MEETING NOTES
EGEA Working Group 9 – Mobile Air-Conditioning Systems

Tuesday, 6th December 2011 (10h00 – 16h30)
EGEA offices (Brussels, Belgium)

Participants:

AICA/ Brain Bee spa	Andrea Cantadori
AICA/ Ecotechnics spa	Max Vanderhenst
AICA/ Luvata Italy	Stefano Collavini
AICA/ SPX Italy	Alessandro Carluccio
ASA/ Hella	Pete Bradley
ASA/ Hella	Mark Degenhardt
AVL DiTest	Bernd Tetyczka
FMA/TAE	Luc Thijs
STM/ ZUH Sosnowski	Michal Kotarak
EGEA Secretariat	Neil Pattemore
EGEA Secretariat	Eléonore van Haute

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1. Opening and welcome

On behalf of the EGEA Secretariat, Neil Pattemore welcomed all participants and thanked them particularly for their support in the creation of such new Working Group on MAC.

2. Introductions

Cf. list of participants here above.

3. Background to the ASA - MAC Working Group

This was the 1st meeting of WG9, which has been formed to address the lack of equipment standardisation for 1234YF servicing equipment for the European market.

There were therefore a number of critical questions that would form the basis of the WG's position, focus and final outcome.

1. Should the VDA/ASA specification be a benchmark for the objective of this WG9? (Now called the 'German vehicle manufacturers' specification'). The German VM's created a version of the SAE standards to ensure that there is a clear definition for the European dealer networks – the products needed to be approved by (for example) TUV.

2. The VDA standard is coming from the SAE standards, especially to minimise the loss of refrigerant. If there is a leak, the unit is able to stop the gas flow. The specification can be restrictive for the market – the SAE standards are a better place to start. The market has already started and many equipment manufacturers have already finalised a product specification.

3. Education to the end user is a critical issue to allow an understanding of not just the product specification, but also objective information about the gas properties, training, etc.

4. It is felt necessary to have an enforceable EU specification – which today is not happening.

5. Andrea Cantadori thinks that SAE are in talks with the ISO/CEN to create a worldwide 1234YF standard – he will confirm the SAE contact.

6. Enforceability through the shared R134a standards. Pressure regulations (PED) and ATEX for inflammable liquids/gasses.

7. The customer would benefit for safety, economical use and accurate equipment.

8. The unit would need to be ATEX compliant. AGRAMKOW are already ATEX compliant: http://www.agramkow.com/RHS-1280-R1234yf-Filling-Equipment-786.aspx.

   The Directive 99/92/EC (also known as 'ATEX 137' or the 'ATEX Workplace Directive') provides the minimum requirements for improving the health and safety protection of workers potentially at risk from explosive atmospheres. Directive 94/9/EC (also known as 'ATEX 95' or 'the ATEX Equipment Directive') concerns equipment and protective systems intended for use in potentially explosive atmospheres.

9. ASA are assessing the VDA specification for Aftermarket customers. The meeting will be held in Germany on 20th December 2011. It was discussed and agreed that the EGEA WG9 would remain the best forum to create and implement a European solution for a 1234YF specification.

10. Specification details & Definitions/requirements (see table below).

Technical specifications	**Definitions/ Requirements**
Accuracy – in 2 levels - recovery - and/or recharging	- +/- 15gms recovery or re-charging (VDA and J2843 standards, but different test methods to establish accuracy). 'Accuracy' applies to the complete station, including hoses and components, as well as the scales.
Purity requirements (recycled)	VDA is 98.5% purity. Needs to be defined at what point the measurement is taken (before recovery, after recycling etc.) What happens if R134a and 1234YF are mixed: - If the gasses are mixed in the tank = no possibility to recharge with pure refrigerant. - Condensable gas may be purged and gas lost - Compressor with an expansion valve – set up for 1234YF, then if a mixed gas exists, there may be a broken compressor. - Accuracy of the complete station is significantly compromised. Identifier is integrated, with Go/No Go decision, but with options of a refrigerant analyser or sending the 'bad' gas for recycling.
Approval protocols/ Conformance tests	- Oil contamination - Vacuum - Charging and recovery

Non-condensable gasses	- Automatic purge as per J2843 or VDA – they are the same, but with a maximum of 4% of the total quantity recovered.
Servicing	- Implement service support contract to ensure accuracy and purity compliance, detailed in the user manual. Unit will include an indicator of replacement components.
Tank contents (max/min and useable volume)	- No need to specify – included in PED scope (Class 3)
Hoses and couplers	- **Couplers**: as a minimum this should be the J2888, but with zero loss design if the equipment manufacturer wishes. Equally, this could be left out and be the choice of the equipment manufacturers to decide the total station loss during a complete cycle (oil discharge, bottle venting etc). - **Hoses**: no limit to hose length (like in VDA), so follow J2888.
Oil Injection	- Accurate to 5 grams. Could be by manual (oil gun) injection.
Identifier	- It should only identify R134a or 1234YF – if contaminated, it cannot be returned across Member States borders… However, other products need recycling across borders. **NP to ask Dave Garratt (UK GEA) for vehicle component/contaminate recycling for vehicles (site in Daventry).**
Leak detection (off-board) (one after vacuum and one after pre-charge 50gms have been put in the vehicle is the VDA specification, but this pre-charge is useless….)	- A commercial option, but with a warning not to use 'hot tip' detectors with 1234YF (inflammable gas)
Flushing	- A commercial option
Oil containers/separation	- There should be a minimum of 2 anaerobic (sealed) bottles – one for waste oil and one for new oil. Higher specification for 3 bottles, to include oil for electric compressor vehicles. Designed in such a way to avoid oil cross-contamination to a level below 0.1% (needs automatic internal flushing). Tracer bottle should be an option.
Contamination	
Safety (risk assessment) – including fire/explosion/electrical architecture/PED etc, but not to be fully compliant to every standard.	- Safety measurements
Pressure test (It is wrong to test a pressure system by using a vacuum….., so pressurised (Nitrogen) testing would be better)	
Vacuum	- Minimum vacuum pump performance - Minimum vacuum required 5 Mbar - 30 minutes duration with manual override
Gauges (EN837)	- Analogue or digital, but low and high measurements are necessary. - Vacuum - just a sensor.
Printout details (process records and details of the gas used)	

4. Reasons and intentions to form a similar working group within EGEA

See point 3 above. Due to the cost of the 1234YF refrigerant, plus the current lack of an equipment specification, it is felt necessary to create a 'benchmark' specification to ensure that end users are able to compare performance, functionality, accuracy and cost to ensure a fully informed buying decision.

5. Purpose and terms of reference (TOR) for the Working Group

Based on the existing SAE 1234YF standards, the German Vehicle Manufacturer's recommendations and previous R134a equipment standards, but also utilising the experience of the EGEA Members, both as equipment manufacturers, distributors and service/training support providers.

6. Discussion on how to proceed practically, allocation of work and commitment of delegates.

It was agreed that there is sufficient value to both EGEA members and end users to create an EGEA specification/recommendation, therefore the WG9 should continue and that the next meeting will focus on writing a detailed product specification.

7. Decision and next steps

Following long and fruitful discussions on technical specifications and requirements needed, it was decided that the next meeting will focus on writing a full specification description and consider what further products should be specified (e.g. leak detectors, gas identifiers etc)

Actions:

- NP will create an outline of the specification description document as the basis for this next meeting.

8. EC Public Consultation on the reduction of fluorinated greenhouse gas emissions: implications for WG9 members?

Discussions

- Discussion whether EGEA should answer to the EC Public Consultation on the reduction of fluorinated greenhouse gas emissions.
- Max Vanderhenst pointed out that enforcement/policing of the European Legislation, notably on F-gas training, needs to be improved.

Decision

- It was commonly agreed to answer to that EC Public Consultation by informing the European Commission that the industry is ready and able to support the transition towards the use of 1234YF, but Member States should ensure a better and more efficient implementation of the existing European legislation to minimise the impact of R134a, as already suggested by the Commission in its report on the application effects and adequacy of Regulations EC No. 842/2006 (Com/2011/581 final), by supporting the industry training providers at Member State level to ensure adequate implementation of the legislations at workshop level.

9. Thank you and closure

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Attachment:

- WG9 Introductory Presentation, N. Pattemore, EGEA Secretariat