Introduction

Manual Description

This technical manual is written for an experienced technician and contains sections that are specifically for this product. It is a part of a total product support program.

The manual is organized so that all the information on a particular system is kept together. The order of grouping is as follows:

- Table of Contents
- Specifications and Information
- Identification Numbers
- Tools and Materials
- Component Location
- Schematics and Harnesses
- Theory of Operation
- Operation and Diagnostics
- Diagnostics
- Tests and Adjustments
- Repair
- Other

Note: Depending on the particular section or system being covered, not all of the above groups may be used.

The bleed tabs for the pages of each section will align with the sections listed on this page. Page numbering is consecutive from the beginning of the Safety section through the last section.

We appreciate your input on this manual. If you find any errors or want to comment on the layout of the manual please contact us.

Safety
Specifications and Information
Engine
Electrical
Power Train
Final Drive
Hydraulics
Steering
Brakes
Miscellaneous

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

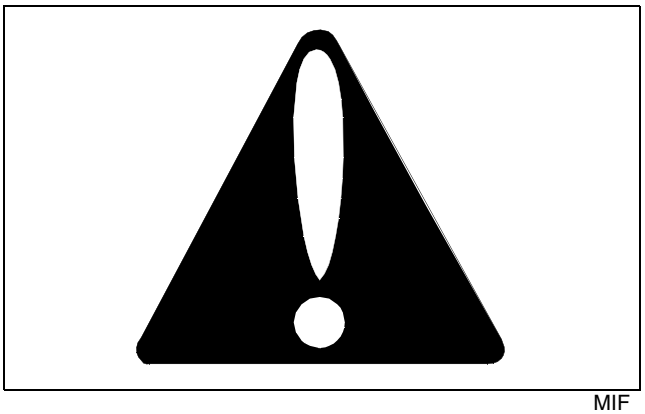
COPYRIGHT© 2010
Deere & Co.
John Deere Worldwide Commercial and Consumer Equipment Division
All rights reserved
Previous Editions
COPYRIGHT© 2007

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Safety

Recognize Safety Information



MIF

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

Follow recommended precautions and safe servicing practices.

Understand Signal Words

A signal word - DANGER, WARNING, or CAUTION - is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

Special Messages

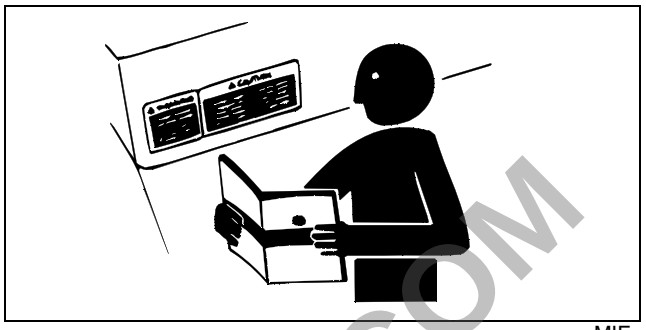
Your manual contains special messages to bring attention to potential safety concerns, machine damage as well as helpful operating and servicing information. Please read all the information carefully to avoid injury and machine damage.

Caution: Avoid Injury! This symbol and text highlight potential hazards or death to the operator or bystanders that may occur if the hazards or procedures are ignored.

Important: Avoid Damage! This text is used to tell the operator of actions or conditions that might result in damage to the machine.

Note: General information is given throughout the manual that may help the operator in the operation or service of the machine.

Replace Safety Signs

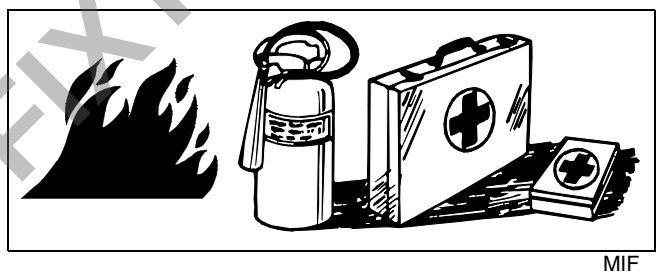


MIF

Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

Handle Fluids Safely - Avoid Fires

Be Prepared For Emergencies



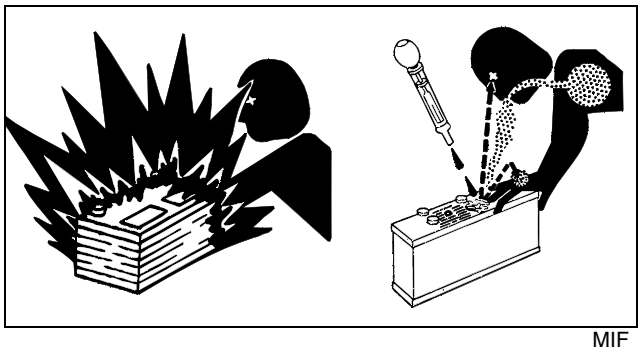
MIF

- When you work around fuel, do not smoke or work near heaters or other fire hazards.
- Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.
- Make sure machine is clean of trash, grease, and debris.
- Do not store oily rags; they can ignite and burn spontaneously.
- Be prepared if a fire starts.
- Keep a first aid kit and fire extinguisher handy.
- Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Use Care In Handling and Servicing Batteries



MIF

Prevent Battery Explosions

- Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.
- Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.
- Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

Prevent Acid Burns

- Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid acid burns by:

- Filling batteries in a well-ventilated area.
- Wearing eye protection and rubber gloves.
- Avoiding breathing fumes when electrolyte is added.
- Avoiding spilling or dripping electrolyte.
- Use proper jump start procedure.

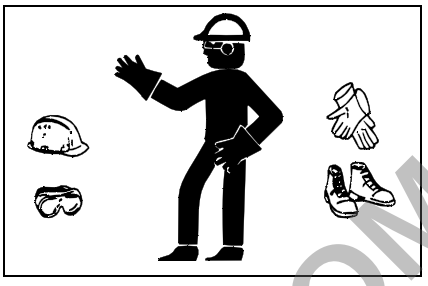
If you spill acid on yourself:

- Flush your skin with water.
- Apply baking soda or lime to help neutralize the acid.
- Flush your eyes with water for 10 - 15 minutes.
- Get medical attention immediately.

If acid is swallowed:

- Drink large amounts of water or milk.
- Then drink milk of magnesia, beaten eggs, or vegetable oil.
- Get medical attention immediately.

Wear Protective Clothing



MIF

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

Use Care Around High-pressure Fluid Lines

Avoid High-Pressure Fluids



MIF

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid injury from escaping fluid under pressure by stopping the engine and relieving pressure in the system before disconnecting or connecting hydraulic or other lines. Tighten all connections before applying pressure.

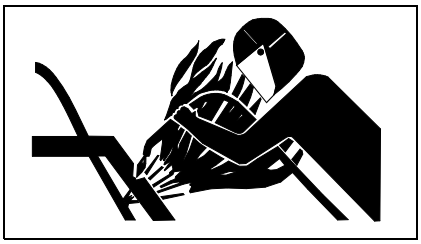
Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Avoid Heating Near Pressurized Fluid Lines



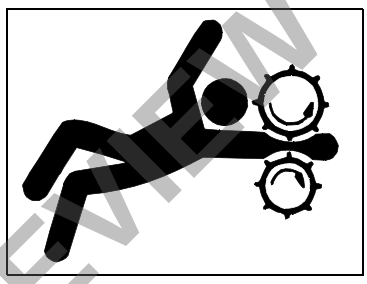
MIF

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

Parking Safely

1. Stop machine on a level surface, not on a slope.
2. Disengage PTO and stop attachments.
3. Lower attachments to the ground.
4. Lock park brake.
5. Stop engine.
6. Remove key.
7. Wait for engine and all moving parts to stop before you leave the operator's station.
8. Close fuel shut-off valve, if your machine is equipped.

Service Machines Safely

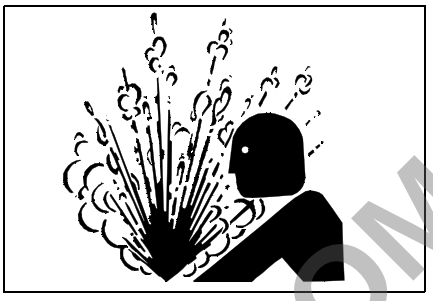


MIF

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

Service Cooling System Safely



MIF

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off machine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

Use Proper Tools

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards. Use power tools only to loosen threaded parts and fasteners. For loosening and tightening hardware, use the correct size tools. **DO NOT** use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches. Use only service parts meeting John Deere specifications.

Work in Clean Area

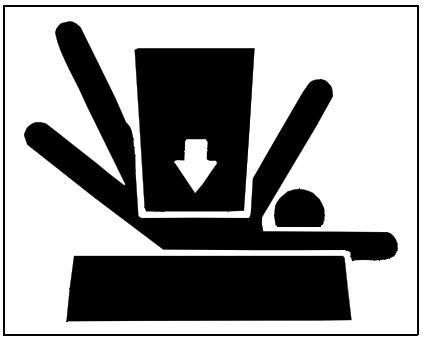
Before starting a job:

1. Clean work area and machine.
2. Make sure you have all necessary tools to do your job.
3. Have the right parts on hand.
4. Read all instructions thoroughly; do not attempt shortcuts.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Support Machine Properly and Use Proper Lifting Equipment



MIF

If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

Lifting heavy components incorrectly can cause severe injury or machine damage. Follow recommended procedure for removal and installation of components in the manual.

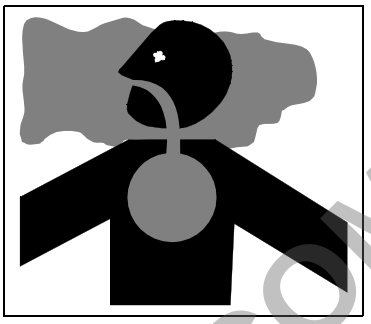
Using High Pressure Washers

Directing pressurized water at electronic/electrical components or connectors, bearings, hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure and spray at a 45 to 90 degree angle.

Illuminate Work Area Safely

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

Work In Ventilated Area



MIF

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

Warning: California Proposition 65 Warning

Gasoline engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Remove Paint Before Welding or Heating

Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch. Do all work outside or in a well ventilated area. Dispose of paint and solvent properly. Remove paint before welding or heating: If you sand or grind paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Avoid Harmful Asbestos Dust

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

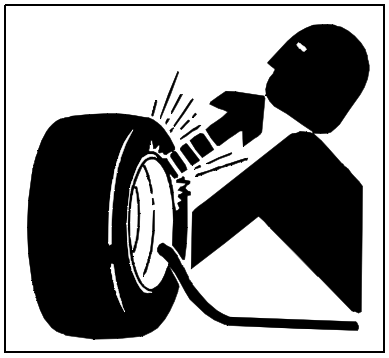
Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding material containing asbestos. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, apply a mist of oil or water on the material containing asbestos. Keep bystanders away from the area.

Service Tires Safely



MIF

Explosive separation of a tire and rim parts can cause serious injury or death.

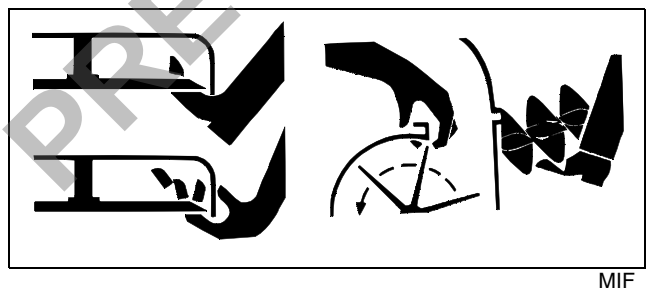
Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

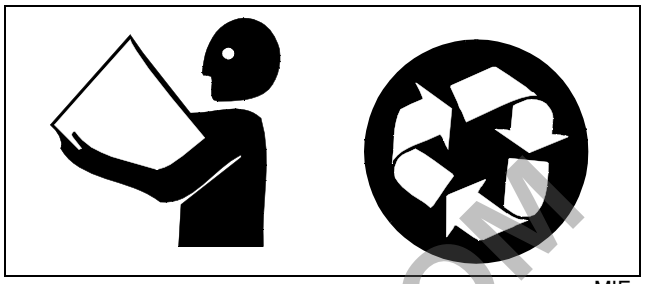
Avoid Injury From Rotating Blades and Augers



MIF

Keep hands and feet away while machine is running. Shut off power to service, lubricate or remove mower blades, augers or PTO shafts.

Handle Chemical Products Safely



MIF

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

Dispose of Waste Properly

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries. Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them. Do not pour waste onto the ground, down a drain, or into any water source. Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.

Live with Safety



MIF

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Table of Contents

Specifications 21
General Specifications 21
Tests and Adjustments Specifications.....21
Repair Specifications.....22
Operational Tests 25
Torque Values, Non-Standard Fasteners.....25
Special Tools.....26
Other Materials.....26
Component Location.....27
Fuel Supply Components 27
Turbocharger Components 28
Theory of Operation 29
Fuel System Operation.....29
Air Intake System 29
Turbocharger Operation 30
Cooling System Operation 31
Lubrication System Operation 32
Diagnostics 33
Engine Troubleshooting 33
Symptom: Starting Problems.....33
Symptom: Starting Problems.....34
Symptom: Low Engine Output.....34
Symptom: Exhaust Abnormal Under Load ...35
Symptom: Engine Runs Rough 36
System: Lubricating Oil 37
Symptom: Excessive Fuel Consumption 39
Symptom: Incorrect Manifold Pressure 39
Low Engine Compression 39
Symptom: Temperature Problems 39
Symptom: Coolant in Oil or Oil in Coolant....40
System: Diagnostic Table.....41
System: Turbocharger Failure Analysis 43
System: Check for Head Gasket Failures 45
Tests and Adjustments 47
Check Air Intake System 47
Check for Intake and Exhaust Restrictions ..47
Fan/Alternator Drive Belt Adjust 47
Throttle Rod Adjust.....48
Slow Idle Adjust.....49
Thermostat Opening Test.....49
Cylinder Compression Test 50
Valve Clearance Adjust 50
Valve Lift Check 51
Radiator Bubble Test.....52
Radiator Pressure Cap Test 53
Cooling System Pressure Test 53
Engine Oil Pressure Test..... 53
Engine Oil Consumption 54
Fuel System Leakage Test 54
Bleed Fuel System..... 54
Fuel Supply Pump Pressure Test 55
Injection Pump Timing 56
Fuel Injection Nozzle Test 61
Turbocharger Oil Seal Leak Check..... 62
Turbocharger Waste Gate Test 63
Turbocharger Inspection..... 64
Crankshaft End Play Check..... 66
Timing Gear Backlash Check 67
Camshaft End Play Check..... 67
Connecting Rod Side Play Check..... 67
Connecting Rod Bearing Clearance Check . 68
Crankshaft Main Bearing Clearance Check. 69
Repair..... 69
Radiator Remove and Install 69
Thermostat Remove and Install..... 72
Water Pump Remove and Install..... 73
Fuel Filter/Water Separator 74
Secondary Fuel Filter..... 75
Fuel Injection Pump 75
Fuel Injection Nozzles..... 77
Intake Manifold 80
Muffler Remove and Install 80
Exhaust Manifold 81
Starting Motor Remove and Install 81
Alternator Remove and Install 82
Rocker Cover Remove and Install..... 82
Muffler Remove and Install 83
Turbocharger Remove and Install 83
Engine Remove and Install..... 85
Engine/Flywheel Housing Split 89
Rocker Arm Assembly 93
Cylinder Head and Valves Remove and Install 95
Cylinder Head and Valves Disassemble and Assemble..... 96
Valve Seats..... 97
Valve Recession 98
Valve Guides 98
Valve Springs..... 98
Grind Valve Seats..... 99
Lap Valves..... 99

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Measure Piston-To-Cylinder Head Clearance....100
Piston and Connecting Rod....100
Piston Inspection....103
Cylinder Bore....106
Crankshaft Front Oil Seal....108
Crankshaft Rear Oil Seal....109
Crankshaft and Main Bearings....109
Flywheel and Coupling....111
Camshaft....112
Camshaft Followers....114
Timing Gear Cover....116
Idler Gear....117
Timing Gear Cover Mounting Plate....118
Oil Pan and Strainer....118
Oil Pump....118

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

ELECTRICAL TABLE OF CONTENTS

Table of Contents

General Information.....123
Reading Electrical Schematics.....123
Theory Of Operation Information.....124
Diagnostic Information.....124
Wire Color Abbreviation Chart.....124
Common Circuit Tests.....125
Conductors For 12 Volt Circuits 125
Specifications 126
System Specifications 126
Tools.....127
Other Materials.....127
Component Location.....128
Main Schematic and Wiring Harness Legend SN -410000 128
Main Schematic and Wiring Harness Legend 410001- 129
W1 Main Wiring Schematic SN -410000 130
W03 Main Wiring Schematic SN 410001- ..133
Cruise Control Wiring Schematic 138
W1 Main Wiring Harness SN -410000 139
W03 Main Wiring Harness SN 410001- 141
W28 Third Function Wiring Harness 143
Cruise Control Wiring Harness.....144
W1 Main Wiring Harness Color Codes SN -410000 145
W03 Main Wiring Harness Color Codes SN 410001- 147
W28 3rd Function Wiring Harness Color Codes.....148
Load Center SN -410000 150
Load Center SN 410001- 151
W1 Main Wiring Harness Component Location SN -410000.....152
W03 Main Wiring Harness Component Location SN 410001-.....154
Operation and Diagnostics 155
Model Year Differences.....155
Power Circuit Operation 156
Power Circuit Schematic SN -410000 157
Power Circuit Schematic SN 410001- 159
System: Power Circuit Diagnosis SN -410000 161
System: Power Circuit Diagnosis SN 410001- 165
Cranking Circuit Operation 169
Cranking Circuit Schematic SN -410000 ... 170
Cranking Circuit Schematic SN 410001- ... 172
System: Cranking Circuit Diagnosis 174
Manifold Heater and Indicator Light Circuit Operation..... 175
Manifold Heater and Indicator Light Circuit Schematic SN -410000..... 176
Manifold Heater and Indicator Light Circuit Schematic SN 410001-..... 177
System: Manifold Heater and Indicator Light Circuit Diagnosis..... 178
Fuel Supply/Engine Shutoff Circuit Operation..... 179
Fuel Supply/Engine Shutoff Circuit Schematic SN -410000..... 180
Fuel Supply/Engine Shutoff Circuit Schematic SN 410001-..... 182
System: Fuel Supply/Cutoff Circuit Diagnosis..... 184
Charging Circuit Operation 186
Tachometer Circuit Operation..... 186
Hour Meter Circuit Operation..... 186
Charging, Tachometer, and Hour Meter Circuit Schematic SN -410000..... 187
Charging, Tachometer, and Hour Meter Circuit Schematic SN 410001-..... 188
System: Charging, Tachometer and Hour Meter Circuit Diagnosis..... 189
PTO Circuit Operation 190
PTO Circuit Electrical Schematic SN -410000..... 191
PTO Circuit Electrical Schematic SN 410001-..... 193
System: PTO Circuit Diagnosis 195
Light Circuit Operation..... 196
Lights Circuit Electrical Schematic SN -410000..... 197
Lights Circuit Electrical Schematic SN 410001-..... 200
System: Lights Circuit Diagnosis 203
Third Function Circuit Operation..... 208
Third Function Circuit Electrical Schematic 209
Cruise Control Circuit Operation..... 211
Cruise Control Electrical Schematic 212
Tests and Adjustments 214
Ground Circuit Test..... 214
Battery Voltage and Specific Gravity Test . 214

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Table of Contents

Specifications 241
General.....241
Hydrostatic Pump 241
Hydrostatic Motor 241
Torque Specifications.....241
Special or Essential Tools 242
Other Materials.....242
Component Location.....243
Machines Component Location.....243
Forward and Reverse Pedals.....244
Transmission 246
Transmission Components.....247
Center Plate Components 248
Drive Shaft.....249
Front Drive.....250
Schematics.....252
Steering/Charge Pump Circuit Schematic..252
Theory of Operation 254
Transmission Operation 254
Range Transmission Power Flow.....255
Diagnostics 256
System: Hydrostatic Power Train 256
Symptom: Machine Will Not Move In Forward or Reverse.....256
Symptom: Machine Will Not Move In Forward 256
Symptom: Machine Will Not Move In Reverse 257
Symptom: Hydraulic Pump Noise.....257
Symptom: Sluggish Response To Changes In Speed.....257
Symptom: Low Power 257
Symptom: Cruise Control Does Not Work..257
Tests and Adjustments 258
Hydrostatic High Pressure Relief Test 258
Charge Pump Pressure Test and Adjust....259
Hydraulic System Bleed Procedure.....260
Hydrostatic Control Linkage Neutral Adjust261
Repair.....261
Forward and Reverse Pedals Assemble 261
Machine Splitting (Front) 262
Machine Splitting (Rear).....265
Hydrostatic Transmission Remove and Install.....268
Hydrostatic Transmission Disassemble..... 269
System Check/Relief Valve Inspect and Replace..... 270
Charge Pressure Relief Valve Inspect and Replace..... 270

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Table of Contents

Specifications 273
General Specifications 273
Repair Specifications.....273
Torque Specifications.....273
Special or Essential Tools 275
Other Materials.....275
Component Location.....276
Transmission 276
Main and Driven Shafts 277
Drive/Pinion Shaft.....278
Range Shift.....280
Differential Assembly.....281
Rear Axle and Final Drive 283
Brake Assembly 284
PTO Clutch/Brake Assembly.....286
Rear PTO Shaft.....288
Transmission Housing.....289
Front Drive (For MFWD).....290
MFWD Front Axle Housing and Differential 291
MFWD Final Drive 293
Theory of Operation 295
Range Transmission 295
Differential Power Flow and Lock.....296
MFWD Power Operation 297
MFWD Power Flow 298
Diagnostics 299
System: Final Drive Checks 299
System: Troubleshooting.....299
System: PTO Diagnosis 300
System: Final Drive Symptom Diagnosis ...300
System: Differential Lock Symptom Diagnosis.....300
Tests and Adjustments 301
Differential Pinion Shaft Adjust.....301
Differential Backlash Adjust.....303
Repair.....305
MFWD Output Shaft 305
Speed Range Transmission 308
Main Gear Disassemble and Assemble 313
Assemble Range Transmission.....315
Final Drive Remove.....317
Final Drive Install.....318
Final Drive Disassemble, Inspect, and Assemble 318
Differential Lock Fork.....319
Differential Remove and Install.....320
MFWD Remove and Install.....322
MFWD Final Drive Cover.....323
MFWD Spindle Shaft 325
MFWD Final Drive Housing 326
Spindle Housing.....327
MFWD Differential 328
Pinion Depth Setup and Adjust.....331
PTO Theory of Operation 333
PTO Clutch and Brake Theory of Operation.....333
PTO Power Transmission.....334
PTO Repair 335
PTO Drive Shaft and Gears.....335
PTO Clutch and Brake.....337

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Table of Contents

Load Check and Relief Valves..... 388
Selective Control Valve (SN 410001-) 389

Specifications 343
Hydraulic Specifications 343
Repair Specifications.....344
Torque Specifications.....344
Component Location and Schematics 345
System Components 345
System Schematics.....346
Rockshaft Piston, Rod, and Rate of Drop Valve 348
Rockshaft Control Valve, Plunger Assembly and Controls.....349
Rockshaft and Lift Arms (Exploded View) ..351
SCV - 3-Spool Component Location (SN -410000).....352
SCV and Rockshaft System Components..354
SCV and Rockshaft System Schematics ...355
Diverter Valve Schematic (SN 410001-) 359
Theory of Operation 360
Hydro Transmission Hydraulic Operation...360
Main PTO Clutch Operation 362
PTO Valve Operation 363
Rockshaft Operation.....364
Troubleshooting 366
System: Hydrostatic Troubleshooting.....366
System: Rockshaft Hydraulics.....366
Tests and Adjustments 367
Hydraulic System Bleed Procedure.....367
Rate of Drop/Stop Valve Adjust.....367
Lift Arms Adjust 367
System Pressure/Flow Test 368
System Pressure Adjust 368
Steering Pressure Test.....369
Charge Pressure Test 369
PTO Clutch Pressure Test 369
Rockshaft Lift Cycle Test.....370
Rockshaft Leakage Test.....371
Rockshaft Position Feedback Linkage Adjust 371
Repair.....372
Hydraulic Gear Pump Remove and Install .372
Rockshaft Remove and Install.....376
Rockshaft Disassemble and Assemble 376
Rockshaft Lift Arms Remove and Install 383
Selective Control Valve (SN -410000).....386

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INDEX

A

Alternative Lubricants 17
Alternator
  Disassemble and Assemble 234
  Remove and Install 82, 233
Avoid Harmful Asbestos Dust 4
Avoid Injury
  Rotating Blades, Augers And PTO Shafts 5

B

Battery
  Charge 215
  Load Test 216
  Remove and Install 429
  Voltage and Specific Gravity Test 214
Battery Safety 2
Bleed Fuel System 54
Brake
  Adjust 418
  Assemble 421
  Component Location 284
    Brake Pedal and Linkage 410
    Internal Components 413
  Diagnostics 416
  Disassemble and Inspect 420
  PTO Disassemble and Assemble 337
  Parking
    Component Location 410
    Linkage Remove and Install 419
  Pedal Remove and Install 419
  Pedal and Linkage Component Location
    Exploded View 411
    Overall View 410
  Pedal and Linkage Diagnostics 416
  Specifications 409
  Theory of Operation 415
Brake Pedal Adjust 418
Break-In Engine Oil
  Diesel 16

C

California Proposition 65 Warning 4
Clutch
  PTO
    Disassemble and Assemble 337
Component Location
  Brake Pedal and Linkage 410
    Exploded View 411
    Overall View 410
  Brakes 284
    Internal Components 413
  Counter Shaft and Pinion Shaft 278
  Differential Gear 281
  Differential Lock 281
  Front Drive (MFWD) 290
  Fuel System 27
  MFWD Axle Housing and Differential 291
  MFWD Final Drive 293
  Main and Driven Shafts 277
  PTO Clutch/Brake 286
  PTO Shaft 288
  Parking Brake 410
  Range Shift 280
  Rear Axle and Final Drive 283
  Rockshaft Control Valve 349
  Rockshaft Piston and Valve 348
  Rockshaft and Lift Arms 351
  Selective Control Valve (SCV) 352
  Steering System Schematic 398
  Transmission 246
    Hydro Shaft 276
  Transmission Housing 289
Connecting Rod Side Play 67
Control Panel Remove and Install 429
Coolant, Engine 17
Counter Shaft and Pinion Shaft
  Components 278
Cowl Panel Remove and Install 430
Crankshaft
  Front Oil Seal 108
Crankshaft End Play 66
Cylinder Compression Test 50

D

Diagnosis
  Engine 41
  Final Drive Power Train 299
  Hydraulics 366
  Hydrostatic Power Train 256
  Steering System Check 399
Diagnostics
  Brake 416
  Brake Pedal and Linkage 416
  Final Drive Power Train 299
Diesel Fuel
  Lubricity 15
  Specifications 15
  Storage 15
Differential
  Assemble and Install 322
  Backlash Adjust 303
  Components 281
  Lock Fork Remove and Install 319
  Pinion Shaft Adjust 301
Differential Backlash Adjust 303
Differential Lock
  Components 281
  Operation 296
Differential Pinion Shaft Adjust 301
Differential Power Flow 296
Dispose of Waste Properly 5

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

E

Electrical
- Alternator Disassemble and Assemble 234
- Charging Circuit Diagnosis 189
- Charging Circuit Operation 186
- Charging Circuit Schematic
  - S/N -410000 187
  - S/N 410001- 188
- Common Circuit Tests 125
- Conductors for 12 Volt Circuits 125
- Cranking Circuit Diagnosis 174
- Cranking Circuit Operation 169
- Cranking Circuit Schematic
  - S/N -410000 170
  - S/N 410001- 172
- Cruise Control Circuit Operation 211
- Cruise Control Schematic 212
- Cruise Control Wiring Harness 144
- Diagnostic Information 124
- Engine Shutoff Circuit Diagnosis 184
- Engine Shutoff Circuit Operation 179
- Engine Shutoff Circuit Schematic
  - S/N -410000 180
  - S/N 410001- 182
- Fuel Supply Circuit Diagnosis 184
- Fuel Supply Circuit Operation 179
- Fuel Supply Circuit Schematic
  - S/N -410000 180
  - S/N 410001- 182
- Hour Meter Circuit Operation 186
- Light Circuit Diagnosis 203
- Light Circuit Operation 196
- Light Circuit Schematic
  - S/N -410000 197
  - S/N 410001- 200
- Load Center S/N -410000 150
- Load Center S/N 410001- 151
- Main Schematic and Wiring Harness Legend S/N -410000 128
- Main Schematic and Wiring Harness Legend S/N 410001- 129
- Main Wiring Harness Component Location
  - S/N -410000 (W1) 152
  - S/N 410001- (W03) 154
- Main Wiring Harness S/N -410000 (W1) 139
- Main Wiring Harness S/N 410001- (W03) 141
- Main Wiring Harness Wire Color Codes S/N -410000 (W1) 145
- Main Wiring Harness Wire Color Codes S/N 410001- (W03) 147
- Main Wiring Schematic S/N -410000 (W1) 130
- Main Wiring Schematic S/N 410001- (W03) 133
- Manifold Heater and Indicator Light Circuit Operation 175
- Manifold Heater and Indicator Light Circuit Diagnosis 178
- Manifold Heater and Indicator Light Circuit Schematic
  - S/N -410000 176
  - S/N 410001- 177
- Model Year Differences 155
- Operation and Diagnostics 155
- PTO Circuit Diagnosis 195
- PTO Circuit Operation 190
- PTO Circuit Schematic
  - S/N -410000 191
  - S/N 410001- 193
- Power Circuit Diagnosis
  - S/N -410000 161
  - S/N 410001- 165
- Power Circuit Operation 156
- Power Circuit Schematic
  - S/N -410000 157
  - S/N 410001- 159
- Reading Electrical Schematics 123
- Repair 227
- Specifications 126
- Tachometer Circuit Operation 186
- Tachometer and Hour Meter Circuit Diagnosis . . .189
- Tachometer, Speedometer and Hour Meter Circuit Schematic
  - S/N -410000 187
  - S/N 410001- 188
- Tests and Adjustments 214
  - Diode Test 220
  - Engine Coolant Temperature Sensor Test . . .220
  - Manifold Heater Test 219
- Theory of Operation Information 124
- Third Function Circuit Operation 208
- Third Function Circuit Schematic 209
- Third Function Wiring Harness (W28) 143
- Third Function Wiring Harness Color Codes (W28) 148

Engine
- Bleed Fuel System 54
- Camshaft 112
- Camshaft End Play Check 67
- Camshaft Followers 114
- Connecting Rod Side Play 67
- Cooling System Operation 31
- Crankshaft
  - Front Oil Seal 108
- Crankshaft End Play 66
- Crankshaft Main Bearing Clearance 69
- Crankshaft Oil Seal 109
- Crankshaft and Main Bearings 109
- Cylinder Bore 106
- Cylinder Compression Test 50
- Cylinder Head and Valves
  - Disassemble and Assemble 96
  - Remove and Install 95

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Diagnosis 41
Exhaust Manifold 81
Fan Belt Adjust 47
Flywheel and Coupling 111
Fuel Filter Assembly 74
Fuel Injection Nozzles 77
  Test 61
Fuel Injection Pump 75
Fuel Supply Pressure Test 55
Fuel System Components 27
Fuel System Leakage Test 54
Fuel System Operation 29
Grinding Valve Seats 99
Idler Gear 117
Intake Manifold 80
Lubrication System Operation 32
Muffler Remove and Install 80, 83
Oil Pan and Strainer 118
Oil Pressure Test 53
Oil Pump 118
Piston Inspection 103
Piston and Connecting Rod 100
Piston-to-Cylinder Head Clearance 100
Radiator Bubble Test 52
Radiator Remove/Install 69
Rocker Arm Assembly Remove and Install 93
Rocker Cover Remove and Install 82
Slow Idle Adjust 49
Tests and Adjustments
  Cooling System Pressure Test 53
  Cylinder Compression Test 50
  Radiator Pressure Cap Test 53
  Thermostat Opening Test 49
Timing Gear Backlash Check 67
Timing Gear Cover 116
  Mounting Plate 118
Troubleshooting 33
Turbocharger
  Failure Analysis 43
  Operation 30
  Remove and Install 83
Valve Clearance Adjust 50
Valve Lift Check 51
Valves
  Guides 98
  Lapping 99
  Recession 98
  Seats 97
  Springs 98

F

Face Seal Fittings Torque
  With Inch Stud Ends 12
  With Metric Stud Ends 13
Final Drive
  Install 318
  Remove 317
Forward and Reverse Pedal Assemble 261
Front Axle (MFWD)
  Differential Pinion Setup and Adjust 331
  Differential Remove and Disassemble 328
  Final Drive Cover
    Install 323
    Remove and Inspect 323
  Final Drive Housing
    Assemble 327
    Disassemble 326
  Remove and Install 322
  Spindle Housing
    Assemble and Install 327
    Remove and Disassemble 327
  Spindle Shaft
    Assemble and Install 326
    Remove and Disassemble 325
Front Drive (MFWD) Components 290
Fuel Gauge Sensor Remove and Install 238
Fuel Supply Pump Pressure Test 55
Fuel System Leakage Test 54
Fuel Tank Remove and Install 430

G

Grease, Anti-Corrosion, Specifications 17

H

Handle Chemical Products Safely 5
Hood Remove and Install 428
Hydraulic Oil 16
Hydraulics
  Component Location
    Rockshaft Control Valve 349
    Rockshaft Piston and Valve 348
    Rockshaft and Lift Arms 351
    Selective Control Valve (SCV) 352
  Diagnosis 366
  Selective Control Valve (SCV)
    Remove and Install
      SN 400001- 389
      SN -410000 386
  Specifications
    General 343
    Repair 344
    Torque 344
  Tests and Adjustments
    Steering Pressure Check 401

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Hydrostatic System
Diagnosis 256
Repair 261
Specifications 241
Hydrostatic Transmission
Charge Pressure Relief Valve 270
Disassemble 269
Forward and Reverse Pedals Assemble 261
Remove and Install 268
System Check/Relief Valves 270
Hydrostatic Transmission Oil 16

I

Illuminate Work Area Safely 4
Inch Fastener Torque Values 10

L

Live With Safety 5
Lubricant
Alternative 17
Mixing 17
Storage 17
Synthetic 17

M

MFWD
Differential Pinion Setup and Adjust 331
Differential Remove and Disassemble 328
Final Drive Assemble 327
Final Drive Cover
Install 323
Remove and Inspect 323
Final Drive Housing
Disassemble 326
Output Shaft Remove and Install 305
Remove and Install 322
Spindle Housing
Assemble and Install 327
Remove and Disassemble 327
Spindle Shaft
Assemble and Install 326
Remove and Disassemble 325
MFWD Axle Housing and Differential
Component Location 291
MFWD Final Drive
Component Location 293
Machine Identification Number 18
Machine Splitting
Engine/Flywheel Housing 89
Front 262
Rear 265
Main and Driven Shafts
Components 277
Metric Fastener Torque Values
Grade 7 11
Standard 9
Mixing of Lubricants 17
Muffler Remove and Install 80, 83

O

OPS Remove and Install 427
O-Ring Boss Fittings 14
O-Ring Face Seal Fittings 14
Oil Filters 17
Operation and Diagnostics, Electrical 155
Operator's Platform Remove and Install 428

P

PTO
Clutch & Brake
Component Location 286
Disassemble and Assemble 337
Components 288
Rear
Shafts & Gears
Remove and Install 335
Shafts and Gears
Disassemble & Assemble 335
Specifications, Torque 273
Theory of Operation
Clutch and Brake 333
Rear 334
Parking Brake
Linkage Remove and Install 419
Parking Safely 3
Power Train
Final Drive
Diagnosis 299
Diagnostics 299
Final Power Train Specifications 273
Hydrostatic Specifications 241
Hydrostatic Troubleshooting 299

R

Radiator
Cooling System Pressure Test 53
Pressure Cap Test 53
Range Shift Components
Final Drive 280
Reading Electrical Schematics 123
Rear Axle and Final Drive Components 283
Rear Fenders Remove and Install 426
Rear PTO
Disassemble and Assemble 335
Remove and Install 335
Recognize Safety Information 1
Remove Paint Before Welding Or Heating 4

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Repair
Alternator Disassemble and Assemble 234
Battery Remove and Install 429
Brake Assemble 421
Brake Disassemble and Inspect 420
Brake Pedal Remove and Install 419
Control Panel Remove and Install 429
Cowl Panel Remove and Install 430
Differential
Assemble and Install 322
Lock Fork Remove and Install 319
Electrical 227
Alternator Remove and Install 82, 233
Engine
Camshaft 112
Camshaft Followers 114
Crankshaft Oil Seal 109
Crankshaft and Main Bearings 109
Cylinder Bore 106
Cylinder Head and Valves
Disassemble and Assemble 96
Remove and Install 95
Exhaust Manifold 81
Flywheel and Coupling 111
Fuel Filter Assembly 74
Fuel Injection Nozzles 77
Fuel Injection Pump 75
Grinding Valve Seats 99
Idler Gear 117
Intake Manifold 80
Oil Pan and Strainer 118
Oil Pump 118
Piston Inspection 103
Piston and Connecting Rod 100
Piston-to-Cylinder Head Clearance 100
Timing Gear Cover 116
Mounting Plate 118
Valves
Guides 98
Lapping 99
Recession 98
Seats 97
Springs 98
Final Drive
Install 318
Remove 317
Front Wheel
Remove and Install 426
Fuel Gauge Sensor
Remove and Install 238
Fuel Tank
Remove and Install 430
Hood Remove and Install 428
Hydrostatic System 261
MFWD
Output Shaft Remove and Install 305
Operator Protective Structure (OPS)
Remove and Install 427
Operator's Platform
Remove and Install 428
PTO
Rear Shafts & Gears
Disassemble and Assemble 335
Remove and Install 335
Parking Brake
Linkage Remove and Install 419
Radiator Remove/Install 69
Rear Fenders
Remove and Install 426
Rear Wheel
Remove and Install 426
Rocker Cover Remove and Install 82
Seat and Seat Support
Remove and Install 427
Selective Control Valve (SCV)
SN 400001- 389
SN -410000 386
Splitting the Machine
Engine/Flywheel Housing 89
Front 262
Rear 265
Steering Control Unit (SCU) Remove and Install . .404
Steering Wheel Remove and Install 403
Replace Safety Signs 1

S

SCV (Selective Control Valve)
Component Location 352
Schematics - Hydraulic
Steering 398
Seat and Seat Support
Remove and Install 427
Selective Control Valve (SCV)
Component Location 352
Remove and Install
SN 400001- 389
SN -410000 386
Serial Number Locations 18
Service Machines Safely 3
Service Recommendations
O-Ring Face Seal Fittings 14
Service Tires Safely 5
Slow Idle Adjust 49
Specifications
Anti-Corrosion Grease 17
Brakes 409
Diesel Fuel Lubricity 15
Diesel Fuel Storage 15
Electrical 126
Engine Oil, Diesel 15

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Hydraulics
General 343
Repair 344
Torque 344
Hydrostatic Power Train
Hydrostatic 241
Miscellaneous 425
Steering 395
Splitting the Machine
Engine/Flywheel Housing 89
Front 262
Rear 265
Steering
Control Unit (SCU) Remove and Install 404
Schematic 398
Specifications 395
Steering Control Unit (SCU) Test 402
Steering Cylinder Test 402
System Check 399
Theory of Operation 399
Troubleshooting 400
Steering Wheel Remove and Install 403
Support Machine Properly 4
Synthetic Lubricants 17

T

Tests and Adjustments
Brake Adjust 418
Camshaft End Play Check 67
Connecting Rod Side Play 67
Crankshaft End Play 66
Cylinder Compression Test 50
Differential
Backlash Adjust 303
Pinion Shaft Adjust 301
Electrical 214
Alternator Unregulated Amperage Test 216
Battery Charge 215
Battery Load 216
Battery Voltage and Specific Gravity 214
Diode Test 220
Engine Coolant Temperature Sensor Test . . . 220
Engine Oil Pressure Switch Test 221
Fuel Gauge Sensor Test 225
Fuel Shutoff Solenoid Test 226
Fuse Test 219
Ground Circuit 214
Key Switch Test 222
Light Switch Test 222
Manifold Heater Test 219
No Load Amperage Draw and RPM Test 218
Rear PTO Solenoid Test 224
Rear PTO Switch Test 224
Regulated Amperage and Voltage Test 217
Relay Test 221
Seat Switch Test 225
Sensing Switch Test 223
Starting Motor Amperage Draw Test 218
Starting Motor Solenoid Test 217
Turn Signal Switch Test 223
Engine 47
Engine Oil Pressure Test 53
Engine Valve Lift Check 51
Fan Belt Adjust 47
Fuel Injection Nozzle Test 61
Fuel Supply Pump Pressure Test 55
Fuel System Leakage Test 54
Head Gasket Failure Checks 45
Injection Pump Timing (EPA Engines) 56
Radiator Bubble Test 52
Slow Idle Adjust 49
Steering Control Unit (SCU) Test 402
Steering Cylinder Test 402
Steering Pressure Check 401
Thermostat Opening Test 49
Throttle Adjust 48
Timing Gear Backlash Check 67
Turbocharger
Inspection 64
Oil Seal Leak Test 62
Waste Gate Test 63
Valve Clearance Adjust 50
Theory of Operation
Brakes 415
Cooling System Operation 31
Differential Lock Operation 296
Engine Lubrication System 32
Fuel System Operation 29
MFWD Power Flow 298
PTO
Clutch and Brake 333
Rear 334
Range Transmission Power Flow 255
Steering 399
Transmission Power Flow
Differential 296
Range Transmission 295
Turbocharger Operation 30
Throttle Adjust, Diesel Engine 48
Torque Specifications
Final Power Train 273
Hydraulics 344
Hydrostatic Power Train 241
PTO 273
Torque Values
Face Seal Fittings
With Inch Stud Ends 12
With Metric Stud Ends 13
Inch Fastener 10
Metric Fastener, grade 7 11
Metric Fasteners, Standard 9
Straight Fitting or Special Nut 14

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 18 of 444 pages

The full manual includes:

- All 444 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

John Deere 4105 Technical Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual