6R 110 - 6R 150 Tractors (MY22-) Repair

JOHN DEERE

REPAIR TECHNICAL MANUAL

6R 110 - 6R 150 Tractors (MY22-)

TM414919 03MAR23 (ENGLISH)

John Deere GmbH & Co. KG
John Deere Werk Mannheim
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Foreword

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.

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

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

DX,TMIFC-19-20140415

Section 01 - Information about Serial Number, Model Year, and Engines

Contents

Serial number reset to 100.001 on 2021-01-22

Serial number reset to 100.001 on 2021-01-22

The serial number counter (consecutive number) has reached its maximum of 999.999 and will be reset to 100.001 on 2021-01-22 as of the financial year 2020/2021.

The year of production (position 10) enables unique identification of the serial number.

NOTE:

The year of production does not correspond to the model year (MY)!

For model year information, see Model Year Overview (MY22-)

For further information on the structure and composition of the serial number, see Information on the Structure and Composition of the Tractor Serial Number .

Identifying the year of production based on the serial number

The serial number consists of 17 digits.

The following breakdowns can be used to identify the year of production based on the serial number.

The production year is marked with the index on position 10 of the serial number, see Table 1.4.

Example	**1**	**L**	**0**	**6**	**2**	**1**	**5**	**R**	**C**	**M**	**R**	**9**	**9**	**9**	**9**	**9**	**9**
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Year of Production

Year	Index	Year	Index	Year	Index	Year	Index
2008	8	2018	J	2028	W	2038	8
2009	9	2019	K	2029	X	2039	9
2010	A	2020	L	2030	Y	2040	A
2011	B	2021	M	2031	1	2041	B
2012	C	2022	N	2032	2	2042	C
2013	D	2023	P	2033	3	2043	D
2014	E	2024	R	2034	4	2044	E
2015	F	2025	S	2035	5	2045	F
2016	G	2026	T	2036	6	2046	G
2017	H	2027	V	2037	7	2047	H

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Information on the Structure and Composition of the Tractor Serial Number

Information on the Structure and Composition of the Tractor Serial Number

NOTE:

The consecutive number of the serial number has been reset to 100.001 as of financial year 2020/2021.

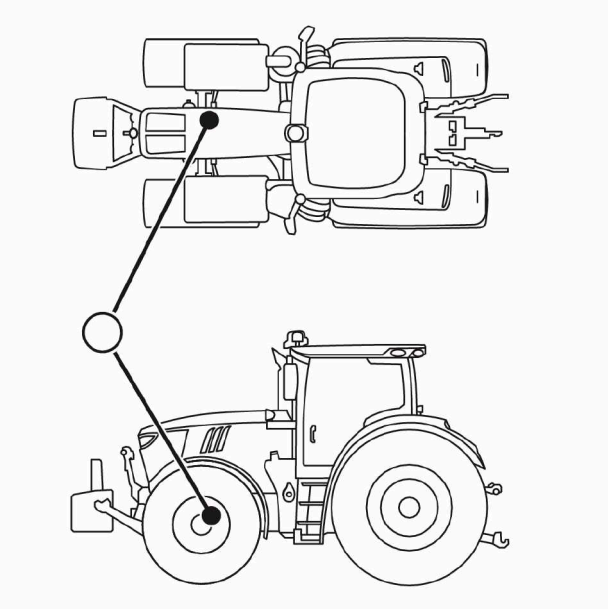
For further information, see Serial number reset to 100.001 on 2021-01-22 .

The tractor serial number is also referred to as **P** roduct **I** dentification **N** umber (**PIN**).

The serial number consists of 17 alphanumeric digits. This section contains a breakdown of these digits.

For the composition of the serial number, refer to Table 1.0: Composition of the serial number.

The serial number plate (type plate) with the tractor serial number is located on the right side of the tractor viewed in direction of travel.



LX365749-UN: Location of the Type Plate with the Tractor Serial Number

LX234687-UN: Position of the Type Plate with the Tractor Serial Number

Serial Number Structure

The serial number consists of 17 alphanumeric digits.

Example	**1**	**L**	**0**	**6**	**2**	**1**	**5**	**R**	**C**	**M**	**R**	**9**	**9**	**9**	**9**	**9**	**9**
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Composition of the Serial Number

Item	**Description**
1—3	Plant identification code (see Table 1.2: Plant identification code: digits 1—3)
4	Tractor line
5—7	Engine power at rated speed according to 1997/68/EC
8	Price/performance index (see Table 1.3: Price/performance index: digit 8)
9	Check letter, calculated by algorithm
10	Year of production (see Table 1.4: Identification of the year of production: digit 10)
11	Transmission type identifier (see Table 1.5: Identification of transmission type: digit 11)
12—17	Consecutive serial number

Identification of the Plant Code

Identification of the Plant Code

Code	Plant Designation	Location
1L0	John Deere Mannheim GmbH & Co KG	Federal Republic of Germany
1BM	John Deere Brasil Montenegro	Brazil
1P0	John Deere Industrias Saltillo	Mexico
1HY	John Deere Harbin AG Machinery Co.	People's Republic of China
1RW	John Deere Works Waterloo	United States of America

Identification of the Price/Performance Index

Identification of the Price/Performance Index

Index	Specification Level	Capability
B	LOW-BASIC	Very low specification level. Generally intended for smaller tractors in emerging markets. Super low specification.
C	LOW	Low specification level. Generally a little lower than D and used only for tractor families offered in multiple specification levels in their product lines.
D		Low specification level. Generally a little lower than E (or Classic) and used only for tractor families offered in multiple specification levels in their product lines.
E		Economical or low specification level. Relatively low technology level for this platform. A so-called "Classic" in JDWN nomenclature.
G	SPECIAL	Special or unique specification, which does not have to mean that this is a special tractor application such as narrow or low-profile. It rather means that this is a unique design.
J	MID	Intermediate specification level. Lower technology and price level than with M or K. The use of older components and capabilities of previous models is likely.
K		Intermediate specification level. Slightly lower technology and price level than with M. This also includes the use of older components and capabilities of previous models.
M		Intermediate specification level in terms of technology use for this platform. A so-called "Standard" in JDWN nomenclature.
R	HIGH	High specification level. Advanced technology for this platform. A so-called "Premium" in JDWN nomenclature.
X		High specification level with future solutions, special and superior capability in heavy-duty or possibly commercial application.

Identification of the Year of Production

Year of Production

Year	Index	Year	Index	Year	Index	Year	Index
2008	8	2018	J	2028	W	2038	8
2009	9	2019	K	2029	X	2039	9
2010	A	2020	L	2030	Y	2040	A
2011	B	2021	M	2031	1	2041	B
2012	C	2022	N	2032	2	2042	C
2013	D	2023	P	2033	3	2043	D
2014	E	2024	R	2034	4	2044	E
2015	F	2025	S	2035	5	2045	F
2016	G	2026	T	2036	6	2046	G
2017	H	2027	V	2037	7	2047	H

Identification of Transmission Type

Transmission Type Identifier

Code	Description
A	Fully synchronized 12/12-speed transmission
B	Fully synchronized 16/16-speed transmission with powershift forward/reverse shifting 30 km/h
C	Fully synchronized 16/16-speed transmission with powershift forward/reverse shifting 40 km/h
D	16/16-speed transmission with mechanical partial powershift 30 km/h
E	16/16-speed or 20/20-speed transmission with mechanical partial powershift 40 km/h
F	24/24-speed or 32/32-speed transmission with mechanical partial powershift 40 km/h
G	16/16-speed, 20/20-speed, 24/24-speed or 32/32-speed transmission with electrical partial powershift with speed matching 40 km/h
H	16/16-speed transmission with electrical partial powershift with speed matching 30 km/h
J	16/16-speed transmission with electrical partial powershift with speed matching 40 km/h
K	20/20-speed, 24/24-speed or 32/32-speed transmission with electrical partial powershift with automatic gear shifting 40 km/h
L	16/16-speed, 20/20-speed, 24/24-speed or 32/32-speed transmission with electrical partial powershift with automatic gear shifting 35 km/h
M	16/16-speed transmission with electrical partial powershift with automatic gear shifting
NO	20/20-speed or 24/24-speed transmission with electrical partial powershift with automatic gear shifting
P	Continuously variable transmission 40 km/h
R	Continuously variable transmission 50 km/h
S	Continuously variable transmission 35 km/h
T	24/24-speed double-clutch transmission with electrical partial powershift, with automatic gear and range shifting 40 km/h
U	24/24-speed double-clutch transmission with electrical partial powershift, with automatic gear and range shifting 50 km/h

Transmission Type Identifier

Code	Description
V	24/24-speed double-clutch transmission with electrical partial powershift, with automatic gear and range shifting 60 km/h
W	20/20-speed or 24/24-speed transmission with hydro-electrical/electrical partial powershift 35 km/h
X	20/20-speed or 24/24-speed transmission with hydro-electrical/electrical partial powershift 40 km/h
Y	16/16-speed or 32/32-speed transmission with electrical partial powershift with speed matching
Z	20/20-speed or 24/24-speed transmission with hydro-electrical/electrical partial powershift 50 km/h
1	Partially synchronized 16/16-speed transmission with powershift forward/reverse shifting 30 km/h
2	20/20-speed or 24/24-speed transmission with electrical partial powershift with automatic gear and range matching 35 km/h
3	20/20-speed or 24/24-speed transmission with electrical partial powershift with automatic gear and range matching 40 km/h
5	Partially synchronized 16/16-speed transmission with synchronized forward/reverse shifting 30 km/h
6	Partially synchronized 16/16-speed transmission with powershift forward/reverse shifting 40 km/h
7	Partially synchronized 32/16-speed transmission with Hi-Lo 40 km/h

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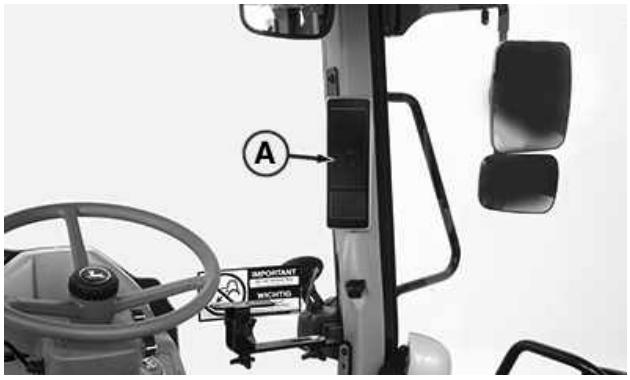
Model Year 2022 (MY22-) - Information on Serial Numbers and Model Identification

Introduction of 6R MY22
For specific Information on Model Year, see:
Model Year 2022 (MY22-) - Information on Serial Numbers and Model Identification

Model Identification:

Tractor models of the 6R MY22 series 6R can be identified by the following features:

- Corner Post Display



LX378365-UN: Corner Post Display

A - Corner Post Display

- New product nomenclature for tractors:
  6R 110
  6R 120
  6R 130
  6R 140
  6R 150
  6R 145
  6R 155
  6R 165
  6R 175
  6R 185
  6R 195
  6R 215
  6R 230
  6R 250

MY22 Serial Number Break:

NOTE:
Since the changes were made in Mannheim during the current production, there is a smooth transition in the area of the serial numbers cut-off. Up to the serial number, old and new models were built in a mix.
Tractors built in Mannheim (1L0) from April 2022, from serial number 1L0xxxxxxNxXXXXXX:

- **Tractor models 4045U FT4/Stage V: 6R 110, 6R 120, 6R 130, 6R 140, 6R 150**
- **Tractor models 6068U FT4/Stage V: 6R 145, 6R 155, 6R 165, 6R 175, 6R 185, 6R 195, 6R 215, 6R 230, 6R 250**

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Model Year Overview (MY22-)

Model Year Overview (MY22-)

The contents of the publications are valid for the following MY models: MY22.

MY Info	Start of Production	Improvement Programs	Serial Number Information	MY Distinguishing Features
MY22	April 2022 with production start of the programs	Start of Production (SOP)	From Tractor Serial No. 1L0xxxxxxNxXXXXXX	Model Year 2022 (MY22-) - Information on Serial Numbers and Model Identification

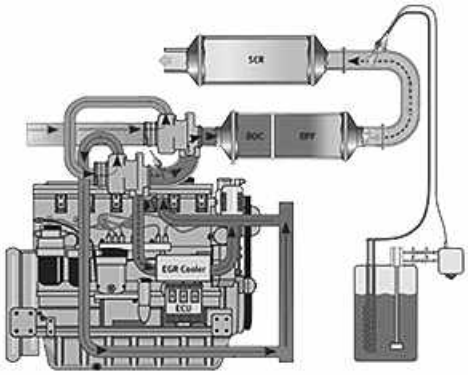
LX25500,0000B35-19-20220401

Engine overview 4045U FT4/Stage V

Tractor models - (MY22-)

- 6R 110
- 6R 120
- 6R 130
- 6R 140
- 6R 150

NOTE:
Additional information for diagnostics and testing is provided in the respective technical manual for engines.



LX398279-UN: Engine 4045U FT4/Stage V

Emission Certification	Type/technology	Engine Component Technical Manual
FT4/Stage V	4045 **PSS** engine — **P** - PowerTech™ Plus • Plus electronically controlled engine • 4-valve technology • Cooled exhaust gas recirculation (EGR) • Electronically controlled control units • High-pressure common rail or electronic unit injector (EUI) — **S** - series turbocharger — **S** - exhaust filter and selective catalytic reduction (SCR)	4045 4-valve diesel engine — ECU (Level 34)

LX25458,000764E-19-20210929

Engine overview 6068U FT4/Stage V

Tractor models - (MY22-)

Tractor Models 6R 145 - 6R 215

- 6R 145
- 6R 155
- 6R 165
- 6R 175
- 6R 185
- 6R 195
- 6R 215

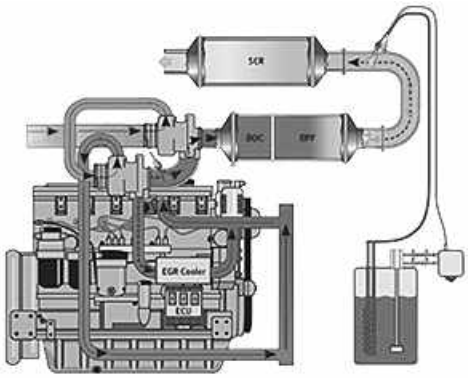
NOTE:
Additional information for diagnostics and testing is provided in the respective technical manual for engines.

Emission Certification	Type/technology	Engine Component Technical Manual
FT4/Stage V	6068 **PVS** engine — **P** - PowerTech™ Plus • Plus electronically controlled engine • 4-valve technology • Cooled exhaust gas recirculation (EGR) • Electronically controlled control units • High-pressure common rail or electronic unit injector (EUI) — **V** - VGT (Variable geometry turbocharger) — **S** - exhaust filter and selective catalytic reduction (SCR)	6068 4-valve diesel engine — ECU (Level 33)

Tractor Models 6R 230 - 6R 250

- 6R 230
- 6R 250

NOTE:
Additional information for diagnostics and testing is provided in the respective technical manual for engines.



LX398279-UN: Engine 6068U FT4/Stage V (MY22-)

Emission Certification	Type/technology	Engine Component Technical Manual
FT4/Stage V	6068 **PSS** engine — **P** - PowerTech™ Plus • Plus electronically controlled engine • 4-valve technology • Cooled exhaust gas recirculation (EGR) • Electronically controlled control units • High-pressure common rail or electronic unit injector (EUI) — **S** - series turbocharger — **S** - exhaust filter and selective catalytic reduction (SCR)	6068 4-valve diesel engine — ECU (Level 34)

LX25458,000764F-19-20220405

Section 02 - Information about Software, Introduction and Content of the CIU Improvement Programs

Contents

Introduction of Software Update Packages

The software update packages are introduced according to the CIU update programs twice a year:

CIU Mid.XXXX

- April

CIU End.XXXX

- October

CK69047,0001507-19-20210219

Overview about the Software Update Packages

Overview about the Software Update Packages

NOTE:
The software version is displayed in the diagnostic address mentioned.
NOTE:
The software update package is always installed in the mentioned and the above software versions.
NOTE:
For more information, see CCMS solution for the Model Year 2022 (MY22) 6R FT4/Stage IV /V tractor software summary.

The software update package can be identified by means of the following table.

Improvement Program	Software Update Package (Generation 5 software)	Factory-installed as of Serial Number	As of Software Version	Diagnostic Address		Software Version Part Number
				For Software Version	For Software Part Number	
SOP 6R MY22	6R_SG5_SOP_1	1L0xxxxxxNxXXXXXX	3.00	CCU 234	CCU 237	AL233491E

LX25500,0000B36-19-20210923

Improvement Program CIU End.2022

Improvement Program CIU End.2022

First CIU Improvement Program after Introduction of 6R MY22.

CK69047,0001504-19-20210219

Contents

General Information - Safety - Summary of References

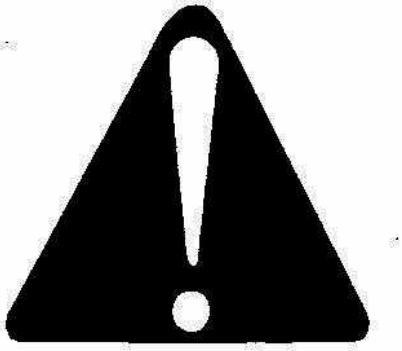
- Welding Near Electronic Control Units
- Keep Electronic Control Unit Connectors Clean
- Safety Instructions for Replacing a Halogen Bulb
- Safety Instructions for Replacing Xenon (HID) Bulbs and Ballast Units

LX25458,0002805-19-20210827

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: Safety-alert symbol

DX,ALERT-19-19980929

Understand Signal Words

DANGER ; The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING ; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION ; The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

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.

TS187-19: Signal Words

DX,SIGNAL-19-20161005

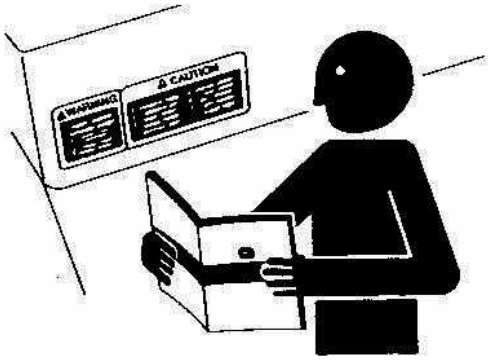
Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



TS201-UN: Safety Messages

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

DX,READ-19-20090616

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: Machinery Runaway

DX,BYPAS1-19-19980929

Operating the Tractor Safely

You can reduce the risk of accidents by following these simple precautions:

- Use your tractor only for jobs it was designed to perform, for example, pushing, pulling, towing, actuating, and carrying a variety of interchangeable equipment designed to conduct agricultural work.
- Operators must be mentally and physically capable of accessing the operator's station and/or controls, and operating the machine properly and safely.
- Never operate machine when distracted, fatigued, or impaired. Proper machine operation requires the operator's full attention and awareness.
- This tractor is not intended to be used as a recreational vehicle.
- Read this operator's manual before operating the tractor and follow operating and safety instructions in the manual and on the tractor.
- Follow operation and ballasting instructions found in the operator's manual for your implements/attachments, such as front loaders.
- Follow the instructions outlined in the operator's manual of any mounted or trailed machinery or trailer. Do not operate a combination of tractor-machine or tractor-trailer unless all instructions have been followed.
- Make sure that everyone is clear of machine, attached equipment, and work area before starting engine or operation.
- Stay clear of the three-point linkage and pickup hitch (if equipped) when controlling them.
- Keep hands, feet, and clothing away from power-driven parts.

Driving Concerns

- Never get on or off a moving tractor.
- Complete any required training prior to operating vehicle.
- Keep all children and nonessential personnel off tractors and all equipment.
- Never ride on a tractor unless seated on a John Deere approved seat with a seat belt.
- Keep all shields/guards in place.
- Use appropriate visual and audible signals when operating on public roads.
- Move to side of road before stopping.
- Reduce speed when turning, applying individual brakes, or operating around hazards on rough ground or steep slopes.
- Stability degrades when attached implements are at high position.
- Couple brake pedals together for road travel.
- Pump brakes when stopping on slippery surfaces.
- Regularly clean fenders and fender valances (mud flaps) if installed. Remove dirt before driving on public roadways.

Heated and Ventilated Operator's Seat

- An overheated seat heater can cause a burn injury or damage to the seat. To reduce the risk of burns, use caution when using the seat heater for extended periods of time, especially if the operator cannot feel temperature change or pain to the skin. Do not place objects on the seat, such as a blanket, cushion, cover, or similar item, which can cause the seat heater to overheat.

Towing Loads

- Be careful when towing and stopping heavy loads. Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control.
- Consider the total weight of the equipment and its load.
- Hitch towed loads only to approved couplings to avoid rearward upset.

Parking and Leaving the Tractor

- Before dismounting, shut off SCVs, disengage PTO, stop engine, lower implements/attachments to ground, place implement/attachment control devices in neutral, and securely engage park mechanism, including the

park pawl and park brake. In addition, if the tractor is left unattended, remove key.
- Leaving transmission in gear with engine off will NOT prevent the tractor from moving.
- Never go near an operating PTO or an operating implement.
- Wait for all movement to stop before servicing machinery.

Common Accidents

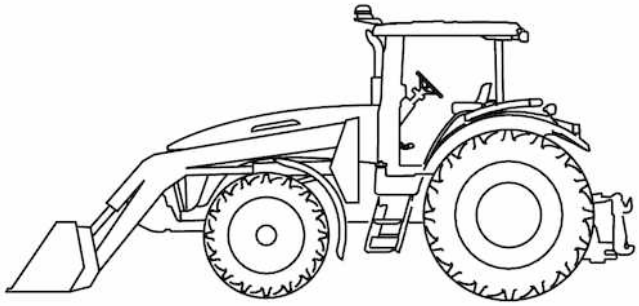
Unsafe operation or misuse of the tractor can result in accidents. Be alert to hazards of tractor operation.
The most common accidents involving tractors are:

- Tractor rollover
- Collisions with motor vehicles
- Improper starting procedures
- Entanglement in PTO shafts
- Falling from tractor
- Crushing and pinching during hitching

DX,WW,TRACTOR-19-20190508

Operating the Loader Tractor Safely

When operating a machine with a loader application, reduce speed as required to ensure good tractor and loader stability.
To avoid tractor rollover and damage to front tires and tractor, do not carry load with your loader at a speed over 10 km/h (6 mph).
To avoid tractor damage do not use a front loader or a sprayer tank if the tractor is equipped with a 3 Meter Front Axle.
Never allow anyone to walk or work under a raised loader.
Do not use loader as a work platform.
Do not lift or carry anyone on loader, in bucket, or on implement or attachment.
Lower loader to ground before leaving operators station.



TS1692-UN: Loader Tractor

The Rollover Protective Structure (ROPS) or cab roof, if equipped, may not provide sufficient protection from load falling onto the operators station. To prevent loads from falling onto the operators station, always use appropriate implements for specific applications (that is, manure forks, round bale forks, round bale grippers, and clampers).
Ballast tractor in accordance to Ballast Recommendations in PREPARE TRACTOR section.

DX,WW,LOADER-19-20120918

Passenger Seat

The passenger seat is intended only for transport of a passenger in on-road operations (that is, transport from farm to field).
If it is necessary to transport a passenger, the passenger seat is the only means of transporting a passenger provided by John Deere.

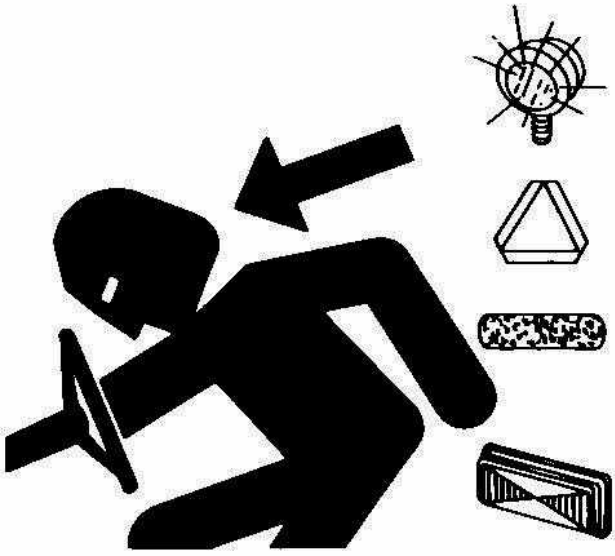
TS1730-UN: Use Seat Belt

DX,SEAT,EU-19-20170228

Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



TS951-UN: Prevent Collisions

DX,FLASH-19-19990707

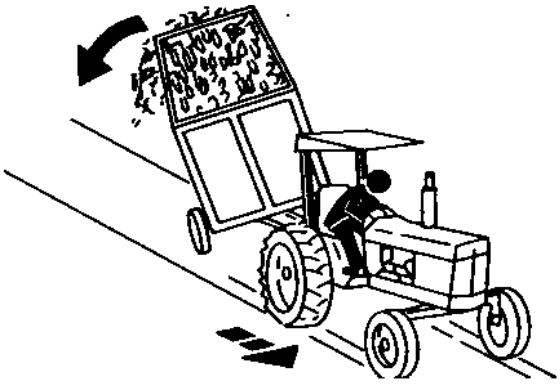
Towing Trailers/Implements Safely

Stopping distance increases with speed and mass of trailer/implement, and when transporting on slopes. Towed mass with or without brakes that is too heavy for the tractor or is towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

When towing a trailer, become familiar with the braking characteristics and ensure the compatibility of the tractor/trailer combination in regard to the deceleration rate.

Stay clear of area between tractor and trailed vehicle.

Trailer/Implement Brake System	Top Speed
Unbraked.....	25 km/h (15.5 mph)
Independent.....	25 km/h (15.5 mph)
Overrun brake.....	25 km/h (15.5 mph)
Single-line hydraulic brake.....	25 km/h (15.5 mph)
Dual-line hydraulic brake.....	40 km/h (25 mph)
Single-line air brake.....	25 km/h (15.5 mph)
Dual-line air brake.....	Maximum design speed



TS216-UN: Towing Trailers/Implements Safely

There may be legal limits in force that restrict travel speeds to figures lower than those quoted here.

Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.

DX,TOW3,EU-19-20170228

Use Caution on Slopes, Uneven Terrain, and Rough Ground

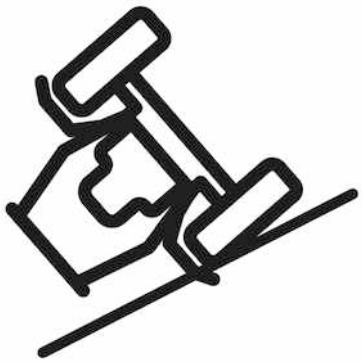
Avoid holes, ditches, and obstructions which cause the tractor to tip, especially on slopes. Avoid sharp uphill turns.

Driving forward out of a ditch, mired condition, or up a steep slope could cause the tractor to tip over rearward. Back out of these situations if possible.

Danger of overturn increases greatly with narrow tread setting, at high speed.

Not all conditions that can cause a tractor to overturn are listed. Be alert for any situation in which stability may be compromised.

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution.



RXA0103437-UN: Slopes

Uneven terrain or rough ground can cause loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on uneven terrain or rough ground requires extra caution.

Never drive near the edge of a gully, drop-off, ditch, steep embankment, or a body of water. The machine could suddenly roll over if a wheel goes over the edge or the ground caves in

Choose a low ground speed so you will not have to stop or shift while on a slope.

Avoid starting, stopping, or turning on a slope. If the tires lose traction, disengage the PTO and proceed slowly, straight down the slope.

Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to roll over.

DX,WW,SLOPE-19-20170228

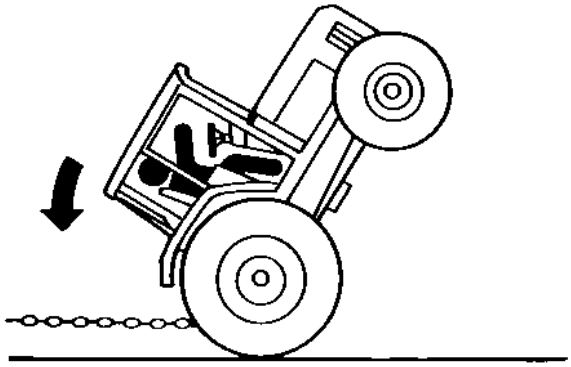
Freeing a Mired Machine

Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.



TS1645-UN: Tractor Tipping

TS263-UN: Cable Recoiling

DX,MIRED-19-19990707

Avoid Backover Accidents

Before moving machine, be sure that all persons are clear of machine path. Turn around and look directly for best visibility. Use a signal person when backing if view is obstructed or when in close quarters.

Do not rely on a camera to determine if personnel or obstacles are behind the machine. The system can be limited by many factors including maintenance practices, environmental conditions, and operating range.

PC10857XW-UN: Avoid Backover Accidents

DX,AVOID,BACKOVER,ACCIDENTS-19-20100830

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: Avoid Fires

DX,FLAME-19-19980929

Handling Batteries Safely

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace grounded clamp last.

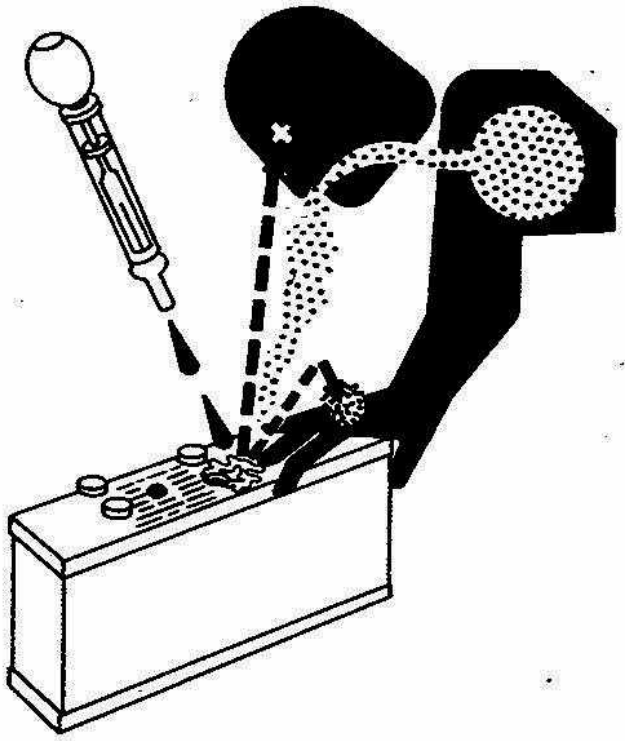
Sulfuric acid in battery electrolyte is poisonous and strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.

TS204-UN: Caution

If acid is spilled on skin or in eyes:



TS203-UN: Caution

1. Flush skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush 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 qt.).
3. Get medical attention immediately.

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**

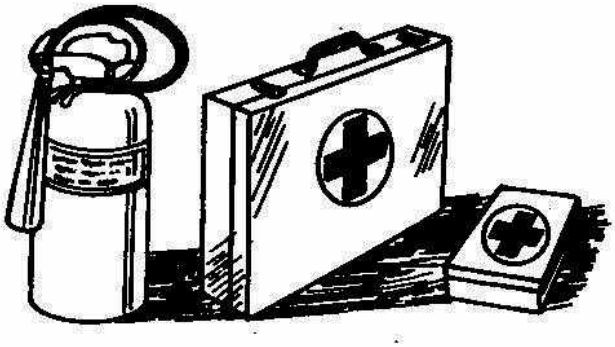
DX,WW,BATTERIES-19-20101202

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: First Aid Kit

DX,FIRE2-19-19930303

Avoid High-Pressure Fluids

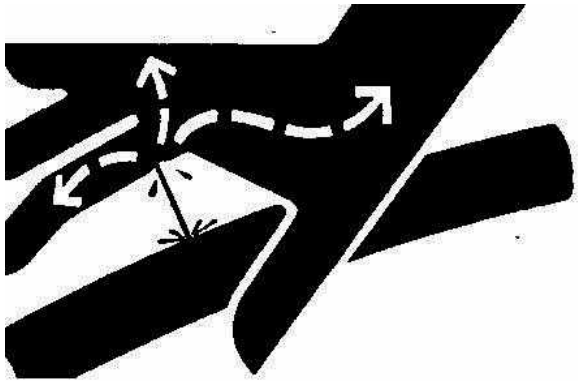
Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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.



X9811-UN: High Pressure

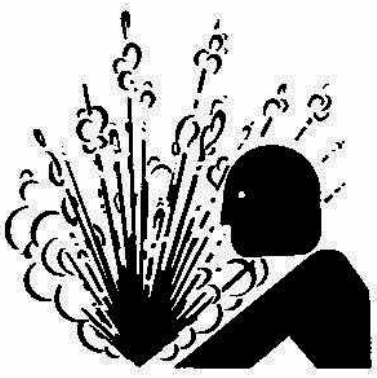
If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-20111012

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.



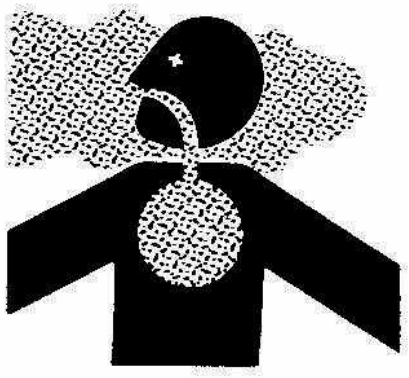
TS281-UN: Cooling System

DX,WW,COOLING-19-20090819

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.



TS220-UN: Toxic Fumes

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.

DX,PAINT-19-20020724

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 accidentally burst when heat goes beyond the immediate flame area.

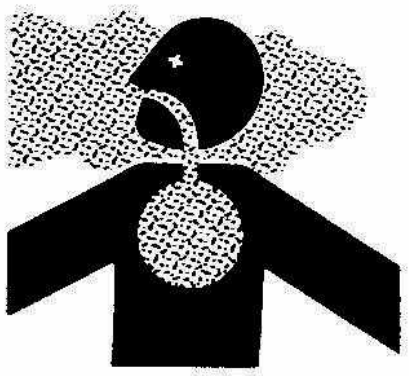
TS953-UN: Flammable Spray

DX,TORCH-19-20041210

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: Engine exhaust fumes

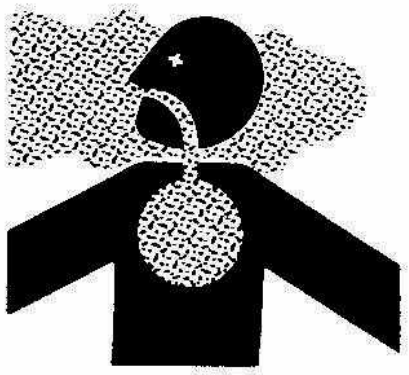
DX,AIR-19-19990217

Avoid Contact with Agricultural Chemicals

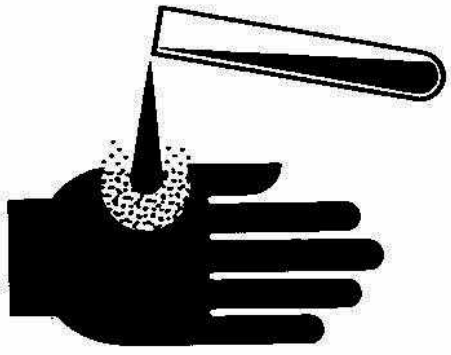
This enclosed cab does not protect against inhaling vapor, aerosol or dust. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

Before leaving the cab, wear personal protective equipment as required by the pesticide use instructions. When re-entering the cab, remove protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container, such as a plastic bag.

Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.



TS220-UN: Harmful Pesticides



TS272-UN: Pesticide Use

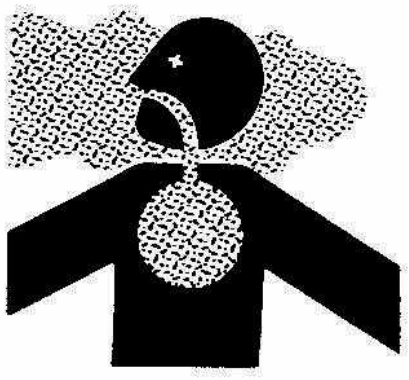
DX,CABS-19-20090325

Handle Agricultural Chemicals Safely

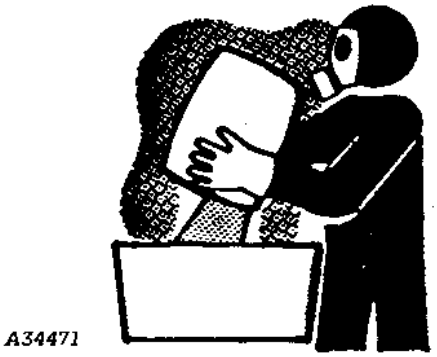
Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:



TS220-UN: Safety



A34471-UN: Safety

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
  - Chemicals labeled **'Danger'** : Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
  - Chemicals labeled **'Warning'** : Less toxic. Generally require use of goggles, gloves, and skin protections.
  - Chemicals labeled **'Caution'** : Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling vapor, aerosol or dust.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area away from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.

DX,WW,CHEM01-19-20100824

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Only use power take-off driveshafts with adequate guards and shields.

Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

Do not install any adapter device between the tractor and the primary implement PTO driveshaft that will allow a 1000 rpm tractor shaft to power a 540 rpm implement at speeds higher than 540 rpm.

Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

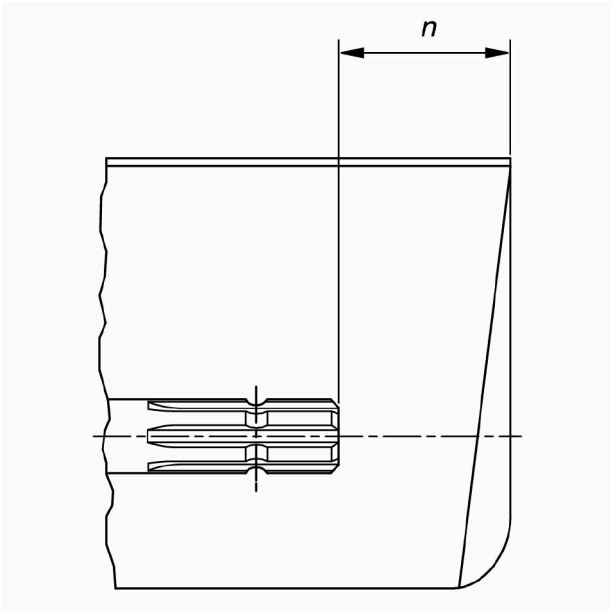
The angle at which the primary implement PTO driveshaft can be inclined may be reduced depending on the shape and size of the tractor master shield and the shape and size of the guard of the primary implement PTO driveshaft.

Do not raise implements high enough to damage the tractor master shield or guard of primary implement PTO driveshaft. Detach the PTO driveline shaft if it is necessary to increase implement height. (See Attching/Detaching PTO Driveline)

When using Type 3/4 PTO, inclination and turning angles may be reduced depending on type of PTO master shield and coupling rails.

PTO Type	Diameter	Splines	n ± 5 mm (0.20 in.)
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)
4	57.5 mm (2.264 in.)	22	100 mm (4.00 in.)

TS1644-UN: Rotating Drivelines



H96219-UN: Drivelines

DX,PTO-19-20170228

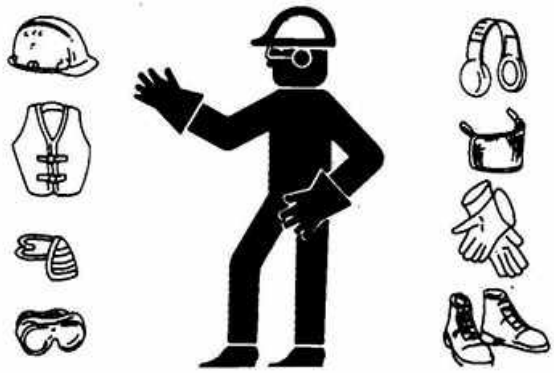
Wear Protective Clothing

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: Protective Clothing

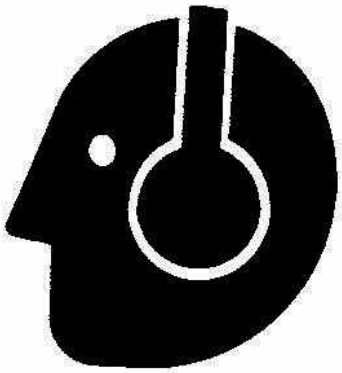
DX,WEAR-19-19900910

Protect Against Noise

There are many variables that affect the sound level range, including machine configuration, condition and maintenance level of the machine, ground surface, operating environmental, duty cycles, ambient noise, and attachments.

Exposure to loud noise can cause impairment or loss of hearing.

Always wear hearing protection. Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



TS207-UN: Noise Exposure

DX,NOISE-19-20171003

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 away 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.

Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.

TS218-UN: Keep Area Clean

DX,SERV-19-20170228

Avoid Hot Exhaust

Servicing machine or attachments with engine running can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

Exhaust parts and streams become very hot during operation. Exhaust gases and components reach temperatures hot enough to burn people, ignite, or melt common materials.

RG17488-UN: Safety—Hot Parts

DX,EXHAUST-19-20090820

Exhaust Filter Cleaning

Servicing machine or attachments during exhaust filter cleaning can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

During auto or manual/stationary exhaust filter cleaning operations, the engine will run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite, or melt common materials.

RG17488-UN: Safety—Hot Parts

DX,FILTER-19-20100120

Clean Exhaust Filter Safely

During exhaust filter cleaning operations, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

Keep machine away from people, animals, or structures which may be susceptible to harm or damage from hot exhaust gases or components. Avoid potential fire or explosion hazards from flammable materials and vapors near the exhaust. Keep exhaust outlet away from people and anything that can melt, burn, or explode.

Closely monitor machine and surrounding area for smoldering debris during and after exhaust filter cleaning.

Adding fuel while an engine is running can create a fire or explosion hazard. Always stop engine before refueling machine and clean up any spilled fuel.

Always make sure that engine is stopped while hauling machine on a truck or trailer.

Contact with exhaust components while still hot can result in serious personal injury.

Avoid contact with these components until cooled to safe temperatures.

If service procedure requires engine to be running:

- Only engage power-driven parts required by service procedure
- Ensure that other people are clear of operator station and machine

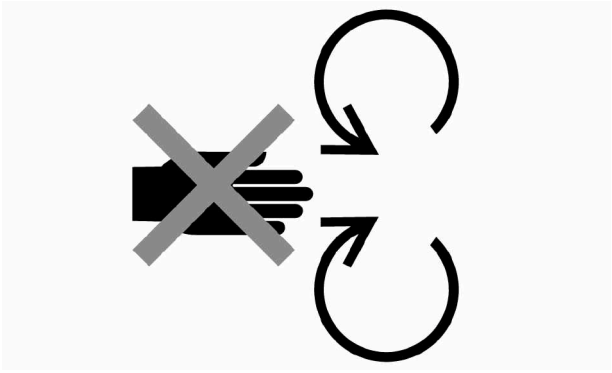
Keep hands, feet, and clothing away from power-driven parts.

Always disable movement (neutral), set the parking brake or mechanism and disconnect power to attachments or tools before leaving the operator's station.

Shut off engine and remove key (if equipped) before leaving the machine unattended.

TS227-UN: Fire Safety

TS271-UN: Hand Over Flame



TS1693-UN: Moving Parts

TS1695-UN: Stop

DX,EXHAUST,FILTER-19-20110112

Read Operator's Manuals for ISOBUS Controllers

In addition to GreenStar™ Applications, this display can be used as a display device for any ISOBUS Controller that meets ISO 11783 standard. This includes capability to control ISOBUS implements. When used in this manner, information and control functions placed on the display are provided by the ISOBUS Controller and are the responsibility of the ISOBUS Controller manufacturer. Some of these functions could pose a hazard to either the operator or a bystander. Read the Operator's Manual provided by the ISOBUS Controller manufacturer and observe all safety messages in manual and on ISOBUS Controller product prior to use.

NOTE:

ISOBUS refers to the ISO Standard 11783

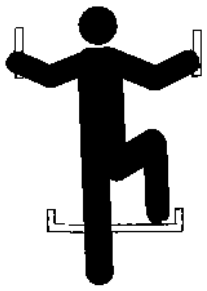
GreenStar is a trademark of Deere & Company

DX,WW,ISOBUS-19-20150715

Use Steps and Handholds Correctly

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps, handholds, and handrails.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.



T133468-UN: Use Handholds and Steps

DX,WW,MOUNT-19-20111012

Use Seat Belt Properly

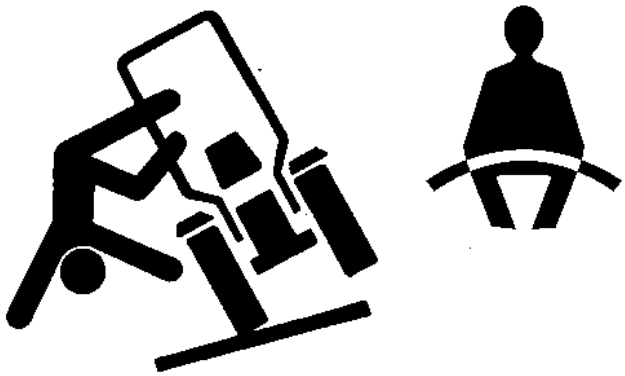
Avoid crushing injury or death during rollover.

This machine is equipped with a rollover protective structure (ROPS). USE a seat belt when you operate with a ROPS.

- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt latch to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.

Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.



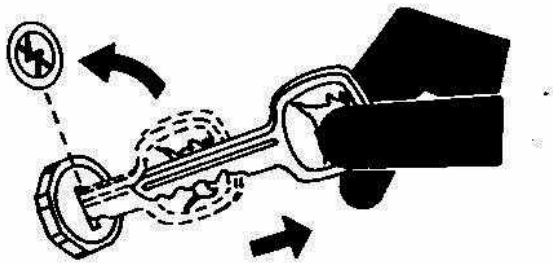
TS1729-UN: Fasten Your Seat Belt

DX,ROPS1-19-20130822

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.



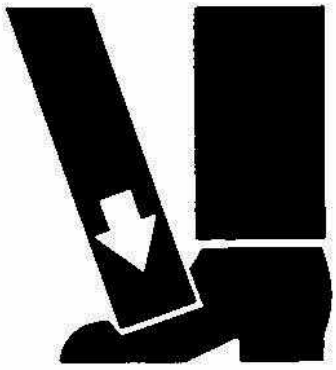
TS230-UN: Remove the Key

DX,PARK-19-19900604

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.



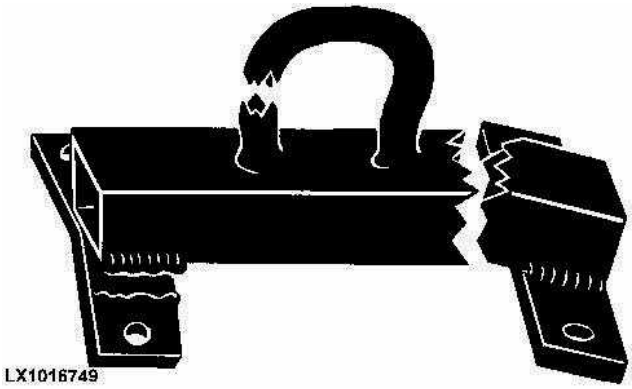
TS226-UN: Proper Lifting Equipment

DX,LIFT-19-19900604

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: Construct Dealer-Made Tools Safely

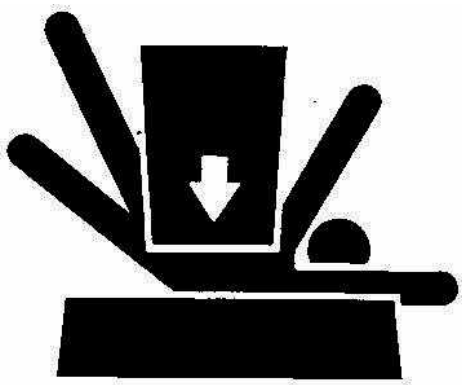
DX,SAFE,TOOLS-19-19971010

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.



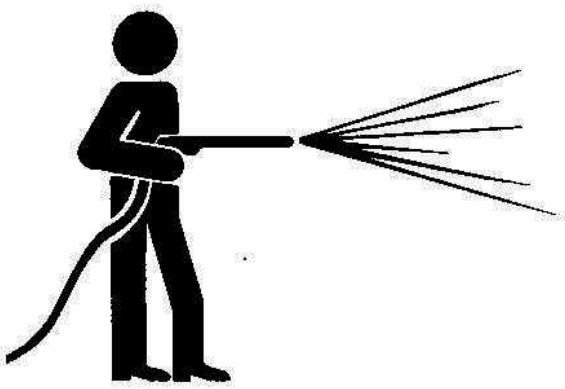
TS229-UN: Support Properly

DX,LOWER-19-20000224

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.

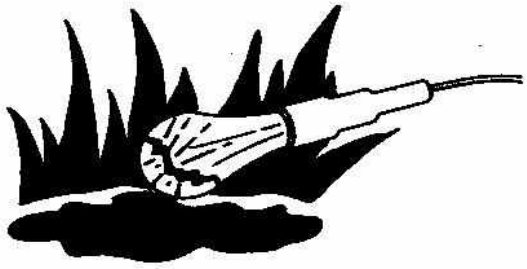


T6642EJ-UN: Clean Work Area

DX,CLEAN-19-19900604

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.



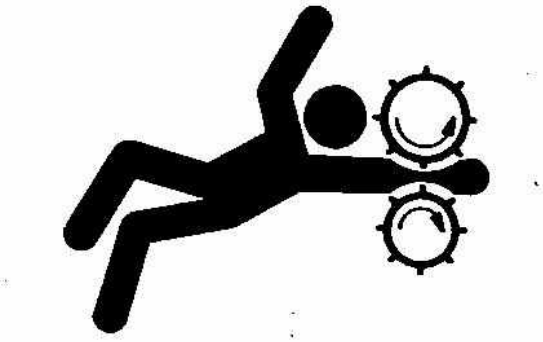
TS223-UN: Work Area Safely

DX,LIGHT-19-19900604

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: Moving Parts

DX,LOOSE-19-19900604

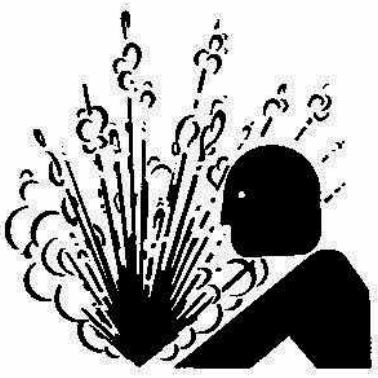
Service Accumulator Systems Safely

Escaping fluid or gas from systems with pressurized accumulators that are used in air conditioning, hydraulic, and air brake systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized accumulator or pressurized line.

Relieve pressure from the pressurized system before removing accumulator.

Relieve pressure from the hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.



TS281-UN: Hydraulic Accumulator

DX,WW,ACCLA2-19-20030822

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.

Wheels and tires are heavy. When handling wheels and tires use a safe lifting device or get an assistant to help lift, install, or remove.

RXA0103438-UN: Explosive Tire and Rim Parts

DX,WW,RIMS-19-20170228

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.

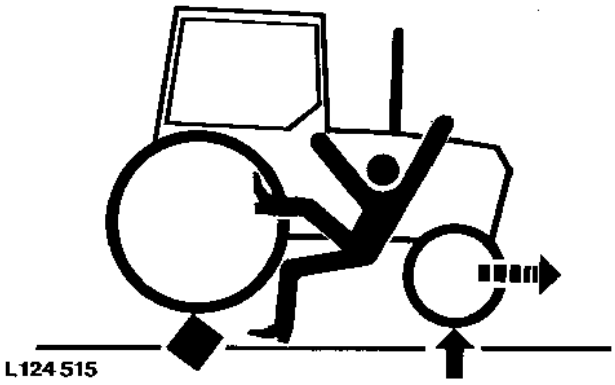
Use only service parts meeting John Deere specifications.

TS779-UN: Proper Tools

DX,REPAIR-19-19990217

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.

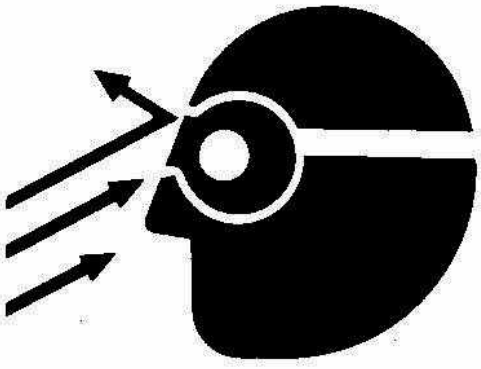


L124515-UN: Support Front and Rear Wheels

LX25458,0002830-19-20200830

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: Avoid Eye Contact With Radar

LX25458,0002831-19-20200830

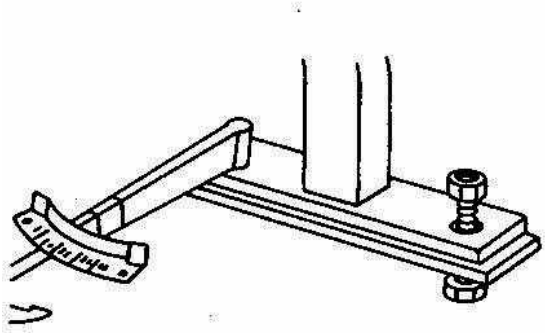
Keep ROPS Installed Properly

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.

The seat is part of the ROPS safety zone. Replace only with John Deere seat approved for your tractor.

Any alteration of the ROPS must be approved by the manufacturer.



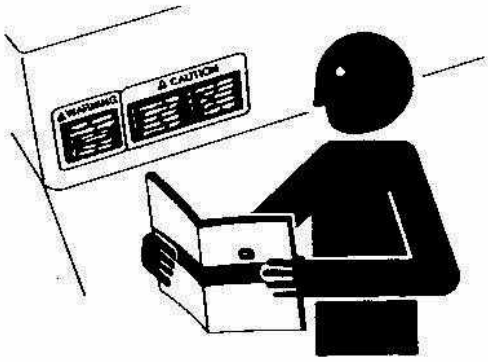
TS212-UN: Roll-Over Protective Structure

DX,ROPS3-19-20111012

Replace Safety Signs

Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

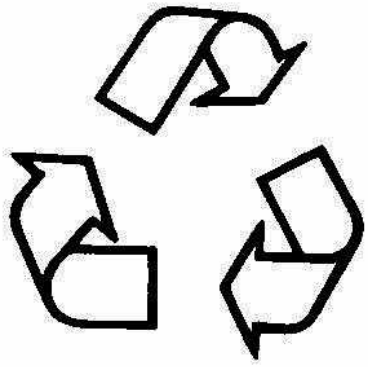


TS201-UN: Safety Signs

DX,SIGNS-19-20090818

Decommissioning — Proper Recycling and Disposal of Fluids and Components

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:



TS1133-UN: Recycle Waste

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers when draining fluids. Do not use food or beverage containers.
- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid); filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center, or your John Deere dealer for information on the proper way to recycle or dispose of waste.

DX,DRAIN-19-20150601

Live With Safety

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

TS231-19: Safety Systems

DX,LIVE-19-19920925

Safety Measures on Electronic Control Units

Before installing test equipment on the tractor, always shut off the engine and turn the key switch to "OFF".

Always engage the park lock when performing tests with the engine running.

When testing is performed with the engine running, there is a risk of injury from rotating parts.

IMPORTANT:
Do not use a test lamp on any control unit. Only use multimeter (JT05791A/JDG1478) and Flex Probe Kit JDG10466.

IMPORTANT:
To protect electronic circuits, disconnect the battery and alternator before performing any welding on the tractor.

LX25458,0002837-19-20200830

Servicing Electronic Control Units

1. **IMPORTANT:**
   Do not open control unit and do not clean with a high-pressure spray. Moisture, dirt, and other contaminants can cause permanent damage.

   Control units are not repairable; replace only if indicated in the diagnostic procedure.
2. Since control units are the components LEAST likely to fail, isolate failure before replacing by completing the diagnostic procedure.
3. The wiring harness terminals and connectors for electronic control units are repairable.
4. **IMPORTANT:**
   If an electronic control unit is not programmed identical to the original control unit, misleading diagnostic messages and poor performance will occur.

   Before putting back into service, verify that the control unit is programmed identical to the original control unit.

DX,WW,ECU01-19-20151002

Welding Near Electronic Control Units

TS953-UN: Welding Graphic

1. **IMPORTANT:**
   Do not jump-start engines with arc welding equipment. Currents and voltages are too high and may cause permanent damage.

   Disconnect the negative (-) battery cable(s).
2. Disconnect the positive (+) battery cable(s).
3. Connect the positive and negative cables together. Do not attach to vehicle frame.
4. Clear or move any wiring harness sections away from welding area.
5. Connect welder ground close to welding point and away from control units.
6. After welding, reverse Steps 1—5.

DX,WW,ECU02-19-20090814

Keep Electronic Control Unit Connectors Clean

1. **IMPORTANT:**
   Keep terminals clean and free of foreign debris. Moisture, dirt and other contaminants may cause the terminals to erode over time and not make a good electrical connection.

   If a connector is not in use, put on the proper dust cap or an appropriate seal to protect it from foreign debris and moisture.

2. **IMPORTANT:**
   Do not probe through the wire insulation or through the back of the connector. Do not insert items such as paper clips or wires into connector terminals.

   Make measurements on a connector terminal using JDG10466 Flex Probe Kit in SERVICEGARD.
3. Observe the locking mechanism of the connector when disconnecting and reconnecting.
4. Do not pull on wires to disconnect.
5. Before reconnecting:
   - Look for bent terminals; do not force connectors into each other.
   - Replace any terminal where corrosion exists.
   - Clean the connector of any foreign debris.
   - Dry the connector of any moisture.
6. When reconnecting, make sure seals around the connector pairs are functional.

DX,WW,ECU03-19-20090611

Safety Instructions for Replacing a Halogen Bulb

When replacing a halogen bulb, always comply with the following safety instructions:

Always switch the lights off before you change a bulb.

First allow the bulb to cool down (may cause burns).

Wear safety goggles and gloves when changing the bulb.

The bulb is made of glass and contains halogen gas; the bulb is under high pressure, so there is a risk of it shattering.

Do NOT use any bulbs that have fallen on the ground or have scratches on their surface, as there is a risk of them shattering.

Make sure that the bulb is seated correctly in its holder in the light.

Check the light for signs of damage and make sure the seals are seated correctly.

IMPORTANT:
Use only bulbs that are of the same type, same voltage and same wattage as the bulb that is being replaced.

IMPORTANT:
Never touch the glass surface of the halogen bulb, hold it only by its base.

IMPORTANT:
Use a clean cloth and alcohol to remove any fingerprints from the glass bulb.

IMPORTANT:
Old halogen bulbs that have been replaced must be disposed of properly (i.e. as hazardous waste).

LX25458,000283B-19-20200830

Safety Instructions for Replacing Xenon (HID) Bulbs and Ballast Units

When replacing a xenon (HID) bulb or ballast unit, it is essential to comply with the following safety instructions:

Switch the light off and disconnect it from the power supply before changing a bulb.

Never insert foreign objects or fingers into the bulb holder (high-tension voltage - potential for FATAL ACCIDENTS).

The ballast unit must never be operated when the bulb is missing, as this may cause a dangerous flash-over at the bulb sockets, resulting in serious damage (high-tension voltage - potential for FATAL ACCIDENTS).

First allow the bulb to cool down (may cause burns).

Wear safety goggles and gloves when changing the bulb.

The bulb is made of glass and contains xenon gas and metallic salts; the bulb is under high pressure, so there is a risk of it shattering.

Do NOT use any bulbs that have fallen on the ground or have scratches on their surface, as there is a risk of them shattering.

Make sure that the bulb is seated correctly in its holder in the light.

If a xenon (HID) bulb ever bursts inside a closed space (e.g. workshop), leave the area, making sure it is well ventilated, and wait for 20 minutes before returning. This will eliminate the risk to health caused by gases.

Check the light for signs of damage and make sure the seals are seated correctly.

IMPORTANT:
Use only bulbs that are of the same type, same voltage and same wattage as the bulb that is being replaced.

IMPORTANT:
Never touch the glass surface of the xenon bulb, hold it only by its base.

IMPORTANT:
Use a clean cloth and alcohol to remove any fingerprints from the glass bulb.

IMPORTANT:
Old xenon (HID) bulbs that have been replaced must be disposed of properly (i.e. as hazardous waste).

LX25458,000283C-19-20200830

Section 10 - General Information

Contents

Specifications - Summary of References

- Engine Serial Number
- Transmission Serial Number
- Front-Wheel Drive Serial Number
- Operator's Cab Serial Number
- Operator's Seat Serial Number
- Subassembly Serial Numbers

LX25458,0006B0E-19-20210928

Engine Specifications

Engine type		**6R 110**	**6R 120**	**6R 130**	**6R 140**	**6R 150**
- Final Tier 4/Stage V.....		4045HL555	4045HL555	4045HL555	4045HL557	4045HL557
Type	Two-stage turbocharger, air-to-air charge air cooling, and cooled exhaust gas recirculation					
Engine power according to UN EC E-R120						
- Engine power at 2100 rpm (standard).....	kW	81	88	96	103	110
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	110	120	130	140	150
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	108	118	128	138	148
- Maximum engine power at 1900 rpm (standard).....	kW	89	97	105	113	121
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	121	132	143	154	165
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	119	130	141	152	163
- Intelligent Power Management at 2100 rpm (power boost).....	kW	96	103	110	118	125
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	130	140	150	160	170
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	128	138	148	158	168
Maximum torque at 1600 rpm						
- Standard.....	N·m	515	562	609	656	702
	lb·ft	380	414	449	483	518
- Intelligent Power Management (power boost).....	N·m	543	585	627	669	711
	lb·ft	401	432	463	493	524
Number of cylinders		4	4	4	4	4
Displacement	Liter	4.5	4.5	4.5	4.5	4.5
	cm^3	4530	4530	4530	4530	4530
	in^3	276	276	276	276	276
Low idle	rpm			850		
Rated engine speed	rpm			2100		
Constant power range	rpm			1500 - 2100		
- Rear PTO, 1000/540 rpm						
• 1000.....	rpm			1962		
• 540.....	rpm			1987		
- Rear PTO, 1000/540/540E rpm						
• 1000.....	rpm			1962		
• 540.....	rpm			1967		
• 540E.....	rpm			1496		
- Rear PTO, 1000/1000E/540E rpm						
• 1000.....	rpm			1967		
• 1000E.....	rpm			1655		
• 540E.....	rpm			1565		
- Front PTO, 1000 rpm	rpm			1969		

PD80539,0000BA3-19-20211124

PTO Power Output

NOTE:
Some tractor models and/or options listed in this section are not available in all regions/markets

Maximum rear PTO output		**6R 110**	**6R 120**	**6R 130**	**6R 140**	**6R 150**
Rear PTO	1000/540/540E					
At engine rated speed (John Deere measurement according to OECD Code 2 with 1000 PTO)						
- Standard.....	kW	62	68	75	82	89
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	84	92	102	111	121
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	83	91	101	110	119
- Intelligent Power Management (power boost).....	kW	75	82	88	95	102
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	102	111	120	129	139
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	101	110	118	127	137
At PTO standard speed (John Deere measurement according to OECD Code 2 with 1000 PTO)						
- Standard.....	kW	69	76	83	92	99
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	94	103	113	125	135
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	93	102	111	123	133
- Intelligent Power Management (power boost).....	kW	80	87	93	101	108
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	109	118	126	137	147
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	107	117	125	135	145
Maximum front PTO power is limited to	kW	80	80	80	80	80
	PS [Conversion factor: 1 kW corresponds to 1.35962 PS (metric system)]	109	109	109	109	109
	hp [Conversion factor: 1 kW corresponds to 1.34102 hp (U.S.A.)]	107	107	107	107	107

NOTE: The specified rear PTO power has been measured on tractors with the following transmission option and additional equipment:

- AutoPowr™/IVT™ transmission
- 45 cm³ hydraulic pump, PFC system
- Without air brake system
- Without front PTO
- Without rear PTO with 1000E option
- Air Conditioning system off

Rear PTO power may vary depending on the various transmission options and additional equipment.

PD80539,0000BA4-19-20210928

Fluid Capacities

NOTE:
Some options are not available in every region/market.

Capacities According to Tractor Equipment	**L**	**US gal**
Fuel Tank		
- Option.....	199	52.6
- Option.....	225	59.4
DEF Tank.....	14	3.6
Cooling System (engine cooling and cab heating).....	22	5.8
Engine Crankcase.....	16	4.2
Transmission/Hydraulic System, Oil Change		
- AutoQuad™ PLUS Transmission.....	53	14.0
- CommandQuad™ PLUS Transmission.....	53	14.0
- AutoPowr™ Transmission.....	60.0	15.9
- Extra with creeper or 24/24 speed transmission.....	1.0	0.3
- Extra with front-wheel drive.....	3.0	0.8
- Extra with additional oil reservoir.....	17	4.5
Front PTO.....	2.6	0.7

Front-Wheel Drive Axle	**L**	**US gal**	**L**	**US gal**
- Three-piece front axle, type.....		730		736
- Axle housing (axle without suspension).....	5.4	1.4	6.0	1.6
- Axle housing (suspended axle).....	6.0	1.6	6.0	1.6
- Final drive per side (without brake).....	0.8	0.2	0.8	0.2
- Final drive per side (with brake).....	1.5	0.4	1.5	0.4

Air Conditioning System	**g**	**lb**
R-134a refrigerant.....	1225-1275	2.70-2.81

IMPORTANT:
Always observe the fill level indicator when changing the oil.

PD80539,0000BA7-19-20210928

Air Intake System

Air filter.....dry-type air cleaner, self-cleaned by pressure from the fan blade; with safety element

LX25458,0006B12-19-20201117

Electrical System

Battery According to Tractor Equipment.....	12 volts, 174 Ah
Alternator According to Tractor Equipment with Overvoltage Protection.....	250 A at 13.5 to 15.5 V*
Starter Motor.....	12 V, 3.8 kW (5.2 hp)
Ground Connection.....	Negative

*Generator voltage, depending on temperature

PD80539,0000BA8-19-20211005

Hydraulic System with Axial Piston Pump (PFC System)

NOTE:
Some options are not available in every region/market.

PFC system - closed system with low standby pressure and load-sensing control	**cm³**	**in³**
Axial Piston Pump		
- Option.....	45	2.75
- Option.....	60 [Not with 6R 110 and 6R 120]	3.66 [Not with 6R 110 and 6R 120]

Delivery Rate per Minute at Rated Speed	**L**	**US gal**
- 45 cm³ pump.....	114	30.1
- 60 cm³ pump [Not with 6R 110 and 6R 120]	155	40.9

System Pressure:	**kPa**	**bar**	**psi**
- minimum (standby).....	4100	41	590
- maximum.....	20500	205	2970

Steering..... hydrostatic

Selective Control Valves (SCVs)
- Series..... 450 [Not with 6R 150]
- Series..... 450 (el.)

PD80539,0000BA6-19-20211005

AutoTrac™

Type.....satellite-supported steering system

Control.....electro-hydraulic

LX25458,0006B15-19-20201117

Clutch Operation

Design.....hydraulically controlled wet clutch
Operation.....electrical, mechanical — hydraulic

LX25458,0006B16-19-20201117