

300 SERIES OEM ENGINES

Technical Manual
TM-1190 (Dec-84)

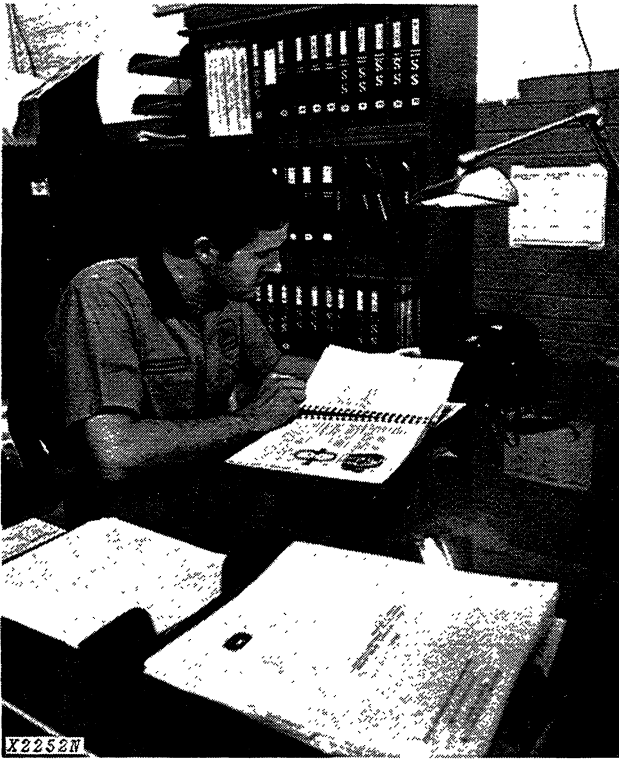
SECTIONAL CONTENTS OF THIS MANUAL

Section I - General Information	1
Section 4 - Engine	4
Section 5 - Engine Auxiliary Systems	5
Section 16 - Electrical Systems	16
Section 19 - Sheet Metal and Styling	19
Section 40 - PTO Drive	40
Section 90 - System Testing	90

The specifications and design information contained in this manual were correct at the time it was printed. It is John Deere's Policy to continually improve and update our machines. Therefore, the specifications and design information are subject to change without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

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INTRODUCTION



Use FOS Manuals for Reference

This technical manual is part of a twin concept of service:

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

•FOS Manuals—for reference

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



When a service technician should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.

•Technical Manuals—for actual service

Technical Manuals are *concise* service guides for a *specific* machine. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.



Use Technical Manuals for Actual Service

This technical manual was planned and written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Some features of this manual:

- Inside front cover - "Table of Contents".
- Section I - Contents
- Sections 4 through 40 - Removal, repair, testing (components removed), installation, and adjustment.
- Section 90 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications grouped and illustrated at the end of each section.

SECTION AND GROUP CONTENTS OF THIS MANUAL

SECTION I - GENERAL INFORMATION

Group I - Contents

SECTION 4 - ENGINE

Group 0400 - Removal and Installation
Group 0401 - Crankshaft and Main Bearings
Group 0402 - Camshaft and Valve Actuating Means
Group 0403 - Connecting Rods and Pistons
Group 0404 - Cylinder Block
Group 0407 - Oiling System
Group 0408 - Ventilating System
Group 0409 - Cylinder Head and Valves
Group 0410 - Exhaust Manifold
Group 0413 - Fuel Injection System
Group 0414 - Intake Manifold
Group 0415 - Engine Balancer
Group 0416 - Turbocharger
Group 0417 - Water Pump
Group 0418 - Thermostats, Housing and Piping
Group 0419 - Engine Oil Cooler
Group 0420 - Fuel Filter
Group 0421 - Fuel Transfer Pump
Group 0422 - Starting Motor and Fastening
Group 0423 - Alternator and Generator Mountings
Group 0429 - Fan Drive
Group 0433 - Flywheel, Housing and Fastenings
Group 0499 - Specifications and Special Tools

SECTION 5 - ENGINE AUXILIARY SYSTEMS

Group 0510 - Cooling Systems
Group 0515 - Speed Controls
Group 0520 - Intake Systems
Group 0599 - Specifications and Special Tools

SECTION 16 - ELECTRICAL SYSTEMS

Group 1672 - Alternator, Regulator and Charging System Wiring
Group 1674 - Wiring Harness and Switches
Group 1676 - Instruments and Indicators
Group 1699 - Specifications and Special Tools

SECTION 19 - SHEET METAL AND STYLING

Group 1910 - Hood or Engine Enclosure

SECTION 40 - PTO DRIVE

Group 4052 - PTO Clutch
Group 4099 - Specifications and Special Tools

SECTION 90 - SYSTEM TESTING

Group 9010 - Engine
Group 9015 - Electrical System
Group 9035 - Specifications and Special Tools

OEM ENGINES SERVICED BY THIS TECHNICAL MANUAL

3-164D
3-179D
4-219D
4-239D
4-239T
4-276D

4-276T
6-329D
6-359D
6-359T
6-414D
6-414T

Accessible Hardware Torque Values

The table below gives correct torque values for various bolts and cap screws. The table lists torques in the U.S. unit of measure (lb-ft), SI metrics (Nm) and conventional metrics (kg/m). Most hardware used is high-strength (note dashes on hex. heads).




The types of bolts and cap screws are identified by head markings as follows:

Plain Head: regular machine bolts and cap screws.

3-Dash Head: tempered steel high-strength bolts and cap screws.

6-Dash Head: tempered steel extra high-strength bolts and cap screws.

Machine bolts and cap screws 7/8-inch (22.2 mm) and larger are sometimes formed hot rather than cold, which accounts for the lower torque.

RECOMMENDED TORQUE - COARSE AND FINE THREADS									
									
BOLT DIAMETER	PLAIN HEAD			THREE DASHES			SIX DASHES		
	LB-FT	Nm	Kg-m	LB-FT	Nm	Kg-m	LB-FT	Nm	Kg-m
1/4	NOT USED	NOT USED	NOT USED	10	14	1	14	19	2
5/16	NOT USED	NOT USED	NOT USED	20	27	3	30	41	4
3/8	NOT USED	NOT USED	NOT USED	35	47	5	50	68	7
7/16	35	47	5	55	75	8	80	108	11
1/2	55	75	8	85	115	12	120	163	17
9/16	75	102	10	130	176	18	175	237	24
5/8	105	142	15	170	230	24	240	325	33
3/4	185	251	26	300	407	42	425	576	59
7/8	160	217	22	445	603	62	685	929	95
1	250	339	35	670	908	93	1030	1396	142
1-1/8	330	447	46	910	1234	126	1460	1979	202
1-1/4	480	651	66	1250	1695	173	2060	2793	285

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ALPHABETICAL INDEX

- A**
- Air cleaner 0520-1
 - Alternator and generator mounting 0423-1
 - Alternator, regulator and charging system wiring 1672-3
 - Amp meter 1676-2
- B**
- Balancer shafts 0415-1
- C**
- Camshaft and valve actuating means 0402-1
 - Charging circuit testing (Delco-Remy alternator) 9015-8
 - Charging circuit testing (Motorola alternator) 9015-5
 - Connecting rods and pistons 0403-1
 - Cooling manifold 0418-1
 - Cooling system, engine 0510-3
 - Crankshaft and main bearings 0401-1
 - Crankshaft front oil seal 0402-3
 - Crankshaft front wear ring 0401-6
 - Crankshaft gear 0401-5
 - Crankshaft rear oil seal 0401-6
 - Crankshaft rear wear ring 0401-6
 - Crankshaft pulley 0429-2
 - Cylinder block 0404-1
 - Cylinder head and valves 0409-1
- D**
- Delco-Remy alternator 1672-3
 - Delco-Remy starting motor 0422-1
 - Diagnosing malfunctions:
 - Engine system testing 9010-5
 - Dipstick 0407-18
- E**
- Electrical schematic 9015-11
 - Electrical system 1672-1
 - Electrical system testing 9015-1
 - Charging circuit 9015-5
 - Starting circuit 9015-1
 - Engine:
 - Alternator and generator mounting 0423-1
 - Camshaft and valve actuating means 0402-1
 - Connecting rods and pistons 0403-1
 - Crankshaft and main bearings 0401-1
 - Cylinder block 0404-1
 - Cylinder head and valves 0409-1
 - Engine balancer 0415-1
 - Exhaust manifold 0410-1
 - Fan drive 0429-1
 - Flywheel, housing and fastenings 0433-1
- Engine:—Continued
- Fuel filter 0420-1
 - Fuel injection system 0413-1
 - Fuel transfer pump 0421-1
 - Intake manifold 0414-1
 - Oil cooler 0419-1
 - Oiling system 0407-1
 - Removal and installation 0400-5
 - Starting motor and fastenings 0422-1
 - Thermostats, housings and water piping 0418-1
 - Turbocharger 0416-1
 - Ventilating system 0408-1
 - Water pump 0417-1
- Engine auxiliary systems:
- Cooling system 0510-3
 - Intake system 0520-1
 - Speed controls 0515-1
- Engine removal and installation 0400-5
- Engine system testing and adjustments:
- Compression pressure test 9010-9
 - Engine cooling system test 9010-11
 - Engine oil pressure test 9010-10
 - Engine performance test using turbocharger boost pressure 9010-14
 - Fuel transfer pump pressure test 9010-11
 - Governor speed droop adjustment 9010-11
 - Injection pump cam advance 9010-13
 - Speed control linkage adjustment 9010-12
- Exhaust manifold 0410-1
- F**
- Fan belt 0429-1
 - Fan drive 0429-1
 - Filter, fuel 0420-1
 - Flywheel, housing and fastenings 0433-2
 - Fuel filter 0420-1
 - Fuel injection nozzles 0413-20
 - Fuel injection pump 0413-1
 - Fuel transfer pump 0421-1
- G**
- Gauge, pressure 1676-3
 - Gauge, temperature 1676-3
- H**
- Hood 1910-3
 - Hour meter 1676-2

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