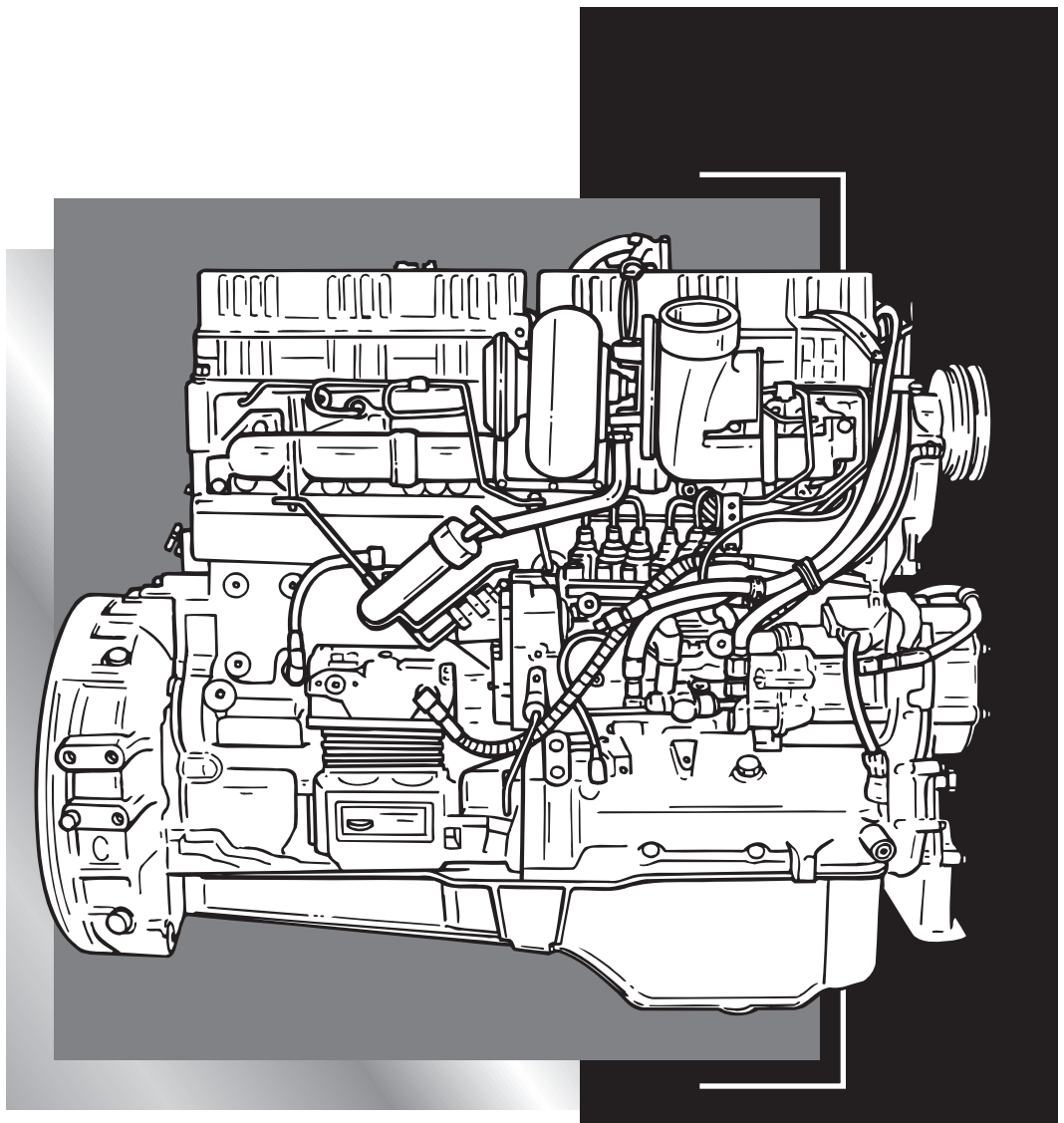

E7 ENGINE

OVERHAUL

AUGUST 1997
ENGINE 5-101

PLEASE LET US KNOW!

Your comments and suggestions will help us improve this manual!

Please complete and mail this form or FAX your comments to: (610) 709-3800.

Manual: _____ Publication Number: _____

Vehicle Model: _____ Model Year: _____

Do you find procedures properly organized and easy to follow? ☐ Yes ☐ No

If not, please explain: _____

_____

_____

Manual page numbers: _____

Are there any important procedures or other information presently not in this manual that you would like to see included? ☐ Yes ☐ No

If yes, please describe: _____

_____

_____

Did you find any errors in the procedures or illustrations? ☐ Yes ☐ No

If yes, what pages? _____

Please explain: _____

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Please include a copy of each page in question and mark your comments and suggestions.

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Thank You For Your Assistance

Mack Trucks, Inc.

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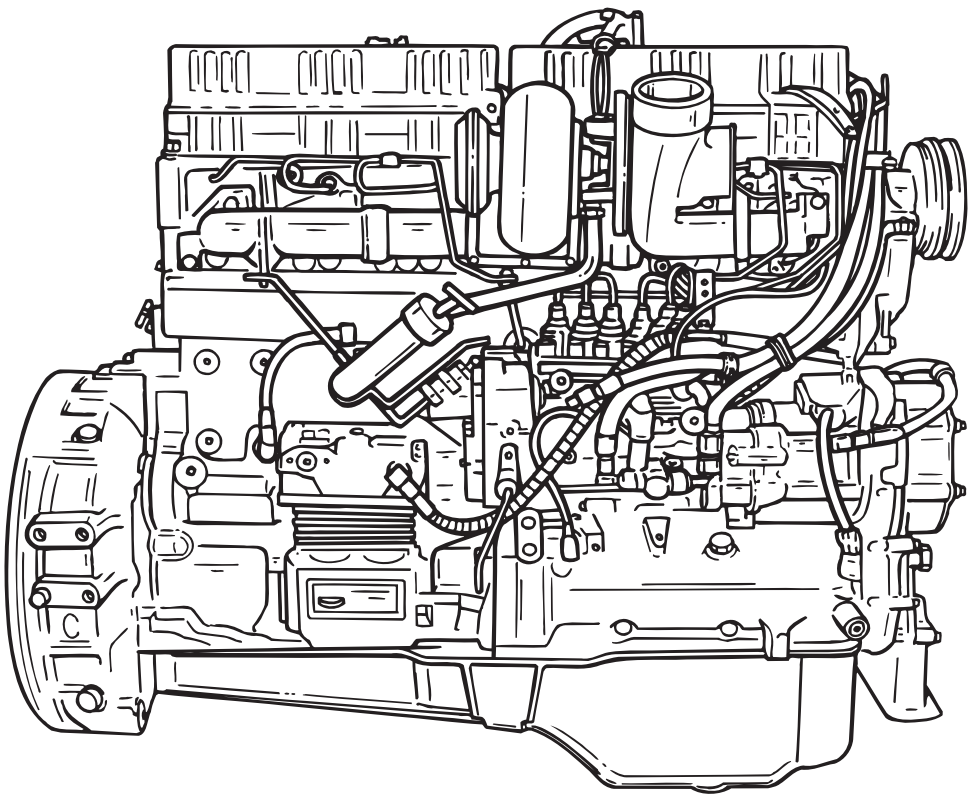


MARCH 2006 2.5M (REP.)
AUGUST 1997 10M

ATTENTION

The information in this manual is not all inclusive and cannot take into account all unique situations. Note that some illustrations are typical and may not reflect the exact arrangement of every component installed on a specific chassis.

The information, specifications, and illustrations in this publication are based on information that was current at the time of publication.

SAFETY INFORMATION

SAFETY INFORMATION

Advisory Labels

Cautionary *signal words* (Danger-Warning-Caution) may appear in various locations throughout this manual. Information accented by one of these signal words must be observed to minimize the risk of personal injury to service personnel, or the possibility of improper service methods which may damage the vehicle or render it unsafe. Additional Notes and Service Hints are utilized to emphasize areas of procedural importance and provide suggestions for ease of repair. The following definitions indicate the use of these advisory labels as they appear throughout the manual:

⚠ CAUTION

Directs attention to unsafe practices which could result in damage to equipment and possible subsequent personal injury or death if proper precautions are not taken.

⚠ WARNING

Directs attention to unsafe practices which could result in personal injury or death if proper precautions are not taken.

⚠ DANGER

Directs attention to unsafe practices and/or existing hazards which will result in personal injury or death if proper precautions are not taken.

NOTE

An operating procedure, practice, condition, etc., which is essential to emphasize.

SERVICE HINT

A helpful suggestion which will make it quicker and/or easier to perform a certain procedure, while possibly reducing overhaul cost.

000001a

Service Procedures and Tool Usage

Anyone using a service procedure or tool not recommended in this manual must first satisfy himself thoroughly that neither his safety nor vehicle safety will be jeopardized by the service method he selects. Individuals deviating in any manner from the instructions provided assume all risks of consequential personal injury or damage to equipment involved.

Also note that particular service procedures may require the use of a special tool(s) designed for a specific purpose. These special tools must be used in the manner described, whenever specified in the instructions.

⚠ WARNING

1. **Before starting a vehicle, always be seated in the driver's seat, place the transmission in neutral, be sure that parking brakes are set, and disengage the clutch.**
2. **Before working on a vehicle, place the transmission in neutral, set the parking brakes, and block the wheels.**
3. **Before towing the vehicle, place the transmission in neutral and lift the rear wheels off the ground, or disconnect the driveline to avoid damage to the transmission during towing.**

REMEMBER,
SAFETY . . . IS NO ACCIDENT!

SAFETY INFORMATION

Mack Trucks, Inc. cannot anticipate every possible occurrence that may involve a potential hazard. Accidents can be avoided by recognizing potentially hazardous situations and taking necessary precautions. Performing service procedures correctly is critical to technician safety and safe, reliable vehicle operation.

The following list of general shop safety practices can help technicians avoid potentially hazardous situations and reduce the risk of personal injury. DO NOT perform any services, maintenance procedures or lubrications until this manual has been read and understood.

- Perform all service work on a flat, level surface. Block wheels to prevent vehicle from rolling.
- DO NOT wear loose fitting or torn clothing. Remove any jewelry before servicing vehicle.
- ALWAYS wear safety glasses and protective shoes. Avoid injury by being aware of sharp corners and jagged edges.
- Use hoists or jacks to lift or move heavy objects.
- NEVER run engine indoors unless exhaust fumes are adequately vented to the outside.
- Be aware of hot surfaces. Allow engine to cool sufficiently before performing any service or tests in the vicinity of the engine.
- Keep work area clean and orderly. Clean up any spilled oil, grease, fuel, hydraulic fluid, etc.
- Only use tools that are in good condition, and always use accurately calibrated torque wrenches to tighten all fasteners to their specified torques. In instances where procedures require the use of special tools which are designed for a specific purpose, use only in the manner described in the instructions.

EXPLANATION OF NUMERICAL CODE

EXPLANATION OF NUMERICAL CODE

EXPLANATION OF 3-DIGIT NUMERICAL CODE

The organization of MACK service manuals has been upgraded to standardize manual content according to a reference system based on component identification. The new reference system will help link the information contained in this publication with related information included in other MACK service/warranty publications, such as associated service bulletins, warranty manuals, and the TS477 Service Labor Time Standards Manual.

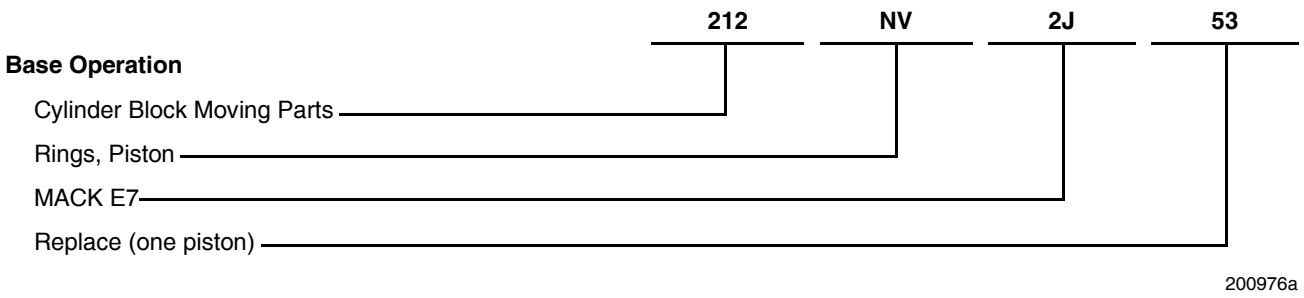
The system is based on a numerical code, the first **digit** of which identifies the general component grouping as listed here:

GROUP **0**00 — INSPECTIONS
GROUP **1**00 — CHASSIS
GROUP **2**00 — ENGINE
GROUP **3**00 — CLUTCH, TRANSMISSION, TRANSFER CASE AND PTO
GROUP **4**00 — STEERING, AXLES, WHEELS AND TIRES, DRIVELINE
GROUP **5**00 — BRAKES, AUXILIARY SYSTEMS
GROUP **6**00 — CAB, TRUCK BODY
GROUP **7**00 — ELECTRICAL

The second two digits of the 3-digit code are used to identify the **system, assembly** or **subassembly**, as appropriate, within each of the groupings. The codes applicable to this publication are shown at the TOP OF EACH PAGE and at SECTION HEADINGS, as necessary, and may also appear in the TABLE OF CONTENTS, to guide you to specific component information.

Additionally, a two-character alpha code (i.e. [NV] RINGS, PISTON) is shown with each operation. This alpha code, in combination with the three-digit Group number, identifies the specific assembly, subassembly or part, and directly relates to the first five positions of the operation code listed in the Service Labor Time Standards Manual, TS477.

Examples:



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ABOUT THIS MANUAL

ABOUT THIS MANUAL

CHANGES FROM THE EXISTING E7 MANUAL

Mack Trucks, Inc. has made many major improvements to this E7 Service Manual, with changes to both content and organization. The specifications have been revised to reflect changes and improvements in E7 engines.

All specifications and torque values are given in English and metric measurements. Torque values are also included in the text, eliminating the need to refer to the Fits and Limits chart each time a specified torque value is required. The Special Tools list has been revised to include new special tools. Warnings, cautions, notes and service hints help the technician service the engine safely and efficiently.

The ENGINE DISASSEMBLY section shows how to remove components in an order that requires the least amount of handling. It includes brief component descriptions and information needed to properly service that component.

The BENCH PROCEDURES section guides the technician in disassembly, cleaning, inspection and assembly of each component. It also helps in determining if the part is serviceable or should be replaced. This section alerts the user to component upgrades and helps the technician to decide whether to use the latest available parts or reinstall existing parts. Precise descriptions aid in component identification.

The ENGINE ASSEMBLY section includes step-by-step procedures for reassembling the engine. This helps to ensure proper installation and longer service life.

The SETUP AND ADJUSTMENTS section has the latest setup information, complete with charts showing necessary data for adjusting all E7 engine models. Engines perform best and conserve fuel most efficiently when adjusted properly.

Two additional sections are included as guides for removing and reinstalling the engine. Both sections are generic in nature. E7 engine installation procedures vary from one vehicle style to another. These procedures are intended as a checklist to remind the technician of all necessary tasks.

While troubleshooting procedures are similar for most diesel engines, this manual includes only those that pertain to the E7 engine. The TROUBLESHOOTING section contains questions to help the technician consider all possible problem sources.

This service manual has been revised to include all applicable active service bulletins and service letters since publication of the earlier E7 Service Manual (October 1992).

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