6205 and 6505 Tractors Repair

For complete service information also see:

John Deere Werke Mannheim
TM4612 (01JUL99)
Printed in Germany
ENGLISCH

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 -19-29SEP98

RECOGNIZE SAFETY INFORMATION

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

Follow recommended precautions and safe operating practices.

T81389 -UN-07DEC88

DX,ALERT -19-29SEP98

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

HANDLE FLUIDS SAFELY—AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

TS227 -UN-23AUG88

DX,FLAME -19-29SEP98

PREVENT BATTERY EXPLOSIONS

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

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

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

TS204 -UN-23AUG88

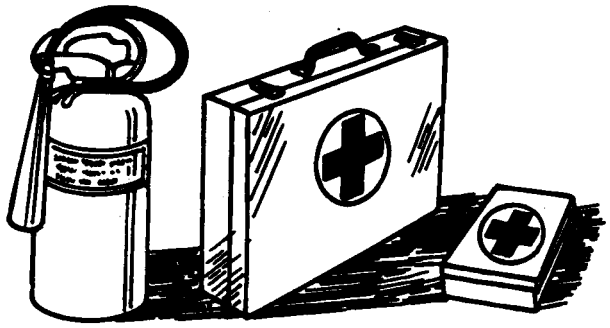
DX,SPARKS -19-03MAR93

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



TS291 -UN-23AUG88

DX,FIRE2 -19-03MAR93

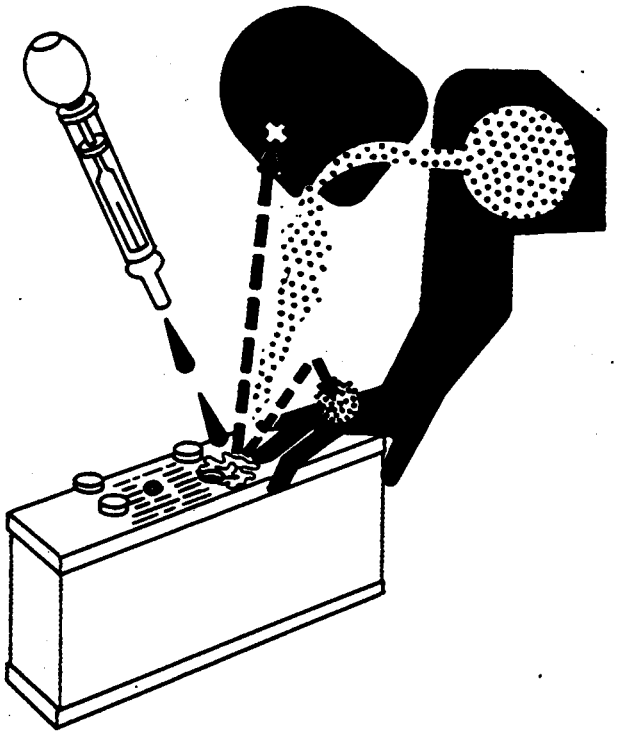
PREVENT ACID BURNS

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

DX,POISON -19-21APR93

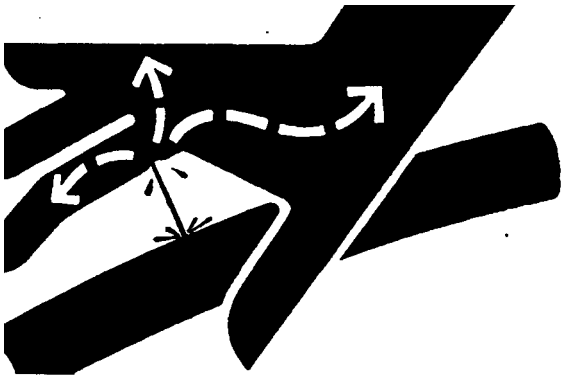
AVOID HIGH-PRESSURE FLUIDS

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

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

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



X9811 -UN-23AUG88

DX,FLUID -19-03MAR93

SERVICE COOLING SYSTEM SAFELY

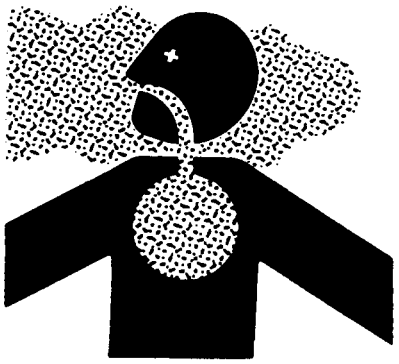
Explosive release of fluids from pressurized cooling system can cause serious burns.

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

TS281 -UN-23AUG88

DX,RCAP -19-04JUN90

REMOVE PAINT BEFORE WELDING OR HEATING



Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

• If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.

• If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

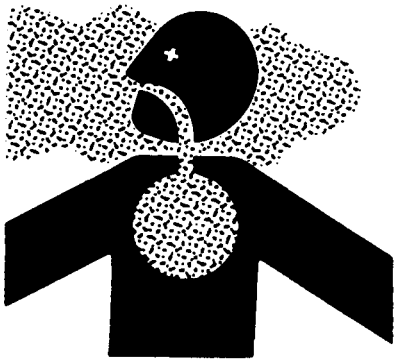
DX,PAINT -19-03MAR93

AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

DX,TORCH -19-03MAR93

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.

DX,AIR -19-04JUN90

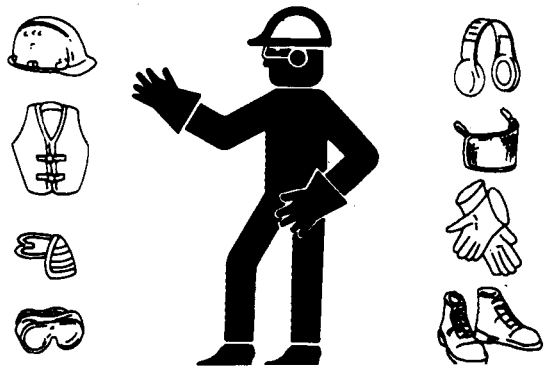
WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

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

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206 -UN-23AUG88

DX,WEAR -19-10SEP90

PRACTICE SAFE MAINTENANCE

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

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

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

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

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

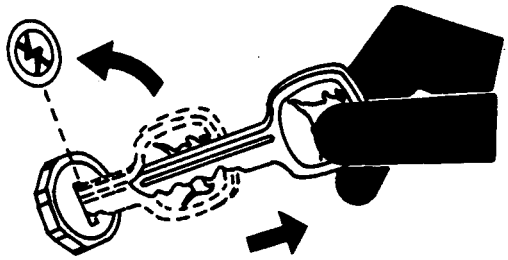
On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.

TS218 -UN-23AUG88

DX,SERV -19-04FEB99

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.



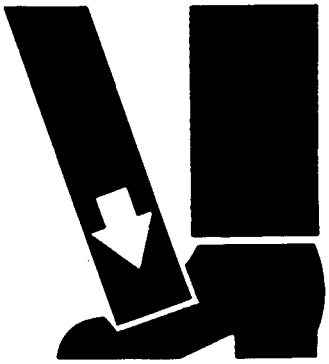
TS230 -UN-24MAY89

DX,PARK -19-04JUN90

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

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

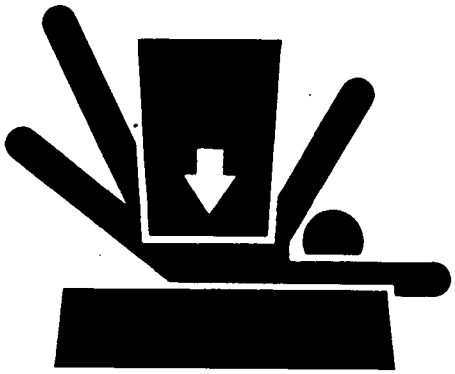
DX,SAFE,TOOLS -19-19SEP97

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment. 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 tractor, always follow safety precautions listed in the implement operator's manual.

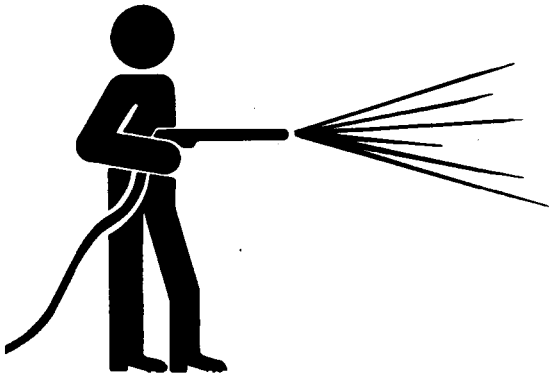


TS229 -UN-23AUG88

DX,LOWER -19-04FEB99

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.

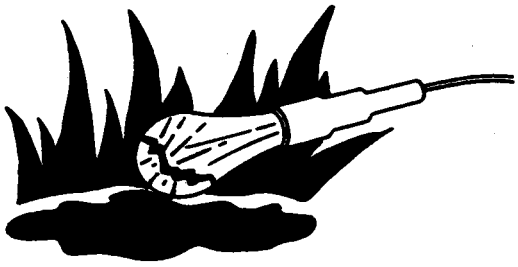


T6642EJ -UN-18OCT88

DX,CLEAN -19-04JUN90

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.



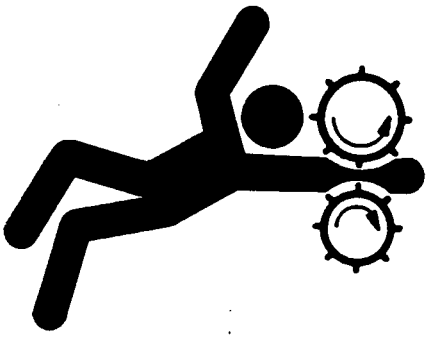
TS223 -UN-23AUG88

DX,LIGHT -19-04JUN90

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

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 -19-04JUN90

SERVICE TIRES SAFELY

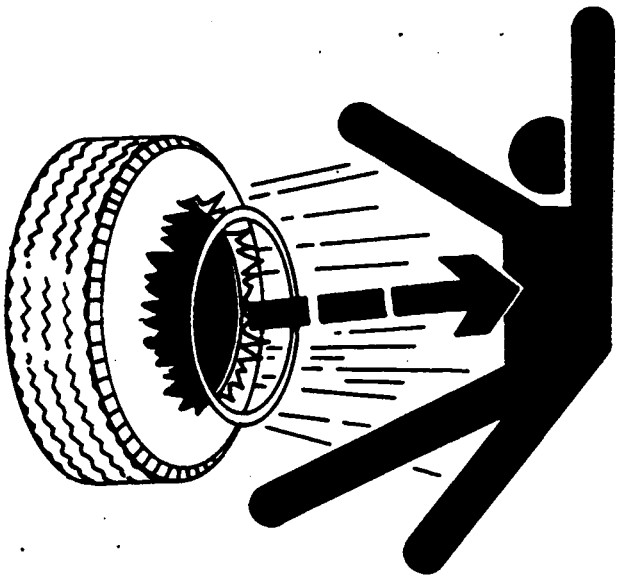
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

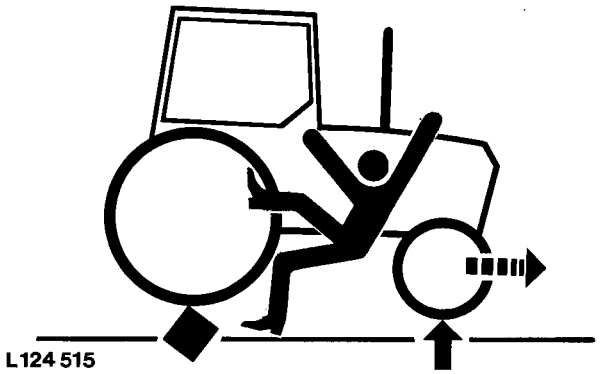


TS211 -UN-23AUG88

DX,RIM -19-24AUG90

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.



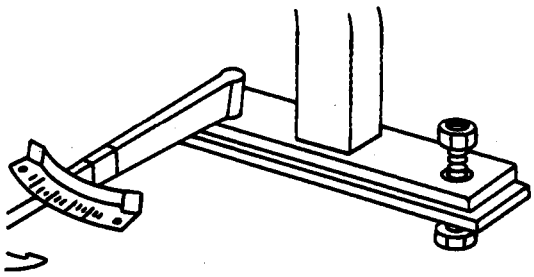
L124515 -UN-06AUG94

LX,MFWD2 -19-01MAY91

KEEP ROPS INSTALLED PROPERLY

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

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

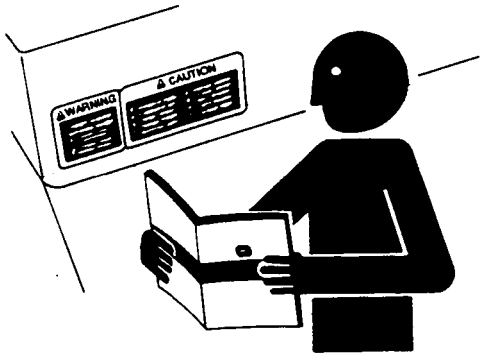


TS212 -UN-23AUG88

DX,ROPS3 -19-03MAR93

REPLACE SAFETY SIGNS

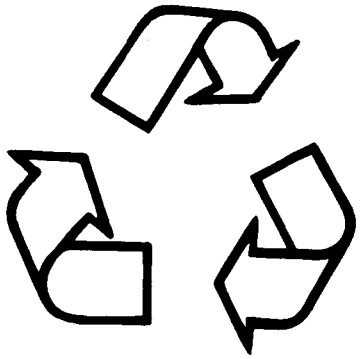
Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.



TS201 -UN-23AUG88

DX,SIGNS1 -19-04JUN90

DISPOSE OF WASTE PROPERLY



TS1133 -UN-26NOV90

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.

DX,DRAIN -19-03MAR93

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 -19-15APR98

SPECIFICATIONS

Engine

	6205		6505	
Engine type	4045TL064 turbocharged	4045TL051 turbocharged	6068DL051 naturally aspirated	6068DL050 naturally aspirated
Engine power at rated engine speed according to ECE-R24 (not certificated)	63 kW (85 hp)	—	74 kW (100 hp)	—
Engine power at rated engine speed according to ECE-R24 with viscous fan drive (certificated)	—	66 kW (90 hp)	—	77 kW (105 hp)
Max. torque	333 N·m (246 lb-ft) 1300 rpm	383 N·m (282 lb-ft) 1500 rpm	387 N·m (285 lb-ft) 1000 rpm	454 N·m (335 lb-ft) 1000 rpm
Compression ratio	16.87:1	16.87:1	16.87:1	16.87:1
Number of cylinders	4		6	
Bore Stroke	106.5 mm (4.19 in.) 127.0 mm (5.0 in.)		106.5 mm (4.19 in.) 127.0 mm (5.0 in.)	
Displacement	4500 cm^3 (275 in^3)		6800 cm^3 (415 in^3)	
Firing order	1 3 4 2		1 5 3 6 2 4	
Intake valve clearance Exhaust valve clearance	0.35 mm (0.014 in.) 0.45 mm (0.018 in.)		0,35 mm (0.014 in.) 0.45 mm (0.018 in.)	
Injection pump Slow idle Fast idle	 850± 50 rpm 2460+ 50 rpm		 850± 50 rpm 2460+ 50 rpm	
Rated engine speed	2300 rpm		2300 rpm	
Working speed range	1000-2300 rpm		1000-2300 rpm	

LX,10,05B013091-19-01JUN99

Cooling System

Type . . . . . pressurized system with centrifugal pump and expansion tank

Temperature control . . . . . thermostat and fan drive or with viscous fan drive*

** Tractors of the certificated version only*

LX,10,05B013092-19-01JUN99

Fuel System

Type . . . . . direct injection

Fuel injection pump timing . . . . . at TDC

Fuel injection pump type . . . . . distributor pump

Number of pistons . . . . . four

Automatic switching off . . . . . electrical

LX,10,05 018270-19-01MAY98

Air Intake System

Air cleaner . . . . . dry-type air cleaner with safety element

LX,RCRA 002951-19-01APR97

Electrical System

Battery

- 6205 . . . . . 12 V, 88 Ah
- 6505 . . . . . 12 V, 110 Ah

Alternator with overvoltage protection

- 6205 and 6505 . . . . . 14 V, 90 A

Starter motor

- 6205 and 6505 . . . . . 12 V, 3.0 kW (4.0 hp)

Battery terminal grounded . . . . . negative

LX,10,05B013093-19-01JUN99

Hydrostatic Steering System

Type . . . . . fully hydraulic

LX,RCRA 002888-19-01APR97

Clutch

Type . . . . . hydraulically controlled wet disk clutch

Operation . . . . . mechanical/ hydraulic with pre-tensioned Belleville springs

LX,RCRA 002898-19-09APR92

SyncroPlus Transmission

Type	semi-synchronized transmission
Range shift	
- Ranges A and B	mechanically, non-synchronized
- Ranges C and D	mechanically, synchronized
Tractors with 30 km/h (18.5 mph) transmission	4 ranges
Shifting of the 3 forward gears	mechanically, synchronized
Shifting of the reverse gear	mechanically, synchronized

LX,10,AD 013095-19-01NOV97

Power Reverser

Type	synchronized transmission
Range shifting	mechanically, synchronized
Shifting the 4 gears	mechanically, synchronized
Shifting the reverse drive lever	mechanical-hydraulic, under load, without operating the clutch
Tractors with 30 km/h (18.5 mph) transmission	4 ranges
Tractors with 40 km/h (25 mph) transmission	4 ranges

LX,448510011210-19-01APR98

Rear PTO

Type . . . . . independent, engaging/disengaging under load

Engine speed for PTO operation

- 540 rpm rear PTO . . . . . 2124 rpm

- 540 rpm rear PTO (reversible) . . . . . 2143 rpm

- 1000 rpm rear PTO (reversible) . . . . . 2208 rpm

LX,10,05B013094-19-01NOV97

Differential

Type . . . . . helical bevel gear drive

LX,TECHN 001036-19-01APR97

Differential lock

Operation . . . . . electro/hydraulic, pedal operated

Disengaging . . . . . electro/hydraulic, after traction has equalized

LX,RCRA 002945-19-14APR92

Final drives

Type . . . . . planetary reduction gear

LX,RCRA 002954-19-01APR97

Front Wheel Drive

Type . . . . . operated under load, hydraulically controlled drive with wet disk clutch

Control . . . . . solenoid valve, electro-hydraulic

Engagement . . . . . with pre-tensioned Belleville springs

Disengagement . . . . . hydraulically

LX,TECHN 001034-19-01AUG95

Hydraulic Brakes

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

LX,RCRA 002889-19-09APR92

Parking Lock

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

LX,10,5 004180-19-01MAR93

Hydraulic System

Type . . . . . open-center system

System pressure:
- min. . . . . 1200-1500 kPa (12-15 bar; 174-218 psi)
- max. . . . . 17500 kPa (175 bar; 2538 psi)

Pump type . . . . . gear-driven pump with external gearing

LX,10,5B 013096-19-01JUN99

Ground Speeds

Ground speeds . . . . . see Operator's Manual

LX,RCRA 002895-19-01APR97

Front and Rear Wheels

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

LX,RCRA 002896-19-01APR97

Dimensions and Weights

Dimensions and weights . . . . . see Operator's Manual

LX,RCRA 002897-19-01APR97

Capacities

	6205	6505
Fuel tank	165 L (43.6 US.gal.)	207 L (54.6 US.gal.)
Cooling system		
- initial filling	16.5 L (4.4 US.gal.)	19 L (5 US.gal.)
- when changing the coolant	11.0 L (2.9 US.gal.)	13.0 L (3.4 US.gal.)
Engine crankcase		
- oil change with filter change	12.0 L (3.2 US.gal.)	18.0 L (4.8 US.gal.)
- oil change without filter change	11.0 L (2.9 US.gal.)	17.0 L (4.5 US.gal.)
Transmission/hydraulic system		
- initial filling	64.0 L (16.9 US.gal.)	64.0 L (16.9 US.gal.)
- oil change with filter change	52.0 L (13.7 US.gal.)	52.0 L (13.7 US.gal.)
FWD axle/front axle housing	5.0 L (1.3 US.gal.)	5.0 L (1.3 US.gal.)
FWD axle/final drive housing		
- (per final drive housing)	0.8 L (0.2 US.gal.)	0.8 L (0.2 US.gal.)

LX,10,05B013098-19-01JUN99

DIESEL ENGINE OIL

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

The following oil is preferred.

- **John Deere PLUS-50®**

The following oil is also recommended:

- John Deere TORQ-GARD SUPREME®

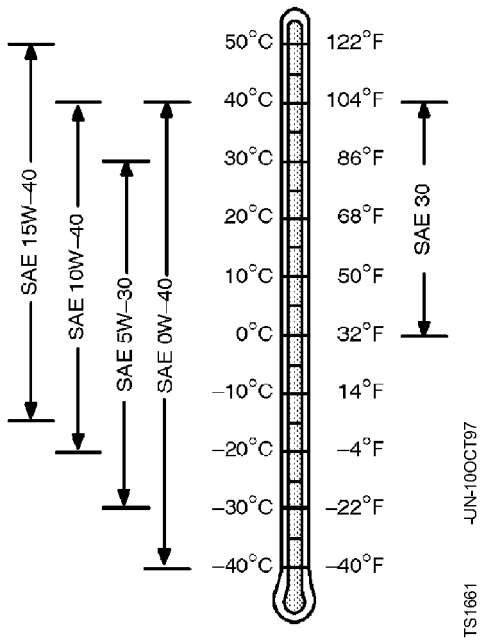
Other oils may be used if they meet one or more of the following:

- API Service Classification CG-4
- API Service Classification CF-4
- ACEA Specification E3
- ACEA Specification E2

Multi-viscosity diesel engine oils are preferred.

If diesel fuel with sulfur content greater than 0.5% is used, reduce the service interval by 50%.

Extended service intervals may apply when John Deere preferred engine oils are used. Consult your John Deere dealer for more information.



DX,ENOIL -19-10OCT97

TRANSMISSION AND HYDRAULIC OIL

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

The following oils are preferred:

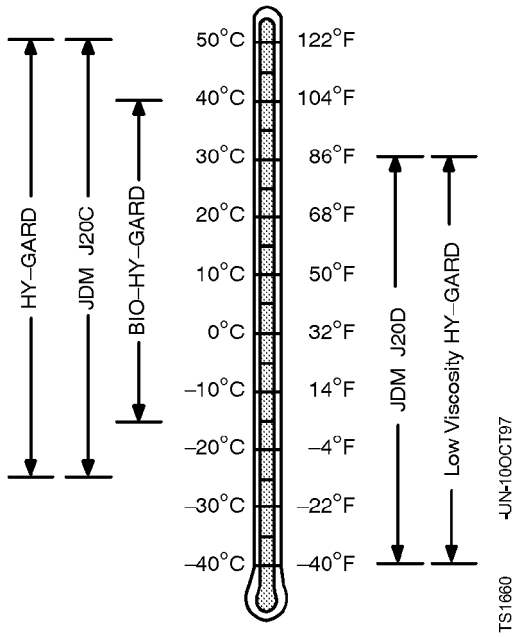
- John Deere HY-GARD®
- John Deere Low Viscosity HY-GARD®

Other oils may be used if they meet one of the following:

- John Deere Standard JDM J20C
- John Deere Standard JDM J20D

Use the following oil when a biodegradable fluid is required:

- John Deere BIO-HY-GARD™[1]



[1]BIO-HY-GARD meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. BIO-HY-GARD should not be mixed with mineral oils because this reduces the biodegradability and makes proper oil recycling impossible.

DX,ANTI -19-10OCT97

FRONT WHEEL DRIVE AXLE OIL

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

The following oil is preferred:

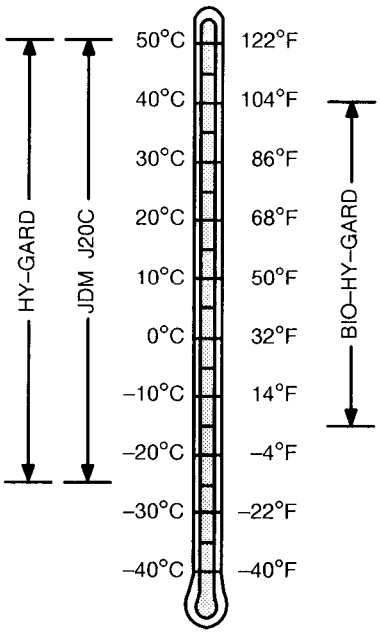
- John Deere HY-GARD®

Other oils may be used if they meet the following:

- John Deere Standard JDM J20C

Use the following oil when a biodegradable fluid is required:

- John Deere BIO-HY-GARD™[1]



[1]BIO-HY-GARD meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. BIO-HY-GARD should not be mixed with mineral oils because this reduces the biodegradability and makes proper oil recycling impossible

FX,OIL1 -19-14JUN96

DIESEL ENGINE COOLANT

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37˚C (-34˚F).

John Deere COOL-GARD is preferred for service.

If John Deere COOL-GARD is not available, use a low silicate ethylene glycol base coolant concentrate in a 50% mixture of concentrate with quality water.

The coolant concentrate shall be of a quality that provides cavitation protection to cast iron and aluminum parts in the cooling system. John Deere COOL-GARD meets this requirement.

A 50% mixture of ethylene glycol engine coolant in water provides freeze protection to -37˚C (-34˚F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

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.

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

Coolant drain intervals

Drain the factory fill engine coolant, flush the cooling system, and refill with new coolant after the first 3 years or 3000 hours of operation. Subsequent drain intervals are determined by the coolant used for service. At each interval, drain the coolant, flush the cooling system, and refill with new coolant.

When John Deere COOL-GARD is used, the coolant drain interval is 3 years or 3000 hours operation.

If COOL-GARD is not used, the drain interval is reduced to 2 years or 2000 hours of operation.

DX,COOL8 -19-12FEB99

GREASE

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following grease is preferred:

• John Deere SD POLYUREA GREASE

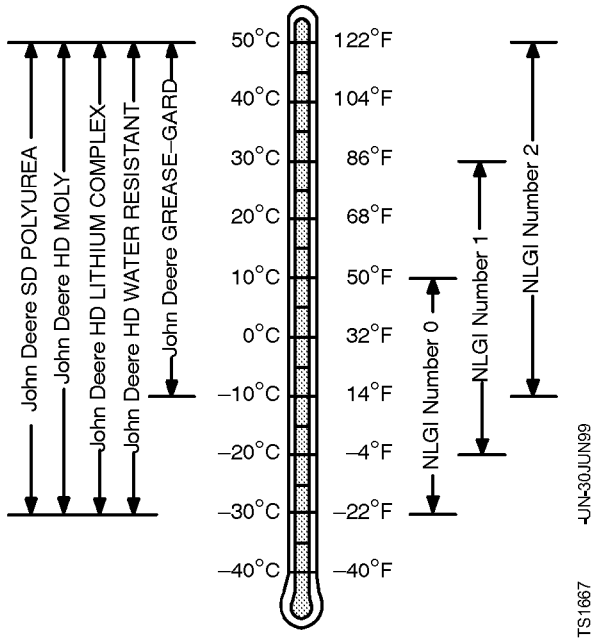
The following greases are also recommended:

• John Deere HD MOLY GREASE
• John Deere HD LITHIUM COMPLEX GREASE
• John Deere HD WATER RESISTANT GREASE
• John Deere GREASE-GARD

Other greases may be used if they meet the following:

• NLGI Performance Classification GC-LB

IMPORTANT: Some types of grease thickener are not compatible with others.



DX,GREA1 -19-05AUG99

OIL FILTERS

Filtration of oils is critical to proper operation and lubrication.

Always change filters regularly as specified in this manual.

Use filters meeting John Deere performance specifications.

DX,FILT -19-18MAR96

MIXING OF LUBRICANTS

In general, avoid mixing different brands 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.

LX,1005 011924-19-01APR97

OPERATING IN WARM TEMPERATURE CLIMATES

John Deere engines are designed to operate using glycol base engine coolants.

Always use a recommended glycol base engine coolant, even when operating in geographical areas where freeze protection is not required.

IMPORTANT: Water may be used as coolant *in emergency situations only.*

Foaming, hot surface aluminum and iron corrosion, scaling, and cavitation will occur when water is used as the coolant, even when coolant conditioners are added.

Drain cooling system and refill with recommended glycol base engine coolant as soon as possible.

DX,COOL6 -19-18MAR96

LUBRICANT STORAGE

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Whenever possible, store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST -19-18MAR96

ALTERNATIVE AND SYNTHETIC LUBRICANTS

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

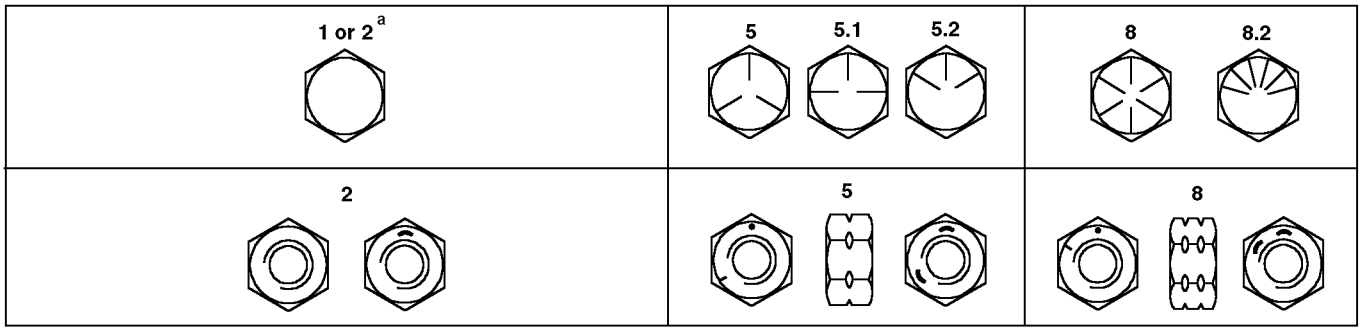
Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic oils.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

LX,1005 011925-19-01APR97

UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES



SAE Grade Head and Nut Markings

Size	Grade 1				Grade 2[b]				Grade 5, 5.1, or 5.2				Grade 8 or 8.2			
	Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
1/4	3.8	2.8	4.7	3.5	6	4.4	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.7	9.8	7.2	12	9	15.5	11.5	19.5	14.5	25	18.5	28	20.5	35	26
3/8	13.5	10	17.5	13	22	16	27.5	20	35	26	44	32.5	49	36	63	46
7/16	22	16	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
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

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

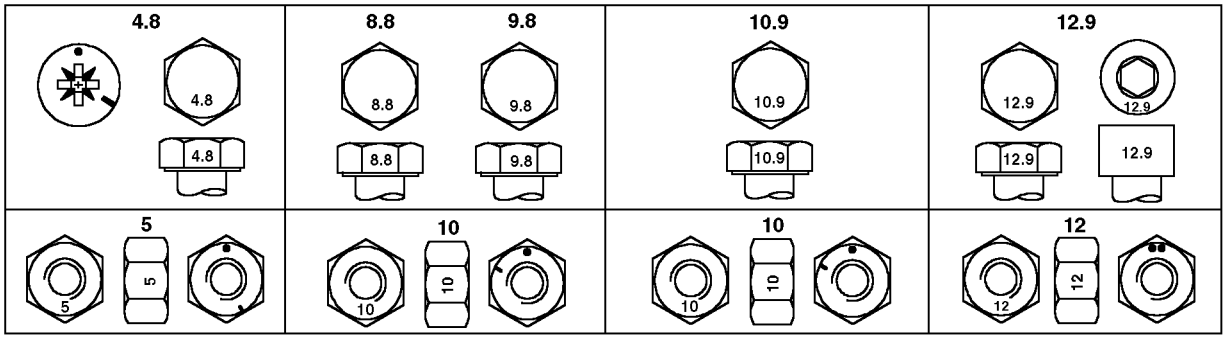
Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

[a] "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

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

DX,TORQ1 -19-01OCT99

METRIC BOLT AND CAP SCREW TORQUE VALUES



TORQ2 -UN-07SEP99

Property Class Head and Nut Markings

Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
M6	4.7	3.5	6	4.4	9	6.6	11.5	8.5	13	9.5	16.5	12.2	15.5	11.5	19.5	14.5
M8	11.5	8.5	14.5	10.7	22	16	28	20.5	32	23.5	40	29.5	37	27.5	47	35
M10	23	17	29	21	43	32	55	40	63	46	80	59	75	55	95	70
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

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

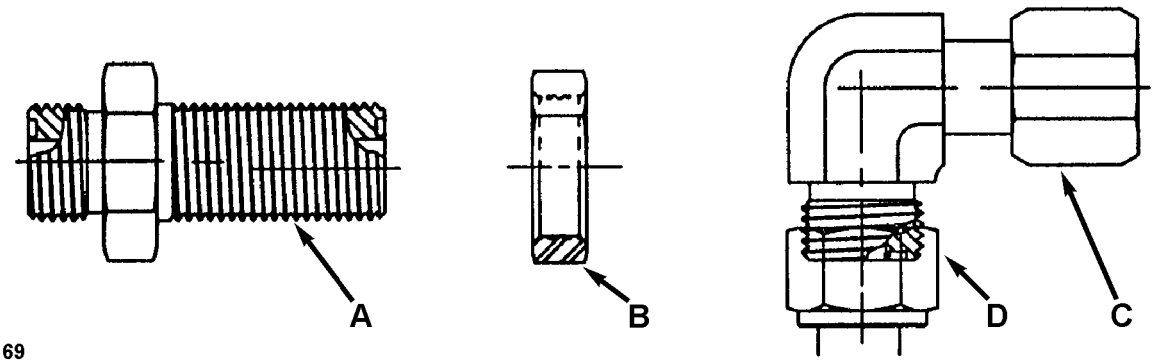
Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

[a] "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

DX,TORQ2 -19-01OCT99

TORQUES FOR INCH FITTINGS USED IN THE HYDRAULIC SYSTEM



LX1020169

LX1020169 -UN-24MAR98

A—Bulkhead fitting B—Locknut C—Union nut D—Union nut

Thread size	Fitting with flat-faced O-ring seal			
	Union nut		Locknut for bulkhead fitting	
	N·m	lb-ft	N·m	lb-ft
9/16 —18	16	12	5	3.5
11/16 —16	24	18	9	6.5
13/16 —16	50	37	17	12.5
1 —14	69	51	17	12.5
1-3/16 —12	102	75	17	12.5
1-7/16 —12	142	105	17	12.5
1-11/16 —12	190	140	17	12.5
2 —12	217	160	17	12.5

The torques in the table above are intended only as approximate values, and do NOT apply if a different torque value is listed for specific fittings at other points in this Manual.

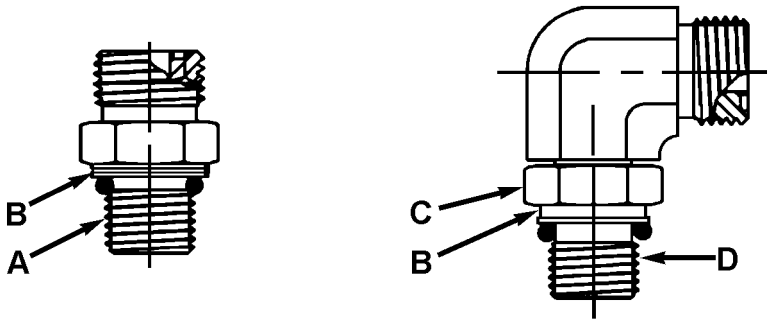
Check fittings regularly to make sure they are seated properly.

When replacing fittings, be sure to use parts with an equal or higher grade to the parts you are replacing. Items of hardware (e.g. union nuts) that are of a higher grade should be tightened to the same torque value as the parts they replace.

It is vitally important to make sure that the sealing faces are clean and that the O-rings have been inserted properly.

LX,1005 017113-19-01APR98

TORQUES FOR METRIC FITTINGS USED IN THE HYDRAULIC SYSTEM



LX1020170

LX1020170 -UN-21APR98

A—Stud-end fitting B—Groove for metric spec. C—Locknut D—Adjustable fitting

Thread size	Stud-end fitting and locknut for adjustable fitting			
	Steel or gray-cast iron		Aluminium	
	N·m	lb-ft	N·m	lb-ft
M12x1.5	21	15.5	9	6.6
M14x1.5	33	24	15	11
M16x1.5	41	30	18	13
M18x1.5	50	37	21	15
M22x1.5	69	51	28	21
M27x2	102	75	46	34
M33x2	158	116	71	52
M38x2	176	130	79	58
M42x2	190	140	85	63
M48x2	217	160	98	72

The torques in the table above are intended only as approximate values, and do NOT apply if a different torque value is listed for specific fittings at other points in this Manual.

Check fittings regularly to make sure they are seated properly.

When replacing fittings, be sure to use parts with an equal or higher grade to the parts you are replacing. Items of hardware (e.g. union nuts) that are of a higher grade should be tightened to the same torque value as the parts they replace.

It is vitally important to make sure that the sealing faces are clean and that the O-rings have been inserted properly.

LX,1005 017114-19-01APR98

SERIAL NUMBER PLATES

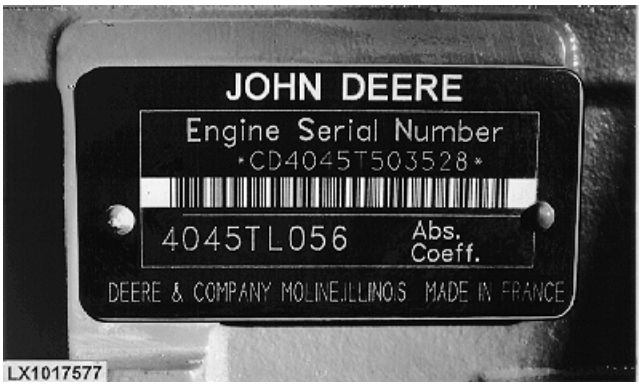
On the following illustrations the serial number plates of the various tractor parts are shown. The letters and numbers on the plates are necessary for warranty claims and spare part orders.

LX,RCRA 000748-19-11DEC90

Engine Serial Number

The engine serial number plate is located on the right-hand side of the engine block.

NOTE: Besides the engine serial number, the plate shows the engine type as well. When ordering spare parts for the engine, indicate all numbers and letters on this plate.



-UN-12SEP97 LX1017577

LX,10,AD 013238-19-01NOV97

Front Wheel Drive Axle Serial Number

The front wheel drive axle serial number plate is located on the rear, left hand side of the axle.

-UN-02NOV95 LX005489

LX,10,5 004191-19-01MAR93

Product Identification Number

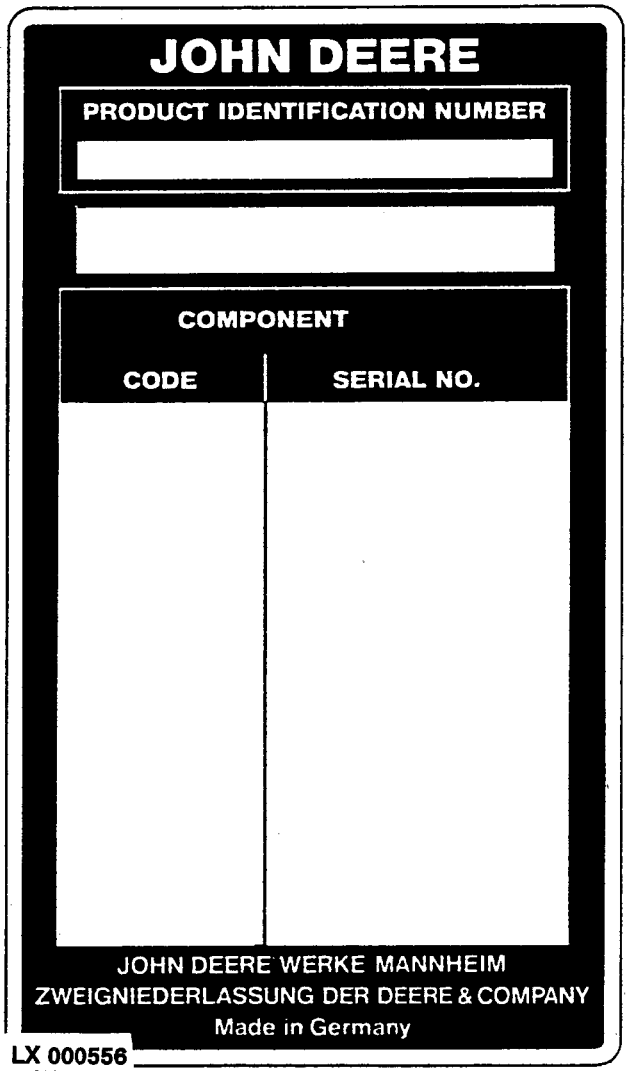
The plate showing the product identification number is on the right-hand side of the main frame.

-UN-15DEC97 LX1018219

LX,10,AD 013313-19-01NOV97

PRODUCT IDENTIFICATION NUMBER AND COMPONENT SERIAL NUMBERS

Code	Components
DT-1	PowrQuad module
DT-2	SyncroPlus module
EN-1	Engine
FA-1	Front axle
FI-1	Front PTO
FI-2	Front hitch
FI-3	Front loader
HY-1	Hydraulic pump
OS-1	Cab
OS-2	Roll-over protection
OS-3	Seat
OS-4	Brake valve
OS-5	Steering valve
OS-6	Compressor for air-conditioning
RA-1	Transmission assy.
RA-3	Transmission ratios differential - front-wheel drive
RI-1	Priority valve
RI-2	Pick-up hitch
RI-3	Wagon hitch
RI-4	Swinging drawbar
RI-5	Holder for wagon hitch
RI-6	Trailer brake valve



LX000556 -UN-16AUG94

LX,OSER 000460-19-01SEP95

Sub-Assembly Serial Numbers

Fuel injection pump, fuel injection nozzles, alternator, starting motor, steering unit (hydrostatic steering system) and the hydraulic pump also have serial numbers. These numbers help to distinguish between the different types of a sub-assembly.

LX,RCRANA000754-19-31DEC97

SPECIFICATIONS

	6205		6505	
Engine type	4045TL064 turbocharged	4045TL051 turbocharged	6068DL051 naturally aspirated	6068DL050 naturally aspirated
Engine power at rated engine speed according to ECE-R24 (not certificated)	63 kW (85 hp)	—	74 kW (100 hp)	—
Engine power at rated engine speed according to ECE-R24 with viscous fan drive (certificated)	—	66 kW (90 hp)	—	77 kW (105 hp)
Max. PTO power[1] at rated PTO speed (factory measured, 1000 rpm PTO)	55 kW (75 hp)	59 kW (80 hp)	66 kW (90 hp)	68 kW (92 hp)
Injection pump - Slow idle - Fast idle	850± 50 rpm 2460+ 50 rpm		850± 50 rpm 2460+ 50 rpm	
Rated engine speed	2300 rpm		2300 rpm	
Working speed range	1000-2300 rpm		1000-2300 rpm	
Air intake system vacuum	1.5 kPa (15 mbar; 0.22 psi)		1.5 kPa (15 mbar; 0.22 psi)	
Air cleaner restriction warning switch closes at a vacuum of	5.6 to 6.4 kPa (56 to 64 mbar; 0.81 to 0.93 psi)		5.6 to 6.4 kPa (56 to 64 mbar; 0.81 to 0.93 psi)	
Radiator cap pressure valve - opening pressure	70 to 90 kPa (0.70 to 0.90 bar; 10 to 13 psi)		70 to 90 kPa (0.70 to 0.90 bar; 10 to 13 psi)	
- vacuum, max.	10 kPa (100 mbar; 0.15 psi)		10 kPa (100 mbar; 0.15 psi)	
Cooling system test pressure	50 to 70 kPa (0.5 to 0.7 bar. 7 to 10 psi)		50 to 70 kPa (0.5 to 0.7 bar; 7 to 10 psi)	

[1] With engine run in (more than 100 hours of operation) and engine and transmission at operating temperature, measured by means of a dynamometer. Permissible deviation ± 5%.

LX,10,10B013099-19-01FEB99