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WARRANTY HANDBOOK

EMISSION CONTROL SYSTEMS

FOR MACK® CLASS 8 DIESEL ENGINES
(MP7, MP8, and MP10)

21394656

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Mack® EMISSION CONTROL SYSTEMS WARRANTY HANDBOOK 21394656

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Emission Control Systems

DO NOT Remove this manual from the vehicle. It contains important operational and safety information that is needed by all drivers and owners of this vehicle.

This handbook accompanies each new MACK vehicle. Its purpose is to provide the operator with a ready reference for various United States Federal, Canada Federal, and California State regulations which govern engine emissions. It also provides Warranty information for the MACK engines and the accompanying emissions systems.

Information in this handbook has been approved by the U.S. Environmental Protection Agency and the California Air Resources Board for the current model year, but is subject to the effect of changes in applicable regulations and vehicle content.

This manual covers MACK diesel engines only.

The National Highway Traffic Safety Administration (NHTSA) and MACK TRUCKS INC. should be informed immediately if you believe that the vehicle has a defect that could cause a crash, injury or death.

Contact NHTSA by calling the Auto Safety Hotline at 1 (888) 327-4236, by writing to NHTSA, U.S. Department of Transportation, Washington, DC 20590, by TTY at 1 (800) 424-9153, or visit their website at www.nhtsa.dot.gov.

MACK TRUCKS INC., a division of VOLVO Group North America, LLC

Greensboro, NC USA

Order number: PV776-21394656

2010 MACK TRUCKS INC., Greensboro, NC USA

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Warning Label Information

IMPORTANT: Before driving this vehicle, be certain that you have read and that you fully understand each and every step of the driving and handling information in this Operators Manual. Be certain that you fully understand and follow all safety warnings. It is extremely important that this information is read and understood before the vehicle is operated.

IT IS IMPORTANT THAT THE FOLLOWING INFORMATION CONCERNING LABELS BE READ, UNDERSTOOD AND ALWAYS FOLLOWED.

The following types of labels are used throughout this manual:

Note: A note defines an operating procedure, practice, condition, etc., which is essential to proper operation of the vehicle.

DANGER

A danger label directs the operators attention to unsafe practices which could result in serious personal injury or death. The danger label is in **white** type on a **black** background with a **black** border.

WARNING

A warning label directs the operators attention to unsafe practices which could result in personal injury or severe damage to the vehicle. The warning label is in **black** type on a **gray** background with a **black** border.

CAUTION

A caution label directs the operators attention to unsafe practices where personal injury is not likely but property damage could occur. The caution label is in **black** type on a **white** background with a **black** border.

CALIFORNIA PROPOSITION 65 WARNING

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

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CALIFORNIA PROPOSITION 65 WARNING

Battery posts, terminals and other related accessories contain lead and lead compounds, chemical known to the State of California to cause cancer and other reproductive harm.
Batteries also contain other chemicals known to the State of California to cause cancer.

Wash hands after handling.

Warning and Advisory Labels

Advisory, Danger, Warning and Caution labels are placed in various locations of the vehicle to alert drivers and service technicians about situations that may lead to personal injury or equipment damage. In the event that a label is damaged or missing the **label must be replaced**. Contact your authorized MACK Truck dealer for assistance regarding Warning and Advisory labels.

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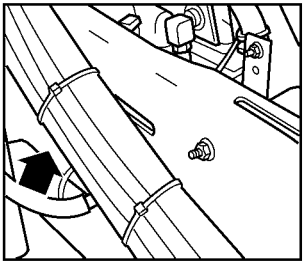
VEHICLE DATA

Locate the following serial numbers and write them in the boxes provided next to each illustration.

VIN Locations

The Vehicle Identification Number (VIN) is displayed in two locations (a frame rail stamping and a label). The 17-digit VIN must be identical in both locations.

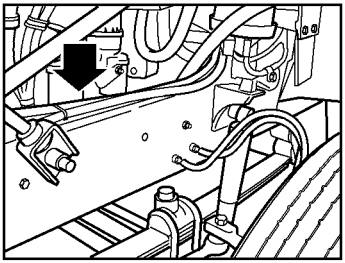
The **VIN frame stamping** is located on the bottom right frame rail flange and the top left rail flange. Note that the VIN location may vary if re-stamping of the frame becomes necessary.



Bottom right frame rail flange

VEHICLE IDENTIFICATION NUMBER

C0028939



Top left rail flange

VEHICLE IDENTIFICATION NUMBER

C0028940

The **VIN label** is located on the inside door frame below the driver seat.

MACK TRUCKS, INC.

MODEL NO.: XOOOXX
SEQ. NO.: XXOO

VIN: OXOXOOOXOXXXOOOOO 4MR21084

Vehicle Identification Number

C0028941

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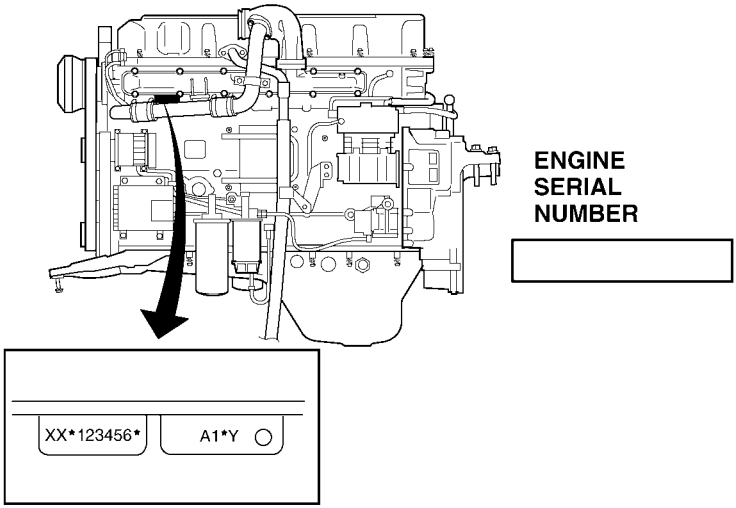
Engine Identification

On the **MACK MP** engines, the engine serial number is stamped on the left side of the engine block, below the inlet manifold.



C0028943

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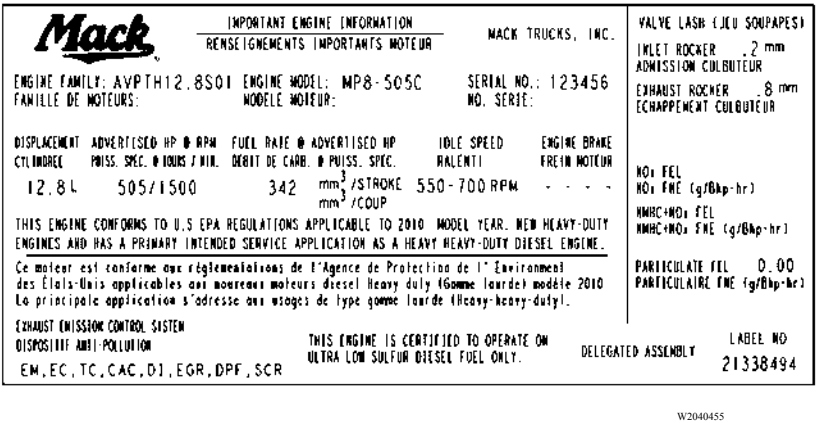
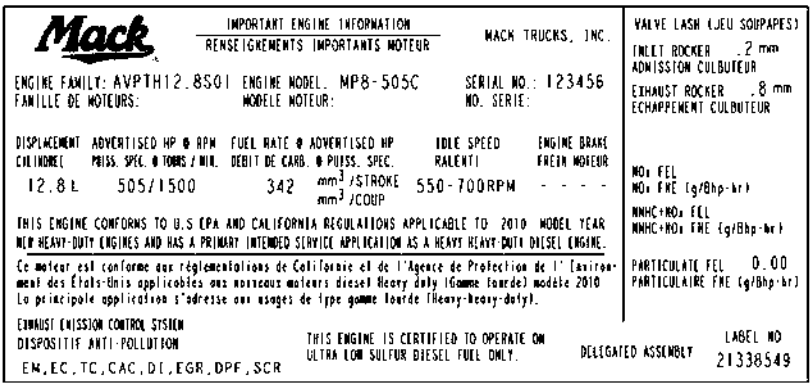
Engine Information Plate

In compliance with Federal emission requirements, an engine information label is affixed to all MACK diesel engines. This label, which is located on the cylinder head cover at the front of the engine, gives basic engine identification information (engine model, serial number, etc.), advertised horsepower at rate speed, inlet and exhaust valve lash setting. The Engine family “AVPTH12.8S01” can be used to identify the emission standard under which the engine was certified.



W2040455

Engine Identification Label — 49 State EPA Approved Engine without California “Clean Idle”



W2040456

Engine Identification Label — 50 State EPA Approved Engine with California “Clean Idle”

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CAUTION

To maintain compliance with emission regulations, engine settings should not be changed from those specified on the engine information label.

Note: Both the U.S. EPA and California Air Resources Board requires that each engine be identified with the proper engine label as shown above. Should this engine label be defaced, destroyed, or removed from the valve cover, it must be replaced immediately. To order a replacement label, please contact Specifications or Parts Interpretations department at 1–800–888–9878, Option 2, who will assist you in obtaining the correct label for your engine.

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Clean Idle Engines

The California Air Resources Board (CARB) requires that any engines having tamper-resistant software which limits the time at which the engine can idle at speeds above low idle (550 – 700 rpm). At speeds above low idle, and without a PTO engaged, idle time will be limited to five minutes, after which the engine will revert back to low idle. Vehicles equipped with a Clean Idle engine are identified by a label which is affixed to the left front corner of the hood or on the driver's door below the window, or on a vertical outward facing cab or sleeper panel extending rearward from the lower door position.

W2056289

Clean Idle Engine Label

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EMISSIONS CONTROL COMPLIANCE

Exhaust Emissions

General

USA

The Federal Clean Air Act, Section 203 (a) (3), states the following concerning the removal of air pollution control devices or modification of a certified engine to a non-certified configuration:
CAA, Section (a) (3) (A) prohibits any person from removing or rendering inoperative any emission control device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with federal regulations under the Clean Air Act prior to the sale and delivery of the vehicle to the ultimate purchaser. The statute also prohibits any person from knowingly removing or rendering inoperative any emission control device or element of design after sale and delivery of a vehicle or engine to the ultimate purchaser. Any person who violates these provisions either by removing or rendering inoperative emissions control devices prior to the sale and delivery of an engine or vehicle to an ultimate purchaser, or by knowingly removing or rending inoperative such devices after the sale and delivery of an engine or vehicle to an ultimate purchaser, can be subject to penalties of up to $3,750 per incident. Any dealer or manufacturer who violates these provisions can be subject to penalties of up to $37, 500 per incident.

Canada

The same conditions that apply in the USA apply to Canada, with one exception. After the vehicle is sold to a retail customer, that is, the end user, the jurisdiction controlling the emission control devices becomes the province in which the vehicle is licensed. No changes should be made that render any or all of the devices inoperative. If the owner/operator wishes to make changes to the emission control devices, check with the provincial authority before changes are made.

Mexico

The same conditions that apply in the USA apply to Mexico. Refer to the Mexican Federal Law for Emission Control which adheres to EPA regulations. No changes should be made that render any or all of the emissions control devices inoperative. If the owner/operator wishes to make changes to the emission control devices, check with the state authority before changes are made.

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B5 Approval For MACK US 2010 Certified Products

MACK engines are certified to comply with U.S. EPA and California emissions standards based upon the use of test fuels with specifications established by these regulatory agencies. Alternative fuels, including biodiesel, that are not substantially similar to the required test fuels may adversely affect engine emissions compliance and may impact the performance of certain emissions aftertreatment components. As a result, MACK does not warrant the engine will conform to applicable Federal or California emissions limits when operated on, or having operated on, biodiesel or other alternative fuels that are not substantially similar to specified test fuels used for certification.

The use of biodiesel up to a maximum of 5% (B5) in and of itself, will not affect the manufacturer's mechanical warranty as to engine and emissions system related components except as limited below with respect to aftertreatment components, provided the bio fuel used in the blend conforms to ASTM D6751 and B1 to B5 blends conform to ASTM D975.

Failures of certain emissions aftertreatment components, specifically SCR, DPF and NOx sensors will not be warranted if failure can be attributed to operation on biodiesel blends from 6 to 20% (B6 to B20) even if biofuel used in the blend B6 to B20 conforms to ASTM D7467 or any related standard.

CAUTION

Diesel-powered engines for heavy-duty trucks built on or after January 1, 2007 are designed to operate only with Ultra Low Sulfur Diesel (ULSD) fuel. Improper fuel use will reduce the efficiency and durability of engines, permanently damage advanced emissions control systems, reduce fuel economy and possibly prevent the vehicles from running at all. Manufacturer warranties will be voided by improper fuel use. Additionally, burning Low Sulfur Diesel fuel (instead of ULSD fuel) in 2007 and later model year diesel-powered cars, trucks and buses is illegal and punishable with civil penalties.

CAUTION

Ultra Low Sulfur Diesel (ULSD) fuel with a maximum sulfur content of 15 ppm must be used in order to meet Euro 4 engine emission requirements. Using otherwise approved diesel fuels with a maximum sulfur content greater than 500 ppm may shorten engine life and void the engine warranty.

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Air is always present inside the fuel tanks, entering mainly through the tank ventilation. With the air being heated and cooled, condensation is formed and water is mixed in the fuel. To avoid condensation when the vehicle is parked for longer periods, fill the tanks up to 95% of capacity. Do not fill more than that, as the fuel needs to have room for expansion during the heat of the day.
For additional information about fuel, refer to the Operator's Manual Vehicle Maintenance.

An indicator will appear in the DID screen when there is approximately 3.875 liters (0.9 gallons) remaining in the reservoir.

Note: This indicator is optional. It can be deleted.

⚠ DANGER

DO NOT carry extra fuel containers in the cab. Fuel containers, full or empty, may leak, explode or give added fuel to a fire. Failure to follow this precaution may lead to serious personal injury or death.

⚠ DANGER

Do not remove the fuel tank cap near an open flame. Diesel fuel vapors are combustible and can cause an explosion or fire, resulting in severe personal injury or death.

⚠ DANGER

DO NOT smoke while fueling the vehicle. The glow from the cigar/cigarette can ignite the diesel fuel, causing an explosion resulting in serious personal injury or death.

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ENGINE GASEOUS EMISSION CONTROL SYSTEMS

WARRANTY MAINTENANCE

Note: For emission control systems information on engines other than MACK, refer to the engine vendor's publication

GASEOUS EMISSION CONTROL SYSTEMS WARRANTY

Note: For emission control systems information on engines other than MACK, refer to the engine vendors publications.

MACK TRUCKS INC. warrants the Emission Control Systems on each new MACK diesel engine in a new MACK truck to comply with all United States Federal and Canadian emissions regulations applicable at the time of manufacture of the engine, and to be free from defects in material and workmanship under normal use and service up to 60 months, or 161 000 km (100,000 mi), whichever occurs first. All warranty periods are calculated from the data-in-service of the new vehicle. The repair or replacement of defective parts will be made without charge for the cost of parts and, if repairs are made at an authorized MACK TRUCKS INC. dealership, there will be no charge for labor.

MACK TRUCKS INC.s obligation under this warranty is limited to the repair or replacement, at MACK TRUCKS INC.s option, of any part(s) of the Emission Control Systems of such engine and/or vehicle found to be defective upon examination by MACK TRUCKS INC. and provided that such part(s) were returned to MACK TRUCKS INC. or its nearest authorized Dealer within a reasonable period of time.

Qualifications and Limitations:

Not covered by the Emissions Control Systems Warranty:

- Malfunctions caused by misuse, improper adjustments, modification, alteration, tampering, disconnection, improper or inadequate maintenance and use of improper diesel fuel.
- Damage resulting from accident, acts of nature or other events beyond the control of MACK TRUCKS INC.
- Inconvenience, loss of use of the vehicle, commercial loss of any kind including, but not limited to, consequential, incidental damages.
- Any vehicle in which the odometer has been altered or damaged so that mileage cannot be readily determined.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS OR CONDITIONS, STATUTORY OR OTHERWISE, EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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Emissions Control System Warranty

The following engine components are covered by the supplemental emissions control system warranty policy as required by the Federal code of emission regulations.

1 Turbocharger Assembly
- VGT Actuator

2 Charge Air Cooler
- CAC Pipes (Air inlet to/from CAC)
- CAC Hoses

3 Engine Control Module (ECM)

4 Injectors

5 Engine and Vehicle Wire harness (repair to circuits related to Emissions Warrantable Components)

6 Exhaust Gas Recirculation (EGR) Mixer

7 EGR Cooler

8 EGR Valve and EGR Valve Control

9 EGR Pipes - Engine Exhaust Manifold to EGR Cooler

10 EGR Pipes - EGR Cooler to Inlet Manifold

11 Crankcase Breather

12 Crankcase Separator

13 Crankcase Tubing and Hoses before Separator

14 Aftertreatment Wiring Harness

15 After treatment Control Module (ACM)

16 Aftertreatment Diesel Particulate Filter (DPF) Assembly

A. Aftertreatment DPF Assembly with Aftertreatment Diesel Oxidation Catalyst (DOC)
- Aftertreatment Doser
- Diffuser Pipe (Aftertreatment Fuel Doser Mounting)
- Fuel lines to Aftertreatment Fuel Doser
- Aftertreatment Fuel Doser Air Supply Regulator (if applicable, supply lines and fittings)
- Aftertreatment Fuel Shutoff Valve
- Aftertreatment Fuel Pressure Sensor
- Engine Turbocharger Compressor Bypass Actuator (Heat Mode)
- Engine Turbocharger Compressor Bypass Actuator Solenoid
- Engine Exhaust Gas Temperature (EGT) Sensor
- Aftertreatment DPF Intake Temperature Sensor
- Aftertreatment DPF Outlet Temperature Sensor

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- Aftertreatment DPF Differential Pressure Sensor

B. Aftertreatment DPF Spark Assisted Assembly

- Aftertreatment DPF Combustion Air Control Valve
- Aftertreatment DPF Atomization Module
- Aftertreatment DPF Ignition Coil
- Aftertreatment DPF Fuel Control Valve
- Aftertreatment DPF Ignition Electrode
- Nozzle
- Engine Exhaust Gas Temperature (EGT) Sensor
- Aftertreatment DPF Intake Temperature Sensor
- Aftertreatment DPF Outlet Temperature Sensor
- Aftertreatment DPF Spark Assist Flame Temperature Sensor
- Aftertreatment DPF Differential Pressure Sensor

17 Sensors:

- Crankshaft Position (CKP)
- Camshaft Position (CMP)
- Engine Coolant Temperature (ECT)
- Intake Manifold Air Temperature
- Intake Manifold Pressure (IMP)
- EGR Temperature
- Aftertreatment Outlet NOx
- Aftertreatment Intake NOx
- EGR Differential Pressure
- Ambient Air Temperature (AAT)

18 SCR

- Aftertreatment Selective Catalytic Reduction (SCR) Catalyst
- Aftertreatment Diesel Exhaust Fluid (DEF) Pump
  - Aftertreatment DEF Dosing Absolute Pressure Sensor
  - Aftertreatment DEF Return Valve
- Aftertreatment DEF Dosing Valve
- Aftertreatment DEF Tank
- Aftertreatment DEF Tank Heater Valve
- Aftertreatment DEF Tank Heater/Sender
  - Aftertreatment DEF Tank Heater
  - Aftertreatment DEF Tank Temperature Sensor
  - Aftertreatment DEF Level Sensor
- Aftertreatment DEF Heated Lines

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19 Instrument Cluster (Repair of microprocessor , OBD MIL, Real Time Clock, Aftertreatment DEF Tank Gauge and, Aftertreatment DEF Tank Low Level Indicator) Exhaust Gas Piping (from Turbocharger to Aftertreatment System)

20 Exhaust Gas Piping (from Turbocharger to Aftertreatment System)

21 Data Link Connector (DLC)

ENGINE GASEOUS EMISSIONS CONTROL SYSTEM WARRANTY

The emission warranty for the diesel particulate filter and SCR System covers defects in workmanship only. Normal maintenance, such as cleaning ash from the filter at regular maintenance intervals and cleaning the aftertreatment fuel injector on Diesel Oxidation Catalyst (DOC) DPF systems, is not covered by the emission warranty. With the Thermal regenerator DPF system, cleaning the ignition electrodes and fuel injection nozzle at the regular maintenance intervals is considered normal maintenance and not covered by the emission warranty.

Note: In response to customer requests, Mack Trucks, Inc. may build vehicles with engines supplied by other manufacturers. In these cases, each engine manufacturer through its service organization, is responsible for emission control systems warranty on all parts of the engine assembly, as furnished.

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FEDERAL EMISSION REQUIREMENTS

This section covers the requirement of the United States Clean Air Act which states: “The manufacturer shall furnish with each new motor vehicle or motor vehicle engine such written instructions for the maintenance and use of the vehicle or engine by the ultimate purchaser as may be reasonable and necessary to assure the proper functioning of emission control devices and systems. ”This section also covers the requirements of the emissions regulations promulgated under the Motor Vehicle Safety Act in Canada.

TAMPERING WITH GASEOUS EMISSION CONTROL SYSTEMS PROHIBITED

The Federal Clean Air Act prohibits the removal or rendering inoperative of any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with Federal Emission Regulations by:

1 Any person prior to its sale and delivery to the ultimate purchaser, or

2 Any manufacturer or distributor after its sale and delivery to the ultimate purchaser, or

3 Any person engaged in the business of repairing, servicing, selling, leasing, or trading motor vehicles or motor vehicle engines following its sale and delivery to the ultimate purchaser, or

4 Any person who operates a fleet of motor vehicles following its sale and delivery to the ultimate purchaser.

Note: For specifics of the prohibited vehicle/engine modifications refer to the MACK Bodybuilder documentation.

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California Emission Control Systems Warranty

Note: Warranty coverage is subject to change without notice. Contact your MACK truck dealer for the current warranty statement.

The California Air Resources Board and MACK TRUCKS INC. are pleased to explain the California emission control system warranty on your new motor vehicle engine. In California, new motor vehicle engines must be designed, built and equipped to meet the States stringent anti-smog standards. MACK TRUCKS INC. must warrant the emission control system on your engine for the period of time listed below provided there has been no abuse, neglect, or improper maintenance of your engine.

Your emission control system may include parts such as the fuel-injection system, turbocharger assembly, electronic control module and other emission-related assemblies.

Where a warrantable condition exists, MACK TRUCKS INC. will repair your engine at no cost to you including diagnosis, parts, and labor.

Manufacturer’s Warranty Coverage:

If an emission-related part of your engine is defective, the part will be repaired or replaced by MACK TRUCKS INC. This is your emission control system DEFECTS WARRANTY.

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Owner's Warranty Responsibilities:

As the motor vehicle engine owner, you are responsible for the performance of the required maintenance listed in this manual. MACK TRUCKS INC. recommends that you retain all receipts covering maintenance of your vehicle, but MACK TRUCKS INC. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance listed in other manuals which were supplied with your vehicle.

You are responsible for presenting your motor vehicle engine to a MACK dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As the motor vehicle engine owner, you should also be aware that MACK TRUCKS INC. may deny you warranty coverage if your vehicle or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact the MACK TRUCKS INC. Warranty Department at P. O. Box 26115, Greensboro, NC 27402-6115, or the California Air Resources Board at 9480 Telstar Avenue, El Monte, California 91731.

(Applicable only to vehicles and/or engines certified for sale and registered in the State of California)

MACK TRUCKS INC. warrants the Emission Control Systems on each new MACK diesel engine in a new MACK truck to comply with all State of California emissions regulations applicable at the time of manufacture of the engine, and to be free from defects in material and workmanship under normal use and service up to 60 months, or 161 000 km (100,000 m), or 3,000 engine operating hours, whichever occurs first. All warranty periods are calculated from the date-in-service of the new vehicle. The repair or replacement of defective parts will be made without charge for the cost of parts and, if repairs are made at an authorized MACK TRUCKS INC. dealership, there will be no charge for labor.

MACK TRUCKS INC. obligation under this warranty is limited to the repair or replacement, at MACK TRUCKS INC. option, of any part(s) of the Emission Control Systems of such engine and/or vehicle found to be defective upon examination by MACK TRUCKS INC. and provided that such part(s) were returned to MACK TRUCKS INC. or its nearest authorized Dealer within a reasonable period of time.

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Qualifications and Limitations:

Not covered by the Emissions Control Systems Warranty:

- Malfunctions caused by misuse, improper adjustments, modification, alteration, tampering, disconnection, improper or inadequate maintenance and use of improper diesel fuel.
- Damage resulting from accident, acts of nature or other events beyond the control of MACK TRUCKS INC.
- Inconvenience, loss of use of the vehicle, commercial loss of any kind including, but not limited to, consequential, incidental damages.
- Any vehicle in which the odometer has been altered or damaged so that mileage cannot be readily determined.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS OR CONDITIONS, STATUTORY OR OTHERWISE, EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Emissions Control System Warranty

The following engine components are covered by the supplemental emissions control system warranty policy as required by the California Code of Regulations.

1 Turbocharger Assembly
   - VGT Actuator

2 Charge Air Cooler
   - CAC Pipes (Air inlet to/from CAC)
   - CAC Hoses

3 Engine Control Module (ECM)

4 Injectors

5 Engine and Vehicle Wire harness (repair to circuits related to Emissions Warrantable Components)

6 Exhaust Gas Recirculation (EGR) Mixer

7 EGR Cooler

8 EGR Valve and EGR Valve Control

9 EGR Pipes - Engine Exhaust Manifold to EGR Cooler

10 EGR Pipes - EGR Cooler to Inlet Manifold

11 Crankcase Breather

12 Crankcase Separator

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13 Crankcase Tubing and Hoses before Separator

14 Aftertreatment Wiring Harness

15 After treatment Control Module (ACM)

16 Aftertreatment Diesel Particulate Filter (DPF) Assembly

A. Aftertreatment DPF Assembly with Aftertreatment Diesel Oxidation Catalyst (DOC)

- Aftertreatment Doser
- Diffuser Pipe (Aftertreatment Fuel Doser Mounting)
- Fuel lines to Aftertreatment Fuel Doser
- Aftertreatment Fuel Doser Air Supply Regulator (if applicable, supply lines and fittings)
- Aftertreatment Fuel Shutoff Valve
- Aftertreatment Fuel Pressure Sensor
- Engine Turbocharger Compressor Bypass Actuator (Heat Mode)
- Engine Turbocharger Compressor Bypass Actuator Solenoid
- Engine Exhaust Gas Temperature (EGT) Sensor
- Aftertreatment DPF Intake Temperature Sensor
- Aftertreatment DPF Outlet Temperature Sensor
- Aftertreatment DPF Differential Pressure Sensor

17 Sensors:

- Crankshaft Position (CKP)
- Camshaft Position (CMP)
- Engine Coolant Temperature (ECT)
- Intake Manifold Air Temperature
- Intake Manifold Pressure (IMP)
- EGR Temperature
- Aftertreatment Outlet NOx
- Aftertreatment Intake NOx
- EGR Differential Pressure
- Ambient Air Temperature (AAT)

B. Aftertreatment DPF Spark Assisted Assembly

- Aftertreatment DPF Combustion Air Control Valve
- Aftertreatment DPF Combustion Air Valve
- Aftertreatment DPF Atomization Module
- Aftertreatment DPF Ignition Coil
- Aftertreatment DPF Fuel Control Valve
- Aftertreatment DPF Ignition Electrode

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- Nozzle
- Engine Exhaust Gas Temperature (EGT) Sensor
- Aftertreatment DPF Intake Temperature Sensor
- Aftertreatment DPF Outlet Temperature Sensor
- Aftertreatment DPF Spark Assist Flame Temperature Sensor
- Aftertreatment DPF Differential Pressure Sensor

18 SCR

- Aftertreatment Selective Catalytic Reduction (SCR) Catalyst
- Aftertreatment Diesel Exhaust Fluid (DEF) Pump
  - Aftertreatment DEF Dosing Absolute Pressure Sensor
  - Aftertreatment DEF Return Valve
- Aftertreatment DEF Dosing Valve
- Aftertreatment DEF Tank
- Aftertreatment DEF Tank Heater Valve
- Aftertreatment DEF Tank Heater/Sender
  - Aftertreatment DEF Tank Heater
  - Aftertreatment DEF Tank Temperature Sensor
  - Aftertreatment DEF Level Sensor
- Aftertreatment DEF Heated Lines

19 Instrument Cluster (Repair of microprocessor , OBD MIL, Real Time Clock, Aftertreatment DEF Tank Gauge and, Aftertreatment DEF Tank Low Level Indicator) Exhaust Gas Piping (from Turbocharger to Aftertreatment System)

20 Exhaust Gas Piping (from Turbocharger to Aftertreatment System)

21 Data Link Connector (DLC)

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CAUTION

Any unauthorized adjustments to the emission control components can cause severe damage to the engine.

The emission warranty for the diesel particulate filter and SCR Systems covers defects in workmanship only. Normal maintenance, such as cleaning ash from the filter at regular maintenance intervals and cleaning the Aftertreatment fuel injector on Diesel Oxidation Catalyst (DOC) DPF systems, is not covered by the emission warranty. With the Thermal Regeneration DPF system, cleaning the ignition electrodes and fuel injection nozzle at the regular maintenance intervals is considered normal maintenance and not covered by the emission warranty.

Note: In response to customer requests, MACK TRUCKS INC. may build vehicles with engines supplied by other manufacturers. In these cases, each engine manufacturer through its service organization, is responsible for emission control systems warranty on all parts of the engine assembly, as furnished.

1 **Repairs by MACK dealers, Sub-Dealers and Service Dealers**
Repairs covered by the California Emission Control Systems Warranty will be performed by any authorized MACK repair facility at his place of business with no charge for parts and labor (including diagnosis), using MACK parts for any part of the emission control systems covered by this warranty and found defective.

2 **In an Emergency**
In an emergency, where an authorized MACK facility is not available, repairs may be performed at any available service establishment, or by the owner, using any replacement part, within the limitations of paragraphs 4 and 5 in this section. An emergency condition exists under this section if, after 30 days, repairs have not been completed or parts are not yet available. MACK will reimburse the owner for such repairs that are covered under this warranty, including diagnosis, not to exceed MACKs suggested retail price for parts replaced and labor charges based on MACKs recommended time allowance and geographically appropriate hourly labor rate. Replaced parts and paid invoices must be presented at a MACK facility as a condition of reimbursement for emergency repairs performed elsewhere.

CAUTION

In the event that damage results from unauthorized adjustments to any emission control system components, as evidenced by settings other than as specified, or broken fastener seals, the cost of repairing such damage WILL NOT BE COVERED under warranty.

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3 **Repairs by Non-MACK Facilities**
Owners may elect to have maintenance, replacement, or repair of emission control systems performed by any repair facility, and may elect to use parts other than MACK parts without invalidating the warranty on other components, but the cost of such service or parts will not be covered by MACK under its warranty.

4 **Use of Non-MACK Parts**
Use of replacement parts which are not the equivalent of MACK parts may impair the effectiveness of emission control systems. If other than MACK parts are used, the owner should obtain assurances that such parts are warranted by their manufacturer to be the equivalent of MACK parts in performance and durability. MACK assumes no liability under this warranty with respect to parts other than MACK parts; however, the use of non-MACK parts does not invalidate the warranty on other components unless non-MACK parts cause damage to warranted parts.

5 **Maintenance and Maintenance Records**
The vehicle owner is responsible for the performance of all required maintenance. MACK will not deny a warranty claim solely because there is no record of maintenance; however, MACK may deny a warranty claim if failure to perform required maintenance results in the failure of a warranted part. Receipts or other records covering the performance of scheduled maintenance should be retained to answer questions that may arise concerning maintenance. Maintenance records should be transferred to subsequent owners if the vehicle is sold.

6 **Items Not Covered by the Emission Control Systems Warranty**

Malfunctions caused by misuse, improper adjustments, modification, alteration, tampering, disconnection, improper or inadequate maintenance.

Damage resulting from accident, acts of nature or other events beyond the control of MACK.

Inconvenience, loss of use of the vehicle, or commercial loss.

Any vehicle on which the odometer has been changed so that mileage cannot be readily determined.

7 **Customer Assistance**
MACK TRUCKS INC. wishes to assure that the California Emission Control Systems Warranty is properly administered. In the event that owners do not receive the warranty service to which they believe they are entitled under the California Emission Control Systems Warranty, they should contact MACK TRUCKS INC. Warranty Administration, (336) 393-2000. The address and telephone number of each Regional Office is in your vehicle owners package. Owners in need of additional assistance or information concerning the California Emission Control Systems Warranty may also contact:
MACK TRUCKS INC.
Warranty Administration
(336) 393-2000

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