

John Deere Series 220 Diesel Engines

COMPONENT TECHNICAL MANUAL



**John Deere
Lawn & Grounds Care Division**

**CTM3 (10AUG93)
Replaces CTM3 (28NOV89)**

FOREWORD

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.

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

Use this component technical manual in conjunction with the machine technical manual. An application listing in the Specifications and General Information section 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.

This manual is organized so that all the information on a particular engine is kept together in a single section.

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

This manual is part of a total product support program.

FOS MANUALS—REFERENCE

TECHNICAL MANUALS—MACHINE SERVICE

COMPONENT MANUALS—COMPONENT SERVICE

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

Technical Manuals are concise guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing and repair.

Component Technical Manuals are concise service guides for specific components. Component technical manuals are written as stand-alone manuals covering multiple machine applications.

JOHN DEERE DEALERS

IMPORTANT: The changes listed below make your current CTM obsolete. Discard CTM3, dated 28 NOV 89. Please remove this page and route through your service department.

- The format or “style” of the book has been changed. The familiar “modular” layout has been replaced by a two-column “floating text” format. Also, a heavy emphasis on the use of “exploded” line art, to illustrate specific yet “simple” procedures, is used.
- The layout of the book also changed. It has been completely reorganized to cover a different engine “family” in its own section, similar to how a Technical manual is layed out, using sections and groups.
 - Sections 1 through 4 cover engine service. This includes; engine teardown, diagnosis, checks, tests, adjustments and operational tests.
 - Section 10 covers removal/installation and repair of accessories, primarily on Series 220 OEM Power Unit engines.
 - Section 20 covers Theory of Operation of the various engine systems.
 - Section 21 covers Electrical System component location and schematics for Series 220 OEM Power Unit engines.
- Turbocharger analysis, inspection and repair information has been added. See Accessories - Series 220 Power Unit Engines.
- Information/model designation for Series 220 engines (3009, 3011, 3014 and 4019) have been added wherever applicable.
- Engine application charts have been updated to include the latest product models. See Specifications and General Information section.
- The book’s title. The title was changed from “3TN and 4TN Series Yanmar Diesel Engines” to “John Deere 220 Series Diesel Engines”, to include information pertaining to the OEM Stand-alone power packs.
- A safety section, fuels, lubricants and coolant information and an alphabetical index have also been added.
- A nominal or “standard” specification has been added and listed with the “wear limit” specification.

ABOUT THIS MANUAL

This Component Technical Manual (CTM3) covers the recommended repair and adjustment procedures for the following engines:

- 3 and 4TN Series Diesel Engines used in John Deere Lawn and Grounds Care and small Industrial products.
- Series 220 Diesel Engines offered as OEM units. Three different configurations are available: Base industrial engine, industrial power unit or a generator drive unit.

Before beginning repair of an engine, clean the engine and mount on a repair stand.

This manual contains SI Metric units of measure, followed immediately by the U.S. customary units of measure.

Direction of engine crankshaft rotation in this manual is referenced facing the flywheel looking toward the water pump. Front of engine is water pump end.

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

Read each story completely before performing service to check engine model differences in procedure or specifications.

Each section will be identified with a symbol, letter or a number.

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Safety	S
Specifications and General Information	G
3TN66, 3TNA72 (3009)	1
3TN75, 3TN78, 3TNC78 (3011), 3TN82, 3TNA82, 3TN84 (3014)	2
4TN78T, 4TN82, 4TN84(T) (4019)	3
4TN100	4
Accessories - Series 220 Power Unit Engines	10
Engine, Air Intake and Fuel System	20
Electrical System - Series 220 Power Unit Engines	21



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