

6020 to 6620 Tractors and SE Tractors Repair

Part 1: Sections 05 to 55

Part 2: Sections 56 to 99

TECHNICAL MANUAL 6020 to 6620 Tractors and SE Tractors Repair

TM4750 01OCT02 (ENGLISH)

For complete service information also see:

6020 to 6920S Tractors and SE Tractors Operation and Tests	TM4741
6020 to 6920S Tractors and SE Tractors Diagnostics	TM4726
Front-Wheel Drive Axles (AS and MS Series)	CTM4687
Front-Wheel Drive Axles (700 Series)	CTM4820
POWERTECH® Diesel Engines	CTM104
Mechanical Fuel Injection Systems	CTM207
Electronic Fuel Injection Systems	
Level 1	CTM284
Level 4	CTM170
Level 11	CTM220
Level 12	CTM331
Alternators and Starting Motors (available in English only)	CTM77

John Deere Werke Mannheim
European Version
Printed in Germany

Introduction

Vorwort

Dieses Reparatur-Handbuch ist gültig für folgende Traktortypen:

6020, 6120, 6220, 6320, 6420, 6420S, 6520, 6620.

SE-Traktoren: 6020, 6120, 6220, 6320, 6420 und 6520.

Das Handbuch wurde für erfahrenes Kundendienstpersonal geschrieben. Die zur Durchführung bestimmter Arbeiten notwendigen Spezialwerkzeuge sind in diesem Handbuch angegeben. Es wird empfohlen, diese Werkzeuge unbedingt zu benutzen.

Sicherheitsmaßnahmen einhalten: Die Sicherheitshinweise am Anfang dieses Handbuchs genau durchlesen, ebenso wie die mit "Achtung" gekennzeichneten Abschnitte, die überall im Handbuch zu finden sind.



Dieses Zeichen macht auf die an der Maschine angebrachten oder in diesem Handbuch enthaltenen Sicherheitshinweise aufmerksam. Es bedeutet, daß Verletzungsgefahr besteht.

Technische Handbücher sind Leitfäden zur Wartung bestimmter Maschinen. Sie enthalten nur Informationen, die zur Reparatur und zum Verständnis von Wirkungsweise und Prüfungen unerlässlich sind.

Grundsätzliche Wartungsinformationen können aus anderen Quellen entnommen werden, die sich mit der Arbeitsweise, Grundlagen der Störungssuche und Wartung beschäftigen, sowie eine Beschreibung von grundlegenden Störungen und deren Ursachen enthalten.

LX24888,000042E –19–01OCT02–1/1

Contents

SECTION 05—SAFETY

Group 05—Safety Measures

SECTION 10—GENERAL INFORMATION

Group 05—Specifications

Group 10—Tune-Up

Group 15—Predelivery Inspection

SECTION 20—ENGINE

Group 00—Engine Removal and Installation

SECTION 30—FUEL, AIR INTAKE, COOLING AND EXHAUST SYSTEMS

Group 05—Speed Control Linkage

Group 10—Fuel System

Group 15—Air Intake System

Group 20—Cooling System

Group 25—Cold-Weather Starting Aids

Group 30—Exhaust System

SECTION 40—ELECTRICAL SYSTEM

Group 05—Connectors

Group 10—Wiring Harnesses

Group 15—Charging Circuit

Group 20—Starter Motor Circuit

Group 25—Fuses, Relays and Switches

Group 30—Monitoring Systems

Group 40—Electrical Components

SECTION 50—SYNCRPLUS TRANSMISSION

Group 00—Removal and Installation of
Transmission Components

Group 05—Transmission Shift Controls

Group 10—Perma Clutch II Module

Group 15—Gear Transmission

SECTION 51—POWER REVERSER TRANSMISSION

Group 00—Removal and Installation of Power
Reverser Module

Group 05—Transmission Shift Controls

Group 10—Power Reverser Module

Group 15—Gear Transmission

SECTION 53—AUTOPOWR/IVT TRANSMISSION

Group 00—Removing and Installing the

AutoPowr/IVT Transmission

Group 05—Transmission Shift Controls

Group 10—Input Housing

Group 15—Output Housing

Group 20—Assembling the Differential Drive Shaft

SECTION 55—POWRQUAD, POWRQUAD PLUS AND AUTOQUAD TRANSMISSIONS

Group 00—Removal and Installation of Components

Group 05—Transmission Shift Controls

Group 10—PowrQuad Module

Group 15—Creeper Transmission

Group 20—Option Transmission

Group 25—Range Transmission

SECTION 56—DRIVE SYSTEMS

Group 00—Removal and Installation of Components

Group 05—U-Jointed Shafts and Torsion Damper

Group 10—Front-Wheel Drive Clutch

Group 15—Differential

Group 20—Hydraulic Pump Drive

Group 25—Final Drives

Group 30—Rear PTO Options

Group 35—Front PTO

Group 40—Front Implement Drive

SECTION 60—STEERING AND BRAKES

Group 05—Hydrostatic Steering

Group 10—Steering Cylinder(s)

Group 15—Brake Valve

Group 20—Rear Brakes

Group 25—Handbrake

Group 30—Hydraulic Trailer Brake

Group 35—Air Brakes

SECTION 70—HYDRAULIC SYSTEM

Group 05—Controls

Group 10—Hydraulic Pump and Charge Pump (PFC
Hydraulic System)

Group 11—Hydraulikpumpe (PC-Hydrauliksystem)

Group 15—Valves

Continued on next page

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

COPYRIGHT © 2002
DEERE & COMPANY
European Office Mannheim
All rights reserved
A John Deere ILLUSTRATION® Manual
Previous Editions
Copyright © 2001

Group 20—Rockshaft
Group 25—Selective Control Valves and Couplers
Group 30—Independent Control Valve

SECTION 80—MISCELLANEOUS
Group 00—Removal and Installation of Components
Group 05—Main Frame
Group 10—Front Axle
Group 15—Front and Rear Wheels
Group 20—Trailer Mounting and Swinging Drawbar
Group 25—Triple Link Suspension (TLS) of
Front-Wheel Drive Axle
Group 30—Pick-Up Hitch

SECTION 90—OPERATOR'S CAB
Group 00—Removal and Installation of Components
Group 05—Controls and Instruments
Group 10—Air-Conditioning System
Group 15—Heating System
Group 20—Seats
Group 25—Operator's Cab
Group 30—Cab Suspension

**SECTION 99—SPECIAL TOOLS
(DEALER-FABRICATED)**
Group 05—Special Tools (Dealer-Fabricated)

60

70

80

90

99

INDX

60

70

80

90

99

INDX

Section 05

SAFETY

Contents

Page

Group 05—Safety Measures

Recognize Safety Information	05-05-1
“Important” - Information	05-05-1
“Note” - Information	05-05-1
Prevent Machine Runaway	05-05-1
Handle Fluids Safely—Avoid Fires	05-05-2
Prevent Battery Explosions	05-05-2
Prepare for Emergencies.	05-05-2
Prevent Acid Burns	05-05-3
Avoid High-Pressure Fluids	05-05-4
Service Cooling System Safely	05-05-4
Remove Paint Before Welding or Heating	05-05-5
Avoid Heating Near Pressurized Fluid Lines	05-05-5
Work In Ventilated Area	05-05-6
Wear Protective Clothing	05-05-6
Practice Safe Maintenance	05-05-7
Park Machine Safely	05-05-7
Use Proper Lifting Equipment	05-05-8
Construct Dealer-Made Tools Safely	05-05-8
Support Machine Properly	05-05-8
Work in Clean Area	05-05-9
Illuminate Work Area Safely	05-05-9
Service Machines Safely	05-05-9
Use Proper Tools	05-05-10
Service Tires Safely	05-05-10
Service Front-Wheel Drive Tractor Safely	05-05-11
Safety Information - Air Brake System	05-05-11
Avoid Eye Contact With Radar	05-05-12
Keep ROPS Installed Properly	05-05-12
Replace Safety Signs	05-05-12
Dispose of Waste Properly	05-05-13
Live With Safety	05-05-13
Safety Measures on Electronic Control Units	05-05-14

Recognize Safety Information

This is a 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 operating practices.



T81389 -UN-07DEC88

DX,ALERT -19-29SEP98-1/1

“Important” - Information

Information marked as IMPORTANT points out problems that may lead to machine damage. By following the directions given, these problems can be avoided.

LX,CRA05 002885 -19-09APR92-1/1

“Note” - Information

When marked with NOTE the information given is more detailed or contains restrictions to directions given previously. On the other hand useful information may be given belonging to certain instructions without being directly connected to them.

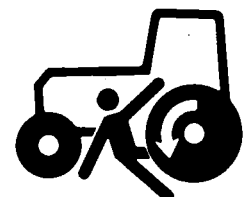
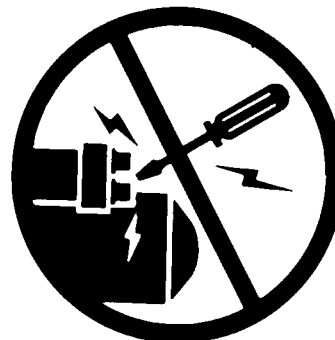
LX,CRA05 002886 -19-09APR92-1/1

Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



TS177 -UN-11JAN89

DX,BYPAS1 -19-29SEP98-1/1

05
05
2

Handle Fluids Safely—Avoid Fires

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.



TS227 -UN-23AUG88

DX,FLAME -19-29SEP98-1/1

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).



TS204 -UN-23AUG88

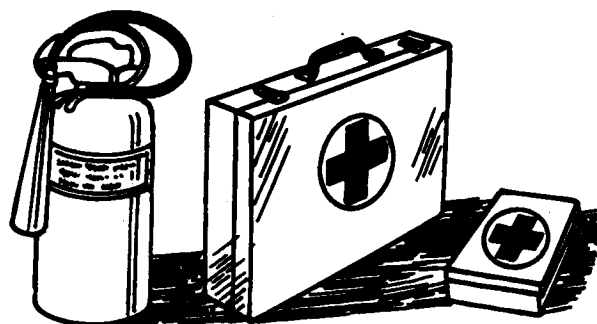
DX,SPARKS -19-03MAR93-1/1

Prepare for Emergencies

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.



TS291 -UN-23AUG88

DX,FIRE2 -19-03MAR93-1/1

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 the hazard by:

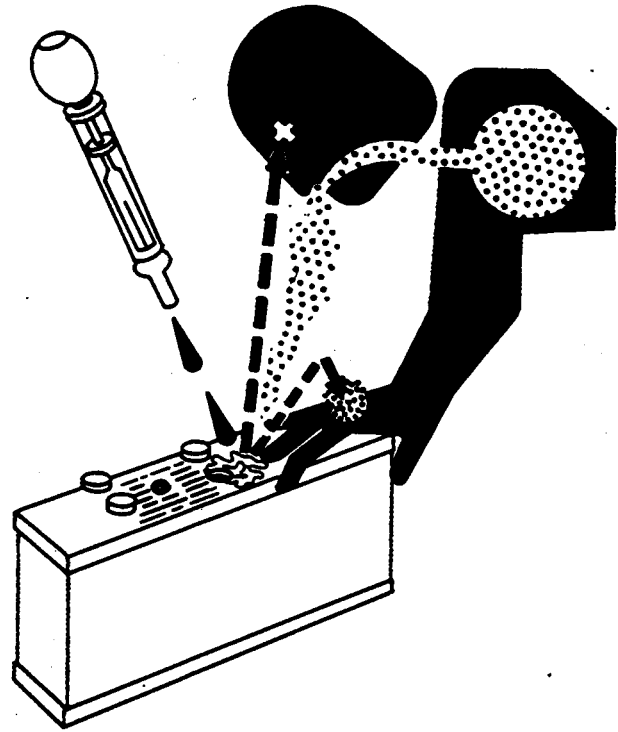
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.



TS203 -JUN-23AUG88

DX,POISON -19-21APR93-1/1

05
05
4

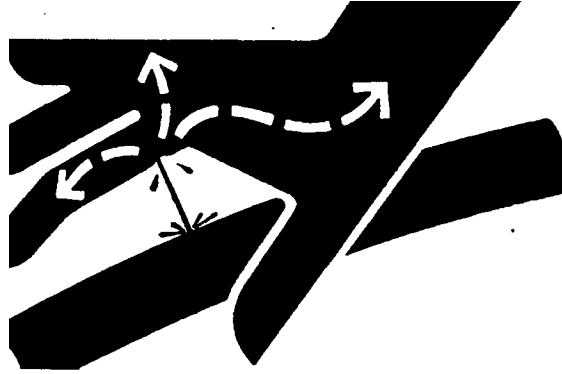
Avoid High-Pressure Fluids

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

Avoid the hazard by relieving pressure before disconnecting 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.



X9811 -UN-23AUG88

DX,FLUID -19-03MAR93-1/1

Service Cooling System Safely

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

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



TS281 -UN-23AUG88

DX,RCAP -19-04JUN90-1/1

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.

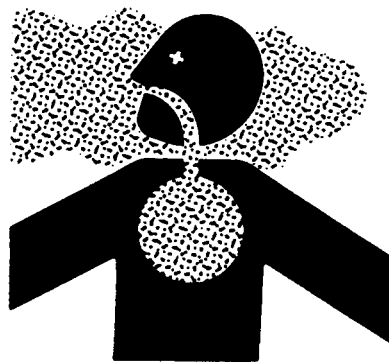
Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- 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.

Do not use a chlorinated solvent in areas where welding will take place.

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.



TS220 -UN-23AUG88

DX,PAINT -19-24JUL02-1/1

Avoid Heating Near Pressurized Fluid Lines

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.



TS953 -UN-15MAY90

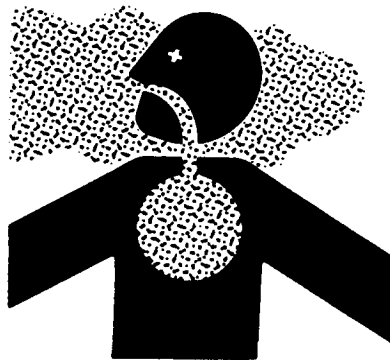
DX,TORCH -19-03MAR93-1/1

05
05
6

Work In Ventilated Area

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



TS220 -UN-23AUG88

DX,AIR -19-17FEB99-1/1

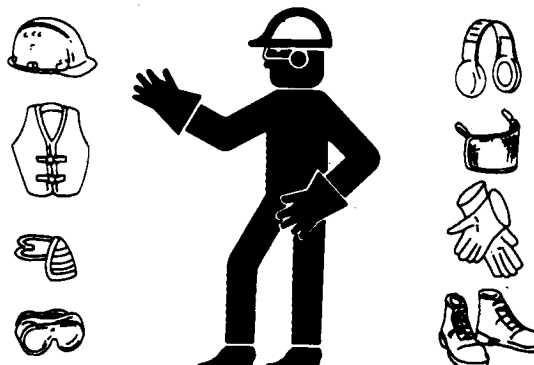
Wear Protective Clothing

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.



TS206 -UN-23AUG88

DX,WEAR -19-10SEP90-1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



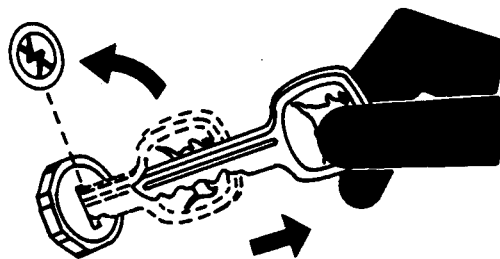
TS218 -UN-23AUG88

DX,SERV -19-17FEB99-1/1

Park Machine Safely

Before working on the machine:

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



TS230 -UN-24MAY89

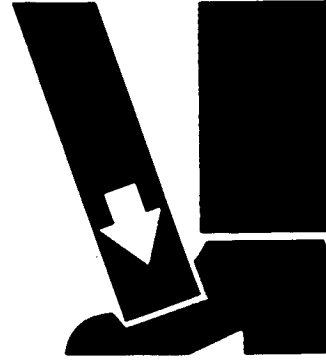
DX,PARK -19-04JUN90-1/1

05
05
8

Use Proper Lifting Equipment

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



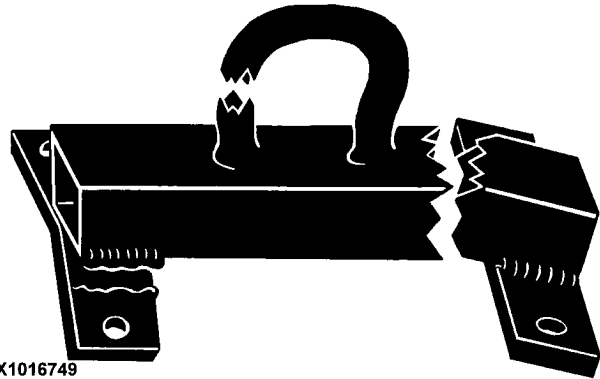
TS226 -UN-23AUG88

DX,LIFT -19-04JUN90-1/1

Construct Dealer-Made Tools Safely

Faulty or broken tools can result in serious injury. When constructing tools, use proper, quality materials, and good workmanship.

Do not weld tools unless you have the proper equipment and experience to perform the job.



LX1016749 -UN-01JUL97

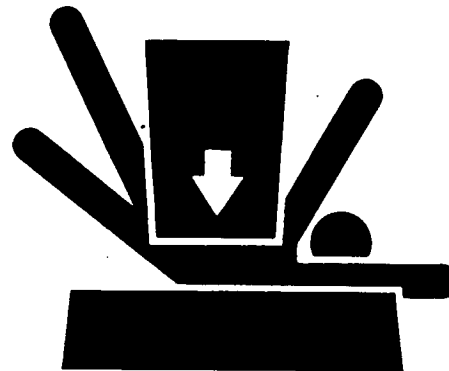
DX,SAFE,TOOLS -19-10OCT97-1/1

Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

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.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.



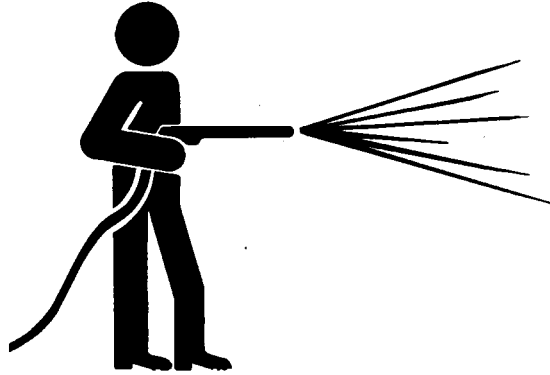
TS229 -UN-23AUG88

DX,LOWER -19-24FEB00-1/1

Work in Clean Area

Before starting a job:

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

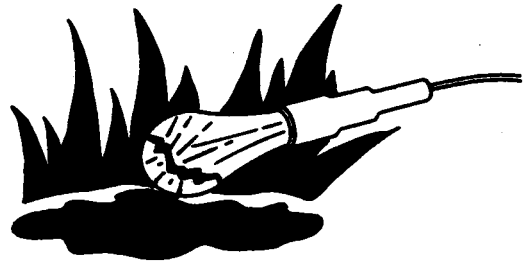


T6642EJ -UN-18OCT88

DX,CLEAN -19-04JUN90-1/1

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.



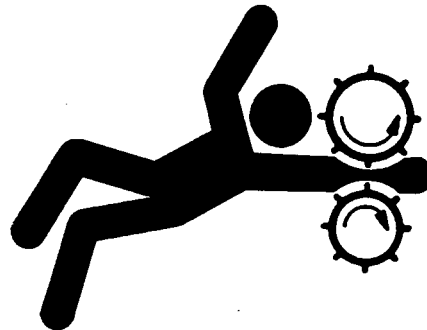
TS223 -UN-23AUG88

DX,LIGHT -19-04JUN90-1/1

Service Machines Safely

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.



TS228 -UN-23AUG88

DX,LOOSE -19-04JUN90-1/1

05
05
10

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.



TS779 -UN-08NOV89

DX,REPAIR -19-17FEB99-1/1

Service Tires Safely

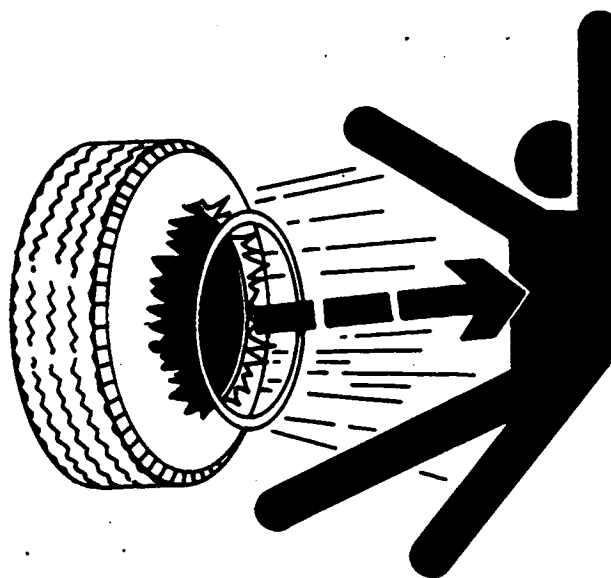
Explosive separation of a tire and rim parts can cause serious injury or death.

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.

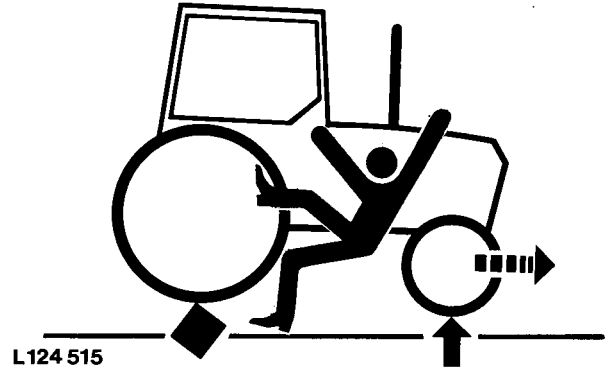


TS211 -UN-23AUG88

DX,RIM -19-24AUG90-1/1

Service Front-Wheel Drive Tractor Safely

When servicing front-wheel drive tractor with the rear wheels supported off the ground and rotating wheels by engine power, always support front wheels in a similar manner. Loss of electrical power or transmission/hydraulic system pressure will engage the front driving wheels, pulling the rear wheels off the support if front wheels are not raised. Under these conditions, front drive wheels can engage even with switch in disengaged position.



L124515 -UN-06AUG94

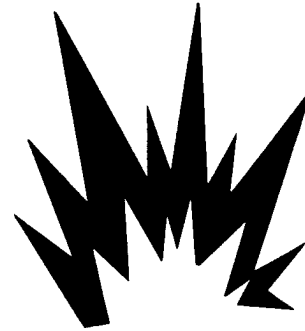
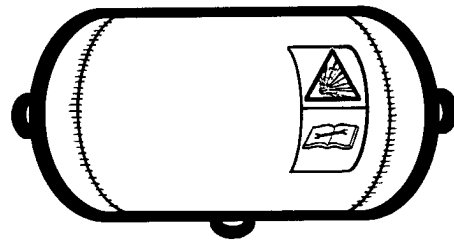
LX,MFWD2 -19-01MAY91-1/1

Safety Information - Air Brake System



CAUTION: Compressed air tank is pressurized!

Always relieve pressure before working on the air brake system. Do not carry out any welding jobs on the air brake system.



LX008009

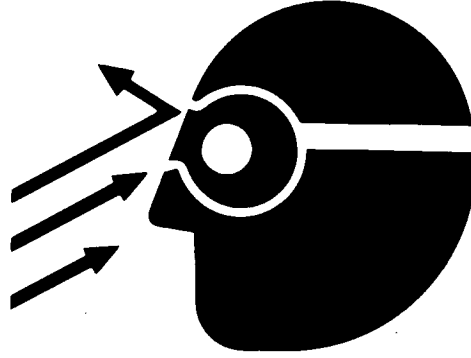
LX008009 -UN-24APR96

LX,AIRBRAKES -19-03MAR94-1/1

05
05
12

Avoid Eye Contact With Radar

Radar ground speed sensor emits a very low intensity microwave signal. It will not cause any ill effects during normal use. Although intensity is low, DO NOT look directly into face of sensor while in operation, to avoid any possible eye damage.



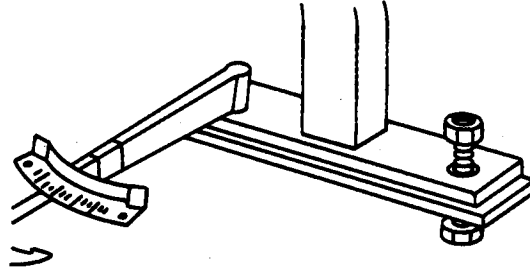
TS266 -UN-23AUG88

RX,SAFTY,RADAR1 -19-21SEP92-1/1

Keep ROPS Installed Properly

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.



TS212 -UN-23AUG88

DX,ROPS3 -19-03MAR93-1/1

Replace Safety Signs

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



TS201 -UN-23AUG88

DX,SIGNS1 -19-04JUN90-1/1

Thanks for your reading.

Please click [here](#) to download complete manual instantly.

And can also choose other manuals.

Feel free ---> write to me with any questions.

Our service email:

manuals007@hotmail.com