The customer will be treated with respect.
- Dealing with the customer will reflect a high quality of service and a professional image of a knowledgeable network of technicians.
- Every vehicle will be diagnosed and repaired in full consultation with the customer.
- The aim is to get the vehicle safely back on the road as soon as possible, regardless of any identifying issues or challenges relating to further repair, warranty disputes or incorrect diagnosis.
- Warranty is not the customer's problem - such issues will be resolved amicably and professionally between the Service Centre and its suppliers, without compromising the customer in any way.
- Following the preliminary inspection by the technician, the customer will be given an estimate of the cost of the necessary repair, an outline of the work and parts required. Replacement parts, with costs if available, will be listed separately to the service charges.
- The customer will be advised, preferably in writing, whether the estimate is subject to further diagnostic work, or whether the quotation is final.
- Where a complex diagnosis is required, the customer will be advised of any charges for diagnostic tests and a written report.
- If additional repairs are found to be necessary, the cost of which would exceed the amount quoted or estimated, the customer will be contacted to explain what is required and to seek authorisation for any additional costs before any further work proceeds.
- Full details of all work carried out will be listed on invoice along with the corresponding charges for labour, spare parts and materials.
- All parts replaced will be available for inspection by the customer, where practicable, and an explanation of why the parts have failed will be offered.
- Services or repairs will be guaranteed against any failure due to defective recommended parts or faulty workmanship.
- Any dispute between the Service Centre and the customer will be resolved quickly and amicably.

[www.vasa.org.au](http://www.vasa.org.au)

- Members of VASA Service Centres will engage in sufficient training, education or skills development to enable them to keep pace with the technological requirements of repair modern vehicles.
- Members are responsible for upholding the professional integrity and ethics of the VASA network and the automotive industry, and will avoid any conduct that may bring discredit to VASA and its members.
- Members will act with honesty, fairness and professional courtesy in all dealings with the public, other VASA members and fellow technicians.
- Members will adhere to applicable regulations and the Code of Practice and will promote the use of approved and recommended parts, equipment and consumables of repair and maintenance.
- Members will endeavour to educate the public on the long-term value of using approved replacement parts. Where a customer decides on a lower quality part option, the Service Centre will state on the final invoice that non-recommended parts have been substituted by the customer, therefore the Service Centre will accept no liability for any failure of parts or subsequent damage to vehicle systems.
- Members will discharge their responsibility to their employees by observing all laws and collective and individual employment contracts or agreements, and by providing technical training, support and instruction to enable them to be productive and efficient employees capable of contributing positively to the welfare of the business.
- Members will provide adequate working conditions, equipment and facilities, and ensure proper supervision of all safety standards and work practices.
- Members reserve the right to refuse to undertake any repair that is beyond the Service Centre's equipment capacity or staff expertise. This right also extends to any situation where the customer insists on a repair that is not recommended by the manufacturer, or any other component, or systems at risk of failure. The member will fully inform the customer why such refusal is necessary.
- Members will take the time to educate customers on the need for proper maintenance of specific vehicle systems and make available relevant brochures or caterate parts to promote a better understanding of the need for scheduled maintenance.
- Members will take responsibility for their own workshop practices and be prepared to guarantee that their practices, and the parts or equipment they fit in any repair will provide trouble free operation when used in accordance with manufacturer's specifications.
- Members will adhere open and readily understood warranty practices as an integral part of their business operations.
- Members will refrain from criticising the actions of fellow members, and will strengthen the network through sharing of technical information and skills and offering assistance to fellow members as required.
- Members will be environmentally responsible, ensuring compliance with environmental and energy efficiency guidelines or regulations.

Issued by the Board of Directors of VASA May 2010

[www.vasa.org.au](http://www.vasa.org.au)

**The Australian Air-conditioning, Electrical and Cooling Technicians of Australia**

The VASA mission through honesty, professional integrity and application of superior technical knowledge is to provide every customer with an exemplary experience which encourages them to return to the VASA brand.

The VASA network offers the most significant professional network of technicians and Service Centres associated to industry best practice. Through the consistency of the VASA network through continuing education and training of staff, we at [www.vasa.org.au](http://www.vasa.org.au) have a vision to become

The VASA Code of Service, circulated to all members during April and May, is a valuable marketing tool for workshops.

The codes, one covering the treatment of the customer, and the other covering workshop staff ethics can be displayed individually, or as a set.

VASA recommends that members frame the codes and display them prominently in their customer waiting areas.

Hot Air is published every two months, and is posted to financial members of VASA, along with the current issue of the TaT magazine.

This newsletter contains information which will help you become a more productive technician. You are encouraged to leave past issues in your waiting room, so that your customers can see that you are a member of a professional repair network.

**RTP**

*The RTP (Registered Technicians' Program) was a big hit when first written by VASA, and is still considered the bible of air conditioning practice.*

*Members are encouraged to use this valuable resource for staff refresher courses, and for ready reference on a range of air conditioning issues.*

*The entire set of RTP bulletins can be found in the members' area of the VASA website [www.vasa.org.au](http://www.vasa.org.au)*

*Hot Air is reprinting the RTP in its entirety and in a new, dressed-up format.*

*So far, we have covered the whole of Electrical Volume 1, Bulletin 1 – 3.*

*In this issue, we continue Electrical Volume 1, Bulletin 3 which covers the principles of electronics.*

*In the next issue we move on to Electrical Bulletin 4, covering EF/EL Falcon fan wiring.*



The VASA website has been revamped with new ways to find members as well as new features including a member competition to win an iPad.

[www.vasa.org.au](http://www.vasa.org.au)

- All 51 bulletins of the VASA RTP bible on vehicle air conditioning
- MACS Worldwide service bulletins from Feb 2005
- Hot Air newsletters back to May 2005
- Annual reports



VASA is proud to be affiliated with MACS Worldwide