Tractors 6230R and 6250R (MY17-) Repair

REPAIR TECHNICAL MANUAL

Tractors 6230R and 6250R (MY17-)

TM409819 01MAR21 (ENGLISCH)

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

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 your machine or in this manual, be alert to potential for personal injury.

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

Information is organized in groups for the various components requiring service instructions. At the beginning of each group are summary listings of all applicable special 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 -19-28OCT09-1/1

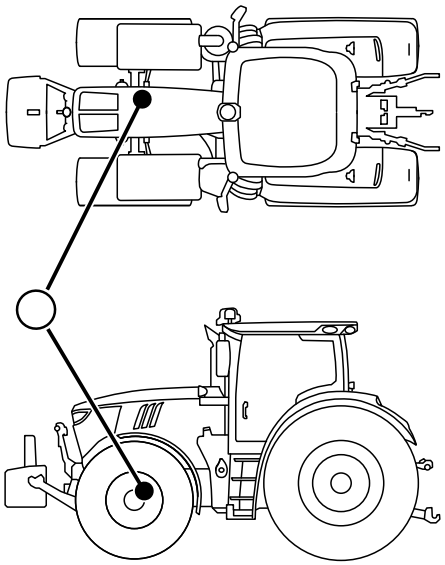
Information on the Structure and Composition of the Tractor Serial Number

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**).



LX365749 —UN—08NOV18

Location of the type plate with the tractor serial number

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.

LX234687 —UN—21APR15

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

Table 1.0: Serial number structure

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

Table 1.1: Composition of the serial number

Continued on next page

CK69047,00014B8 -19-21JAN21-1/3

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

Table 1.2: Plant identification code: digits 1—3

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.

Table 1.3: Price/performance index: digit 8

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	NO	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

Table 1.4: Identification of the year of production: digit 10

Continued on next page

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
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

Table 1.5: Identification of transmission type: digit 11

CK69047,00014B8 -19-21JAN21-3/3

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 (MY17-)

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

Table 1.0: Serial number structure

Year of production							
Year	**Index**	**Year**	**Index**	**Year**	**Index**	**Year**	**Index**
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2009	9	2019	K	2029	X	2039	9
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2012	C	2022	NO	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

Table 1.4: Identification of the year of production: Position 10

CK69047,00014B7 -19-22JAN21-1/1

Model Year Overview (MY17-)

Model Year Overview (MY17-)

The contents of the publications are valid for the following MY models: MY17, MY18, MY19, MY20 and MY21.

MY info	Start of production	End of production	Improvement programs	Serial number information	MY distinguishing features
MY17	June 2017 with production start of the programs	End of September 2017	-	-	-
MY18	October 2017 with CIU end of 2017	End of September 2018	CIU end of 2017 (October 2017)	-	Tractors with marker light (European tractor versions)
			CIU middle of the year 2018 (April 2018)		
MY19	October 2018 with CIU end of 2018	End of September 2019	CIU end of the year 2018 (October 2018)	From tractor serial no. 1L0xxxxxxxx924527	-
			CIU middle of the year 2019 (April 2019)	From tractor serial no. 1L0xxxxxxxx937676	
MY20	October 2019 with CIU end of 2019	End of September 2020	CIU end of the year 2019 (October 2019)	From tractor serial no. 1L0xxxxxxxx947641	-
			CIU middle of the year 2020 (April 2020)	From tractor serial no. 1L0xxxxxxxx965000	-
MY21	October 2020 with CIU end of 2020	End of September 2021	CIU end of the year 2020 (October 2020)	From tractor serial no. 1L0xxxxxxxx977139	-
			CIU middle of the year 2021 (April 2021)	From tractor serial no. 1L0xxxxxxxXXXXXX	-

A—Marker Light on European Tractors

LX333670 —UN—26SEP18

MY18 Distinguishing Feature (Marker Light)

LX25458,00003FE -19-26FEB21-1/1

Information About the Introduction and Content of the CIU Improvement Program of the Year 2017

Information about the introduction and content of the CIU improvement program of the year 2017

The following changes were introduced with the CIU improvement program at the end of 2017:

NOTE: Tractors **MY17** *6230R and 6250R, built in Mannheim (L0) from September 2017.*

- Software update package CIU END 17 (PSI41)
- New standard radio and premium radio MY18 edition.
- Conversion of the Ethernet network distributor (A159) and new Ethernet network cables.
- Telematics (JDLink™ / Service ADVISOR™ Remote) switched from 3G to 4G wireless standard.
- Air compressor without electric compressor clutch (Y5005).

LX25458,0000400 -19-13SEP19-1/1

Information About the Introduction and Contents of the CIU Improvement Programs of the Year 2018

Information about the introduction and contents of the CIU improvement programs of the year 2018

The following changes have been introduced with the CIU improvement program in the middle of 2018:

NOTE: Tractors ***MY18*** *6230R and 6250R, built in Mannheim (L0) from the end of April 2018.*

- Software update package CIU MID 18 (PSI44)

The following changes were introduced with the CIU improvement program at the end of 2018:

NOTE: Tractors ***MY19*** *6230R and 6250R, built in Mannheim (L0) from the end of September 2018, from tractor serial number 1L0xxxxxxxx9244527.*

- Software update package CIU END 18 (PSI47)
- Engine certification of emissions level Final Tier 4 and stage 5
- Ball-type hitch (K80) with attached arms for forced steering (K50)
- Ball-type hitch, static vertical load 4000 kg
- Glued windshield
- Automatic turn-signal return
- Digital radio preparation (including antenna) (only available for EU28+)
- Trailer hitch CUNA - 9-position - type D3, 50 mm pin (only as retrofit / only for Italy and Spain)
- Rearview mirror electrically adjustable and manually telescopic
- 8.4 inch 4200 CommandCenter™ display
- 10 inch 4600 CommandCenter™ display
- Marker light on both sides (only available for EU28+)

LX25458,00003FF -19-13SEP19-1/1

Information About the Introduction and Contents of the CIU Improvement Programs of the Year 2019

Information about the introduction and contents of the CIU improvement programs of the year 2019

The following changes have been introduced with the CIU improvement program in the middle of 2019:

Tractors **MY19** 6230R and 6250R, built in Mannheim (1L0) from end of April 2019, from serial number 1L0xxxxxxxx937676.

- Software update package CIU MID 19 (PSI50)
- In-line DEF filter with corresponding system adjustments
- DEF tank, screen on filler neck
- Coated windshield (only for Japan)
- Hood guard without front hitch (for tractor version North America and Canada)
- E-SCV 450 (revised)
- Tractor version for North America and Canada with SAE electrics
- Optional without front hitch with front chassis control unit (M50)
- Front PTO, version for North America and Canada
- Rear PTO (540/540E/1000 or 540E/1000/1000E for North America and Canada

The following changes were introduced with the CIU improvement program at the end of 2019:

Tractors **MY20** 6230R and 6250R, built in Mannheim (1L0) from end of September 2019, from serial number 1L0xxxxxxxx947641.

- Software update package CIU END 19 (PSI53)
- PTO automatic shut-off function for North America, New Zealand, and Australia
- StarFire™ Receiver SF6000 HA (RED) compliant, for European tractors
- Hydraulic pump (variable displacement pump with pivot angle sensor)
- Front hitch, shutoff valve with float function
- USB charging sockets
- Long adjustment axle (118,5 in., 3010 mm) for North America and Canada
- Fuel tank that encompasses the rear axle 470 L (124.2 US gal.)
- Extra-wide vehicle lighting (hazard warning light)
- Tread width limitation for North America, New Zealand, and Australia

LX25458,0000401 -19-23SEP19-1/1

Information About the Introduction and Contents of the CIU Improvement Programs of the Year 2020

Information about the introduction and contents of the CIU improvement programs of the year 2020

The following changes have been introduced with the CIU improvement program in the middle of 2020:

6R FT4 tractors, built in Mannheim (1L0) from April 2020, **from serial number 1L0xxxxxxxx964999**

6R FT4 tractors for Region 4 (tractor models 6145R — 6215R), built in Mannheim (1L0) **from serial number 1L0xxxxxxxx948138**

- Software update package CIU MID 20 (PSI57)
- Coated windshield (optional; all regions)
- External compressed-air coupler (optionally available)
- DirectDrive transmission (50 km/h; 31 mph) optionally available for Region 4 (tractor models 6145R — 6215R)
- Backup alarm (optional; all regions)
- Tractor Implement Management (TIM)
- Three-Piece Front Axle (Version 2)
- Transport position for draft links

The following changes have been introduced with the CIU improvement program at the end of 2020:

6R FT4 tractors, built in Mannheim (1L0) from October 2020, **from serial number 1L0xxxxxxxx977139**

- Software update package CIU END 20 (PSI61)
- Hydraulic pump (60cc, PFC) for tractors 6175M and 6195M
- DEF tank header assembly (generation 3)
- Change from O-ring to D-ring design for hydraulic valves
- New coating on reversible PTO shaft (Region 4) (new lubricant required)

LX25458,000042E -19-20OCT20-1/1

Information About the Introduction and Contents of the CIU Improvement Programs of the Year 2021

Information about the introduction and contents of the CIU improvement programs of the year 2021

The following changes have been introduced with the CIU improvement program in the middle of 2021:

6R FT4 tractors built in Mannheim (1L0) from April 2021, **from serial number 1L0xxxxxxMxXXXXXX**

- Tank cover with integrated tank vent filter for the tractor models 6230R and 6250R
- New sensor for the AutoPowr™/IVT™ sensor unit for speed control lever
- New grease for the rear PTO shaft

CK69047,00014FA -19-18FEB21-1/1

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Continued on next page

Original Instructions. 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.

Section 05
Safety

Contents

General Information - Safety - Summary of References

PD80539,0000820 -19-25SEP19-1/1

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—28JUN13

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

Understand Signal Words

TS187 —19—30SEP88

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

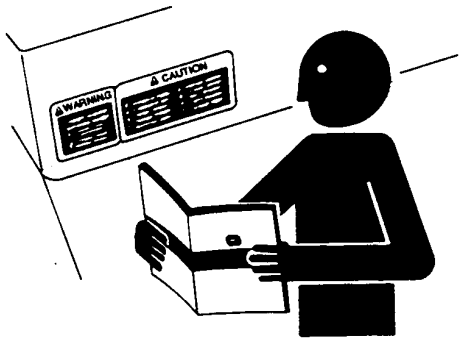
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

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.

DX,SIGNAL -19-05OCT16-1/1

Follow Safety Instructions



TS201 —UN—15APR13

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.

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

DX,READ -19-16JUN09-1/1

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

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 -19-08MAY19-1/1

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.

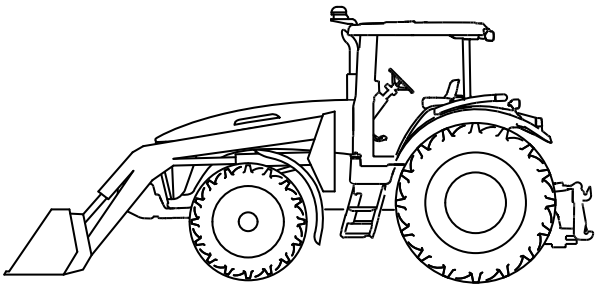
Never allow anyone to walk or work under a raised loader.

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.

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).



TS1692 —UN—09NOV09

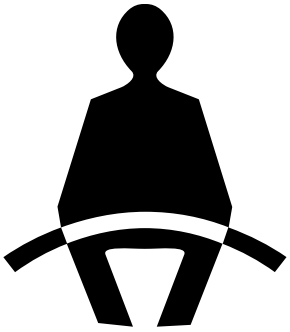
Ballast tractor in accordance to Ballast Recommendations in PREPARE TRACTOR section.

DX,WW,LOADER -19-18SEP12-1/1

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.



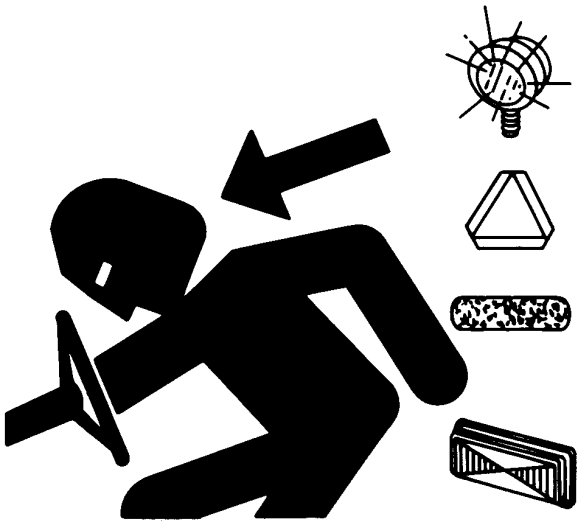
TS1730 —UN—24MAY13

DX,SEAT,EU -19-28FEB17-1/1

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—12APR90

DX,FLASH -19-07JUL99-1/1

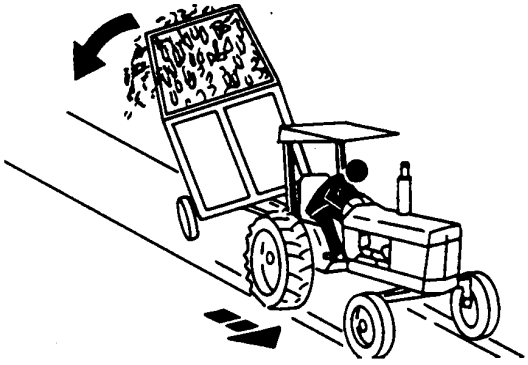
Towing Trailers/Implements Safely

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—23AUG88

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 -19-28FEB17-1/1

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.

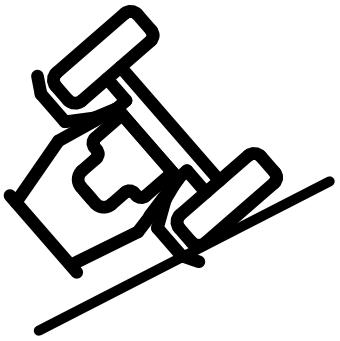
Danger of overturn increases greatly with narrow tread setting, at high speed.

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.

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



RXA0103437 —UN—01JUL09

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 -19-28FEB17-1/1

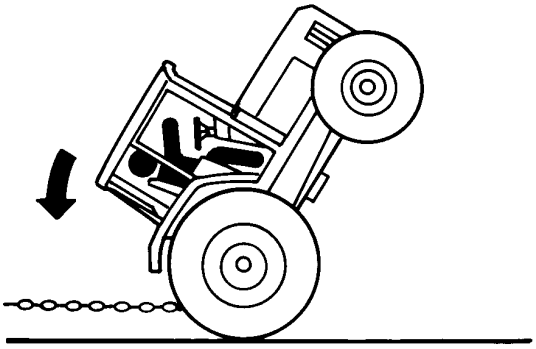
Freeing a Mired Machine

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—15SEP95

TS263 —UN—23AUG88

DX,MIRED -19-07JUL99-1/1

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—15APR13

DX,AVOID,BACKOVER,ACCIDENTS -19-30AUG10-1/1

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—15APR13

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

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.

If acid is spilled on skin or in eyes:

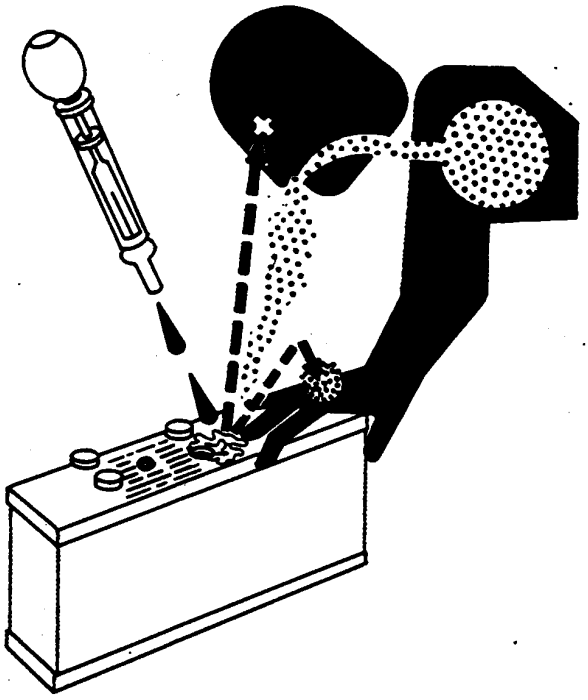
1. Flush skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush eyes with water for 15—30 minutes. Get medical attention immediately.

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.**

TS204 —UN—15APR13



TS203 —UN—23AUG88

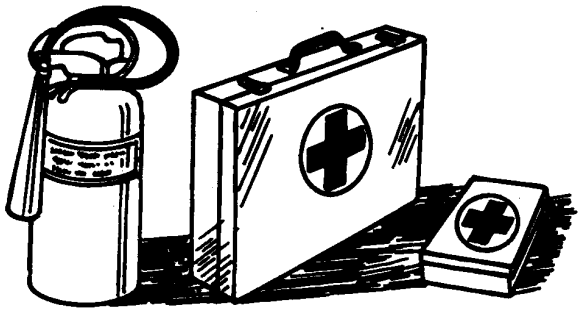
DX,WW,BATTERIES -19-02DEC10-1/1

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—15APR13

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

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.

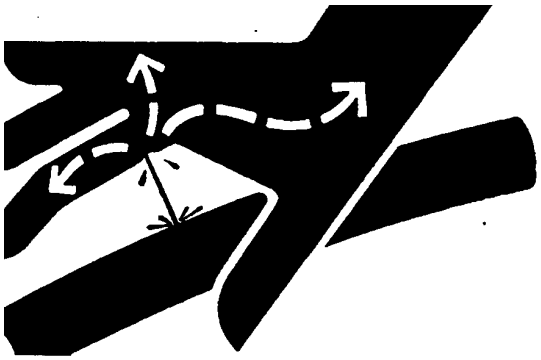
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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.

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.



X9811 —UN—23AUG88

DX,FLUID -19-12OCT11-1/1

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—15APR13

DX,WW,COOLING -19-19AUG09-1/1

Remove Paint Before Welding or Heating

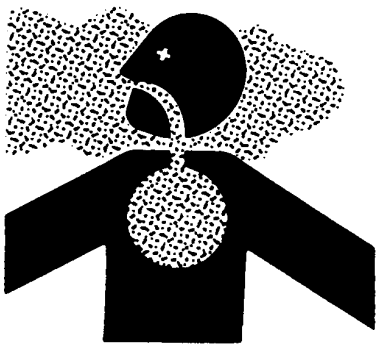
Avoid potentially toxic fumes and dust.

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.



TS220 —UN—15APR13

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 -19-24JUL02-1/1

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 accidentally burst when heat goes beyond the immediate flame area.

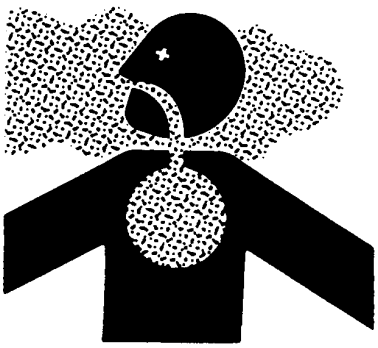
TS953 —UN—15MAY90

DX,TORCH -19-10DEC04-1/1

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—15APR13

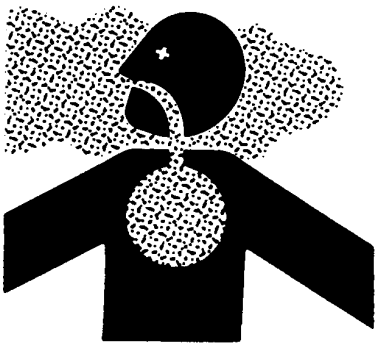
DX,AIR -19-17FEB99-1/1

Avoid Contact with Agricultural Chemicals

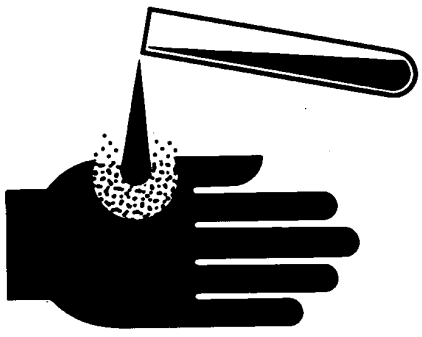
This enclosed cab does not protect against inhaling vapor, aerosol or dust. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

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—15APR13



TS272 —UN—23AUG88

DX,CABS -19-25MAR09-1/1

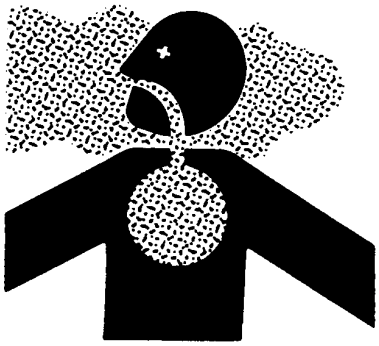
Handle Agricultural Chemicals Safely

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:

- 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.



TS220 —UN—15APR13

A34471

A34471 —UN—11OCT88

- 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 -19-24AUG10-1/1

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.

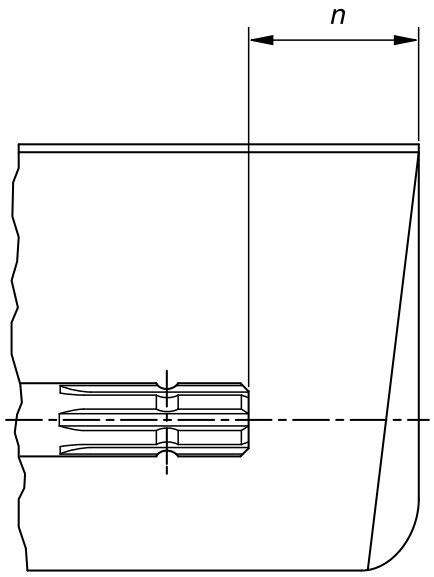
Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

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.

TS1644 —UN—22AUG95



H96219 —UN—29APR10

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.)

DX,PTO -19-28FEB17-1/1

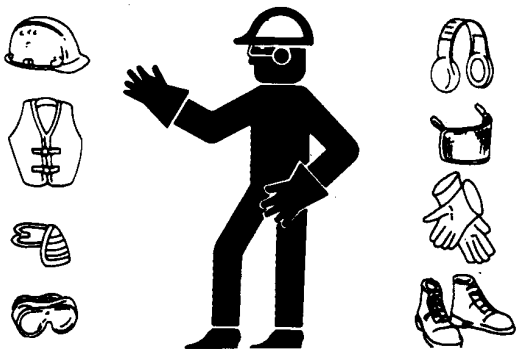
Wear Protective Clothing

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—15APR13

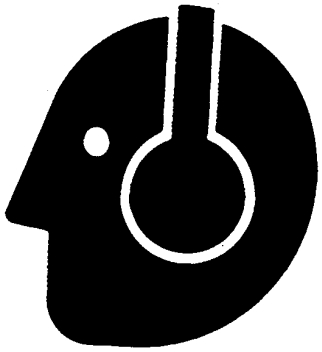
DX,WEAR -19-10SEP90-1/1

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—23AUG88

DX,NOISE -19-03OCT17-1/1

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 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.

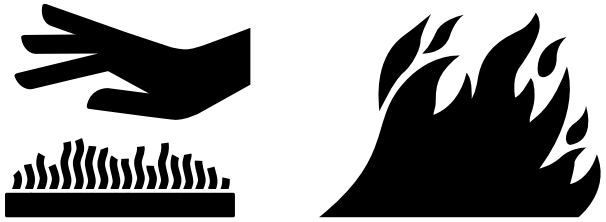
TS218 —UN—23AUG88

DX,SERV -19-28FEB17-1/1

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.



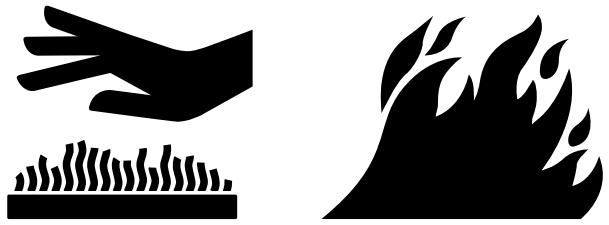
RG17488 —UN—21AUG09

DX,EXHAUST -19-20AUG09-1/1

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—21AUG09

DX,FILTER -19-20JAN10-1/1

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.

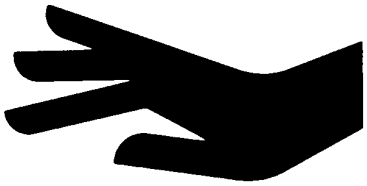
If service procedure requires engine to be running:

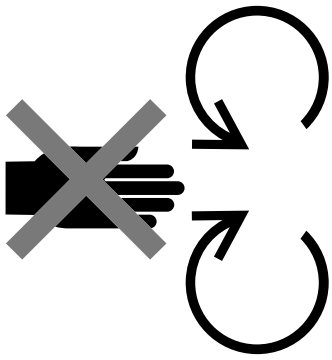
- Only engage power-driven parts required by service procedure
- Ensure that other people are clear of operator station and machine

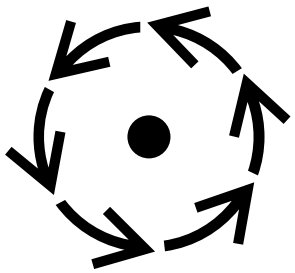
Keep hands, feet, and clothing away from power-driven parts.

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—15APR13

TS271 —UN—23AUG88

TS1693 —UN—09DEC09

TS1695 —UN—07DEC09

DX,EXHAUST,FILTER -19-12JAN11-1/1

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.

GreenStar is a trademark of Deere & Company

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.

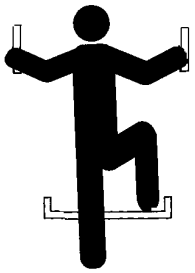
NOTE: ISOBUS refers to the ISO Standard 11783

DX,WW,ISOBUS -19-15JUL15-1/1

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—15APR13

DX,WW,MOUNT -19-12OCT11-1/1

Use Seat Belt Properly

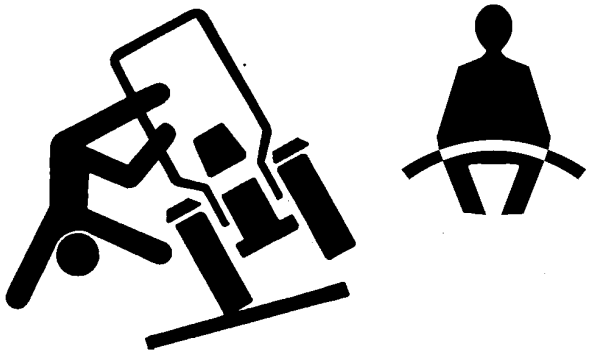
Avoid crushing injury or death during rollover.

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.



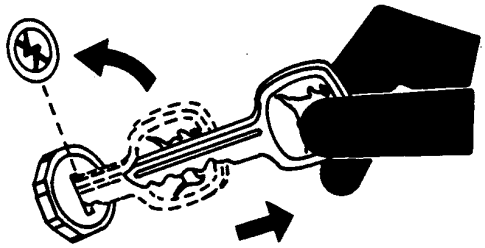
TS1729 —UN—24MAY13

DX,ROPS1 -19-22AUG13-1/1

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.



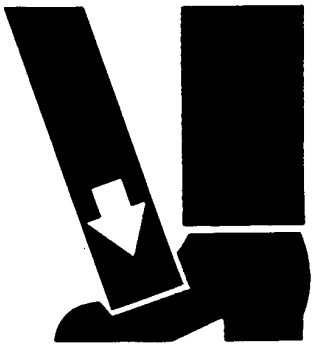
TS230 —UN—24MAY89

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

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.



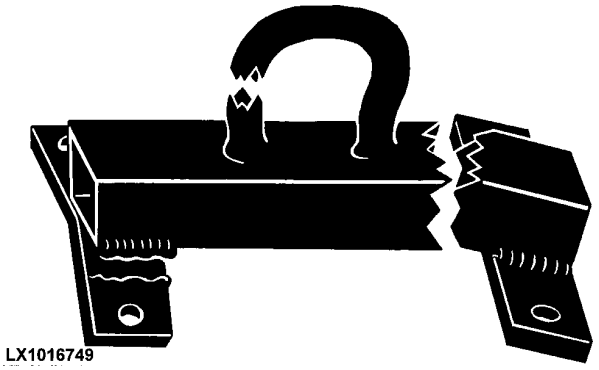
TS226 —UN—23AUG88

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

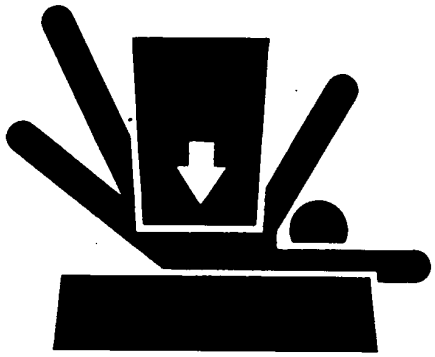
DX,SAFE,TOOLS -19-10OCT97-1/1

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.



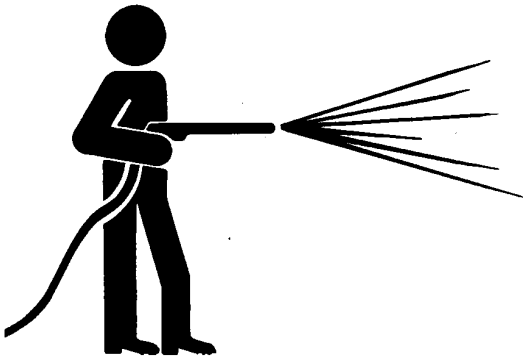
TS229 —UN—23AUG88

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.

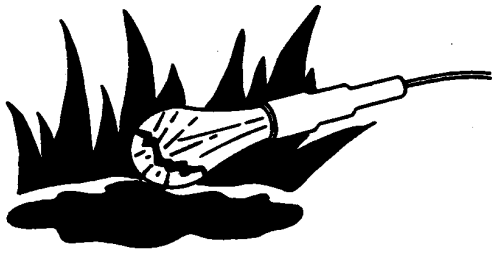


T6642EJ —UN—18OCT88

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.



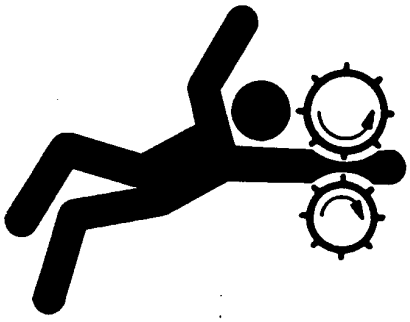
TS223 —UN—23AUG88

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

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—15APR13

DX,WW,ACCLA2 -19-22AUG03-1/1

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.

RXA0103438 —UN—11JUN09

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.

DX,WW,RIMS -19-28FEB17-1/1

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.

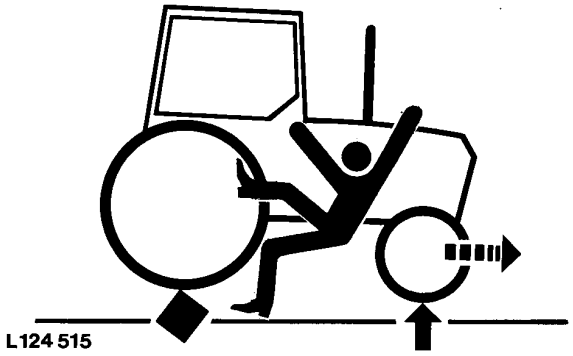
Use only service parts meeting John Deere specifications.

TS779 —UN—08NOV89

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

Service 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.

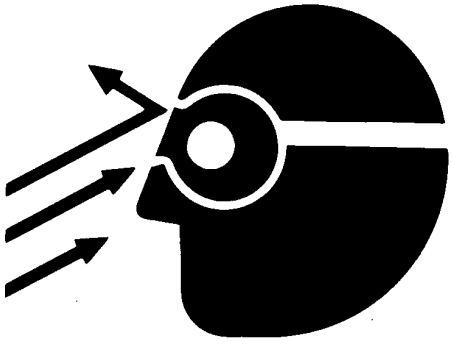


L124515 —UN—06AUG94

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

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

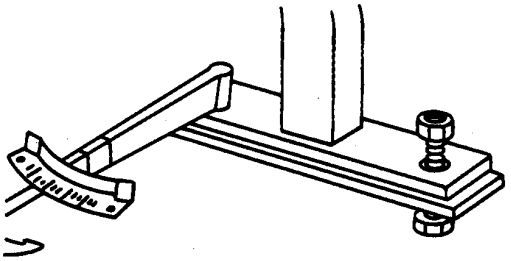
Keep ROPS Installed Properly

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.

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.

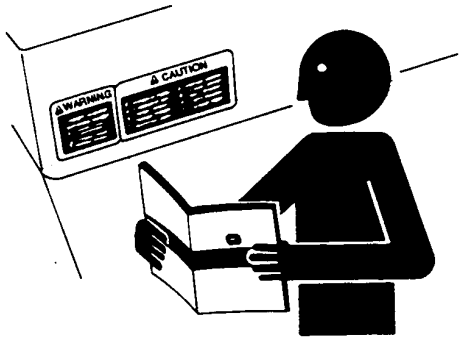


TS212 —UN—23AUG88

DX,ROPS3 -19-12OCT11-1/1

Replace Safety Signs

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



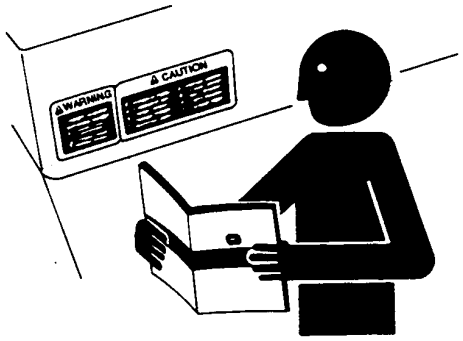
TS201 —UN—15APR13

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

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—15APR13

DX,SIGNS -19-18AUG09-1/1

Dispose of Waste Properly

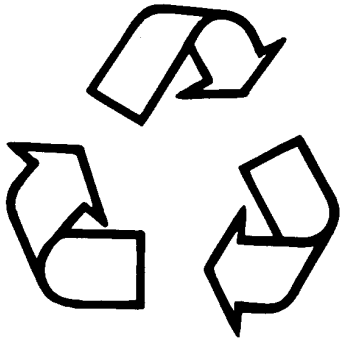
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



TS1133 —UN—15APR13

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

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—07OCT88

DX,LIVE -19-25SEP92-1/1

Safety Measures on Electronic Control Units

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

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

CAUTION: 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.

LX25599,0000243 -19-28JAN19-1/1

Servicing Electronic Control Units

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

1. 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.

IMPORTANT: If an electronic control unit is not programmed identical to the original control unit, misleading diagnostic messages and poor performance will occur.

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

DX,WW,ECU01 -19-02OCT15-1/1

Welding Near Electronic Control Units

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

1. 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.

TS953 —UN—15MAY90

6. After welding, reverse Steps 1—5.

DX,WW,ECU02 -19-14AUG09-1/1

Keep Electronic Control Unit Connectors Clean

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.

1. 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.

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.

2. 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 -19-11JUN09-1/1

Safety Instructions for Replacing a Halogen Bulb

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

CAUTION: Always switch the lights off before you change a bulb.

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

CAUTION: Wear safety goggles and gloves when changing the bulb.

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

CAUTION: 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.

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

CAUTION: 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).

LX25599,0000288 -19-23NOV07-1/1

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:

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

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

CAUTION: 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).

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

CAUTION: Wear safety goggles and gloves when changing the bulb.

CAUTION: 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.

CAUTION: 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.

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

CAUTION: 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.

CAUTION: 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).

LX23006,00004F0 -19-15FEB07-1/1

Section 10
General Information

Contents

Continued on next page

Specifications - Summary of References

LX25458,0000104 -19-14OCT20-1/1

Engine Specifications

Type
6230R - 6250R ..... Two Turbochargers Connected in Series (First Stage: with Fixed Geometry, Second Stage: with Variable Geometry), Air-to-Air Charge Air Cooling, and Cooled Exhaust Gas Recirculation

Number of cylinders
6230R - 6250R 6

Bore ..... 106,5 mm (4.19 in.)

Stroke ..... 127 mm (5.00 in.)

Displacement
6230R - 6250R ..... 6,8 L (414 cu.in.)

Firing Order 1-5-3-6-2-4

Compression Ratio .....
6230R - 6250R 17,0:1

Valve clearance (engine hot or cold)
- Intake ..... ,48 mm (0.0189 in.)
- Exhaust ..... ,53 mm (0.021 in.)

Thermostat
- Opening temperature ..... 83,5 °C (182.3 °F)
- Closing temperature (open) ..... 86,5 °C (187.7 °F)

Low Idle
- Speed ..... 845—855 rpm

High Idle
- Speed ..... 2235—2265 rpm

Rated Engine Speed ..... 2100 rpm

Working Speed Range ..... 1600—2100 rpm

Engine power according to 97/68/EC at rated speed
Standard
- 6230R ..... 169 kW (230 hp)
- 6250R ..... 184 kW (250 hp)

Maximum Engine Power at 1900 rpm
Standard
- 6230R ..... 186 kW (253 hp)
- 6250R ..... 202 kW (275 hp)

Intelligent Power Management (power boost) at 2100 rpm
- 6230R ..... 199 kW (270 hp)
- 6250R ..... 213 kW (290 hp)

Intelligent Power Management (power boost) at 1900 rpm
- 6230R ..... 206 kW (280 hp)
- 6250R ..... 221 kW (300 hp)

Maximum torque at 1600 rpm
Standard
- 6230R ..... 1074 N·m (792 lb.-ft.)
- 6250R ..... 1167 N·m (860 lb.-ft.)

Intelligent Power Management (power boost)
- 6230R ..... 1130 N·m (833 lb.-ft.)
- 6250R ..... 1214 N·m (895 lb.-ft.)

LX25458,0000105 -19-10OCT16-1/1

PTO Power Output

Maximum rear PTO output	6230R		6250R	
Rear PTO	**1000/540/540E rpm**	**1000/1000E/540E rpm**	**1000/540/540E rpm**	**1000/1000E/540E rpm**
At engine rated speed (factory measured, with 1000 rpm at PTO)				
- Standard	136 kW (185 PS)[a]	132 kW (179 PS)[a]	149 kW (203 PS)[a]	145 kW (197 PS)[a]
- Intelligent Power Management (power boost)	163 kW (222 PS)[a]	158 kW (215 PS)[a]	176 kW (240 PS)[a]	171 kW (233 PS)[a]
At rated PTO speed (factory measured, with 1000 rpm at PTO)				
- Standard	152 kW (206 PS)[a]	142 kW (193 PS)[a]	166 kW (226 PS)[a]	155 kW (211 PS)[a]
- Intelligent Power Management (power boost)	172 kW (233 PS)[a]	164 kW (223 PS)[a]	186 kW (253 PS)[a]	177 kW (241 PS)[a]
At rated PTO speed (factory measured, with 1000 rpm at PTO)				
- Standard	—	156 kW (212 PS)[a]	—	171 kW (233 PS)[a]
- Intelligent Power Management (power boost)	—	168 kW (229 PS)[a]	—	182 kW (247 PS)[a]
Max. front PTO power is limited to	115 kW 156 PS[a]		115 kW 156 PS[a]	

[a] *Conversion factor: 1 kW corresponds to 1,35962 PS (metric system)*

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

- *AutoPowr™/IVT™ Transmission*
- *85 cm³ hydraulic pump, PFC system*
- *Without air brake system*
- *Without front PTO*
- *Air-conditioning system off*

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

LX25458,0000106 -19-10OCT16-1/1

Fluid Capacities

Fuel tank	
Standard	410 L (108.3 U.S.gal.)
optional	470 L (124.2 U.S.gal.)
DEF Tank	25 L (6,6 US.gal.)
Cooling system	
- Coolant change (tractors with cab and charge air cooler)	29,4 L (7.8 US gal.)
Engine crankcase	
- Oil Change with Filter	23,5 L (6.2 US gal.)
- Oil change without filter	22,5 L (5.9 US gal.)
Transmission/Hydraulic System (with filter)	
- with AutoPowr™ transmission incl. additional oil reservoir	160 L (42.3 US gal.)
Front PTO	3 L (0.79 U.S.gal.)
Front-Wheel Drive	
- Three-piece front axle, type 755 (M60HD)	
Axle Housing (suspended axle)	11,8 L (3.12 US.gal.)
Axle housing (suspended axle with brake)	11,8 L (3.12 US.gal.)
- Final drive per side (with brake)	2,3 L (0.61 US.gal.)
Air-conditioning system	
R134a refrigerant	1225—1275 g (2.70—2.81 lb.)
Oil volume (PAG oil)	220 ml (7.44 fl. oz.)

LX25458,0000107 -19-10OCT16-1/1

Air Intake System

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

LX25458,000086D -19-23JUN10-1/1

Electrical System

Battery	2 x 12 V, 95 Ah
Alternator with overvoltage protection	13.5—15.5 V[a], 240 A
Starter Motor	12 V, 3,0 kW (4,0 hp)
Ground Connection	negative

[a] *Generator voltage, depending on temperature*

LX25458,0000132 -19-10OCT16-1/1

Hydraulic System with Axial Piston Pump (PFC System)

Type	closed-center system with Load-Sensing control
Pump displacement	85 cm^3 (5.19 cu.in.)
Flow	160 L/min. (42.3 US gal./min.)
System pressure:	
min. (standby)	4100 kPa (41 bar) (590 psi)
max.	20500 kPa (205 bar) (2970 psi)
Pump type	Axial piston pump with pressure-and-flow regulator

LX25458,0000130 -19-10OCT16-1/1

AutoTrac™

Type	satellite-supported steering system
Control	electro-hydraulic

LX25458,000086E -19-09JUN11-1/1

Clutch Operation

Design	hydraulically controlled wet clutch
Operation	electrical, mechanical — hydraulic

LX25458,000086F -19-23JUN10-1/1

AutoPowr™/IVT™ Transmission

Type	Infinitely variable mechanical/hydraulic transmission
Speed range forwards or backwards	0.03 km/h (0.02 mph) — 35 km/h (22 mph)[a]
Speed range forwards or backwards	0.03 km/h (0.02 mph) — 40 km/h (25 mph)
Speed range forwards or backwards	0.03 km/h (0.02 mph) — 50 km/h (31 mph)
Actuation of Reverse Drive Lever	Electrical, under load, without operating clutch
Shifting the speed control lever	infinitely variable increase or reduction in speed without interrupting flow of power and without engaging clutch

[a] *For Japan only: Maximum speed limited to 35 km/h (21 mph)*

LX25458,0000131 -19-10OCT16-1/1

Rear PTO

Type	independent, engaging/disengaging under load
Engine speed for PTO operation	
- 540 rpm rear PTO	1932—2037 rpm
- 540E rpm rear PTO	1575—1785 rpm
- 1000 rpm rear PTO	1932—2037 rpm
- 1000E rpm rear PTO	1575—1785 rpm

LX25458,0000874 -19-18FEB11-1/1

Front PTO

Type	Engaging/disengaging under load
Engine speed for PTO operation	
- Front PTO 1000 rpm in direction of forward travel, clockwise rotating (6 splines)	1995 rpm

LX25458,0000875 -19-20DEC11-1/1

Differential

Type	helical bevel gear drive

LX25458,0000876 -19-23JUN10-1/1

Differential Lock

Actuation	electrical/hydraulic, pedal-operated
Disengaging	electrical/hydraulic, after traction has equalized

LX25458,0000877 -19-23JUN10-1/1

Final Drives

Type	planetary reduction gear

LX25458,0000878 -19-23JUN10-1/1

Front-Wheel Drive

Type	operated under load, hydraulically controlled drive with wet disk clutch
Controller	solenoid valve, electrical-hydraulic
Drive engagement	with pre-tensioned Belleville springs
Drive disengagement	hydraulic

LX25458,0000879 -19-23JUN10-1/1

FWD Axle with TLS

Type	active spring system with leveling control
Control	electro/hydro/pneumatic

LX25458,000087A -19-23JUN10-1/1

Cab Suspension

Type	active spring system with leveling control
Control	electro/hydro/pneumatic

LX25458,000087B -19-23JUN10-1/1

Hydraulic Brakes

Type	self-adjusting, hydraulically operated wet disk brakes, individually acting in field operation

LX25458,000087C -19-23JUN10-1/1

Auxiliary Brake

Type	mechanically operated, hydraulically acting on rear brake

LX25458,000087D -19-09JUN11-1/1

Park Lock

Type	mechanically operated locking pawl, acting on front wheel drive gear

LX25458,000087E -19-23JUN10-1/1

Hitch

Type	three-point hitch with two external lift cylinders, activated via stepper motor and hitch valve
Control types	load, depth and mixed control, float position
Control	electronic-hydraulic draft link control, draft sensor or position sensor (actual value), control unit (set-point values), Electronic control unit (coordinator)

LX25458,0000880 -19-23JUN10-1/1

Immobilizer

Immobilizer	see immobilizer in Operator's cab — operator's cab, summary of references, Section 90. See Operator's Manual

LX25458,00008FC -19-21FEB11-1/1

Front Hitch

Front hitch	controlled via selective control valve

LX25458,0000881 -19-23JUN10-1/1

Ground Travel Speeds

Ground speed	see Operator's Manual

LX25458,0000882 -19-23JUN10-1/1

Front and Rear Wheels

Tires, wheel treads, tire pressure and ballast	see Operator's Manual

LX25458,0000883 -19-23JUN10-1/1

Dimensions and Weights

Dimensions and weights	see Operator's Manual

LX25458,0000884 -19-23JUN10-1/1

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590, ASTM D975, or EN 15940 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

In all cases, the fuel shall meet the following properties:

Cetane number of 40 minimum. Cetane number greater than 47 is preferred, especially for temperatures below –20 °C (–4 °F) or elevations above 1675 m (5500 ft.).

Cloud Point should be below the expected lowest ambient temperature or **Cold Filter Plugging Point** (CFPP) should be a maximum 10°C (18°F) below the fuel cloud point.

Fuel lubricity should pass a maximum scar diameter of 0.52 mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

Diesel fuel quality and sulfur content must comply with all existing emissions regulations for the area in which the engine operates. DO NOT use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

Materials such as copper, lead, zinc, tin, brass and bronze should be avoided in fuel handling, distribution and storage equipment as these metals can catalyze fuel oxidation reactions which can lead to fuel system deposits and plugged fuel filters.

E-Diesel fuel

DO NOT use E-Diesel (Diesel fuel and ethanol blend). Use of E-Diesel fuel in any John Deere machine may void the machine warranty.

CAUTION: Avoid severe injury or death due to the fire and explosion risk from using E-Diesel fuel.

[1]See DX,ENOIL12,OEM, DX,ENOIL12,T2,STD, or DX,ENOIL12,T2,EXT for more information on Engine Oil and Filter Service Intervals.

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III A and B, Stage IV, and Stage V Engines Above 560 kW

- Use ONLY diesel fuel with a maximum of 500 mg/kg (500 ppm) sulfur content.

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV Engines, and Stage V Engines

- Use ONLY ultra low sulfur diesel (ULSD) fuel with a maximum of 15 mg/kg (15 ppm) sulfur content.

Sulfur Content for Tier 3 and Stage III A Engines

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 1000—2000 mg/kg (1000—2000 ppm) REDUCES the oil and filter change interval.
- BEFORE using diesel fuel with sulfur content greater than 2000 mg/kg (2000 ppm), contact your John Deere dealer.

Sulfur Content for Tier 2 and Stage II Engines

- Use of diesel fuel with sulfur content less than 2000 mg/kg (2000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 2000—5000 mg/kg (2000—5000 ppm) REDUCES the oil and filter change interval.[1]
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact your John Deere dealer.

Sulfur Content for Other Engines

- Use of diesel fuel with sulfur content less than 5000 mg/kg (5000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm) REDUCES the oil and filter change interval.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

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