



# HOT AIR NEWSLETTER

1st Issue 2005

of the Vehicle Airconditioning Specialists of Australasia May 2005

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BOC Refrigerants

FILE THIS ISSUE OF HOT AIR IN YOUR VASA FOLDER

# Licencing

## It's a mess - but it will happen

The national ozone licencing plan, which affects every refrigeration and a/c technician and workshop in Australia, is off to a bad start. In fact, the legislation is in place, but no body is running the shop.

The appointment of the RAC Industry Board to manage licencing was aborted at the 11th hour,

after a costly, open and transparent tender process which would have seen the board in place by 1 January 2005. The Federal Environment Minister, Ian Campbell, in his wisdom, and without consultation with any organisation of any value in the refrigeration and air conditioning industry, pulled the plug on the appointment.

It has become a debacle, and on the world scene, something of a disgrace that the most applauded

piece of legislation for the environment that any world government could have conceived, could suffer such birth pains through government ineptitude.

Someone, notably the MTA in the Minister's home state, got into his ear at the 11th hour and suggested that it would be more competitive to share the administration load with states or industry sectors.

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# Car explosion leads to prosecution against leading hydrocarbon promoter

The academic whose research work has been pivotal in the push for the use of hydrocarbon (flammable) refrigerants in vehicle air conditioning systems in Australia, Dr Ian MacLaine Cross, has been convicted in the Chief Industrial Magistrate's Court in Sydney as a result of a hydrocarbon demonstration that went wrong, injuring MacLaine Cross and several other observers from the hydrocarbon industry. Workcover NSW had prose-

cuted Ian MacLaine Cross, of the University of New South Wales, on two breaches of the Dangerous Goods Act.

MacLaine Cross was charged that on 12 July 2001, in a University of New South Wales carpark at Kensington, he negligently and carelessly used a hydrocarbon gas, in such a manner and circumstance as to cause or to be likely to cause injury to himself.



Pic extracted from ABC's 7.30 Report, 5 Dec 1995 of Ian MacLaine Cross experimenting with hydrocarbons and a lit candle. He said on that report - "Hydrocarbon refrigerants are totally safe in car air-conditioning"

**Story continues on page 4**

affiliated with



# LICENCING

The former NRAC organisation which was representative of both automotive and stationary industries, was indeed the successful, conforming tender first time around. As such, it would have been a cost effective, efficient and rather seamless transition from its existing interim role, to that of fully fledged managers of the new legislation – they would have become the RAC Industry Board.

A big issue is the assessment process.

VASA has been negotiating with the department for months about how all the technicians in Australia who claim they want to do mobile air or refrigeration, can be assessed for their competency, without forcing them back into school-rooms, and with minimum impact on their businesses.

There was a widely held view that because the government had tied licence competency to the Cert II in air conditioning, that most of the industry would have to go back to a Registered Training Organisation, of which TAFE colleges are the major participants, to complete a Certificate II.

The reality is that Cert II was only introduced in 1999, but not all RTO's were teaching it and there was not a great deal of call for it by technicians.

According to the national training authority website, there are only 53 TAFES and private colleges in Australia approved to deliver Cert II.

VASA is negotiating with sections of TAFE in various states to ensure that they are aware of the scope of the problem and to offer assistance in developing assessment procedures which will have minimum impact on workshops and their budgets.

VASA also wants to ensure that in the wave of effort required to meet the government's requirements, that there are no avenues available for technicians to slip through the net, without being properly assessed by people who know about best practice in modern vehicle air conditioning. VASA is working with the government to ensure that standards are lifted throughout the industry.

VASA has told the government that it has concerns about any institutions using what some companies reported at the VASA Round Table in February as "tick and flick" mentality, just for the expediency of meeting the large numbers of technicians who the government believes will be lining up for a licence.

A thorough reading of the regulations would tend to indicate that the Government is prepared to look at other methods, outside the RTO network, of proving current competency. They have yet to tell us what these other methods might be.

A typical and adaptable assessment package, tabled at the Round Table in Melbourne, has been submitted to the government as a test to see if might be suitable for use in a variety of ways, at training days and workshop sessions.

VASA is trying to make the assessment process as simple as possible and will be cooperating with its own member companies in the delivery of simple assessment days, where technicians can come and be tested - quickly and uncomplicated. VASA and its training affiliate AAEE (Australian Association of Automotive Electricians) are standing by to fill in the voids by running their Wire & Gas Training workshops wherever they are needed.

Don't read into this that VASA is trying to short circuit standards. On the contrary. VASA is adamant that a proper assessment job will be done by the best trainers in the land. In addition, there will obviously be a number of TAFE and private colleges more than capable of doing the same thing, giving technicians plenty of choices for having their assessment done conveniently, at a venue close to their home towns.

VASA's initiative to call a Round Table in Melbourne for 25 February was met enthusiastically by 40 top people representing wholesalers, educators, workshops, kindred auto organisations, transport refrigeration reps and others. At the head table with the VASA leaders was Patrick McInerney, head of the ozone team in the Department of the Environment, who put himself in the hot seat and managed exceedingly well.

VASA president Mark Padwick steered a tricky course through a heavy three hour session. At his side was foundation president Mark Mitchell and Deyan Barrie, President of AAEE.

The meeting sent a resounding and unanimous plea to the Minister – appoint one national RAC Industry Board to administer the regulations. State and Territory or sectorial boards will not work. It will be like a return to the bad old days, with the rules being interpreted differently every time you crossed a state border.

VASA subsequently wrote to the Prime Minister, and to industry Minister, Ian McFarlane, when it became obvious that Minister Campbell was not responding.

The new timetable:

10 and 11 March 2005 - new tenders for RAC Industry Board called  
22 March, 2005 - briefing for prospective tenderers  
26 April 2005 - tenders close  
To end May - evaluation  
Early June - recommendation to Minister  
By 1 July – announcement on appointment

VASA is maintaining an almost daily update on its website, with easy to navigate links from the front page. We recommend all members and indeed all technicians in Australia, keep an eye on this site. It will be the only place where you will get non-commercial, no-nonsense information about the state of play.

In the meantime, technicians of Australia, VASA can only suggest you wait until the smoke clears after 1 July. The licence, whether it's a full licence or a provisional licence, can only come from the government.

So our advice is to respond to the government when asked to apply for your licence. If you don't have a Cert II, or have not been assessed for current competency, don't panic. You will have 12 months in which to do something about it.

The Department says it intends soon to firm up on licence issue for all those who have submitted their names to NRAC and all those currently with State and Territory licences. We will try to find out and let you know when it happens and what it all means to you.

# US Government rejects flammable refrigerants in MACS

petitioned on this matter, and the EPA's decision has been backed by US courts.

Despite a concerted lobbying effort by the sellers of flammable hydrocarbon refrigerants, the US government has again rejected these refrigerants on safety grounds.

Speaking at the MACS Summit in Sacramento, California in March, Dave Godwin of the US EPA explained that no convincing safety case had been made to change the EPA's original view.

"Ten years ago the US EPA recommended that hydrocarbons 'be used only in industrial facilities that manufacture or use hydrocarbons in the process stream'," Mr Godwin told conference delegates.

"Since no valid risk assessment addressing the safety of HC refrigerants in either type of system has yet been submitted under the SNAP program, EPA does not believe that HC refrigerants have been proven to be a safe substitute for either CFC 12 or HFC 134 in motor vehicle air conditioning systems," Mr Godwin said.

The US EPA's SNAP or Significant New Alternatives Program regulates substitutes for ozone depleting substances. This is the fourth time the EPA has been

"Proponents of these refrigerants claimed there is no recorded evidence of an accident, which is simply not true," Mr Godwin said. He indicated a number of accidents that had been verified in the United States, and pointed out that a so-called "safety demonstration" held in Sydney had actually resulted in a number of those present being hospitalised.

## "Spurious Arguments" from HC Lobby

"There have been a lot of spurious arguments put forward attempting to convince people of the safety of flammable refrigerants," according to Mr Godwin. "Let's be quite clear: HC contamination of existing MAC systems does not prove they are safe, HC use in other applications such as domestic refrigeration does not prove they are safe in MACs, past and current use does not prove safety, claimed 'large sales volumes' does not prove safety and claiming no reported fires, when there is clear evidence to the contrary does not prove safety either".

## Vasa Does Its Bit

VASA has played a big role in the development of the US EPA decision to reject HC refrigerant in vehicle applications.

One of VASA's senior technical advisers, Chris Lindeman of Sydney, spent many an early morning on the phone to America and was e-mailing into the night, to put forward VASA's objections to their use.



Chris Lindeman

Most of the information Chris supplied was used in the preliminary discussion papers that led the US EPA to reject the MacLaine Cross risk assessment.

Proof yet again that VASA plays a leading role in the development of strategies for the safety of technicians and the environment. Chris also serves on VASA's technical brains trust and when available, responds to member's technical questions, through the new Technical Problem Solver, available to members only at [www.vasa.org.au](http://www.vasa.org.au)

# Licencing - What a Mess!

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## VASA GAINS SOME FRIENDS IN ITS FIGHT

The more the debate rages about the Government's requirements with regard to people already in the industry who will need a licence, the clearer it becomes that VASA, with the help of some friends in high places, must fight on to ensure that there are no stumbling blocks put in the way of the assessment process.

What we are talking about is quite simple. As you can see from the wealth of material posted on the VASA website, we believe strongly that existing industry should not feel threatened, nor should

it face unreasonable financial and time burdens to comply with the new regulations.

We and others have read and re-read the Act, the Regulations and the Q and A which the Department released, and we are now convinced that there are avenues for assessments to be done in a much more simplified manner than the Government (and its TAFE system) might like.

VASA is offering the government quality and offering the industry a simple and affordable process of being recognised for current competency. It does not in-

volve the TAFE system. We don't believe it needs to. This does not stop TAFE colleges who think they have the expertise from going ahead and doing it.

This is the most critical debate right now. Some big institutions who deal at the top end of town with vehicle air conditioning agree with VASA and are offering support. They know who they are...thanks.

At this point of time, we just don't know if we have a fight on our hands or not. The Government's poor management of this whole business has made us suspicious, and frustrated the hell out of the entire industry.

# Academic Prosecuted Over Hydrocarbon Explosions

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## FOOTNOTE

On the second count, MacLaine Cross was charged with failing to take reasonable care for the health and safety of persons who were affected by his acts and omissions of work, in particular John Reynolds, Paul McGregor and Michael Belsted, who were all injured in the explosion which resulted from MacLaine Cross' demonstration.

MacLaine Cross pleaded guilty to both charges. On the first, Chief Magistrate Miller convicted MacLaine Cross and imposed a penalty whereby he entered into a bond to be of good behaviour for twelve months.

On the second charge, Chief Magistrate Miller exercised his discretion and did not record a conviction, on the defendant entering into a bond to be of good behaviour for twelve months.

He also allowed costs totalling \$5,720 against the defendant.

The court was told that, in his role as senior lecturer at the University School of Mechanical and Manufacturing Engineering, MacLaine Cross conducted an experiment involving the ignition, within a closed motor vehicle, of a hydrocarbon gas which was a mixture of propane, isobutane and air. The experiment was requested by Dr Michael Belsted, the managing director of a company described as Minus-Forty Pty Limited and was also part of the defendant's academic research activities with the University.

Workcover told the court that there were approximately 14 people associated with the relevant private sector industry who attended the demonstration as observers, at the

invitation of the defendant and included among them were the injured persons.

While he was in the drivers seat of his own vehicle, with all doors and windows shut, MacLaine Cross discharged into the air two aerosol containers containing approximately 343 grams of the gas. The gas is an asphyxiant in a highly flammable gaseous substance and is classified as dangerous under the Dangerous goods Act.

**MacLaine Cross then lit a match that ignited the gas and caused a burst of flame. The tops of the four passenger doors were bent outwards, part of the interior lining of the roof and doors were melted or softened and the passenger side front window fractured into hundreds of thousands of shards.**

MacLaine Cross suffered first degree burns to his face and ears and second degree burns to the back of his hands. Belsted suffered first degree burns to his face, McGregor first degree burns to his face, cuts from the shards of glass and a graze to the cornea of one eye and Reynolds suffered first degree burns to his face and neck.

Another observer, Dieter Helf suffered a cut forehead and hand.

The court was told that Dr Michael Belsted, representing a company of professional refrigeration and air conditioning engineers, was preparing a pre-

sentation on refrigerants for his client's Chinese manufacturers and Greenpeace International. His clients were seeking information on a concentration of



*Demonstration of a hydrocarbon explosion from a training film produced by MACS Worldwide.*

hydrocarbon refrigerant in the passenger cabin of a motor vehicle, which, if ignited, would cause no significant bodily injury or property damage.

Since 1994, MacLaine Cross has specialised in the area of the safe use of hydrocarbon refrigerants in cars.

He had conducted two similar experiments prior to 2001 and neither resulted in any personal injury or property damage.

The court was told that since the experiment in 2001, MacLaine Cross had not conducted any similar experiments and did not intend to do so in the future. He was planning to retire from the university and workforce in February 2005.

In his written judgement, Chief Industrial Magistrate G Miller said "There is the need for a general deterrence and to meet the community's concern at workplace incidents. This, in many respects, was described as probably a stupid incident when looking at the particular circumstances and hindsight, no doubt the defendant thought otherwise prior to the incident.

The amount of gas released into the cabin in this demonstration, 343 grams, is approxi-

mately half of a full gas charge in an average family sedan.

The use of hydrocarbon refrigerant in vehicle air conditioning systems which are designed for the only OEM approved refrigerant R134a, is banned in several Australian states. Queensland had issued a Safety Alert on the use of hydrocarbons in this manner and sought a recall of vehicles which had been charged with hydrocarbon refrigerant.

The professional body of air conditioning service centres, wholesalers and OEMs in Australia and New Zealand, VASA (Vehicle Air Conditioning Specialists of Australasia) has been vocal in its opposition to the use of hydrocarbons in vehicles, based on safety issues. Other refrigerant authorities concerned with the use and disposal of refrigerant gas have also issued warnings against the use of hydrocarbons in mobile situations, or in systems not designed for hydrocarbons. Currently, no car manufacturer in the world will condone the use of hydrocarbon refrigerant in their vehicle air conditioning systems.

# This is a Global Industry

## - You Need Global Information

For Australian and New Zealand a/c service centres to do their job properly, they MUST understand what's going on in the global village of the motor vehicle.

No workshop can afford to pretend that the rest of the world does not exist. If you haven't noticed, the cars on our streets come from everywhere. In fact, more than 50% of all vehicles on Australian and New Zealand roads are imported.

Most are from Europe and Asia, some from the other side – the USA.

What this means is that with changes in refrigerant technology inevitable in all car manufacturing factories in the world, the workshop technician is going to need to know what's under the bonnet and how it all works if he, or she, intends to stay in business. And the technologies are not going to be uniform.

VASA will step up the flow of international vehicle aftermarket technical information to its members as a result of joining a three-way alliance with kindred not-for-profit associations in the USA and Europe.

**There are only three strong groups in the global aftermarket specialising in climate control technologies and VASA is one of them.**

The other two are MACS Worldwide (USA), the leading non-profit trade association for the mobile air conditioning, heating and engine cooling system segment of the automotive aftermarket and a fledgling new association in early stages of formation covering Europe, called the MACP program (Mobile Air Conditioning Partners).

Board members of the three parties pledged their commitment to a strong new

global alliance during the MACS convention in Las Vegas in February 2005. At the table were VASA president Mark Padwick and CEO Ken Newton.

Apart from sharing of technical and other information, the new global alliance hopes to present a bold new face to the car manufacturers of the world in a bid to improve the flow of technical data to the aftermarket sector, whose main job is to look after customer vehicles after they leave the OEM dealership embrace.

VASA's need to take on a global perspective was brought home at the MACS convention international forum by VASA president Mark Padwick, who indicated that since 1997, the Australian new car market had reversed its previous trends, with imported vehicles outnumbering locally made.

The gap was ever widening, with now more than 50% of Australia's cars originating in Europe. He remarked that this meant that Australian aftermarket technicians were required to be highly trained to be able to work on vehicles from all manufacturing backgrounds. "The Australian and New Zealand technician is already a global player, whether they know it or not," said Mark.

"Vehicle design, manufacture and maintenance requirements are now viewed globally so it makes sense for VASA to take a global perspective for the future of its own technicians and workshop practices. We aim to keep our members in the global information chain, because without this information, they will not be able to forecast trends and plan for training programs which will keep them in business. The most pressing issue, for example, is with refrigerant gas.

"It is likely that our technicians within the next ten years will need to be able to

service and repair at least three different types of a/c systems, based on CO2, R152a and enhanced R134a," he added.

MACS and VASA have also entered into a strong alliance, consummated with the following Board level agreement.

- MACS and VASA agree to enter into an Affiliation which is based on mutual cooperation, sharing of information and, where necessary and advisable, to offer support to each other in the preservation of the professional and ethical standards which each promotes through its membership.

- MACS and VASA to institute honorary reciprocal membership at a corporate level, which in practical terms will mean each organisation receives all member publications and advices of the other, including access to membership pages as they exist from time to time within the respective websites.

- Where practical, MACS and VASA to provide one complimentary Registration to annual or bi-annual Conventions and Trade Shows and if practical, invite senior representatives to provide industry updates or otherwise take part in discussions or forums relating to general industry matters.

- That each organisation share material, technical and otherwise from published material made available to members, on the condition that the CEOs confer by email on each intended use of material, so as to safeguard copyright where it might apply.

- That each organisation install easy to navigate links on their websites, to encourage membership visits and also to encourage members of the public to seek the repair and maintenance services of MACS or VASA members when travelling or visiting.

### How big is it?

At December 2001, the size of the Australian vehicle fleet was 12.12 million. With the rate increasing at around 2%,

it is estimated that the total fleet at the end of 2004 was around 13 million.

Of those, it is estimated that air conditioning systems are installed in 80% of the pas-

senger vehicles, 75% of all light commercials and 60% of all trucks.

This is based on a total fleet which has a current age of 10.5 years.

VASA suspects that the percentage of new vehicles fitted with a/c is now close to 100% although the official figures puts it at 95% passenger vehicles, 90% light commercials and 80% trucks.

# The Vehicle Crystal Ball is Still a Little Hazy

VASA was well represented at the MACS Worldwide Convention and Trade Show in Las Vegas in February, with three of its five directors, plus CEO and a handful of employees making up the Australian and New Zealand contingent.

In addition, VASA member and trainer Alan Temperley, from Rockhampton in Queensland, put himself through an unbelievable travel gauntlet to make the journey.

All delegates voted it a huge success and well worthwhile spending the airfare.

A seasoned conventioneer, Andrew Kavanagh of Melbourne Auto Air, made this observation - "It is often thought that the American market is far more mature than that of Australasia, but evidence seen at the MACS conference contradicts this.



Andrew Kavanagh, Melbourne Auto Air

"I feel that the quality and standard of repairer is equal to that of our American brothers, and furthermore workshop practice and business acumen (customer relations / promotion / management) is of equal standard or even better in Australia. I can only assume this must be a result of our smaller market and the need for diversification."

Andrew attended the OEM service and repair panel, where manufacturers Daimler Chrysler, Delphi, Ford, General Motors, Honda, Hyundai, Nissan, Toyota and Volkswagen answered delegate questions. Most discussion was related to the increasing need for electronic diagnostic

tooling to perform simple HVAC electronic repairs. It seems obvious that the manufacturers would not be working together to make a 'universal' diagnostic tool or make any current diagnostic tooling more readily available to the aftermarket repairers.

CO2 and R152A were discussed as 'possibilities that all manufacturers were investigating'. Not one representative would confirm that their company had any intention of using any other refrigerant other than R134A in the coming future. Denso had a CO2 compressor displayed in their booth.

All manufacturers discussed the developments in A/C related to the Hybrid vehicles. These included electric compressors (as in the Australian Prius) for use without engine run requirements and dual evaporator systems to "cool" battery cells to maximise battery life. Hybrid batteries must remain at 50% charge and nominated temperatures to achieve maximum life.

Honda is an exception, as they will only use 'fan forced' cabin air to cool battery cells.

Delegates expressed their concern over the lack of commitment from manufacturers on future refrigerant direction. The type of refrigerant adopted will affect training, tooling and investment in virtually every workshop in the world.

Some car manufacturers are suggesting they may go as far as producing vehicles with CO2 for the European market, and

the same vehicle with a R152a A/C system for the US export market. Comments like this reinforce the view that there is no clear direction to be taken from manufacturers just yet.

VASA director Barry Rogers of Auckland Auto Air noted that having 1,650 delegates and 230+ exhibitors would ensure a profitable convention. "We can only dream of those numbers attending a Wire & Gas Convention in Australia.



Barry Rogers, Auckland Auto Air

"However, VASA in no way suffers in comparison - quite the opposite given the size constraints and the distance from Europe and the US.

"I was surprised to hear from the DuPont rep how large the DIY market is in the US. They continue to produce refrigerant in small cans to satisfy this market. That doesn't affect Australia because of the bans on disposables, but New Zealand has yet to follow suit.

"It seems obvious that we in the South Pacific will learn more from the Europeans on the direction the industry is heading. We must keep the lines open with Ron Hesselmanns (Air Conditioning Reporter and member of the group launching a new European aftermarket association) and try to line-up some European speakers for our next convention in 2006," Barry added.



VASA was honoured with Mark Padwick being presented with a Global Leadership Award, in recognition of his commitment of time, enthusiasm and expertise in support of the industry. Mark gave a presentation to the International Forum at the convention on behalf of VASA and it was well received.

The lineup at the presentation ceremony (from left) Barry Rogers (VASA director New Zealand) Elvis Hoffpaur (President, MACS Worldwide), Mark Padwick (VASA President) and John Blanchard (VASA director and treasurer).

# R134a Runs Short and Prices Rise – but alternatives might cost you more in the long run

By now it's no secret that R134a is in short supply around the world and the position is likely to worsen.

The shortage of course is accompanied by a hefty price hike.

The two main reasons for the shortage are the switch over of some plants producing R 134a to another and more profitable refrigerant R125 (a core component in low temperature refrigerants), and several R134a producers had production difficulties in 2004 that have resulted in unusually low inventories entering the 2005 season in North America.

In Australia, DuPont announced a 20% price increase effective from 1 April. Some wholesalers will attempt to absorb some of the price hikes, but rises across the market are inevitable.

DuPont have not ruled out further price increases and they will be reviewing the purchase price on a monthly basis.

Last September, when DuPont first warned the US market, they blamed a global growth in demand, as well as the operational issues during 2004 at a major manufacturing facility.

MACS Worldwide took the opportunity to warn its members across America of the potential dangers of using alternative refrigerants.

The Environmental Protection Agency in the US does not identify any replacement refrigerant for HFC-134a systems, and it has not evaluated alternative refrigerants for system performance and durability.

"Vehicle manufacturers have approved HFC-134a for use in vehicles starting in 1992. CFC-12 is approved in vehicles manufactured prior to the change over to HFC-134a, and HFC-134a is the only refrigerant approved for use by vehicle manufacturers as a retrofit refrigerant for CFC-12 vehicles," MACS warned.

"Current HFC-134a mobile A/C systems

are designed and tested only for use of HFC-134a refrigerant and the specific lubricant (PAG).

"Current market conditions require the service industry to be vigilant when servicing mobile A/C systems, following the vehicle manufacturer's service requirements. If non-OEM approved refrigerants are installed in HFC-134a systems, possible concerns include:

- System cooling performance
- System reliability
- Material compatibility
- Chemical damage from blend refrigerants (chlorine) to system lubricant, seals and hoses
- Contamination with lubricants required for blend refrigerants
- Safety

"Additionally, current systems are not designed to use flammable refrigerants."

...and amen from VASA – we couldn't have said it better.

## A/C and ELECS

It's Annual General Meetings time, with a social twist.

VASA, and its partners in the Wire & Gas alliance, the AAEE (Australian Association of Automotive Electricians) are holding their essential AGMs, plus a joint board meeting to formally adopt an important new Affiliation Deed, with far reaching effects and benefits for members of both organisations.

The meetings will be followed by a dinner party at the same hotel, the Crowne Plaza, in the heart of the city.

The presidents of both associations, Mark Padwick (VASA) and Deyan Barrie (AAEE), would like to see as many members as possible roll up for the meetings and the dinner. It's a great opportunity for members and their partners to meet friends in the trade and

hear some fascinating news. And you'll have plenty of time to shop and sight-see if you plan your schedule right.

Here's the schedule:

**1pm Joint meeting of the Boards**

**of VASA and AAEE at which final agreement is reached on the Affiliation Deed**

**2pm Annual General Meeting of AAEE**

**4pm Annual General Meeting of VASA**

**5.30pm End of formal meetings - free time to prepare for evening and join partners**

**6 - 6.30pm Pre dinner**



## - Join us in Sydney for a weekend in June, tax deductible!

**drinks followed by dinner, during which there will be a joint announcement by the two Presidents, and a low key Crystal Ball Gazing session by one or two of Australia's leading importers and wholesalers.**

It should be a momentous occasion as two prime after-market associations sign an historic affiliation agreement, bringing the two groups closer together, with plans of greater benefits for members of both and a new era for the Wire & Gas Training Convention concept.

We need as many members of both organisations as possible

to attend, not just to vote on the affiliation deal, but to provide the two boards of directors with ideas and issues for future action.

To make it even more attractive, a special accommodation deal has been struck with the Crowne Plaza (you know what Sydney prices are like normally) and the pre-dinner drinks have already been sponsored by Melbourne Auto Air (thanks guys).

Those attending, and intending to stay overnight, will pay for their accommodation and meal. Details soon at [www.vasa.org.au](http://www.vasa.org.au).

It would be really appreciated if those who intend to be there, would call 07 55774144 or email your names to [secretary@vasa.org.au](mailto:secretary@vasa.org.au)

For more up to date information, go to [www.vasa.org.au](http://www.vasa.org.au)

# VASA Technical Problem Solver

VASA has introduced procedures for handling technical questions from members. As resources can not be stretched to accommodate a 24 hour technical helpline, a questionnaire has been developed so that members can put their tricky questions to the experts of the Australian and New Zealand climate control industry.

Members should remember that the RTP is an invaluable source of information and should be the first point of reference when faced with a technical problem. The technical problem solver should be used as a last resort. Remember that you will not receive an immediate response - it may take a couple of days.

Just fill out this form and fax it to (07) 5577 4134 or post to PO Box 1160 Paradise Point QLD 4216, and you will be provided with feedback, when available. Preferably you can submit the form online via at [www.vasa.org.au](http://www.vasa.org.au). All questions and answers will be put on the VASA website for other members to view and may be printed in a future issue of Hot Air.

Date: \_\_\_\_\_ VASA Membership Number: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Email Address: \_\_\_\_\_

Fax Number: \_\_\_\_\_ Phone Number: \_\_\_\_\_

1 - Car Details	
Make of Vehicle	_____
Model of Vehicle	_____
Engine Type	_____
Year of Manufacture	_____

2 - Brand of Air Conditioning System (tick appropriate box)	
<input type="checkbox"/>	OEM Fitted
<input type="checkbox"/>	Dealer Fitted (please specify) _____
<input type="checkbox"/>	Other Aftermarket (please specify) _____

3 - Compressor Details	
Make of Compressor	_____
Part Number	_____
Model Number	_____
Serial Number	_____

4 - Type of Gas (tick appropriate box)	
<input type="checkbox"/>	R134a - tick only if you have 100% purity. If in doubt, can you use an analyser to double check or recharge the system with known pure refrigerant?
<input type="checkbox"/>	Other (please specify) _____

5 - System Type (tick appropriate box)	
<input type="checkbox"/>	Single System
<input type="checkbox"/>	Dual System (off one compressor)

6 - Type of Condenser (tick appropriate box)	7 - Type of Systems		
<input type="checkbox"/>	Multi-flow Condenser	<input type="checkbox"/>	C.C.O.T. (Orifice Tube) - accumulator fitted
<input type="checkbox"/>	Modine	<input type="checkbox"/>	P.O.A. Valve
<input type="checkbox"/>	Fin Tube	<input type="checkbox"/>	TX Valve - thermostatic response on valve (internal/external)
<input type="checkbox"/>	Skyve Fin	<input type="checkbox"/>	VIR (valve in receiver)
<input type="checkbox"/>	Other (please specify) _____	<input type="checkbox"/>	Block Valve (TX)

8 - Guage Readings		
	Blue - Low Side (kPa)	Red - High Side (kPa)
Static	_____	_____
Idle	_____	_____
1500RPM	_____	_____
3000RPM	_____	_____

9 - Ambient Temperature (Air into Condenser)			
	5 Minutes	10 Minutes	20 Minutes
Vent			
Vent Temperature			
Recirculate door in operation			

**10 - Is Variable Capacity Compressor Fitted? (please circle): YES / NO**

**11 - Temperature of Gas**

Discharge Port Compressor	
Liquid Pipe on Condenser	
Suction Pipe Firewall	
Suction Pipe on Compressor	

**12 - The customer's complaint was...**


**13 - What do you think the problem is...**


**14 - Clutch Cycling (please circle): Temperature on / Temperature off**

**15 - System Controls (tick appropriate box)**

- Manual A/C Switch
- Manual A/C E/C Switch
- Climate Control
- Thermostat Manual (early Volvo/ under dash units)

**16 - Compressor Running**

- Idle Up Fitted:      Yes       No
- Idle Cut Out Fitted:      Yes       No

**17 - Condenser Cooling Fan Type**

- Engine driven - fixed
- Engine driven - viscous clutch
- Engine fan and condenser fan - fixed
- Engine fan and condenser fan - viscous
- Electric fan - engine and condenser fan
- Electric fan - engine only

**18 - Condenser Fan Controls (Electric) - With A/C on**

- Fan runs all the time
- Condenser fan runs on pressure switch
- Condenser and engine fan runs on pressure switch
- Condenser and engine fan on half speed
- Run to high on pressure switch

**19 - Heater Taps (tick appropriate box)**

- Heater Tap Fitted:                            Yes                            No
- Heater Tap Operating on Full Cold:            Yes                            No
- Is Heater Tap Working (no flow of water):            Yes                            No

**20 - Service Equipment**

If your question is about service equipment operation or maintenance, please provide a full description of the equipment, including make and year of manufacture:


Describe the particular problem you are having:


Please submit this form by visiting [www.vasa.org.au](http://www.vasa.org.au), following the prompts to the member library. Alternatively fax it to 07 5577 4134 or post to PO Box 1160 Paradise Point QLD 4216

# RTP's For Sale

The Registered Technicians Program (RTP), which has just completed its seventh year in production, has become one of our most sought after products.

VASA has restocked all of the Bulletins going back to day one and they are now available in hard copy form for those who don't wish to spend the time, paper and effort to get them off [www.vasa.org.au](http://www.vasa.org.au) on the internet.

There is a steady demand for the bulletins, especially the earlier ones, particularly Vol 1 and 2, which clearly spell out the underpinning knowledge all technicians require for the electronic and refrigeration side of a/c system management.

Members can now buy back issues direct from the VASA secretariat.

Prices are:

Vol 1	\$175
Vol 2	\$175
Vol 3	\$150
Vol 4	\$150
Vol 5	\$150
Vol 6	\$130
Vol 7	\$130

Buy them per Volume (ie all issues for one year), or buy the entire package, contained in a hard folder for \$850 (a saving of \$210).

NOTE: The original purchase price to



The first two purchasers of Years 1 and 2, Shane Billington (left) and Mathew Lade, from SuperCool in Southport, Queensland.

members of the RTP was \$110 per volume up till the end of Volume 7.

TO ORDER YOUR HARD COPIES OF RTP  
Email [secretary@vasa.org.au](mailto:secretary@vasa.org.au)  
Or fax to 0755774134 with your order details.

## VASA Website Proves its Worth

### - Over 10,000 Times!

The VASA website MUST be bringing a stack of work to the doors of VASA workshops across Australia and New Zealand.

In the 11 months from January to November 2004, more than 10,000 people went to the VASA website specifically to look at the listings pages of VASA workshop members and the only conclusion you can draw from this traffic is that these people were looking for a professional workshop to take their ailing vehicle climate control system.

There is now proof that the listing of members in the service centre category on the public pages of the website, is one of the greatest marketing tools VASA can offer.

Our website is managed totally on line through an internet database. The moment you become a member, your details are automatically included in the register which the motorist can access from the front page of the website. A few smart operators have put up their logos on the website to generate greater traffic. (This can be done for all members for a very small fee).

The host server for the VASA website maintains meticulous records of hits, downloads and pages accessed, month by month and if you want it, hour by hour.

But here are the important statistics, which cover the from 1 January 2004 to 30 November 2004:

6,795 visits were made, through search engines or bookmarked links, to the workshop listings page and 4,005 visits were made, via the VASA front page, to the workshops listings page

This means that 10,795 people with air conditioning problems in their vehicles, went to the VASA site to find out the name and address of a VASA service centre closest to them.

The story gets better. A review of all other pages visited, shows conclusively that these Service Centre listings are by a long shot, the most regularly visited pages on the website.

The monthly record of hits was consistent with the weather at the time. During 2004, the year began quietly, as it does in January, with a total of 331 hits

to the Service Centre listings page. In February, with everyone back at work and back in their cars, the figure sky-rocketed to 1,194 hits. March must have been a stinker, because 1,413 people hit the VASA site looking for a repairer.

Other surprises included the amount of downloads of the Hot Air newsletter from the website.

Because we took the unprecedented step of promoting the October 2004 issue on the front page, offering a PDF download before the magazine hit the streets, 149 people downloaded the files in November alone.

This is not to say that all other pages in the website did not attract their share of traffic. They certainly did, with the most popular pages, for November anyway, being About VASA, Workshops and Conventions, Refrigerant Gas explained, Pioneers and the Car Owners Guide.

At the other end of the spectrum, again for November only, 47 members accessed the member library. That's not a bad figure, but we would like

to see more traffic to this area from our members.

The statistics prove without a doubt that the VASA website is paying handsomely for itself in terms of its impact on the public and on its own members.

Just to put the total November figures into perspective, the total hits (a click to open every page is measured as a hit) on the VASA website were 31,126. These pages were looked at by a total of 1,454 people.

So if you extrapolate these figures out for a year, VASA is one hell of a busy website, providing a much needed interface between the vehicle air conditioning community and the general public. Communication is one of the mainstays of the VASA service to members. These figures show that members should have no complaints about this level of service.

Of course, we can all do better, and VASA would welcome any thoughts from member on how to improve the website and what sort of information you would like to see there. Just send an email to [secretary@vasa.org.au](mailto:secretary@vasa.org.au)

But once you get a taste of the information which is available, to help you and your business, you won't look back, we guarantee.

# There Is No Helpline...

A technical problem on a car in your workshop - what do you do???

# But There Is Help!

By Ken Newton

There's no easy way of saying this... but here goes. Any member with a technical question who phones the secretariat will NOT get an answer. The reason is simple, the secretariat knows zilch about motor cars and the moment you drop a TX valve into the conversation, our eyes glaze over and we reach for the Jack Daniels.

What we can do for you though is whip your Technical Problem Solver form through to our brains trust, which can often result in same day feedback, depending who's on line. The Technical Problem Solver is a form which has been specifically developed by our technical gurus, to provide them with enough information on which to form an opinion and offer advice. It's in this copy of Hot Air and is also available on [www.vasa.org.au](http://www.vasa.org.au) as a printable form or to fill in on line (the preferred approach).

Despite our explanations in the last issue of Hot Air, there remains confusion among some members about the existence or otherwise of an instant technical help line. There is no such thing as an instant technical helpline.

The fact that there is no help line is not because we are cheapskates, or that we don't want to, but the numbers just don't stack up. Bottom line – we can't afford it and neither can you.

## Let's spell out very clearly what VASA does provide:

➤ The RTP – a minimum of four bulletins and questionnaires per year on technical and vehicle specific issues. This is the most valuable thing we do and it more than justifies your membership fee because you simply can't get this information anywhere else. It is specially written for VASA members.

➤ We stage a huge training convention and trade show every two years – the next one is on the Gold Coast in June 2006. In between time, read your Hot Air and go on line [www.vasa.org.au](http://www.vasa.org.au) to see when we are holding workshops. None are planned at present, pending the start up of the new national licensing scheme for technicians.

➤ Technical documents we collect are stored on the members pages on the VASA website. Access them with your password and see what's there, so that you know where to find things.

➤ Every RTP up till this current year is on the members pages. Admittedly, it is not the easiest of indexes, since they were never intended for the web, but go and have a look. Our information is that THE VAST MAJORITY OF PROBLEMS EXPERIENCED BY MEMBERS HAVE BEEN ADDRESSED AND THE ANSWERS GIVEN IN AN RTP. What's the point in doing all this if you don't

read them or access them?

So after all this are you still asking "Well how the hell do I get help for an immediate problem in my workshop?"

With the greatest of respect, let me remind you that you are a member of a wonderful network of fellow professionals, comprising service centres, wholesalers and OEMs.

The reason you joined VASA is to use the network. If you attend conventions or workshops, you will have developed a strong liaison with some of the best brains around, especially in the wholesaler and OEM circles. These are people who can help quite often.

Associations such as VASA exist because they help foster a relationship between people. You are in VASA to share your information. What goes round, comes round.

In fact, VASA workshops within the same city or locality would be doing themselves a huge marketing favour if they went out and had a drink with each other occasionally. If you help solve each other's problems, what do you think that will tell the customer about VASA workshops.

The work will stay in the VASA loop. That's why you are in it. But it's a two way street. Don't wait for everything to come to you on a platter. Just go out and help yourself.

***Cut out the forms at the centre of this newsletter and keep in a safe place for when you want to lodge a Technical Problem Solver.***

## Tech Talk Q & A

### Disposables

**Q.** A New Zealand company is selling small [fly spray size] cans of 134a, containing 2ozs of 134a, 2 ozs oil charge, 2 ozs uv dye and some [magical] stop leak. You buy a little adaptor, plug it on and pump it in. Are these cans legal in Aussie and are they selling them in Aus-

tralia? There seems to be a large number of second hand car dealers using this magical can in parts of NZ. These souls can dump a can or two into a vehicle, and they have very little knowledge of what they are doing. They get the AC blowing cold and are not held responsible for anything.

**A.** Disposable cans containing refrigerant are banned from import into Australia. The government decided some time

ago that these cans could not be completely emptied of refrigerant after use (in industry jargon it is called a "refrigerant heel"). The upshot is you are releasing refrigerant to atmosphere as these cans will eventually lose their remaining product in land fill sites.

NZ is moving toward controls on all refrigerants and perhaps this is a campaign which VASA could accelerate, following its experience in Australia.

# Listen to your customer

– we might have sent them to you

As the VASA logo continues to become better known among motorists, the number of questions and complaints which flow in to the VASA secretariat increases.

We manage them as best we can with our limited resources here, but in most cases, we try to get the customers back in your door, or at least in another VASA door.

So be ready to be a good listener if one of these people lands on your doorstep waving an email from the Secretariat in your face. We are doing you a favour.

All the advice and training sessions in the world are worth a big 'zilch' if your service advisor, or indeed yourself, finds it difficult to reason with a customer or solve a complex issue involving sometimes large sums of money.

If you are in business and dealing with customers, you

must be well prepared for these eventualities, because they are going to happen. How well you control yourself, handle the inquiry, listen to the customer, explain the problem to them in lay terms without being a 'neddy know-all', will determine if you can resolve it amicably or lose the customer forever.

If you happen to be the 'second opinion' workshop, please don't rubbish the 'first opinion' workshop without a full investigation. If you are a professional, all you have to do is give your best, considered, advice and let the customer decide. If the advice conflicts radically with the first workshop, it could mean a number of things, but the cold reality is that is ultimately up to the customer to decide who's telling the truth, who's doing the right thing and who is the most professional.

Here's a very recent email received at the secretariat, along with our response, which is a

standard and automatic response for all such questions: "I was having some trouble with my car airconditioning system. It does not cool and I notice that the compressor continuously cut in and cut out. I understand that is because of the low pressure safety cutoff.

"I decided to refill the system with gas (R-134a) and after that the compressor is running stable now and my question to you is what is the pressure that I should measure at the low pressure side to know that the system has enough gas or that I should fill more gas? Thanks in advance and your soonest reply is highly appreciated."

..and VASA's response...  
"Thank you for seeking VASA's advice on a technical question. Being a voluntary organisation, comprising members across Australia and New Zealand, we do not have the technical resources at the Secretariat to handle such inquiries.

All of our technical resources, which are contained within Original Equipment Manufacturers, Wholesalers and Technical Consultants are channeled totally to improving the skills and knowledge of our member technicians and workshops.

Because of the complexities of vehicle air conditioning systems, there are no simple answers to technical questions and the best advice can only be given by a technician on the spot after a discussion with the customer and a proper diagnostic check of your A/C system.

For that reason, we must refer you back to our Website and from the navigation panel on the front page (at left), click on Service Centre Index, and locate a VASA workshop closest to you.

I trust you are able to find the answers you seek."

Please help us...



By changing your membership details online, you can save us a whole heap of work!

It's that easy!

Simply log on to [www.vasa.org.au](http://www.vasa.org.au) and follow the prompts. If you don't have a password, click on 'forgot password' and you will automatically be issued with a new one.

## Member Benefits Galore

Member benefits have dramatically increased for VASA members, thanks to the newly forged alliance with MACS Worldwide.

There are two significant additions to the VASA website – the MACS 2005 Convention presentations and the highly acclaimed MACS Service Reports.

The Convention presentations are well worth the time to peruse. There's a wealth of technical and industry information and some great insights into the

future of the aftermarket industry. While they are certainly US based presentations,

MACS does take a global view and many of the speakers were of interest to Australian technicians.

These presentations can be downloaded from [www.vasa.org.au](http://www.vasa.org.au), in the members pages.

TO ACCESS, LOG ON AND YOU WILL FIND THE LINK IN THE NAVIGATION PANEL ON THE LEFT HAND SIDE OF YOUR SCREEN.

The MACS Service Reports are now

available exclusively to VASA members in Australia and New Zealand.

These Service Reports, which go out monthly to MACS Worldwide members, contain a wealth of down-to-earth technical information which will be of vital interest to technicians in Australia.

TO ACCESS THESE REPORTS - LOG ON AND FOLLOW THE DIRECTORY LINKS ON THE LEFT HAND SIDE OF YOUR SCREEN.

...And please respect the copyright on all of these documents.

# Repco (Ashdown) Buys Out Ingram

Most people would be aware by now that Ashdown have bought out Ingram.

Ashdown's Shayne Quaille has told Hot Air that it is business as usual, with some expansion plans for more service outlets on the cards.

For customers, they will notice no difference. Ingram and Ashdown will continue with their own identities.

The official announcement was "Repco has entered into an agreement with Alecco Corporation Limited to acquire the automotive businesses of Ingram and McLeod.

"The purchase price is \$89.5 million and settlement was to occur on 31 December.

"Repco's Managing Director Mr Peter Mummery, said the acquisition was consistent with Repco's strategy of being the leading automotive aftermarket participant in Australia and New Zealand.

"The Ingram business is complementary to Repco's existing specialist business, Ashdown, which is the market leader in the supply of automotive electrical products to trade repairers in Australia."

"Ashdown is a specialty business based

in Brisbane. It's about 50 percent import. It has strong cataloguing, great depth in technical knowledge and focuses on narrower channels to market. The key customers are independent auto electricians and air conditioning specialists. The Ingram business is very similar although it is stronger in air conditioning and includes a diesel business.



## Hey Señores ! - We Want To Do Beesness With You...

VASA

Nuestra compañía FRIOMASTER S.A. se dedica a la compra internacional de repuestos para aire acondicionado de autos, Motivo por el cual estamos interesados en hacer negocios con la compañía JAYAIR AUTOMOTIVE AIR CONDITIONER PARTS. para esto necesitamos sus catalogos por favor enviar a esta direccion via currier:

Esperando su pronta respuesta, saludos cordiales.

The internet has made the world an incredibly small place.

For that reason, companies should never underestimate the opportunities for export of goods or services to countries which are often desperate for technology, information and training.

On the heels of VASA's website traffic survey, in came a message from a Panama City company, Friomaster. If their website [www.grupfriolin.com](http://www.grupfriolin.com) is any indication, this is a big and serious operator in a multitude of industrial pursuits, including refrigeration and air conditioning.

After we received the above message, the secretariat responded with an "English version please" and it came back within minutes.

They wanted to contact Jayair, one of our wholesaler members, in this case. The secretariat flicked it to Jayair and we can only hope they can swing a deal.

## RTP Questionnaire Online - It's instant, easy and fun!

With internet usage among member workshops now running more than 80% and rising, more and more information will be available at [www.vasa.org.au](http://www.vasa.org.au)

Already up and running is the new RTP Questionnaires, starting with Vol 7 #2 and #3.

The online form is fun to fill in, simple to use and you get your results immediately. And it's all automatic, which saves you time and certainly saves our office a lot of time.

At the end of each financial year, Certificates will be printed and sent to all those who have completed each questionnaire.

**First, you must LOG IN, using your MEMBER NUMBER and PASSWORD on the panel on the right of your screen and then**

**follow the link to the RTP Questionnaire.**

Each questionnaire is available online for about four to five weeks, to encourage members to do them quickly. Once they disappear from the website, you lose the right to fill in the questionnaire – and that means you won't get a completion certificate at the end of the year.

**Don't underestimate the importance of doing this simple chore.**

You will not only learn a lot, but you will make your customers feel a lot more comfortable when they enter your front office and see so many great qualifications on the wall.

Remember that customers are looking more and more for knowledge and professionalism and put great stock in qualifications and certificates.

## Tech Talk Q & A

### Old R12 stock

A member questioned a statement in the NRMA magazine which said, in effect, that existing supplies of R12 are permitted to be used in servicing, but if major work is required, serious consideration should be given to retrofitting to R134a.

We threw the query at our technical team and they responded that the

NRMA advice was spot on.

Some workshops have a reasonable amount of R12 still in stock, but this really represents only about 1% of the industry.

The fact is, however, that this gas can still be used if it is available, for routine servicing, as expressed in the NRMA comment. Obviously, the retrofitting to R134a is always recommended because sooner or later, the R12 will disappear altogether and a retrofit will be required anyway.



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# TECH TALK

... with Jack Stepanian

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**VASA is indebted to Jack Stepanian, Director of Amazing Visions Pty Ltd, Sydney, for this issue of Tech Talk.**

## ***The car that intermittently kept stalling whenever A/C request was initiated at idle!***

The car that intermittently kept stalling whenever A/C request was initiated at idle!

A young lady brought in a Daewoo Cielo 1.5L Multi Port Fuel Injected vehicle (MPFI) which intermittently either stalled and/or the engine speed severely dipped. This only occurred whenever the air conditioning was turned ON, at idle.

Before the vehicle was left in our care, the customer was quick to point out that 'Joe Blow' down the road had made three attempts to solve the problem, to no avail!

During our history taking stage, we assured her that 'Joe Blow' down the road was indeed a competent diagnostician and any repairs that had been carried out would have been done so out of necessity.

Due to the intermittent nature of the symptom and as a cost cutting exercise, we promised to contact Joe Blow and get the story direct from the source – the repairer, Joe Blow himself.

As expected, all basic checks/repairs that were carried out by Joe Blow, such as throttle body clean, basic tune up and so on, were all long overdue and were all due to lack of service up-keep.

This information was relayed back to the customer and consent was requested to progress with the next phase of diagnosis.

Although repairs carried out by Joe Blow were necessary in order to progress to

the next stage of diagnosis the previous repairer had lost the opportunity to complete the repair and satisfy the customer.

The intermittent nature of the problem had required some preliminary repairs and combined with poor communication skills (warning the customer in advance) the customer had lost trust and had become impatient with Joe Blow.

Now, we were now faced with solving the problem and the dreaded question!

"Was the stalling and severe dipping of engine speed due to either of the following:

- An engine/management mishap, or
- The air conditioning system!"

In order to really understand the problem we needed to analyse the detail of the circuit diagram - perhaps failure to do this was ultimately why Joe Blow failed.

A quick analysis revealed that the A/C control switch was powered up via the ignition switch. This in turn was protected by a 20 amp fuse.

Whenever the A/C was requested, while the blower fan was ON, the output of the A/C control switch supplied a 12-volt signal to D5 terminal of the Electronic Control Module (ECM). This is done via two Normally Closed (N/C) switches, the High pressure and Low pressure cut-off switches.

So long as there seemed to be adequate refrigerant (not too much nor too little)

both switches remain closed and the A/C request signal found its way to D5 terminal.

This signal, however, does NOT trigger the A/C compressor relay. It simply informs the ECM that the driver is HOT and needs to be COOLED down!

Indeed, according to the Circuit Diagram (Cct) it is the ECM that triggers the A/C compressor relay.

So, in essence, this signal goes into the ECM and approximately half a second later the ECM triggers the A/C compressor relay by providing a ground voltage of less than 0.3 of a volt on A10 terminal.

This delay provides adequate time for the ECM to idle-up the base setting of the engine speed to minimise stall and or severe dipping of engine speed.

This idle-up is achieved by the ECM commanding the stepper motor of the Idle Air Control Valve (IACV) to increase its stepper position, hence an increase in engine speed.

This half a second delay between request for A/C and the application of the compressor clutch is noticeably audible. Therefore by pressing the A/C request button ON-OFF-ON-OFF we could listen in to the time delay between the request and application of the compressor clutch.

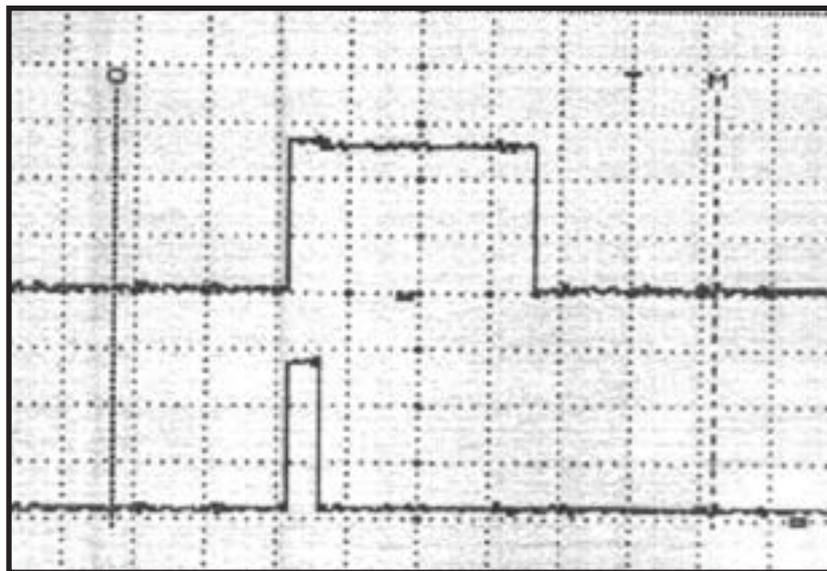
YES, as you may have guessed, whenever the ECM failed to delay the application of the compressor clutch by half a second, the engine either severely dropped in its speed and/or sometimes stalled.

Since the delay was integrated within the ECM's Memory Calculation (MEM-CAL) then it was obvious that the ECM/MEM-CAL had to be replaced.

With the aid of an oscilloscope, the prognosis was confirmed and the information was relayed to the customer.

Having obtained approval from the customer, components were replaced and below captured waveform was stored.

Time base for both waveforms are one



Wave form diagram

second per division, while the voltage scale for both traces are 5 volts per division. The upper trace is that of D5 terminal

and the lower trace is of A10 terminal.

As can be seen, D5 being the request signal, it switches from zero to 12 volts (see left side of upper trace) whenever A/C request signal is initiated. This signal drops from 12 to zero volts whenever the request signal is relinquished (see right side of upper trace).

Also, as can be seen from the lower trace

A10 terminal, whenever a request signal is initiated a rise from zero volts to 12 volts is observed (please see left side of

the lower trace).

However, the compressor clutch relay is NOT activated until A10 terminal is pulled to ground (please see right side of lower trace).

Note that the width of the delay you will find is almost exactly half a second.

This is the required delay to idle-up to avoid a drop in engine speed and/or stalling of the engine at idle whenever A/C request is initiated.

Well, retrospectively speaking, since A/C systems are Electro-Mechanical devices one cannot rule out electronic control systems overshadowing the operation of A/C system such as evaporator, compressor, condenser, and tx valve (to name just a few).

**Systems MUST be viewed 'holistically'.**

**Well, till later, happy diagnosis.**

*Jack Stepanian*

## VASA Online... More than just a website!



- Access all RTP Bulletins except 2004
- Lots of technical information
- Buy accessories online
- Official association information
- Keep your member details up to date

*Use your member number and password to log into the members section.  
Forgotten your password? Just follow the prompts at log-in and you'll be on your way.*

# www.vasa.org.au

# Laughing Gas

It's interesting to see how coy some companies get when you ask them a pretty straight forward question about their products.

VASA was alerted some time ago to a claim by a hydrocarbon refrigerant marketing person that the Malaysian car manufacturer, Proton, had condoned or otherwise closed their eyes to the use of hydrocarbon refrigerant in their Proton a/c systems.

So, an official letter went off to the big cheese of Proton in Australia, asking for confirmation or otherwise. We must have spooked him. There was nil response to two formal approaches.

So the secretariat decided to become a potential Proton customer and, acting like we were the greatest greenies in the world, asked rather excitedly if Proton was indeed condoning or otherwise promoting hydrocarbon refrigerant in their vehicles as an alternative to the standard R134a.

Here's the response. Why are we not surprised?

Date: 21 October 2004 1:19:14 PM  
proton@assistcontactcentre.com.au  
Subject: RE: Proton - Customer Enquiry Notification Report

Dear Mr Newton,

Please find attached the response from Proton Cars Australia Pty Ltd.

At this stage Proton are using refrigerant gas R134A until further notice. All manufactures are using this and are all working together to develop any other alternatives.

Kind Regards,

Maree.

## For Sale

A well established and profitable Gold Coast Mobile Air Conditioning business. Large client base in place for an enterprising technician keen to branch out into own business. Fully equipped and well presented van is part of the deal. All inquiries: Phone 07 5529 2751

## VASA REFERENCE DIRECTORY 2005

Technical Assistance: [www.vasa.org.au](http://www.vasa.org.au) (password required)

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