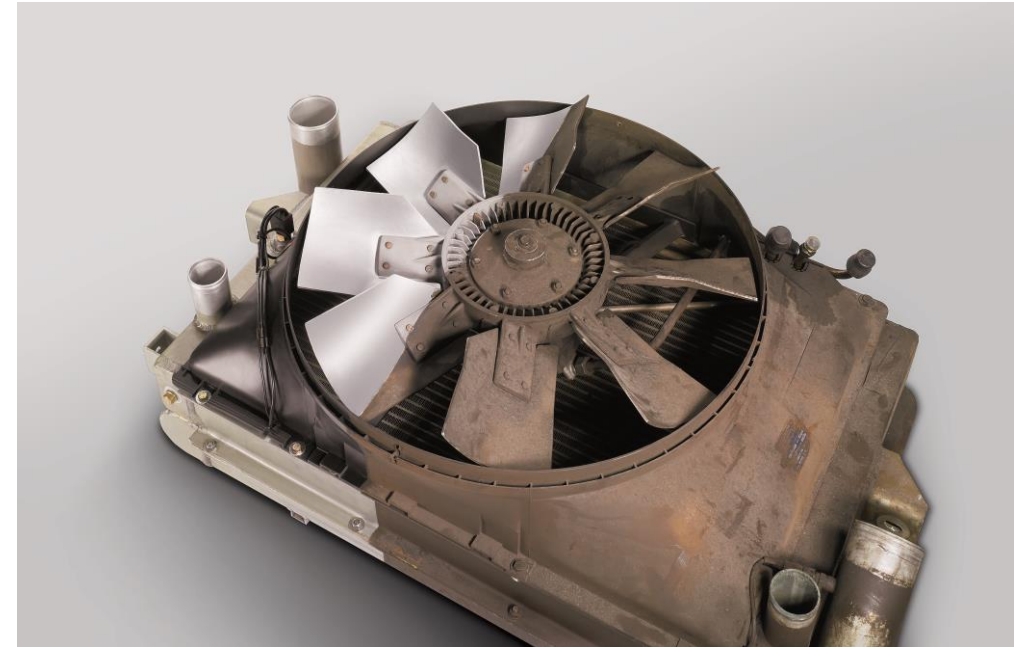




*Driven by performance*

## MAHLE INDUSTRIAL THERMAL SYSTEMS AMERICA, LP

Cooling and Air Conditioning Systems Services



### CONTACT INFORMATION

5858 Safety Drive, NE  
Belmont, Michigan 49306 USA

[www.mahle.com](http://www.mahle.com)  
[www.thermalsystems-services.mahle.com](http://www.thermalsystems-services.mahle.com)

#### Spare Parts / Repairs / Training Programs

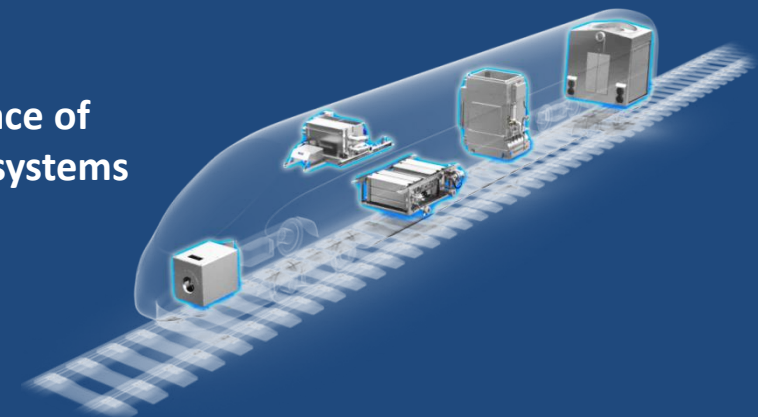
Phone: +1 616 647-3490  
Fax: +1 616 647-3491  
Email: [thermal.systems.services@us.mahle.com](mailto:thermal.systems.services@us.mahle.com)

#### Technical support / Field Service

Phone: +49 711 501-42112  
Fax: +49 711 501-4442112  
Email: [thermal.systems.tecsupport@us.mahle.com](mailto:thermal.systems.tecsupport@us.mahle.com)

#### Return address for repairs & maintenance of cooling, air conditioning and hydraulic systems

2400D Turner Avenue NW(Door 6)  
Grand Rapids, Michigan 49534 USA

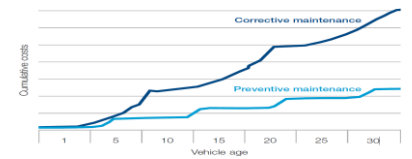
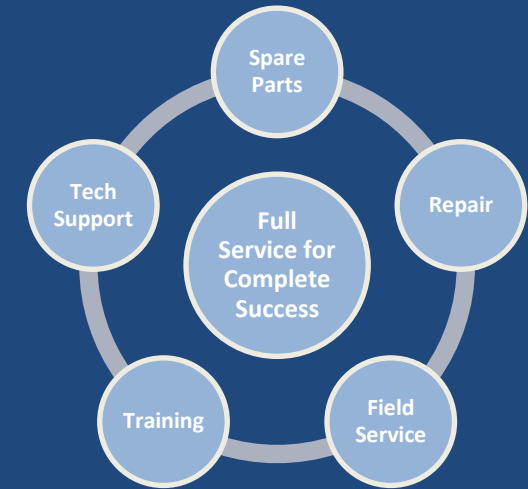


## OUR GOAL

### Efficiency, availability and reliability

These are the three most important criteria that your cooling or air conditioning system must meet. With a comprehensive scope of services, MAHLE Industrial Thermal Systems Services not only ensures that your systems run well over the long term, but also secures your investments and vehicle availability.

## OUR SCOPE



### MTU COOLERS

We are the Original Equipment Manufacturer of coolers for the following MTU serial numbers:

- 183
- 199
- 396
- 538
- 595
- 830
- 870
- 880
- 890
- 1163
- 2000
- 4000
- 8000

### CAGE CODES

Applicable Cage Codes:

- **43EN8:** Mahle Industrial Thermal Systems America, L.P.
- **D8093:** Mahle Industrial Thermal Systems GmbH & Co. KG
- **0B0B1:** Mahle Clevite

Legacy Codes:

- **2A413, 50022, 6T585:** Behr Heat Transfer Systems Inc
- **F0742:** Delphi France
- **SAZ77:** Behr South Africa
- **OJ567:** Indiana Heat Transfer

### REMAN SERVICES

#### Overhaul Cooling Unit

- Cleaning
- Repairing
- Recoring
- Cleaning grid
- Spare parts

#### Overhaul Hydraulic Systems

- Pumps (fixed and variable displacement pumps)
- Motors
- Filters

#### Overhaul Components

- Air blower / fans
- Coolant pump
- Expansion tank
- Oil tank

#### Overhaul AC Unit

- Repair
- Complete re-engineering
- Uprating of HVACs
- State of the art update

### CERTIFICATIONS

- ITAR Certified
- ISO/TS 16949:2009
- ISO 14001:2004
- ISO 9001:2008
- ISO 14001:2004
- IRIS
- DIN EN ISO 3834-2
- DIN EN 15085-2

### MAINTENANCE CYCLES

Recommended maintenance cycles for cooling units:

#### Charge Air Cooler

- 6 years
- 24,000 hours of operation

#### Radiator

- 6 years
- 30,000 hours of operation

#### Oil Cooler

- 6 years
- 30,000 hours of operation

#### AC Unit

- 5 years
- 20,000 hours of operation

# Project Example

## MTU 8000 Series Charge Air Cooler Refurbishment

### MAHLE & MTU America Project Goals:

1. Clean, leak test, and repair 4 units
2. Maintain a short a lead time to stay within vessel's scheduled maintenance window



### CLEANING

- Ultrasonic cleaning
- Target difficult to reach areas inside casting
- Ensure that fins are straight and have no obstructions
- Wipe down and remove debris from hardware

### LEAK TESTING

- 3 circuits per cooler were underwater leak tested in our high pressure leak tester
1. Case air cooling (tank coolant jacket)
  2. Pressure space in tubes (coolant loop)
  3. Pressure space around tubes (charge air)

### PLUGGING TEST

- This test determined whether there was any internal scaling or blockages that would affect cooler performance

### HARDWARE REFURBISHMENT

- Wipe down and remove debris from hardware
- Replace original cooler hardware as requested

### FINAL ASSEMBLY

- Reinstall hardware
- Repair scratches on sealing surfaces
- Final clean of sealing surfaces and ports
- Seal ports to ensure cleanliness during transport
- Optional: new gaskets / hardware

