



From pros for pros:
Training program 2021/2022



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www.mpulse.mahle.com

MAHLE Aftermarket presents its world of technology

From exhaust gas turbochargers through cylinder liners

Whether trainees, experienced mechanics, master mechanics, or engineers: MAHLE Aftermarket offers the right course for everyone.

In addition to teaching theory, MAHLE Aftermarket offers special practical training on damage prevention for passenger cars and trucks as well as for agricultural and construction machinery.

At MAHLE Aftermarket, we're flexible: you select the topic, tell us when and where the training should take place—and we'll take care of the rest. Alternatively, we also offer many of the topics as online training courses. Simply speak to your MAHLE Aftermarket trading partner or contact us directly at ma.training@mahle.com.

MAHLE Aftermarket's technical experts look forward to organizing interesting and exciting events for you.



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Certified by MAHLE

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T-AC

Air conditioning in the vehicle

Air conditioning system design, function, and common causes of failure



Contents

- Design and function of a vehicle air conditioning system
- Air conditioning requirements in current and future vehicles
- Function of the individual components of an air conditioning system
- Types of refrigerant and their differences
- Compressor oils and their differences
- Common causes of failure and damage in a refrigerant compressor
- Important steps during repair and assembly of the individual components
- Proper maintenance of the air conditioning system
- Avoidance of consequential damage
- Support in the event of damage

Information for participants

- Duration:** 2.5 hours
- Participants:** Minimum of 10
- Fee:** EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts
- Sales staff



T-EC

Combustion engine in detail

From installation through diagnostics



Contents

- MAHLE engine components in the combustion engine
- Design and function:
 - Pistons
 - Valves
 - Bearings
 - Cylinder liners
- Correct installation
- Failure diagnostics
- Common causes of failure and damage
- Support in the event of damage

Information for participants

- Duration:** 2.5 hours
- Participants:** Minimum of 10
- Fee:** EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts
- Sales staff



New training course



T-FI Filtration in the vehicle

Design, function, and common causes of failure



Contents

- Requirements of modern filtration in vehicles
- Design and function:
 - Oil filters
 - Fuel filters
 - Cabin filters
 - Air filters
- Automotive air conditioning
- Quality and distinguishing characteristics
- Typical filter damage scenarios
- Consequential damage in the engine periphery
- Support in the event of damage

Information for participants

Duration: 2.5 hours
Participants: Minimum of 10
Fee: EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts
- Sales staff



T-NT New technologies

Opportunities and challenges of existing and future drive concepts



Contents

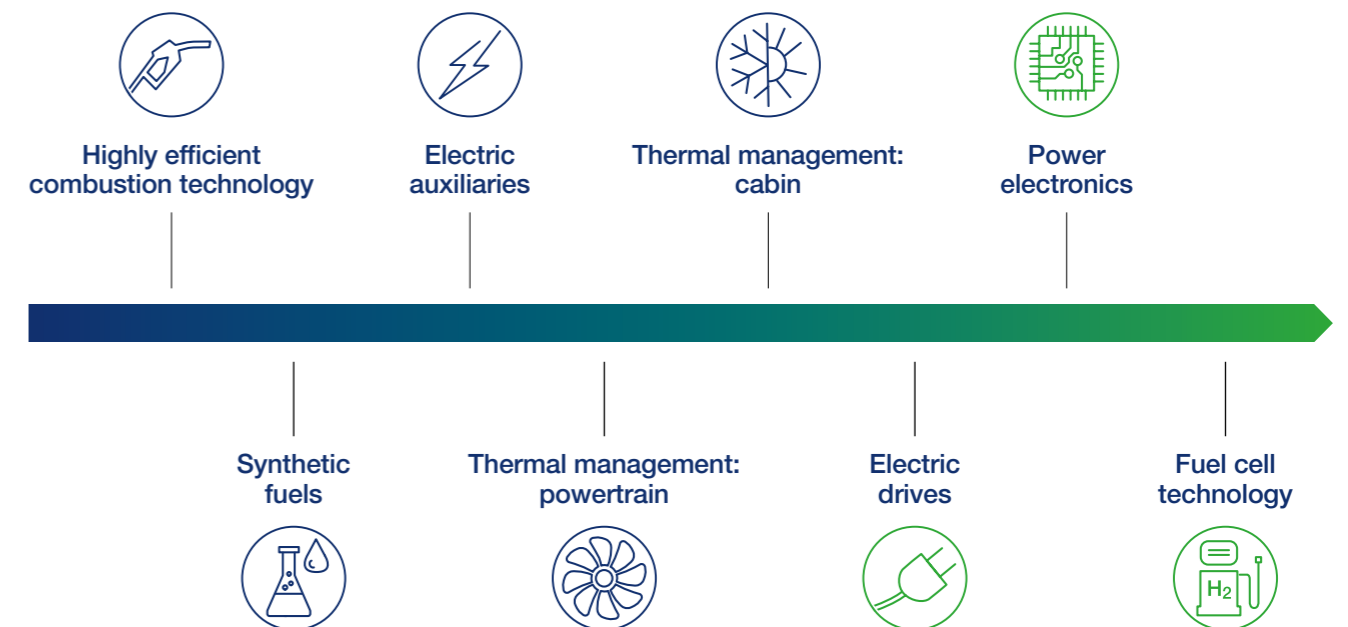
- Future trends and challenges
- Electrification of the powertrain
- Ongoing development of the combustion engine
- Thermal management
- Measures for reducing emissions
- Optimization measures in the engine environment

Information for participants

Duration: 2.5 hours
Participants: Minimum of 10
Fee: EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Authorized experts
- Sales staff





T-SA

Starter motors and alternators

Design, function, and common causes of failure



Contents

- Design and function:
 - Starter motors
 - Alternators
- Distinguishing and identifying characteristics
- Important steps during assembly
- Common causes of failure and damage
- Failure prevention during repair
- Support in the event of damage

Information for participants

Duration: 2.5 hours
Participants: Minimum of 10
Fee: EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts
- Sales staff



T-TC

Turbochargers

Design, function, and common causes of failure



Contents

- Turbocharger design
- Detailed principles of operation
- Different types and models
- Code of conduct and important service work on turbocharged engines
- Common causes of failure in the turbocharger environment
- Possible causes of poor performance, noises, and other complaints
- Diagnosing damage in the engine periphery
- Consequential damage following turbocharger failure
- Support in the event of damage

Information for participants

Duration: 2.5 hours
Participants: Minimum of 10
Fee: EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts
- Sales staff





T-TH

Thermal management

Cooling systems and components of the modern combustion engine



Contents

- Coolant circuit
- Design and function:
 - Radiators
 - Charge air coolers
 - Oil coolers
 - Exhaust gas coolers
 - Thermostats
 - Water pumps and kits
 - Switches and sensors
- Correct assembly and maintenance
- Cooling electronic components
- Typical cooling circuit damage scenarios
- Support in the event of damage

Information for participants

- Duration:** 2.5 hours
Participants: Minimum of 10
Fee: EUR 39.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Sales staff



New
content

P-DP

Damage prevention

Engine periphery



Contents

- Appraisal of damage to combustion engine components:
 - Pistons and cylinders
 - Bearings
 - Valves
 - Filters
 - Thermostats and thermal switches
 - Turbochargers
 - Starter motors
 - Alternators
- Common causes of failure and damage
- Diagnostic options and measures
- Failure prevention during maintenance, service, and installation

Information for participants

- Duration:** 8 hours
- Participants:** Minimum of 8, maximum of 15
- Fee:** EUR 129.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts



Safety notice

This training course involves hands-on practice. Please wear clothing suitable for the workshop as well as safety shoes.



P-TC

Damage prevention

Turbochargers



Contents

- Recognizing common damage scenarios and causes
- Checking controls
- Checking the complete system prior to repair
- Diagnosing different causes of failure
- Detailed appraisal of damage to the turbocharger
- Important steps when replacing a turbocharger

Information for participants

- Duration:** 8 hours
- Participants:** Minimum of 8, maximum of 15
- Fee:** EUR 129.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts



Safety notice

This training course involves hands-on practice. Please wear clothing suitable for the workshop as well as safety shoes.



P-SA

Damage prevention

Starter motors and alternators



Contents

- Appraisal of damage to mechatronic components:
 - Starter motors
 - Alternators
- Common causes of failure and damage
- Diagnostic options and measures
- Failure prevention during maintenance, service, and installation

Information for participants

Duration: 8 hours
Participants: Minimum of 8, maximum of 15
Fee: EUR 129.90 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts



Safety notice

This training course involves hands-on practice. Please wear clothing suitable for the workshop as well as safety shoes.

C-SK: Expertise in vehicle air conditioning systems

In accordance with the Chem-KlimaschutzV* in conjunction with Regulations (EU) No. 517/2014 and (EC) No. 307/2008



Contents

- Operating principles of A/C systems in motor vehicles
- Use and properties of fluorinated greenhouse gases
- Impact of emissions of F gases on the environment
- Basic knowledge of the relevant provisions of Regulation (EU) No. 517/2014 and Directive 2006/40/EC
- Knowledge of the common processes for recovery of fluorinated greenhouse gases
- Handling a refrigerant container
- Working with the A/C service unit
- Operating a recovery unit

Information for participants

Duration: 7 hours
Participants: Maximum 12
Fee: EUR 229.00 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees
- Authorized experts

Registration

This training is also provided by our partner Trainmobil.

Register directly at www.trainmobil.de or ma.training@mahle.com.

* The German Chemicals Climate Protection Ordinance



After passing the examination, held in accordance with Regulations (EU) No. 517/2014 and (EC) No. 307/2008, you will be certified for repair and maintenance work on vehicle air conditioning systems.

C-CG Compressor Guarantee Plus

Certification of participation in the
Compressor Guarantee Plus program



Prerequisite

Participants must have passed the examination held in accordance with Regulations (EU) No. 517/2014 and (EC) No. 307/2008.

Contents

- The air conditioning system and associated components
- Typical component damage
- Correct flushing of the air conditioning system
- Correct replacement of the air conditioning compressor
- Correct use of A/C service units and diagnostic tools
- Conversations with customers and sales aids
- Handling a warranty claim with the Compressor Guarantee Plus

Information for participants

Duration: 7 hours

Participants: Maximum 12

Fee: EUR 229.00 plus VAT

Target group

- Automotive master technicians, qualified technicians, and trainees
- Commercial vehicle master technicians, qualified technicians, and trainees
- Agricultural and construction machinery master technicians, qualified technicians, and trainees

Registration

This training is also provided by our partner Trainmobil.

Register directly at www.trainmobil.de or ma.training@mahle.com.



The guarantee with a plus

More value thanks to added value

More quality. More service. More satisfaction! The Compressor Guarantee Plus program from MAHLE gives you extra benefits. With MAHLE, you're supported by a strong expert partner with the extensive know-how of an original equipment manufacturer. Thanks to interesting and practical training on all aspects of air conditioning compressor replacement, workshops taking part in Compressor Guarantee Plus have the chance to gain expert knowledge at first hand and thus offer their customers an even better service.

The Compressor Guarantee Plus program also saves you time, so you can concentrate on what's important: your customers. That's because you're guaranteed to be credited in just a few days for every air conditioning compressor warranty claim you submit—with minimal paperwork.

Our plus in service. Your plus in satisfaction.



Our promise to you

Complexity made simple. There are many important details to consider when replacing an A/C compressor. MAHLE's compressor training courses give you the skills you need to perform A/C compressor replacements like a pro and ensure air conditioning systems operate without a hitch immediately afterward—without the need to spend further hours repeating the process. But that's not all! We promise every workshop participating in the Compressor Guarantee Plus program that MAHLE will be on hand as a strong partner at all times, even when it comes to warranty claims—in fact, we guarantee to accept every one of your claims.



The major plus for your workshop:

- No warranty claims turned down within the Compressor Guarantee Plus program
- Worry-free handling of any warranty claims that arise
- Guaranteed credit note
- Long-lasting qualifications
- Supportive cooperation
- Greater confidence in MAHLE



The digital classroom

Our range of online training courses

You don't have to come to us to take part in our learning opportunities. If it's not possible for you to train at one of our locations, or if you're keen to keep costs and downtimes to a minimum, we're also happy to run training courses online. This option is already available for those courses labeled with the note "Online training also possible."

To arrange a date and register, or if you have any questions about our digital training courses, please either contact your **MAHLE Aftermarket trading partner** or send an e-mail to ma.training@mahle.com.

