

**JOHN DEERE**  
**WORLDWIDE COMMERCIAL & CONSUMER**  
**EQUIPMENT DIVISION**

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**Garden Tractor**  
**GX355**

TM1974 MARCH 2003

**TECHNICAL MANUAL**



**JOHN DEERE**

North American Version  
Litho in U.S.A.



# 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**

**Hydraulics**

**Steering**

**Brakes**

**Attachments**

**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.

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## Safety 1

Recognize Safety Information .....	1
Understand Signal Words .....	1
Replace Safety Signs .....	1
Be Prepared for Emergencies .....	1
Use Care in Handling and Servicing Batteries .	2
Use Care Around High-Pressure Fluid Lines .	2
Use Safe Service Procedures .....	3
Service Tires Safely .....	4
Service Cooling System Safely .....	5
Handle Chemical Products Safely .....	5
Dispose of Waste Properly .....	5
Live with Safety .....	5

## Specifications & Information 7

Metric Fastener Torque Values .....	8
Metric Fastener Torque Values - Grade 7 .....	9
Inch Fastener Torque Values .....	10
Face Seal Fittings with Inch Stud Ends Torque	11
Face Seal Fittings with Metric Stud Ends	
Torque .....	12
O-Ring Face Seal Fittings .....	13
O-Ring Boss Fittings .....	13
Diesel Fuel .....	14
Diesel Fuel Lubricity .....	14
Diesel Fuel Storage .....	14
Engine Oil .....	15
Engine Break-in Oil .....	15
Alternative Lubricants .....	15
Synthetic Lubricants .....	16
Lubricant Storage .....	16
Mixing of Lubricants .....	16
Chassis Grease .....	16
Transaxle Oil .....	16
Engine Coolant .....	17
Operating in Warm Temperature Climates .....	18
Flush and Service Cooling System .....	18
Disposing of Coolant .....	19
Engine Coolant Drain Interval .....	19
Machine Product Identification Number .....	20
Engine Serial Number Location .....	20
Transmission Serial Number Location .....	20

## Engine - Diesel 23

Engine Specifications .....	24
Fuel System .....	24
Tests and Adjustments Specifications .....	24
Repair Specifications .....	24

Torque Specifications (Aluminum Block) .....	26
Special Tools .....	27
Other Materials .....	27
Engine Components .....	29
Hood Switch .....	31
Lubrication System Operation .....	31
Cooling System Operation .....	32
Fuel / Air System Operation .....	33
Engine System .....	33
Oil Pressure Test .....	34
Cylinder Compression Test .....	35
Throttle Cable Adjustment .....	35
Slow Idle Speed Adjustment .....	36
Fast Idle Speed Adjustment .....	37
Torque Capsule Adjustment .....	37
Valve Clearance Inspection and Adjustment .....	37
Fuel Injection Pump Timing Adjustment .....	39
Radiator Cap Pressure Test .....	39
Radiator Bubble Test .....	39
Cooling System Pressure Test .....	40
Thermostat Opening Test .....	41
Engine Removal and Installation .....	41
Engine Mounts and Isolators: Position and	
Torques .....	43
Air Filter Removal and Installation .....	43
Muffler Removal and Installation .....	44
Intake Manifold Removal and Installation ...	44
Oil Pressure Sensor Removal and Installation	45
Thermostat Removal And Installation .....	45
Coolant Temperature Sensor Removal and In-	
stallation .....	46
Radiator Removal And Installation .....	47
Fuel Shut-Off Solenoid Removal and Installa-	
tion .....	48
Fuel Hoses Removal And Installation .....	49
Fuel Pump Removal And Installation .....	49
Fuel Filter Removal And Installation .....	50
Fuel Injectors Removal and Installation .....	51
Fuel Injectors Tests .....	53
Injection Pump Assembly Removal and Instal-	
lation .....	54
Governor Assembly Removal and Installation.	55
Fan/Flywheel Removal And Installation .....	57
Rocker Arm Covers Removal and Installation .	58
Rocker Arms Removal And Installation .....	59

---

Number 1 Cylinder Head Removal and Installation.....	61	Starting Circuit Operation .....	127
Number 2 Cylinder Head Removal and Installation.....	62	Starting Circuit Schematic .....	128
Glow Plugs Removal and Installation.....	63	Starting Circuit Diagnosis .....	129
Cylinder Head and Valves Disassembly and Inspection .....	63	Fuel Shut-Off & Fuel Pump Circuit Operation..	131
Cylinder Head and Valves Assembly .....	66	Fuel Shut-Off & Fuel Pump Circuit Schematic.	132
Crankcase Breather Removal And Installation.	67	Fuel Shut-Off & Fuel Pump Circuit Diagnosis..	133
Crankcase Cover Removal and Installation .	67	Charging Circuit Operation .....	135
Water Pump Removal and Installation .....	69	Charging Circuit Schematic .....	136
Oil Pump Removal and Installation .....	70	Charging Circuit Diagnosis .....	137
Camshaft, Valve Lifters, and Injection Pump Lifters Removal and Installation .....	72	PTO Circuit Operation .....	138
Camshaft, Valve Lifters, and Injection Pump Lifters Inspection .....	74	PTO Circuit Schematic .....	139
Piston and Connecting Rod Removal and Installation .....	75	PTO Circuit Diagnosis .....	140
Crankshaft Removal and Installation.....	79	RIO Circuit Operation .....	144
Stator Removal And Installation .....	84	RIO Circuit Schematic .....	145
Starter Solenoid Removal and Installation ...	85	RIO Circuit Diagnosis .....	146
Starter Motor Removal and Installation .....	85	Coolant Temperature Sensor Circuit Operation	148
Starter Motor Disassembly and Assembly ..	85	Coolant Temperature Sensor Circuit Schematic .....	149
Electrical 91		Coolant Temperature Sensor Circuit Diagnosis	150
Reading Electrical Schematics .....	92	Air Restriction Indicator Circuit Operation..	152
Theory of Operation Information .....	93	Air Restriction Indicator Circuit Schematic.	153
Diagnostic Information.....	93	Air Restriction Indicator Diagnosis.....	154
Wire Color Abbreviation Chart.....	93	Oil Pressure & Low Fuel Sensor Circuit Operation .....	157
Common Circuit Tests.....	93	Oil Pressure & Low Fuel Sensor Circuit Schematic .....	158
Conductors for 12 Volt Circuits.....	94	Oil Pressure & Low Fuel Sensor Diagnosis.....	159
General Specifications .....	95	Headlight & Hour Meter Circuit Operation .	160
Special or Required Tools .....	96	Headlight & Hour Meter Circuit Schematic	161
Schematic and Wiring Harness Legend .....	97	Headlight & Hour Meter Circuit Diagnosis .	162
Component Location .....	99	Common Circuit Tests .....	163
Main Electrical Schematic .....	101	Ground Circuit Test.....	163
Main Wiring Harness .....	105	Battery Test .....	164
Main Wiring Harness Color Codes .....	108	Charge Battery .....	165
Additional Wiring Harnesses .....	109	Battery Load Test .....	166
Unswitched Power Circuit Operation.....	111	Regulated Voltage Test .....	166
Unswitched Power Circuit Schematic.....	112	Unregulated Voltage Test .....	167
Unswitched Power Circuit Diagnosis.....	113	Regulated Amperage Test.....	167
Switched Power Circuit #1 Operation.....	115	Starting Motor Solenoid Test .....	168
Switched Power Circuit #1 Schematic.....	116	Starting Motor No-Load Amperage Draw and RPM Test.....	169
Switched Power Circuit #1 Diagnosis.....	119	Starting Motor Loaded Amperage Draw Test ..	
Switched Power Circuit #2 Operation.....	121		
Switched Power Circuit #2 Schematic.....	122		
Switched Power Circuit #2 Diagnosis.....	125		

169	
Hood Switch Connector Jumper Wire Test .....	170
Fuel Shut-Off Solenoid Test .....	170
Seat Switch Test .....	171
Brake Switch Test .....	171
PTO/RIO Switch Test .....	172
RIO Switch Test .....	172
PTO Clutch Test.....	173
PTO Clutch Adjustment.....	173
Headlight Switch Test.....	173
Engine Oil Pressure Sensor Test.....	174
Glow Plug Test .....	175
Low Fuel Level Sensor Test.....	176
Air Restriction Indicator Sensor Test .....	176
V1 and V2 Diodes Test .....	177
Hour Meter Test .....	178
Fuel Pump Tests .....	178
Key Switch Test .....	180
Coolant Temperature Switch Test.....	181
Starting Motor and Starting Motor Solenoid .....	182
PTO Clutch.....	182
Connector Body - Blade Terminals .....	182
METRIPACK, Connectors .....	183
Power Train - Hydrostatic 187	
Hydrostatic Transaxle.....	188
Adjustment Specifications .....	188
Repair Specifications.....	188
Torque Specifications.....	188
Other Materials.....	188
Transaxle Case Halves .....	189
Charge Pump .....	191
Piston Pump .....	191
Motor .....	192
Reduction Gears, Differential, and Axles ...	193
Swash Plate and Neutral Centering Assembly.	194
Transaxle Brake .....	195
Center Case Assembly.....	196
Belt Drive and Idlers .....	197
Brake Pedal and Linkage .....	198
Forward and Reverse Pedals and Linkage (Ex- ploded View).....	200
Controls and Linkage Operation.....	201
Foot Controls.....	202
Brake Linkage .....	202
Hydrostatic System Operation.....	203
Gear Power Flow .....	205
Machine Will Not Move Forward Or Reverse ..	206
Noisy Operation .....	207
Machine Creeps.....	208
Machine Moves In One Direction Only .....	210
Erratic Speed .....	210
Machine Does Not Achieve Full Ground Speed	211
Park Brake Does Not Hold Machine On Hill ....	213
Brake Switch Will Not Engage.....	214
Hydrostatic Transaxle Bleeding Procedure	216
Neutral Creep Adjustment .....	216
Forward and Reverse Pedal Height Adjustment	217
Brake Linkage Adjustment.....	217
Belt Tension Adjustment.....	218
Traction Drive Belt Removal and Installation...	219
Traction Drive Belt Tensioner Assembly....	220
Control Pedals and Linkage.....	221
Intermediate Shaft .....	221
Brake Pedal and Linkage.....	222
Brake Rod Removal and Installation .....	223
Transaxle Removal and Installation.....	224
Case Disassembly .....	228
Final Drive and Axle Removal .....	229
Brake Removal .....	232
Rotating Group Removal .....	233
Control Shaft Removal.....	238
Control Shaft Disassembly .....	238
Oil Filler Tube Removal .....	239
Shock Absorber Removal .....	240
Freewheeling Control Shaft Removal.....	240
Center Case Disassembly .....	241
Transaxle Assembly .....	242
Freewheeling Control Shaft Installation .....	242
Shock Absorber Installation.....	243
Oil Filler Tube Installation .....	243
Control Shaft Assembly .....	244
Control Shaft Installation.....	245
Rotating Group Assembly.....	246
Brake Installation .....	251
Charge Pump Installation .....	252
Final Drive and Axle Installation .....	253
Case Assembly.....	256
Hydraulics 261	

Tests and Adjustments Specifications.....	262	Toe-In Adjustment .....	289
Repair Specifications.....	262	Steering Tilt Assembly .....	290
Special Tools.....	262	Steering Valve and Column .....	290
Special Materials .....	262	Steering Cylinder .....	293
Hydraulic Lift System Components .....	263	Brakes 297	
Lift Lever and Linkage .....	264	Brake Pedal and Linkage.....	298
Mower Deck Lift Linkage .....	265	External Brake Linkage.....	299
Hydraulic Schematic.....	266	Transaxle Brake Operation.....	300
Hydraulic Lift System Operation .....	267	Machine Will Not Move In Forward Or Reverse	300
Noise From Transmission When Using Hy-		Brakes Do Not Engage When Pedal De-	
draulics .....	268	pressed .....	301
Excessive Attachment Drop With Control Valve		Parking Brake Does Not Hold Machine On Hill	301
In Neutral.....	268	Noisy Operation .....	302
Hydraulic Lift Slow Or No Lift Capacity .....	268	Erratic Speed .....	302
Hydraulic Lift Will Not Work .....	269	Machine Does Not Achieve Full Ground Speed	303
Hydraulic Lift Oil Flow and Pressure Test .....	270	Machine Will Not Move In Forward Direction Or	
Hydraulic Lift Control Valve .....	271	Is Slow In Forward .....	303
Hydraulic Lift Cylinder Removal and Installa-		Machine Is Slow In Reverse .....	304
tion .....	273	Neutral Start Switch Does Not Engage When	
Lift Lever Removal And Installation.....	273	Pressing Brake Pedal .....	304
Lift Linkage Inspection .....	274	Engine Can Be Started Without Depressing	
Hydraulic In-Line Filter Removal and Installa-		Brake Pedal .....	305
tion.....	274	Brake Linkage Test And Adjustment .....	305
Steering 277		Brake Assembly.....	306
Tests and Adjustments Specifications.....	278	Attachments 309	
Torque Specifications.....	278	Mower Deck Adjustment Specifications.....	310
Special Tools.....	278	Mower Deck Repair Specifications.....	310
Other Materials .....	278	Special Tools .....	310
Steering System Components.....	279	48 - Inch Convertible Mower Deck.....	311
Steering Valve and System Operation .....	280	54 - Inch Convertible Mower Deck.....	318
Tilt Steering Operation .....	281	Mower Decks Troubleshooting Chart .....	325
Hydraulic System Checks .....	282	Mower Drive Checks.....	326
Steers Hard or No Steering In Both Directions	282	PTO Clutch Diagnosis .....	328
Steers Hard or No Steering In One Direction ..	283	Mower Level Side-to-Side.....	328
Steering Pulls In One Direction .....	283	Mower Level Front-To-Rear.....	329
Steering Wheel Tilt Assembly Will Not Move ...	284	Electric PTO Clutch Adjustment .....	330
Steering Wheel Creeps .....	284	Electric PTO Clutch Removal and Installation .	331
Steering Shimmy Or Vibration .....	285	PTO Clutch Break-In Procedure .....	331
Noise During Turn .....	285	48-Inch Convertible Mower Deck Removal and	
Slow Steering Responses .....	286	Installation.....	332
Steering System Oil Flow And Pressure Tests	287	48-Inch Mower Drive Belt .....	333
Steering System Leakage Test .....	287	48-Inch Deck Mower Blades.....	334
Steering Valve Leakage Test .....	288	48-Inch Deck Spindles.....	335
Steering Cylinder Leakage Test .....	288	48-Inch Deck Jack Sheave .....	338

---

---

Idlers.....	338
54-Inch Mower Deck Removal and Installation	
338	
54-Inch Convertible Mower Drive Belt.....	339
54-Inch Deck Mower Blades .....	340
54-Inch Jack Sheave.....	341
54-Inch Convertible Deck Spindles .....	342
Idlers.....	344
Miscellaneous	345
Torque Specifications.....	346
Front Axle .....	347
Steering Spindles .....	348
Front Wheels .....	349
Rear Wheels .....	349
Engine Hood .....	350
Control / Dash Panel .....	351
Fender Deck and Tunnel Cover .....	353
Fuel Tank .....	354



# 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.

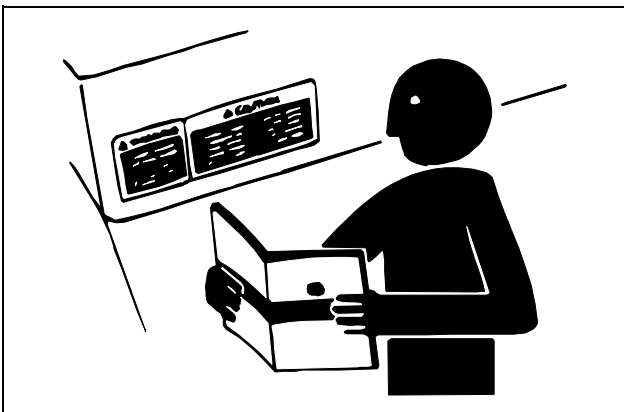
Follow recommended precautions and safe servicing practices.

## 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.

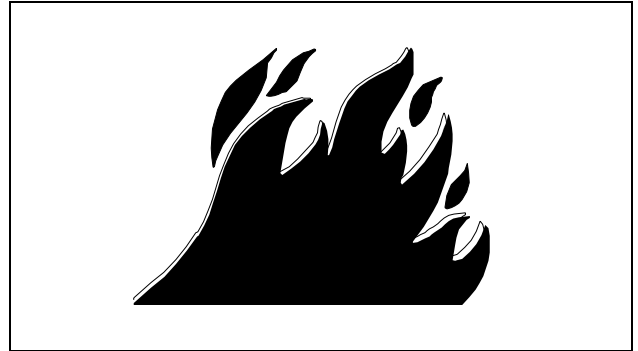
## Replace Safety Signs



MIF

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

## Be Prepared for Emergencies



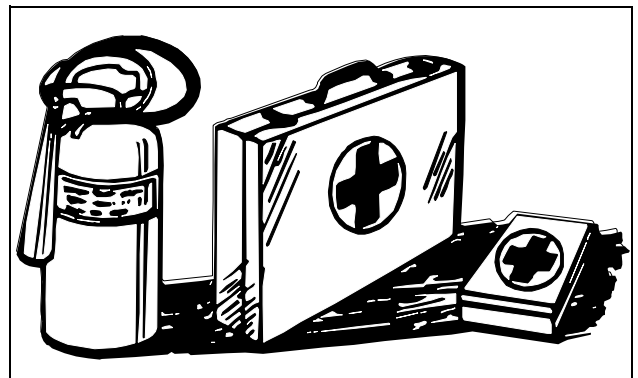
MIF

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.



MIF

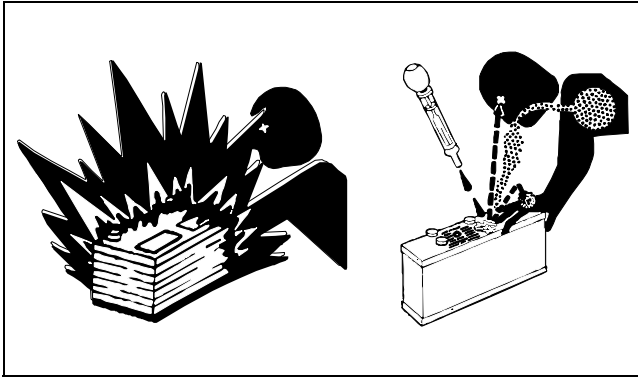
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

# SAFETY

## 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:

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

#### If you spill acid on yourself:

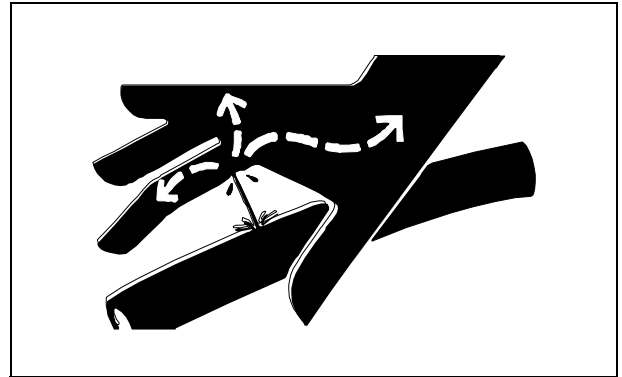
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10-15 minutes.
4. Get medical attention immediately.

#### If acid is swallowed:

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

## 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.

### Avoid Heating Near Pressurized Fluid Lines



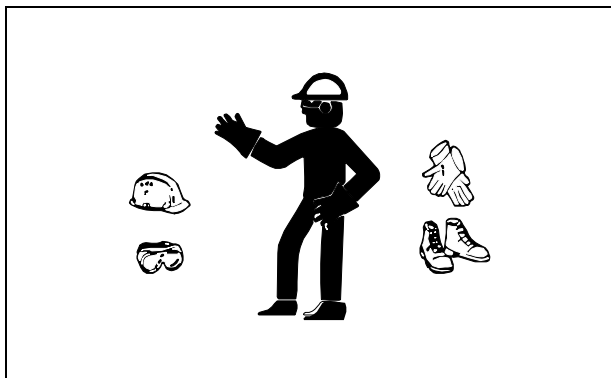
MIF

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.

# SAFETY

## Use Safe Service Procedures

### Wear Protective Clothing



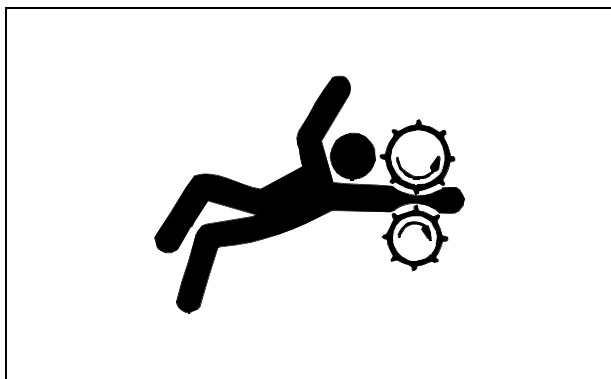
MIF

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.

### 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.

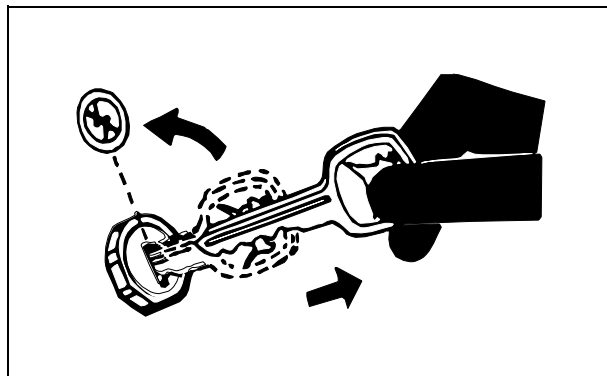
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

### 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.

### Park Machine Safely

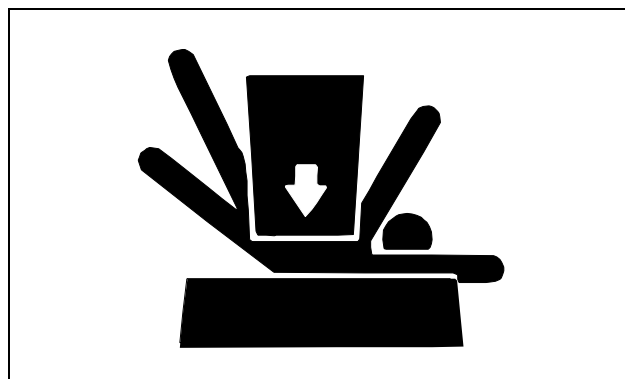


MIF

### Before working on the machine:

1. Lower all equipment to the ground.
2. Stop the engine and remove the key.
3. Disconnect the battery ground strap.
4. Hang a "DO NOT OPERATE" tag in operator station.

### 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.

# SAFETY

## 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.

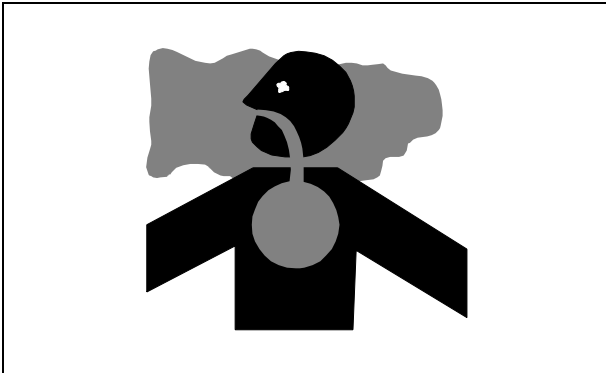
### Using High Pressure Washers

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**

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

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

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.

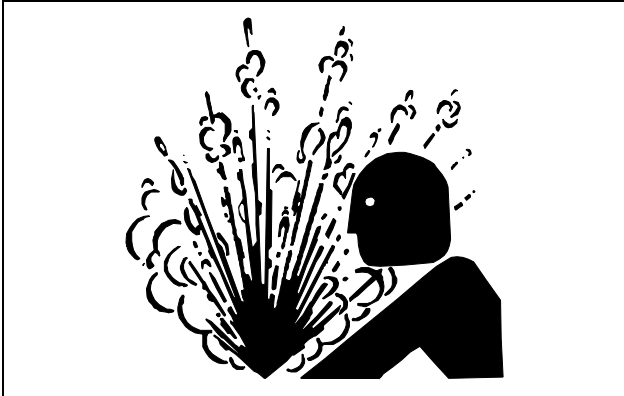
Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

# SAFETY

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.

## Service Cooling System Safely

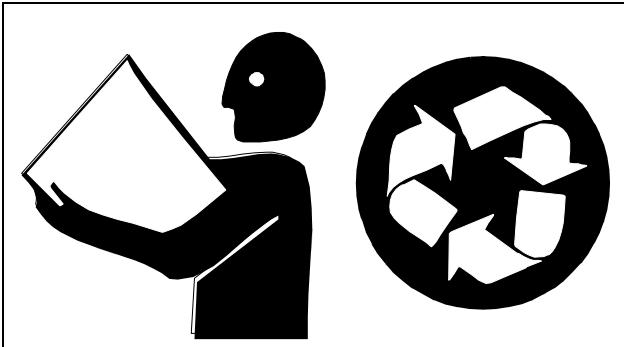


MIF

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.

## 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.

## SAFETY

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## SPECIFICATIONS & INFORMATION


























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# SPECIFICATIONS & INFORMATION SPECIFICATIONS

## Specifications

### Metric Fastener Torque Values

Property Class and Head Markings	<div>4.8</div> <div></div>	<div>8.8</div> <div></div>	<div>9.8</div> <div></div>	<div>10.9</div> <div></div>	<div>12.9</div> <div></div>
Property Class and Nut Markings	<div>5</div> <div></div>	<div>10</div> <div></div>	<div>10</div> <div></div>	<div>12</div> <div></div>	

MIF

	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated <sup>a</sup>		Dry <sup>a</sup>		Lubricated <sup>a</sup>		Dry <sup>a</sup>		Lubricated <sup>a</sup>		Dry <sup>a</sup>		Lubricated <sup>a</sup>		Dry <sup>a</sup>	
SIZE	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

- DO NOT use these hand torque values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only and include a  $\pm 10\%$  variance factor. Check tightness of fasteners periodically. DO NOT use air powered wrenches.
- Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.
- Fasteners should be replaced with the same class. Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

- When bolt and nut combination fasteners are used, torque values should be applied to the **NUT** instead of the bolt head.

- Tighten toothed or serrated-type lock nuts to the full torque value.

<sup>a</sup> “Lubricated” means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. “Dry” means plain or zinc plated (yellow dichromate - Specification JDS117) without any lubrication.

Reference: JDS-200

## SPECIFICATIONS & INFORMATION SPECIFICATIONS

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### Metric Fastener Torque Values - Grade 7

Size	Steel or Gray Iron Torque	Aluminum Torque
	N•m (lb-ft)	N•m (lb-ft)
M6	11 (8)	8 (6)
M8	24 (18)	19 (14)
M10	52 (38)	41 (30)
M12	88 (65)	70 (52)
M14	138 (102)	111 (82)
M16	224 (165)	179 (132)