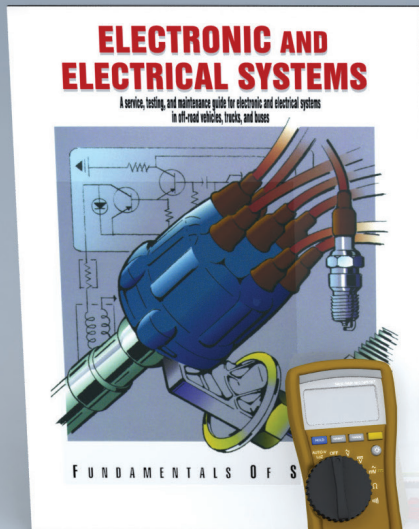
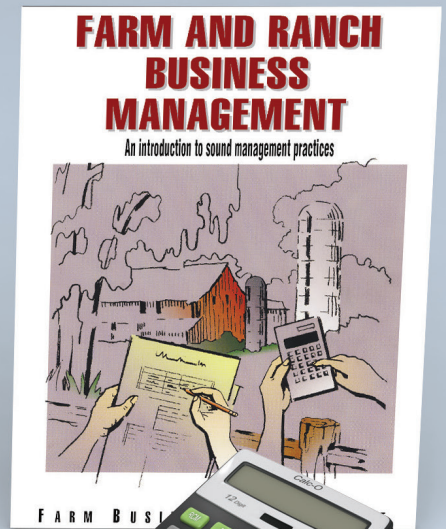
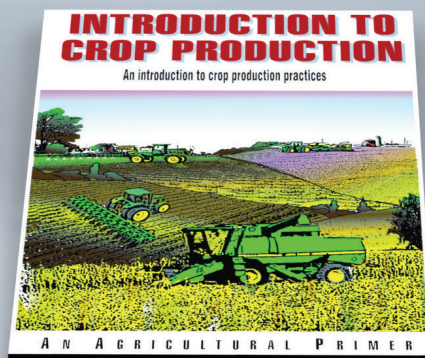
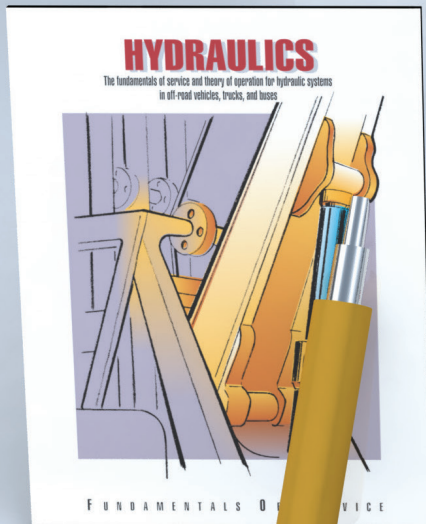
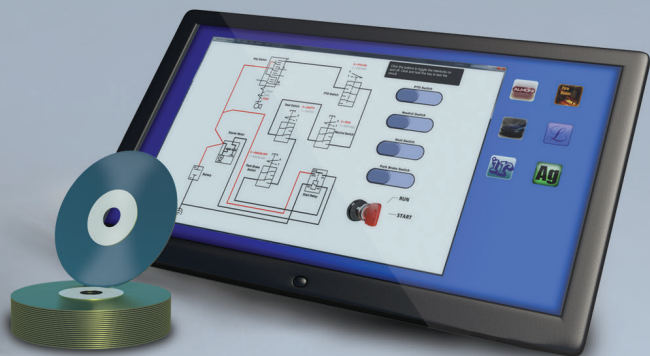


# Learning Resource Materials Catalog



## GRAPHICS AND ANIMATION



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John Deere Publishing has been delivering curriculum since 1968 and has printed over a million manuals over the years.

Our books are intended with the primary audience being our own employees; however, we design them with the technical student in mind.

Our titles range from farm business management to machinery operation and service. Each subject is explained in a step-by-step “building block” method that starts with simple concepts and builds into complex systems. Important points are illustrated to help students quickly grasp the principles. Most major designs and systems are covered, but no brands or models are mentioned. You can use our books even if another manufacturer has donated its equipment to your school.

Our textbooks will help students to think and analyze, enabling them to become better technicians or machine operators of large or small equipment. Our **Student Guides** will help your students develop their understanding more easily, and our **Instructor Guides** and **Art Catalogs** will help instructors prepare for class and laboratory activities with clear learning objectives and teaching strategies.

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- 3) **Fundamentals of Service Series:** These books concentrate on mechanical technology, bringing together technical information and supporting instructional aids that will help you become more proficient in understanding, repairing, and maintaining agricultural equipment. Many external companies (such as Federal Express, California Department of Transportation, Hertz Equipment Rental, Proctor & Gamble, Ingersol-Rand, etc.) use this series to conduct their in-house service training.
- 4) **Fundamentals of Machine Operation Series:** Shows much more than how to safely operate equipment. Students learn machine capacities and adjustments, field efficiency, how to improve machine performance, and how to eliminate unnecessary field operation.
- 5) **Fundamentals of Compact Equipment Service Series:** Provides comprehensive instruction in servicing and maintaining equipment having up to 40-PTO horsepower, including lawn mowers, garden machinery, and snowblowers.

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All orders can be placed through our Customer Service Department. They are available between 7:30 a.m. and 4:00 p.m. Central Standard Time, Monday through Friday. Please contact John Deere Publications at 1-800-522-7448.

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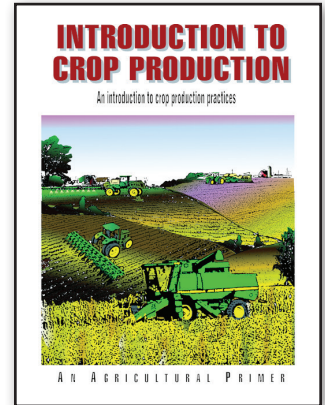
# Introduction to Crop Production

Introduction to Crop Production is a brief overview of the processes, principles, and practices associated with crop production.

Some of the questions that this book addresses include:

- What are the basic needs of a growing crop, and how does the farmer accommodate them?
- What tools does the farmer employ to productively plant, nourish, protect, and harvest a crop?
- What drives the choices and decisions involved in managing crop production activities?

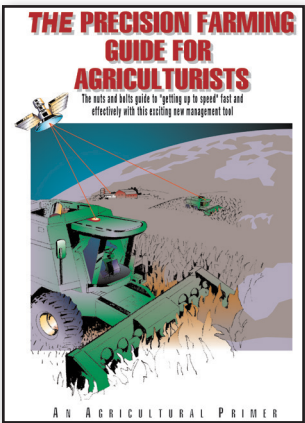
A complete glossary of terms used within this book, related to crop production, is also included.



<b>Chapter 1.</b>	<i>Crop Production Yesterday and Today</i>
<b>Chapter 2.</b>	<i>Soil Management</i>
<b>Chapter 3.</b>	<i>Tillage</i>
<b>Chapter 4.</b>	<i>Planting</i>
<b>Chapter 5.</b>	<i>Chemical Application Management</i>
<b>Chapter 6.</b>	<i>Combine Harvesting</i>
<b>Chapter 7.</b>	<i>Hay and Forage Harvesting</i>
<b>Chapter 8.</b>	<i>Precision Farming</i>
<b>Chapter 9.</b>	<i>Machinery Management</i>
<b>Chapter 10.</b>	<i>Glossary of Terms</i>

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<b>Page Count:</b>	168	N/A
<b>Price:</b>	<b>\$43.95</b>	<b>\$17.95</b>

## The Precision Farming Guide for Agriculturists Revised



The Precision Farming Guide for Agriculturists is an overview of site-specific farming and its many varied systems and applications. This book discusses the following in detail: types of positioning systems, from land-based to global positioning systems to geostationary satellite systems; yield monitoring systems; mapping, soil sampling, and soil testing; and new technologies, such as remote sensing, variable rate technology, and geographic information systems.

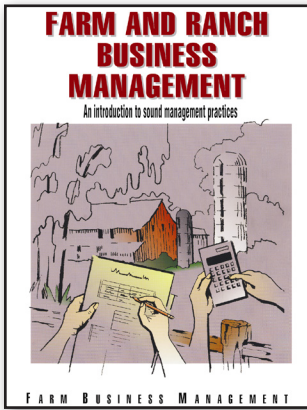
The Precision Farming Guide for Agriculturists also closely studies important considerations that every agriculturist needs to examine, beginning with whether site-specific farming is for you. It then explores system development and integration, economic considerations, and environmental considerations.

A complete glossary of precision-farming terms is included, along with an extensive suggested readings list (books, journals, magazine articles, and websites).

<b>Chapter 1.</b>	<i>An Introduction to Precision Farming</i>
<b>Chapter 2.</b>	<i>Satellite Based Positioning Systems</i>
<b>Chapter 3.</b>	<i>Yield Monitoring and Mapping</i>
<b>Chapter 4.</b>	<i>Soil Sampling and Analysis</i>
<b>Chapter 5.</b>	<i>Remote Sensing</i>
<b>Chapter 6.</b>	<i>Computers and Geographic Information Systems</i>
<b>Chapter 7.</b>	<i>Variable Rate Technologies</i>
<b>Chapter 8.</b>	<i>Precision Farming — Issues to Consider</i>

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<b>Page Count:</b>	168	64	212
<b>Price:</b>	<b>\$43.95</b>	<b>\$28.95</b>	<b>\$17.95</b>

# Farm and Ranch Business Management



Developed with the cooperation of the National FFA Farm Business Management Contest Committee, this book remains the definitive text on managing a farm or ranch on sound business principles.

An important key to the survival of the farm and ranch is good business management. The new breed of farmers and ranchers that are emerging must know how to apply management principles to their operation in order to make the most profit. They must be able to compete and win in a highly volatile worldwide commodity marketplace. Being able to do so requires extensive knowledge of all aspects of the business.

Until the first edition of this book, a serious gap existed in the quest for this knowledge. In response, Deere & Company developed Farm and Ranch Business Management. This was, and is, a basic book that is the first word on the subject. It was written by the experts as a practical guide for the agribusiness manager. It explains in plain English the principles and techniques that every farmer and rancher must know.

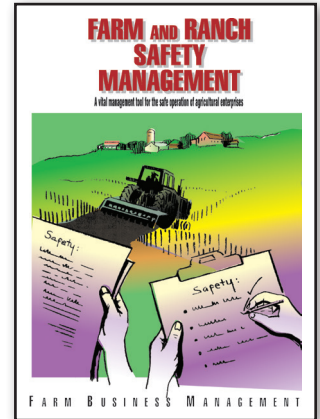
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<b>Chapter 3.</b>	<i>Financial Analysis</i>
<b>Chapter 4.</b>	<i>Budget Analysis</i>
<b>Chapter 5.</b>	<i>Cost And Return Analysis</i>
<b>Chapter 6.</b>	<i>Marketing</i>
<b>Chapter 7.</b>	<i>Investment Analysis</i>
<b>Chapter 8.</b>	<i>Taxes</i>
<b>Chapter 9.</b>	<i>Business Organizations</i>
<b>Chapter 10.</b>	<i>Ag Law</i>
<b>Chapter 11.</b>	<i>Risk Management</i>
<b>Chapter 12.</b>	<i>International Trade</i>

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<b>Page Count:</b>	234	124	132	N/A
<b>Price:</b>	<b>\$50.95</b>	<b>\$42.95</b>	<b>\$29.95</b>	<b>\$17.95</b>

# Farm and Ranch Safety Management

You can't afford even one accident! Careful planning can help avoid tragic — and costly — accidents. Why do you need this book? The answer is simple: agriculture is a hazardous industry. Farming and ranching can be uniquely rewarding occupations, but if you don't follow safe work practices they can be dangerous. According to the National Safety Council (NSC), there were an estimated 1,200 agricultural work-related deaths and 140,000 disabling work-related injuries in the United States in 1992. But you already knew farming and ranching are filled with danger. What you may not know so well is what you can do about it. This book will tell you. We will tell and show you 21 ways to avoid the No. 1 fatal farm accident — and that's just for starters. We show you very practical ways to avoid pinch points; wrapping, shearing, crushing, and pull-in hazards; thrown objects and freewheeling parts; electrical and stored energy; and much, much more.

Farm and Ranch Safety Management is the definitive reference work in rural safety. This 394-page book is filled with EPA, OSHA, and other regulatory agency standards, and suggested ways to meet or exceed those standards. Topics covered in simple, straightforward language include safe machine operation, handling toxic chemicals, hazardous waste disposal, and developing an overall safety management plan.

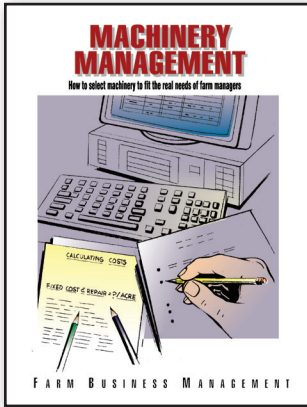


- Chapter 1.** Safe Farm Machinery Operation
- Chapter 2.** Human Factors and Ergonomics
- Chapter 3.** Recognizing Common Machine Hazards
- Chapter 4.** Managing Farm/Ranch Safety
- Chapter 5.** Equipment Service and Maintenance
- Chapter 6.** Waste Recycling and Disposal
- Chapter 7.** Tractors and Implements
- Chapter 8.** Tillage and Planting Equipment
- Chapter 9.** Chemical Safety
- Chapter 10.** Hay and Forage Equipment
- Chapter 11.** Grain and Cotton Harvesting Equipment
- Chapter 12.** Material Handling Equipment
- Chapter 13.** Farm Maintenance Equipment

**Textbook**  
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<b>Page Count:</b>	394
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# Machinery Management



The ability to manage machinery is an important skill that must be mastered by farmers and ranchers who want to compete in our complex worldwide commodity marketplace. With the basic information in this book, you can build a solid foundation of knowledge that can be used to make the most efficient machinery management decisions and help keep your business competitive.

There is no substitute for personally solving a machinery management problem. You should not rely on the “short cut” methods of others when you make decisions that affect your business. The data and formulas in this text are based on the latest information available to improve the accuracy of your machinery management decisions.

The book is divided into three sections. The first section covers how to become more efficient by matching machines and power units to different situations. The second section gives information that can be used to estimate and analyze costs so better machinery management choices can be made. The final section gives several examples of the application of information contained in the first two sections to illustrate the value of making decisions on a sound, economical basis.

Throughout this book, emphasis is placed on solving practical problems with either a computer or hand calculator. Whether you use a computer or a hand calculator, you will be pleasantly surprised at the wide variety of management decisions that you can make once you master these example problems.

## Matching Machines and Power Units

- Chapter 1. Introduction
- Chapter 2. Measuring Machine Capacity
- Chapter 3. Improving Field Efficiency
- Chapter 4. Matching Machine Size and Capacity
- Chapter 5. Estimating Power Requirements

## Estimating Machinery Costs

- Chapter 6. Estimating Fixed Costs
- Chapter 7. Estimating Fuel and Lubricant Costs
- Chapter 8. Estimating Repair Costs
- Chapter 9. Total Costs for Machines and Operations

## Managing Machinery

- Chapter 10. Deciding When to Trade
- Chapter 11. Considering Future Capacity Needs
- Chapter 12. Calculating Custom Work Costs
- Chapter 13. Decision Time—Selecting the Best Alternative
- Chapter 14. Case Studies in Machinery Management

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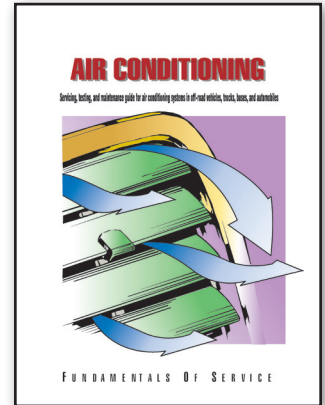


Air Conditioning is the definitive “how-to” book on air conditioning systems of off-road vehicles, trucks, buses, and automobiles — from showing you how to diagnose problems and test components to explaining how to repair the system. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

Instructions are written in simple language so that they can be easily understood. Starting with how air conditioning works, we build up to why it fails and what to do about it. This book can be used by anyone, from a novice to an experienced mechanic.

By starting with the basics, the book builds your knowledge step by step. Chapter 1 provides important safety information. Chapter 2 covers the basic principles of refrigeration. Chapter 3 covers the use of refrigerants, including how to properly recycle and dispose of them. In Chapter 4, the basic systems are introduced. The rest of the book covers testing, diagnosing, inspecting, and servicing complete systems.

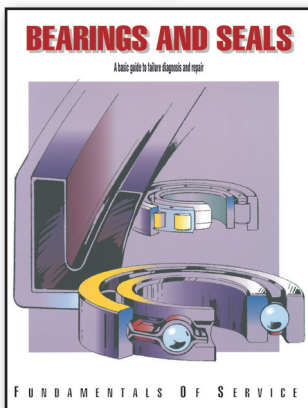
Air Conditioning explains some of the EPA and OSHA regulations pertaining to evacuating systems and refrigerant recovery.



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<b>Page Count:</b>	134	N/A
<b>Price:</b>	<b>\$36.95</b>	<b>\$17.95</b>

<b>Chapter 1.</b>	Safety
<b>Chapter 2.</b>	Basics of Air Conditioning
<b>Chapter 3.</b>	Refrigerants and Oil
<b>Chapter 4.</b>	Basic System: How It Works
<b>Chapter 5.</b>	Service Equipment
<b>Chapter 6.</b>	Inspecting the System
<b>Chapter 7.</b>	Diagnosing the System
<b>Chapter 8.</b>	Testing and Adjusting the System
<b>Chapter 9.</b>	Preparing System for Service

## Bearings and Seals



Bearings and Seals is the definitive “how-to” book when it comes to this subject — from showing you how to diagnose problems and test for failed parts to explaining how to repair the system. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

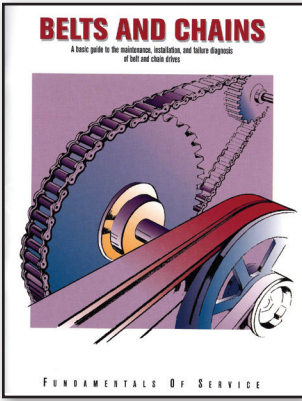
Instructions are written in simple language so that they can be easily understood. Starting with the question “how does it work?” the book builds up to “why does it fail?” and finishes with “what to do about it.” This book can be used by anyone, from a novice to an experienced mechanic.

Bearings and Seals can easily help the reader to better understand bearings and seals. By starting with the basics, it builds your knowledge step by step in a very structured manner.

<b>Chapter 1.</b>	Bearings
<b>Chapter 2.</b>	Seals
<b>Chapter 3.</b>	Safety

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<b>Page Count:</b>	138	N/A
<b>Price:</b>	<b>\$36.95</b>	<b>\$17.95</b>

# Belts and Chains



Belts and Chains is a basic guide to the maintenance, installation, and failure of belt and chain drives.

Belts and Chains is the definitive “how-to” book on the drive systems of off-road vehicles, trucks, buses, and automobiles — from showing you how to inspect them and diagnose problems to giving you step-by-step repair procedures and explaining in detail how to maintain them to avoid future problems. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

Instructions are written in simple language so that they can be easily understood. Starting with the question “how does it work?” the book builds up to “why does it fail?” and finishes with “what to do about it.” This book can be used by anyone, from a novice to an experienced mechanic.

Belts and Chains can easily help a reader to better understand the workings of belt and chain drive components. By starting with the basics, it builds your knowledge step by step in a very structured manner.

Chapter 1.	Belts
Chapter 2.	Chains

Textbook  
7th Edition, ©2012

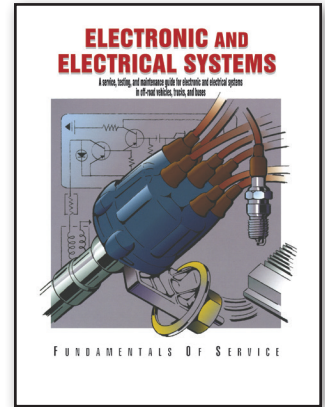
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# Electronic and Electrical Systems

Electronic and Electrical Systems is the definitive “how-to” book on the electrical systems of off-road vehicles, trucks, buses, and automobiles — from showing you how to diagnose problems and test components to explaining how to repair the system. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts. We even explain how to read and understand electrical wiring diagrams and diagnostic charts! How’s that for being helpful?

Instructions are written in simple language so that they can be easily understood. This book can be used by anyone, from a novice to an experienced mechanic.

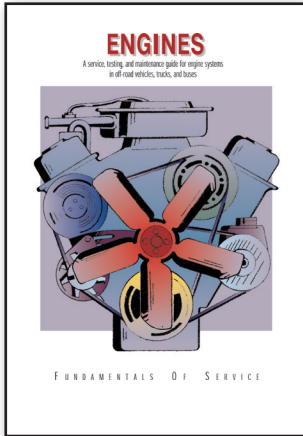
By starting with the basics, the book builds your knowledge step by step. Chapter 1 details the dangers of electricity and describes how to safely work with electrical systems. Chapter 2 covers the principles of electricity and explores the electron and how to measure it. Chapters 3–13 go into detail about electrical systems and provide information for properly maintaining and diagnosing circuits. Chapter 14 gives a basic introduction to mathematics for electronics and controllers. Chapters 15 and 16 cover basic components found within a controller and the sensors that controllers rely on for information. Chapter 17 covers the basic operation of computers and programmable controllers. Chapter 18 gives an explanation of today’s off-road hybrid systems.



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<b>Order No.:</b>	FOS2010NC	FOS2010T	FOS2010W	FOS2010TD
<b>Page Count:</b>	630	208	246	N/A
<b>Price:</b>	<b>\$52.95</b>	<b>\$44.95</b>	<b>\$33.95</b>	<b>\$17.95</b>

<b>Chapter 1.</b>	Electrical Safety
<b>Chapter 2.</b>	Electricity—How It Works
<b>Chapter 3.</b>	Electrical Components
<b>Chapter 4.</b>	Electromechanical Components
<b>Chapter 5.</b>	Storage Batteries
<b>Chapter 6.</b>	Charging Circuits
<b>Chapter 7.</b>	Starting Circuits
<b>Chapter 8.</b>	Ignition Circuits
<b>Chapter 9.</b>	Electronic Ignition and Fuel Injection Systems
<b>Chapter 10.</b>	Lighting and Accessory Circuits
<b>Chapter 11.</b>	Connectors
<b>Chapter 12.</b>	General Maintenance
<b>Chapter 13.</b>	Diagnosis and Testing of Systems
<b>Chapter 14.</b>	Introduction to Mathematics for Controllers
<b>Chapter 15.</b>	Electronic Components
<b>Chapter 16.</b>	Sensors
<b>Chapter 17.</b>	Controllers and Monitors
<b>Chapter 18.</b>	Hybrid Systems

# Engines



Engines is the definitive “how-to” book on the engines of off-road vehicles, trucks, and buses — from showing you how to diagnose problems and test components to explaining how to repair the system. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

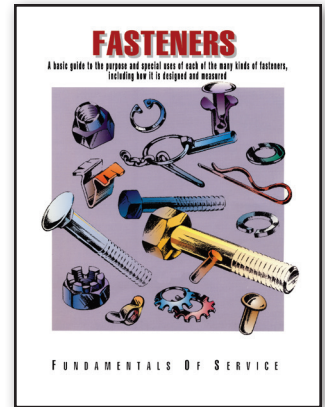
Instructions are written in simple language so that they can be easily understood. This book can be used by anyone, from a novice to an experienced mechanic. And it can be used to work on many different kinds of engines, from gasoline to LP-gas to diesel.

By starting with the basics, the book builds your knowledge step by step. This book covers how engines work; gives basic engine information, from cylinder heads through clutches; and examines the different kinds of fuel systems, to include the latest electronically controlled fuel systems. It also goes into detail about the different kinds of corollary systems (intake, exhaust, lubrication, cooling, and governing) and their working parts; information on test equipment and service tools; plus a complete diagnosis and testing chapter. This book includes information on electronic sensors and how they are used to control and monitor engine operation. It also includes information on how to do a tune-up.

<b>Chapter 1.</b>	How Engines Work
<b>Chapter 2.</b>	Safety Rules for Engines
<b>Chapter 3.</b>	Basic Engine
<b>Chapter 4.</b>	Gasoline Fuel Systems
<b>Chapter 5.</b>	LP-Gas Fuel Systems
<b>Chapter 6.</b>	Natural Gas Fuel Systems
<b>Chapter 7.</b>	Diesel Fuel Systems
<b>Chapter 8.</b>	Intake and Exhaust Systems
<b>Chapter 9.</b>	Lubrication Systems
<b>Chapter 10.</b>	Cooling Systems
<b>Chapter 11.</b>	Governing Systems
<b>Chapter 12.</b>	Engine Test Equipment and Service Tools
<b>Chapter 13.</b>	Diagnosis and Testing
<b>Chapter 14.</b>	Engine Tune-Up

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<b>ISBN:</b>	0-86691-423-4 978-0-86691-423-9	0-86691-424-2	0-86691-425-0	0-86691-426-9
<b>Order No.:</b>	FOS3012NC	FOS3012T	FOS3012W	FOS3012TD
<b>Page Count:</b>	510	114	96	N/A
<b>Price:</b>	<b>\$52.95</b>	<b>\$44.95</b>	<b>\$31.95</b>	<b>\$17.95</b>





This book is, as you might have guessed, about fasteners, those simple devices that are used every day in the home or workshop to fasten things together. Fasteners explores bolts, screws, nuts, pins, washers, keys, studs, snap rings, rivets, adhesives, and many, many others.

A lot has been written about fasteners, but it is scattered in many publications and is often written in technical engineering terms. One purpose of this book is to consolidate, in one publication, all the basic information on fasteners, written simply so it will be easily understood.

We've attempted to limit the information to those features of fasteners that will be of most interest and use to our readers — a description of each fastener, its purpose, its special uses, and how it is designated and measured.

Fasteners also includes instructions for removing and installing certain fasteners, if special techniques are necessary. The meaning of special fastener terms and symbols, often technical and not always understood, are also explained.

Because the proper tightening of many bolts, nuts, and cap screws has become critical in modern machines, we have included an entire chapter to discuss tension and torque.

- Chapter 1.** Importance of Fasteners
- Chapter 2.** Bolts, Cap Screws, Nuts, Washers, and Locking Devices
- Chapter 3.** Working with Bolts, Cap Screws, and Nuts
- Chapter 4.** Screws, Keys, Studs, Snap Rings, Rivets and Clamps
- Chapter 5.** Specialty and Plastic Fasteners
- Chapter 6.** Adhesives and Sealants
- Chapter 7.** Tables, Torques, and Metrics

**Textbook**  
6th Edition, ©2008

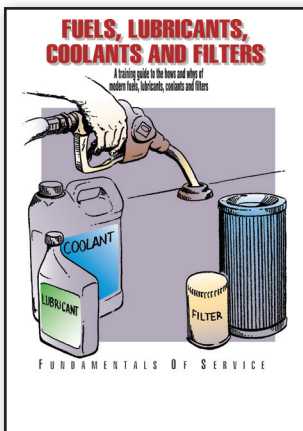
**ISBN:** 0-86691-349-1  
978-0-86691-349-2

**Order No.:** FOS6006NC

**Page Count:** 100

**Price:** \$24.95

## Fuels, Lubricants, Coolants, and Filters



Fuels, Lubricants, Coolants and Filters is the definitive “how-to” book when it comes to this subject — from showing you the different types of each; to their characteristics, designations, and additives; to diagnosing system problems and identifying parts failure; to explaining how to repair the systems. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

Instructions are written in simple language so that they can be easily understood. Starting with the question “how does it work?” the book builds up to “why does it fail?” and finishes with “what to do about it.” This book can be used by anyone, from a novice to an experienced mechanic.

Fuels, Lubricants, Coolants and Filters can easily help a reader better understand these wonderful liquids. By starting with the basics, it builds your knowledge step by step in a very structured manner.

- Chapter 1.** Fuels
- Chapter 2.** Lubricants
- Chapter 3.** Coolants
- Chapter 4.** Diesel Exhaust Fluid (DEF)
- Chapter 5.** Filters

**Textbook**  
10th Edition, ©2015

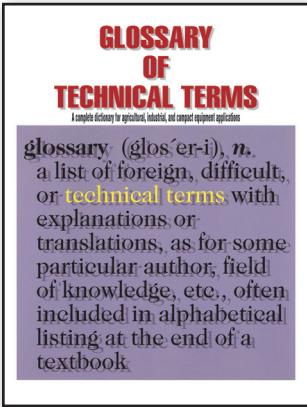
**ISBN:** 0-86691-428-5  
978-0-86691-428-4

**Order No.:** FOS5810NC

**Page Count:** 116

**Price:** \$24.95

# Glossary of Technical Terms



Nearly two thousand terms and their definitions, with the proper abbreviation and an illustrated symbol where appropriate! Terms from the fields of Accounting, Agricultural Law, Agronomy, Biology, Botany, Chemistry, Electricity, Finance, Hydraulics, Management, Marketing, Mechanics, Physics, Refrigeration, and many others.

Deere & Company has been involved in vocational-technical and vocational-agricultural education for more than a quarter of a century. We recognize how limited most dictionaries are in their treatment of technical terms, especially those terms from agriculture and its many vocations. Deere & Company knows how important clear communication is and how dependent good communication is upon exact word meaning. So we have been making a concerted effort to provide our readers with easy access to definitions of terms used in our publications.

From this effort has evolved the idea of one book containing all the technical terms, and their definitions, which are so integral to agricultural vocations and the operation and maintenance of off-the-road machinery (whether in the field, at the construction site, or in the yard).

Deere's staff could find no such publication in print. This book is an attempt to fill the void.

	<b>Textbook</b> 3rd Edition, ©2012
<b>ISBN:</b>	0-86691-381-5 978-0-86691-381-2
<b>Order No.:</b>	FOS6203NC
<b>Page Count:</b>	82
<b>Price:</b>	<b>\$22.95</b>

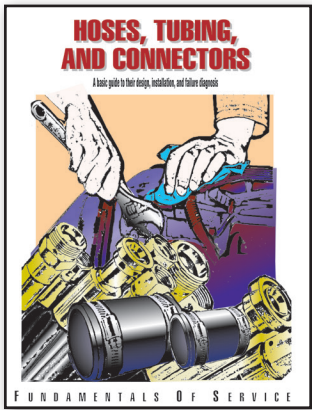
## Hoses, Tubing, and Connectors

Hoses, Tubing, and Connectors is the definitive “how-to” book when it comes to this subject — from showing you how to diagnose problems and test for failed parts, to explaining how to repair the part, to showing how to install the repaired or new part. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

This book discusses conductors — paths to direct the flow of fluids and gases. Hoses, pipes, tubing, and connectors are the vital link between components within machine systems.

Instructions are written in simple language so that they can be easily understood. Starting with basic design of each type of conductor, the book moves through how to select each type, to how to install each kind, to how to test for failures, and ends with how to repair and maintain the different types. This book can be used by anyone, from a novice to an experienced mechanic.

Hoses, Tubing, and Connectors can easily help a reader to better understand hoses, pipes, tubing, and connectors. By starting with the basics, it builds your knowledge step by step in a very structured manner.



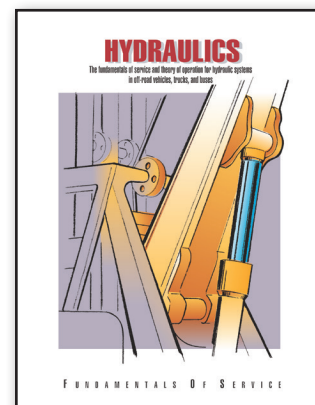
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<b>Order No.:</b>	FOS6303NC
<b>Page Count:</b>	58
<b>Price:</b>	<b>\$22.95</b>

<b>Chapter 1.</b>	Hoses
<b>Chapter 2.</b>	Pipes and Tubes
<b>Chapter 3.</b>	Connectors
<b>Chapter 4.</b>	Safety

Hydraulics is the definitive “how-to” book on the hydraulic systems of off-road vehicles, trucks, and buses — from showing you how to diagnose problems and test components to explaining how to repair the system. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

Instructions are written in simple language so that they can be easily understood. This book can be used by anyone, from a novice to an experienced mechanic.

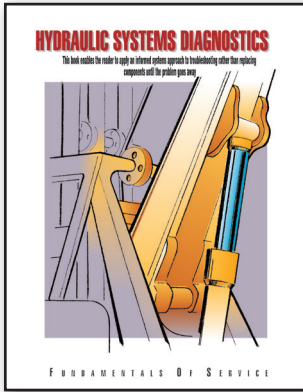
By starting with the basics, the book builds your knowledge step by step. This book covers the principles of hydraulics — how it works. It goes into detail about the working parts of hydraulic circuits. It shows you how to properly maintain hydraulic circuits as well as how to diagnose and test problem areas, plus an entire chapter on safety.



	Textbook 8th Edition, ©2011	Instructor Guide 8th Edition, ©2011	Student Guide 8th Edition, ©2011	Instructor Art Catalog CD
<b>ISBN:</b>	0-86691-371-8 978-0-86691-371-3	0-86691-374-2 978-0-86691-374-4	0-86691-375-0 978-0-86691-375-1	0-86691-376-9 978-0-86691-376-8
<b>Order No.:</b>	FOS1008NC	FOS1008T	FOS1008W	FOS1008TD
<b>Page Count:</b>	284	142	146	N/A
<b>Price:</b>	<b>\$52.95</b>	<b>\$38.95</b>	<b>\$30.95</b>	<b>\$17.95</b>

<b>Chapter 1.</b>	Hydraulics—How It Works
<b>Chapter 2.</b>	Safety Rules for Hydraulics
<b>Chapter 3.</b>	Hydraulic Symbols
<b>Chapter 4.</b>	Hydraulic Pumps
<b>Chapter 5.</b>	Hydraulic Valves
<b>Chapter 6.</b>	Hydraulic Cylinders
<b>Chapter 7.</b>	Hydraulic Motors
<b>Chapter 8.</b>	Hydraulic Accumulators
<b>Chapter 9.</b>	Hydraulic Filters
<b>Chapter 10.</b>	Reservoirs and Oil Coolers
<b>Chapter 11.</b>	Lines and Couplers
<b>Chapter 12.</b>	Hydraulic Seals
<b>Chapter 13.</b>	Hydraulic Fluids
<b>Chapter 14.</b>	General Maintenance
<b>Chapter 15.</b>	Diagnosis and Testing

# Hydraulic Systems Diagnostics



Hydraulic Systems Diagnostics is the definitive “how-to” book on diagnosing and testing the hydraulic systems of off-road vehicles, trucks, buses, and automobiles — from showing you all the different types of hydraulic systems and their various components and why each works as it does, to showing you how to diagnose problems and test components. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

But even more important than showing you what must be done and how to do it, we explain why. Most other “how to” books provide little, if any, guidance on why a hydraulic malfunction may have occurred, or what can be done to reduce the chances of the same problem recurring.

The purpose of Hydraulic Systems Diagnostics is to help you become better informed on the “why” of hydraulic system malfunctions. Included are details on the interactions of system components in the real world of vehicle operation and how these interactions can differ from the widely held perceptions of how systems and components interact.

Instructions are written in simple language so that they can be easily understood. This book can be used by anyone, from a novice to an experienced mechanic.

<b>Chapter 1.</b>	What Is the Problem
<b>Chapter 2.</b>	Hydraulic Loads
<b>Chapter 3.</b>	Types of Systems
<b>Chapter 4.</b>	Tracing Energy Transfer
<b>Chapter 5.</b>	Energy Output Devices
<b>Chapter 6.</b>	Energy Input Devices
<b>Chapter 7.</b>	Energy Control Devices
<b>Chapter 8.</b>	Equipment for Testing
<b>Chapter 9.</b>	Troubleshooting the System
<b>Chapter 10.</b>	Looking for Symptoms
<b>Chapter 11.</b>	Graphic Symbols for Hydraulics
<b>Chapter 12.</b>	Definitions and Conversions

	Textbook 2nd Edition, ©2009	Instructor Art Catalog CD
<b>ISBN:</b>	0-86691-357-2 978-0-86691-357-7	0-86691-372-6 978-0-86691-372-0
<b>Order No.:</b>	FOS6402NC	FOS6402TD
<b>Page Count:</b>	74	N/A
<b>Price:</b>	<b>\$22.95</b>	<b>\$17.95</b>

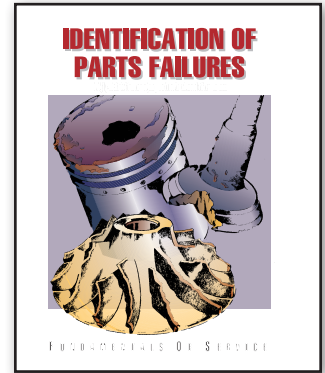


# Identification of Parts Failures

This book contains hundreds of photographs showing failed parts. A brief explanation accompanies each picture and gives reasons why the part might have failed. Recommended actions are given for each failed part. More importantly, the book states how to prevent future failures.

Whether your particular service problem involves the engine, transmission, power train, hydraulic or electrical systems, tires or tracks, or many miscellaneous components and parts, this guide will help you quickly isolate the faulty part and get you back up and running.

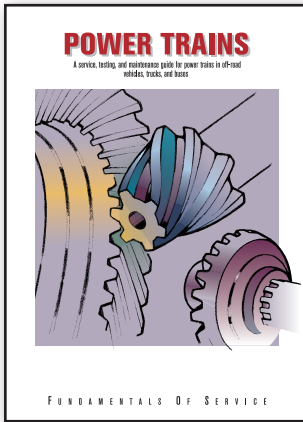
Instructions are written in simple language so they can be easily understood. This book can be used by anyone, from a novice to an experienced mechanic.



	Textbook 7th Edition, ©2014	Instructor Art Catalog CD
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<b>Order No.:</b>	FOS6107NC	FOS6107TD
<b>Page Count:</b>	174	N/A
<b>Price:</b>	<b>\$43.95</b>	<b>\$17.95</b>

<b>Chapter 1.</b>	Pistons, Rings, Cylinders or Cylinder Liners, and Gaskets
<b>Chapter 2.</b>	Journal Bearings
<b>Chapter 3.</b>	Valve Gear Train
<b>Chapter 4.</b>	Turbochargers
<b>Chapter 5.</b>	Gears
<b>Chapter 6.</b>	Shafts, Axles, Spindles, and Universal Joints
<b>Chapter 7.</b>	Hydrostatic Transmissions
<b>Chapter 8.</b>	Anti-Friction Bearings
<b>Chapter 9.</b>	Belts and Chains
<b>Chapter 10.</b>	Tracks and Tires
<b>Chapter 11.</b>	Miscellaneous Failures
<b>Chapter 12.</b>	Parts Analysis Testing

# Power Trains



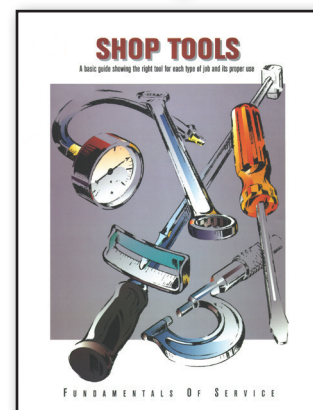
Power Trains is the definitive “how-to” book on the power train systems of off-road vehicles, trucks, and buses — from showing you how to diagnose problems and test components to explaining how to repair the system. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

Instructions are written in simple language so that they can be easily understood. This book can be used by anyone, from a novice to an experienced mechanic.

By starting with the basics, the book builds your knowledge step by step. This book covers the principles of power trains — how they work. It goes into detail about the different kinds of power trains and their working parts. The book clearly discusses how to adjust and maintain a power train system as well as how to diagnose and test problem areas.

<b>Chapter 1.</b>	Power Trains—How They Work
<b>Chapter 2.</b>	Clutches
<b>Chapter 3.</b>	Manual Transmissions
<b>Chapter 4.</b>	Power Shift Transmissions
<b>Chapter 5.</b>	Hydrostatic Drives
<b>Chapter 6.</b>	Torque Converters
<b>Chapter 7.</b>	Infinitely Variable Transmissions (IVT)
<b>Chapter 8.</b>	Differentials
<b>Chapter 9.</b>	Final Drives
<b>Chapter 10.</b>	Power Take-Offs
<b>Chapter 11.</b>	Special Drives

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<b>ISBN:</b>	0-86691-377-7 978-0-86691-377-5	0-86691-378-5 978-0-86691-378-2	0-86691-379-3 978-0-86691-379-9	0-86691-380-7 978-0-86691-380-5
<b>Order No.:</b>	FOS4008NC	FOS4008T	FOS4008W	FOS4008TD
<b>Page Count:</b>	266	88	120	N/A
<b>Price:</b>	<b>\$45.95</b>	<b>\$33.95</b>	<b>\$27.95</b>	<b>\$17.95</b>



Shop Tools is, as you might have guessed, about tools in the workshop — those simple and not-so-simple devices that are used every day in the home or shop to accomplish a job of work. The book explores screwdrivers, hammers, pliers, wrenches, chisels, punches, files, hacksaws, vises, clamps, and many, many others — two dozen families of tools in all. Our emphasis here is on metalworking, but much of what you will learn from our book can apply to working with any kind of material.

A lot has been written about tools, but it is often scattered in many publications. One purpose of this book is to consolidate all the basic information on shop tools, written simply so it will be easily understood.

We have attempted to limit the information here to those features of shop tools that will be of most interest and practical use to our readers — a description of each tool, its purpose, how to use it correctly, how to take proper care of it, and safety.

Textbook  
7th Edition, ©2012

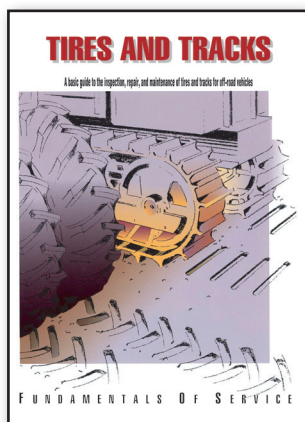
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978-0-86691-389-8

**Order No.:** FOS5107NC

**Page Count:** 67

**Price:** \$24.95

## Tires and Tracks



Tires and Tracks is the definitive “how-to” book on the tires and tracks of off-road vehicles, trucks, buses, and automobiles — from showing you how to inspect them and diagnose problems, to giving you step-by-step repair procedures, and explaining in detail how to maintain them to avoid future problems. Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

Tires and Tracks can easily help a reader to better understand the workings of tire and track components. By starting with the basics, it builds your knowledge step by step in a very structured manner.

- Chapter 1.** Pneumatic Tires
- Chapter 2.** Metal Tracks
- Chapter 3.** Rubber Tracks

Textbook  
9th Edition, ©2012

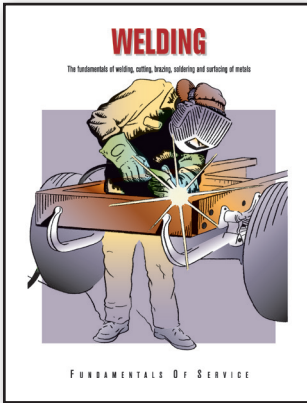
**ISBN:** 0-86691-386-6  
978-0-86691-386-7

**Order No.:** FOS5509NC

**Page Count:** 136

**Price:** \$24.95

# Welding



Welding is the definitive “how-to” book on the subject — from describing the various welding methods to explaining the properties of many different types of metals to showing you how to perform each type of weld. And when we say “show you,” we mean just that! Our book is filled with illustrations to clearly demonstrate what must be done — photographs, drawings, pictorial diagrams, troubleshooting charts, and diagnostic charts.

A lot has been written about welding, but much of it is outdated. The more recent information is scattered among many publications and is often written in technical language. One purpose of this book is to consolidate all the current basic information on welding, written simply so it will be easily understood.

We have attempted to limit the information here to those features that will be of most interest and practical use to our readers — terms and their meanings, and identifying the different kinds of metals and their properties. Repair methods (including cutting, gouging, brazing, soldering, and metal surfacing) and materials, proper equipment, and safety precautions are also included in this book.

Instructions are written in simple language so that they can be easily understood. This book can be used by anyone, from a novice to an experienced welder. By starting with the basics, Welding builds your knowledge step by step in a very structured manner.

<b>Chapter 1.</b>	Introduction to Joining and Cutting Metals
<b>Chapter 2.</b>	Oxyfuel Welding (OFW) Processes
<b>Chapter 3.</b>	Shielded Metal Arc Welding (SMAW)
<b>Chapter 4.</b>	Gas Metal Arc Welding and Flux-Cored Arc Welding (GMAW and FCAW)
<b>Chapter 5.</b>	Gas Tungsten Arc Welding (GTAW)
<b>Chapter 6.</b>	Cutting and Gouging Metals
<b>Chapter 7.</b>	Laser Welding, Cutting, and Drilling
<b>Chapter 8.</b>	Robotic Welding
<b>Chapter 9.</b>	Soldering, Brazing, and Braze Welding
<b>Chapter 10.</b>	Metal Surfacing
<b>Chapter 11.</b>	Properties of Metals
<b>Chapter 12.</b>	Design of Welded Units
<b>Chapter 13.</b>	Welding Safety

	Textbook 10th Edition, ©2016	Instructor Art Catalog CD
<b>ISBN:</b>	0-86691-429-3 978-0-86691-429-1	0-86691-430-7 978-0-86691-430-7
<b>Order No.:</b>	FOS5210NC	FOS5210TD
<b>Page Count:</b>	342	N/A
<b>Price:</b>	<b>\$36.95</b>	<b>\$17.95</b>



# Combine Harvesting

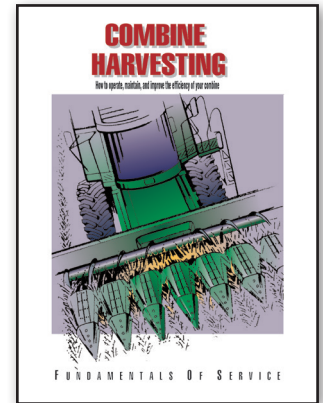
Why do you need this book? The answer is simple: combine harvesting is not simple anymore. You may have learned how to “run” a combine at quite a young age, but the machines themselves keep getting more and more complex, so even operating them is no longer simple.

With all of the on-board monitors, computers, and now even satellite guidance systems, operating a modern combine is downright complicated! And it’s not just the many controls, although they make the cab of today’s combines look like the cockpit of a jumbo jet airliner. It’s mastering the many tasks of field operation and skillful adjustments to the machine’s components.

Without this mastery and skill, you end up with grain losses on the ground, unthreshed kernels on the straw, cob, or in the pod, straw chewed up excessively, or grain lost from the straw walkers or shoe. Also, excessive tailings in the tailings elevator, cracked grain on the grain tank, chaff or trash in the grain tank, and your farm’s profit losses (because of marketing penalties for low-quality grain) are the results of harvesting damage or crop condition.

But proper operation is just part of the solution. If you do not know your combine’s production capacity, when to combine, how to determine grain losses and overcome them, or how to troubleshoot field problems, then you need to learn. This book will teach you in easy steps. You’ll also learn how to make necessary machine adjustments, and how to maintain each component at peak operating performance.

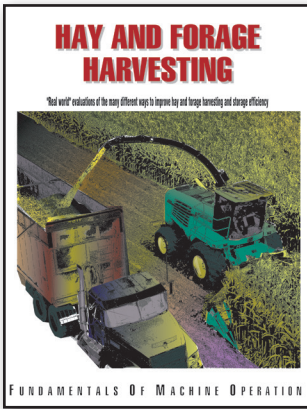
This book shows you — with many illustrations — how to operate, maintain, and improve the efficiency of your combine. The harvesting capacity charts and machine loss charts in the back of this book and the troubleshooting charts throughout it are worth the purchase price in themselves.



	Textbook 6th Edition, ©2013	Instructor Guide 6th Edition, ©2013	Student Guide 6th Edition, ©2013	Instructor Art Catalog CD
<b>ISBN:</b>	0-86691-397-1 978-0-86691-397-3	0-86691-398-X 978-0-86691-398-0	0-86691-399-8 978-0-86691-399-7	0-86691-400-5 978-0-86691-400-0
<b>Order No.:</b>	FMO15106NC	FMO15506T	FMO15606W	FMO15106TD
<b>Page Count:</b>	244	40	68	N/A
<b>Price:</b>	<b>\$40.95</b>	<b>\$43.95</b>	<b>\$19.95</b>	<b>\$17.95</b>

<b>Chapter 1.</b>	Introduction
<b>Chapter 2.</b>	Harvesting Systems
<b>Chapter 3.</b>	Power Systems
<b>Chapter 4.</b>	Operating Controls
<b>Chapter 5.</b>	Field Operation and Adjustments
<b>Chapter 6.</b>	Maintenance
<b>Chapter 7.</b>	Safety

# Hay and Forage Harvesting



Hay and Forage Harvesting is devoted to hay and forage harvesting equipment. It touches only lightly on the how and why of feeding and nutrition and the selection and growing of hay and forage crops.

Good hay and forage management requires a complete understanding of the many machines that handle cereal and legume crops from cutting to storage. It also requires that you preserve as much of the nutritional value in the crop as possible, with the lowest investment of labor and money. The fundamental knowledge you get from this book can help you select specific management targets, then hit the bull's eye with top efficiency.

Knowledge learned and then applied is the basis of good management. Your accomplishments show up in gratifying financial rewards and personal satisfaction.

Safety, planning, and preparations are stressed throughout this book. It's a drumming background that makes you so conscious of the fundamentals of safety that practicing them becomes automatic.

This book is for today's problems and methods. Changes are coming in measurements, in the crops grown, and in livestock feeding; even more changes are coming in machinery that you will use in the future, but the "fundamentals" will always be the same.

<b>Chapter 1.</b>	Introduction
<b>Chapter 2.</b>	Mowers
<b>Chapter 3.</b>	Mower/Conditioners and Windrowers
<b>Chapter 4.</b>	Rakes
<b>Chapter 5.</b>	Square Balers
<b>Chapter 6.</b>	Round Balers
<b>Chapter 7.</b>	Bale Handling and Storage
<b>Chapter 8.</b>	Forage Harvesters
<b>Chapter 9.</b>	Forage Wagons
<b>Chapter 10.</b>	Blowers
<b>Chapter 11.</b>	Operator Aids
<b>Chapter 12.</b>	Selecting Equipment

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<b>ISBN:</b>	0-86691-393-9 978-0-86691-393-5	0-86691-394-7 978-0-86691-394-2	0-86691-395-5 978-0-86691-395-9	0-86691-396-3 978-0-86691-396-6
<b>Order No.:</b>	FMO14107NC	FMO14507T	FMO14607W	FMO14107TD
<b>Page Count:</b>	284	164	124	N/A
<b>Price:</b>	<b>\$40.95</b>	<b>\$52.95</b>	<b>\$17.95</b>	<b>\$17.95</b>

# Preventive Maintenance

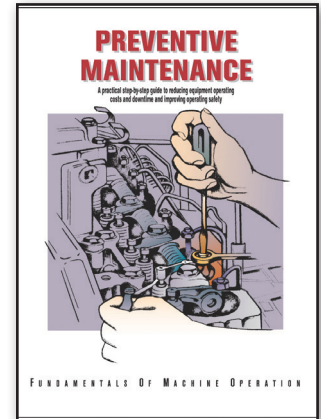
Preventive Maintenance is the definitive “how-to” book on proper procedures to reduce failures, save on operating costs, and keep your equipment safe. It is designed to give you a better understanding of the importance of keeping your equipment in tiptop condition and is full of tips about performing maintenance jobs on farm machines.

Do you know the leading cause of premature failure in agricultural machines today? Putting things off until tomorrow! Putting it off becomes a bad habit that leads to machine breakdown or high operating costs. You can make preventive maintenance a good habit.

Believe it or not, the money it costs to perform preventive maintenance will be repaid many times over. The few dollars you spend on this book will put hundreds of dollars back into your wallet because of downtime you avoided with these tips.

This book covers the whole range of agricultural equipment. The chapters cover engine intake and exhaust system lubricating, cooling and electrical systems, power trains, hydraulics, and other components such as cab air conditioning and accessories. The book covers maintenance on both old and new equipment. Significant coverage is provided for both diesel and gasoline engine types.

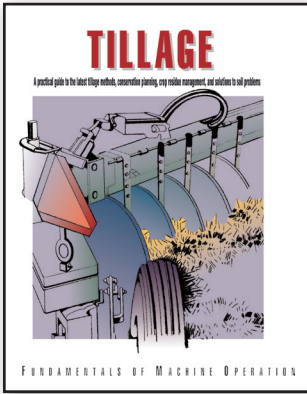
By following and performing the steps in this book, you will reduce failures, save on operating costs, and keep your equipment safe to run.



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<b>Chapter 10.</b>	Tune-Up and Storage
<b>Chapter 11.</b>	Troubleshooting
<b>Chapter 12.</b>	Safety

# Tillage



Tillage has been defined as those mechanical, soil-stirring actions carried on for the purpose of nurturing crops. The goal of proper tillage is to provide a suitable environment for seed germination, root growth, weed control, soil-erosion control, and moisture control — avoiding moisture excesses and reducing stress of moisture shortages.

The greatest change in tillage systems has been a significant shift to conservation farming. This shift has occurred in response to concerns for reducing energy costs, soil erosion, fertilizer and pesticide use, water pollution, and operating costs generally.

Using this book will not only bring you into compliance, but also put money in your pocket by saving you one of your most valuable assets — soil.

<b>Chapter 1.</b>	Tillage Systems and Conservation Planning
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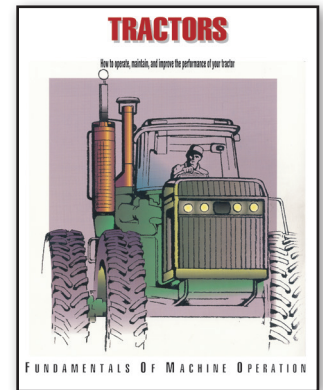
# Tractors

Why do you need this book? The answer is simple: operating a tractor (not just driving it) is not simple anymore. You probably learned how to drive a tractor at quite a young age. But the machines themselves keep getting more and more complex, so even operating them is no longer simple.

With all of the on-board computers, monitors, and now even satellite guidance systems, operating a modern tractor is downright complicated! And it's not just the many controls, although they make the cab of today's tractors look like the cockpit of a jumbo jet airliner. It's mastering the many tasks of field operation and skillful adjustments to the components, along with adjustments to implements.

But proper operation is just part of the solution. If you are not familiar with the new "fat cheeks" lower-than-low tire inflation, how to get the greatest performance from your tractor, how to correctly balance the tractor to prevent excessive wheel slippage or power hop, or how to attach and remove all the new implements, — then you need to learn.

This book shows you — with many illustrations — how to operate, maintain, and improve your tractor's performance. The power hop prevention story and the troubleshooting charts are worth the purchase price alone.



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<b>Chapter 6.</b>	Field Operation
<b>Chapter 7.</b>	Safety and Transport
<b>Chapter 8.</b>	Maintenance and Storage
<b>Chapter 9.</b>	Troubleshooting

# Engines (Up to 40-PTO Horsepower)



The purpose of this manual is to help you gain greater understanding of the test and repair procedures for engines commonly found on compact equipment. By understanding the material covered in this manual, along with hands-on experience, you should have the basic knowledge and skills required of a beginning technician in a compact equipment service department.

Topics covered in this manual are limited to engines found on equipment rated up to 40-PTO horsepower (30 kW). Coverage includes both gasoline (2- and 4-cycle) and diesel engines below that power limit. The engines discussed in this manual are found on the following: chain saws, weed trimmers, lawn mowers, riding mowers, lawn and garden tractors, compact utility tractors, skid-steer loaders, and others.

To understand the test and repair procedures, it is helpful to understand how the engine works. Chapters 1 through 4 of this manual cover the components and operation of engines and fuel systems. Chapters 5 through 10 discuss test and repair procedures.

<b>Chapter 1.</b>	Introduction to Engines
<b>Chapter 2.</b>	Basic 4-Stroke Cycle Piston Engine
<b>Chapter 3.</b>	Basic 2-Stroke Cycle Piston Engine
<b>Chapter 4.</b>	Gasoline and Diesel Induction, Exhaust, and Fuel Systems
<b>Chapter 5.</b>	Servicing the 4-Stroke Cycle Piston Engine
<b>Chapter 6.</b>	Servicing the 2-Stroke Cycle Piston Engine
<b>Chapter 7.</b>	Servicing the Gasoline and Diesel Fuel Systems
<b>Chapter 8.</b>	Servicing the Cooling System
<b>Chapter 9.</b>	Servicing the Lubrication System
<b>Chapter 10.</b>	Diagnosis and Testing of Engines
<b>Chapter 11.</b>	Safety

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# Safety Management for Landscapers, Grounds-Care Businesses, and Golf Courses

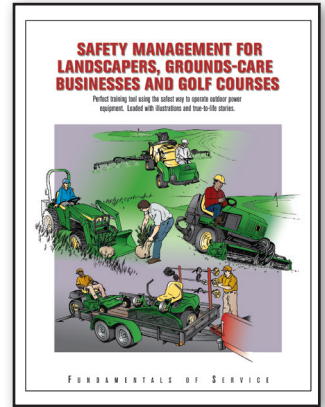
Finally there's a comprehensive book with safety information targeted to grounds care professionals, landscapers, and golf course superintendents. Safety Management for Landscapers, Grounds-Care Businesses and Golf Courses is essential for the manager who wants to stay in compliance with safety regulations. This book is also perfect for training employees in safely operating outdoor power equipment.

The first chapters in the book explain the human and machine factors that contribute to workplace injuries on golf courses and landscape job sites. Next, it covers organizing a company safety program, a must if your firm is going to stay OSHA compliant.

Then there are ten chapters that cover the hazards and safe working practices on specific outdoor power equipment. There are chapters on compact tractors, backhoe/loaders, rotary mowers, lawn grooming equipment, and utility vehicles. There's even a chapter on trailering equipment safely.

The book closes with advice on making your shop a safer place to work.

Loaded with illustrations, true-to-life stories, and clear explanations, Safety Management for Landscapers, Grounds-Care Businesses and Golf Courses is the perfect tool to help make you and your staff smarter and safer.



**Textbook**  
1st Edition, ©2001

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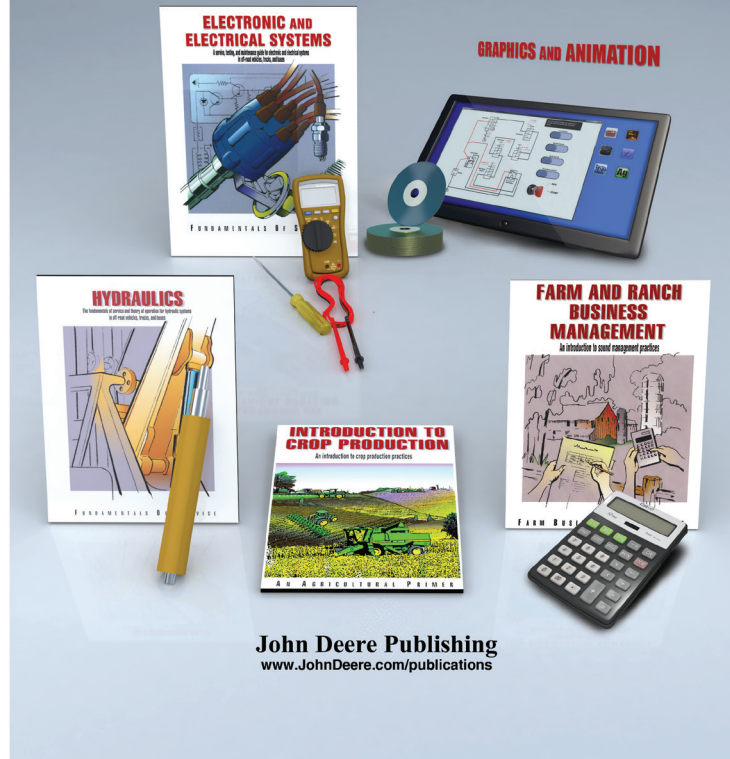
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- Chapter 7.** Common Attachments for Compact Tractors
- Chapter 8.** Rotary Mowers and Cutters
- Chapter 9.** Lawn-Grooming Equipment
- Chapter 10.** Snowblowing Equipment
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