5103, 5203, 5303, 5403, 5045, 5055, 5065, 5075, 5204 (North America, Mexico, Australia, Argentina, Latin America)

TECHNICAL MANUAL

5103, 5203, 5303, 5403, 5045, 5055, 5065, 5075, 5204 (USA, Mexico, Australia, Argentina, Latin America)

TM900019 02APR20 (ENGLISH)

For complete service information also see:

Component Technical Manuals 3029 Engine....	CTM125
Alternators and Starting Motors	CTM77
Front Wheel Drive Axles	CTM4870
Front- Wheel Drive Axles 725, 730, 733, 740, 745, 750 and 755 (HD).....	CTM4820

John Deere India Pvt. Ltd
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Introduction

Foreword

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

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

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

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

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

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

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

DX,TMIFC -19-15APR14-1/1

Contents

Continued on next page

Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Section 10
General Information

Contents

Recognize Safety Information

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

Follow recommended precautions and safe operating practices.

T81389 —UN—28JUN13

GENERIC,00002A7 -19-29NOV06-1/1

Understand Signal Words

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

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

TS187 —19—30SEP88

GENERIC,00002A8 -19-29NOV06-1/1

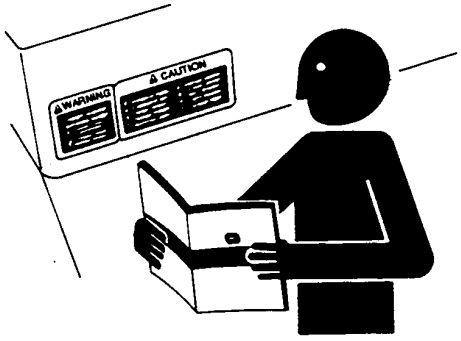
Follow Safety Instructions

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—15APR13

GENERIC,00002A9 -19-29NOV06-1/1

Handle Fluids Safely—Avoid Fires

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

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

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

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

TS227 —UN—15APR13

GENERIC,00002AA -19-29NOV06-1/1

Prevent Battery Explosions

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

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

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

TS204 —UN—15APR13

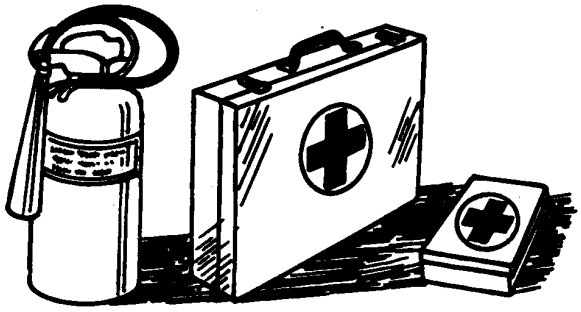
GENERIC,00002AB -19-29NOV06-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



TS291 —UN—15APR13

GENERIC,00002AC -19-29NOV06-1/1

Prevent Acid Burns

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

Avoid the hazard by:

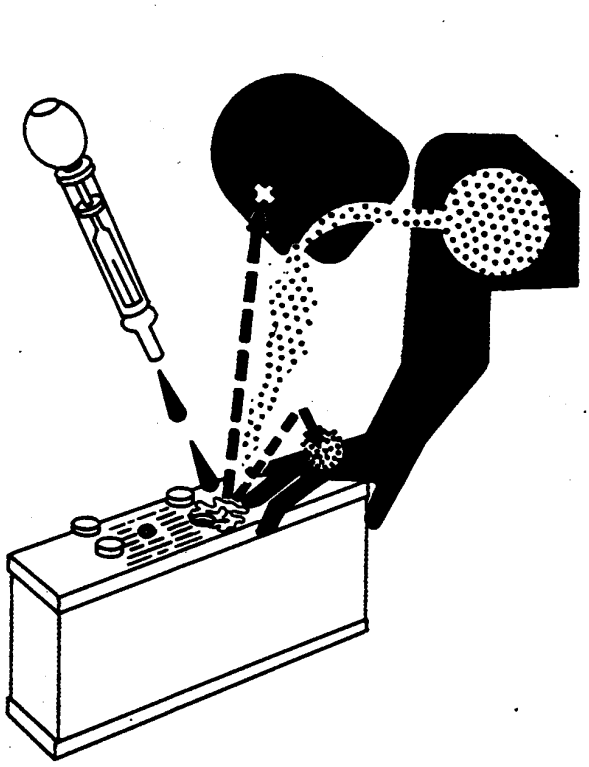
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

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

If acid is swallowed:

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



TS203 —UN—23AUG88

GENERIC,00002AD -19-29NOV06-1/1

Service Cooling System Safely

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

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

TS281 —UN—15APR13

GENERIC,00002AE -19-29NOV06-1/1

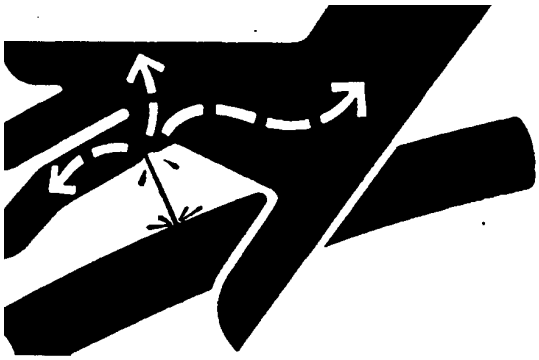
Avoid High-Pressure Fluids

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.



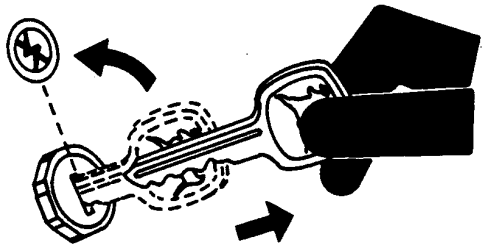
X9811 —UN—23AUG88

GENERIC,00002AF -19-29NOV06-1/1

Park Machine Safely

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



TS230 —UN—24MAY89

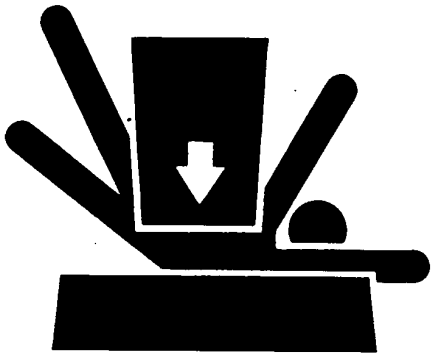
GENERIC,00002B0 -19-29NOV06-1/1

Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.



TS229 —UN—23AUG88

GENERIC,00002B1 -19-29NOV06-1/1

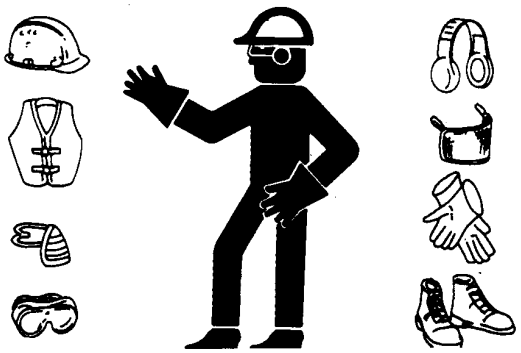
Wear Protective Clothing

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

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

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

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



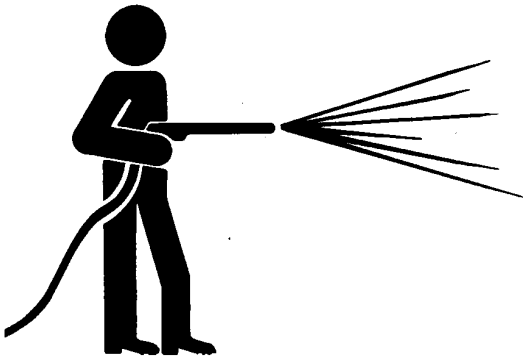
TS206 —UN—15APR13

GENERIC,00002B2 -19-29NOV06-1/1

Work in Clean Area

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.



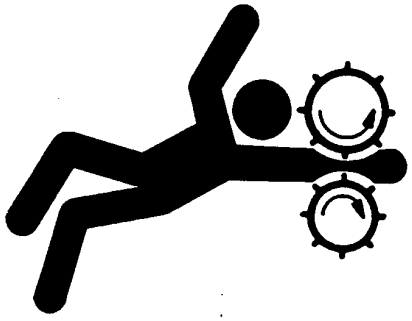
T6642EJ —UN—18OCT88

GENERIC,00002B3 -19-29NOV06-1/1

Service Machines Safely

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



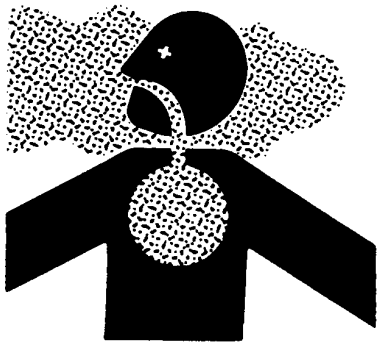
TS228 —UN—23AUG88

GENERIC,00002B4 -19-29NOV06-1/1

Work In Ventilated Area

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

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

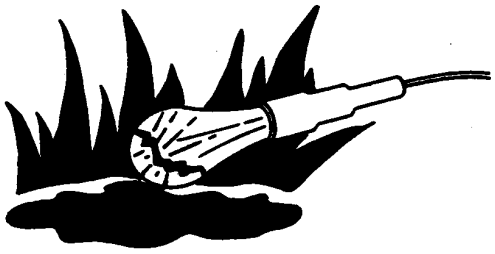


TS220 —UN—15APR13

GENERIC,00002B5 -19-29NOV06-1/1

Illuminate Work Area Safely

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

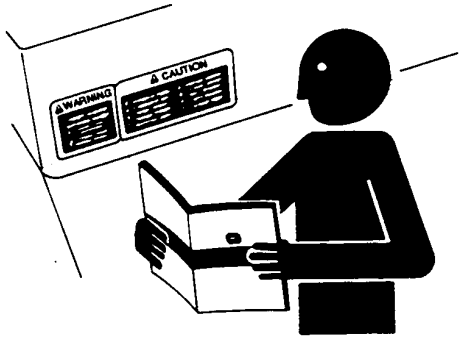


TS223 —UN—23AUG88

GENERIC,00002B6 -19-29NOV06-1/1

Replace Safety Signs

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



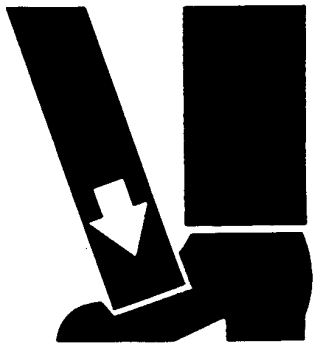
TS201 —UN—15APR13

GENERIC,00002B7 -19-29NOV06-1/1

Use Proper Lifting Equipment

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



TS226 —UN—23AUG88

GENERIC,00002B8 -19-29NOV06-1/1

Service Tires Safely

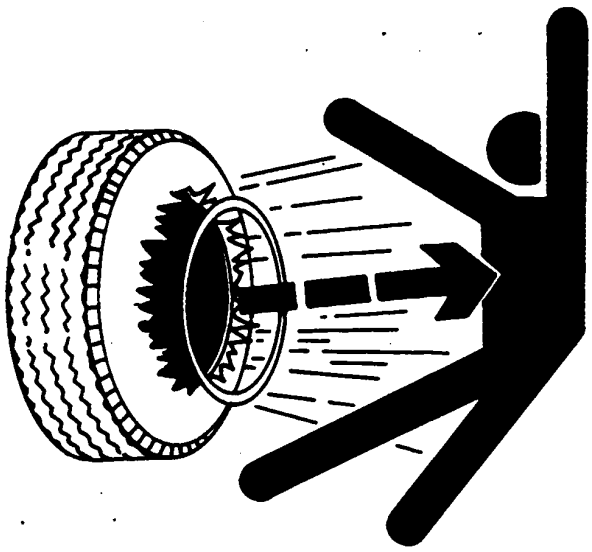
Explosive separation of a tire and rim parts can cause serious injury or death.

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

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

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

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



TS211 —UN—15APR13

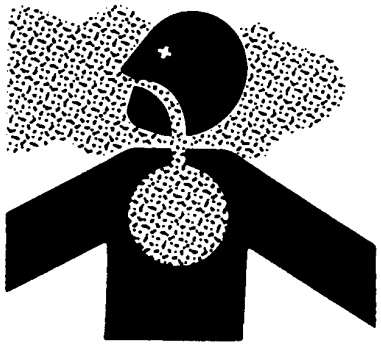
GENERIC,00002B9 -19-29NOV06-1/1

Avoid Harmful Asbestos Dust

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

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

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



TS220 —UN—15APR13

Keep bystanders away from the area.

GENERIC,00002BA -19-29NOV06-1/1

Avoid Heating Near Pressurized Fluid Lines

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

TS953 —UN—15MAY90

GENERIC,00002BB -19-29NOV06-1/1

Remove Paint Before Welding or Heating

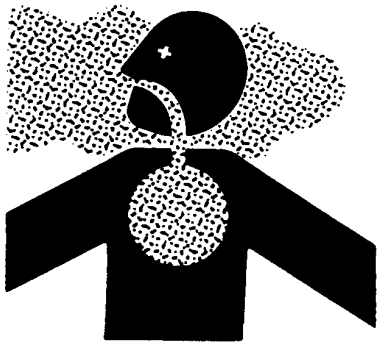
Avoid potentially toxic fumes and dust.

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

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.



TS220 —UN—15APR13

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.

GENERIC,00002BC -19-29NOV06-1/1

Use Proper Tools

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.

TS779 —UN—08NOV89

GENERIC,00002BD -19-29NOV06-1/1

Dispose of Waste Properly

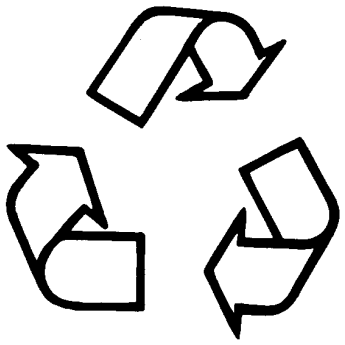
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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

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

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

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



TS1133 —UN—15APR13

GENERIC,00002BE -19-29NOV06-1/1

Live With Safety

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

TS231 —19—07OCT88

GENERIC,00002BF -19-29NOV06-1/1

Machine Specifications (For USA and Australia Tractors)

Item	Measurement	Specification
5103—3029T Engine, Turbocharged		
Factory Observed PTO	Power	30.89 kW (42 hp) at 2400 rpm
Maximum Engine Speed	Torque	171 N·m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-850 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier I	Position	6.6° ± 1° BTDC (Time Trac)
Injection Pump Timing - Tier II	Position	0° ± 1° BTDC (Time Trac)
5203—3029T Engine, Turbocharged		
Factory Observed PTO	Power	34.56 kW (47 hp) at 2400 rpm
Maximum Engine Speed	Torque	185 N·m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-850 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier I	Position	7.4° ± 1° BTDC (Time Trac)
Injection Pump Timing - Tier II	Position	0.5° ± 1° BTDC (Time Trac)
5303—3029T Engine, Turbocharged		
Factory Observed PTO	Power	41.01 kW (55 hp) at 2400 rpm

Continued on next page
AH98466,0000D46 -19-20AUG09-1/3

Item	Measurement	Specification
Maximum Engine Speed	Torque	220 N·m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-850 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier II	Position	5.5° ± 1° BTDC (Time Trac)
5403—3029T Engine, Turbocharged		
Factory Observed PTO	Power	47.07 kW (64 hp) at 2400 rpm
Maximum Engine Speed	Torque	258 N·m at 1600 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-875 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier II	Position	1.5° ± 1° BTDC (Time Trac)
Electrical System—12-Volt, Negative Ground		
Battery	Voltage	80 Ah 12-volt
	Cold Cranking Amps	623 CCA
Alternator	Amperage	40 amps
Starting Motor	Voltage	12 volts
Item	**Measurement**	**Specification**
Power Take-Off		
Engine—540	Speed	2400 rpm

Continued on next page

AH98466,0000D46 -19-20AUG09-2/3

Item	Measurement	Specification
Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	19.2 cu cm (1.17 cu in.)
Steering[1]	Flow Rate	25.7 L/min. (6.8 gpm)
Implement[1]	Flow Rate	44 L/min. (11.0 gpm)
Implement (Maximum)	Pressure	19000—20000 kPa (190 — 200 bar) (2755—2900 psi)

[1]Flow rate at 90% pump efficiency and engine at rated speed.

AH98466,0000D46 -19-20AUG09-3/3

Machine Specifications (For USA Tractors)

Item	Measurement	Specification
5103—3029T Engine, Turbocharged **(Tractor Sr. No. : PY5103U013640-)**		
Factory Observed PTO	Power	27.95 kW (38 hp) at 2400 rpm
Maximum Engine Speed	Torque	174 N.m
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-850 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier I	Position	6.6° ± 1° BTDC (Time Trac)
Injection Pump Timing - Tier II	Position	0° BTDC (Time Trac)
5203—3029T Engine, Turbocharged **(Tractor Sr. No. : PY5203U005569-)**		
Factory Observed PTO	Power	34.56 kW (47 hp) at 2400 rpm
Maximum Engine Speed	Torque	209 N.m
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-850 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier I	Position	7.4° ± 1° BTDC (Time Trac)
Injection Pump Timing - Tier II	Position	0.5° BTDC (Time Trac)

Continued on next page

Item	Measurement	Specification
5303—3029T Engine, Turbocharged **(Tractor Sr. No. : PY5303U007752-)**		
Factory Observed PTO	Power	41.01 kW (55 hp) at 2400 rpm
Maximum Engine Speed	Torque	238 N.m
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-850 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier II	Position	0 ° BTDC (Time Trac)
5403—3029T Engine, Turbocharged **(Tractor Sr. No. : PY5403U000727-)**		
Factory Observed PTO	Power	47.07 kW (64 hp) at 2400 rpm
Maximum Engine Speed	Torque	264 N.m
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-875 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing - Tier II	Position	1° BTDC (Time Trac)
5045 D—3029T Engine, Turbocharged		
Factory Observed PTO	Power	27.3 kW (37 hp) at 2300 rpm
Maximum Engine Speed	Torque	187 N.m @ 1600 rpm

Continued on next page

AH98466,0000D57 -19-02SEP09-2/6

Item	Measurement	Specification
Cylinders	Quantity	3
Bore	Diameter	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800 - 875 rpm
Fast Idle	Speed	2475—2550 rpm
Operating Range	Speed	1700 - 2300 rpm
Injection Pump Timing **(2WD)**	Position	-1° BTDC
5045 E—3029T Engine, Turbocharged		
Factory Observed PTO	Power	27.3 kW (37 hp) at 2400 rpm
Maximum Engine Speed	Torque	184 N.m @ 1700 rpm
Cylinders	Quantity	3
Bore	Diameter	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800 - 875 rpm
Fast Idle	Speed	2575—2650 rpm
Operating Range	Speed	1700 - 2400 rpm
Injection Pump Timing **(MFWD)**	Position	-1° BTDC
5055 D—3029T Engine, Turbocharged		
Factory Observed PTO	Power	33.1 kW (45 hp) at 2300 rpm
Maximum Engine Speed	Torque	220 N.m @ 1600 rpm
Cylinders	Quantity	3
Bore	Diameter	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3

Continued on next page

AH98466,0000D57 -19-02SEP09-3/6

Item	Measurement	Specification
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800 - 875 rpm
Fast Idle	Speed	2475—2550 rpm
Operating Range	Speed	1700 - 2300 rpm
Injection Pump Timing **(2WD)**	Position	0.0° BTDC
5055 E—3029T Engine, Turbocharged		
Factory Observed PTO	Power	33.1 kW (45 hp) at 2400 rpm
Maximum Engine Speed	Torque	215 N.m @ 1700 rpm
Cylinders	Quantity	3
Bore	Diameter	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800 - 875 rpm
Fast Idle	Speed	2575—2650 rpm
Operating Range	Speed	1700 - 2300 rpm
Injection Pump Timing **(MFWD)**	Position	0.5° BTDC
5065E—3029T Engine, Turbocharged		
Factory Observed PTO	Power	39 kW (53 hp) at 2400 rpm
Maximum Engine Speed	Torque	240 N.m @ 1700 rpm
Cylinders	Quantity	3
Bore	Diameter	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800 - 875 rpm
Fast Idle	Speed	2575—2650 rpm
Operating Range	Speed	1800 - 2400 rpm
Injection Pump Timing	Position	0.5° BTDC

Continued on next page

AH98466,0000D57 -19-02SEP09-4/6

Item	Measurement	Specification
5075E—3029H Engine, Turbocharged		
Factory Observed PTO	Power	44.9 kW (61 hp) at 2400 rpm
Maximum Engine Speed	Speed	265 N.m @ 1700 rpm
Cylinders	Quantity	3
Bore	Diameter	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800 - 875 rpm
Fast Idle	Speed	2575—2650 rpm
Operating Range	Speed	1800 - 2400 rpm
Injection Pump Timing	Position	0.5° BTDC
Electrical System—12-Volt, Negative Ground		
Battery	Voltage	80 Ah 12-volt
	Cold Cranking Amps	623 CCA
Alternator	Amperage	40 amps
Starting Motor	Voltage	12 volts

Item	Measurement	Specification
Power Take-Off		
Engine—540	Speed	2400 rpm

Item	Measurement	Specification
Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	19.2 cu cm (1.17 cu in.)
Pump Displacement (For 5045D, 5055D, 5045E, 5055E, 5065E and 5075E Tractors)—Implement	Displacement	20 cu cm (1.22 cu in.)
Steering[1]	Flow Rate	25.7 L/min. (6.8 gpm)
Implement[1]	Flow Rate	43.1 L/min. (11.4 gpm)
Steering (For 5045E, 5055E, 5065E and 5075E)[1]	Flow Rate	25.7 L/min. (6.8 gpm)
Implement (For 5045E, 5055E, 5065E and 5075E)[1]	Flow Rate	43.1 L/min. (11.4 gpm)
Total Pump Flow (For 5045E, 5055E, 5065E and 5075E)[1]	Flow Rate	69 L/min. (18.2 gpm)
Steering (For 5045D and 5055D)[1]	Flow Rate	24.6 L/min. (6.5 gpm)

Continued on next page

AH98466,0000D57 -19-02SEP09-5/6

Item	Measurement	Specification
Implement (For 5045D and 5055D)[1]	Flow Rate	41.4 L/min. (10.9 gpm)
Total Pump Flow (For 5045D and 5055D)[1]	Flow Rate	66 L/min. (17.4 gpm)
Implement (Maximum)	Pressure	19000—20000 kPa (190 — 200 bar) (2755—2900 psi)
Hydraulic Lift - S Transmission	Capacity	1800 Kg.
Hydraulic Lift - AA Transmission	Capacity	1450 Kg
Hydraulic Lift at hitch balls- (5045D and 5055D Trctors)	Capacity	1450 Kg.
Hydraulic Lift behind 24 inch hitch balls- (5045D and 5055D Trctors)	Capacity	1284 Kg
Hydraulic Lift at hitch balls- (5045E, 5055E, 5065E and 5075E Trctors)	Capacity	1800 Kg.
Hydraulic Lift behind 24 inch hitch balls- (5045E, 5055E, 5065E and 5075E Trctors)	Capacity	1448 Kg

[1]Flow rate at 90% pump efficiency and engine at rated speed.

AH98466,0000D57 -19-02SEP09-6/6

Machine Specifications (For Latin America Tractors)

Item	Measurement	Specification
5303—3029D Engine, Naturally Aspirated		
Factory Observed PTO	Power	34.56 kW (47 hp) at 2400 rpm
Maximum Engine Speed	Torque	198 N·m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-875 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing	Position	5.5° ± 1° BTDC (Time Trac)
5403—3029T Engine, Turbocharged		
Factory Observed PTO	Power	41.01 kW (55 hp) at 2400 rpm
Maximum Engine Speed	Torque	234 N·m at 1500 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	800-875 rpm
Fast Idle	Speed	2575-2650 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing	Position	6° ± 1° BTDC (Time Trac)
Electrical System—12-Volt, Negative Ground		
Battery	Voltage	80 Ah 12-volt
	Cold Cranking Amps	623 CCA
Alternator	Amperage	40 amps

Continued on next page

AH98466,0000D47 -19-20AUG09-1/2

Item	Measurement	Specification
Starting Motor	Voltage	12 volts
Item	**Measurement**	**Specification**
Power Take-Off		
Engine—540	Speed	2400 rpm
Item	**Measurement**	**Specification**
Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	19.2 cu cm (1.17 cu in.)
Steering[1]	Flow Rate	25.7 L/min. (6.8 gpm)
Implement[1]	Flow Rate	44 L/min. (11.0 gpm)
Implement (Maximum)	Pressure	19000—20000 kPa (190 — 200 bar) (2755—2900 psi)

[1]Flow rate at 90% pump efficiency and engine at rated speed.

AH98466,0000D47 -19-20AUG09-2/2

Machine Specifications (Mexico Tractors)

Item	Measurement	Specification
5204—3029D Engine, Naturally Aspirated		
Factory Observed PTO	Power	31.33 kW (42.6 hp) at 2400 rpm
Maximum Engine	Torque	180.4 N·m at 1500 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.17 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	850 ± 25 rpm
Fast Idle	Speed	2500 ± 25 rpm
Operating Range	Speed	1200—2300 rpm
Injection Pump Timing	Position	17.8° ± 1° BTDC
5303—3029D Engine, Naturally Aspirated		
Factory Observed PTO	Power	39 kW (53 hp) at 2400 rpm
Maximum Engine	Torque	195 N·m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.17 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	850 ± 25 rpm
Fast Idle	Speed	2500 ± 25 rpm
Operating Range	Speed	1400—2400 rpm
Injection Pump Timing	Position	17.8° ± 1° BTDC
Electrical System—12-Volt, Negative Ground		
Battery	Voltage	12-volt
	Ampere hour	80 Ah
	Cold Cranking Amps	622 CCA
Alternator	Amperage	40 amps

Continued on next page

AH98466,0000D48 -19-20AUG09-1/2

Item	Measurement	Specification
Starting Motor	Voltage	12 volts
Item	**Measurement**	**Specification**
Power Take-Off		
Engine—540	Speed	2400 rpm
Item	**Measurement**	**Specification**
Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	19.2 cu cm (1.17 cu in.)
Steering[1]	Flow Rate	25.7 L/min. (6.8 gpm)
Implement[1]	Flow Rate	41.5 L/min. (11.0 gpm)
Implement (Maximum)	Pressure	19000—20000 kPa (190 — 200 bar) (2755—2900 psi)

[1]Flow rate at 90% pump efficiency and engine at rated speed.

AH98466,0000D48 -19-20AUG09-2/2

Repair Specifications

Section 20—Engine Repair

NOTE: For all repair specifications use CTM125

Item	Measurement	Specification
Engine-to-Clutch Housing Cap Screw	Torque	290 N·m (214 lb-ft)
Engine-to-Clutch Housing Nut	Torque	290 N·m (214 lb-ft)
Engine-to-Front Support Top Cap Screw	Torque	290N·m (214 lb-ft)
Engine-to-Front Support Lower Cap Screw	Torque	150 N·m (111 lb-ft)
Engine-to-Front Support Nut	Torque	290 N·m (214 lb-ft)
Cooler Connection	Torque	17 N·m (13 lb-ft)
Belt Tensioner	Tension	18—22 N·m (13-16 lb-ft)

Section 40—Electrical System

For starter repair—Use CTM77

Section 50—Power Train Repair

Item	Measurement	Specification
Clutch Housing		
Engine-to-Clutch Housing Cap Screw	Torque	290 N•m (214 lb-ft)
Clutch Assembly		
PTO Clutch Disk	Thickness	7.6—6.6 mm (0.300—0.260 in.)
Clutch Assembly Mounting Cap Screws	Torque	36 N·m (27 lb-ft)
Traction Clutch Disk	Thickness	10—6 mm (0.395—0.235 in.)
Pressure Plate Minimum Thickness		
PTO Clutch Pressure Plate	Thickness	16.2 mm (0.638 in.)
Traction Clutch Front Pressure Plate	Thickness	26.7 mm (1.051 in.)
Traction Clutch Rear Pressure Plate	Thickness	15.8 mm (0.622 in.)
Clutch Spring Washer	Height	13 mm (0.512 in.)
Clutch Yoke Cap Screw	Torque	62 N·m (46 lb-ft)
Clutch Assembly Transmissions		
Clutch-to-Flywheel Cap Screw	Torque	36 N·m (27 lb-ft)
Clutch Release Mechanism Cap Screw	Torque	26 N·m (20 lb-ft)
Traction Clutch Shaft Cap Screw	Torque	65 N·m (48 lb-ft)
Transmission Pump Cap Screw	Torque	26 N·m (20 lb-ft)

Continued on next page

Item	Measurement	Specification
CollarShift / SyncShuttle Transmission		
Clutch Housing-to-Transmission Cap Screw	Torque	136 N.m (100 lb-ft)
Transmission Cap Screw	Torque	136 N·m (100 lb-ft)
Park Pawl Cap Screw	Torque	26 N·m (20 lb-ft)
Reverse Idler Shaft	Torque	132 N·m (97 lb-ft)
Rear PTO Drive Shaft		
Steel Wheel Cap Screw	Torque	175 N·m (130 lb-ft)
Cast Wheel Cap Screw	Torque	225 N·m (166 lb-ft)
Drive Shaft Assembly Cap Screw	Torque	65 N·m (48 lb-ft)
Rear PTO Drive Shaft Assembly Cap Screw	Torque	65 N·m (48 lb-ft)
Differential		
Differential Cap Screw	Torque	52 N·m (43 lb-ft)
Case with Locking Pawl Cap Screw	Torque	95 N·m (70 lb-ft)
Housing Cap Screw	Torque	95 N·m (58 lb-ft)
Differential Drive Shaft Spacer and Shims	Thickness	0.25—0.75 mm (0.010—0.030 in.) Nominal
Differential Drive Shaft Nut	Torque	250 N·m (184 lb-ft)
Differential Drive Shaft	Force	360 - 1080 gms
Differential Drive Shaft Quill Cap Screw	Torque	52 N·m (38 lb-ft)
Cone Point Adjustment	Clearance	20.5 ± 0.05 mm (0.688 ± 0.002 in.)
Differential Backlash	Clearance	0.18—0.33mm (0.007—0.010 in.)
Differential Quill	Angle	30°
Final Drives		
Final Drive Assembly Cap Screw	Torque	100 N·m (74 lb-ft)
Final Drive Housing	Rolling Drag Torque	14 - 18 N.m (10-13 lb-ft)
Bearing Cone	Temperature	120°C
Axle Assembly-to-Differential Housing Cap Screws	Torque	136 N.m (100 lb-ft)
Mechanical Front Wheel Drive (MFWD) - Australia and Latin America Tractors		
MFWD Drop Gearbox Cap Screw	Torque	90 N·m (66 lb-ft)
MFWD Drop Gearbox Cover Cap Screw	Torque	26 N·m (19 lb-ft)
MFWD Drop Gearbox Nut	Torque	60N·m (44 lb-ft)
MFWD Drive Shaft Guard Cap Screw	Torque	15 N·m (11 lb-ft)
MFWD Friont Wheel Cap Screw	Torque	310 N·m (229 lb-ft)

Continued on next page

AH98466,00009A5 -19-05AUG08-2/5

Section 60—Steering and Brake Repair

Item	Measurement	Specification
Steering		
Steering Column Mounting Cap Screw	Torque	71 N·m (52 lb-ft)
Steering Wheel Nut	Torque	68 N·m (50 lb-ft)
Steering Valve Cover Cap Screw	Torque	30 N·m (22 lb-ft)
Ball Joint — 2WD Axle	Torque	300 N·m (221 lb-ft)
Tie Rod Sleeve Cap Screw — 2WD Axle	Torque	90 N·m (66 lb-ft)
Tie Rod End Lock Nut — 2WD Axle	Torque	165 N·m (122 lb-ft)
Ball Joint To Piston Rod — MFWD Axle	Torque	300 N·m (221 lb-ft)
Ball Joint Nut — MFWD Axle	Torque	120 N·m (89 lb-ft)
Tie Rod End Lock Nut — MFWD Axle	Torque	165 N·m (122 lb-ft)
Brakes		
Brake Valve Mounting Cap Screw	Torque	70 N·m (52 lb-ft)
Brake Valve Inlet Check Valve	Torque	73 N·m (54 lb-ft)
Pressure Equalizing Valve Plug	Torque	37 N·m (27 lb-ft)
Outlet Check Valve Spring Seat Fitting	Torque	92 N·m (68 lb-ft)
Outlet Fitting	Torque	11 N·m (8 lb-ft.)
Retractor Spring-to-Piston	Torque	15 N·m (11 lb-ft.)
Piston-to-Final Drive Housing Surface	Distance	12.40—12.80 mm (0.488—0.503 in.)

Section 70—Hydraulic Repair

Item	Measurement	Specification
Hydraulic Pump and Filter		
Pick-Up Screen Cover Cap Screw	Torque	23 N·m (17 lb-ft)
Hydraulic Pump Bracket-to-Engine Cap Screw	Torque	41 N·m (30 lb-ft)
Hydraulic Pump Mounting Cap Screw	Torque	50 N·m (37 lb-ft)
Hydraulic Pump Cap Screw and Bolt	Torque	50 N·m (37 lb-ft)
Hydraulic Pump Rear Outlet Fitting	Torque	28 N·m (21 lb-ft)
Hydraulic Pump Front Outlet Fitting	Torque	46 N·m (34 lb-ft)
Drive Gear Retaining Nut	Torque	55 N·m (41 lb-ft)
Pump Bracket Retaining Nut	Torque	50 N·m (37 lb-ft)
Hydraulic Pump Cap Screw	Torque	90 N·m (66 lb-ft)
Hydraulic Pump Body Cap Screw	Torque	68 N·m (50 lb-ft)

Continued on next page

AH98466,00009A5 -19-05AUG08-3/5

Item	Measurement	Specification
Hydraulic Pump Gear Nut	Torque	90 N·m (66 lb-ft)
Hydraulic Oil Filter/Manifold Cap Screw	Torque	70 N·m (52 lb-ft)
MITA Rockshaft		
Draft-Sensing Support Mounting Socket Head Cap Screw	Torque	375 N·m 277 (lb-ft)
Main Relief Valve	Torque	51 N·m (38 lb-ft)
Main Relief Valve Cap	Torque	41 N·m (30 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 Socket Head Cap Screw	Torque	13.6 N·m (10 lb-ft.)
Inlet Housing Mounting Cap Screw	Torque	35 N·m (26 lb-ft)
Rockshaft Control Valve Socket Head Cap Screw	Torque	47 N·m (35 lb-ft)
Inlet Housing Cap Screw	Torque	40 N·m (30 lb-ft)
Hydraulic Line Fitting	Torque	69 N·m (51 lb-ft)
Rockshaft Case Cap Screw	Torque	125 N·m (92 lb-ft)
Hydraulic Pump Outlet Fitting	Torque	69 N·m (51 lb-ft)
Bushing Outer Edge to Edge of Bore	Distance	7 mm (0.283 in.)

Section 80—Miscellaneous Repair

Item	Measurement	Specification
Front Axle—2WD		
Axle	End Play	0.8 mm (0.030 in.)
2WD Axle Pivot Pin Retainer Cap Screw	Torque	135 N·m (100 lb-ft)
Front Wheel Cap Screw	Torque	175 N·m (129 lb-ft)
Spindle Nut	Torque	415 N·m (306 lb-ft)
Tie Rod End Nut	Torque	165 N·m (122 lb-ft)
Front Wheel—2WD		
Front Wheel Cap Screw	Torque	210 N·m (155 lb-ft)
3-Point Hitch		
Draft Link Support Cap Screw	Torque	200 N·m (148 lb-ft)
Fixed Draft Link Stabilizer Bracket Cap Screw	Torque	350 N·m (258 lb-ft)
Telescoping Draft Link Stabilizer Bracket Cap Screw	Torque	300 N·m (221 lb-ft)
Draw Support Rear Cap Screw	Torque	200 N·m (148 lb-ft)
Draw Bar Support Bottom Cap Screw	Torque	310 N·m (229 lb-ft)

Continued on next page

Item	Measurement	Specification
Fenders		
Steel Wheel Cap Screw	Torque	175 N·m (130 lb-ft)
Cast Wheel Cap Screw	Torque	225 N·m (166 lb-ft)

Section 90—Operator Station Repair

Item	Measurement	Specification
Operator Station Repair		
Seat Support Cap Screws - S Transmission	Torque	125 N·m (92 lb-ft)
Seat Support Cap Screws - AA Transmission	Torque	80 N.m (59 lb-ft)
ROLL-GARD™ Cap Screw-M16	Torque	335 N·m (250 lb-ft)
ROLL-GARD™ Cap Screw-M20	Torque	660 N·m (487 lb-ft)
Rear Wheel-to-Axle Cap Screw	Torque	550 N·m (130 lb-ft)
Canopy Mounting Cap Screw	Torque	100 N·m - 110 N·m (74 lb-ft - 81 lb-ft)

AH98466,00009A5 -19-05AUG08-5/5

Ground Speed Estimates

NOTE: Ground Speed (km/h) at 2400 rpm engine speed.

5103, 5203, 5303 and 5403 USA Tractors			
Speed (km/h)			
Gear	Rear tire size :13.6 x 28	Rear tire size :14.9 x 28	Rear tire size : 16.9 x 28
A1	2.0	2.09	2.2
A2	2.9	3.01	3.2
A3	4.4	4.53	4.9
B1	5.6	5.84	6.3
B2	8.2	8.43	9.0
B3	12.3	12.69	13.6
C1	13.1	13.52	14.5
C2	18.9	19.52	20.9
C3	28.4	29.37	31.5
A-R	3.4	3.51	3.8
B-R	9.5	9.82	10.5
C-R	22.0	22.73	24.4

5103, 5203, 5303 and 5403 Australia Tractors		
Speed (km/h)		
Gear	Rear tire size :14.9 x 28	Rear tire size : 16.9 x 28
A1	1.90	1.99
A2	2.75	2.87
A3	4.13	4.32
B1	5.32	5.56
B2	7.69	8.04
B3	11.57	12.09
C1	12.33	12.89
C2	17.80	18.6
C3	26.78	27.99
A-R	3.20	3.34
B-R	8.97	9.37
C-R	20.72	21.66

5103, 5203, 5303 and 5403 USA Tractors			
Speed (km/h)			
Gear	Rear tire size :13.6 x 28	Rear tire size :14.9 x 28	Rear tire size : 16.9 x 28
A1	1.83	1.90	1.99
A2	2.64	2.75	2.87
A3	3.98	4.13	4.32
B1	5.12	5.32	5.56
B2	7.41	7.69	8.04
B3	11.14	11.57	12.09
C1	11.88	12.33	12.89
C2	17.14	17.80	18.60
C3	25.79	26.78	27.99

Continued on next page

AH98466,0000D72 -19-02SEP09-1/3

5103, 5203, 5303 and 5403 USA Tractors			
Speed (km/h)			
A-R	3.08	3.20	3.34
B-R	8.63	8.97	9.37
C-R	19.96	20.73	21.66

5103, 5203, 5303 and 5403 USA Tractors
(PY5103U013640- , PY5203U005569- , PY5303U07752-, PY5403U00727-)

	5045D Tractor	5045E Tractor
Speed (km/h)		
Gear	**Rear tire size : 13.6 x 28 with 2WD**	**Rear tire size : 13.6 x 28 with MFWD**
A1	2.81	1.83
A2	3.99	2.64
A3	5.59	3.98
A4	7.93	NA
B1	9.88	5.12
B2	14.03	7.41
B3	19.70	11.14
B4	27.97	NA
C1	NA	11.88
C2	NA	17.14
C3	NA	25.79
R1	3.38	3.08
R2	4.80	8.63
R3	6.75	19.96
R4	9.58	NA

	5055D Tractor	5055E Tractor
Speed (km/h)		
Gear	**Rear tire size : 14.9 x 28 with 2WD**	**Rear tire size : 14.9 x 28 with MFWD**
A1	2.91	1.90
A2	4.14	2.75
A3	5.81	4.13
A4	8.24	NA
B1	10.27	5.32
B2	14.57	7.69
B3	20.47	11.57
B4	29.05	NA
C1	NA	12.33
C2	NA	17.80
C3	NA	26.78
R1	3.52	3.20
R2	4.99	8.97
R3	7.01	20.73
R4	9.95	NA

Continued on next page

5065E And 5075E Tractors	
Speed (km/h)	
Gear	**Rear tire size : 16.9 x 28**
A1	1.99
A2	2.87
A3	4.32
B1	5.56
B2	8.04
B3	12.09
C1	12.89
C2	18.60
C3	27.99
A-R	3.34
B-R	9.37
C-R	21.66

5303 and 5403 Latin America Tractors		
Speed (km/h)		
Gear	Rear tire size :14.9 x 28	Rear tire size : 16.9 x 28
A1	2.0	2.1
A2	2.8	2.9
A3	4.2	4.4
B1	5.5	5.8
B2	7.9	8.3
B3	11.9	12.5
C1	12.7	13.3
C2	18.3	19.2
C3	27.6	28.9
A-R	3.3	3.5
B-R	9.2	9.6
C-R	21.3	22.3

5204 Mexico Tractors	
Speed (Km/h	
Gear	Rear Tire Size: 14.9 x 28
A1	3.06
A2	4.38
A3	6.60
A4	10.80
B1	9.11
B2	13.06
B3	19.67
B4	32.15
R1	4.06
R2	5.82
R3	8.76
R4	14.31

AH98466,0000D72 -19-02SEP09-3/3

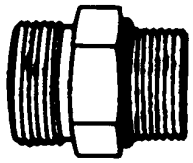
5303 Mexico Tractors	
Speed (Km/h	
Gear	Rear Tire Size: 16.9 x 28
A1	2.0
A2	2.7
A3	4.1
B1	4.4
B2	6.4
B3	9.6
C1	12.1
C2	17.5
C3	26.3
A-R	3.1
B-R	7.4
C-R	20.3

AH98466,0000D72 -19-02SEP09-4/3

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—15APR13

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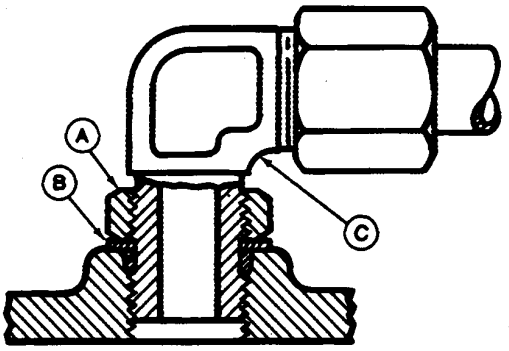
AH98466,000090E -19-19MAY08-1/2

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).

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.



T6520AB —UN—15APR13

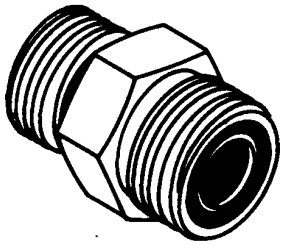
STRAIGHT FITTING OR SPECIAL NUT TORQUE CHART		
Thread Size	**N·m**	**lb-ft**
3/8-24 UNF	8	6
7/16-20 UNF	12	9
1/2-20 UNF	16	12
9/16-18 UNF	24	18
3/4-16 UNF	46	34
7/8-14 UNF	62	46
1-1/16-12 UN	102	75
1-3/16-12 UN	122	90
1-5/16-12 UN	142	105
1-5/8-12 UN	190	140
1-7/8-12 UN	217	160

NOTE: Torque tolerance is ± 10%.

AH98466,000090E -19-19MAY08-2/2

Service Recommendations for Flat Face O-Ring Seal Fittings

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 value shown on the chart per dash size stamped on the fitting. Do not allow hoses to twist when tightening fittings.



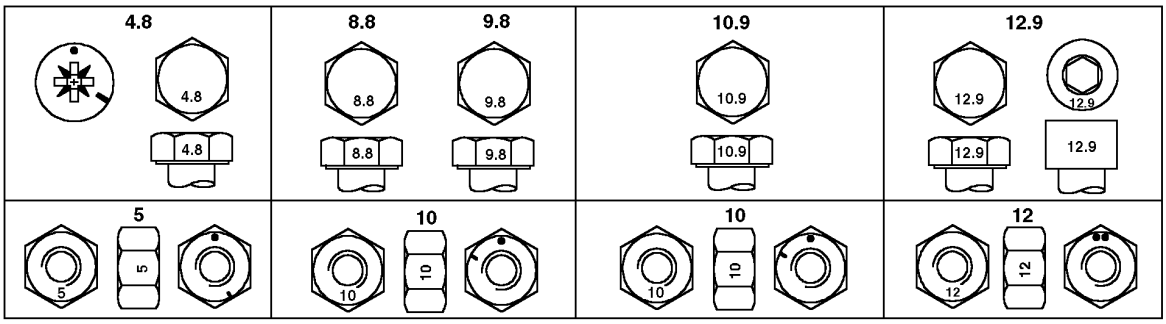
T6243AD —UN—18OCT88

FLAT FACE O-RING SEAL FITTING TORQUE							
Nominal Tube O.D.		Dash Size	Thread Size in.	Swivel Nut		Bulkhead Nut	
mm	in.			N·m	lb-ft	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%.

AH98466,000090F -19-19MAY08-1/1

Metric Bolt and Cap Screw Torque Values



TORQ2 —UN—15APR13

Top, Property Class and Head Markings; Bottom, Property Class and Nut Markings

	Class 4.8		Class 8.8 or 9.8		Class 10.9		Class 12.9	
Size	**Lubricated[a] N·m(lb-ft)**	**Dry[b] N·m(lb-ft)**	**Lubricated[a] N·m(lb-ft)**	**Dry[b] N·m(lb-ft)**	**Lubricated[a] N·m(lb-ft)**	**Dry[b] N·m(lb-ft)**	**Lubricated[a] N·m(lb-ft)**	**Dry[b] 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)

[a] *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.*

[b] *"Dry" means plain or zinc plated without any lubrication.*

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.

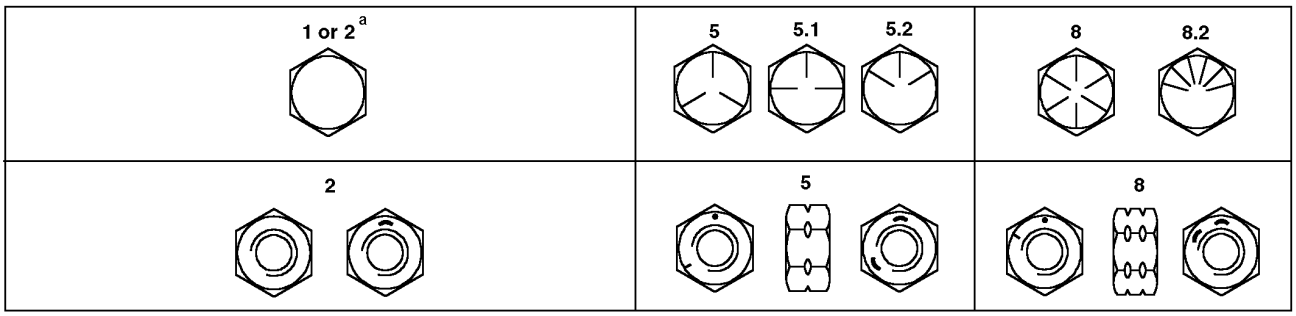
Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener 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.

AH98466,0000910 -19-19MAY08-1/1

Unified Inch Bolt and Cap Screw Torque Values



TORQ1A —UN—15APR13

Top, SAE Grade and Head Markings; Bottom, SAE Grade and Nut Markings

	Grade 1 (No Mark)		Grade 2[a] (No Mark)		Grade 5, 5.1 or 5.2		Grade 8 or 8.2	
Size	**Lubricated[b] N·m(lb-ft)**	**Dry[c] N·m(lb-ft)**	**Lubricated[b] N·m(lb-ft)**	**Dry[c] N·m(lb-ft)**	**Lubricated[b] N·m(lb-ft)**	**Dry[c] N·m(lb-ft)**	**Lubricated[b] N·m(lb-ft)**	**Dry[c] 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)

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

[b] "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

[c] "Dry" means plain or zinc plated without any lubrication.

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 fastener 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.

AH98466,0000911 -19-19MAY08-1/1

Diesel Fuel

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

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

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

Required Fuel Properties

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

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

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

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

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

E-Diesel fuel

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

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

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

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

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

Sulfur Content for Tier 3 and Stage III A Engines

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

Sulfur Content for Tier 2 and Stage II Engines

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

Sulfur Content for Other Engines

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

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

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

DX,FUEL1 -19-13JAN18-1/1

Biodiesel Fuel

Biodiesel fuel is comprised of monoalkyl esters of long chain fatty acids derived from vegetable oils or animal fats. Biodiesel blends are biodiesel mixed with petroleum diesel fuel on a volume basis.

Before using fuel containing biodiesel, review the Biodiesel Use Requirements and Recommendations in this Operator's Manual.

Environmental laws and regulations can encourage or prohibit the use of biofuels. Operators should consult with appropriate governmental authorities prior to using biofuels.

John Deere Stage V Engines Operating in the European Union

Where the engine is to be operated within the Union on diesel or non-road gas-oil, a fuel with a FAME content not greater than 8% volume/volume (B8) shall be used.

John Deere Engines with Exhaust Filter Except Stage V Engines Operating in the European Union

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

Biodiesel concentrations above B20 can harm the engine's emission control systems and should not be used. Risks include, but are not limited to, more frequent stationary regeneration, soot accumulation, and increased intervals for ash removal.

John Deere Fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B20, and are recommended when using lower biodiesel blends.

John Deere Engines Without Exhaust Filter

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

These John Deere engines can operate on biodiesel blends above B20 (up to 100% biodiesel). Operate at levels above B20 ONLY if the biodiesel is permitted by law and meets the EN 14214 specification (primarily available in Europe). Engines operating on biodiesel blends above B20 might not fully comply with or be permitted by all applicable emissions regulations. Expect up to a 12% reduction in power and an 18% reduction in fuel economy when using 100% biodiesel.

John Deere fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B100, and are recommended when using lower biodiesel blends.

Biodiesel Use Requirements and Recommendations

The petroleum diesel portion of all biodiesel blends must meet the requirements of ASTM D975 (US) or EN 590 (EU) commercial standard.

Biodiesel users in the U.S. are strongly encouraged to purchase biodiesel blends from a BQ-9000 Certified Marketer and sourced from a BQ-9000 Accredited Producer (as certified by the National biodiesel Board). Certified Marketers and Accredited Producers can be found at the following website: http://www.bq9000.org.

Biodiesel contains residual ash. Ash levels exceeding the maximums allowed in either ASTM D6751 or EN14214 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present).

The fuel filter can require more frequent replacement when using biodiesel fuel, particularly if switching from diesel. Check engine oil level daily prior to starting engine. A rising oil level can indicate fuel dilution of the engine oil. Biodiesel blends up to B20 must be used within 90 days of the date of biodiesel manufacture. Biodiesel blends above B20 must be used within 45 days from the date of biodiesel manufacture.

When using biodiesel blends up to B20, the following must be considered:

- Cold-weather flow degradation
- Stability and storage issues (moisture absorption, microbial growth)
- Possible filter restriction and plugging (usually a problem when first switching to biodiesel on used engines)
- Possible fuel leakage through seals and hoses (primarily an issue with older engines)
- Possible reduction of service life of engine components

Request a certificate of analysis from your fuel distributor to ensure that the fuel is compliant with the specifications provided in this Operator's Manual.

Consult your John Deere dealer for John Deere fuel products to improve storage and performance with biodiesel fuels.

The following must also be considered if using biodiesel blends above B20:

- Possible coking or blocked injector nozzles, resulting in power loss and engine misfire if John Deere fuel additives and conditioners or equivalent containing detergent/dispersants are not used
- Possible crankcase oil dilution (requiring more frequent oil changes)
- Possible lacquering or seizure of internal components
- Possible formation of sludge and sediments
- Possible thermal oxidation of fuel at elevated temperatures

Continued on next page

DX,FUEL7 -19-13JAN18-1/2

- Possible compatibility issues with other materials (including copper, lead, zinc, tin, brass, and bronze) used in fuel handling, distribution, and storage equipment
- Possible reduction in water separator efficiency
- Possible damage to paint if exposed to biodiesel
- Possible corrosion of fuel injection equipment
- Possible elastomeric seal and gasket material degradation (primarily an issue with older engines)
- Possible high acid levels within fuel system
- Because biodiesel blends above B20 contain more ash, using blends above B20 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present)

IMPORTANT: Raw pressed vegetable oils are NOT acceptable for use as fuel in any concentration in John Deere engines. Their use could cause engine failure.

DX,FUEL7 -19-13JAN18-2/2

Handling and Storing Diesel Fuel

CAUTION: Reduce the risk of fire. Handle fuel carefully. DO NOT fill the fuel tank when engine is running. DO NOT smoke while you fill the fuel tank or service the fuel system.

Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.

Keep all storage tanks as full as practical to minimize condensation.

Ensure that all fuel tank caps and covers are installed properly to prevent moisture from entering. Monitor water content of the fuel regularly.

When using biodiesel fuel, the fuel filter may require more frequent replacement due to premature plugging.

Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel. Keeping the free water drained and treating the bulk fuel storage tank quarterly with a maintenance dose of a biocide will prevent microbial growth. Contact your fuel supplier or John Deere dealer for recommendations.

DX,FUEL4 -19-13JAN18-1/1

Fuel Storage

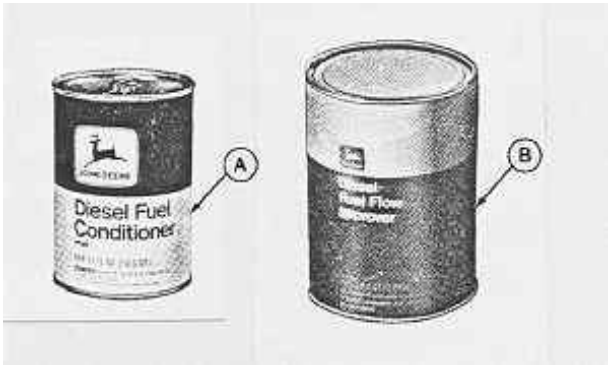
Buy good quality, clean fuel from a reputable supplier.

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom.

Avoid storing fuel over long periods of time. If there is a very slow turnover of fuel in the fuel tank or supply tank, it may be necessary to add John Deere Diesel Fuel Conditioner (A) to prevent water condensation. (See your John Deere dealer for proper service or maintenance recommendations.)

Store fuel in a convenient place away from buildings.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Fuel Flow Improver (B), or equivalent, may be added to fuel or bulk storage tank.



RG5309 —UN—15DEC88

A—John Deere Diesel Fuel Conditioner

B—John Deere Fuel Flow Improver

PY80265,05F0108 -19-19SEP05-1/1

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 -19-02AUG85-1/1

Fill Fuel Tank

CAUTION: Handle fuel with care: It is highly flammable. DO NOT refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease and debris. Always clean up spilled fuel.

Fuel tank can be filled through fill cap (A). Fill fuel tank at end of each day's operation. This prevents condensation in tank as moist air cools.

Specification	
Fuel Tank—Capacity	68 L
Fuel Tank (Only For - 5045D (2WD), 5055D (2WD) and 5204 Tractors)—Capacity	60 L

A—Fuel Tank Filler Cap

TS202 —UN—23AUG88

PY5851 —UN—23JUN06

SA61034,0000581 -19-06AUG08-1/1

Diesel Engine Oil — Non-Emissions Certified and Certified Tier 1 and Stage I

Failure to follow applicable oil standards and drain intervals can result in severe engine damage that might not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere oils, parts, or service.

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

John Deere Plus-50™ II oil is preferred.

John Deere Plus-50™ is also recommended.

John Deere Torq-Gard™ is also allowed.

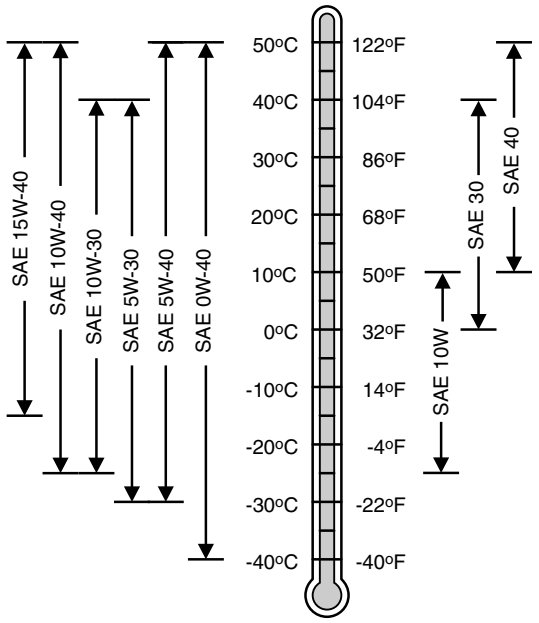
Other oils may be used if they meet one or more of the following standards:

- API Service Category CK-4
- API Service Category CJ-4
- API Service Category CI-4 PLUS
- API Service Category CI-4
- API Service Category CH-4
- API Service Category CG-4
- API Service Category CF-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E7
- ACEA Oil Sequence E6
- ACEA Oil Sequence E5
- ACEA Oil Sequence E4
- ACEA Oil Sequence E3
- ACEA Oil Sequence E2

If oils meeting API CG-4, API CF-4, or ACEA E2 are used, reduce the service interval by 50%.

Multi-viscosity diesel engine oils are preferred.

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



Oil Viscosities for Air Temperature Ranges

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

If diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm) is used, reduce the service interval by 50%.

DO NOT use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

DX,ENOIL -19-23APR19-1/1

Diesel Engine Coolant (engine with wet sleeve cylinder liners)

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts or service.

Preferred Coolants

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts, or service.

The following pre-mix engine coolants are preferred:

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

COOL-GARD II pre-mix coolant is available in several concentrations with different freeze protection limits as shown in the following table.

COOL-GARD II Pre-Mix	Freeze Protection Limit
COOL-GARD II 20/80	-9°C (16°F)
COOL-GARD II 30/70	-16°C (3°F)
COOL-GARD II 50/50	-37°C (-34°F)
COOL-GARD II 55/45	-45°C (-49°F)
COOL-GARD II PG 60/40	-49°C (-56°F)
COOL-GARD II 60/40	-52°C (-62°F)

Not all COOL-GARD II pre-mix products are available in all countries.

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

Additional Recommended Coolants

The following engine coolant is also recommended:

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

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

COOL-GARD is a trademark of Deere & Company

[1]Coolant analysis may extend the service interval of other "Coolants" to a maximum not to exceed the interval of Cool-Gard II coolants. Coolant analysis means taking a series of coolant samples at 1000 hour increments beyond the normal service interval until either the data indicate the end of useful coolant life or the maximum service interval of Cool-Gard II is reached.

Other Coolants

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

- Pre-mix coolant meeting ASTM D6210 requirements
- Are nitrite-free
- Coolant concentrate meeting ASTM D6210 requirements in a 40—60% mixture of concentrate with quality water

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

- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Is formulated with a nitrite-free additive package
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion

Water Quality

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

Coolant Drain Intervals

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

When COOL-GARD II or COOL-GARD II PG is used, the drain interval is 6 years or 6000 hours of operation.

If a coolant other than COOL-GARD II or COOL-GARD II PG is used, reduce the drain interval to 2 years or 2000 hours of operation.[1]

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

Do not mix ethylene glycol and propylene glycol base coolants.

Do not use coolants that contain nitrites.

DX,COOL3 -19-13JAN18-1/1

Transmission and Hydraulic Oil

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

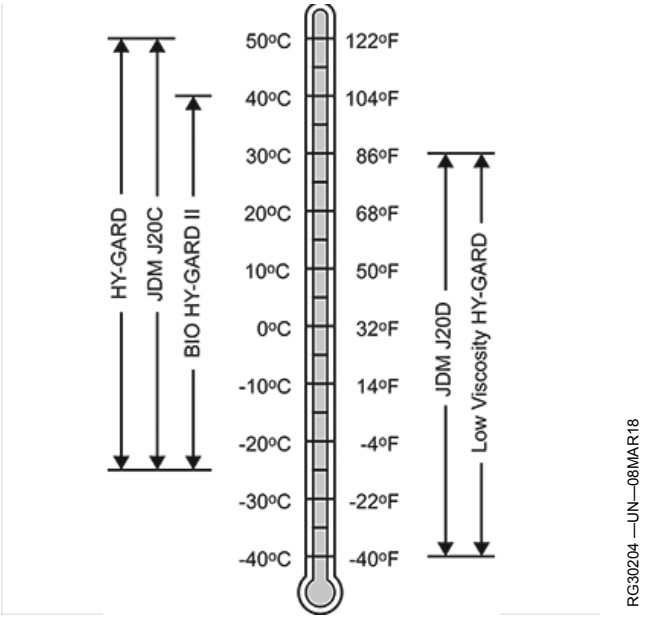
The following oils are preferred:

- 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 John Deere Bio Hy-Gard™ II oil when a biodegradable fluid is required.[1]



Oils for Air Temperature Ranges

Hy-Gard is a trademark of Deere & Company
Bio Hy-Gard is a trademark of Deere & Company

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

DX,ANTI -19-01JAN18-1/1

Grease (Specific Application)

Lithium Grease with Molybdenum Disulfide 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.

AG,OUO6035,103 -19-19MAY00-1/1

Multipurpose Extreme Pressure (EP) Grease

IMPORTANT: For automated lubrication systems different ambient air temperatures need to be considered.

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

John Deere SD Polyurea Grease is preferred.

The following greases are also recommended:

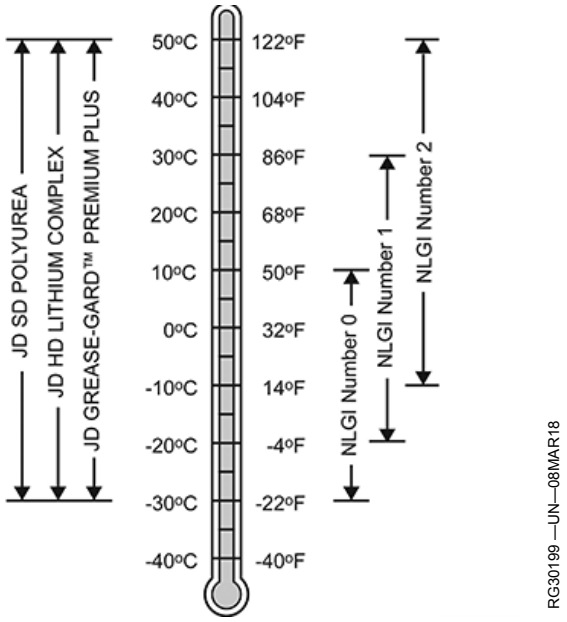
- John Deere HD Lithium Complex Grease
- John Deere Grease-Gard™ Premium Plus

Other greases may be used if they meet the following:

- NLGI Performance Classification GC-LB
- ISO-L-X-BDHB 2 or DIN KP 2 N-10 Lithium Complex, Non-Synthetic Base Oil (100 to 220 mm2/s @ 40°C)

IMPORTANT: Some types of thickeners, base oils, and additives used in greases are not compatible with others. Mixing greases should be avoided. Consult your grease supplier before mixing different types of grease.

Grease-Gard is a trademark of Deere & Company



Greases for Air Temperature Ranges

DX,GREA1 -19-13JAN18-1/1

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 John Deere branded fluids or fluids that have been tested and/or approved for use in John Deere equipment.

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

DX,ALTER -19-13JAN18-1/1

Lubricant Storage

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

Use clean containers to handle all lubricants.

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 -19-11APR11-1/1