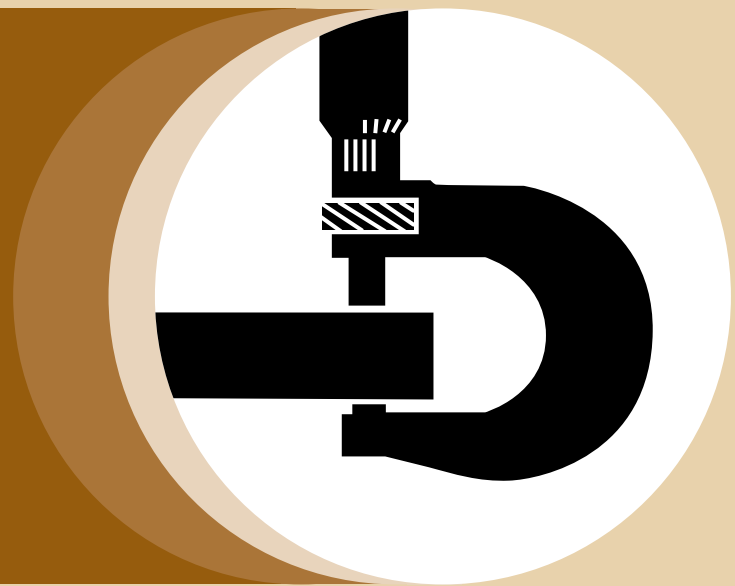


POWERTECH[®] 4.5 & 6.8 L
Diesel Engines
Base Engine

COMPONENT
TECHNICAL
MANUAL



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Deere Power Systems Group
CTM104 (19JUN00)

LITHO IN U.S.A.
ENGLISH



POWERTECH[®] 4.5L & 6.8L Diesel Engines

Base Engine

POWERTECH
CTM170 *POWERTECH*[®]

Deere Power Systems Group
CTM104 (19JUN00)

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Introduction

Forward

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

This manual (CTM104) covers only the base engine. It is one of three volumes on 4.5 L and 6.8 L engines. The following two companion manuals cover fuel system repair, operation and diagnostics:

- CTM170—Level 4 Electronic Fuel Systems with Bosch VP44 Pump
- CTM207—Mechanical Fuel Systems

CTM207 covers the fuel systems formerly included in CTM104.

Other manuals will be added in the future to provide additional information on electronic fuel systems as needed.

A complete set of all three manuals covering the 4.5 L and 6.8 L engines can be procured by ordering CTM350 Binder Set.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Use this component technical manual in conjunction with the machine technical manual. An application listing in Section 01, Group 001 identifies product-model/component type-model relationship. See

the machine technical manual for information on component removal and installation, and gaining access to the components.

Information is organized in sections and groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Before beginning repair on an engine, clean the engine and mount on a repair stand. (See Section 2, Group 010.)

This manual contains SI Metric units of measure followed immediately by the U.S. customary units of measure. Most hardware on these engines is metric sized.

Some components of this engine may be serviced without removing the engine from the machine. Refer to the specific machine technical manual for information on components that can be serviced without removing the engine from the machine and for engine removal and installation procedures.

Read each block of material completely before performing service to check for differences in procedures or specifications. Follow only the procedures that apply to the engine model number you are working on. If only one procedure is given, that procedure applies to all the engines in the manual.

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.

DPSG,OUO1004,2767 -19-18MAY00-1/1

John Deere Dealers

The changes listed below make your CTM obsolete. Repair, operation and diagnostics on 4.5L and 6.8 L diesel engines is now covered in three manuals.

Discard CTM104 dated 12OCT98 and replace with the following new manuals:

- CTM104 4.5 L and 6.8 L Diesel Engines—Base Engine
- CTM207 4.5 L and 6.8 L Diesel Engines—Mechanical Fuel Systems
- CTM170 4.5 L and 6.8 L Diesel Engines—Level 4 Electronic Fuel System with Bosch VP44 Pump

Also, copy this page listing changes and route through your Service Department.

SECTION 01—GROU001 (Engine Identification)

- Updated engine model designation chart.
- Updated engine application charts.

SECTION 01—GROU002 (Fuels Lubricants and Coolants)

- Updated engine oil and coolant application guidelines.

SECTION 02—GROU010 (Engine Rebuild)

- Updated engine lifting procedure and safety precautions.
- Updated sealant application guidelines.
- Added engine break-in procedure.

SECTION 02—GROU020 (Cylinder Head and Valves)

- Revised rocker arm support torque specifications.

SECTION 02—GROU030 (Cylinder Block, Liners, Pistons and Rods)

- Updated procedure for determining piston-to-liner clearance.
- Added sealant requirements and torque specifications for plugs and caps in cylinder block,

located in procedure for inspection and cleaning of cylinder block.

- Revised procedure for measuring cylinder liner standout (height above block).
- Revised procedure for installing cylinder liners in block.

SECTION 02—GROU040 (Crankshaft, Main Bearings and Flywheel)

- Revised procedure and specifications for removal and installation of vibration damper.
- Revised procedure for removal and installation of front oil seal and wear sleeve.
- Revised procedure for installation of flywheel.
- Revised procedure and specifications for installation of flywheel housing.
- Added procedure for removal and installation of crankshaft timing wheel on engines with Bosch VP44 fuel injection pump.

SECTION 02—GROU050 (Camshaft, Balancer Shafts and Timing Gear Train)

- Revised idler gear end play specifications.
- Updated timing gear backlash specifications.
- Revised procedure for removal and installation of balancer shafts.
- Revised idler gear bushing and idler gear shaft specifications.
- Revised procedure for installation of upper idler shaft in front plate.
- Revised procedure for installation of camshaft.
- Revised procedure for installation of timing gear cover.
- Revised procedure for installation of crankshaft front wear sleeve and oil seal.

SECTION 02—GROU060 (Lubrication System)

- Revised procedure for removal and installation of oil filter base.
- Revised procedure for removal and installation of oil cooler assembly.
- Revised oil pan drain plug specifications.

SECTION 02—GROUP 70 (Cooling System)

- Added procedure for removal and installation of water manifold/thermostat cover on 6010 Series Tractors.
- Revised torque specification for water pump pulley.
- Revised procedure for installation of fan assembly.
- Revised procedure for installation of fan drive assembly.
- Added procedure for removal and installation of cold start advance switch.

SECTION 02—GROUP 80 (Air Intake and Exhaust System)

- Revised turbocharger lube line torque specifications.
- Added procedure for removal and installation of ether start aid.

SECTION 02—GROUP 90 (Fuel System)

NOTE: Repair procedures for fuel systems has been moved to Section 02, Group 090 in two other technical manuals: CTM207—Mechanical Fuel Systems and CTM170—Level 4 Electronic Fuel Systems with Bosch VP44 Pump.

SECTION 02—GROUP 100 (Starting and Charging Systems)

- Starting and charging systems are now covered in this new section/group.

SECTION 03—GROUP 120 (Base Engine Operation)

- Base engine theory of operation is covered in this new section/group.

NOTE: Fuel system theory of operation has been moved to Section 03, Group 130 in two other technical manuals: CTM207—Mechanical Fuel Systems and CTM170—Level 4 Electronic Fuel Systems with Bosch VP44 Pump.

SECTION 04—GROUP 150 (Observable Diagnostics and Tests)

- Base engine observable tests and diagnostics is covered in this new section/group.
- Added dynamometer test procedure and specifications.

NOTE: Fuel system testing and diagnostics has been moved to Section 04, Group 150 in two other technical manuals: CTM207—Mechanical Fuel Systems and CTM170—Level 4 Electronic Fuel Systems with Bosch VP44 Pump.

SECTION 5 (Tools and Other Materials)

- All essential tools, service tools, dealer fabricated tools and other materials listed throughout this manual are consolidated in this section for ease of reference.

SECTION 6 (Specifications)

- All repair, test and diagnostic specifications listed throughout this manual are consolidated in this section for ease of reference.



Thank you very much
for your reading.
Please click here
to get more information.