

## Aircon-Conned

This article is a true description of an AECS technical help desk problem and how it was solved.

### Vehicle

All Automotive and commercial Airconditioning systems.



*Automatic A/C System*

### Problem we ran into

Most refrigerants currently used in New Zealand are classified as compressed gases under the Hazardous Substances (Compressed Gases) Regulations 2004 (Compressed Gas Regulations).

Under the current HSNO Act (Hazardous Substances and New Organisms), anybody handling or recovering compressed gasses which includes R134a must have had suitable training and hold a Filler and/or Handler Certificate.

The reasons for this are simply put twofold:

- 1) the release of refrigerant into our environment **MUST** stop, and
- 2) pumping refrigerant into a bottle or system can cause major harm to anybody in the vicinity when mechanical failure occurs.

Both are preventable, but any issues will not be recognized by untrained personnel. Please think about the health and safety issues your shop would face in case of an accident when you have untrained personnel at the controls!

To more or less enforce the training requirement on industry, on the 1<sup>st</sup> January 2015, it became a requirement for anyone wishing to purchase refrigerant gas to present a Filler and/or Handlers licence. The decision to restrict sales in this way is a voluntary agreement made by reputable refrigerant suppliers to help ensure safe practice in refrigerant use within our industry.

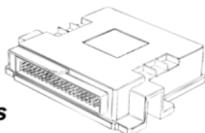
It would appear though that nearly 2 years on from this date it is still possible for just about anyone to purchase R134a without any questions being asked and hardly any licences being checked.

### Laugh it off

It is quite apparent that there are sales driven companies within the automotive industry that do not have best practices at heart and exist almost solely to sell as much product (and refrigerant) as possible no matter what and to whoever wants it.

These companies are simply ignoring legislation and agreements between those who are striving to make our industry safer, cleaner and greener. We all need to focus on lifting the standards of our industry in the eyes of the general public, else we soon end up having a very large throw away industry with no work for professional repairers anymore.

At AECS we deliver Air-Conditioning courses regularly nationwide throughout the year and attend training ourselves to stay at the very forefront in terms of available products and technology and it is through our courses that we often get to hear the stories of how readily available refrigerant is, regardless of if you have a licence or not. How it can be easily ordered over the phone in just a few minutes no questions asked or sent via a courier to wherever you like.



During these seminars, we also get to hear about some of the many myths and in some cases, blatant lies that are spread by ill-informed suppliers/sales people in a quest to sell more of their own products. This is not the correct way to raise the profile of the automotive industry in NZ, it is the way to make our industry look very bad indeed and is not indicative of the vast majority of us. If we don't at least try to self-regulate, stronger more unpalatable rules and restrictions will inevitably follow.

If this is not cause for concern enough I feel duty bound to bring to your attention something that has been troubling us at AECS for several years now.

### Stop Stop-leak!

A/C servicing is a thriving part of the automotive sector but there now lurks a silent killer for A/C systems and service equipment which we recommend be stopped firmly in its tracks at your workshop door before it wreaks havoc with not only your equipment but also your customers' vehicles!



A/C Stop-Leak is the generic name for this silent menace and we have experienced first-hand what sort of damage this innocently named substance can do. Please understand we do not single out any brand of stop leak.

When a vehicle's A/C system is not serviced often enough (service is moisture, air, particle removal and recharge), air and moisture are present in the system. Most vehicles need servicing every 24 months.

So why is Stop-leak so bad? Stop-leak by its nature is designed to react on contact with air or moisture to create what is at best a temporary repair to

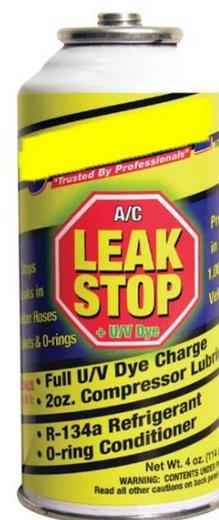
leaking A/C systems.

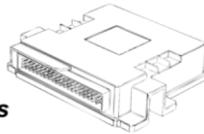
So, what's wrong with that I hear you ask? Put simply

- it is because of how stop leak alters the technical properties of the various seals within the A/C system in a quest to weaken/soften leaking seals. The seals often become overly soft to the point of distortion (creating new leakages on the most inaccessible spots), and
- the way in which the stop leak changes state on contact with air or moisture.

The stop leak will either transform into crystals, or it transforms into a rubbery substance (often tiny rubber balls) settling on valves and solenoids in the system. Both have the potential to cause havoc in the A/C systems on vehicles and in your A/C service equipment.

On top of that do many stop leak canisters contain refrigerant to keep the can pressurised, and to assist injection into the vehicle. The extra refrigerant entering the vehicle is unmetered (top up).

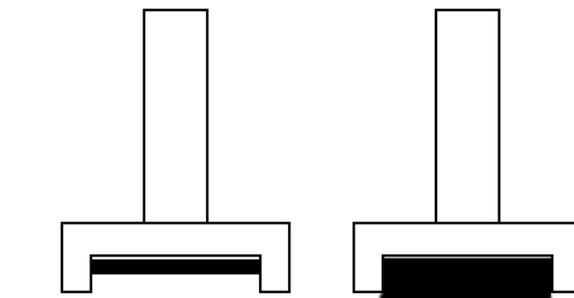
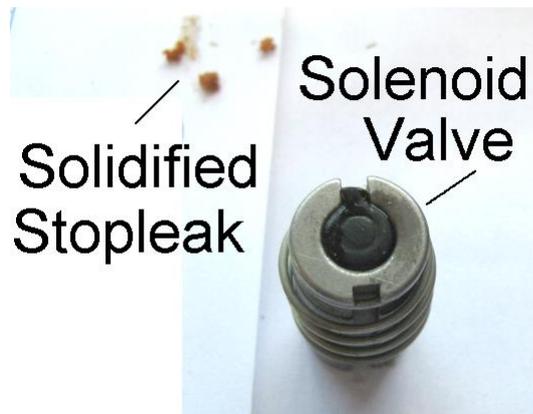




### Kills A/C service equipment

Please realise that when you connect your A/C service equipment (or the stop leak canister) to a vehicle the tiny amount of air trapped in the high or low pressure coupler is all that is needed to start the chemical reaction even before the vacuum pump can remove the air. We as distributors of A/C equipment have evidence that this substance has caused in several major brands of A/C service equipment massive failures. Equipment which became so horrendously contaminated that the service machines were eventually written off. The cost of replacing the effected parts combined with the time it takes cleaning the rest of the machine to ensure no stop leak remains is hugely time consuming.

Below are some pictures we took of a contaminated machine's inside:



*Rubber seal in the valve had swollen to +/- 5x its original thickness*

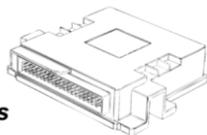
*Valve with swollen rubber seal*



*Solidified Stopleak we found in many pipes and orifices inside the A/C service equipment.*

Imagine what Stop-leak does to the inside of the car's AC system when air is present in that system.

Introducing air in the car's AC system is as easy as hooking up an old fashioned gauge set, where the pressure gauges read for example zero Bar.



### A/C top up...

At a recent seminar, a trainee showed me what he had been using on a regular basis to “top up” his customers’ cars during regular services as he had been convinced by a sales person that it would be a great little earner for his business and was even contacted by that sales person several times to be asked “why are you not ordering lots more as so many people were now using this amazing product”. Call that a desperate hard sell!

When topping up an AC system it is impossible to know the total amount of refrigerant in the system, realise that some BMW’s need the correct charge +/-10gram to get the best cooling effect. The cooling effect of the A/C system reduces when the system is over *and* undercharged.

No surprise that once I had technically explained in the AECS A/C training about the dangers of stop-leak and topping up he agreed to stop immediately to use the product and return any remaining product he had left on his shelf. Please note that during our training we run up a rig under and over charged. Training goes a long way!

### Reject

A point of concern for him now is the fact that every car he has “topped up” is now infected with the dreaded Stop Leak. He understandably does not want to put his A/C service equipment anywhere near those vehicles he previously topped up. What will his customers say if they take that vehicle to somewhere that tests for the presence Stop-Leak and then say “I’m very sorry we will not be working on your car’s A/C as it is likely to fail and it poses a major risk to our A/C service equipment”. This is happening right now in NZ and we at AECS do not want any more workshops to be duped into making this same mistake. STOP using Stop-leak and top ups, no matter what brand and what sales spiel you hear!

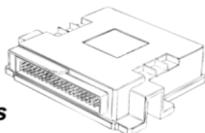
What also is of concern, is that these top-up bottles are being sold to non-refrigerant fillers licence holders on a regular basis. Surely they should fall under the same regulation as every A/C service person. The containers (13.6kg bottles) we all use are every bit as harmful as the top up bottles. Some of them can hold up to 1kg of R134a.



*‘NASA approved’ Stopleak/topup*

### Stop leak detection kit

The dangers of the A/C Stop-Leak have become such an issue that a few years ago an overseas manufacturer developed a Stop-Leak detection kit as it is clearly a growing problem not just here but internationally. We have been supplying these detection kits to the Automotive trade for a few years now and they continue to be in high demand. A simple kit with purely mechanical components.



Sadly, for some workshops these kits have come too late. We have had to tell a few workshops already that their trusted A/C service machine is beyond reasonable repair. It's not usually a happy phone call! We at AECS use this testing kit for testing BEFORE we service AC machines.



### **Top up with a mix?**

There are several manufacturers and suppliers of top up products and as you can see in the pictures, they don't even try to hide the presence of the harmful Stop-Leak. Through either lack of training or pure ignorance the suppliers seem happy to continue to sell these products to the trade, YOU.

You may have been offered or have seen for sale A/C Top-up or Auto Air Conditioning Re-charge which upon closer inspection you will soon discover contains R134a gas, the dreaded Stop-Leak, some random universal PAG oil and occasionally some tracer dye. We from AECS advise you to avoid these products and service the A/C system according to professional standards. Don't be an A/C cowboy! It is not hard or expensive to do it right.

### **Conclusion**

Work with high standards, that ALWAYS pays in the end!

Skill up and choose top level equipment. Our training is available throughout NZ and easy accessible. Besides being very good value and high on technical content, it is also FUN! When choosing equipment, support and training be sure you pick a supplier who not only thoroughly understands the equipment they are supplying but can train you correctly and support you into the future with a quality service you can rely on.

for **AECS** Ltd:

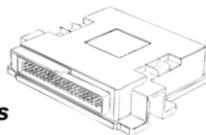
Paul Corbett

(A/C trainer)

Web: [www.aecs.net](http://www.aecs.net)

E-Mail: [info@aecs.net](mailto:info@aecs.net)

Ph 06 8749 077



## Did you know....?

We are finished training for the year, we have done just over 60 seminars around NZ and Australia this year.

Mid November, December and January are busy months in the workshops, so we take that time to develop new seminars.

Watch this space!

2017 looks like we have been booked for 75 seminars...

---

We have had the Director of TiePie Engineering over from Holland. He has shown us some real beautiful new developments. Like a wireless data logging scope. He was here to investigate requirements for new additional options on the ATS scope.

---

In February we will be holding an 'AECS technical day' at our base to show case what we have been developing in the summer.

---

We have added the Brainbee range of Aicon equipment to our product range. The first container load has already been sold!

The next container is already underway.

---

We have an impressive line up of 21 different seminars in our catalogue check this out on our web site under TRAINING.



*New shipment of Brainbee A/C Machines just before delivery.*

Branbee A/C8500 ..... \$8,500+gst (top of the line)

Branbee A/C6000 ..... \$5,750+gst (entry model)

---

Container with more underway!

**LAUNCH**



Launch Pro3V2 **SUPER SPECIAL!**

Limited stock: **\$3,350+gst**

Top quality, full kit with all connectors, 3 years updates, latest Lenovo tablet, no catches. Let's face it, you won't find a better deal any time soon!

AECS is an official authorised Launch distributor.