5210, 5310 5410 and 5510 Tractors

For complete service information also see:

Component Technical Manuals

3029 2.9 L Engine CTM125
4045 4.5 L Engine CTM104
Alternators and Starting Motors CTM77

John Deere Augusta
TM1716 (18JUN99)

LITHO IN U.S.A.
ENGLISH

Introduction

FOREWORD

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

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

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

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

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

Section 10, Group 10—General Specifications, consists of all applicable specifications, near tolerances and specific torque values for various components on each individual machine.

Binders, binder labels, and tab sets can be ordered by John Deere dealers direct from the John Deere Distribution Service Center.

This manual is part of a total product support program.

FOS MANUALS—REFERENCE

TECHNICAL MANUALS—MACHINE SERVICE

COMPONENT TECHNICAL MANUALS—COMPONENT SERVICE

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

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

Component Technical Manuals are concise service guides for specific components. Component technical manuals are written as stand-alone manuals covering multiple machine applications.

LV,1716TMIFC,A -19-02MAR98

Contents

SECTION 10—GENERAL INFORMATION
- Group 05—Safety
- Group 10—General Specifications
- Group 20—Fuel and Lubricants
- Group 25—Serial Number Locations
- Group 30—Features and Accessories

SECTION 20—ENGINE REPAIR
- Group 05—Engine
- Group 10—Cooling System

SECTION 30—FUEL AND AIR REPAIR
- Group 05—Fuel System
- Group 10—Air Intake System
- Group 15—Speed Control Linkage

SECTION 40—ELECTRICAL REPAIR
- Group 05—Battery, Starter and Alternator
- Group 10—Electrical System Components
- Group 15—Wiring Harness

SECTION 50—POWER TRAIN REPAIR
- Group 05—Clutch Housing
- Group 10—Clutch Assembly—CollarShift/SyncShuttle™ Transmissions
- Group 11—Clutch Assembly—PowrReverser™ Transmission
- Group 12—PowrReverser™
- Group 15—CollarShift/SyncShuttle™ Transmission
- Group 16—PowrReverser™ Transmission
- Group 20—Rear PTO Drive Shaft
- Group 25—Differential
- Group 30—Final Drives
- Group 35—Mechanical Front Wheel Drive
- Group 40—Creeper Assembly

SECTION 60—STEERING AND BRAKE REPAIR
- Group 05—Steering Repair
- Group 10—Brake Repair

SECTION 70—HYDRAULIC REPAIR
- Group 05—Hydraulic Pump and Filter
- Group 06—Hydraulic Oil Cooler
- Group 10—Rockshaft
- Group 15—Dual Selective Control Valve
- Group 16—Single (Third) Selective Control Valve
- Group 20—Hydraulic Mid Mount Coupler
- Group 25—Hydraulic Power Beyond

SECTION 80—MISCELLANEOUS REPAIR
- Group 05—Front Axle—2WD
- Group 10—Wheels
- Group 15—3-Point Hitch

SECTION 90—OPERATOR STATION REPAIR
- Group 05—Seat and Support
- Group 06—Control Console and Panel—Tractors Without Cab
- Group 10—ROLL-GARD®
- Group 15—Cab Components
- Group 20—Air Conditioning System
- Group 25—Heating System

SECTION 210—TEST AND ADJUSTMENT SPECIFICATIONS/OPERATIONAL CHECKOUT PROCEDURES
- Group 05—Test and Adjustment Specifications
- Group 10—Operational Checkout Procedures

SECTION 220—ENGINE OPERATION, TESTS AND ADJUSTMENTS
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Tests and Adjustments

SECTION 230—FUEL/AIR OPERATION, TESTS AND ADJUSTMENTS
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Tests and Adjustments

SECTION 240—ELECTRICAL SYSTEM OPERATION, TESTS AND ADJUSTMENTS
- Group 05—Component Location
- Group 10—Theory of Operation
- Group 15—Diagnosis, Tests and Adjustments

Continued on next page

Group 20—Wiring Schematics

10

SECTION 250—POWER TRAIN OPERATION, TESTS AND ADJUSTMENTS
Group 05—Component Location—Collar Shift/SyncShuttle™ Transmission
Group 06—Component Location—PowrReverser™ Transmission
20
Group 10—Theory of Operation—Collar Shift/SyncShuttle™ Transmission
Group 11—Theory of Operation—PowrReverser™ Transmission
30
Group 15—Diagnosis, Tests and Adjustments—CS/SS Transmission
Group 16—Diagnosis, Tests and Adjustments—PowrReverser™

40

SECTION 260—STEERING AND BRAKE OPERATION, TESTS AND ADJUSTMENTS
Group 05—Component Location
Group 10—Theory of Operation
Group 15—Diagnosis, Tests and Adjustments

50

SECTION 270—HYDRAULIC SYSTEM OPERATION, TESTS AND ADJUSTMENTS
Group 05—Component Location
Group 10—Theory of Operation
60
Group 15—Diagnosis
Group 16—Hydraulic Tests—Without SCV
Group 17—Hydraulic Tests—With SCV
Group 18—Hydraulic Tests—All
Group 19—Adjustments
70
Group 20—Hydraulic Schematics

SECTION 290—OPERATOR STATION
Group 05—Component Location
Group 10—Theory of Operation
80
Group 15—Diagnosis, Tests and Adjustments

SECTION 299—DEALER FABRICATED TOOLS
Group 00—Dealer Fabricated Tools

90
Index

210

Section 10
GENERAL INFORMATION

Contents

Page

Group 05—Safety 10-05-1

Group 10—General Specifications
Machine Specifications 5210 and 5310 . . 10-10-1
Machine Specifications 5410 and 5510 . . 10-10-6
Repair Specifications 10-10-11
Service Recommendations
For O-Ring Boss Fittings 10-10-19
For Flat Face O-Ring Seal Fittings 10-10-20
Metric Cap Screw Torque Values—Grade 7 10-10-21
Metric Series Torque Chart 10-10-22
Inch Series Torque Chart 10-10-23
Abbreviations 10-10-24

Group 20—Fuel and Lubricants
Diesel Fuel Specifications 10-20-1
Fuel Storage 10-20-1
Do Not Use Galvanized Containers 10-20-2
Fill Fuel Tank 10-20-2
Engine Coolant 10-20-4
Liquid Coolant Conditioner 10-20-4
MFWD Gear Oil 10-20-6
Grease 10-20-6

Group 25—Serial Number Locations
Product Identification Number Location . . 10-25-1
Serial Number Location
Engine 10-25-1
Fuel Injection Pump 10-25-1
Alternator 10-25-2
Power Steering Valve 10-25-2
Starter 10-25-2
Transmission 10-25-2
Front Axle (2WD) 10-25-3
Mechanical Front Wheel Drive (MFWD) . 10-25-3
Air Conditioning Compressor 10-25-3

Group 30—Features and Accessories
Features and Accessories 10-30-1
Standard Features—5210 and 5310 10-30-2
Standard Features—5410 and 5510 10-30-3
Standard Features—5210 through 5510 . . 10-30-4

Page

Factory Installed Optional Equipment (5210—5510) 10-30-5
Field Installed Optional Kits and Accessories—5210 through 5510 10-30-6

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 -19-03MAR93

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

DX,SIGNAL -19-03MAR93

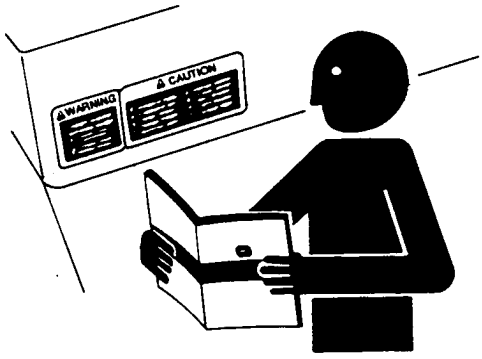
FOLLOW SAFETY INSTRUCTIONS

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

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

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

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



TS201 -UN-23AUG88

DX,READ -19-03MAR93

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 -19-04JUN90

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

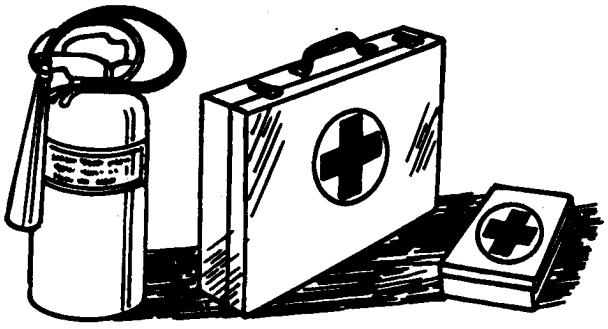
DX,SPARKS -19-03MAR93

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

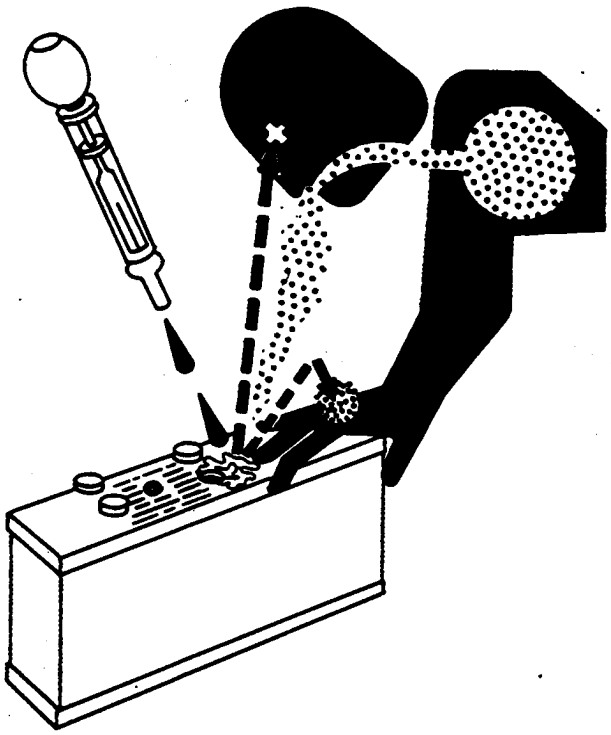
PREVENT ACID BURNS

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

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

HANDLE CHEMICAL PRODUCTS SAFELY

TS1132 -UN-26NOV90

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.

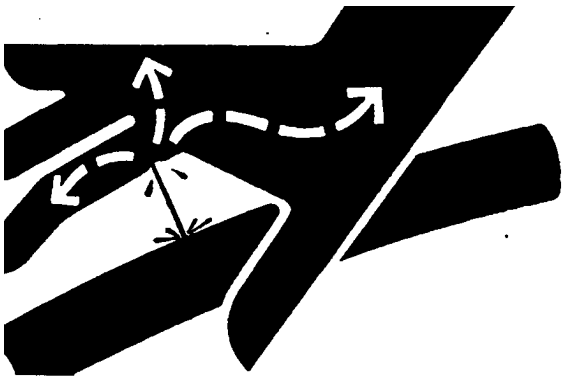
A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

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.)

DX,MSDS,NA -19-03MAR93

AVOID HIGH-PRESSURE FLUIDS



X9811 -UN-23AUG88

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.

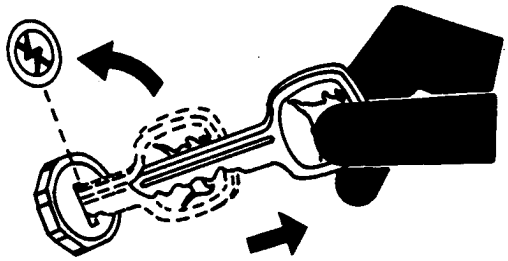
Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

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.

DX,FLUID -19-03MAR93

PARK MACHINE SAFELY

Before working on the machine:
- Lower all equipment to the ground.
- Shift transmission to PARK.
- Engage park brake if equipped.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a “DO NOT OPERATE” tag in operator station.



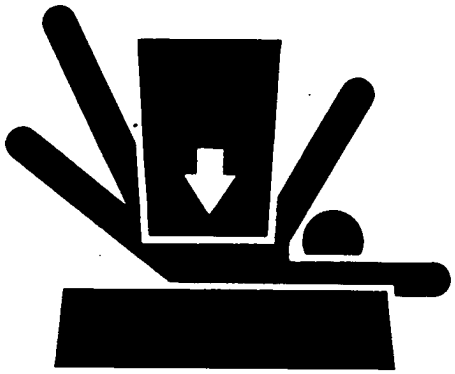
TS230 -UN-24MAY89

LV,PARK -19-03MAR98

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.

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.



TS229 -UN-23AUG88

DX,LOWER -19-04JUN90

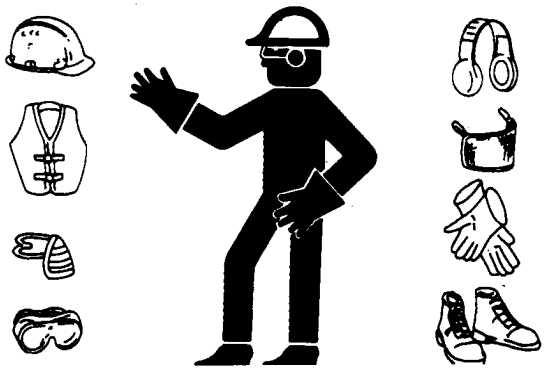
WEAR PROTECTIVE CLOTHING

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.

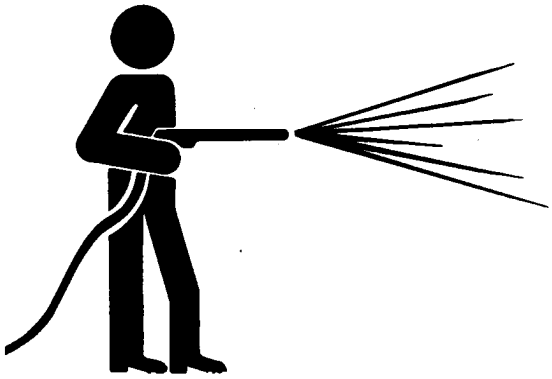


TS206 -UN-23AUG88

DX,WEAR -19-10SEP90

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.



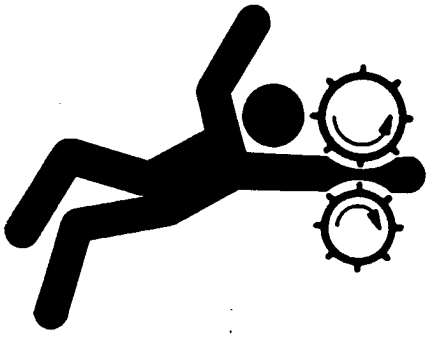
T6642EJ -UN-18OCT88

DX,CLEAN -19-04JUN90

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.



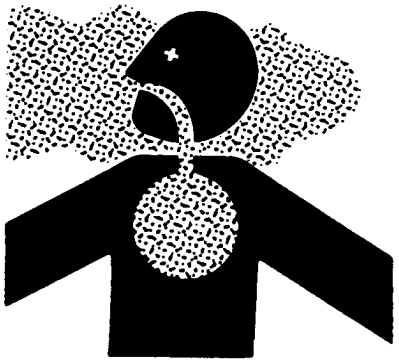
TS228 -UN-23AUG88

DX,LOOSE -19-04JUN90

WORK IN VENTILATED AREA

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

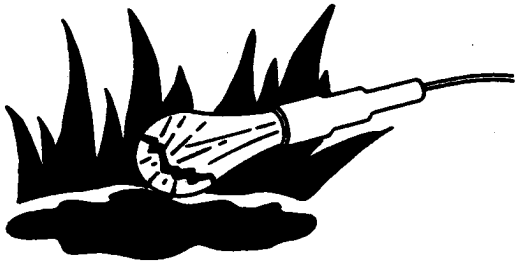


TS220 -UN-23AUG88

DX,AIR -19-04JUN90

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.

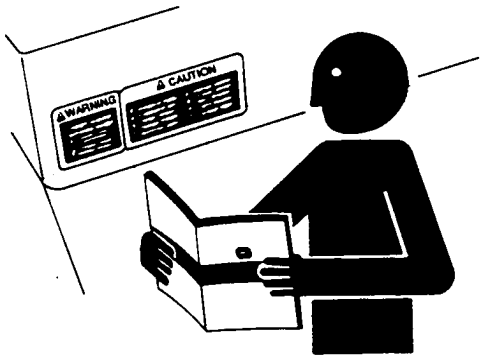


TS223 -UN-23AUG88

DX,LIGHT -19-04JUN90

REPLACE SAFETY SIGNS

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



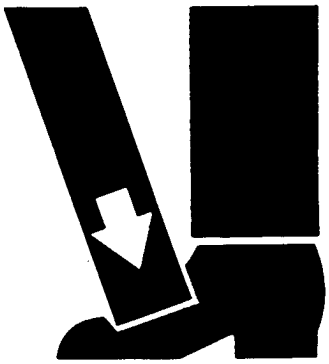
TS201 -UN-23AUG88

DX,SIGNS1 -19-04JUN90

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.



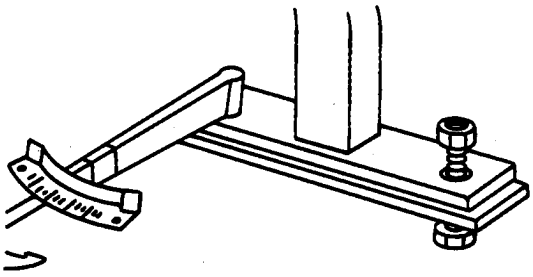
TS226 -UN-23AUG88

DX,LIFT -19-04JUN90

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

SERVICE TIRES SAFELY

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05
8

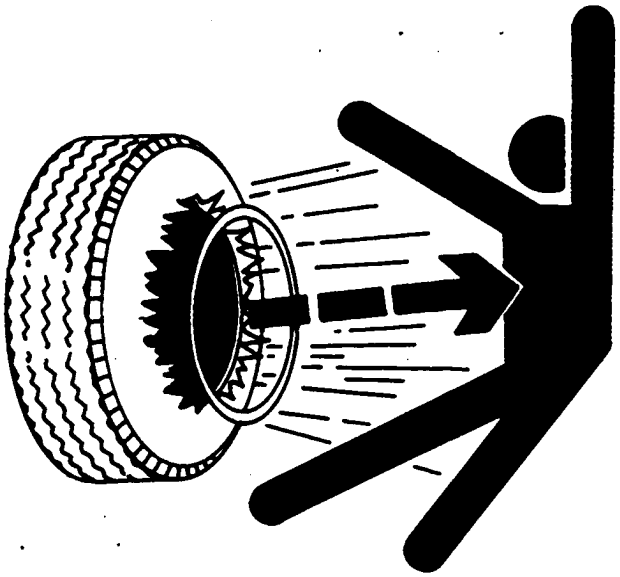
Explosive separation of a tire and rim parts can cause serious injury or death.

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

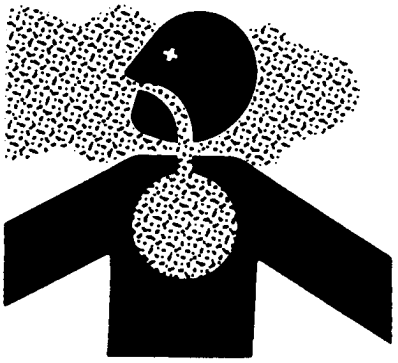
AVOID HARMFUL ASBESTOS DUST

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.

Keep bystanders away from the area.



TS220 -UN-23AUG88

DX,DUST -19-15MAR91

AVOID HEATING NEAR PRESSURIZED FLUID LINES

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

TS953 -UN-15MAY90

DX,TORCH -19-03MAR93

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.

TS220 -UN-23AUG88

DX,PAINT -19-03MAR93

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

DISPOSE OF WASTE PROPERLY

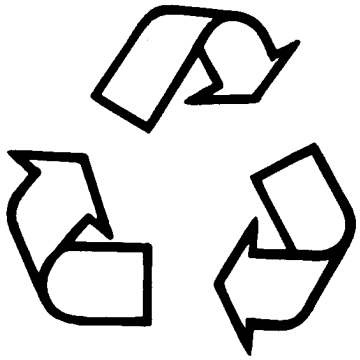
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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-26NOV90

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 -19-25SEP92

10 05 11

MACHINE SPECIFICATIONS 5210 AND 5310

	5210	5310
ENGINE		
Make	John Deere	John Deere
Type	Diesel	Diesel
Model	CD3029DLV50	CD3029TLV50
Aspiration	Natural	Turbocharged
Horsepower	39 kW (53 hp)	47 kW (63 hp)
Rated Engine Speed	2400 rpm	2400 rpm
Operating Range	1600—2400 rpm	1600—2400 rpm
Number of Cylinders	3	3
Displacement	2.9 L (179 cu in.)	2.9 L (179 cu in.)
Bore and Stroke	106 x 110 mm (4.19 x 4.33 in.)	106 x 110 mm (4.19 x 4.33 in.)
Compression Ratio	17.8:1	17.8:1
Fast Idle	2600 rpm	2600 rpm
Slow Idle	800 rpm	800 rpm
Start Aid	Air Heater	Air Heater
Firing Order	1-2-3	1-2-3
Timing	18˚ BTDC	18˚ BTDC
Lubrication	Pressurized	Pressurized
Cooling	Liquid Cooled	Liquid Cooled
Air Cleaner	Dry Type w/Safety Element	Dry Type w/Safety Element
Engine Shutoff	Key Switch	Key Switch
FUEL SYSTEM		
Type	Direct Injection	Direct Injection
Injection Pump Type	Rotary w/Electric Shutoff	Rotary w/Electric Shutoff
ELECTRICAL SYSTEM		
Type	12 Volt	12 Volt
Battery Size	700 Cold Cranking Amps at -18˚C	700 Cold Cranking Amps at -18˚C
Alternator	40 Amp Without Cab 60 Amp With Cab	40 Amp Without Cab 60 Amp With Cab

LV,17161010,A1 -19-02MAR98

	5210	5310
DRIVE TRAIN		
Transmission Type		
Standard	CollarShift	CollarShift
Optional	SyncShuttle™	SyncShuttle™
Number of Speeds	9 Forward, 3 Reverse	9 Forward, 3 Reverse
Optional	PowrReverser™	PowrReverser™
Number of Speeds	12 Forward, 12 Reverse	12 Forward, 12 Reverse
Final Drive	Planetary	Planetary
Clutch	Dual, Dry	Dual, Dry
PowrReverser™	Multi-Disk, Wet	Multi-Disk, Wet
STEERING/BRAKES		
Steering	Hydrostatic Power	Hydrostatic Power
Brakes	Wet Disk Self-Equalizing	Wet Disk Self-Equalizing
HYDRAULIC SYSTEM		
Type	Open Center	Open Center
Working Pressure	18995—19685 kPa (190—197 bar) (2755—2855 psi)	18995—19685 kPa (190—197 bar) (2755—2855 psi)
Pump Type	Tandem Gear	Tandem Gear
Capacity	68.8 L/min (18.2 gpm)	68.8 L/min (18.2 gpm)
Hitch Lift Capacity at 610 mm (24 in.)		
Behind Hitch Balls	1530 kg (3374 lb)	1530 kg (3374 lb)
Lift Control Type	Position and Depth	Position and Depth
REAR PTO		
Type	Fully Independent	Fully Independent
Horsepower (Standard Mode)	34 kW (45 hp)	41 kW (55 hp)
Speed		
540 (Standard Mode) @ 2400 rpm Engine Speed	540 rpm	540 rpm
540E (Economy Mode)* @ 1700 rpm Engine Speed	540 rpm	540 rpm
CAPACITIES		
Fuel Tank (Open Station)	68 L (18 U.S. gal)	68 L (18 U.S. gal)
Fuel Tank (Cab Tractors)	83 L (22 U.S. gal)	83 L (22 U.S. gal)
Cooling System	9.5 L (10 U.S. qt)	9.5 L (10 U.S. qt)
Engine Crankcase w/Filter	8.5 L (9 U.S. qt)	8.5 L (9 U.S. qt)
Hydraulic System	38 L (10 U.S. gal)	38 L (10 U.S. gal)
MFWD		
Wheel Hubs	0.6 L (0.63 U.S. qt)	0.6 L (0.63 U.S. qt)
Differential Housing	5 L (5.3 U.S. qt)	5 L (5.3 U.S. qt)

**Available only on SyncShuttle™ Transmission.*

LV,17161010,A2 -19-02MAR98

	5210	5310
TIRES		
(Standard Equipment)		
2WD		
Front	6.50—16 6PR F2	7.50—16 6PR F2
Rear	13.6—28 4PR R1	14.9—28 4PR R1
MFWD		
Front	8.3—24 4PR R1	9.5—24 4PR R1
Rear	13.6—28 4PR R1	14.9—28 6PR R1
OVERALL DIMENSIONS		
(Standard Equipment)		
Ground Clearance		
Drawbar	364 mm (14.3 in.)	364 mm (14.3 in.)
Front Axle		
2WD	478 mm (19 in.)	478 mm (19 in.)
MFWD	430 mm (17 in.)	430 mm (17 in.)
Overall Length without Hitch and Drawbar	3150 mm (124 in.)	3150 mm (124 in.)
Overall Width (Maximum)	2402 mm (94.6 in.)	2402 mm (94.6 in.)
Height		
To Top of Steering Wheel	1600 mm (63 in.)	1625 mm (64 in.)
To Top of ROPS*		
Extended	2254 mm (88.7 in.)	2254 mm (88.7 in.)
Folded	1948 mm (76.7 in.)	1973 mm (77.7 in.)
To Top of Cab from Center Line of Rear Axle	1844 mm (72.6 in.)	1844 mm (72.6 in.)
Approximate Weight**		
2WD***	1982 kg (4370 lb)	2064 kg (4550 lb)
MFWD***	2145 kg (4730 lb)	2250 kg (4960 lb)

**Add 4 inches to top of ROPS if equipped with a canopy.*

***Weights will vary slightly with optional tires.*

****Add 1000 lbs. to weight of tractor if equipped with cab.*

(Specifications and design subject to change without notice.)

LV,17161010,A3 -19-02MAR98

	5210	5310
Travel Speeds for CollarShift or SyncShuttle™ Units at Full Engine RPM with Rear Tire Types*	14.9—28 R1	14.9—28 R1
Forward Gears		
C-1 Gear**	0.3 km/h (0.2 mph)	0.3 km/h (0.2 mph)
C-2 Gear**	0.5 km/h (0.3 mph)	0.5 km/h (0.3 mph)
C-3 Gear**	0.7 km/h (0.4 mph)	0.7 km/h (0.4 mph)
A-1st Gear	2.0 km/h (1.2 mph)	2.0 km/h (1.2 mph)
A-2nd Gear	2.1 km/h (1.3 mph)	2.1 km/h (1.3 mph)
A-3rd Gear	4.0 km/h (2.5 mph)	4.0 km/h (2.5 mph)
B-1st Gear	4.7 km/h (2.9 mph)	4.7 km/h (2.9 mph)
B-2nd Gear	6.7 km/h (4.2 mph)	6.7 km/h (4.2 mph)
B-3rd Gear	9.2 km/h (5.7 mph)	9.2 km/h (5.7 mph)
C-1st Gear	12.8 km/h (7.9 mph)	12.8 km/h (7.9 mph)
C-2nd Gear	18.4 km/h (11.5 mph)	18.4 km/h (11.5 mph)
C-3rd Gear	25.1 km/h (15.6 mph)	25.1 km/h (15.6 mph)
Reverse Gears		
C-R Gear**	0.6 km/h (0.34 mph)	0.6 km/h (0.34 mph)
R-1st Gear	3.4 km/h (2.1 mph)	3.4 km/h (2.1 mph)
R-2nd Gear	7.8 km/h (4.8 mph)	7.8 km/h (4.8 mph)
R-3rd Gear	21.3 km/h (13.2 mph)	21.3 km/h (13.2 mph)

**Travel speeds will vary with optional rear tires.*

***Speeds of tractors equipped with optional creeper assembly.*

LV,17161010,A4 -19-02MAR98

	5210		5310	
Travel Speeds for PowrReverser™ Units at Full Engine RPM with Rear Tire Types*	16.9—30 R1		16.9—30 R1	
	Forward km/h (mph)	Reverse km/h (mph)	Forward km/h (mph)	Reverse km/h (mph)
C-1**	0.24 (0.15)	0.28 (0.18)	0.24 (0.15)	0.28 (0.18)
C-2**	0.31 (0.19)	0.35 (0.22)	0.31 (0.19)	0.35 (0.22)
C-3**	0.40 (0.25)	0.46 (0.28)	0.40 (0.25)	0.46 (0.28)
C-4**	0.54 (0.34)	0.62 (0.39)	0.54 (0.34)	0.62 (0.39)
A-1	1.49 (0.93)	1.72 (1.07)	1.49 (0.93)	1.72 (1.07)
A-2	1.87 (1.16)	2.16 (1.34)	1.87 (1.16)	2.16 (1.34)
A-3	2.42 (1.50)	2.79 (1.74)	2.42 (1.50)	2.79 (1.74)
A-4	2.87 (1.79)	3.32 (2.07)	2.87 (1.79)	3.32 (2.07)
B-1	4.33 (2.69)	5.01 (3.11)	4.33 (2.69)	5.01 (3.11)
B-2	5.42 (3.37)	6.26 (3.89)	5.42 (3.37)	6.26 (3.89)
B-3	7.00 (4.34)	8.10 (5.04)	7.00 (4.34)	8.10 (5.04)
B-4	9.56 (5.94)	11.0 (6.87)	9.56 (5.94)	11.0 (6.87)
C-1	12.2 (7.61)	14.2 (8.80)	12.2 (7.61)	14.2 (8.80)
C-2	15.3 (9.51)	17.7 (11.0)	15.3 (9.51)	17.7 (11.0)
C-3	19.8 (12.3)	22.9 (14.2)	19.8 (12.3)	22.9 (14.2)
C-4	27.0 (16.8)	31.2 (19.4)	27.0 (16.8)	31.2 (19.4)

**Travel speeds will vary with optional rear tires.*

***Speeds of tractors equipped with optional creeper assembly.*

LV,17161010,A5 -19-02MAR98

MACHINE SPECIFICATIONS 5410 AND 5510

	5410	5510
ENGINE		
Make	John Deere	John Deere
Type	Diesel	Diesel
Model	CD4045DLV50	CD4045TLV50
Aspiration	Natural	Turbocharged
Horsepower	56 kW (75 hp)	63 kW (85 hp)
Rated Engine Speed	2400 rpm	2400 rpm
Operating Range	1600—2400 rpm	1600—2400 rpm
Number of Cylinders	4	4
Displacement	4.5 L (274 cu in.)	4.5 L (274 cu in.)
Bore and Stroke	106 x 127 mm (4.19 x 5.00 in.)	106 x 127 mm (4.19 x 5.00 in.)
Compression Ratio	17.6:1	17.0:1
Fast Idle	2600 rpm	2600 rpm
Slow Idle	800 rpm	800 rpm
Start Aid	Air Heater	Air Heater
Firing Order	1-3-4-2	1-3-4-2
Timing	17˚ BTDC	17˚ BTDC
Lubrication	Pressurized	Pressurized
Cooling	Liquid Cooled	Liquid Cooled
Air Cleaner	Dry Type w/Safety Element	Dry Type w/Safety Element
Engine Shutoff	Key Switch	Key Switch
FUEL SYSTEM		
Type	Direct Injection	Direct injection
Injection Pump Type	Rotary w/Electric Shutoff	Rotary w/Electric Shutoff
ELECTRICAL SYSTEM		
Type	12 Volt	12 Volt
Battery Size	700 Cold Cranking Amps at -18˚C	700 Cold Cranking Amps at -18˚C
Alternator	40 Amp Without Cab 65 Amp With Cab	40 Amp Without Cab 65 Amp With Cab

LV,17161010,A6 -19-02MAR98

	5410	5510
DRIVE TRAIN		
Transmission Type		
Standard	CollarShift	CollarShift
Optional	SyncShuttle™	SyncShuttle™
Number of Speeds	9 Forward, 3 Reverse	9 Forward, 3 Reverse
Optional	PowrReverser™	PowrReverser™
Number of Speeds	12 Forward, 12 Reverse	12 Forward, 12 Reverse
Final Drive	Planetary	Planetary
Clutch	Dual, Dry	Dual, Dry
PowrReverser™	Multi-Disk, Wet	Multi-Disk, Wet
STEERING/BRAKES		
Steering	Hydrostatic Power	Hydrostatic Power
Brakes	Wet Disk Self-Equalizing	Wet Disk Self-Equalizing
HYDRAULIC SYSTEM		
Type	Open Center	Open Center
Working Pressure	18995—19685 kPa (190—197 bar) (2755—2855 psi)	18995—19685 kPa (190—197 bar) (2755—2855 psi)
Pump Type	Tandem Gear	Tandem Gear
Capacity	85 L/min (22.5 gpm)	85 L/min (22.5 gpm)
Hitch Lift Capacity at 610 mm (24 in.)		
Behind Hitch Balls	1530 kg (3374 lb)	1530 kg (3374 lb)
Lift Control Type	Position and Depth	Position and Depth
REAR PTO		
Type	Fully Independent	Fully Independent
Horsepower	48 kW (65 hp)	56 kW (75 hp)
Speed		
540 (Standard Mode) @ 2400 rpm Engine Speed	540 rpm	540 rpm
540E (Economy Mode)* @ 1700 rpm Engine Speed	540 rpm	540 rpm
CAPACITIES		
Fuel Tank (Open Station)	68 L (18 U.S. gal)	83 L (22 U.S. gal)
Fuel Tank (Cab Tractors)	83 L (22 U.S. gal)	83 L (22 U.S. gal)
Cooling System	10.8 L (11.4 U.S. qt)	10.8 L (11.4 U.S. qt)
Engine Crankcase w/Filter	8.5 L (9 U.S. qt)	8.5 L (9 U.S. qt)
Hydraulic System	38 L (10 U.S. gal)	41.8 L (11 U.S. gal)
MFWD		
Wheel Hubs	0.6 L (0.63 U.S. qt)	0.6 L (0.63 U.S. qt)
Axle Housing	5 L (5.3 U.S. qt)	5 L (5.3 U.S. qt)

**Available only on SyncShuttle™ Transmission.*

LV,17161010,A7 -19-02MAR98

	5410	5510
TIRES		
(Standard Equipment)		
2WD		
Front	7.50—16 6PR F2	7.50—16 6PR F2
Rear	16.9—30 6PR R1	16.9—30 6PR R1
MFWD		
Front	11.2—24 4PR R1	11.2—24 4PR R1
Rear	16.9—30 6PR R1	16.9—30 6PR R1
OVERALL DIMENSIONS		
(Standard Equipment)		
Ground Clearance		
Drawbar		
2WD	497.8 mm (19.6 in.)	497.8 mm (19.6 in.)
MFWD	477.5 mm (18.8 in.)	477.5 mm (18.8 in.)
Front Axle		
2WD	464.8 mm (18.3 in.)	464.8 mm (18.3 in.)
MFWD	391.1 mm (15.4 in.)	391.1 mm (15.4 in.)
Overall Length without Hitch, Drawbar and Weights		
2WD	3197.8 mm (125.9 in.)	3510.2 mm (138.2 in.)
MFWD	3309.6 mm (130.3 in.)	3510.2 mm (138.2 in.)
Overall Width (Maximum)		
2WD	1744.9 mm (68.7 in.)	1744.9 mm (68.7 in.)
MFWD	1744.9 mm (68.7 in.)	1744.9 mm (68.7 in.)
Height		
To Top of Steering Wheel	1661 mm (65.4 in.)	1696.7 mm (66.8 in.)
To Top of ROPS*		
Extended	2316.4 mm (91.2 in.)	2481.5 mm (97.7 in.)
Folded	1981 mm (78 in.)	2024.3 mm (79.7 in.)
To Top of Cab from Center Line of Rear Axle	1844 mm (72.6 in.)	1844 mm (72.6 in.)
Approximate Weight**		
2WD***	2390 kg (5270 lb)	2599 kg (5730 lb)
MFWD***	2581 kg (5690 lb)	2785.1 kg (6140 lb)

**Add 4 inches to top of ROPS if equipped with a canopy.*

***Weights will vary slightly with optional tires.*

****Add 1000 lbs. to weight of tractor if equipped with cab.*

(Specifications and design subject to change without notice.)

LV,17161010,A8 -19-02MAR98

	5410	5510
Travel Speeds for CollarShift or SyncShuttle™ Units at Full Engine RPM with Rear Tire Types*	14.9—28 R1	16.9—30 R1
Forward Gears		
C-1 Gear**	0.3 km/h (0.2 mph)	13.7 km/h (8.5 mph)
C-2 Gear**	0.5 km/h (0.3 mph)	19.8 km/h (12.3 mph)
C-3 Gear**	0.7 km/h (0.4 mph)	27.0 km/h (16.7 mph)
A-1st Gear	2.0 km/h (1.2 mph)	2.1 km/h (1.3 mph)
A-2nd Gear	2.1 km/h (1.3 mph)	3.1 km/h (1.9 mph)
A-3rd Gear	4.0 km/h (2.5 mph)	4.2 km/h (2.6 mph)
B-1th Gear	4.7 km/h (2.9 mph)	4.9 km/h (3.1 mph)
B-2nd Gear	6.7 km/h (4.2 mph)	7.2 km/h (4.4 mph)
B-3rd Gear	9.2 km/h (5.7 mph)	9.8 km/h (6.1 mph)
C-1st Gear	12.8 km/h (7.9 mph)	13.7 km/h (8.5 mph)
C-2nd Gear	18.4 km/h (11.5 mph)	19.8 km/h (12.3 mph)
C-3rd Gear	25.1 km/h (15.6 mph)	27.0 km/h (16.7 mph)
Reverse Gears		
C-R Gear**	0.6 km/h (0.34 mph)	0.59 km/h (0.37 mph)
R-1st Gear	3.4 km/h (2.1 mph)	0.35 km/h (0.25 mph)
R-2nd Gear	7.8 km/h (4.8 mph)	0.51 km/h (0.32 mph)
R-3rd Gear	21.3 km/h (13.2 mph)	0.70 km/h (0.43 mph)

**Travel speeds will vary with optional rear tires.*

***Speeds of tractors equipped with optional creeper assembly.*

LV,17161010,A9 -19-02MAR98

	5410		5510	
Travel Speeds for PowrReverser™ Units at Full Engine RPM with Rear Tire Types*	16.9—30 R1		16.9—30 R1	
	Forward km/h (mph)	Reverse km/h (mph)	Forward km/h (mph)	Reverse km/h (mph)
C-1**	0.24 (0.15)	0.28 (0.18)	0.24 (0.15)	0.28 (0.18)
C-2**	0.31 (0.19)	0.35 (0.22)	0.31 (0.19)	0.35 (0.22)
C-3**	0.40 (0.25)	0.46 (0.28)	0.40 (0.25)	0.46 (0.28)
C-4**	0.54 (0.34)	0.62 (0.39)	0.54 (0.34)	0.62 (0.39)
A-1	1.49 (0.93)	1.72 (1.07)	1.49 (0.93)	1.72 (1.07)
A-2	1.87 (1.16)	2.16 (1.34)	1.87 (1.16)	2.16 (1.34)
A-3	2.42 (1.50)	2.79 (1.74)	2.42 (1.50)	2.79 (1.74)
A-4	2.87 (1.79)	3.32 (2.07)	2.87 (1.79)	3.32 (2.07)
B-1	4.33 (2.69)	5.01 (3.11)	4.33 (2.69)	5.01 (3.11)
B-2	5.42 (3.37)	6.26 (3.89)	5.42 (3.37)	6.26 (3.89)
B-3	7.00 (4.34)	8.10 (5.04)	7.00 (4.34)	8.10 (5.04)
B-4	9.56 (5.94)	11.0 (6.87)	9.56 (5.94)	11.0 (6.87)
C-1	12.2 (7.61)	14.2 (8.80)	12.2 (7.61)	14.2 (8.80)
C-2	15.3 (9.51)	17.7 (11.0)	15.3 (9.51)	17.7 (11.0)
C-3	19.8 (12.3)	22.9 (14.2)	19.8 (12.3)	22.9 (14.2)
C-4	27.0 (16.8)	31.2 (19.4)	27.0 (16.8)	31.2 (19.4)

**Travel speeds will vary with optional rear tires.*

***Speeds of tractors equipped with optional creeper assembly.*

LV,17161010,A10-19-02MAR98

REPAIR SPECIFICATIONS

Item	Measurement	Specification
SECTION 20—ENGINE REPAIR		
For all repair specifications use CTM125 for 2.9 L engines or CTM104 for 4.5 L engines		
Engine-to-Clutch Housing Cap Screw	Torque	318 N·m (235 lb-ft)
Engine-to-Front Support Cap Screw and/or Nut	Torque	318 N·m (235 lb-ft)
Engine-to-Front Support (Dowel Hole) Cap Screw	Torque	176 N·m (130 lb-ft)
Top of Dipstick Tube to Oil Pan Rail	Distance	156 mm (6.150 in.)
SECTION 30—FUEL AND AIR REPAIR		
For all fuel injection nozzle and turbocharger repair use CTM125 for 2.9 L engines or CTM104 for 4.5 L engines		
Fuel Tank Retaining Straps L-Bolt	Torque	35 N·m (26 lb-ft)
Turbocharger		
Oil Drain Line	Torque	80 N·m (59 lb-ft)
Oil Inlet Line	Torque	27 N·m (20 lb-ft)
Mounting Nuts	Torque	47 N·m (35 lb-ft)
SECTION 40—ELECTRICAL SYSTEM		
For starter repair—Use CTM77		
SECTION 50—POWER TRAIN REPAIR		
3—Cylinder Engine-to-Clutch Housing Cap Screws and Nuts	Torque	300 N·m (225 lb-ft)
4—Cylinder Engine-to-Clutch Housing Cap Screws and Nuts	Torque	350 N·m (255 lb-ft)
Clutch (CollarShift and SyncShuttle™ Transmissions) Clutch-to-Flywheel Cap Screw	Torque	36 N·m (27 lb-ft)
Traction Clutch Disc	Minimum Thickness	6.50 mm (0.260 in.)
PTO Clutch Disc	Minimum Thickness	5.50 mm (0.220 in.)
PTO Clutch Rear Pressure Plate	Minimum Thickness	18.80 mm (0.740 in.)
PTO Clutch Front Pressure Plate	Minimum Thickness	17.30 mm (0.680 in.)
Traction Clutch Front Pressure Plate	Minimum Thickness	30.00 mm (1.181 in.)

Continued on next page.

LV,17161015,A1 -19-02MAR98

Item	Measurement	Specification
SECTION 50—POWER TRAIN REPAIR—CONTINUED		
Clutch (CollarShift and SyncShuttle™ transmissions)		
Traction Clutch Rear Pressure Plate	Minimum Thickness	17.00 mm (0.669 in.)
Yoke-to-Armshaft Cap Screw	Torque	65 N·m (48 lb-ft)
Clutch (PowrReverser™ Transmissions)		
Clutch-to-Flywheel Cap Screw	Torque	36 N·m (27 lb-ft)
PTO Clutch Disc	Minimum Thickness	5.50 mm (0.220 in.)
PTO Clutch Front Pressure Plate	Minimum Thickness	18.80 mm (0.740 in.)
PTO Clutch Rear Pressure Plate	Minimum Thickness	17.30 mm (0.680 in.)
PTO Clutch Sleeve Guide-to-Clutch Housing Cap Screw	Torque	26 N·m (20 lb-ft)
PTO Clutch Yoke Cap Screw	Torque	65 N·m (48 lb-ft)
PowrReverser™		
Transmission Pump-to-Clutch Housing Cap Screw	Torque	26 N·m (20 lb-ft)
Rear Bearing Support Plate-to-Clutch Housing Cap Screw	Torque	26 N·m (20 lb-ft)
Forward/Reverse Clutch Disc	Minimum Thickness	2.70 mm (0.106 in.)
Forward/Reverse Clutch Inner Plate	Minimum Thickness	3.85 mm (0.151 in.)
Forward/Reverse Clutch Outer Plate	Minimum Thickness	5.85 mm (0.230 in.)
Forward/Reverse Clutch Springs	Minimum Length	58 mm (2.283 in.)
PowrReverser™ Control Valve		
Control Valve-to-Clutch Housing Cap Screw	Torque	26 N·m (20 lb-ft)
F-N-R Valve Detent Plug-to-Control Valve	Torque	29 N·m (21 lb-ft)
Cover Plate-to-Control Valve Cap Screw	Torque	26 N·m (20 lb-ft)
Filter Plug-to-Control Valve	Torque	29 N·m (21 lb-ft)
Cover Plate-to-Inner Valve Cap Screw	Torque	26 N·m (20 lb-ft)
Inner Valve-to-Valve Plate Cap Screw	Torque	10 N·m (7 lb-ft)
Outer Valve-to-Valve Plate Cap Screw	Torque	10 N·m (7 lb-ft)

Continued on next page.

LV,17161015,A2 -19-02MAR98

Item	Measurement	Specification
SECTION 50—POWER TRAIN REPAIR—CONTINUED		
Transmission		
Clutch-Housing-to-Transmission Cap Screw	Torque	225 N·m (166 lb-ft)
Rear Wheel Cap Screw (Steel Rim)	Torque	175 N·m (130 lb-ft)
Rear Wheel Cap Screw (Cast Rim)	Torque	225 N·m (165 lb-ft)
Transmission-to-Differential Case Cap Screw	Torque	140 N·m (105 lb-ft)
Park Pawl Shaft End-to-Surface of Housing	Maximum Clearance	0.10 mm (0.004 in.)
Reverse Idler Shaft	Torque	132 N·m (97 lb-ft)
PTO Cover-to-Differential Cap Screw	Torque	65 N·m (48 lb-ft)
Differential		
Differential Quill-to-Differential Case Cap Screw	Torque	58 N·m (43 lb-ft)
Housing with Locking Pawl-to-Ring Gear Cap Screw	Torque	95 N·m (70 lb-ft)
Ring Gear-to-Housing Cap Screw	Torque	78 N·m (58 lb-ft)
Pinion Nut	Torque	269 N·m (219 lb-ft)
Drive Shaft	Initial Turning Force	53—129 N (12—29 lb-force)
Drive Shaft Quill-to-Case Cap Screw	Torque	52 N·m (38 lb-ft)
Cone Point Adjustment	Clearance	17.5 ± 0.05 mm (0.688 ± 0.002 in.)
Ring Gear Backlash	Clearance	0.18—0.25 mm (0.007—0.010 in.)
Final Drives		
Final Drive-to-Differential Case Cap Screw	Torque	100 N·m (74 lb-ft)
Planetary Carrier Assembly-to-Axle Shaft Cap Screw	Torque	Rolling drag torque plus 9 N·m (80 lb-in.)
Mechanical Front Wheel Drive (MFWD)		
Rear Wheel Cap Screw	Torque	175 N·m (130 lb-ft)
MFWD Axle-to-Frame Cap Screw	Torque	650 N·m (479 lb-ft)
Wheel Nut	Torque	300 N·m (220 lb-ft)

Continued on next page.

LV,17161015,A2A-19-02MAR98

Item	Measurement	Specification
SECTION 50—POWER TRAIN REPAIR—CONTINUED		
Mechanical Front Wheel Drive (MFWD)		
MFWD Drop Gearbox		
Gearbox-to-Transmission Case Cap Screw	Torque	132 N·m (97 lb-ft)
Lever Shaft Retaining Bolt	Torque	26 N·m (230 lb-in.)
Cover-to-Gearbox Cap Screw	Torque	26 N·m (230 lb-in.)
Top Shaft Retaining Nut	Torque	60 N·m (44 lb-ft)
Outer Drive		
Ring Gear Plate-to-Hub Cap Screws	Torque	78 N·m (58 lb-ft)
Hub Stud	Torque	70 N·m (50 lb-ft)
Outer-to-Inner-Hub Socket Head Cap Screw	Torque	25 N·m (18.5 lb-ft)
Drain Plug	Torque	80 N·m (59 lb-ft)
Wheel Nut	Torque	300 N·m (220 lb-ft)
Swivel Housing		
Pin-to-Housing Cap Screw	Torque	120 N·m (89 lb-ft)
Tie Rod End Nut	Torque	165 N·m (122 lb-ft)
Outer-to-Inner Hub Socket Head Cap Screw	Torque	25 N·m (18.5 lb-ft)
Drain Plug	Torque	80 N·m (59 lb-ft)
Wheel Nut	Torque	300 N·m (220 lb-ft)
Differential Carrier		
Carrier-to-Housing Cap Screw	Torque	169 N·m (125 lb-ft)
Friction Plate	Thickness Minimum Thickness New	1.30 mm (0.051 in.) 1.60 mm (0.063 in.)
Drive Plate	Thickness Minimum Thickness New	1.47 mm (0.058 in.) 1.53 mm (0.060 in.)
Inner Thrust Plate	Thickness Minimum Thickness New	2.73 mm (0.107 in.) 2.83 mm (0.110 in.)

Continued on next page.

LV,17161015,A3 -19-02MAR98

Item	Measurement	Specification
SECTION 50—POWER TRAIN REPAIR—CONTINUED		
Mechanical Front Wheel Drive (MFWD)		
Differential Carrier		
Ring Gear-to-Housing Cap Screw	Torque	78 N·m (58 lb-ft)
Side Bearing End Cap-to-Housing Cap Screw (M14 x 75 mm)	Torque	266 N·m (196 lb-ft)
Differential		
Drive-Shaft-Pinion-Bearing Preload	Force	105—107 N (24—35 lb)
Side Bearing Preload	Force	144—216 N (32.4—48.6 lb)
Ring Gear Backlash	Clearance	0.16—0.21 mm (0.006—0.008 in.)
Creeper-to-Transmission Case Cap Screw	Torque	50 N·m (37 lb-ft)
SECTION 60—STEERING AND BRAKE REPAIR		
Steering		
Steering Column-to-Dash Support Cap Screw	Torque	71 N·m (52 lb-ft)
Steering Wheel Nut	Torque	68 N·m (50 lb-ft)
Steering Valve Cap Screw	Torque	30 N·m (22 lb-ft)
Steering Cylinder-to-Axle Cap Screws		
2WD	Torque	200 N·m (147 lb-ft)
MFWD	Torque	94 N·m (69 lb-ft)
2WD Tie Rod Assembly		
Ball Joint-to-Steering Rod	Torque	300 N·m (221 lb-ft)
Tie Rod Cap Screw	Torque	90 N·m (66 lb-ft)
Tie Rod Lock Nut	Torque	165 N·m (122 lb-ft)
MFWD Tie Rod Assembly		
Ball Joint-to-Steering Rod	Torque	300 N·m (221 lb-ft)
Tie Rod Jam Nut	Torque	120 N·m (89 lb-ft)
Tie Rod Lock Nut	Torque	165 N·m (122 lb-ft)

Continued on next page.

LV,17161015,A4 -19-02MAR98

Item	Measurement	Specification
SECTION 60—STEERING AND BRAKE REPAIR—CONTINUED		
Brakes		
Outlet Fittings-to-Brake Valve	Torque	11 N·m (97 lb-in.)
Brake Valve-to-Panel Cap Screw	Torque	70 N·m (52 lb-ft)
Inlet Check Valve Seat-to-Brake Valve Housing	Torque	73 N·m (54 lb-ft)
Pressure Equalizing Valve Plug-to-Brake Valve Housing	Torque	37 N·m (27 lb-ft)
Spring Seat-to-Brake Valve Housing	Torque	92 N·m (68 lb-ft)
Return Compression Spring Assemblies-to-Brake Actuator Plate	Torque	15 N·m (133 lb-in.)
SECTION 70—HYDRAULIC REPAIR		
Hydraulic Pump		
Flange-to-Engine Cap Screw	Torque	50 N·m (37 lb-ft)
Bracket-to-Engine Cap Screw	Torque	50 N·m (37 lb-ft)
Housing Bolt	Torque	50 N·m (37 lb-ft)
Housing Cap Screw	Torque	50 N·m (37 lb-ft)
Rear Outlet Fitting	Torque	28 N·m (21 lb-ft)
Front Outlet Fitting	Torque	46 N·m (34 lb-ft)
Shaft Nut	Torque	55 N·m (41 lb-ft)
Bracket-to-Pump Nut	Torque	50 N·m (37 lb-ft)
Hydraulic Filter Manifold-to-Transmission Case Cap Screw	Torque	70 N·m (52 lb-ft)
Rockshaft		
Draft-Sensing Support-to-Rockshaft Case Cap Screw	Torque	375 N·m (277 lb-ft)

Continued on next page.

LV,17161015,A5 -19-02MAR98

Item	Measurement	Specification
SECTION 70—HYDRAULIC REPAIR—CONTINUED		
Rockshaft		
Main Relief Valve	Torque	51 N·m (38 lb-ft)
Surge Relief Valve	Torque	34 N·m (25 lb-ft)
Rate-of-Drop Valve	Torque	50 N·m (37 lb-ft)
Rockshaft Valve-to-Inlet Housing Cap Screw	Torque	13.6 N·m (120 lb-in.)
Inlet Housing-to-Rockshaft Case Cap Screw	Torque	35 N·m (26 lb-ft)
Rockshaft Case-to-Differential Case Cap Screw	Torque	125 N·m (92 lb-ft)
Hydraulic Pump Outlet Line Fitting	Torque	60 N·m (45 lb-ft)
Rockshaft Bushing to Edge of Bore	Distance	7 mm (0.283 in.)
Dual SCV		
Control Valve-to-Inlet Housing Cap Screw	Torque	12 N·m (106 lb-in.)
Main Relief Valve	Torque	51 N·m (38 lb-ft)
Spool Detent	Torque	4 N·m (35 lb-in.)
Socket Head Cap Screw	Torque	7 N·m (62 lb-in.)
Single (Third) SCV		
Control Valve/End Plate-to-Inlet Housing Cap Screw	Torque	12 N·m (106 lb-in.)
Spool Retainer Screw	Torque	4 N·m (35 lb-in.)
Socket Head Cap Screw	Torque	7 N·m (62 lb-in.)
SECTION 80—MISCELLANEOUS REPAIR		
Pivot Pin Retainer-to-Front Support Cap Screw	Torque	135 N·m (100 lb-ft)
2WD Front Axle-to-Front Housing	Clearance	8 mm (0.030 in.)
Front Wheel-to-Hub Cap Screw (Steel)	Torque	175 N·m (130 lb-ft)
Front Wheel-to-Hub Cap Screw (Cast)	Torque	300 N·m (220 lb-ft)
Spindle-to-Axle Nut	Torque	415 N·m (306 lb-ft)
Tie Rod End-to-Spindle Assembly Nut	Torque	165 N·m (122 lb-ft)
Draft Link Support-to-Differential Case	Torque	200 N·m (148 lb-ft)

Continued on next page.

LV,17161015,A6 -19-02MAR98

Item	Measurement	Specification
SECTION 80—MISCELLANEOUS REPAIR—CONTINUED		
Draw Bar Support-to-Differential Case		
Cap Screws (M14x25) (6 used)	Torque	200 N·m (148 lb-ft)
Cap Screws (M16x30) (4 used)	Torque	310 N·m (228 lb-ft)
SECTION 90—OPERATOR STATION REPAIR		
Seat Support-to-Rockshaft Housing and Transmission Cover	Torque	125 N·m (92 lb-ft)
ROLL-GARD Mounting Cap Screw	Torque	335 N·m (247 lb-ft)
Cab		
Rear cab Frame Mounting Nuts-to-Final Drive Axle Housing	Torque	203 N·m (150 lb-ft.)
Cab Floor Plate Mounting Bracket-to-Clutch Housing Cap Screws	Torque	110 N·m (80 lb-ft.)
Cab Floor Plate Mounting Bracket-to-Floor Plate Cap Screws	Torque	203 N·m (150 lb-ft.)

LV,17161015,A6A-19-02MAR98

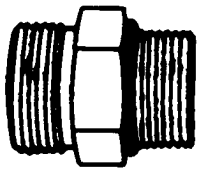
SERVICE RECOMMENDATIONS FOR O-RING BOSS FITTINGS

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.



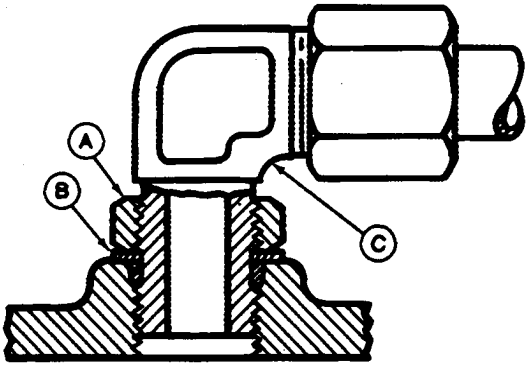
T6243AE -UN-18OCT88

ANGLE FITTING

1. Back-off lock nut (A) and back-up washer (B) completely to head-end (C) of fitting.

2. Turn fitting into threaded boss until back-up washer contacts face of boss.

3. Turn fitting head-end counterclockwise to proper index (maximum of one turn).



T6520AB -UN-18OCT88

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

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

STRAIGHT FITTING OR SPECIAL NUT TORQUE CHART

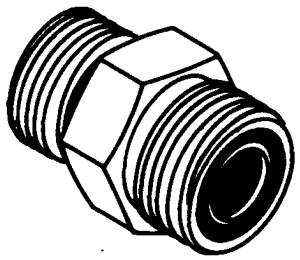
Thread Size		N·m	lb-ft
3/8-24	UNF	8	6
7/16-20	UNF	12	9
1/2-20	UNF	16	12
9/16-18	UNF	24	18
3/4-16	UNF	46	34
7/8-14	UNF	62	46
1-1/16-12	UN	102	75
1-3/16-12	UN	122	90
1-5/16-12	UN	142	105
1-5/8-12	UN	190	140
1-7/8-12	UN	217	160

NOTE: Torque tolerance is ± 10%.

04T,90,K66 -19-19MAR96

10
10
20

SERVICE RECOMMENDATIONS FOR FLAT FACE O-RING SEAL FITTINGS



T6243AD -UN-18OCT88

1. Inspect the fitting sealing surfaces. They must be free of dirt or defects.

2. Inspect the O-ring. It must be free of damage or defects.

3. Lubricate O-rings and install into groove using petroleum jelly to hold in place.

4. Push O-ring into the groove with plenty of petroleum jelly so O-ring is not displaced during assembly.

5. Index angle fittings and tighten by hand pressing joint together to insure O-ring remains in place.

6. Tighten fitting or nut to torque valve shown on the chart per dash size stamped on the fitting. Do not allow hoses to twist when tightening fittings.

FLAT FACE O-RING SEAL FITTING TORQUE

Nominal Tube O.D. mm	(in.)	Dash Size	Thread Size In.	Swivel Nut Torque N·m	(lb-ft)	Bulkhead Nut Torque N·m	(lb-ft)
6.35	0.250	-4	9/16-18	16	12	5.0	3.5
9.52	0.375	-6	11/16-16	24	18	9.0	6.5
12.70	0.500	-8	13/16-16	50	37	17.0	12.5
15.88	0.625	-10	1-14	69	51	17.0	12.5
19.05	0.750	-12	1 3/16-12	102	75	17.0	12.5
22.22	0.875	-14	1 3/16-12	102	75	17.0	12.5
25.40	1.000	-16	1 7/16-12	142	105	17.0	12.5
31.75	1.250	-20	1 11/16-12	190	140	17.0	12.5
38.10	1.500	-24	2-12	217	160	17.0	12.5

NOTE: Torque tolerance is +15 -20%.

OR,SEAL,FIT -19-03MAR89

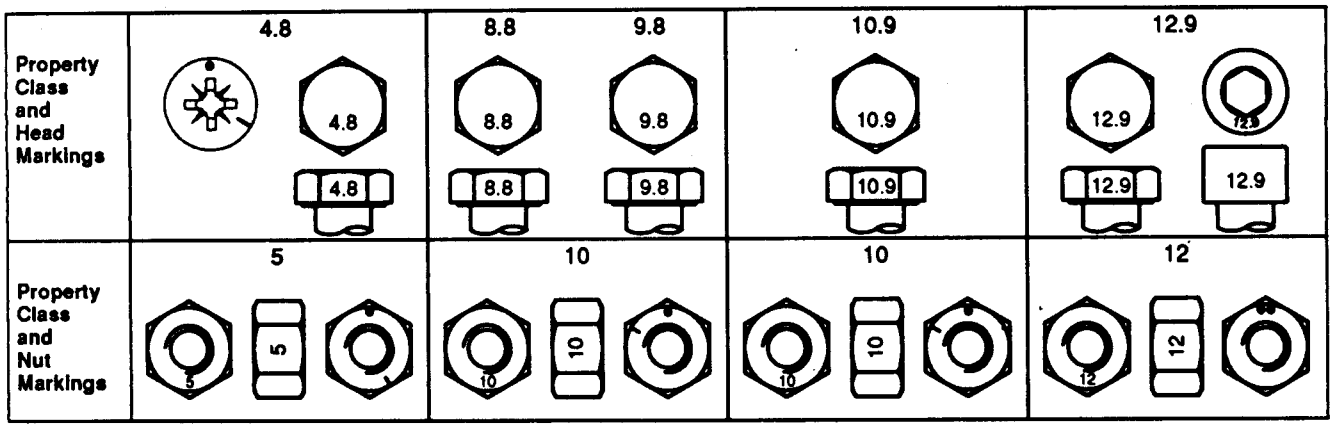
METRIC CAP SCREW TORQUE VALUES—GRADE 7

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)

MX,1015GU,1 -19-26MAR92

METRIC BOLT AND CAP SCREW TORQUE VALUES



TS1163 -19-04MAR91

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	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	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.

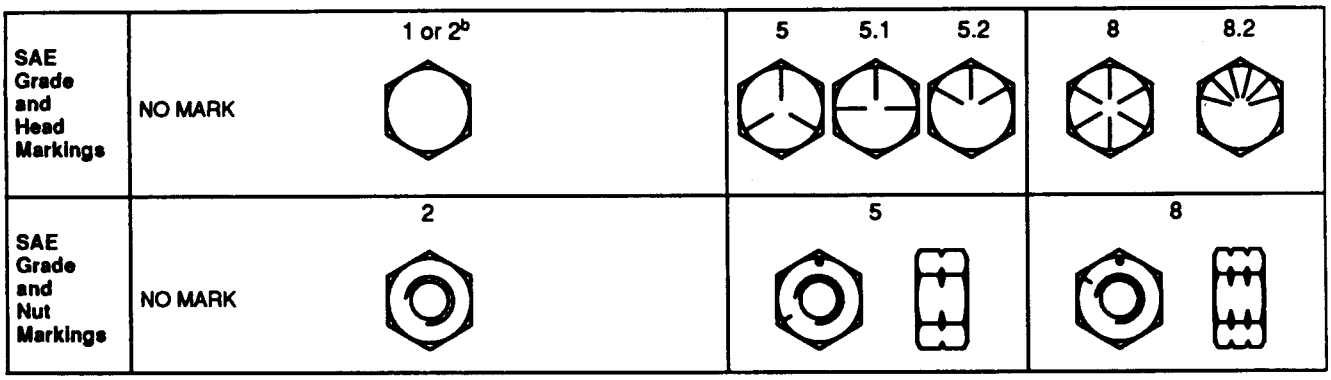
Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

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 -19-20JUL94

UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES



-19-04MAR91

TS1162

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	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	400	300	510	375	400	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2150	1550	2700	2000	3400	2550
1-1/2	1000	725	1250	925	990	725	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 -19-20JUL94

ABBREVIATIONS

NOTE: Abbreviations are used in place of some words

- CTM—Component Technical Manual
- ID—Inside Diameter
- OD—Outside Diameter
- SCV—Selective Control Valve
- MFWD—Mechanical Front-Wheel Drive
- PTO—Power Take-Off
- SMV—Slow Moving Vehicle
- CS—CollarShift
- POW REV—PowrReverser™
- SS—SyncShuttle™

LV,17161015,A7 -19-02MAR98

DIESEL FUEL SPECIFICATIONS

Use either Grade No. 1-D or Grade No. 2-D fuel as defined by ASTM Designation D975 for diesel fuels. Find expected air temperature at time of start on thermometer scale in chart. Correct diesel fuel grade is shown to the right of scale.

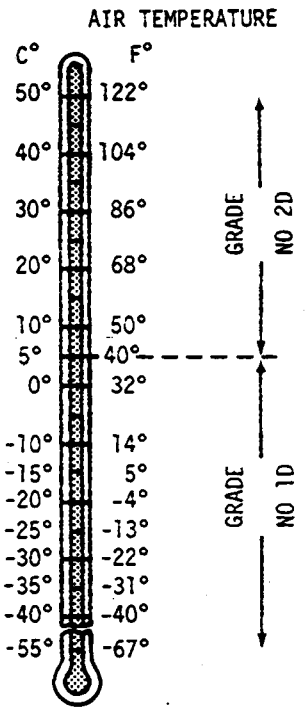
NOTE: At altitudes above 1500 m (5000 ft) use Grade 1-D for all temperatures.

Fuel sulphur content should be less than 1.0 percent, preferably less than 0.5 percent. Diesel fuel having sulphur content higher than 1.0 percent may cause increased wear on metal engine parts because of acids produced by sulphur during combustion.

IMPORTANT: If fuel sulphur content exceeds 0.7 percent, the engine oil drain interval must be reduced by 50 percent to 125 hours.

Cetane number should be no less than 40 to assure satisfactory starting and overall performance.

Cloud point should be at least -12˚C (10˚F) below lowest expected air temperature at time of starting. Wax can separate from fuel when temperature decreases to cloud point and may plug filter.



-19-13MAR89

E20380

LV,1020HA,A1 -19-02MAR98

STORING FUEL

If there is a very slow turnover of fuel in the fuel tank or supply tank, it may be necessary to add a fuel conditioner to prevent water condensation. Contact your John Deere dealer for proper service or maintenance recommendations.

DX,FUEL -19-03MAR93

DO NOT USE GALVANIZED CONTAINERS

IMPORTANT: Diesel fuel stored in galvanized containers reacts with zinc coating on 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.

DO NOT USE a galvanized container to store diesel fuel.

Store fuel in:
—plastic containers.
—aluminum containers.
—specially coated steel containers made for diesel fuel.

DO NOT USE brass-coated containers: brass is an alloy of copper and zinc.

M21,FLQ,B1 -19-03MAR98

FILL FUEL TANK

CAUTION: Handle fuel carefully. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine.

-UN-23AUG88
TS202

Fill fuel tank at end of each day's operation. Fill fuel tank only to bottom of filler neck.

5210, 5310 and 5410
Fuel Tank Capacity . . . . . 68 L (18.0 U.S. gal)
5510 and All Tractors with Cab
Fuel Tank Capacity . . . . . 83 L (22.0 U.S. gal)

IMPORTANT: The fuel tank uses a sealed filler cap. If a new filler cap is required, always replace it with a sealed cap.

-UN-21NOV91
LV095

LV,17161020,A2 -19-02MAR98

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®

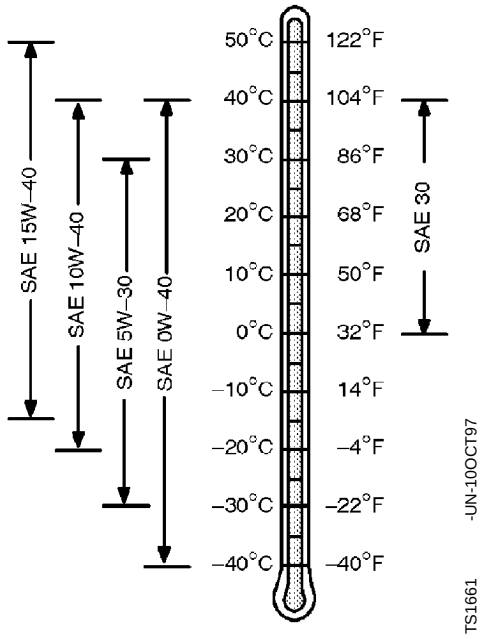
Other oils may be used if they meet one or more of the following:

- 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

ENGINE COOLANT

John Deere Low Silicate Antifreeze is recommended.

Also recommended is low silicate antifreeze formulated to GM6038M or equivalent.

Other antifreezes that may be used:
- Ethylene-glycol type.
- Those containing not more than 0.1 percent anhydrous metasilicate.
- Those meeting General Motors Performance Specification GM1899M

IMPORTANT: Some types of ethylene-glycol antifreeze are intended for automotive use. These products are often labeled for use in aluminum engines and usually contain more than 0.1 percent of anhydrous metasilicate.

Check container label or consult with antifreeze supplier before using.

Mix 50-67 percent low silicate antifreeze with 33-50 percent distilled or deionized water.

Low silicate antifreeze provides:
- Adequate heat transfer.
- Corrosion-resistant environment within the cooling system.
- Compatibility with cooling system hose and seal material.
- Protection during cold and hot weather operations.

Certain geographical areas may require special antifreeze or coolant practices. If you have any questions, consult your authorized servicing dealer to obtain the latest information and recommendations.

DX,COOL -19-04JUN90

LIQUID COOLANT CONDITIONER

John Deere Liquid Coolant Conditioner is recommended for wet-sleeve diesel engines not having a coolant filter option. Other conditioners may be used if it contains non-chromate inhibitors.

IMPORTANT: If engine is equipped with a John Deere Coolant Filter Conditioner, the correct inhibitors are contained in the filter. If both are used, a gel-type deposit is created which could inhibit heat transfer and block coolant flow. John Deere Liquid Coolant Conditioner does not protect against freezing.

Various sizes of coolant conditioners are available from your John Deere dealer.

RG4690 -UN-14DEC88

DX,COOL1 -19-04JUN90

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:

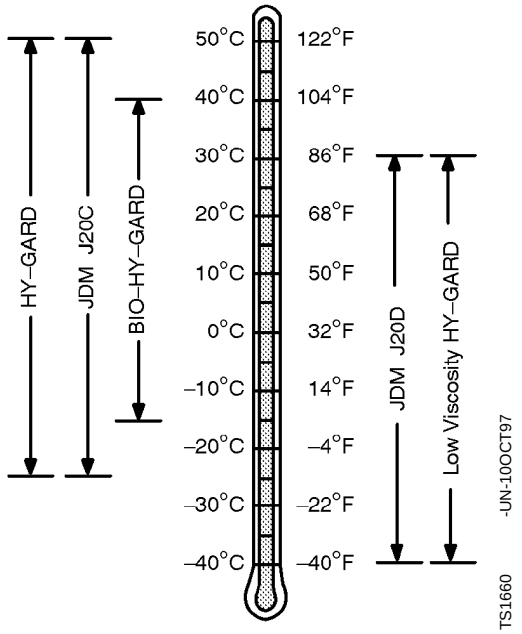
- John Deere HY-GARD®
- John Deere Low Viscosity HY-GARD®

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

MFWD GEAR OIL

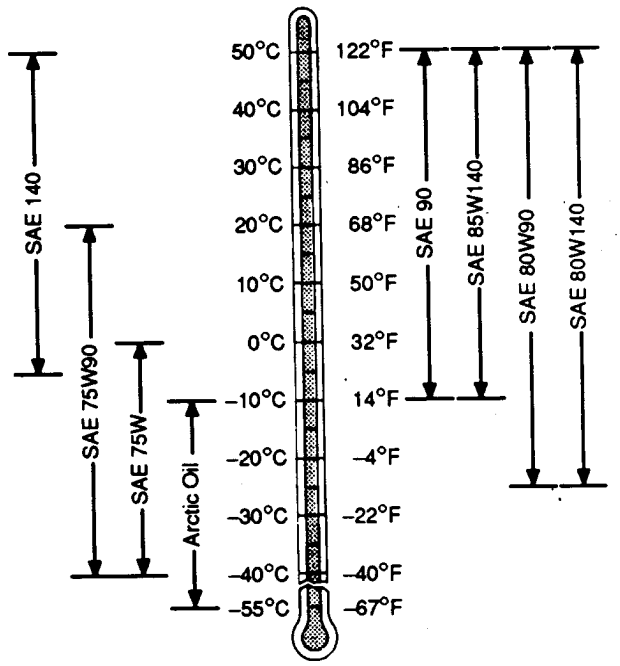
Use oil viscosity based on the expected air temperature range during the period between oil changes.

John Deere GL-5 Gear Lubricant is recommended.

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

- API Service Classification GL-5
- Military Specification MIL-L-2105D
- Military Specification MIL-L-2105C
- Military Specification MIL-L-2105B

Oils meeting Military Specification MIL-L-10324A may be used as arctic oils.



LV,1020HA,A3 -19-03MAR98

GREASE (SPECIFIC APPLICATION)

- Lithium Grease with Molybdenum Disulphide is recommended for use on internal components of transmission.

- TY6333 or TY6347 John Deere Moly High Temperature EP Grease is recommended for use on the traction clutch and PTO clutch splines.

LV,1020HA,A4 -19-02MAR98

GREASE

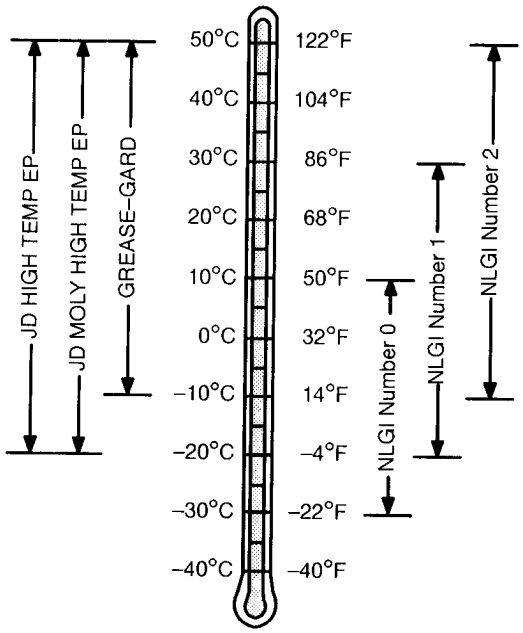
Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere HIGH TEMPERATURE EP GREASE
- John Deere MOLY HIGH TEMPERATURE EP GREASE
- John Deere GREASE-GARD™

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

- NLGI Performance Classification GC-LB



DX,GREA1 -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.

Consult your John Deere dealer to obtain information and recommendations.

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.

DX,ALTER -19-18MAR96

LUBRICANT STORAGE

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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

SERIAL NUMBERS

When working on machines or components that are covered by warranty, it is IMPORTANT that you include the machine's Product Identification Number and the component serial number on the warranty claim form.

The location of component serial number plates are shown below.

MX,1025FT,A4 -19-03MAR98

PRODUCT IDENTIFICATION NUMBER LOCATION

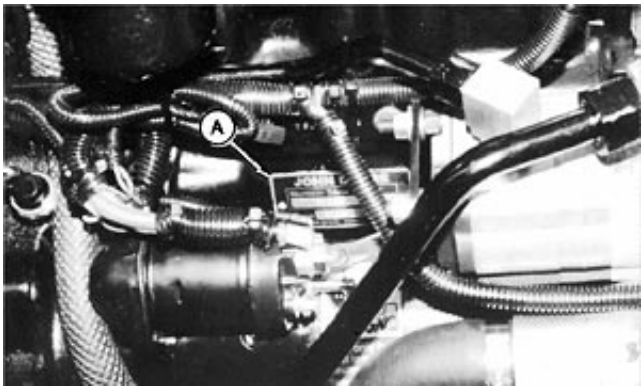
The machine's product identification number plate (A) is located on the right-hand side of the front support.

LV093 -UN-21NOV91

LV,1025HA,A1 -19-14OCT91

ENGINE SERIAL NUMBER LOCATION

The engine serial number plate (A) is located on the right-hand side of the engine block, between the starter and the hydraulic pump.

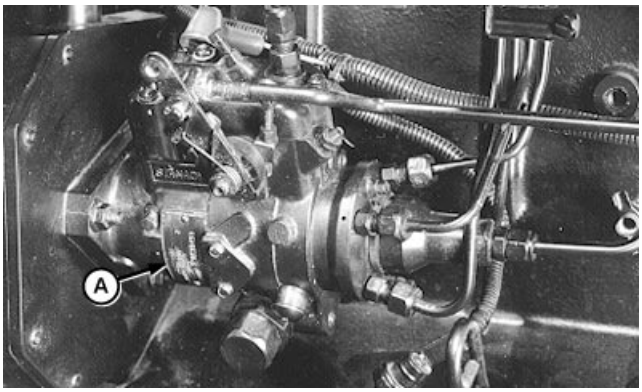


LV094 -UN-21NOV91

LV,17161025,A2 -19-02MAR98

FUEL INJECTION PUMP SERIAL NUMBER LOCATION

The fuel injection pump serial number plate (A) is located on the side of the pump.



LV2245 -UN-02JUL97

LV,17161025,A3 -19-02MAR98

ALTERNATOR SERIAL NUMBER LOCATION

The alternator serial number plate (A) is located on the side of the housing.

LV,1025HA,A4 -19-14OCT91

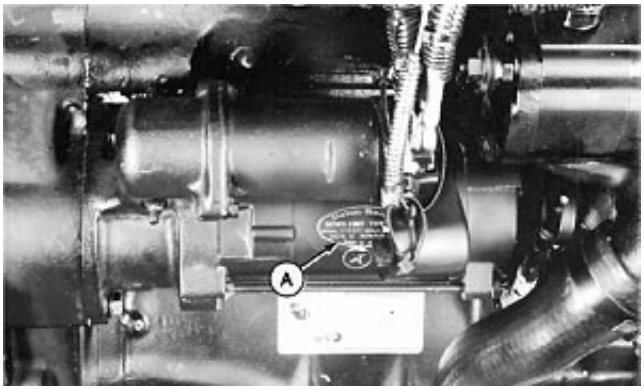
POWER STEERING VALVE SERIAL NUMBER LOCATION

The power steering valve serial number plate (A) is located on the bottom of the valve.

LV,1025HA,A5 -19-05MAR92

STARTER SERIAL NUMBER LOCATION

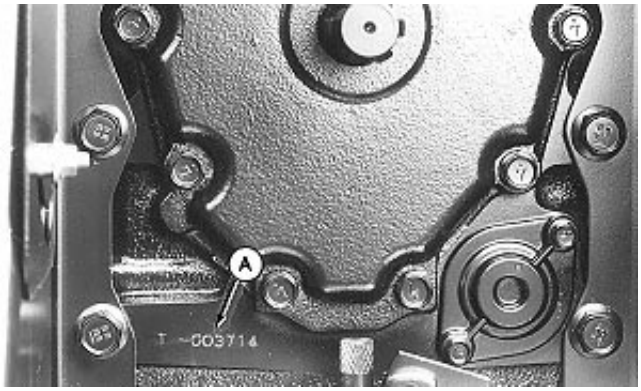
The starter serial number plate (A) is located on the side of the starter housing.



LV,1025HA,A6 -19-02MAR98

TRANSMISSION SERIAL NUMBER LOCATION

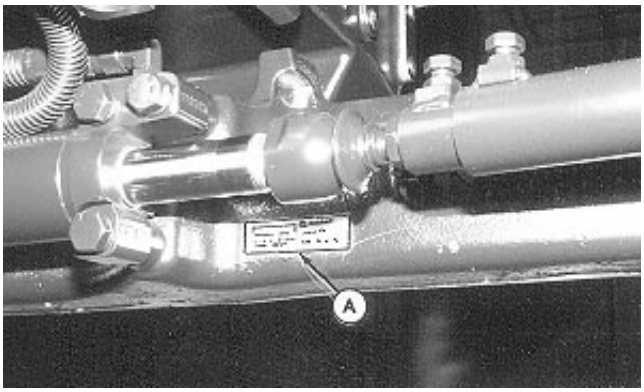
The transmission (drive train) serial number (A) is located at the rear of the machine on the bottom left-hand corner of the differential housing.



LV,1025HA,A8 -19-27JUN94

FRONT AXLE (2WD) SERIAL NUMBER LOCATION

The 2WD front axle serial number plate (A) is located on the rear right-hand side of the axle.

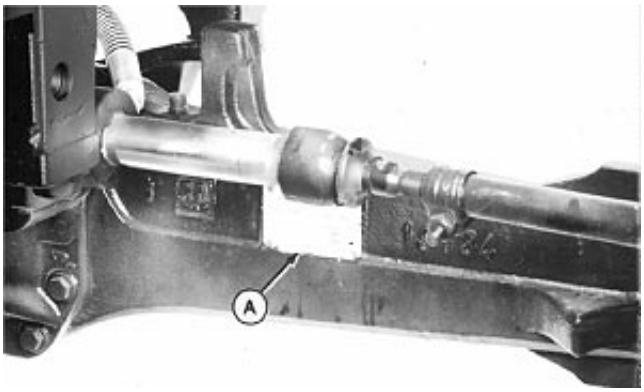


LV630 -UN-02AUG94

LV,1025HA,A9 -19-02MAR98

MECHANICAL FRONT WHEEL DRIVE (MFWD) SERIAL NUMBER LOCATION

The MFWD serial number plate (A) is located on the rear side of the right-hand axle housing.

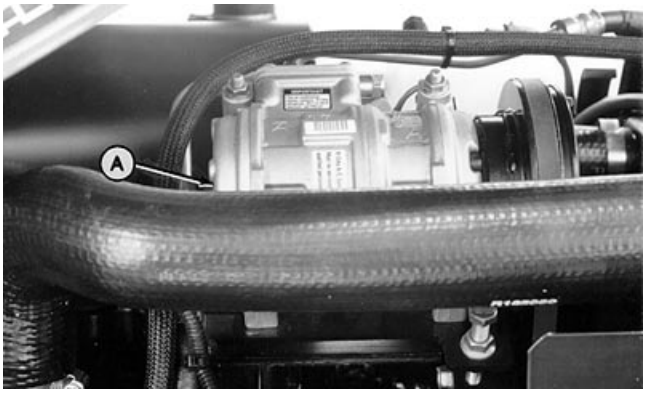


LV099 -UN-21NOV91

LV,1025HA,A10 -19-02MAR98

AIR CONDITIONING COMPRESSOR SERIAL NUMBER LOCATION

The air conditioning compressor serial number plate (A) is located on the rear of the housing.



LV1384 -UN-10NOV95

LV,1025HA,A11 -19-02MAR98

FEATURES AND ACCESSORIES

The information covered in this group pertains to the features of the machines covered in this Technical Manual. It can be used in addition to the normal advertising literature or may help in determining which specific feature requires service. A list of all the available accessories and kits is also included.

LV,1030HA,A1 -19-14OCT91

STANDARD FEATURES—5210 AND 5310

•John Deere 3000 Series Engine
—5210 CD3029DLV50 40 kw (53 hp)
—5310 CD3029TLV50 47 kw (63 hp)

3-cylinder diesel engine.
Wet sleeved.
Direct injection.
Intake air heater starting aid.
Key switch controlled fuel shut-off.
5210 is naturally aspirated.
5310 is turbocharged.

•CollarShift, Transmission
—Nine speeds forward, three reverse
—Inboard planetary final drives
—Differential lock

•Dual Clutch
—Provides continuous live PTO
—Stops tractor without disengaging PTO

•PTO
—Rear, 540 rpm
—540/540E PTO available on SyncShuttle™ transmission only
—Fully independent clutch

•Hydrostatic Power Steering
—Power is supplied by a tandem gear hydraulic pump mounted to the engine

•Hydraulic Brakes
—Wet disc
—Individually hydraulic controlled
—Self-adjusting
—Self-equalizing

•Open-Center Hydraulic System
—Tandem gear hydraulic pumps
—Pumps are driven directly off engine timing gears

The rear pump supplies oil to the power steering, provides brake valve make-up oil and lubricates top shaft of the transmission.

The front pump supplies oil to the rockshaft and the selective control valves, if equipped.

LV1886

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LV1886

LV1887

Slide LV1887

-UN-01JUL97
LV1887

LV,17161030,A2 -19-02MAR98

STANDARD FEATURES—5410 AND 5510

•John Deere 4000 Series Engine
—5410 CD4045DLV50 56 kw (75 hp)
—5510 CD4045TLV50 63 kw (85 hp)

4-cylinder diesel engine.
Wet sleeved.
Direct injection.
Intake air heater starting aid.
Key switch controlled fuel shut-off.
5410 is naturally aspirated and
the 5510 is turbocharged.

•CollarShift, Transmission
—Nine speeds forward, three reverse
—Inboard planetary final drives
—Differential lock

•Dual Clutch
—Provides continuous live PTO
—Stops tractor without disengaging PTO

•PTO
—Rear, 540 rpm
—540/540E PTO available on SyncShuttle™
transmission only
—Fully independent clutch

•Hydrostatic Power Steering
—Power is supplied by a tandem gear hydraulic pump
mounted to the engine

•Tilt Steering Wheel

•Hydraulic Brakes
—Wet disc
—Individually hydraulic controlled
—Self-adjusting
—Self-equalizing

•Open-Center Hydraulic System
—Tandem gear hydraulic pumps
—Pumps are driven directly off engine timing gears

The rear pump supplies oil to the power steering, provides brake valve make-up oil and lubricates top shaft of the transmission.

The front pump supplies oil to the rockshaft and the selective control valves, if equipped.

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LV1888

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LV1890

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LV1890

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-UN-09JUN97
LV1891

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LV,17161030,B2 -19-02MAR98

STANDARD FEATURES—5210 THROUGH 5510

•Standard Adjustable Front Axle

•Hitch
—Category II, convertible to category I
—Position and draft control levers
—Center link draft sensing with lever controlled sensitivity

•PTO Warning System
—Warning horn sounds for 8—10 seconds when operator leaves seat with PTO engaged. Engine and PTO continue to run.

•Two-Post Foldable ROPS with Seat Belt
—Protects operator in the event of a tip-over

-UN-09JUN97
LV1892

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LV1893

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LV,17161030,A3 -19-02MAR98

FACTORY INSTALLED OPTIONAL EQUIPMENT (5210—5510)

•Mechanical Front Wheel Drive (MFWD) Axle
—Center line design
—Limited slip differential
—High pivot point for better ground clearance and axle oscillation

•SyncShuttle™ Transmission
—Nine speeds forward, three reverse
—Synchronized forward to reverse shift

•PowrReverser™ Transmission
—12 speeds forward, 12 reverse
—Hydraulic forward to reverse shift

•Telescopic Draft Links

•Dual Selective Control Valve (SCV)
—One lever “joystick” control
—Float and regenerative spool valves

•Weather Enclosure (Cab)
—Left-Hand Exterior Mirror
—Sun Visor
—Cup Holder

•Rear Work Light

LV1894 -UN-09JUN97

Slide LV1894

LV1895 -UN-01JUL97

Slide LV1895

LV2219 -UN-08AUG97

Slide LV2219

LV,17161030,A4 -19-02MAR98

FIELD INSTALLED OPTIONAL KITS AND ACCESSORIES—5210 THROUGH 5510

•Dual Selective Control Valve (SCV)
—One lever “joystick” control
—Float and regenerative spool valves

•Single (Third) Selective Control Valve
—Single lever operation

•Creeper Gear Kit

•Front Drive Shaft Coupler

•Horizontal Rear Exhaust Extension

•Seat Arm Rests

•Single Horn

•7-Pin Electrical Outlet Socket

•Soft Weather Enclosure

•Front Weight Bracket and Weights

•FOPS Canopy

•Deluxe Canopy

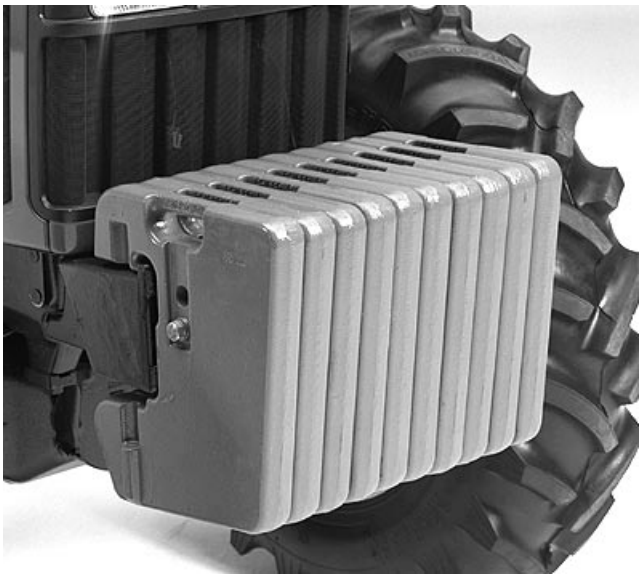
•Narrow Front Axle Kit (2WD only)

•Interchangeable, Catagory 2-to-Catagory 1 Hitch Balls

•Work Lights For Tractors Without Fender Mounted Lights

•Larger Tool Box

•Available for factory installed Cab
—Right-Hand Exterior Mirror
—Rear Wiper and Windshield Washer
—Sun Visor
—AM and FM Radio with Speakers and Antenna



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LV1897

LV1897

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LV,17161030,A5 -19-02MAR98

Section 20
ENGINE REPAIR

Contents

Page

Group 05—Engine
Engine Repair—Use CTM104 or CTM125 . 20-05-1
Tractors Without Cab
Remove 20-05-1
Install 20-05-7
Tractors With Cab
Remove 20-05-12
Install 20-05-20

Group 10—Cooling System
Engine Water Pump Repair—Use
CTM104 or CTM125 20-10-1
Radiator 3 or 4 Cylinder Engines
Remove and Inspect 20-10-1
Install 20-10-4
Thermostat
Replace 20-10-7
Belt Tensioner—5410 And 5510
Inspect and Replace 20-10-9

JOHN DEERE ENGINE REPAIR—USE CTM104 OR CTM125

For complete repair information the component technical manual (CTM) is also required. Use the component technical manual in conjunction with this machine manual.

- 3 cylinder 2.9L engines—Use CTM125
- 4 cylinder 4.5L engines—Use CTM104

-UN-17JAN89
TS225

LV,17162005,A1 -19-02MAR98

REMOVE ENGINE—TRACTORS WITHOUT CAB

1. Remove hood from tractor.

2. Remove radiator. (See procedure in Group 10.)

3. Remove battery. (See procedure in Section 40, Group 10.)

4. Remove fuel filter/primer pump. (See procedure in Section 30, Group 05.)

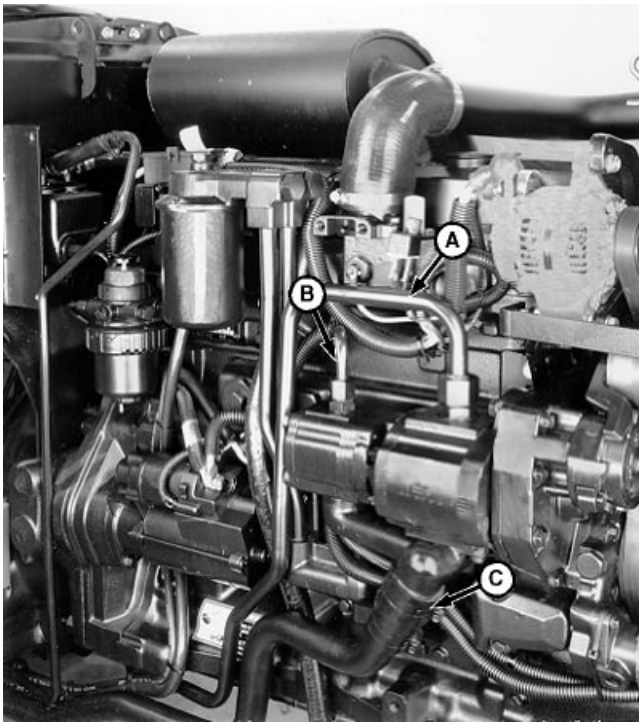
5. Remove MFWD drive shaft, if equipped. (See procedure in Section 50, Group 35.)

NOTE: Close all openings using caps and plugs.

> *Support suction line (C). Transmission/hydraulic oil will spill out of hose if line drops below transmission/reservoir oil level.*

6. Disconnect hydraulic lines (A, B and C) from pump.

7. Loosen hydraulic lines retaining clamp under right-side floor and step plate and move lines away from engine.



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LV2289

A—Hydraulic Pump-to-Inlet Housing Line
B—Hydraulic Pump-to-Steering Valve Line
C—Suction Line

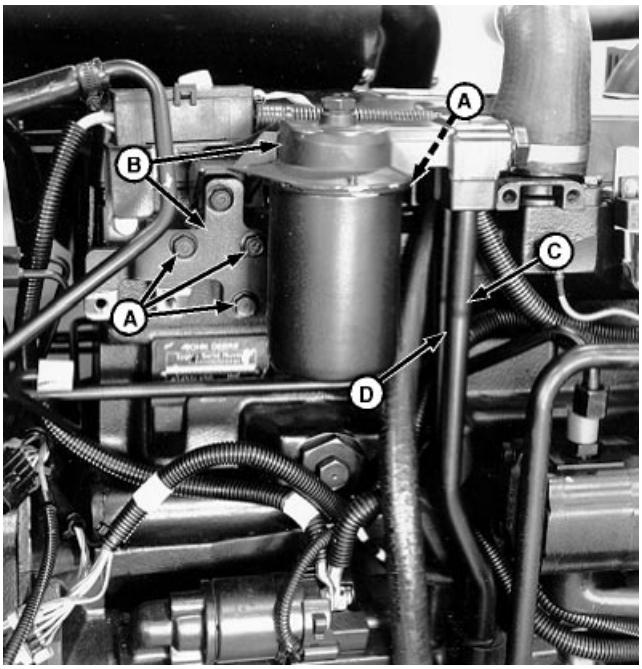
LV,17162005,A2 -19-02MAR98

8. Tractors equipped with 4-cylinder engines, remove four Cap screws (A).

9. Remove oil filter and bracket (B).

10. Remove oil tubes (C and D) from engine oil cooler manifold.

A—Cap Screws (4 used)
B—Oil Filter and Bracket
C—Oil Tube
D—Oil Tube



-UN-16DEC97
LV2332

LV,17162005,B2 -19-02MAR98

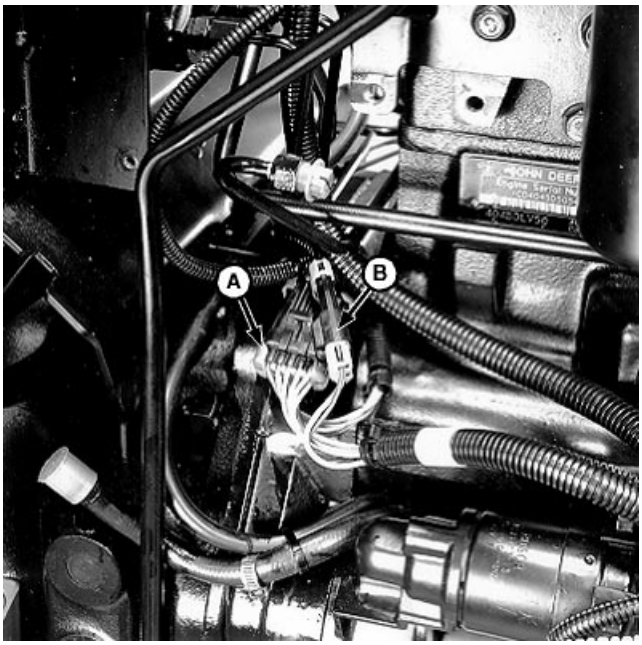
NOTE: Cut all tie strap as necessary.

11. Disconnect two main harness wiring connectors (A and B).

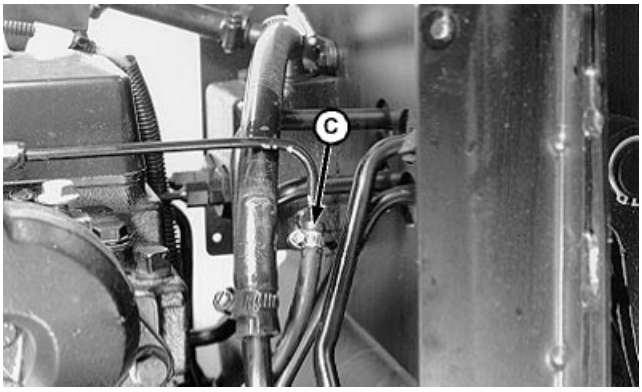
12. Disconnect fuel return hose (C).

13. Disconnect red wire lead #002C from right-side post (D) of fuse link junction block.

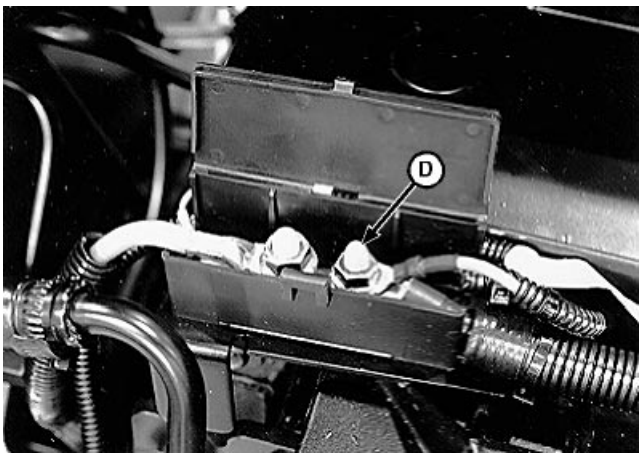
A—Wiring Connector
B—Wiring Connector
C—Fuel Return Line
D—Right-Side Post
(at Fuse Link Junction Block)



LV2290 -UN-16DEC97



LV2291 -UN-18DEC97



LV2293 -UN-16DEC97

LV,17162005,A3 -19-02MAR98

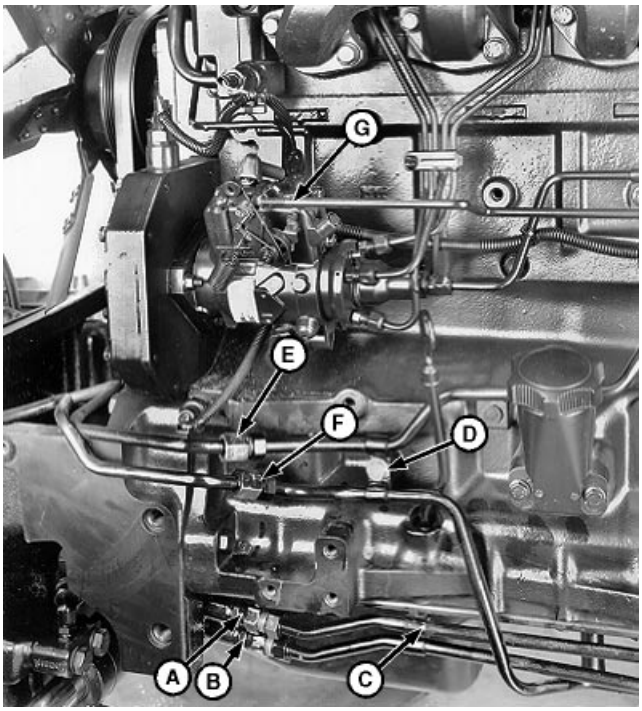
14. Disconnect steering hydraulic line (A and B).

15. Remove clamp (C and D).

16. Disconnect hydraulic oil cooler lines (E and F).

17. Remove throttle control rod (G).

A—Hydraulic Steering Line
B—Hydraulic Steering Line
C—Clamp
D—Clamp
E—Hydraulic Oil Cooler Line
F—Hydraulic Oil Cooler Line
G—Throttle Control Rod



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LV2292

LV,17162005,A4 -19-02MAR98

NOTE: Tractor without front weight bracket set shown. If tractor is equipped with front weight kit remove weights and front weight bracket from tractor before removing any frame to engine mounting hardware.

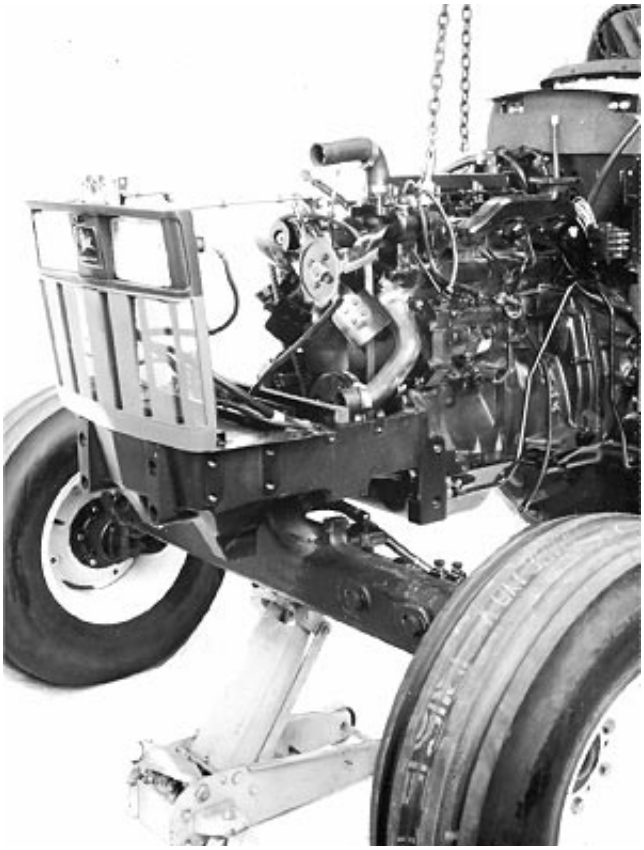
18. Install lifting brackets such as JDG19 or JT01748 Lifting Brackets.

19. Install a support stand under clutch housing.

20. Attach a hoist to engine.

21. Install a floor jack under front axle.

22. Install a wood block between front axle and frame on both sides.



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LV213

LV,17162005,A5 -19-02MAR98

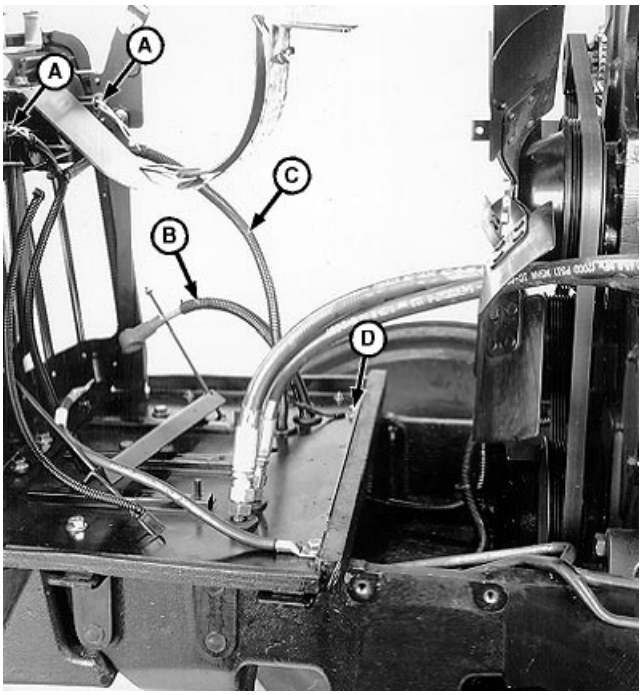
23. Pull battery cable (B) through grommet.

24. Disconnect ground cable (D).

25. Disconnect wiring connectors (A) at headlights.

26. Pull wiring harness (C) through grommet.

A—Headlight Wiring Connectors
B—Positive (+) Battery Cable
C—Wiring Harness
D—Ground Cable



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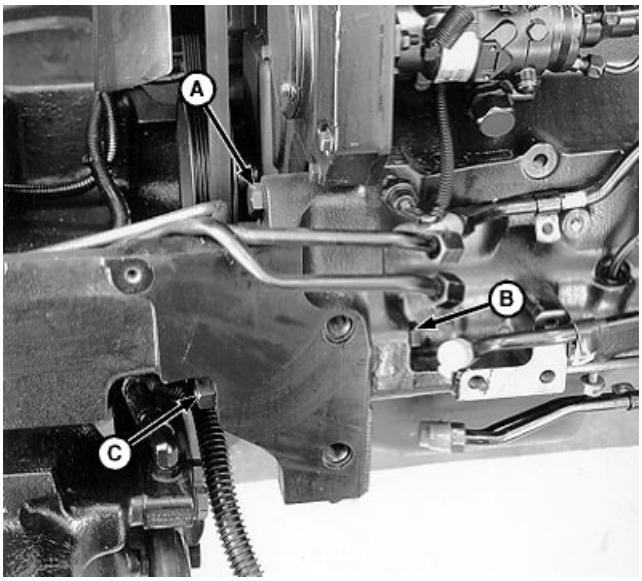
LV2294

LV,17162005,A6 -19-02MAR98

27.Remove cap screws (A and B) and nut (C) from each side of frame.

28. Roll front end away from tractor.



-UN-16DEC97
LV2295

LV,17162005,A7 -19-02MAR98

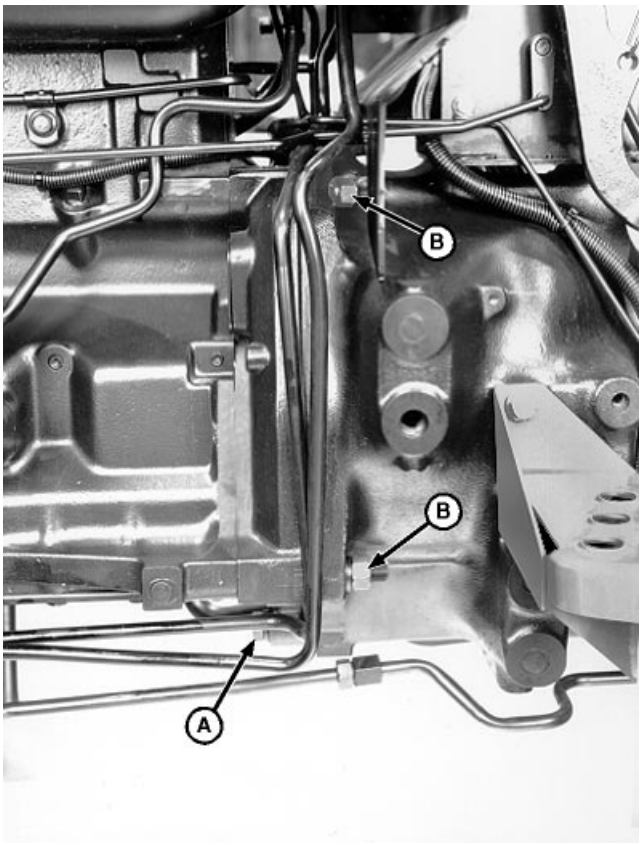
29. Remove cap screws (A), nuts and washers (B).

30. Remove engine.

31. Remove clutch. (See procedure in Section 50, Group 10.)

20 05 6

32. Make repairs as necessary. (See CTM104 or CTM125.)



LV,17162005,A8 -19-02MAR98

INSTALL ENGINE—TRACTORS WITHOUT CAB

1. Install clutch. (See procedure in Section 50, Group 10.)

NOTE: Turning PTO shaft at rear of tractor during engine installation will aid in alignment of PTO clutch and shaft.

2. Put transmission shift levers in neutral to ease clutch shaft alignment with engine.

3. Apply multipurpose grease to end of PTO clutch shaft.

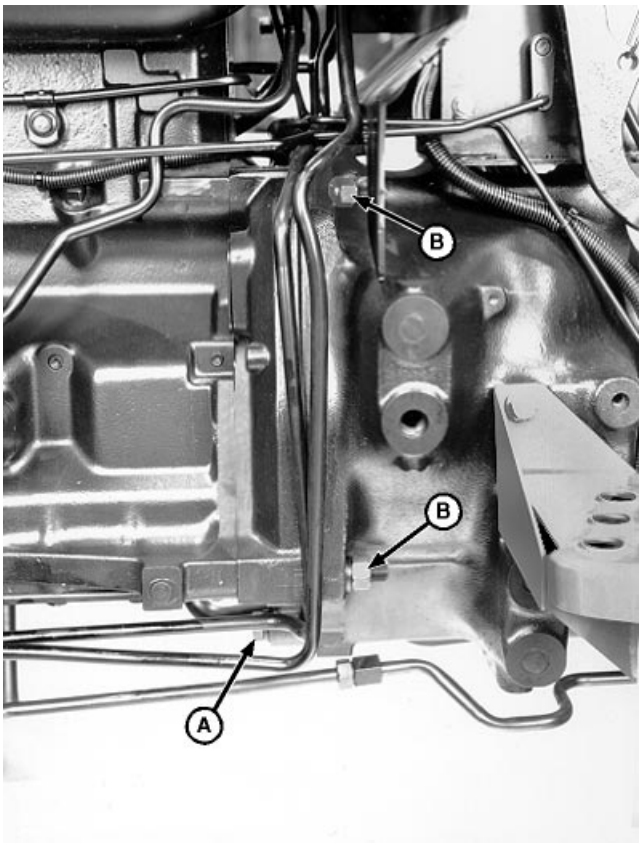
4. Install engine to clutch housing.

5. Install cap screws (A) and nuts and washers (B). Tighten to specifications below.

TORQUE SPECIFICATIONS

3-Cylinder Engines
- Cap Screws (A) . . . . . 300 N·m (225 lb-ft)
- Nuts (B) . . . . . 300 N·m (225 lb-ft)

4-Cylinder Engines
- Cap Screws (A) . . . . . 350 N·m (255 lb-ft)
- Nuts (B) . . . . . 350 N·m (255 lb-ft)



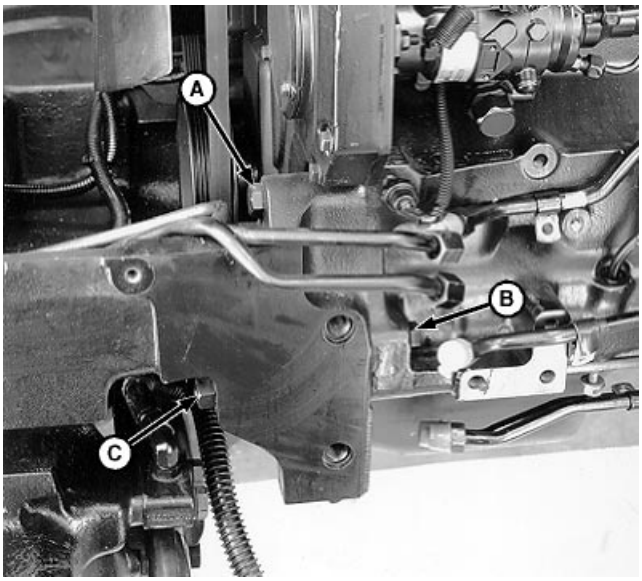
LV,17162005,A9 -19-02MAR98

NOTE: Hollow dowels are installed in bores of cap screws (B).

6. Align studs in engine with front end. Install front end to tractor. Tighten cap screws (A and B) and nuts (C) to specifications.

TORQUE SPECIFICATIONS

- Cap Screws (A) and Nuts (C) . . . . . 318 N·m (235 lb-ft)
- Cap Screws (B) . . . . . 176 N·m (130 lb-ft)



LV,17162005,A10-19-02MAR98

7. Pull wiring harness (C) and cable (B) through grommets.

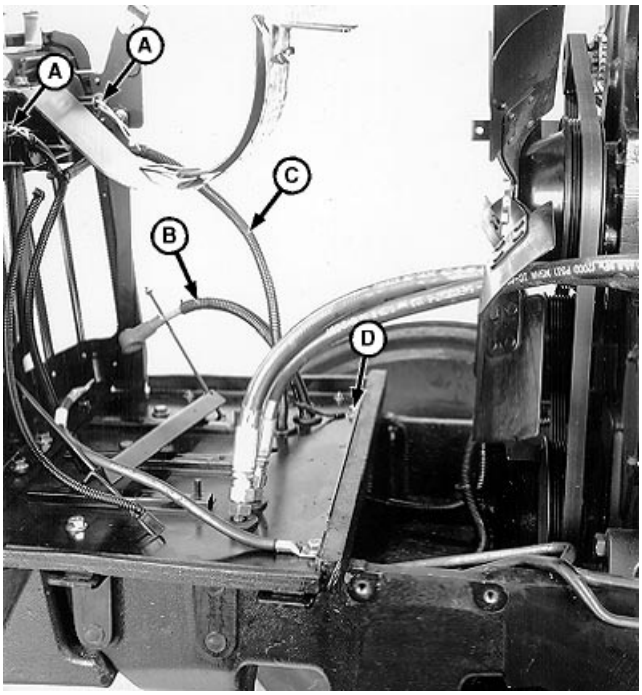
8. Connect wiring connectors (A).

9. Connect ground cable (D).

10. Remove wood blocks, floor jack, support stands and lifting brackets.

11. Install muffler, and exhaust pipe.

A—Headlight Wiring Connector
B—Positive (+) Battery Cable
C—Wiring Harness
D—Ground Cable



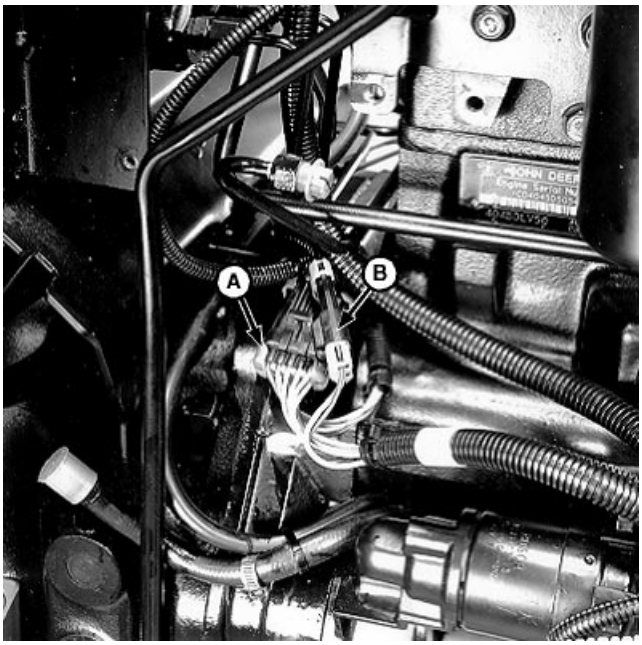
LV2294 -UN-16DEC97

LV,17162005,A11-19-02MAR98

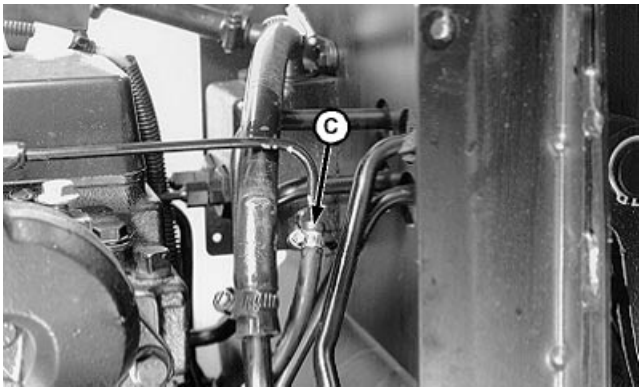
12. Connect wiring connectors (A and B).

13. Connect fuel return hose (C).

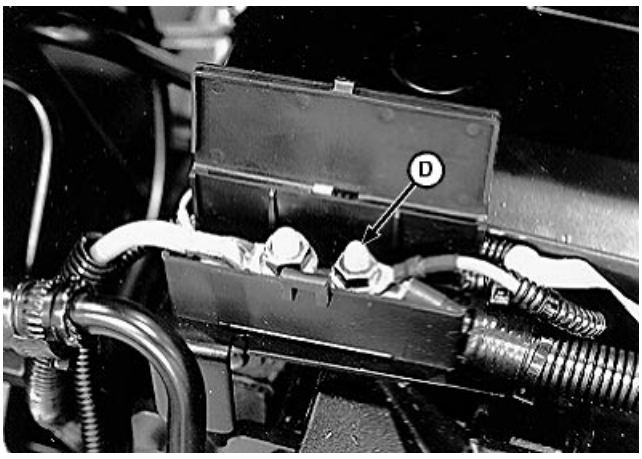
14. Connect red wire lead #002C on right-side post (D) of fuse link junction block.



LV2290 -UN-16DEC97



LV2291 -UN-18DEC97



LV2293 -UN-16DEC97

LV,17162005,A12-19-02MAR98

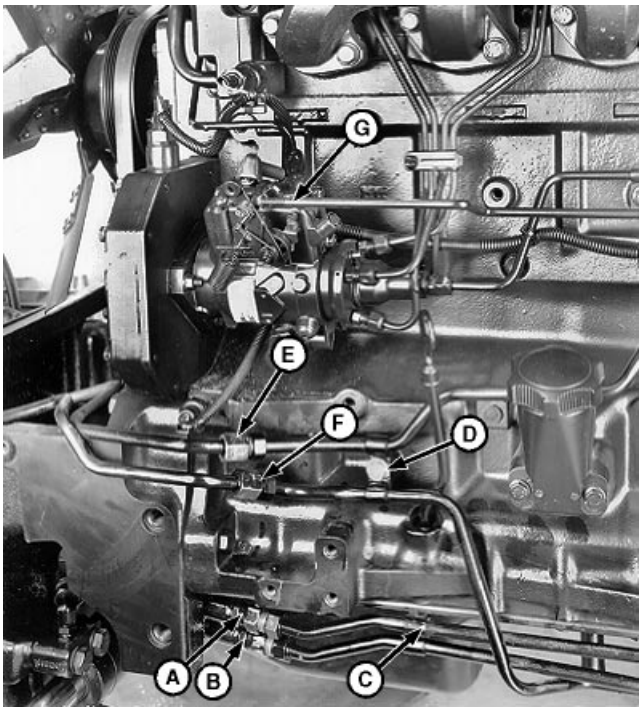
15. Connect hydraulic lines (A and B).

16. Connect oil cooler lines (E and F).

17. Install clamps (C and D).

18. Install throttle control rod (G).

A—Hydraulic Steering Line
B—Hydraulic Steering Line
C—Clamp
D—Clamp
E—Oil Cooler Line
F—Oil Cooler Line
G—Throttle Control Rod



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LV2292

LV,17162005,A13-19-02MAR98

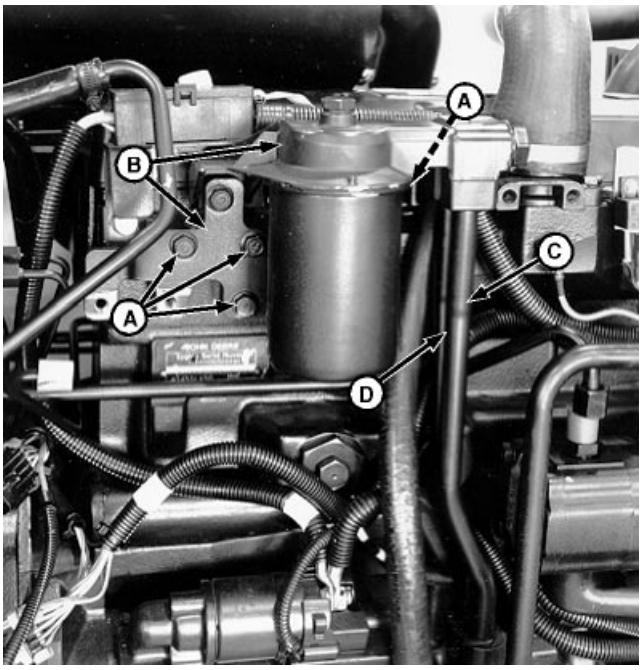
NOTE: Install high mount oil filter, if equipped.

19. Install oil tubes (C and D) into engine oil cooler manifold.

20. Install oil filter and bracket (B).

21. Install four Cap screws (A).

A—Cap Screw (4 used)
B—Oil Filter and Bracket
C—Oil Tube
D—Oil Tube



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