Hot Air

Newsletter of the Vehicle Air conditioning Specialists of Australia
April Edition - 1996

National Secretariat: VASA (ACN 063 969 782) PO BOX 6222 Silverwater NSW 2128

Be There:

Annual VASA Convention - Sydney August 9 - 11

Sydney's Landmark Hotel, just around the corner from King's Cross, is the venue for VASA's national convention and trade show, between Friday August 9 and Sunday August 11.

The conference committee, led by Tony Heat, is pulling together final details as Hot Air goes to press, so please forgive the scant detail in some areas.

The Committee will be doing a national registration mailout with conference brochure in May and there will be another issue of Hot Air just prior to the convention.

However, it is recommended that you enter the dates in your diary - tell your partner - and get ready for what promises to be a meaningful and entertaining convention for Australia's professional auto air conditioning people, their friends and associates.

Some exciting innovations are in store this year.

Convention Fun....and Training

In a bold move, national executive has decided to trial training courses during the convention. It is important that members provide some feedback to this idea.

There will be more technical lectures and appropriate guest speakers and factory tours.

The entertainment side has not been neglected of course. Top stage shows are being canvassed for group bookings and tours to Sydney's top spots are being organised.

Registration cost hasn't quite been worked out, but preliminary peeks at the budget would indicate the committee is working hard at making this an "affordable" or "pocket friendly" convention. More detail in the registration brochure in May.

Special packages are being prepared, so members and friends will have a good choice to suit both budget and time availability.

There will be an early bird registration prize - a free registration is up for grabs for those who get their names and money in by the deadline of June 15.

WHAT'S *HOT* IN THIS ISSUE

The New Professionalism and Adding Value - the keys to survival

The retrofit bubble has burst.

VASA President Mark Mitchell says those in the air conditioning industry who were rubbing their hands in glee when the change-over to environmentally friendly gases began to get serious, can now see that retrofitting is not going to be the big "boom" they had hoped for.

VASA President Mark Mitchell - exploding the myth of retrofitting bonanza

"Now that retrofit hysteria has died away, the industry can see clearly that its survival will require professionalism in all things," said Mark.

"This means training, itemised accounts for customers, accurate records of all vehicles, no more finger prints on car seats and body work, spruce up our buildings and our image....add value wherever we can.

(More on Page 2.....)

(The New Professionalism.....from Page 1)

"VASA's role is to help the core business of the membership to survive and prosper.

"This is why VASA has established a national training program, and why the VASA directors have responded to the call to open up the membership. However, to protect the integrity of VASA, a set of guidelines has been prepared for membership acceptance.

"The Board see VASA membership as a commitment to professionalism.

"There is mounting evidence that VASA is now accepted by Government departments, motor vehicle clubs and associations and insurance companies as being the only national self regulatory body for the vehicle air conditioning industry.

"This status has not happened by chance. VASA directors have worked hard to achieve it. The new membership criteria has been prepared with this in mind.

"Those who wish to succeed in this business will appreciate that having to satisfy an entry criteria is an essential element of our new professionalism," added Mark Mitchell.

VASA READY REFERENCE DIRECTORY
Directors and Chairmen of Committees

Directors	*Phone*	*Fax*
Mark Mitchell	07 5532 8133	07 5532 8602
Ralph Cadman	02 648 3499	02 748 6137
John Blanchard	03 9890 7333	03 9890 0061
Glen Watkinson	08 347 1155	08 268 8048
Paul Robinson	09 279 3336	09 279 3156
PUBLIC RELATIONS		
Mark Mitchell	07 5532 8133	07 5532 8602
TECHNICAL		
Mark Padwick	02 791 0999	02 791 9029
TRAINING		
Mike Everett	08 243 2422	08 243 0546
CONFERENCE 1996		
Tony Heat	02 9949 5188	02 9949 4243
QUEENSLAND COMMITTEE		
Mark Mitchell	07 5532 8133	07 5532 8602
NEW SOUTH WALES COMMITTEE		
Les Howard	02 477 2422	02 477 7360
VICTORIA COMMITTEE		
John Blanchard	03 9890 7333	03 9890 0061
SOUTH AUSTRALIA		
Glen Watkinson	08 347 1155	08 268 8048
WESTERN AUSTRALIA		
Paul Robinson	09 279 3336	09 279 3156

VASA Adopts New Entry Criteria

VASA's board of directors has drawn up a set of entry criteria which will be embraced in a new brochure directed at expanding membership inquiries.

To maintain standards and credibility throughout the industry, strict entry standards have been set.

To gain full membership, persons or organisations must meet the following criteria:

In excess of 50% of income must be derived from automotive air conditioning...or.....

Must demonstrate a proven knowledge to correctly fit, service, diagnose and repair automotive air conditioning systems. This includes both refrigeration and electrical circuits in passenger vehicles, buses (less than 5 kg capacity), trucks, agricultural and earthmoving equipment.

An entry examination/assessment must be submitted and the required standard of 80% achieved before full membership will be granted.

Grantley Hand
VASA's training director who also prepared the membership guidelines

In the event of a failure to attain the required standard, comprehensive training programs, exclusive to VASA members and applications for membership are available.

Included in the Membership Information brochure will be VASA's commitment to service policy, plus warranty guidelines.

Application for membership can be made through any VASA member or by contacting any person listed in the VASA directory.

On receipt of application, an interim affiliate membership will be granted pending acceptance and/or successful completion of the assessment.

Respond promptly to the VASA Convention registration form when it reaches you in May - and you could get your registration fee refunded. The deadline for this early bird prize is June 15.

Flammables - A round-up of Legislative Reactions

Chris Lindeman - Tracking the legislation for VASA

Since the much publicised move by New South Wales Government to ban the use of flammable gases in motor vehicle air conditioning, there has been a wave of interest - of varying intensities - around Australia.

Here, Hot Air provides a checklist of the latest moves, State by State by Territory.

NEW SOUTH WALES banned the installation of flammable liquid gases in motor vehicle air conditioning in October 1995. Further consideration is being given to controlling the use of flammable refrigerants in areas such as commercial and industrial refrigeration and air conditioning.

QUEENSLAND has had strict controls on all uses of hydrocarbon refrigerants since early December 1995 and these may be used as a model by other State regulators.

NORTH TERRITORY has adopted a simplified version of the Queensland regulation.

WESTERN AUSTRALIA has indicated they are looking closely at the situation and may do something shortly.

SOUTH AUSTRALIA may regulate in the future at this stage appear to be doing no more than monitoring the situation.

VICTORIA is looking at some form of control.

TASMANIA appears unconcerned at this stage.

There is some cross-linking between the regulations to control hydrocarbon refrigerants and various committees formed to address either technical or regulatory considerations in the general areas of refrigeration and air conditioning including automotive.

1. The re-writing of the codes of practice for the refrigeration air conditioning and automotive industries.
2. The revision of Australian Standard AS1677 to address flammable refrigerants.
3. The ratification of an Australian Standard for refrigerant recovery and recycling equipment.
4. Consideration is being given to a national industry and government consultative committee to assess the areas of use of hydrocarbons as refrigerants or propellants.
5. The use of Hydrochloroflourocarbons (HCFC's) is currently being addressed by the Ozone Protection Consultative Committee.
6. Controls on Hydroflourocarbons (HFC's) is possible under Global Warming issues to be addressed by Federal and State Environment Protection Authorities.

Technical Tip

Vehicle: Falcon ED V8 with low line dash.

Symptom: Rapid cycling of compressor clutch when evaporator temperature gets down to normal range

Problem: Thermister fitted at production instead of thermostat.

Solution: Wire in mechanical thermostat to ECU in place of thermister.

Hot Air is the official newsletter of the VehicleAir conditioning Specialists of Australia. Members are encouraged to share the information with staff, associates and visitors. Leave copies in your customer waiting room.

Say Hi! to our new members

VASA gives a big welcome to these companies who have joined since the last annual meeting in Victoria.

Hot Air is designed to let new and old members know what's on in the vehicle air conditioning industry.

If you have any questions, use the contact register on Page 2 and call a director or committee person closest to you.

Lach's Mountain Air	Lachlan Percy	Rockdale NSW
Auckland Auto Air	Barry Rogers	Auckland NZ
Air Supplies Pty Ltd	Michael Paul	Fortitude Valley Qld
Mainwaring Auto Electrics	Kim Mainwaring	Devonport TAS
John Collis Car Sound	John Collins	Hyde Park Qld
H.D.S. Auto Electrics	Terry Hassett	Dandenong VIC
Hookair Auto Aircon	Tyrone Hooker	Raby NSW
Suncoast Mobile Car Air	Jeff Barker	Montville Qld
Active Auto Air	Alex Fascioli	Liverpool NSW
N.J. Car Airconditioning	Noel Joy	Strathpine Qld
Auto Comfort	Kevin Glover	Grovedale VIC
JAE Environmental Auto Air	Tony Evans	Sth Windsor NSW
Ron Gilroy Automotive	Ron Gilroy	Singleton NSW
Auto-Cool Pty Ltd	Peter Davis	Townsville Qld
David Gras Auto Electrics	David Gras	Griffith NSW
Allcoast Auto Electrics	Lou Mihaly	Bundall Qld
Darwin Auto Electrics	Stephen Hodges	Winnellie NT
Bill Moyes Electrical	Ron Girvam	Waverley NSW
Ingram Corp.	Shane Quaile	Sunbury VIC

State Reports

Qld Makes Big Push on Training

Bevan Carrick, who works with Mark Mitchell on the Queensland Committee and also serves on the Technical Committee, has prepared a first rate brochure on VASA training and lobbied all Queensland members to make a commitment to future courses.

"To enable us to set suitable dates and venues for this coming winter season, we need to determine the number of members and staff interested in these courses," Bevan told members.

"We encourage all members and staff at senior and junior levels, to seriously consider involvement in at least one or two of these courses this year."

AAMI gets serious about VASA

The big insurer, AAMI, despatched two of its top people from Melbourne to the Gold Coast for a two-hour conference with President Mark Mitchell and the outcome was a big ✔ for VASA policies.

Manager, Technical Services Unit Ian Rogers and Assessing Analyst - Technical Services Unit, Darren Perryman left Mitchell with a promise to apply for membership of VASA.

After a thorough briefing on VASA's stance on retrofitting, flammables and code of practise, the AAMI delegation applauded all initiatives.

They see big implications for insurers in having a significant professional body overseeing the industry.

Mitchell's view was that the insurers seemed very relieved that VASA existed and that reputable companies had joined together to self regulate.

An application for AAMI membership in VASA went in the next mail.

VASA's Main Aims

Raise the technical standard of all businesses dedicated to the betterment of the automotive air conditioning industry.

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Raise the self esteem of those businesses.

Make national representation of these businesses to the government and media

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Improve relations between manufacturers, wholesalers, dealers and service technicians.

Conference Program
Sydney
August 9 - 11

Thursday August 8

6pm	Directors check in
	Evening free

Friday August 9

9am	Directors and Committee meetings
	Delegates check in
	Exhibitors set up trade Show
10.30am	Morning tea
11am	Lunch
1.30pm	Tours leave
	Training course
	Technical lectures
5pm	Tours return
7pm	Trade show closes
	Evening free

Saturday August 10

9am	AGM and Committee Elections
9.30am	Conference commences
10.30am	Morning tea
10.50am	Conference resumes
	Committee reports
	General business and discussion
11am	Factory outlet tour leaves
12.30pm	Lunch
1.30pm	Conference resumes
2pm	Key note speaker
3pm	Conference closes
	Trade show opens
	Training course
	Technical lectures
4pm	Factory outlet tour returns
6.30pm	Trade show closes
7.30pm	Banquet

Sunday August 11

9am	Training course
10.30am	Morning tea
11am	Delegates check-out

Training Initiatives Popular

Mike Everett - Training Priority

The national training courses, under the guidance of VASA's training expert Grantley Hand are being enthusiastically embraced by members.

In the words of Mike Everett, Training Committee Chairman, "The industry's future is dependent on the level of priority it places on training.

"The training committee has initiated a 16 hour advanced training course, covering most aspects of automotive air conditioning," Mike said.

The feedback from the initial courses held in Queensland and New South Wales has been very positive.

"We are working assiduously to establish VASA as the recognised industry body in automotive air conditioning in Australia and part of that strategy is to address areas of training that have been previously ignored.

"We want VASA to drive the training program rather than have some other body doing it as in the past," he said.

Workshops are being arranged for the Sydney Convention in August. It would be helpful to determine the response from members for this concept.

At going to press, courses were being planned for Victoria in July/August, but Western Australia had yet to respond. Paul Robinson in Perth is the contact. (See the VASA Directory on Page 2)

Full Schedule of Courses on Page 8 this issue

Technical Q and A

Welcome to Hot Air's new Question and Answer segment - the first of a permanent regular feature where members can send their curly questions and have them answered by VASA's technical committee.

So get ready for next issue. Sit down right now and write out your technical question, then fax it to Director Glen Watkinson on **08 2688048.**

Q...

We have heard that fitting a 2.0 ton TXvalve to a VL Commodore in place of the original 1.5 ton valve gives better system performance. Do you recommend this practice?

A...

No. The fitting of a TX valve with an increased flow rate can cause liquid flood back to the compressor with the TX valve fully open. (ie initial start up or hot days). TX valves are factory calibrated and sized after extensive system testing and must not be substituted with an alternative type/size or superheat value unless recommended by the manufacturer.

Q

I work on a lot of farm machinery with roof top units. I have one unit that has had three compressors fail in rapid succession. The local refrigeration mechanic has suggested it may be liquid migrating into the compressor overnight, causing a "liquid slug". Any suggestions?

A

Yes. The problem may well be "liquid migration". The solution is to fit a suction line accumulator (similar to the GM orifice tube system) to trap the liquid before it returns to the compressor.

Q

I have good quality gauges that are marked "anti-vibration", yet on some systems I test, the high side gauge vibrates violently. Is there anything wrong with the system or am I doing something wrong?

A

No. You are not doing anything wrong and there is nothing wrong with the system. All refrigeration systems are subject to system pulsations (caused by the discharge strokes of the compressor). In some systems the pressure wave frequency "sets up" needle vibration, but this does not effect system operation in any way. Some systems incorporate a "muffler" or expansion chamber into their design if it is deemed necessary in order to "smooth out" flow, particularly through the TX valve.

Note: Glycerine filled gauges are designed to prevent needle vibration on all systems - but you pay for them!!

Don't forget to phone or fax your State Director or closest VASA official and let them know your level of interest in special courses planned to be conducted as part of the August Convention in Sydney

Do it NOW Please!!!

Oils for Air Conditioning

Myths and Facts of Pags

Extra care must be taken with respect to moisture and the handling of PAGS.

Mark Padwick - Chairman of VASA's Technical Committee -Exploding Myths

Even though PAGS absorb a large amount of water it is very tolerant with moisture and generates no free moisture. Esters are less hygroscopic than PAGS but they break down with moisture (hydrolysis) and generate carbonic acid and sludge. Automotive air conditioning systems cannot be totally moisture free due to moisture ingress through hoses etc.

Myth: *Pag Is A Hazardous Material*

PAG is no more hazardous than the mineral oil previously used. It is also no more hazardous than Ester oils.

Myth: *Pag Oils Deteriorate After Two Years*

All oils begin to deteriorate from the time they are produced. This includes mineral oils and Esters. The key point to remember is that

(Myths and Facts of PAGS - Continued)

most PAGS were designed to have a lifespan of 10 years or more in the compressor.

Myth: *Pag Is Unstable In The Presence Of Residual R-12*

Ordinary PAGs are unstable in the presence of R-12 while modified PAG was designed to be stable with R-12. Esters are not completely stable with R-12; actually the free chlorine from R-12 accelerates hydrolysis of Esters.

The myth that systems need to be flushed to remove all mineral oil is not true.

Mineral oil will happily stay in the system. It does not turn into a black goo.

PAGS can be added on top of mineral oil, with no ill effects to the compressor. However, depending on the amount of mineral oil left in the system, performance may drop as the mineral oil coats the surface of heat exchanges (condenser and evaporator). It also displaces refrigerant ie. if system charge is 600 grams and 200 grams of oil is already in the system then refrigerant charge could be as low as 400 grams.

The other reason for removing mineral oil is to ensure all R-12 is removed as R-12 causes extremely high head pressures when mixed with 134a.

Hermetic compressor makers have chosen Esters in order to get the longest life out of their compressors. The main reason PAGS were not used is that they do not have enough electrical insulating properties. Since moisture ingress is not a problem in hermetic systems, Esters can be used.

If you haven't already done so, contact your closest VASA director and ask about training courses for vehicle air conditioning in your state.

Flammables

US EPA Reponse to Hydrocarbon Proponents

In the last issue of "Hot Air", we reported on the findings of the US EPA in response to submissions by hydrocarbon proponents. We reported that:-

"The US EPA, at a conference in Washington USA, has rejected the submissions from Dr I. L. Maclaine-Cross of the university of NSW, the Arthur D. Little report (commissioned by Calor Gas UK Manufacturer of HC refrigerants) and Oz Technology.

It appears all submissions were rejected on the basis "that they did not present a valid, comprehensive or scientific risk assessment" - and at best are only preliminary studies."

It has since been pointed out to us by Elgas that it is inappropriate to state that the reports of Dr I.L. Maclaine-Cross and Arthur D. Little were rejected by the US EPA. It appears that although the US EPA rejected the Oz Technology petition it does not formally reject the papers submitted in support of the petition, rather it comments upon them.

Elgas advise that a further report by Arthur D. Little "Risk Assessment of Flammable Refrigerants Part 3: Car Air Conditioning" (Commissioned by Calor Gas, UK manufacturer of hydrocarbon refrigerants) has not been rejected by the US EPA. The US EPA has not issued to date any comment on this latest Risk Assessment. The Arthur D. Little report is still under evaluation by the US EPA.

Jumble Market

Welcome to Hot Air's first Jumble Market - the ideal column to unload your surplus junk! - sorry, superceded or surplus stock.

You never know, that antiquated compressor for a Gogomobile may be urgently required by a VASA member in Townsville.

Hot Air will charge a minimum fee of $5 - which is $1 a line for five lines.

Glen Watkinson in South Australia is the Jumble Market manager.....so send him your cheque and your ad.

His address is:-

Car Aire
932 Port Road
Woodville West SA 5011.

State Reports

SA Division Responds to Training Initiatives

There was a 100% roll up at the VASA SA Division meeting on January 16.

The meeting was addressed by Grant Hand on training and 10 members enrolled for a 16 hour VASA course to be held on April 13 and 14 1996.

Further discussion was on the topics of interstate warranty and hydro-carbon based refrigerant.

The next meeting is scheduled for July, 1996.

VASA Training Courses

Course No 1
Automotive Airconditioning

Designed to cover R12 and 134a catering for technicians entering the industry or fitters requiring theoretical underpinning to enable them to advance in the trade.

Duration:
16 hours

Content:
Principles of refrigeration
Pressure/Temperature analysis of systems
Fault finding (basic)
Servicing procedures

Course No 2
Advanced System Diagnosis/ Retrofit to 134a

A course designed for technicians who have an established understanding of the operation of automotive air conditioning systems.

Duration:
16 hours

Content:
Advanced system diagnosis and fault finding (including pressure/ enthalpy diagrams)
Detailed system analysis (pressures and temperatures) to enable critical evaluation of systems (pre and post retrofit to 134a)
System flushing procedures
Detailed component evaluation
Special systems analysis (orifice tube/epr systems)

Course No 3
Electrical Test Instruments and Meters Electrical Fundamentals

An introductory course into electricity and test instruments for technicians who require training in this area.

Duration:
4 hours

Content:
Fundamentals of Electricity
Test instrument-uses, care and calibration
Basic circuit analysis and testing
Switch types
Relay types

Course No 4
Electronic Control System

Technicians with a basic understanding of the fundamentals of electricity or have completed the course in electrical fundamentals.

Duration:
8 hours

Content:
Semiconductor devices - diodes, transistors, thermistors
Logic circuits
Electronic Control Systems (ECM) control circuits
Testing on above devices and circuits
Duty cycles and pulse width modulation principles

Course No 5
Electrical Circuit Diagnosis

Technicians with a basic understanding of the fundamentals of electricity and electronics or who have completed "Electrical Fundamentals and Control Systems" - Course 4.

Duration:
4 Hours

Content:
Circuit diagram analysis of thermostat circuits
Thermostat circuits
Thermistor circuits (including power/ economy circuits)
Principles of switching voltage drop testing of:
Power switched circuits
Earth switch circuits
ECM switched circuits

Course No 6
Electronic Climate Control Systems

Technicians with a comprehensive understanding of vehicle electrical and electronics or have completed all preceding electrical and electronic courses.

Duration:
8 hours

Content:
Detailed analysis of full electronic climate control systems including:
input devices (sensors)
output devices (actuators-blower speed control, duct switching air mixing, air sourcing etc.)
Control unit function and testing
blower speed controller testing
Full circuit analysis and pin point test analysis to be conducted on Ford and GM systems.

Course No 7
Twin and Triple Evaporator Systems

Technicians with a comprehensive understanding of Automotive airconditioning systems.

Duration:
4 hours

Content:
Analysis of both genuine and after market dual evaporator systems
System balancing
TX sizing
Wiring diagrams and electrical analysis of both thermistor controlled and thermostat controlled systems.
Wiring of after market dual evaporator systems.

Plus
Special Systems

Technicians with a comprehensive understanding of Automotive Airconditioning systems.

Duration:
4 hours

Content:
Operation and evaluation of EPR (evaporator pressure regulator) or S.T.V. systems, and orifice tube systems
Includes system diagnosis and charging procedures on the above systems.

Course No 8
Large systems analysis, sizing and piping

Technicians with a comprehensive understanding of Automotive Airconditioning systems.

Duration:
4 hours

Content:
Operation of larger systems and their system design characteristics
Sizing of long hose run
Application and fitment of oil separators
System balancing
Adjustable TX valves
Suction line superheating.