

# 6105D, 6115D, 6130D and 6140D Interim Tier IV Tractors (S.N. 050000—) Repair Technical Manual

## REPAIR TECHNICAL MANUAL 6105D, 6115D, 6130D and 6140D Tractors (S.N. 050000—)

TM607219 07JUN14 (INGLÉS)

For complete service information also see:

6105D, 6115D, 6130D and 6140D Tractors Diagnostic Technical Manual .....	TM607319
4045 PowerTech OEM Diesel Engines Below 130kW (174 hp) (Interim Tier 4/Stage III B platform) .....	CTM114619
Alternators and Starting Motors .....	CTM77
12 Speed Transaxle Repair Component Technical Manual.....	CTM608419
Front-Wheel Drive Axles 725, 730, 733, 740, 745, 750 and 755 .....	CTM4820
Service ADVISOR Machine Connection Information.....	CTM441
6000D Series Tractor Transaxle Repair Manual .....	CTM203

Industrias John Deere S.A. de C.V.  
LITHO IN U.S.A.

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## 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-19-20140415

## Section 10 - General Information

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- Practice Safe Maintenance
- Use Proper Tools
- Construct Dealer-Made Tools Safely
- Replace Safety Signs
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Live With Safety

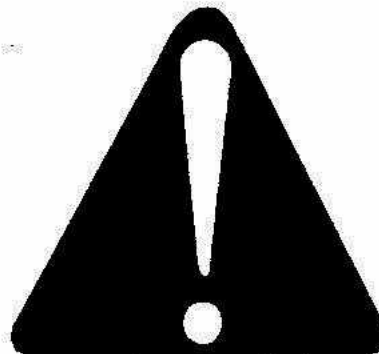
#### Group 10 - General Information

- Sealants and Adhesives Cross-Reference Chart
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- Check Oil Lines and Fittings
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- Use Torque Wrench Adapter

### 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: Safety-alert symbol

DX,ALERT-19-19980929

### 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: Signal Words

DX,SIGNAL-19-19930303

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### Follow Safety Instructions

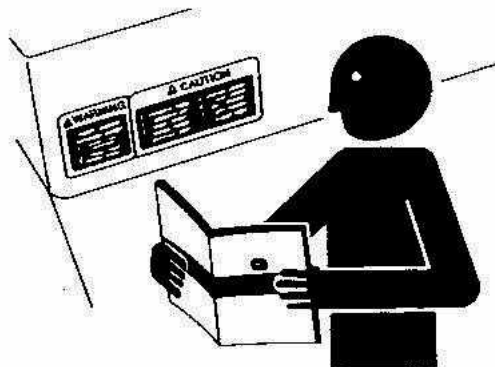
Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere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

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

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

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

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



TS201-UN: Safety Messages

DX,READ-19-20090616

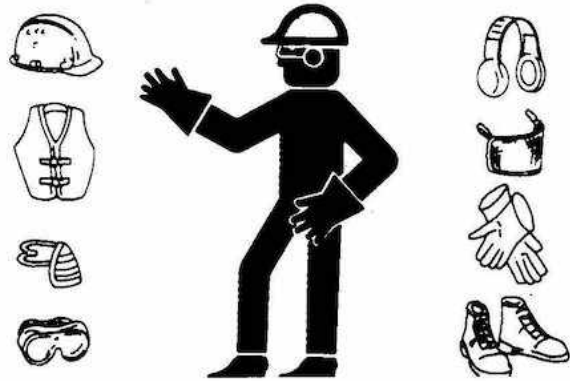
## Wear Protective Clothing

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.



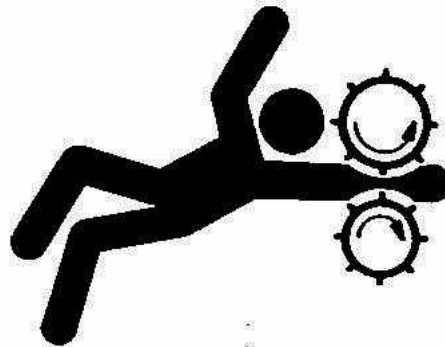
TS206-UN: Protective Clothing

DX,WEAR-19-19900910

## 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: Moving Parts

DX,LOOSE-19-19900604

## Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep all shields in place at all times. Make sure rotating shields turn freely.

Wear close-fitting clothing. Stop the engine and be sure that all rotating parts and drivelines are stopped before making adjustments, connections, or performing any type of service on engine or machine driven equipment.



TS1644-UN: Rotating Drivelines

DX,ROTATING-19-20090818

## 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: Avoid Fires

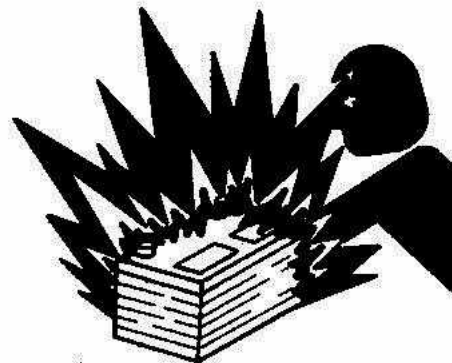
DX,FLAME-19-19980929

## 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: Battery Explosions

DX,SPARKS-19-19930303

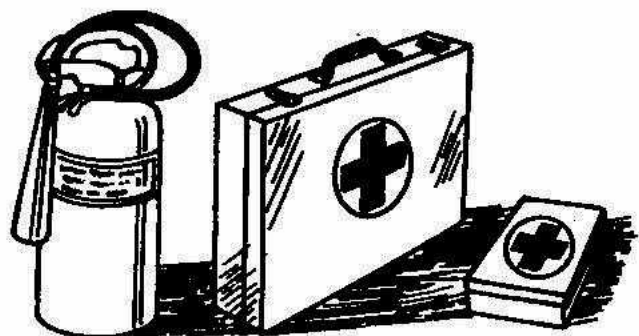
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## Prepare for Emergencies

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: First Aid Kit

DX,FIRE2-19-19930303



## 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.

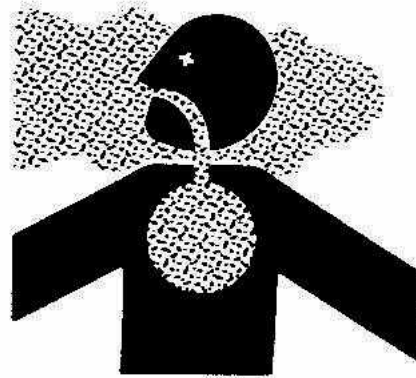
Remove paint before heating:

- 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.

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

Dispose of paint and solvent properly.



TS220-UN: Toxic Fumes

DX,PAINT-19-20020724

## 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: Flammable Spray

DX,TORCH-19-20041210

## Handle Starting Fluid Safely

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.



TS1356-UN: Store Safely

DX,FIRE3-19-19920416

## Avoid Hot Exhaust

Servicing machine or attachments with engine running can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

Exhaust parts and streams become very hot during operation. Exhaust gases and components reach temperatures hot enough to burn people, ignite, or melt common materials.



RG17488-UN: Safety—Hot Parts

DX,EXHAUST-19-20090820

## Clean Exhaust Filter Safely

During exhaust filter cleaning operations, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

Keep machine away from people, animals, or structures which may be susceptible to harm or damage from hot exhaust gases or components. Avoid potential fire or explosion hazards from flammable materials and vapors near the exhaust. Keep exhaust outlet away from people and anything that can melt, burn, or explode.

Closely monitor machine and surrounding area for smoldering debris during and after exhaust filter cleaning.

Adding fuel while an engine is running can create a fire or explosion hazard. Always stop engine before refueling machine and clean up any spilled fuel.

Always make sure that engine is stopped while hauling machine on a truck or trailer.

Contact with exhaust components while still hot can result in serious personal injury.

Avoid contact with these components until cooled to safe temperatures.

If service procedure requires engine to be running:

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

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

Always disable movement (neutral), set the parking brake or mechanism and disconnect power to attachments or tools before leaving the operator's station.

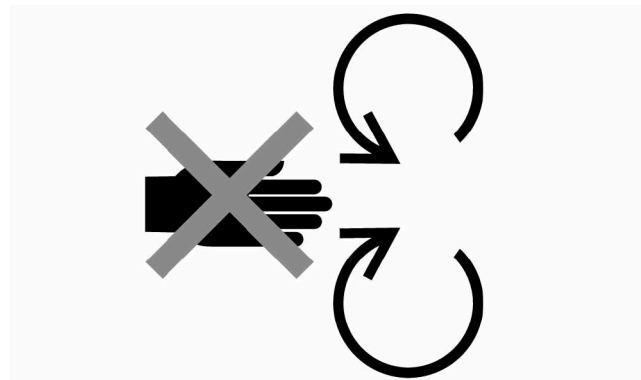
Shut off engine and remove key (if equipped) before leaving the machine unattended.



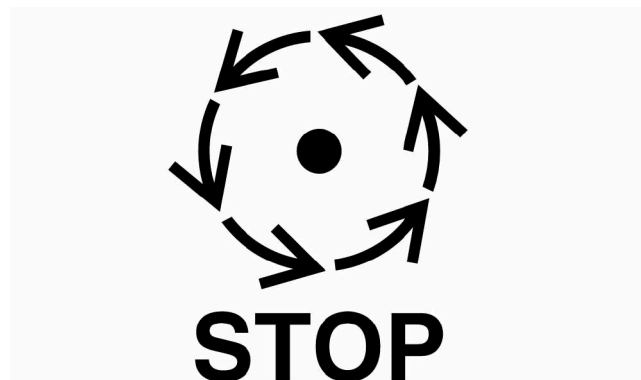
TS227-UN: Fire Safety



TS271-UN: Hand Over Flame



TS1693-UN: Moving Parts



TS1695-UN: Stop

DX,EXHAUST,FILTER-19-20110112

## 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:



TS203-UN: Acid Burns

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.

DX,POISON-19-19930421

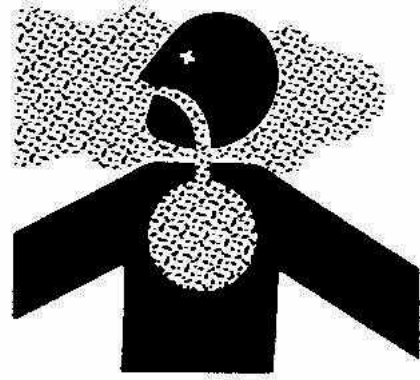
## Handle Agricultural Chemicals Safely

Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
  - Chemicals labeled **'Danger'** : Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
  - Chemicals labeled **'Warning'** : Less toxic. Generally require use of goggles, gloves, and skin protections.
  - Chemicals labeled **'Caution'** : Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling vapor, aerosol or dust.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area away from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.



TS220-UN: Safety



A34471

A34471-UN: Safety

## Clean Vehicle of Hazardous Pesticides



**During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.**

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

DX,CABS2-19-20010724

## Handling Batteries Safely

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

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

Always remove grounded (-) battery clamp first and replace grounded clamp last.

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

### Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.

### If acid is spilled on skin or in eyes:

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

### If acid is swallowed:

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

**WARNING:** Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**



TS204-UN: Caution



TS203-UN: Caution

DX,WW,BATTERIES-19-20101202

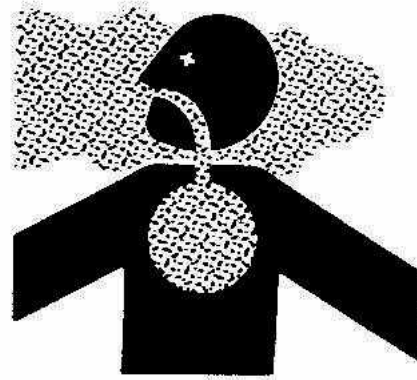
## Avoid Harmful Asbestos Dust

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: Asbestos Dust

DX,DUST-19-19910315

## Dispose of Waste Properly

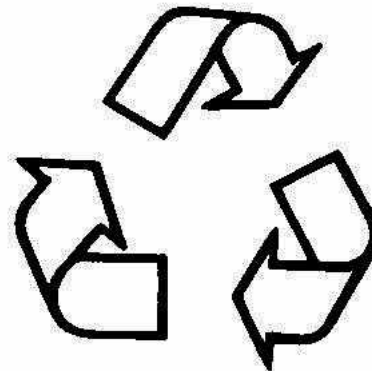
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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: Recycle Waste

DX,DRAIN-19-19930303

by BestManuals.com

## Avoid High-Pressure Fluids

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

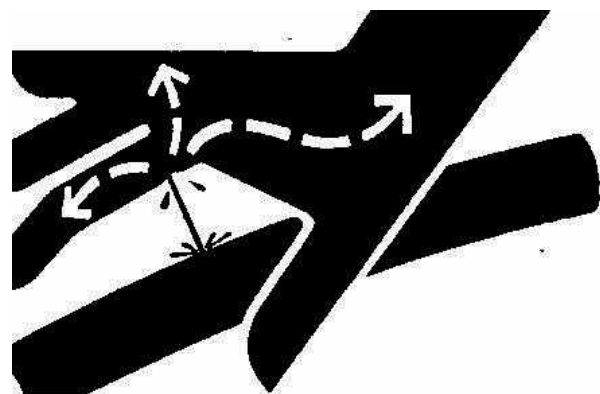
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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

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

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

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.



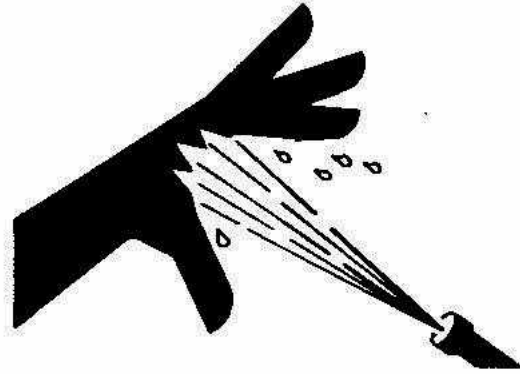
X9811-UN: High Pressure

DX,FLUID-19-20111012



## Wait Before Opening High-Pressure Fuel System

High-pressure fluid remaining in fuel lines can cause serious injury. Only technicians familiar with this type of system should perform repairs. Before disconnecting fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system, wait a minimum of 15 minutes after engine is stopped.



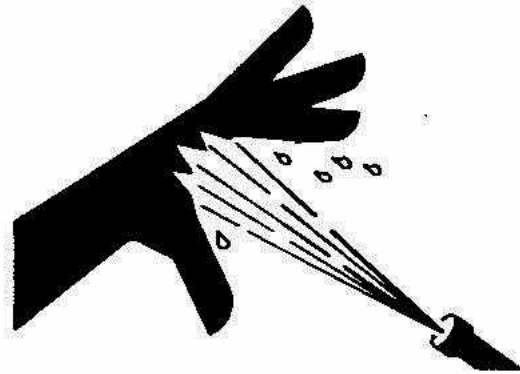
TS1343-UN: High-Pressure Fuel Lines

DX,WW,HPCR2-19-20030107

## Protect Against High Pressure Spray

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

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



TS1343-UN: High Pressure Spray

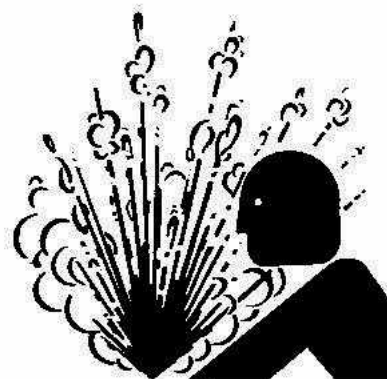
DX,SPRAY-19-19920416

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## 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.



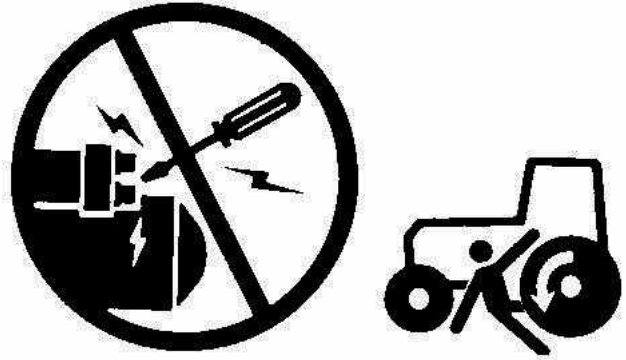
TS281-UN: Cooling System

DX,WW,COOLING-19-20090819

## Prevent Machine Runaway

Avoid possible injury or death from machinery runaway. Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



TS177-UN: Machinery Runaway

DX,BYPAS1-19-19980929

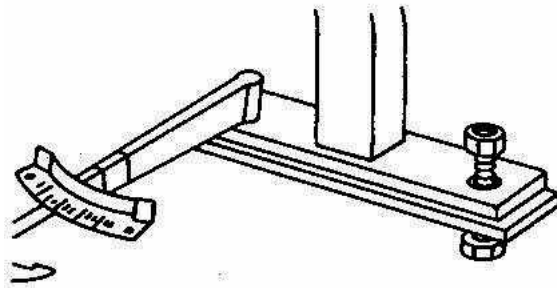
## Keep ROPS Installed Properly

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

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

The seat is part of the ROPS safety zone. Replace only with John Deere seat approved for your tractor.

Any alteration of the ROPS must be approved by the manufacturer.



TS212-UN: Roll-Over Protective Structure

DX,ROPS3-19-20111012

## Avoid Backover Accidents

Before moving machine, be sure that all persons are clear of machine path. Turn around and look directly for best visibility. Use a signal person when backing if view is obstructed or when in close quarters.

Do not rely on a camera to determine if personnel or obstacles are behind the machine. The system can be limited by many factors including maintenance practices, environmental conditions, and operating range.



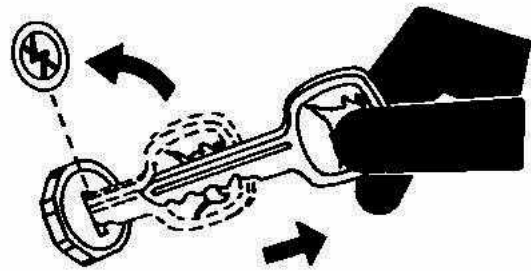
PC10857XW-UN: Avoid Backover Accidents

DX,AVOID,BACKOVER,ACCIDENTS-19-20100830

## 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: Remove the Key

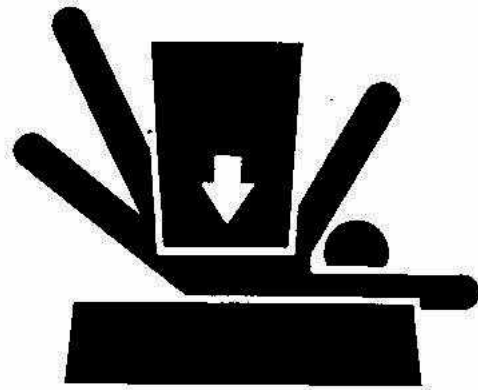
DX,PARK-19-19900604

## 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: Support Properly

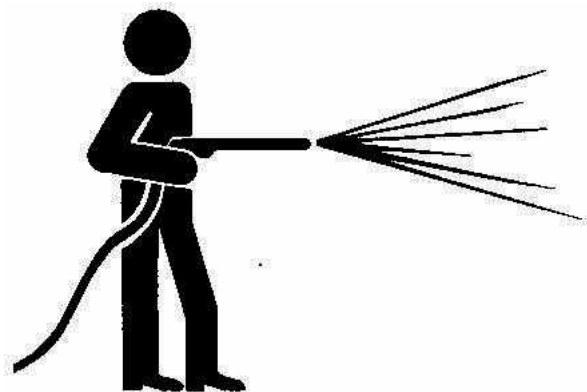
DX,LOWER-19-20000224

by BestManuals.com

## 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.



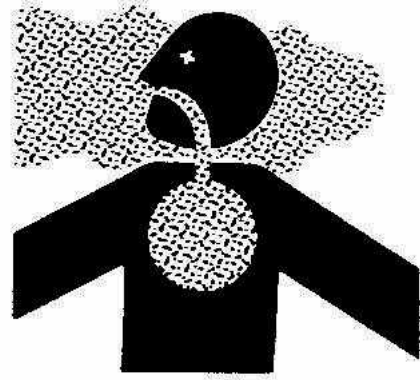
T6642EJ-UN: Clean Work Area

DX,CLEAN-19-19900604

## 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.

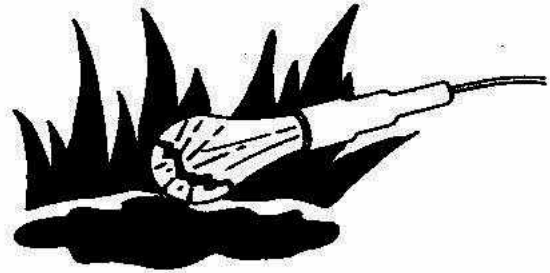


TS220-UN: Engine exhaust fumes

DX,AIR-19-19990217

## 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.



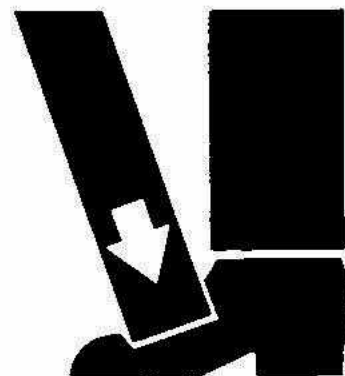
TS223-UN: Work Area Safely

DX,LIGHT-19-19900604

## 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: Proper Lifting Equipment

DX,LIFT-19-19900604

## Service Tires Safely



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

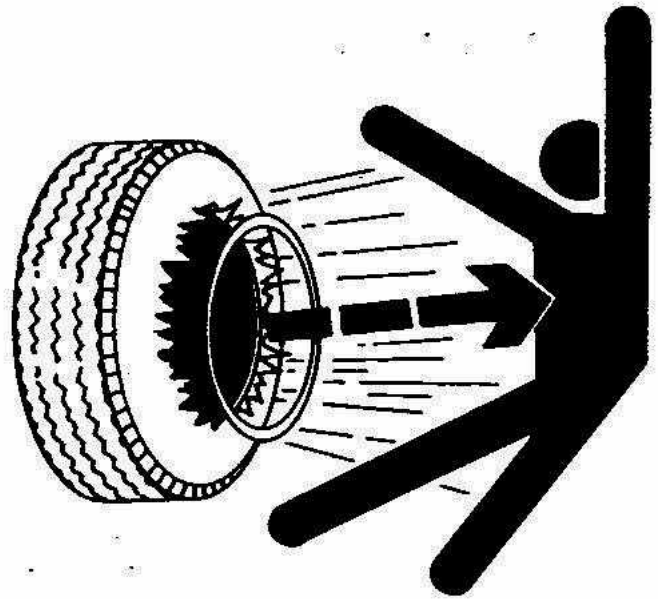
**Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.**

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.



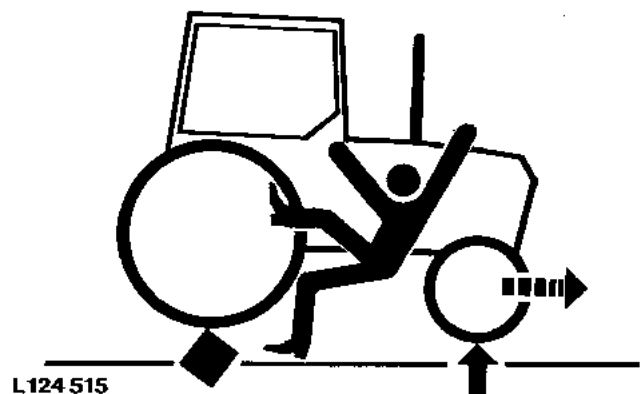
TS211-UN: Explosive Tire and Rim Parts

DX,RIM1-19-20081027

by BestManuals.com

## Service Front-Wheel Drive Tractor Safely

When servicing front-wheel drive tractor with the rear wheels supported off the ground and rotating wheels by engine power, always support front wheels in a similar manner. Loss of electrical power or transmission hydraulic system pressure will engage the front driving wheels, pulling the rear wheels off the support if front wheels are not raised. Under these conditions, front drive wheels can engage even with switch in disengaged position.



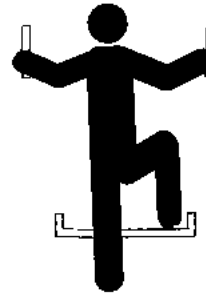
L124515-UN: SafetyTractor Rolling Forward

DX,WW,MFWD-19-20090819

## Use Steps and Handholds Correctly

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps, handholds, and handrails.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.



T133468-UN: Use Handholds and Steps

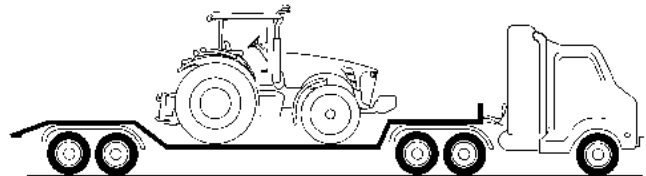
DX,WW,MOUNT-19-20111012

## Transport Tractor Safely

A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier. The axles and tractor frame are suitable attachment points.

Before transporting the tractor on a low-loader truck or flatbed rail wagon, make sure that the hood is secured over the tractor engine and that doors, roof hatch (if equipped) and windows are properly closed.

Never tow a tractor at a speed greater than 10 km/h (6 mph). An operator must steer and brake the tractor under tow.



RXA0103709-UN: Transport Tractor Safely

DX,WW,TRANSPORT-19-20090819

by BestManuals.com

## Practice Safe Maintenance

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

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

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

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

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

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



TS218-UN: Keep Area Clean

DX,SERV-19-19990217

by BestManuals.com

## 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.



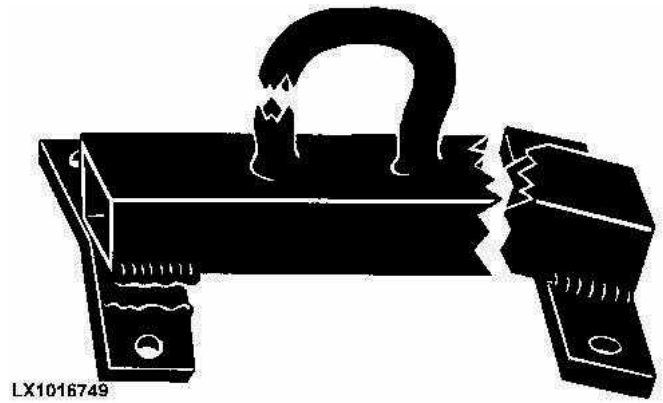
TS779-UN: Proper Tools

DX,REPAIR-19-19990217

## Construct Dealer-Made Tools Safely

Faulty or broken tools can result in serious injury. When constructing tools, use proper, quality materials, and good workmanship.

Do not weld tools unless you have the proper equipment and experience to perform the job.



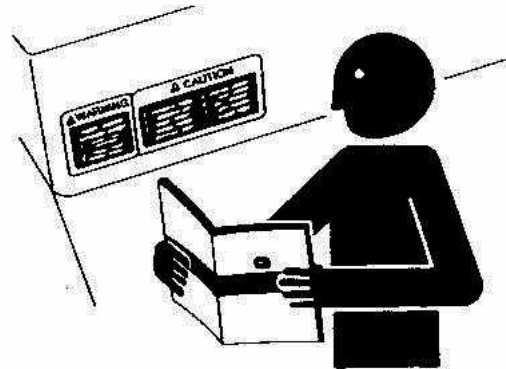
LX1016749

LX1016749-UN: Construct Dealer-Made Tools Safely

DX,SAFE,TOOLS-19-19971010

## Replace Safety Signs

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



TS201-UN: Safety Signs

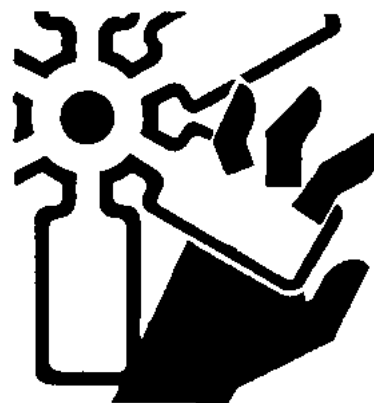
DX,SIGNS1-19-19900604

## Install All Guards

Rotating cooling system fans, belts, pulleys, and drives can cause serious injury.

Keep all guards in place at all times during engine operation.

Wear close-fitting clothes. Stop the engine and be sure fans, belts, pulleys, and drives are stopped before making adjustments, connections, or cleaning near fans and their drive components.



TS677-UN: SafetyFan

DX,GUARDS-19-20090818



## 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: Safety Systems

DX,LIVE-19-19920925

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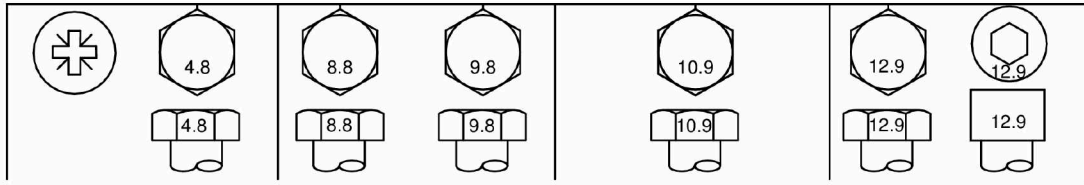
**Sealants and Adhesives Cross-Reference Chart**

U.S. Part Number	Canadian Part Number	Color	Size	Description	LOCTITE ® /Permatex Number
<b>Bonding</b>					
PM37513	PM38606	BLACK AND WHITE	4 g	Epoxy Adhesive	21425
PM37391	PM38615	CLEAR	2 g	Gel Super Glue	454
PM37532	—	BLACK	5 oz	Weatherstrip Adhesive	30540
—	PM38603	YELLOW	147 ml	Weatherstrip Adhesive	30537
<b>Gasketing</b>					
PM38655	PM38625	PURPLE	50 ml	Flexible Form-in-Place Gasket	515
—	PM38600	BROWN	118 ml	Liquid Gasket Maker	30524
PM37559	PM38600	BROWN	4 oz	General Purpose Gasket Dressing (Aviation Gasket Sealant)	30517
PM38657	PM38628	BLUE	50 ml	High-Flex Form-in-Place Gasket	17430
PM37463	PM37463	CLEAR	80 g	RTV Clear Silicone	59530
PM37521	—	CLEAR	30 g	RTV Clear Silicone	59575
—	PM38618	CLEAR	300 g	RTV Clear Silicone	—
PM37465	PM38616	METALLIC BLUE	80 ml	Ultra Blue RTV Silicone	58730
PM37553	PM37553	BURGUNDY	16 oz	High Tack Gasket Dressing	30525
PM37555	PM38607	BURGUNDY	9 oz aerosol	Hi-Tack Gasket Sealant	30524
PM37469	PM38609	RED	80 g	Hi-Temp RTV Silicone	59630
PM37529	—	RED	7.25 aerosol	Hi-Temp RTV Silicone	30541
PM37512	PM37512	—	—	Flexible Flange Sealant	5900
PM37616	—	—	20 g Stick	Copper Anti-Seize Stick	—
PM37617	—	—	20 g Stick	Silver-Grade Anti-Seize Stick	—
TY24810	TY24810	—	12.5 aerosol	NEVER-SEEZ ®	—
TY24811	TY24811	—	8 oz can with brush	NEVER-SEEZ ®	—
H154379	—	GREEN	—	Sealant	—
<b>Priming</b>					
PM37509	PM38611	GREEN	4.5 oz	Cure Primer	7649
<b>Retaining</b>					
PM38651	PM38612	SILVER	50 ml	QUICK METAL ®	660
PM37485	—	GREEN	36 ml	Maximum Strength	680
—	PM38626	GREEN	50 ml	Maximum Strength	62083
PM38652	—	GREEN	36 ml	High-Temperature	620
<b>Thread Locking and Sealing</b>					
PM38653	—	PURPLE	6 ml	Low Strength	222
—	PM38645	PURPLE	2 g	Superglue Instant Adhesive	22200
PM37418	PM38621	BLUE	6 ml	Medium Strength	242
PM37477	PM38622	BLUE	36 ml	Medium Strength	242
PM37643	—	BLUE	9 g Stick	Blue Stick Threadlocker (medium-strength)	—
PM37614	—	BLUE	19 g Stick	Blue Stick Threadlocker (medium-strength)	—
PM37615	—	—	19 g Stick	PST Thread Sealant Stick	—
PM37421	PM38623	RED	6 ml	High Strength	271 (usually red in color)
PM38654	PM38623	RED	36 ml	High Strength	271
—	PM38624	RED	50 ml	High Strength	27140
PM38656	PM38627	RED	36 ml	High Strength	277
PM37700	—	RED	19 g Stick	Red Stick Threadlocker (High-Strength)	—
PM37701	—	RED	9 g Stick	Red Stick Threadlocker (High-Strength)	—
PM37398	PM38613	WHITE	6 ml	Pipe Sealant with TEFLON ®	592
PM37397	PM38613	WHITE	50 ml	Pipe Sealant with TEFLON	592

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 NEVER-SEEZ is a trademark of Emhart Chemical Group  
 TEFLON is a trademark of Du Pont Co.

AG,OURX113,17-19-20070718

# Metric Bolt and Screw Torque Values



TS1670-UN: Metric Bolt and Screw

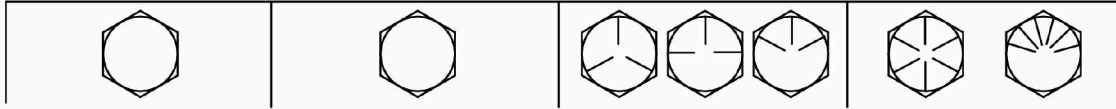
Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating. ]		Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating. ]		Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating. ]		Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating. ]	
	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
M10	23	204	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

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

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

DX\_TORQ2-19-20110112

# Unified Inch Bolt and Screw Torque Values



TS1671-UN: Unified Inch Bolt and Screw

Bolt or Screw Size	SAE Grade 1				SAE Grade 2 [ 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. ]				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating. ]		Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating. ]		Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating. ]		Lubricated [ "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating. ]		Dry [ "Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating. ]	
	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N·m	lb.-ft.	N·m	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N·m	lb.-ft.	N·m	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N·m	lb.-ft.														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

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

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

DX,TORQ1-19-20110112

## Face Seal Fittings Assembly and Installation—All Pressure Applications

### Face Seal O-Ring to Stud End Installation

1. Inspect the fitting surfaces. They must be free of dirt and/or defects.
2. Inspect the O-ring. It must be free of damage and/or defects.
3. Lubricate O-rings and install into groove using petroleum jelly to hold in place.
4. Push O-ring into groove with 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.

### Face Seal Adjustable Stud End O-Ring Installation

1. Back off lock nut (jam nut) and washer to full exposed turned down section of the fitting.
2. Install a thimble over the fitting threads to protect the O-ring from nicks.
3. Slide the O-ring over the thimble into the turned down section of the fitting.
4. Remove thimble.

### Face Seal Straight Stud End O-Ring Installation

1. Install a thimble over the fitting threads to protect the O-ring from nicks.
2. Slide the O-ring over the thimble into the turned down section of the fitting.
3. Remove thimble.

### Fitting Installation

1. Install fitting by hand until snug.
2. Position adjustable fittings by unscrewing the fitting no more than one turn.
3. Apply assembly torque per table.

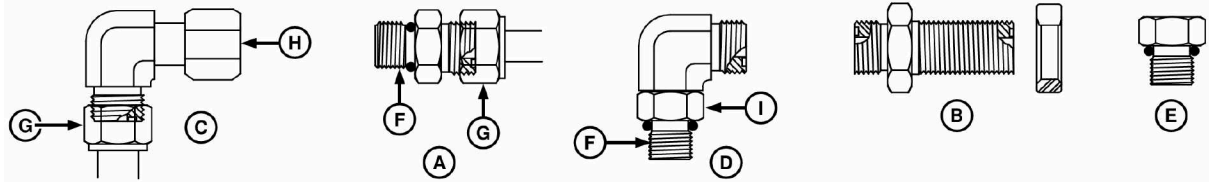
### Assembly Torque

1. Use one wrench to hold the connector body and one wrench to tighten nut.
2. For a hydraulic hose, it may be necessary to use three wrenches to prevent twist; one on the connector body, one on the nut, and one on the body of the hose fitting.

OOU6435,0001557-19-20040729

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# Metric Face Seal And O-Ring Stud End Fitting Torque Chart—Standard Pressures



N79757-UN: Fitting

- A - Straight Stud and Tube Nut**
- B - Bulkhead Union and Bulkhead Jam Nut**
- C - 90° Swivel Elbow and Tube Nut**
- D - 90° Adjustable Stud Elbow**
- E - Port Plug**
- F - Stud End**
- G - Tube Nut**
- H - Swivel Nut**
- I - Jam Nut**

## Metric Face Seal and O-Ring Stud End Fitting Torque Chart—Standard Pressure-Below 27.6 MPA (4,000 PSI)

Nominal Tube OD Hose ID		O-Ring Face Seal/ Tube Swivel Nut			Bulkhead Jam Nut Torque <sup>A</sup>			O-Ring Straight, Adjustable, and External Port Plug Stud Ends <sup>A</sup>									
Metric Tube OD	Inch Tube OD	Thread Size	Swivel Nut Hex Size	Tube Nut/Swivel Nut Torque	Jam Nut Hex Size	Jam Nut Torque	Thread Size	Straight Hex Size <sup>B</sup>	Adj Lock Nut Hex Size	Steel or Gray Iron Torque	Aluminum or Brass Torque <sup>C</sup>						
mm	Dash Size in.	mm	in.	mm	N·m	lb-ft	mm	N·m	lb-ft	mm	mm	mm	N·m	lb-ft	N·m	lb-ft	
4	-2	0.125	3.18	—	—	—	—	—	—	M8 X 1	12	12	8	6	5	4	
5	-3	0.188	4.76	—	—	—	—	—	—	M10 X 1	14	14	15	11	10	7	
6	-4	0.250	6.35	9/16-18	17	16	12	22	32	24	M12 X 1.5	17	17	25	18	17	12
8	-5	0.312	7.92	—	—	—	—	—	—	M14 X 1.5	19	19	40	30	27	20	
10	-6	0.375	9.53	11/16-16	22	24	18	27	42	31	M16 X 1.5	22	22	45	33	30	22
12	-8	0.500	12.70	13/16-16	24	50	37	30	93	69	M18 X 1.5	24	24	50	37	33	25
16	-10	0.625	15.88	1-14	30	69	51	36	118	87	M22 X 1.5	27	27	69	51	46	34
20	-12	0.750	19.05	1-3/16-12	36	102	75	41	175	129	M27 X 2	32	32	100	74	67	49
22	-14	0.875	22.23	1-3/16-12	36	102	75	41	175	129	M30 X 2	36	36	130	96	87	64
25	-16	1.000	25.40	1-7/16-12	41	142	105	46	247	182	M33 X 2	41	41	160	118	107	79
28	—	—	—	—	—	—	—	—	—	—	M38 x 2	46	46	176	130	117	87
32	-20	1.250	31.75	1-11/16-12	50	190	140	50	328	242	M42 X 2	50	50	210	155	140	103
38	-24	1.500	38.10	2-12	60	217	160	60	374	276	M48 X 2	55	55	260	192	173	128
50	-32	2.000	50.80	—	—	—	—	—	—	—	M60 X 2	65	65	315	232	210	155

<sup>A</sup>Tolerance is +15%, minus 20% of mean tightening torque unless otherwise specified.

<sup>B</sup>The straight hex wrench sizes listed apply to connectors only and may not be the same as the corresponding plug of the same thread size.

<sup>C</sup>These torques were established using steel plated connectors in aluminum and brass.

OUC06083.000005C-19-20080702

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