

COOLING WHAT MOVES YOU

Mobile A/C Update



MOBILE AIR CLIMATE SYSTEMS ASSOCIATION

TST Live
Round Table Discussion
July 15, 2026

ABOUT YOUR PRESENTER

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EPA Section 609 Certification!



<https://macsmobileairclimate.org/>



Current 609 Refrigerants: R-12, R-134a & R-1234yf

Plus: R-152a & R-744 (CO₂)

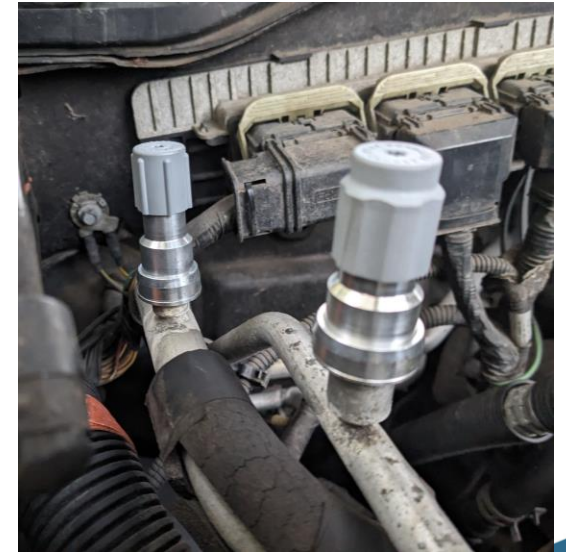


FUTURE 609 Refrigerants: R-12, R-134a & R-1234yf

Plus: R-152a & R-744 (CO2)

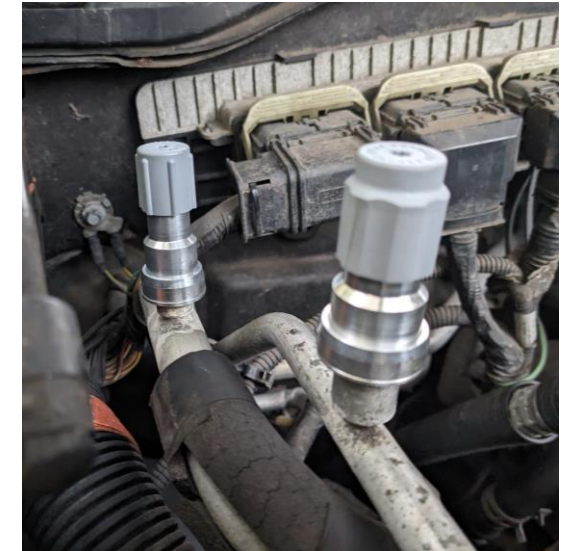
R-444A, R-456A, R-452A, R-480A

Plus... As we heard tonight... **Retrofits!**



SAE Committee Activities

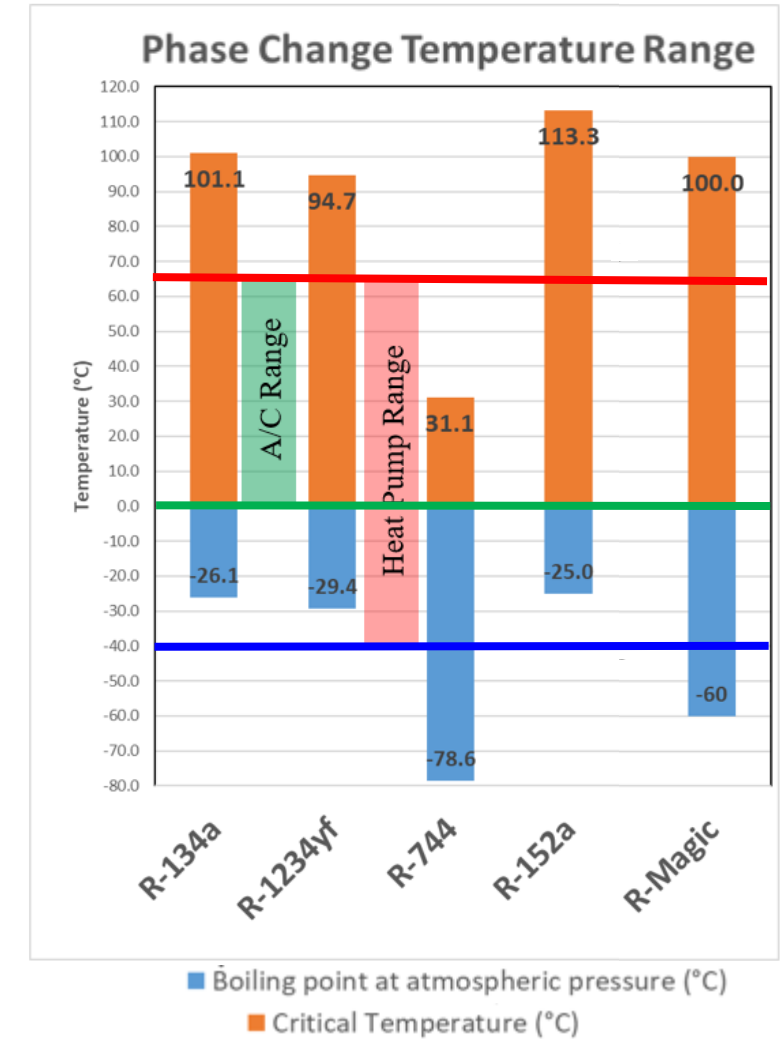
- Retrofit Standards
 - J3332 (Parent Standard)
 - J3332-1 (R-134a Retrofit to R-1234yf)
 - J3332-2 (R-1234yf Retrofit to R-444A)
 - J3332-3 (R-134a Retrofit to R-456A)
 - Approved Retrofit Activities
 - Passenger Cars / Light Trucks – In process (Rule 27)
 - Medium Duty Class 2b & 3 – Future (Rule 28)
 - HD Truck Class 4-8 – In process (Rule 27)
 - Construction/Agricultural Equipment – Future (Rule 28)
 - Reclaim



SAE Committee Activities

- SAE TMR CRP
 - Thermal Management Refrigerant – Cooperative Research Project
 - Studying new refrigerants intended for future EV systems

Committee	Standard	Name	Document Leaders	Priority	Referenced Documents	Comment	Status	Completion Target for (Next Step)
OEM Committee Chair: J. Sprysak Vice-Chair: G. Mathur	J639	Safety and Design Standards for Motor Vehicle Refrigerant Vapor Compression Systems	Sponsor: T. Craig; current updates M. Mann; R290 Update	MED-HIGH	J2772, J3221, J3264, J3324, J3342, J3343, J3355	Umbrella standard for Motor Vehicle Refrigerant systems. Will reference other standards for R290	Depends on J3324, J3342, J3343, and J3355 completion. Workshop scheduled for April 14, 2026	2026 Q2 (Final Draft ready for Ballot)
	J2772	Measurement Refrigerant Concentrations Under On-Vehicle Refrigerant Leakage Conditions (New title)	Sponsor: T. Craig	MED-HIGH	J639	Update needs to include garage scenario with measurements both inside and outside the cabin	Draft available. Workshop scheduled for April 14, 2026	2026 Q2 (Final Draft ready for ballot)
	J3343	Safety and Design Standards for Motor Vehicle Thermal Systems using A3 Refrigerants	Chair/Sponsor: M. Mann Vice Chair: J. He	HIGH	J639, J2772, J3355, J3342, J3324, J2945, J3221, J3264	Child Standard to J639 with vehicle level requirements for R290	Working Group is meeting every week. Two additional sections need drafts.	Q2 2026 (Final Draft ready for Ballot)
Supplier Committee Chair: D. Niegorski Vice-Chair: M. Zima	J3324	Design Standards for Motor Vehicle Refrigerant Vapor Compression and Expansion Systems Access Port Assemblies and Interfaces	Sponsor: A. Kimmel	HIGH		Service port standard for Motor Vehicle Refrigerant systems. Service port specifications to be removed from J639.	Draft well underway; some updates still needed. Still working on some details as of 1/28/26 MACS meeting	April 2026 (Final Draft ready for Ballot)
	J3342	Design Criteria and Certification for Safe A3 Mobile Refrigerant Thermal System Modules and Service Replacements	Chair/Sponsor: T. Vatanabe Vice Chair: D. Niegorski	HIGH		Module/subsystem safety standard for R290 secondary loop modules	Working Group is meeting every two weeks (Started 2/24/2025). As of 2/26/26 Mar. Final format and Clean-up on going—will be ready for committee ballot.	Early Q2 2026 (Final Draft ready for ballot)
Fluids Committee Chair: A. Patti Vice-Chair: M.J. VanderBink	J3355	R-290 (Propane) New Refrigerant Purity and Container Requirements for Use in Motor Vehicle Thermal Management Systems	Sponsor: C. Seeton	HIGH		Reference J2776 (R-134a), J2844 (R-1234yf)	Ballot ends April 7th. Minor comments to be addressed 14-Day ballot should resolve	May 2026 (Resolve Comments 14-day ballot)
Service Committee Chair: M. McMasters Vice-Chair: C. Abbott	J2845	Technician Training for Service and Containment of Refrigerants used in Mobile AC systems (New title)	Sponsor: P. Coll	HIGH		Approx. (20) sections needing updates; need to define new technician training for working with A3 refrigerant	Weekly meetings are scheduled through May. Meeting notices are in Standardworks under Service Committee. Currently 53% complete.	Q2 2026 (Final Draft ready for Ballot)
	J3221	A3 Refrigerant Electronic Leak Detectors, Minimum Performance	Sponsor: S. Schaeber	MED		New standard similar to J2913 with ability to detect A3 refrigerants	Draft available for review. Plan to submit for ballot in a few days	April 2026 Committee Ballot
	J3264	Recovery Equipment for Mobile Thermal Management Systems	Sponsor: M. McMasters	MED-HIGH		New standard similar to J2851 with ability to recover A3 refrigerants	2nd Ballot ended March 22nd. Minor comments to be addressed 14-Day ballot should resolve Independent of other standards	April 2026 (Resolve Comments 14-Day or MVC Ballot)



SAE TMR CRP & Future Refrigerants

- R-290 (propane) for Heat Pumps in BEVs
 - Range concerns
 - Thermal range (-40°F to +130°F)
 - PTC heaters use A LOT of power (100% efficient, but reduce range)
 - Heat pumps use A LOT LESS power (up to 300% efficient, allowing for more range)
 - PFAS concerns



NEW MACS Certifications!

- MACS J3126 Certification
 - ConAg Mobile A/C Service
- MACS J2845 Certification
 - PassCar / Lt Truck Mobile A/C Service
- MCTI
 - MACS Certified Training Intensive
 - August 28 & 29
 - Pittsburg State University, Kansas





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Thank You!

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formerly known as MACS Mobile Air Conditioning

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