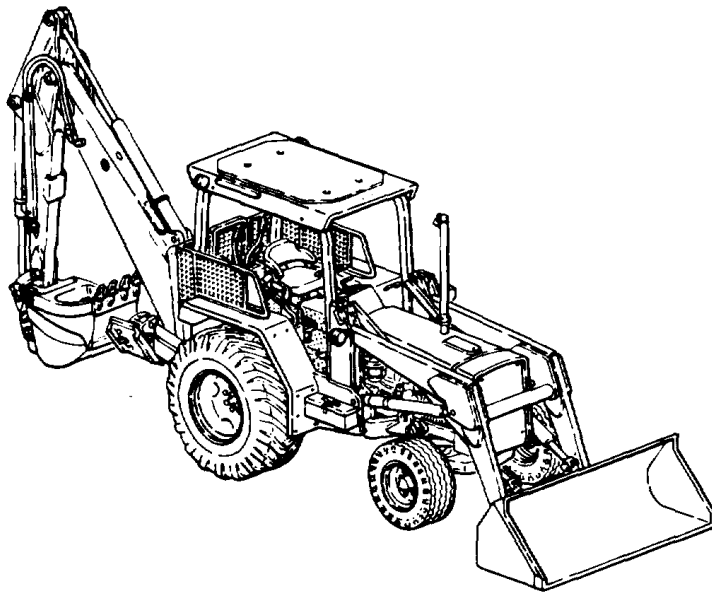


**TECHNICAL MANUAL**

**DIRECT SUPPORT AND GENERAL SUPPORT  
MAINTENANCE MANUAL**

**FOR**

**TRACTOR, WHEELED,  
DED, LOADER BACKHOE:  
WITH HYDRAULIC IMPACT TOOL AND  
WITH HYDRAULIC EARTH AUGER ATTACHMENT  
JOHN DEERE MODEL JD410 (CCE)  
WITH BUCKET, IMPACTOR,  
AND EARTH DRILL  
(NSN 2420-00-567-0135)**



Troubleshooting	2-1
Engine Assembly	3-1
Clutch Assembly	4-1
Fuel System	5-1
Transmission	8-1
Front and Rear Axles	9-1
Brake System	10-1
Steering System	11-1
Body and Accessories	13-1
Hydraulic System	14-1
Cranes, Shovels, and Earthmoving Equipment	15-1
Appendices	A-1

This manual and LO 5-2420-222-12, TM 5-2420-222-20P, and TM 5-2420-222-34P supersede TM 5-2420-222-14&P-1, dated 1 January 1987, and TM 5-2420-222-14&P-2, dated 1 November 1986, including all changes.

Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

26 AUGUST 1992

**DIRECT SUPPORT AND GENERAL SUPPORT  
MAINTENANCE MANUAL**

**FOR**

**TRACTOR, WHEELED,  
DED, LOADER BACKHOE:  
WITH HYDRAULIC IMPACT TOOL AND  
WITH HYDRAULIC EARTH AUGER ATTACHMENT  
JOHN DEERE MODEL JD410 (CCE)  
WITH BUCKET, IMPACTOR,  
AND EARTH DRILL  
(NSN 2420-00-567-0135)**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, direct to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

**TABLE OF CONTENTS**

	Page
How To Use This Manual .....	iii
<b>CHAPTER 1 INTRODUCTION</b>	
Section I.    General Information .....	1-1
Section II.   Equipment Description and Data .....	1-2
Section III.  Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.....	1-3
Section IV.  General Maintenance Instructions .....	1-4
<b>CHAPTER 2</b> <b>TRROUBLESHOOTING PROCEDURES</b> .....	2-1
<b>CHAPTER 3</b> <b>ENGINE ASSEMBLY MAINTENANCE</b>	
Section I.    Engine Assembly Maintenance .....	3-1
Section II.   Lubrication System Maintenance .....	3-115

\*This manual and LO 5-2420-222-12, TM 5-2420-222-10, TM 5-2420-222-20-1, -20-2, -20-3, TM 5-2420-222-20P, and TM 5-2420-222-34P supersede TM 5-2420-222-14&P-1, dated 1 January 1987, and TM 5-2420-222-14&P-2, dated 1 November 1 1986, including all changes.

Approved for public release; distribution is unlimited.

TABLE OF CONTENTS (CON'T)

	Page
CHAPTER 4 <b>CLUTCH ASSEMBLY MAINTENANCE</b> .....	4-1
CHAPTER 5 <b>FUEL SYSTEM MAINTENANCE</b> .....	5-1
CHAPTER 6 <b>COOLING SYSTEM MAINTENANCE</b> .....	6-1
CHAPTER 7 <b>ELECTRICAL SYSTEM MAINTENANCE</b> .....	7-1
CHAPTER 8 <b>TRANSMISSION MAINTENANCE</b> .....	8-1
CHAPTER 9 <b>AXLE MAINTENANCE</b>	
Section I.    Front Axle Maintenance .....	9-1
Section II.   Rear Axle Maintenance .....	9-10
CHAPTER 10 <b>BRAKE SYSTEM MAINTENANCE</b> .....	10-1
CHAPTER 11 <b>STEERING SYSTEM MAINTENANCE</b> .....	11-1
CHAPTER 12 <b>FRAME MAINTENANCE</b> .....	12-1
CHAPTER 13 <b>BODY AND ACCESSORIES MAINTENANCE</b> .....	13-1
CHAPTER 14 <b>HYDRAULIC SYSTEM MAINTENANCE</b> .....	14-1
CHAPTER 15 <b>CRANES, SHOVELS, AND EARTHMOVING EQUIPMENT COMPONENTS MAINTENANCE</b>	
Section I.    Backhoe Assembly Maintenance .....	15-1
Section II.   Loader Assembly Maintenance .....	15-22
CHAPTER 16 <b>PARTS PECULIAR MAINTENANCE</b> .....	16-1
APPENDIX A <b>REFERENCES</b> .....	A-1
APPENDIX B <b>EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST</b> .....	B-1
APPENDIX C <b>ILLUSTRATED LIST OF MANUFACTURED ITEMS</b> .....	C-1
APPENDIX D <b>TORQUE LIMITS</b> .....	D-1
INDEX .....	Index-1

## HOW TO USE THIS MANUAL

This manual is designed to help maintain the John Deere Model JD410 Wheeled Tractor Loader Backhoe. This manual describes in detail the Direct Support and General Support Maintenance prescribed by the Maintenance Allocation Chart (see TM 5-2420-222-20) and Source, Maintenance, and Recoverability (SMR) Codes (see TM 5-2420-222-34P).

### FEATURES OF THIS MANUAL:

- Bleed-to-edge indicators on the cover and on the edge of the applicable manual pages provide quick access to chapters most often used.
- A table of contents is provided for all chapters and sections.
- WARNINGS, CAUTIONS, NOTES, subject headings, and other important information are highlighted in bold print as visual aids.
- Statements and words of particular importance are printed in capital letters to create emphasis.
- Instructions are located together with illustrations that show the specific task or, which the technician is working
- An alphabetical index is provided at the end of the manual to assist in locating information not readily found in the table of contents.
- Technical instructions include metric units in addition to standard units. A metric conversion chart is provided on the inside back cover.

### FOLLOW THESE GUIDELINES WHEN YOU USE THE MANUAL:

- Read through this manual and become familiar with its contents before proceeding to specific maintenance warning summary is provided at the beginning of this manual and should be read before performing any maintenance tasks.
- In the actual maintenance tasks, follow all WARNINGS, CAUTIONS, and NOTES. These are given immediately preceding the procedural steps to which they apply. If these instructions are not followed or care is not taken, injury to personnel or equipment damage may result.
- Within a chapter, section, or paragraph, headings are used to help group the material and assist in quickly finding tasks. Read all preliminary information found at the beginning of each task. After completing a task, ALWAYS perform the follow-on maintenance at the end of the task.

**CHAPTER 1  
INTRODUCTION**

**Section I. GENERAL INFORMATION**

Paragraph Number	Paragraph Title	Page Number
1-1	Scope .....	1-1
1-2	Maintenance Forms, Records, and Reports .....	1-1
1-3	Destruction of Army Materiel To Prevent Enemy Use.....	1-1
1-4	Reporting Equipment Improvement Recommendations (EIRs) .....	1-1

**1-1. SCOPE.**

This manual describes the troubleshooting and maintenance of the John Deere Model JD410 Wheeled Tractor Loader Backhoe for Direct Support and General Support Maintenance mechanics.

**1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.**

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

**1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.**

For destruction of Army materiel to prevent enemy use, refer to TM 750-244-3.

**1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs).**

If your loader backhoe needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF Form 368 (Product Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MP, Warren, MI 48397-5000. We'll send you a reply.

Section II. EQUIPMENT DESCRIPTION AND DATA

Paragraph Number	Paragraph Title	Page Number
1-5	Differences Between Models .....	1-2
1-6	Equipment Data .....	1-2

**1-5. DIFFERENCES BETWEEN MODELS.**

**WARNING**

**Pay close attention to serial numbers when performing maintenance on this equipment. Installation of Incorrect part numbers may result in injury to personnel or damage to equipment.**

Although all loader backhoes covered in this manual have the same model number, there are differences in configuration depending on the loader backhoe serial number. The two serial number breaks are 235786-235999 and 319995-342573. These two configurations differ primarily in transmission design and hydraulic line routing. Throughout this manual, where differences in configuration or equipment affect the maintenance, they are shown in detail. If the differences are minor or obvious, such as differences in exact appearance or location, and maintenance is not affected, typical equipment is shown.

**1-6. EQUIPMENT DATA.**

Refer to TM 5-2420-222-10 for information on loader backhoe identification and data plates, major components, and end item and component specifications.

**Section III. REPAIR PARTS; SPECIAL TOOLS;  
TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE);  
AND SUPPORT EQUIPMENT**

Paragraph Number	Paragraph Title	Page Number
1-7	Common Tools .....	1-3
1-8	Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.....	1-3
1-9	Repair Parts .....	1-3

**1-7. COMMON TOOLS.**

For authorized common tools and test equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your loader backhoe.

**1-8. SPECIALTOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT.**

Special tools required for maintenance of the loader backhoe are listed in TM 5-2420-222-34P. Refer to the Maintenance Allocation Chart (MAC) in TM 5-2420-222-20 for a description of necessary tools, TMDE, and support equipment. Refer to Appendix C, Illustrated List of Manufactured Items, in this manual for a description of fabricated tools.

**1-9. REPAIR PARTS.**

Repair parts for the Direct Support and General Support Maintenance of the loader backhoe are listed and illustrated in TM 5-2420-222-34P.

**Section IV. GENERAL MAINTENANCE INSTRUCTIONS**

<b>Paragraph Number</b>	<b>Paragraph Title</b>	<b>Page Number</b>
1-10	General.....	1-4
1-11	Work Safety.....	1-5
1-12	Cleaning Instructions.....	1-5
1-13	Preservation of Parts.....	1-6
1-14	Painting.....	1-6
1-15	Inspection Instructions.....	1-6
1-16	Bearing Clearance Gage.....	1-7
1-17	Service Replacement Kits.....	1-8
1-18	Tagging Parts.....	1-8
1-19	Soldering.....	1-9
1-20	Heat Shrink Tubing.....	1-9
1-21	Wire Terminal Lug and Connector Replacement.....	1-10
1-22	Wire Replacement.....	1-10
1-23	Wiring Harness Connector Repair and Replacement.....	1-11
1-24	Electrical Ground Points.....	1-12
1-25	Lines and Ports.....	1-13
1-26	Antiseizing Tape.....	1-13
1-27	Tubes and Compression Fittings.....	1-13
1-28	Lockwire.....	1-14
1-29	Fluid Disposal.....	1-15

**1.10. GENERAL.**

a. These general maintenance instructions contain general shop practices and specific methods you must be familiar with to properly maintain your loader backhoe. You should read and understand these practices and methods before performing any Direct Support and General Support Maintenance procedures.

b. Before beginning a task, find out how much repair, modification, or replacement is needed to fix the equipment. Sometimes the reason for equipment failure can be seen right away and complete teardown is not necessary. Disassemble equipment only as far as necessary to repair or replace damaged parts.

c. In some cases, a part may be damaged by removal. If the part appears to be good, and other parts behind it are not defective, leave it on and continue with the procedure. Here are a few simple rules:

- (1) Do not remove dowel pins or studs unless loose, bent, broken, or otherwise damaged.
- (2) Do not remove bearings or bushings unless damaged. If you need to remove them to access parts behind, pull bearings and bushings out carefully.
- (3) Replace all gaskets, lockwashers, seals, cotter pins, and preformed packings.

d. The following "Initial Setup" information applies to all procedures:

- (1) Resources are not listed unless they apply to the procedure.
- (2) "Personnel Required" is listed only if more than one mechanic is required to complete the task.