7500A E-Cut Hybrid™ and 8000A E-Cut Hybrid™ Fairway Mowers

TECHNICAL MANUAL

7500A E-Cut Hybrid™ 8000A E-Cut Hybrid™ Fairway Mowers

TM124419 07MAY15 (ENGLISH)

For complete service information also see:

John Deere Turf Care

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 -19-15APR14-1/1

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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 10
General Information

Contents

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

OUO1086,1000417 -19-15JUN12-1/1

Understand Signal Words

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

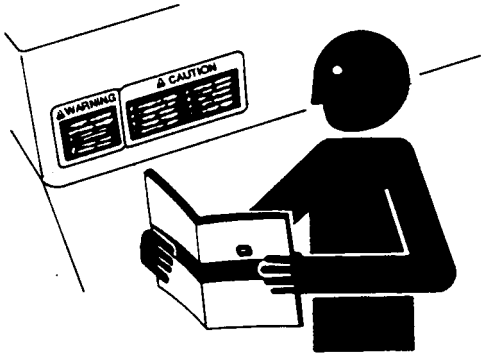
DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

TS187 —19—30SEP88

OUO1086,1000418 -19-15JUN12-1/1

Replace Safety Signs

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



TS201 —UN—15APR13

OUO1086,1000419 -19-15JUN12-1/1

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

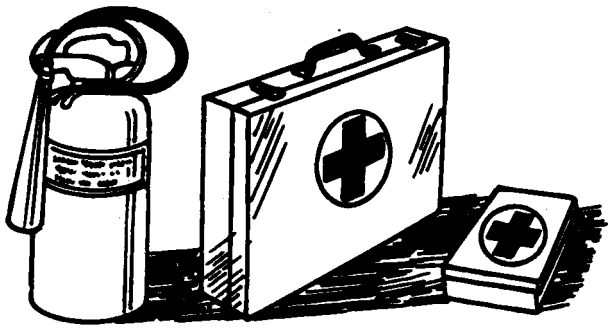
OUO1086,100041A -19-15JUN12-1/1

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

OUO1086,100041B -19-15JUN12-1/1

Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

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

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

TS204 —UN—15APR13

OUO1086,100041C -19-15JUN12-1/1

Prevent Acid Burns

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

Avoid the hazard by:

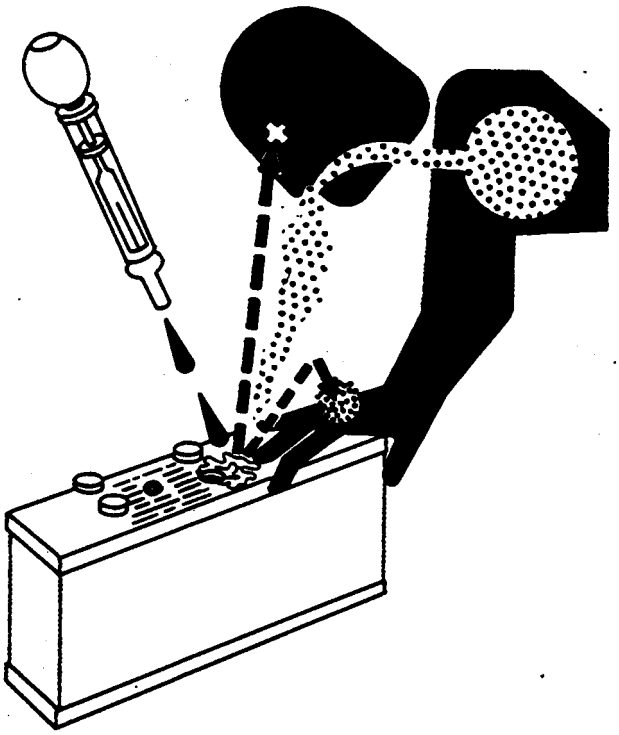
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

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

If acid is swallowed:

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



TS203 —UN—23AUG88

OUO1086,100041D -19-15JUN12-1/1

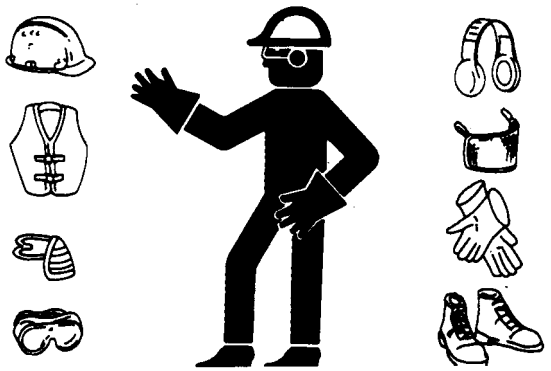
Wear Protective Clothing

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

OUO1086,100041E -19-15JUN12-1/1

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.

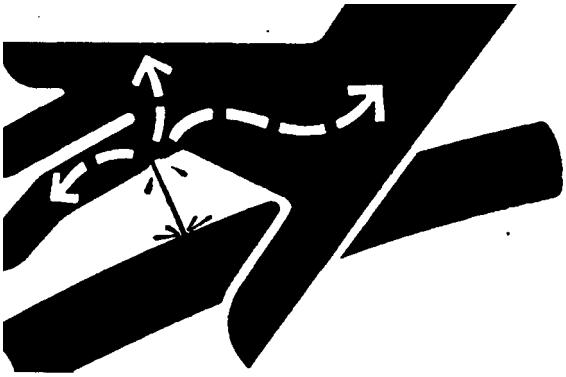
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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

OUO1086,100041F -19-15JUN12-1/1

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.

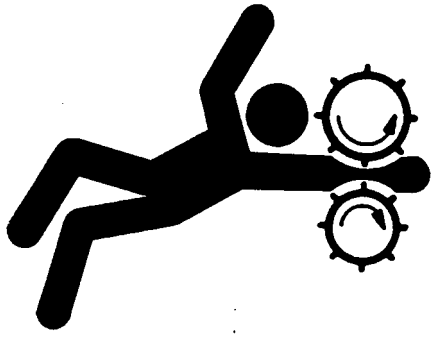
TS953 —UN—15MAY90

OUO1086,1000420 -19-15JUN12-1/1

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

OUO1086,1000421 -19-15JUN12-1/1

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.

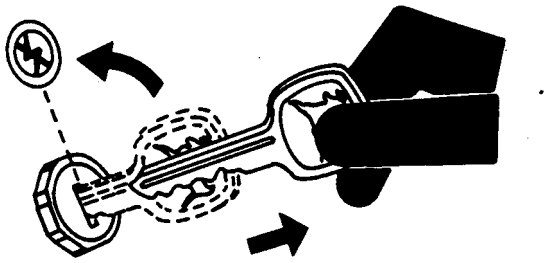
TS779 —UN—08NOV89

OUO1086,1000422 -19-15JUN12-1/1

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

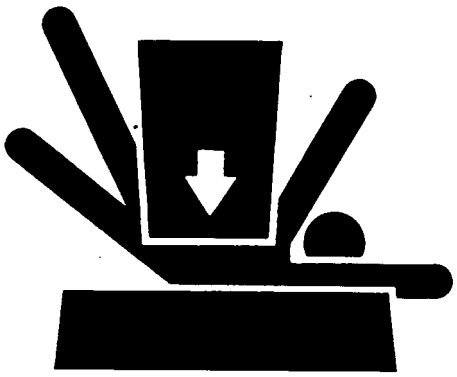
OUO1086,1000423 -19-15JUN12-1/1

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.



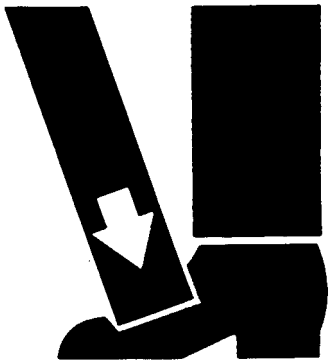
TS229 —UN—23AUG88

OUO1086,1000424 -19-15JUN12-1/1

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.



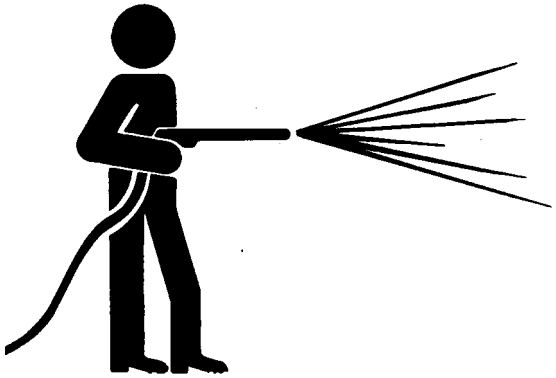
TS226 —UN—23AUG88

OUO1086,1000425 -19-15JUN12-1/1

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

OUO1086,1000426 -19-15JUN12-1/1

Using High-Pressure Washers

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

OUO1086,1000427 -19-15JUN12-1/1

Protect Against High Pressure Spray

Spray from high pressure nozzles can penetrate the skin and cause serious injury. Keep spray from contacting hands or body.

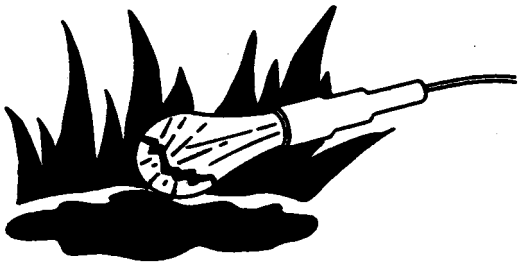
If an accident occurs, see a doctor immediately. Any high pressure spray injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere &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

TS1343 —UN—18MAR92

OUO1086,1000428 -19-15JUN12-1/1

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.



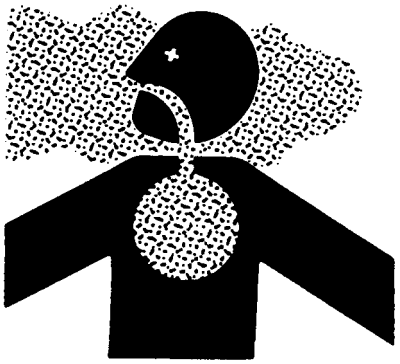
TS223 —UN—23AUG88

OUO1086,1000429 -19-15JUN12-1/1

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

OUO1086,100042A -19-15JUN12-1/1

WARNING: California Proposition 65 Warning

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

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

OUO1086,100042B -19-15JUN12-1/1

Remove Paint Before Welding or Heating

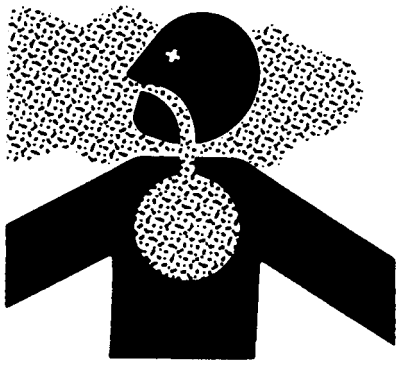
Avoid potentially toxic fumes and dust.

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.

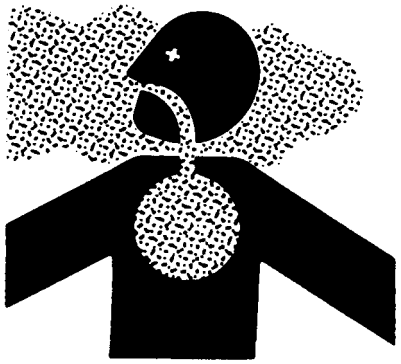
OUO1086,100042C -19-15JUN12-1/1

Avoid Harmful Asbestos Dust

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

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

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



TS220 —UN—15APR13

Keep bystanders away from the area.

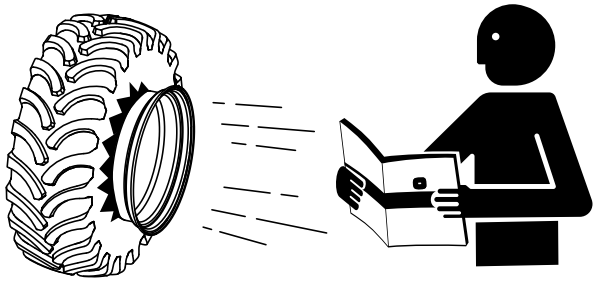
OUO1086,100042D -19-15JUN12-1/1

Follow Tire Recommendations

Keep your machine in proper working order.

Use only prescribed tire sizes with correct ratings and inflate to the pressure specified in this manual.

Use of other than prescribed tires may decrease stability, affect steering, result in premature tire failure, or cause other durability or safety issues.



H111235 —UN—13MAY14

DX,TIRE,INFO -19-19MAY14-1/1

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.

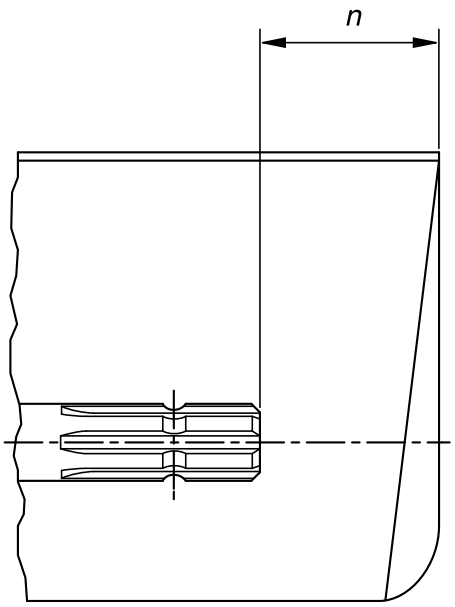
Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

Do not install any adapter device between the tractor and the primary implement PTO drive shaft 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.

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.)

TS1644 —UN—22AUG95



H96219 —UN—29APR10

OUO1086,100042F -19-15JUN12-1/1

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

OUO1086,1000430 -19-15JUN12-1/1

Dispose of Waste Properly

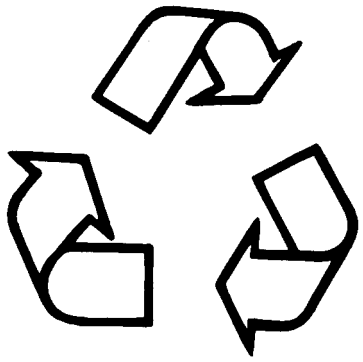
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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

OUO1086,1000431 -19-15JUN12-1/1

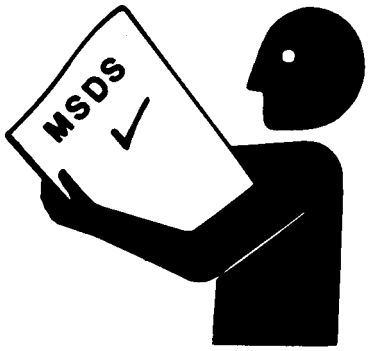
Handle Chemical Products Safely

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

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



TS1132 —UN—15APR13

OUO1086,1000432 -19-15JUN12-1/1

Live With Safety

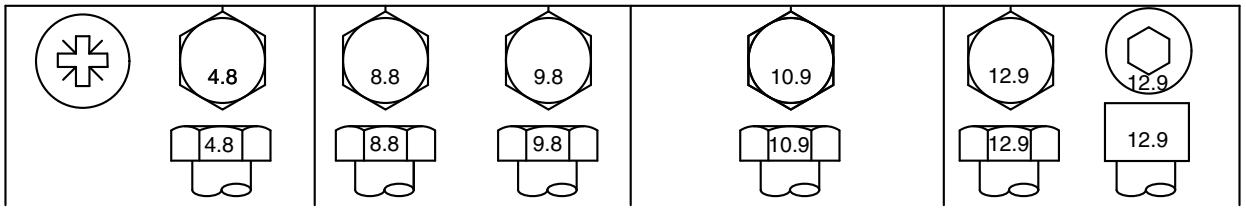
Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.

TS231 —19—07OCT88

OUO1086,1000433 -19-15JUN12-1/1

Metric Bolt and Screw Torque Values

TS1670 —UN—01MAY03



Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]	
	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N·m	lb.-ft.														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

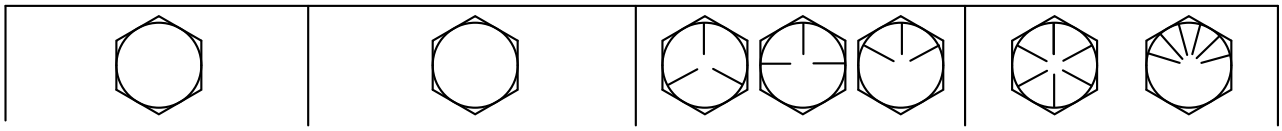
[a] *"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.*

[b] *"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.*

OUO1086,10003FA -19-15JUN12-1/1

Unified Inch Bolt and Screw Torque Values

TS1671 —UN—01MAY03



Bolt or Screw Size	SAE Grade 1				SAE Grade 2[a]				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]	
	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N·m	lb.-ft.	N·m	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N·m	lb.-ft.	N·m	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N·m	lb.-ft.														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

[a]Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

[b]"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.

[c]"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.

OUO1086,10003FB -19-15JUN12-1/1

Metric Cap Screw Torque Values—Grade 7

NOTE: When bolting aluminum parts, tighten to 80% of torque specified in table.

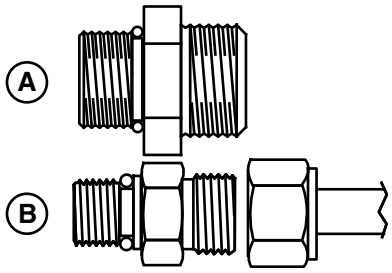
Size	N·m	(lb.-ft.)
M6	9.5—12.2	(7—9)
M8	20.3—27.1	(15—20)
M10	47.5—54.2	(35—40)
M12	81.4—94.9	(60—70)
M14	128.8—146.4	(95—108)
M16	210.2—240	(155—177)

OUO1086,10003FC -19-12JUN14-1/1

Service Recommendations for O-Ring Boss Fittings

Straight Fitting

1. Inspect O-ring boss seat for dirt or defects.
2. Lubricate O-ring with petroleum jelly. Place electrical tape over threads to protect O-ring. Slide O-ring over tape and into O-ring groove of fitting. Remove tape.
3. Tighten fitting to torque value shown on chart.



TCT008637 —UN—11OCT13

A—Straight Boss Fitting **B—Straight Stud and Tube Nut**

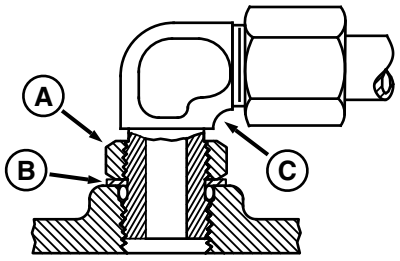
OUMX258,00000F8 -19-15OCT13-1/2

Angle Fitting

1. Inspect O-ring boss seat for dirt or defects.
2. Lubricate O-ring with petroleum jelly. Place electrical tape over threads to protect O-ring. Slide O-ring over tape and into O-ring groove of fitting. Remove tape.
3. Back-off locknut (A) and back-up washer (B) completely to head-end (C) of fitting.
4. Turn fitting into threaded boss until back-up washer contacts face of boss.
5. Turn fitting head-end counterclockwise to proper index (maximum of one turn).

NOTE: Do not allow hoses to twist when tightening fittings.

6. Hold fitting head-end with a wrench and tighten locknut and back-up washer to proper torque value.



TCT008638 —UN—11OCT13

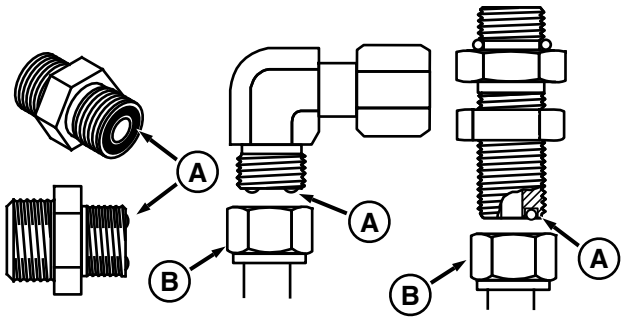
A—Locknut
B—Washer
C—Head-End of Fitting

STUD END O-RING SEAL TORQUE FOR STRAIGHT AND ADJUSTABLE FITTINGS*				
Thread Size	**Straight Hex Size**	**Locknut Hex Size**	**Straight Fitting or Locknut Toque**	
Inch	**Inch**	**Inch**	**N·m**	**lb.-ft.**
3/8-24	5/8	9/16	18	13
7/16-20	5/8	5/8	24	18
1/2-20	3/4	11/16	30	22
9/16-18	3/4	3/4	37	27
3/4-16	7/8	15/16	75	55
7/8-14	1 1/16	1 1/16	104	76
1 1/16-12	1 1/4	1 3/8	176	130
1 3/16-12	1 3/8	1 1/2	230	170
1 5/16-12	1 1/2	1 5/8	270	199
*Torque tolerance is +15 -20% unless otherwise specified.				

OUMX258,00000F8 -19-15OCT13-2/2

Service Recommendations For Flat Face O-Ring Seal Fittings

1. Inspect the fitting sealing surfaces and O-ring. They must be free of dirt or defects.
2. Lubricate O-ring (A) and install into groove using petroleum jelly to hold in place.
3. Index angle fittings and tighten by hand pressing joint together to insure O-ring remains in place.
4. Unless specified otherwise, tighten fitting or nut (B) to torque value shown on the chart. Do not allow hoses to twist when tightening fittings, use backup wrench on straight hose couplings.



TCT008639 —UN—11OCT13

A—O-ring **B—Nut**

FLAT FACE O-RING SEAL FITTING TORQUE*						
Nominal Tube O.D.		Thread Size	Swivel Nut		Bulkhead Nut	
mm	in.	in.	N·m	lb.-ft.	N·m	lb.-ft.
6.35	0.250	9/16-18	24	18	32	24
9.52	0.375	11/16-16	37	27	42	31
12.70	0.500	13/16-16	63	46	93	69
15.88	0.625	1-14	103	76	118	87
19.05	0.750	1 3/16-12	152	112	175	129
22.22	0.875	1 3/16-12	152	112	175	129
25.40	1.000	1 7/16-12	214	158	247	182
31.75	1.250	1 11/16-12	286	211	328	242
38.10	1.500	2-12	326	240	374	276
*Torque tolerance is +15 -20% unless otherwise specified.						

OUMX258,00000F9 -19-12AUG14-1/1

Diesel Fuel

Use the proper diesel fuel to help prevent decreased engine performance and increased exhaust emissions. Failure to follow the fuel requirements listed can void your engine warranty.

Consult your local fuel distributor for properties of the diesel fuel 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 ISO EN 590 or ASTM D975 are recommended.

Required fuel properties

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

Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially when temperatures are below -20°C (-4°F) or elevations above 1500 m (5000 ft).

Cold Filter Plugging Point (CFPP) should be at least 5°C (9°F) below the expected lowest temperature or **Cloud Point** below the lowest ambient temperature.

Fuel lubricity should comply with ISO EN 590 or ASTM D975.

IMPORTANT: Avoid damage! Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

If a fuel of low or unknown lubricity is used, addition of John Deere PREMIUM DIESEL FUEL CONDITIONER at the specified concentration is recommended.

Sulfur content

- Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.
- Use only ultra low sulfur diesel (ULSD) fuel with a maximum of 0.0015% (15mg/kg) sulfur content.

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

Using BioDiesel Fuel

BioDiesel fuels may be used only if the BioDiesel fuel properties meet the latest edition of ASTM D6751, ASTM D7467, EN14214, or equivalent specification.

The current maximum allowable BioDiesel concentration is a 7% blend (also known as B7) in petroleum diesel fuel.

To learn of any changes to the recommendations for BioDiesel usage with your diesel engine, ask your John Deere dealer.

Handling and Storing Diesel Fuel

CAUTION: Avoid injury! Handle fuel carefully. Do not fill the fuel tank when engine is running.

Do not smoke while you fill the fuel tank or service the fuel system.

IMPORTANT: Avoid damage! Do not use galvanized containers—diesel fuel stored in galvanized containers reacts with zinc coating in the container to form zinc flakes. If fuel contains water, a zinc gel also forms. The gel and flakes quickly plug fuel filters and damage fuel injectors and fuel pumps.

- Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.
- When fuel is stored for an extended period, or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel and to prevent water condensation. Contact your fuel supplier for recommendations.

OUMX258,00005F3 -19-04NOV14-1/1

Diesel Fuel Storage

IMPORTANT: Avoid Damage! DO NOT USE GALVANIZED CONTAINERS—diesel fuel stored in galvanized containers reacts with zinc coating in the container to form zinc flakes. If fuel contains water, a zinc gel will also form. The gel and flakes will quickly plug fuel filters and damage fuel injectors and fuel pumps.

It is recommended that diesel fuel be stored ONLY in a clean, approved POLYETHYLENE PLASTIC container WITHOUT any metal screen or filter. This will help prevent any accidental sparks from occurring. Store fuel in an area that is well ventilated to prevent possible igniting of fumes by an open flame or spark; this includes any appliance with a pilot light.

IMPORTANT: Avoid Damage! Keep all dirt, scale, water, or other foreign material out of fuel.

Keep fuel in a safe, protected area and in a clean, properly marked ("DIESEL FUEL") container. DO NOT use deicers to attempt to remove water from fuel. DO NOT depend on fuel filters to remove water from fuel. It is recommended that a water separator be installed in the storage tank outlet. BE SURE to properly discard unstable or contaminated diesel fuel and/or their containers when necessary.

OUO1086,1000403 -19-15JUN12-1/1

Engine Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following John Deere oils are preferred:

- John Deere Plus-50™ II
- John Deere Torq-Gard™ Supreme

Other oils may be used if above John Deere oils are not available, provided they meet the following specification:

U.S. and Canada (Models with aftertreatment device)

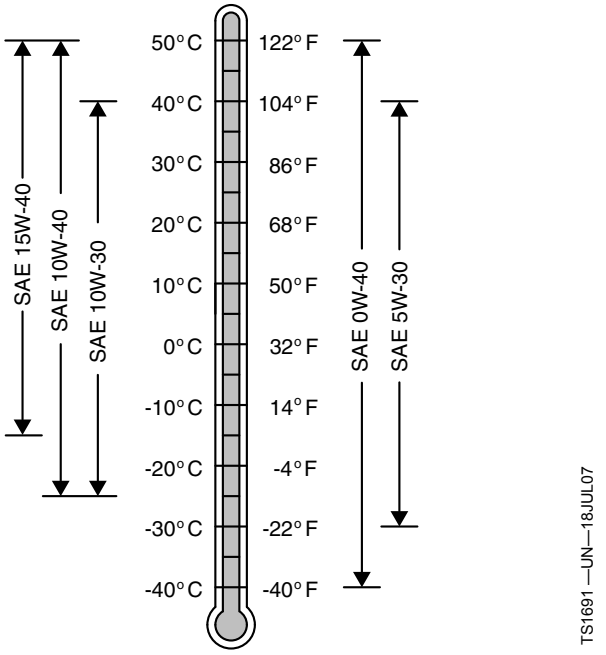
- API Service Classification CJ—4
- ACEA Specification E6 or E9
- JASO Specification DH—2

E.U. (Models without aftertreatment device)

- API Service Classification CD, CF, CF—4, CI—4, CJ—4
- ACEA Specification E—3, E—4, E—5 or E—6
- JASO Specification DH—1 or H—2

Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.

Plus-50 is a trademark of Deere & Company
Torq-Gard is a trademark of Deere & Company



Oil Viscosities for Air Temperature Ranges

OUMX258,00005F4 -19-24APR15-1/1

Oil Filters

IMPORTANT: Avoid Damage! Filtration of oils is critical to proper lubrication performance. Always change filters regularly.

The following John Deere oil filters are PREFERRED:

- **Automotive and light truck engine oil filters.**

Most John Deere filters contain pressure relief and anti-drainback valves for better engine protection.

Other oil filters may be used if above recommended John Deere oil filters are not available, provided they meet the following specification:

- **ASTB Tested In Accordance With SAE J806.**

OUO1086,100040F -19-15JUN12-1/1

Hydrostatic Transmission and Hydraulic Oil

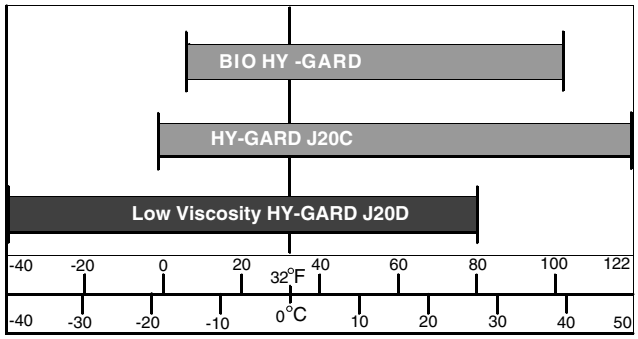
IMPORTANT: Avoid Damage! Machine is filled with John Deere Hy-Gard™ J20C Transmission/Hydraulic Oil at the factory. DO NOT mix oils. DO NOT use type "F" automatic transmission fluid.

Use oil viscosity based on the expected air temperature range during the period between oil changes.

John Deere J20C HY-GARD Transmission/Hydraulic Oil is recommended.

Use John Deere BIO HY-GARD™ oil when a biodegradable fluid is required.

Other oils may be used if above recommended John Deere oil is not available, provided they meet the following specification:



- John Deere Standard JDM J20C.

Hy-Gard is a trademark of Deere & Company

OUO2003,000000B -19-06JUN14-1/1

Biodegradable Oil

Application

IMPORTANT: Avoid Damage! Biodegradable oils, other than BIO HY-GARDHy-Gard™ , are not recommended.

When use of a biodegradable lubricant is desired or required, BIO HY-GARD is recommended. BIO HY-GARD may be used under normal mowing conditions.

DO NOT USE biodegradable lubricants in machines for the following operations:

- Any machine used for scalping procedure.
- Any verticut operation in temperatures exceeding 32°C (90°F).

BIO HY-GARD should be used only in cases where the benefits of its use offset the extra initial cost, the increased oil change cost and the potential increasing maintenance costs for hydraulic systems with high temperatures and heavy loads.

- If the natural color of the fluid has become black, it is possible an overheating problem exists. Change the fluid.
- If the fluid becomes milky, water contamination may be a problem. Investigate the source of the contamination.
- Take fluid level reading when system is cold.
- Mixing of biodegradable oil and mineral oil will reduce the biodegradability of the lubricant in the machine. Mixing of HY-GARD and BIO HY-GARD will not result in performance deterioration.

Cold Weather Operation

Precautions should be taken if BIO HY-GARD containers or equipment are stored for long periods of time in extremely cold temperatures. Freezing should be expected if BIO HY-GARD is subjected to the following temperatures:

- Stored for six months at -18° to -23°C (-1° to -10°F)
- Stored for seven days at -23° to -26°C (-10° to -15°F)
- Stored for three days at -26° to -29°C (-15° to -20°F)
- Stored for two days at -29° to -34°C (-20° to -30°F)
- Stored for one day at -34°C (-30°F) and below.

IMPORTANT: Avoid Damage! Equipment should not be started or any operation attempted until BIO HY-GARD has reached a safe operating viscosity.

If freezing of BIO HY-GARD is suspected, the container or equipment MUST be warmed to at least 0°C (32°F) and maintained for 24-48 hours to ensure the fluid has reached a safe operating viscosity.

Hy-Gard is a trademark of Deere & Company

OUO1086,1000407 -19-15JUN12-1/1

Converting From HY-GARD to BIO HY-GARD

Systems being converted from HY-GARD to BIO HY-GARD should follow the procedure listed below to obtain maximum lubricant biodegradability.

1. Park machine on a level surface.
2. Lower cutting units, stop engine, set park brake and remove key from ignition.
3. Drain hydraulic reservoir.
4. Replace hydraulic filter.
5. Fill reservoir with BIO HY-GARD to appropriate level.
6. Start engine and bring to medium idle.
7. Turn steering wheel full stroke several times and cycle cutting units several times.
8. Stop engine and check hydraulic oil level. Add BIO HY-GARD to appropriate level.
9. Operate machine under normal operating conditions for a minimum of two hours.
10. Repeat steps 1-8.
11. Follow recommended maintenance schedules.

OUO1086,1000408 -19-15JUN12-1/1

Grease - North America

IMPORTANT: Avoid Damage! ONLY use a quality grease in this application. DO NOT mix any other greases in this application. DO NOT use any BIOGREASE in this application.

The following John Deere greases are preferred for the machine and lift arms:

- **John Deere Special Purpose HD Water Resistant Grease.**
- **John Deere Multi-Purpose HD Lithium Complex Grease.**

The following John Deere greases are preferred for the cutting units and unit attachments:

- **John Deere Golf and Turf Cutting Unit Grease.**
- **John Deere Cornhead Grease.**
- **John Deere Cotton Picker Spindle Grease.**

Other greases may be used if above preferred John Deere greases are not available, provided they meet the following specifications:

- **Polyurea Grease - NLGI Grade 2.**
- **Calcium Complex Grease - NLGI Grade 2.**
- **John Deere Standard JDM J13E4 - NLGI Grade 2.**

OUO1086,1000409 -19-15JUN12-1/1

Grease - Europe

Use the following grease based on the air temperature range. Operating outside of the recommended grease air temperature range may cause premature failures.

IMPORTANT: Avoid Damage! ONLY use a quality grease in this application. DO NOT mix any other greases in this application. DO NOT use any BIOGREASE in this application.

The following John Deere greases are PREFERRED:

- **GREASE-GARD™ - JDM J13E4, NLGI Grade 2.**
- **Reel Support Grease - JDM J13E6, NLGI Grade 0.**

Other greases may be used if above preferred John Deere greases are not available, provided they meet the following specifications:

Reel Support Grease Applications:

- Polyurea Grease - NLGI Grade 2.
- Calcium Complex Grease - Grade 2.
- Lithium Complex Grease - NLGI Grade 0.
- John Deere Standard JDM J13E4 - NLGI Grade 2.

OUO1086,100040A -19-15JUN12-1/1

Alternative Lubricants

Use of alternative lubricants could cause reduced life of the component.

If alternative lubricants are to be used, it is recommended that the factory fill be thoroughly removed before switching to any alternative lubricant.

OUO1086,100040B -19-15JUN12-1/1

Synthetic Lubricants

Synthetic lubricants may be used in John Deere equipment if they meet the applicable performance requirements (industry classification and/or military specification) as shown in this manual.

The recommended air temperature limits and service or lubricant change intervals should be maintained as shown in the operator's manual, unless otherwise stated on lubricant label.

Avoid mixing different brands, grades, or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements. Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

OUO1086,100040C -19-15JUN12-1/1

Lubricant Storage

All machines operate at top efficiency only when clean lubricants are used. Use clean storage containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination. Store drums on their sides. Make sure all containers are properly marked as to their contents. Dispose of all old, used containers and their contents properly.

OUO1086,100040D -19-15JUN12-1/1

Mixing of Lubricants

In general, avoid mixing different brands or types of lubricants. Manufacturers blend additives in their lubricants to meet certain specifications and performance requirements. Mixing different lubricants can interfere with the proper functioning of these additives and lubricant properties which will downgrade their intended specified performance.

OUO1086,100040E -19-15JUN12-1/1

Diesel Engine Coolant

Preferred coolants:

The following pre-mix engine coolants are preferred:

- **John Deere Cool-Gard™ II**
- **John Deere Cool-Gard™ II PG**

Not all Cool-Gard™ II pre-mix products are available in all countries.

Use COOL-GARD™ II PG when a non-toxic coolant formulation is required.

Additional Recommended Coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD™ II Concentrate in a 40—60% mixture of concentrate with quality water.

IMPORTANT: When mixing coolant concentrate with water, do not use less than 40% or greater than 60% concentration of coolant. Less than 40% gives inadequate additives for corrosion protection. Greater than 60% can result in coolant gelation and cooling system problems.

Other Coolants

Other ethylene glycol or propylene glycol base coolants may be used if they meet one of the following specifications:

- Pre-mix coolant meeting ASTM D6210 requirements
- Coolant concentrates meeting ASTM D6210 requirements in a 40% to 60% mixture of concentrate with quality water
- Pre-mix coolant meeting ASTM D3306 requirements
- Coolant concentrates meeting ASTM D3306 requirements in a 40% to 60% mixture of concentrate with quality water

If coolant meeting one of these specifications is unavailable, use a coolant concentrate or pre-mix coolant that has a minimum of the following chemical and physical properties:

- Is formulated with a quality nitrite-free additive package.
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion.

Water Quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol base engine coolant concentrate.

Coolant Drain Intervals

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used.

When COOL-GARD™ II or COOL-GARD™ II PG is used, the drain interval is 6 yr. or 6000 operating hours.

If a coolant other than COOL-GARD™ II or COOL-GARD™ II PG is used, reduce the drain interval to 2 yr. or 2000 operating hours.

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

IMPORTANT: Do not mix ethylene glycol and propylene glycol base coolants.

IMPORTANT: Do not use coolants that contain nitrites.

Cool-Gard is a trademark of Deere & Company

UP00731,0000022 -19-15APR15-1/1

John Deere COOL-GARD™ II Coolant Extender

Some coolant additives gradually deplete during engine operation. For COOL-GARD™ II pre-mix and COOL-GARD II Concentrate, replenish coolant additives between drain intervals by adding COOL-GARD II Coolant Extender.

COOL-GARD II Coolant Extender should not be added unless indicated by COOL-GARD II Test Strips. These test strips provide a simple, effective method to check the freeze point, additive levels, and pH of your engine coolant.

Test the coolant solution at intervals of 12 months and whenever excessive coolant is lost through leaks or overheating.

IMPORTANT: Do not use COOL-GARD II Test Strips with COOL-GARD II PG.

COOL-GARD II Coolant Extender is a chemically matched additive system for use with all COOL-GARD II coolants.

COOL-GARD is a trademark of Deere & Company

COOL-GARD II Coolant Extender is not intended for use with nitrite-containing coolants.

IMPORTANT: Do not add a supplemental coolant additive when the cooling system is drained and refilled with any of the following:

- **John Deere COOL-GARD II**
- **John Deere COOL-GARD II PG**

The use of non-recommended supplemental coolant additives can result in additive drop-out, gelation of the coolant, or corrosion of cooling system components.

Add the recommended concentration of COOL-GARD II Coolant Extender. DO NOT add more than the recommended amount.

DX,COOL16 -19-15MAY13-1/1

Diesel Engine Coolant Drain Interval - North America

When using John Deere Pre-Diluted (TY16036) Automobile and Light Duty Engine Service coolants, drain and flush the cooling system and refill with fresh coolant mixture every 36 months or 3,000 hours of operation, whichever comes first.

When using John Deere Concentrate (TY16034) Automobile and Light Duty Engine Service coolants, drain and flush the cooling system and refill with fresh coolant mixture every 24 months or 2,000 hours of operation, whichever comes first.

If above John Deere Automobile and Light Duty Engine Service coolants are not being used, drain, flush, and refill the cooling system according to instructions found on product container or in equipment operator's manual or technical manual.

OUO1086,1000411 -19-15JUN12-1/1

Diesel Engine Coolant Drain Interval - Europe

When using John Deere COOL-GARD Coolant Concentrate for Automobile and Light Duty Engine Service, drain and flush the cooling system and refill with fresh coolant mixture every 24 months or 2,000 hours of operation, whichever comes first.

If above John Deere Automobile and Light Duty Engine Service coolant is not being used, drain, flush, and refill the cooling system according to instructions found on product container or in equipment operator's manual or technical manual.

OUO1086,1000413 -19-15JUN12-1/1

Machine Specifications

NOTE: Specifications and design subject to change without notice.

	7500A E-Cut	8000A E-Cut
Ground Speed:		
Forward	0—19.31 km/h (0—12.5 mph)	0—9.66 km/h (0—9 mph)
Reverse	0—9.66 km/h (0—6.0 mph)	0—9.66 km/h (0—6.0 mph)
Mow Speed	12.07—13.7 km/h (7.5—8.5 mph)	8.85—9.66 km/h (5.5—6.5 mph)
Engine Non Tier 4:		
Make	Yanmar	
Engine Model (non-Tier 4 engines)	3TNV84T	
Oil Capacity	5.5 L (5.8 qt.)	
Coolant Capacity	7.3 L (7.75 qt.)	
Bore	84 mm (3.31 in.)	
Stroke	90 mm (3.54 in.)	
Displacement	1.496 L (91.3 cu. in.)	
Engine Tier 4:		
Make	Yanmar	
Engine Model	3TNV86CT	
Oil Capacity	5.3 L (5.5 qt.)	
Coolant Capacity	7.3 L (7.75 qt.)	
Bore	86 mm (3.4 in.)	
Stroke	90 mm (3.54 in.)	
Displacement	1.568 L (95.7 cu. in.)	
Fuel System:		
Type	Diesel	
Tank Capacity	60 L (16 gal.)	43.9 L (11.6 gal.)
Electrical System:		
Type	12 Volt Negative Ground	
Battery	12-volt	
Battery Type	500 CCA	
Power Train:		
Type	Hydrostatic Pump	
Drive	Hydraulic 2 Wheel Drive	Hydraulic 3 Wheel Drive
Hydraulic System Oil Capacity	39.75 L (10.5 gal.)	
Reservoir Oil Capacity	37.85 L (10.0 gal.)	
Transmission Oil	John Deere High Viscosity HY-GARD™ J20C	
Steering and Brakes:		
Steering	Power Steering	
Brake Type	Spring applied, pressure released integrated wet disk brakes	

OUMX258,0000A5A -19-19JUN14-1/1

Serial Number Location

When ordering parts or submitting a warranty claim, it is IMPORTANT that you include the mower product identification number and the component serial numbers.

The locations of mower identification number and component serial numbers are shown.

OUMX068,0000374 -19-15JAN13-1/1

Product Identification Number

The product identification number plate (A) is located on the frame at the operator platform step on the 7500A or on the back of the front axle on the 8000A in nearly the same position.

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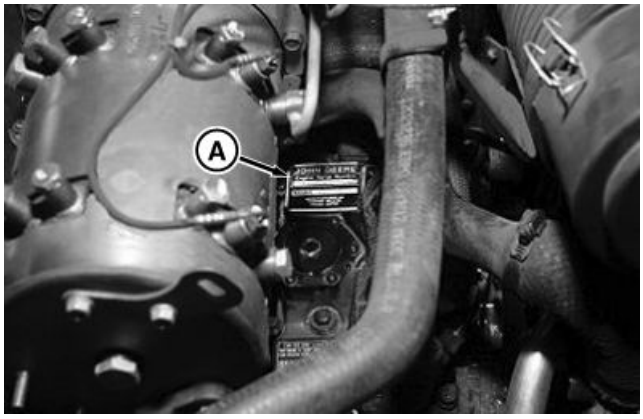
7500A Shown

OUMX258,0000A58 -19-21OCT13-1/1

Engine Identification Number

The engine serial number plate (A) is located on the top of the valve cover.

A—ID Number Plate



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OUMX258,0000A59 -19-21OCT13-1/1

Attachment Identification Number

The attachment serial number plate (A) is located on a crossmember at the motor end of the frame.

A—ID Number Plate

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SW00544,0000038 -19-21OCT13-1/1

Section 20
Engine Repair

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