624K
4WD Loader
Operation and Test

(PIN: 1BZ624K_ _ _C000001—001000)

(PIN: 1BZ624K_ _ _D000001—001000)

OPERATION & TEST TECHNICAL MANUAL

624K 4WD Loader

TM13210X19 20DEC18 (ENGLISH)

Worldwide Construction And Forestry Division
PRINTED IN U.S.A

Foreword

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction of forward travel.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Machine Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate or statement which you should have received from your dealer.

This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.

THE TIRE MANUFACTURER'S warranty supplied with your machine may not apply outside the U.S.

If you are not the original owner of this machine, it is in your interest to contact your local John Deere dealer to inform them of this unit's serial number. This will help John Deere notify you of any issues or product improvements.

DX,IFC7 -19-03APR09-1/1

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Manual Identification—READ THIS FIRST!

IMPORTANT: Use only supporting manuals designated for your specific machine. If incorrect manual is chosen, improper service may occur. Verify product identification number (PIN) and engine model number when choosing the correct manual.

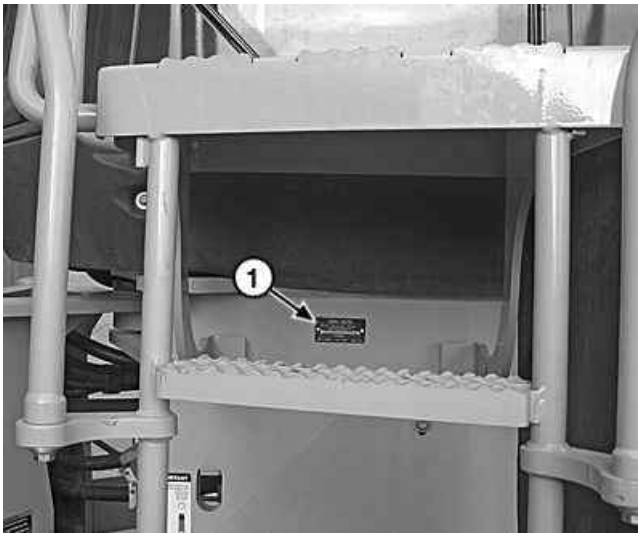
Choosing the Correct Supporting Manuals

John Deere four wheel drive (4WD) loaders are available in different machine configurations based on the various markets into which they are sold. Different supporting manuals exist for different machine configurations.

When necessary, product identification numbers (PINs) are listed on the front covers of 4WD loader manuals. These numbers are used to identify the correct supporting manual for your machine.

Product Identification Number

The product identification number (PIN) plate (1) is located on left side of machine frame under the cab door. Each machine has a 17-character PIN (3) shown on this plate.



TX1075239A —UN—15APR10

PIN Plate Location

TX1155354 —UN—03MAR14

PIN Plate (17 character)

1— PIN Plate **2— 17 Character PIN**

Continued on next page

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The PIN identifies the producing factory, machine model number, machine option, year of manufacture, engine emission level, and machine serial number.

The following is an example for a 624K machine that meets Tier 2 and Stage II emission levels:

17-Character PIN Example																
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1	B	Z	6	2	4	K	Z	_	_	C	1	2	3	4	5	6

- **(1—3) World Code:** Identifies location where machine is manufactured.

1BZ ..... **World Code**
- 1DW ..... Davenport Works
- 1T8 ..... Thibodaux Works
- 1T0 ..... Dubuque Works
- 1FF ..... Deere—Hitachi (Kernersville, NC, USA)
- 1F9 ..... Deere—Hitachi (Indaiatuba, São Paulo, Brazil)
- 1BZ ..... Brazil Works (Indaiatuba, São Paulo, Brazil)

- **(4—8) Machine Model Identifier:** Identifies model number.

624K ..... **Machine Model Identifier**

Z ..... **Machine Option Code**
- Z ..... Standard Z-Bar
- H ..... High Lift Z-Bar

- **(9) Check Letter:** This is a random character assigned by the factory. This is not used in machine identification.

_ ..... **Check Letter** (variable)

- **(10) Manufacturing Year Code:** Identifies year of machine manufacture.

_ ..... **Manufacturing Year Code** (variable)
- D 2013
- E 2014
- F 2015
- G 2016

- **(11) Engine Emission Code:** Represents engine emission certification.

C ..... **Engine Emission Code**
- C ..... Tier 2 and Stage II
- D ..... Tier 3 and Stage III A
- E ..... Interim Tier 4 and Stage III B
- F ..... Tier 4
- G ..... Interim Tier 4 and Stage III A (19-56 kW)
- H ..... Final Tier 4 and Stage III A (19-37 kW)
- J ..... Final Tier 4 and Stage III A (37-56 kW)
- K ..... Final Tier 4 (8-19 kW)

- **(12—17) Machine Serial Number:** Identifies machine serial number. This character will change from one machine to another.

123456 ..... **Machine Serial Number**

WC20922,0004E7A -19-28MAR14-2/2

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Contents

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.

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Moline, Illinois
All rights reserved.
A John Deere ILLUSTRUCTION ™ Manual
Previous Editions
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Section 9000
General Information

Contents

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Recognize Safety Information

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

Follow the precautions and safe operating practices highlighted by this symbol.

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

On your machine, DANGER signs are red in color, WARNING signs are orange, and CAUTION signs are yellow. DANGER and WARNING signs are located near specific hazards. General precautions are on CAUTION labels.

T133555 —UN—15APR13

T133588 —19—28AUG00

TX,RECOGNIZE -19-28JUN10-1/1

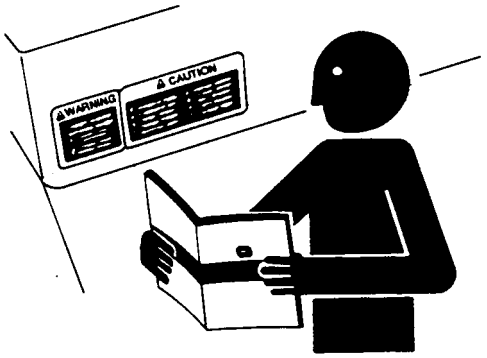
Follow Safety Instructions

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. Use this operator's manual for correct safety sign placement. Be sure that 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 could impair the function or safety and affect machine life.



TS201 —UN—15APR13

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

TX,FOLLOW -19-20JAN11-1/1

Operate Only If Qualified

Do not operate this machine unless the operator's manual has been read carefully, and you have been qualified by supervised training and instruction.

Operator should be familiar with the job site and surroundings before operating. Try all controls and machine functions with the machine in an open area before starting to work.

Know and observe all safety rules that may apply to every work situation and work site.

TX,QUALIFIED -19-18JAN11-1/1

Find manuals at https://best-manuals.com

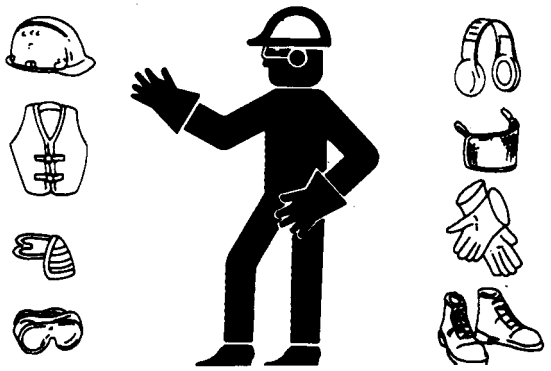
Wear Protective Equipment

Guard against injury from flying pieces or metal or debris; wear goggles or safety glasses.

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

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

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protection such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises. Radio or music headphones are not suitable to use for hearing protection.



TS206 —UN—15APR13

TX,WEAR,PE -19-22SEP10-1/1

Avoid Unauthorized Machine Modifications

John Deere recommends using only genuine John Deere replacement parts to ensure machine performance. Never substitute genuine John Deere parts with alternate parts not intended for the application as these can create hazardous situations or hazardous performance. Non-John Deere Parts, or any damage or failures resulting from their use, are not covered by any John Deere warranty.

Modifications of this machine, or addition of unapproved products or attachments, may affect machine stability or reliability, and may create a hazard for the operator or others near the machine. The installer of any modification which may affect the electronic controls of this machine is responsible for establishing that the modification does not adversely affect the machine or its performance.

Always contact an authorized John Deere dealer before making machine modifications that change the intended use, weight, or balance of the machine, or that alter machine controls, performance, or reliability.

AM40430,00000A9 -19-02JUN15-1/1

Inspect Machine

Inspect machine carefully each day by walking around it before starting.

Keep all guards and shields in good condition and properly installed. Fix damage and replace worn or broken parts immediately. Pay special attention to hydraulic hoses and electrical wiring.

T6607AQ —UN—15APR13

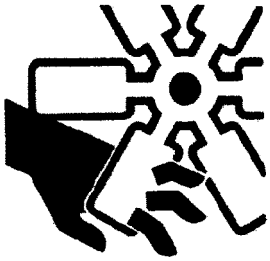
TX,INSPECT -19-08SEP10-1/1

Stay Clear of Moving Parts

Entanglements in moving parts can cause serious injury.

Stop engine before examining, adjusting, or maintaining any part of machine with moving parts.

Keep guards and shields in place. Replace any guard or shield that has been removed for access as soon as service or repair is complete.



T133592 —UN—15APR13

TX,MOVING,PARTS -19-20JAN11-1/1

Find manuals at https://best-manuals.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.

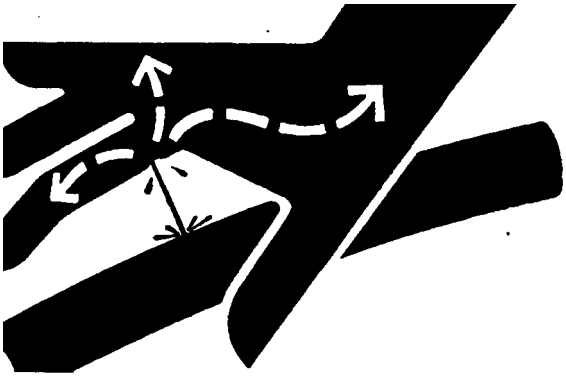
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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—23AUG88

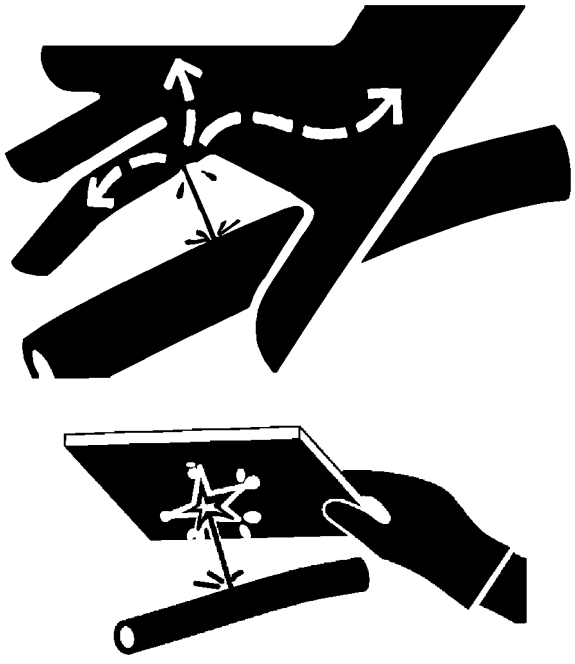
DX,FLUID -19-12OCT11-1/1

Avoid High-Pressure Oils

This machine uses a high-pressure hydraulic system. Escaping oil under pressure can penetrate the skin causing serious injury.

Never search for leaks with your hands. Protect hands. Use a piece of cardboard to find location of escaping oil. Stop engine and relieve pressure before disconnecting lines or working on hydraulic system.

If hydraulic oil penetrates your skin, see a doctor immediately. Injected oil must be removed surgically within hours or gangrene could result. Contact a knowledgeable medical source or the Deere & Company Medical Department in Moline, Illinois, U.S.A.



T133509 —UN—15APR13

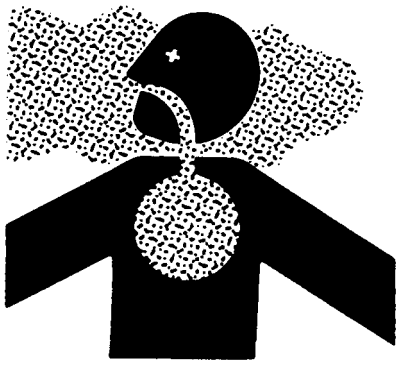
T133840 —UN—20SEP00

TX,HPOILS -19-20JAN11-1/1

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

DX,AIR -19-17FEB99-1/1

Prevent Fires

Handle Fluids Safely: All fuels, most lubricants, and some coolant mixtures are flammable. Store flammable fluids away from fire hazards. Never refuel machine while smoking or when near sparks or flame.

Clean Machine Regularly: Keep flammable debris (trash, leaves, twigs, straw, and so forth), grease and oil from accumulating in engine compartment, around fuel lines, hydraulic lines, exhaust components, and electrical wiring. Never store oily rags or flammable materials inside a machine compartment.

Maintain Hoses, Tubes, and Wiring: Replace hoses and tubes immediately if they begin to leak, and clean up any oil spills. Examine electrical wiring and connectors frequently for damage.

Keep A Fire Extinguisher Available: Always keep a multipurpose fire extinguisher on or near the machine. Know how to use an extinguisher properly.

Be Aware of the Operating Environment: Airborne debris may contain sparks or embers. Do not operate near any flame.

T133553 —UN—07SEP00

T133554 —UN—07SEP00

T133552 —UN—15APR13

TX,PREVENT,FIRE -19-09JUN16-1/1

Avoid Static Electricity Risk When Refueling

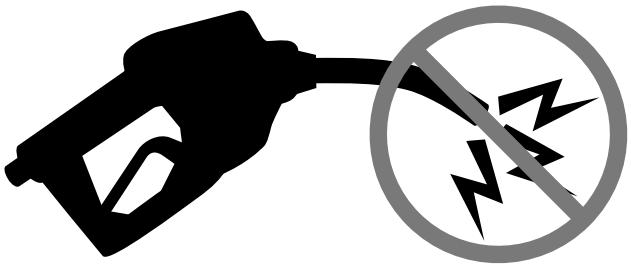
The removal of sulfur and other compounds in Ultra-Low Sulfur Diesel (ULSD) fuel decreases its conductivity and increases its ability to store a static charge.

Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

Static charges can build up in ULSD fuel while it is flowing through fuel delivery systems. Static electricity discharge when combustible vapors are present could result in a fire or explosion.

Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure that the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

RG22142 —UN—17MAR14



RG21992 —UN—21AUG13

DX,FUEL,STATIC,ELEC -19-12JUL13-1/1

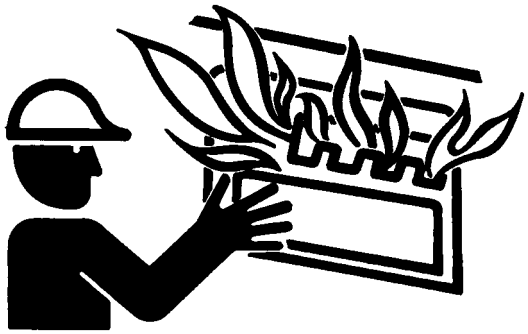
Clean Debris from Machine

Keep engine compartment, radiator, batteries, hydraulic lines, exhaust components, fuel tank, and operator's station clean and free of debris.

Clean any oil spills or fuel spills on machine surfaces.

Temperature in engine compartment could go up immediately after engine is stopped. BE ON GUARD FOR FIRES DURING THIS PERIOD.

Open access door(s) to cool the engine faster, and clean engine compartment.



T6669AG —UN—15APR13

TX,DEBRIS -19-20JAN11-1/1

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

DX,SPARKS -19-03MAR93-1/1

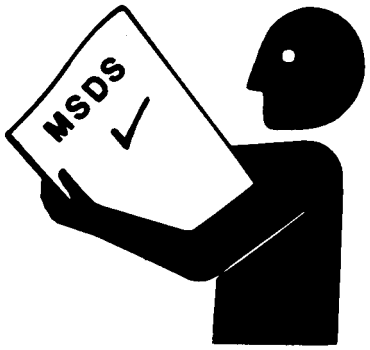
Handle Chemical Products Safely

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

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

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

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



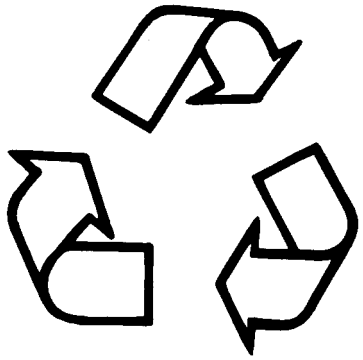
TS1132 —UN—15APR13

DX,MSDS,NA -19-03MAR93-1/1

Decommissioning — Proper Recycling and Disposal of Fluids and Components

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers when draining fluids. Do not use food or beverage containers.
- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid); filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center, or your John Deere dealer for information on the proper way to recycle or dispose of waste.



TS1133 —UN—15APR13

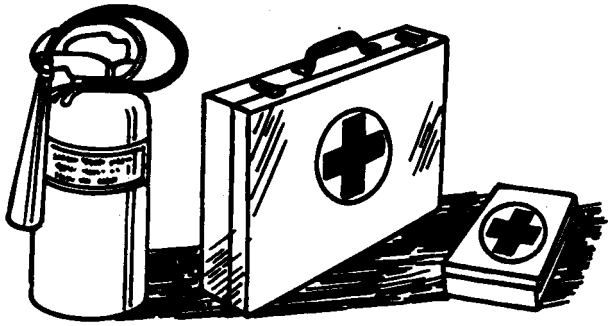
DX,DRAIN -19-01JUN15-1/1

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

DX,FIRE2 -19-03MAR93-1/1

Add Cab Guarding for Special Uses

Special work situations or machine attachments could create an environment with falling or flying objects. Working near an overhead bank, demolition work, using a hydraulic hammer or winch, working in a forestry application or wooded area, or working in a waste management application, for example, could require added guarding to protect the operator.

Additional level II FOPS (falling object protective structure), forestry protection packages, and special screens or guarding should be installed when falling or flying objects could enter or damage the machine. A rear screen should always be used with a winch to protect against a snapping cable. Before operating in any special work environments, follow the operator protection recommendations of the manufacturer of any specialized attachment or equipment. Contact your authorized John Deere dealer for information on protective guarding.

TX,CABGUARD -19-12FEB13-1/1

Do Not Use Starting Fluid

CAUTION: Avoid an explosion or fire. Machine is equipped with electrical cold start assist system. Do not use starting fluid of any type on the machine.

Fire, explosion, or engine damage will result from using starting fluids of any type on this machine.

Store Safely

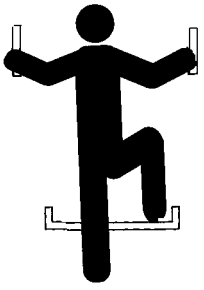
T145705 —UN—18SEP01

MB60223,0000031 -19-07FEB14-1/1

Use Steps and Handholds Correctly

Prevent falls by facing the machine when you get on and off. Maintain 3-point contact with steps and handrails. Never use machine controls as handholds.

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—15APR13

TX,STEPS -19-09FEB11-1/1

Start Only From Operator's Seat

Avoid unexpected machine movement. Start engine only while sitting in operator's seat. Ensure that all controls and working tools are in proper position for a parked machine.

Never attempt to start engine from the ground. Do not attempt to start engine by shorting across the starter solenoid terminals.

T133715 —UN—15APR13

TX,SOFOS -19-20JAN11-1/1

Use and Maintain Seat Belt

Use seat belt when operating machine. Remember to fasten seat belt when loading and unloading from trucks and during other uses.

Examine seat belt frequently. Be sure that webbing is not cut or torn. Replace seat belt immediately if any part is damaged or does not function properly.

The complete seat belt assembly should be replaced every three years, regardless of appearance.

T133716 —19—17APR13

TX,SEAT,BELT -19-20JAN11-1/1

Prevent Unintended Machine Movement

Lower all equipment to the ground during work interruptions. Place transmission control in neutral, press park brake switch (1) to engage park brake, press pilot enable/boom down switch (2) to disable the hydraulics, and stop engine before allowing anyone to approach the machine.

Follow these same precautions before standing up, leaving the operator's seat, or exiting the machine.

1— Park Brake Switch

2— Pilot Enable/Boom Down Switch

TX1041772A —UN—02MAY08

DP99999,00000A3 -19-28JUN12-1/1

Avoid Work Site Hazards

Avoid contact with gas lines, buried cables, and water lines. Call utility line location services to identify all underground utilities before starting work.

Prepare work site properly. Avoid operating near structures or objects that could fall onto the machine. Clear away debris that could move unexpectedly if run over.

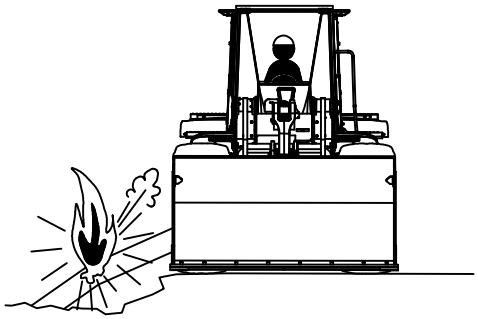
Avoid boom or attachment contact with overhead obstacles or overhead electrical lines. Never move machine closer than 3 m (10 ft.) plus twice the line insulator length to overhead wires.

Keep bystanders clear at all times. Keep bystanders away from raised booms, attachments, and unsupported loads. Avoid swinging or raising booms, attachments, or loads over or near personnel. Use barricades or a signal person to keep vehicles and pedestrians away. Use a signal person if moving machine in congested areas or where visibility is restricted. Always keep signal person in view. Coordinate hand signals before starting machine.

Operate only on solid footing with strength sufficient to support machine. Be especially alert working near embankments or excavations.

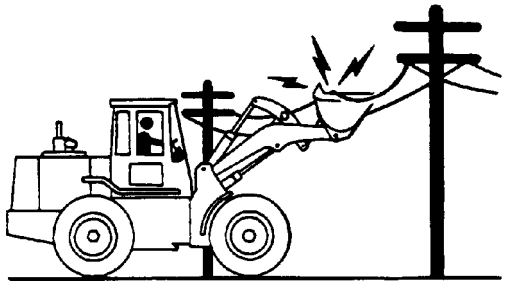
Avoid working under overhanging embankments or stockpiles that could collapse under or on machine.

Reduce machine speed when operating with tool on or near ground when obstacles may be hidden (e.g., during snow removal or clearing mud, dirt, etc.). At high speeds hitting obstacles (rocks, uneven concrete, or manholes) can cause a sudden stop. Always wear your seat belt.



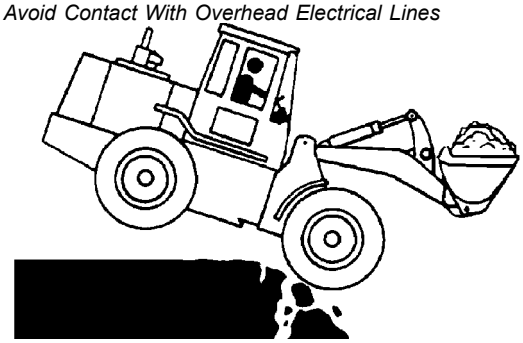
T141894 —UN—15APR13

Avoid Contact With Gas Line



T141670 —UN—24APR01

Avoid Contact With Overhead Electrical Lines



T141672 —UN—04MAY01

Operate Only on Solid Footing

DP99999,0000113 -19-23FEB15-1/1

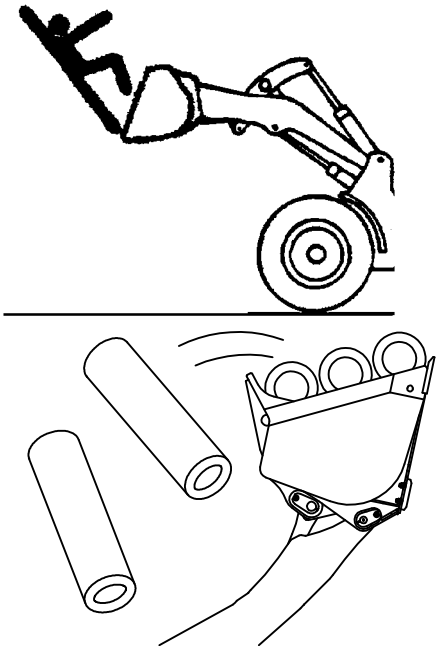
Use Special Care When Operating Loader

Never use the loader to lift people. Do not allow anyone to ride in the bucket or use the bucket as a work platform.

Operate carefully with raised loads. Raising the load reduces machine stability, especially on side slopes or an unstable surface. Drive and turn slowly with a raised load.

Ensure that objects in the bucket are secure. Do not attempt to lift or carry objects that are too big or too long to fit inside the bucket unless secured with an adequate chain or other device. Keep bystanders away from raised loads.

Be careful when lifting objects. Never attempt to lift objects too heavy for your machine. Assure machine stability and hydraulic capability with a test lift before attempting other maneuvers. Use an adequate chain or sling and proper rigging techniques to attach and stabilize loads. Never lift an object above or near another person.



T141957 —UN—15APR13

T141902 —UN—07MAY01

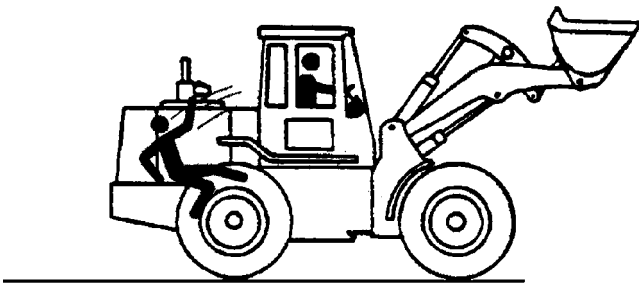
TX03768,0000B70 -19-24FEB15-1/1

Keep Riders Off Machine

Only allow operator on machine.

Riders are subject to injury. They may fall from machine, be caught between machine parts, or be struck by foreign objects.

Riders may obstruct operator's view or impair his ability to operate machine safely.



Keep Riders Off Machine

T141671 —UN—15APR13

TX03679,000179B -19-23FEB15-1/1

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 mirrors to assist in checking all around machine. Keep windows and mirrors clean, adjusted, and in good repair.

Be certain reverse warning alarm is working properly.

Use a signal person when backing if view is obstructed or when in close quarters. Keep signal person in view at all times. Use prearranged hand signals to communicate.

Do not rely on the rear camera and radar object detection systems, if equipped, to determine if personnel are behind the machine. The system has limitations due to maintenance practices, environmental conditions, and operating range.

PC10857XW —UN—15APR13

TX,AVOID,BACKOVER -19-04MAR16-1/1

Avoid Machine Tip Over

Use seat belt at all times.

Do not jump if the machine tips. You will be unlikely to jump clear and the machine may crush you.

Load and unload from trucks or trailers carefully. Be sure truck is wide enough and on a firm level surface. Use loading ramps and attach them properly to truck bed.

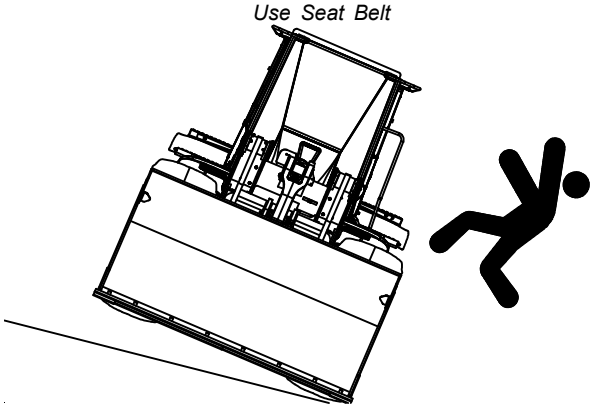
Be careful on slopes. Avoid sharp turns. Balance loads so weight is evenly distributed and load is stable. Carry tools and loads close to the ground to aid visibility and lower center of gravity. Use extra care on soft, rocky, or frozen ground.

Know the capacity of the machine. Do not overload. Be careful with heavy loads. Using oversize buckets or lifting heavy objects reduces machine stability.

Ensure solid footing. Use extra care in soft ground conditions that may not uniformly support the wheels, especially when raising the boom. Do not operate close to banks or open excavations that may cave in and cause machine to tip or fall.

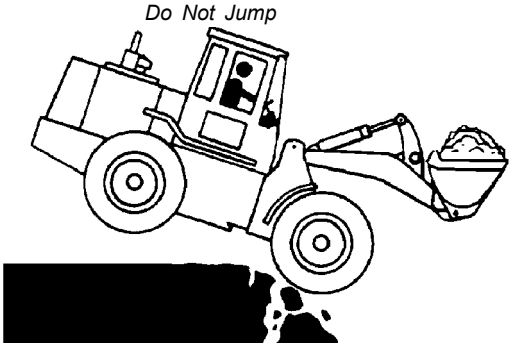
T133716 —19—17APR13

Use Seat Belt



T141676 —UN—04MAY01

Do Not Jump



T141672 —UN—04MAY01

Ensure solid footing

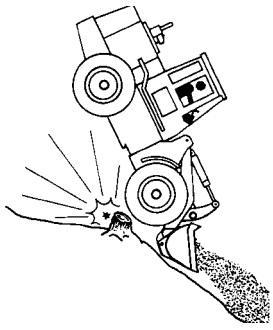
TX03679,000179D -19-24FEB15-1/1

Operating on Slopes

Avoid side slope travel whenever possible. Drive up steep slope in forward and down in reverse.

Select low gear speed before starting down slope. The grade of the slope will be limited by ground condition and load being handled.

Use service brakes to control speed. Sudden brake application with a loaded bucket on downhill side could cause machine to tip forward.



T141681 —UN—15APR13

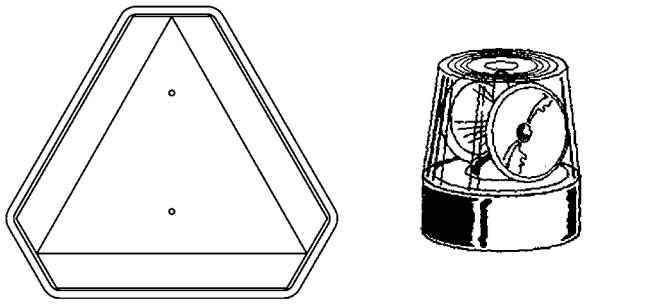
Operating on Slopes

TX03679,000179E -19-24FEB15-1/1

Operating or Traveling On Public Roads

Machines that work near vehicle traffic or travel slower than normal highway speeds must have proper lighting and markings to assure they are visible to other drivers.

Install additional lights, beacon lights, slow moving vehicle (SMV) emblems, or other devices and use as required to make the machine visible and identify it as a work machine. Check state and local regulations to assure compliance. Keep these devices clean and in working condition.



T141891 —UN—15APR13

TX,ROADS -19-20JAN11-1/1

Inspect and Maintain ROPS

A damaged rollover protective structure (ROPS) should be replaced, not reused.

The protection offered by ROPS could 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.

If ROPS was loosened or removed for any reason, inspect it carefully before operating the machine again.

To maintain the ROPS:

- Replace missing hardware using correct grade hardware.
- Check hardware torque.
- Check isolation mounts for damage, looseness, or wear; replace them if necessary.
- Check ROPS for cracks or physical damage.

TX,ROPS -19-20JAN11-1/1

Add and Operate Attachments Safely

Always verify compatibility of attachments by contacting your authorized dealer. Adding unapproved attachments could affect machine stability or reliability and could create a hazard for others near the machine.

Ensure that a qualified person is involved in attachment installation. Add guards to machine if operator protection is required or recommended. Verify that all connections are secure and attachment responds properly to controls.

Carefully read attachment manual and follow all instructions and warnings. In an area free of bystanders and obstructions, carefully operate attachment to learn its characteristics and range of motion.

TX,ATTACH -19-20JAN11-1/1

Park and Prepare for Service Safely

Warn others of service work. Always park and prepare your machine for service or repair properly.

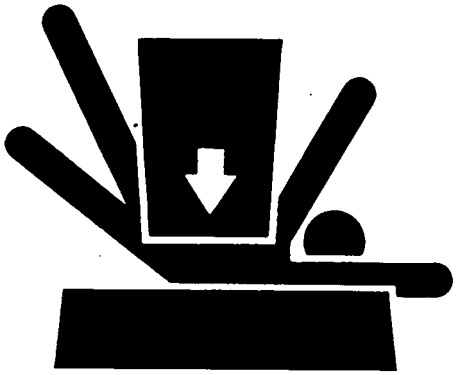
- Park machine on a level surface and lower equipment to the ground.
- Engage park brake.
- Stop engine.
- Install frame locking bar.
- Attach a DO NOT OPERATE tag in an obvious place in the operator's station.

Securely support machine or attachment before working under it.

- Do not support machine with boom, bucket, or other hydraulically actuated equipment.
- Do not support machine with cinder blocks or wooden pieces that can crumble or crush.
- Do not support machine with a single jack or other devices that could slip out of place.

Understand service procedures before beginning repairs. Keep service area clean and dry. Use two people whenever the engine must be running for service work.

T133332 —19—17APR13



TS229 —UN—23AUG88

TX,PARK,4WD -19-28JUN10-1/1

Service Cooling System Safely

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

Do not service radiator through the radiator cap. Only fill through the surge tank filler cap. Shut off engine. Only remove surge tank filler cap when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

TS281 —UN—15APR13

TX,SURGE -19-19JAN11-1/1

Service Tires Safely

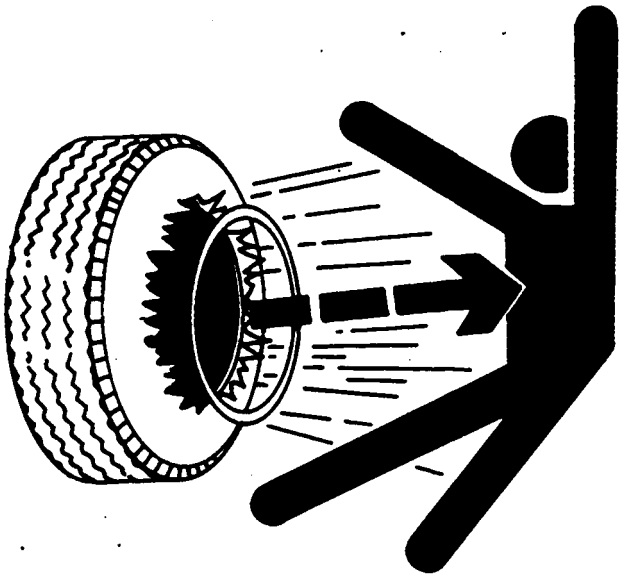
Explosive separation of a tire and rim parts can cause serious injury or death.

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

DX,RIM -19-24AUG90-1/1

Remove Paint Before Welding or Heating

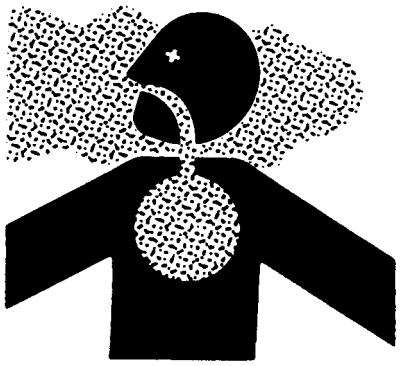
Avoid potentially toxic fumes and dust.

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.

DX,PAINT -19-24JUL02-1/1

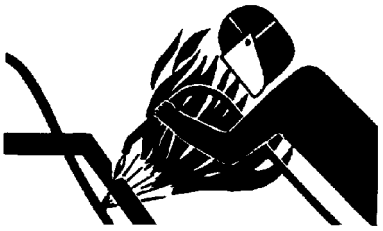
Make Welding Repairs Safely

IMPORTANT: Disable electrical power before welding. Turn off main battery switch and disconnect positive (+) and negative (-) battery cables.

Do not weld or apply heat on any part of a reservoir or tank that has contained oil or fuel. Heat from welding and cutting can cause oil, fuel, or cleaning solution to create gases which are explosive, flammable, or toxic.

Avoid welding or heating near pressurized fluid lines. Flammable spray may result and cause severe burns if pressurized lines malfunction as a result of heating. Do not let heat go beyond work area to nearby pressurized lines.

Remove paint properly. Do not inhale paint dust or fumes. Use a qualified welding technician for structural repairs.



T133547 —UN—15APR13

Heating Near Pressurized Fluid Lines

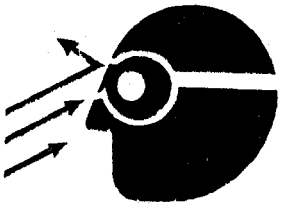
Make sure there is good ventilation. Wear eye protection and protective equipment when welding.

MB60223,0000212 -19-02JUL15-1/1

Drive Metal Pins Safely

Always wear protective goggles or safety glasses and other protective equipment before striking hardened parts. Hammering hardened metal parts such as pins and bucket teeth could dislodge chips at high velocity.

Use a soft hammer or a brass bar between hammer and object to prevent chipping.



T133738 —UN—15APR13

TX,PINS -19-20JAN11-1/1

Section 9001
Diagnostics

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Engine Control Unit (ECU) Diagnostic Trouble Codes

The diagnostic trouble code number is indicated by a Suspect Parameter Number (SPN) and a Failure Mode Indicator (FMI) number. In the example **000091.03**, 91 is the SPN and 03 is the FMI number.

Diagnostic trouble codes can be displayed using the advanced display unit (ADU) or by using Service ADVISOR™.

- See Display Unit—Main Menu—Codes. (Operator's Manual.)
- See Reading Diagnostic Trouble Codes with Service ADVISOR™ Diagnostic Application. (Group 9015-20.)

For in-depth diagnostics on machine specific ECU diagnostic trouble codes, see specific code diagnostic procedures in this group. Additional engine control unit DTC diagnostic procedures for John Deere PowerTech Plus™ engines are located in the component technical manual, PowerTech Plus 4.5 L and 6.8 L Diesel Engines—Level 14 Electronic Fuel System with Denso HPCR. (CTM320.)

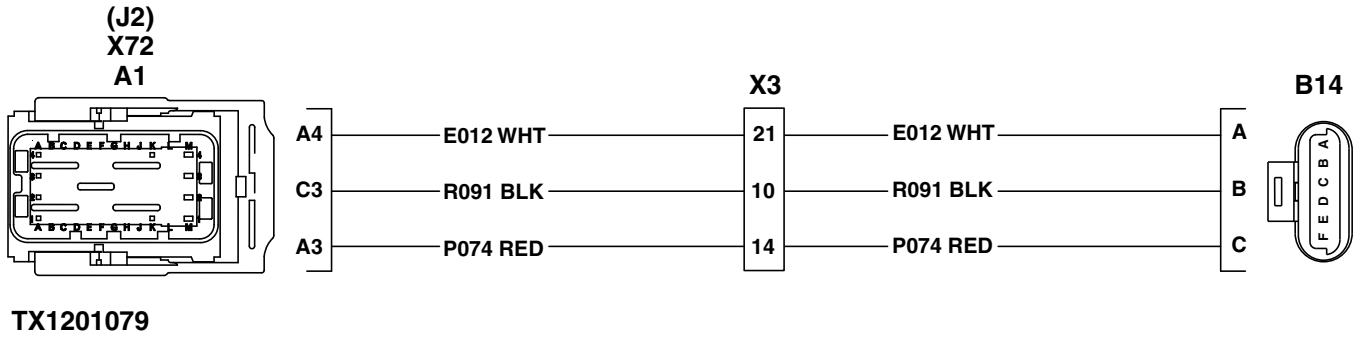
M44215 —UN—07SEP88

Service ADVISOR is a trademark of Deere & Company
PowerTech Plus is a trademark of Deere & Company

TF19527,0001D20 -19-09SEP15-1/1

000091.03 — Accelerator Pedal Short to Power

Engine control unit (ECU) measures more than 4.75 volts on analog throttle position sensor (B14) circuit.



TX1201079 —UN—10SEP15

TX1201079

Accelerator Pedal Circuit

A1—Engine Control Unit (ECU)
B14—Accelerator Pedal Position Sensor
X3—Load Center Harness-to-Engine Harness Connector
X72 (J2)—Engine Control Unit Connector

Alarm Level:

- Warning Indicator

Machine Response:

- None

Circuit Information:

- See Vehicle Control Unit (VCU) Circuit Theory of Operation. (Group 9015-15.)
- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Component Location. (Group 9015-10.)
- See Load Center Harness (W3) Component Location. (Group 9015-10.)

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

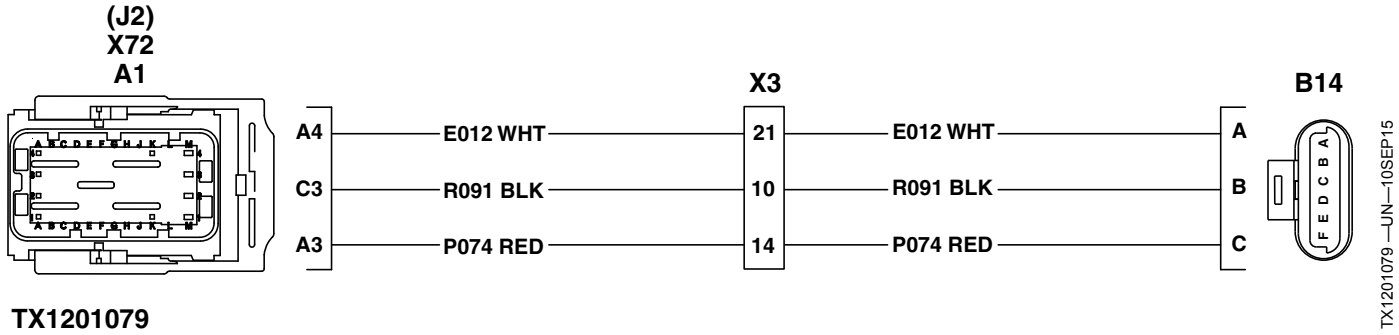
Possible Causes:

1. Circuit is shorted to power.
2. Software malfunction. Program controller.

TF19527,0001D21 -19-09SEP15-1/1

000091.04 — Accelerator Pedal Open or Short

Voltage is below normal, or shorted to low source.



TX1201079

Accelerator Pedal Circuit

A1—Engine Control Unit (ECU)
B14— Accelerator Pedal Position Sensor
X3—Load Center Harness-to-Engine Harness Connector
X72 (J2)—Engine Control Unit Connector

Alarm Level:

- Warning Indicator

Machine Response:

- None

Circuit Information:

- See Vehicle Control Unit (VCU) Circuit Theory of Operation. (Group 9015-15.)
- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Component Location. (Group 9015-10.)
- See Load Center Harness (W3) Component Location. (Group 9015-10.)

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

Possible Causes:

1. Circuit is open or shorted to ground.
2. Software malfunction. Program controller.

TF19527,0001D22 -19-09SEP15-1/1

000091.14 — Accelerator Pedal Sensor Invalid

Throttle voltage is above or below the specification.

This code is an informative code which tells that the primary analog throttle is either above or below the out of range specification.

To get the engine to change speed, either:

- Set the throttle to the minimum position, then increase it.
- Cycle the ignition key to OFF, then back to ON.

This is a safety feature used to keep the engine from running away after a throttle problem.

TF19527,0001D23 -19-09SEP15-1/1

000170.00 — Engine Air Filter Restricted

Engine air filter is restricted.

TF19527,0001D24 -19-24SEP18-1/7

Engine Air Filter Restricted Diagnostic Procedure

Alarm Level:

Engine Air Filter Icon

Continued on next page

TF19527,0001D24 -19-24SEP18-2/7

1 Intermittent Check	Does DTC periodically “go away”?	**YES:** DTC is intermittent. See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.) **NO:** Go to Component Check.

TF19527,0001D24 -19-24SEP18-3/7

2 Engine Air Filter Check	Remove engine air filter.	
	Inspect air filter and intake system.	**YES:** Replace engine air filter. See Replace Engine Air Cleaner Elements. (Operator's Manual.)
	Is air filter or intake system clogged with excessive debris?	**NO:** Go to Short Circuit Check.

TF19527,0001D24 -19-24SEP18-4/7

3 Component Check	Ignition OFF.	
	Disconnect engine air filter restriction switch (B19) and remove from air filter housing. See Engine Harness (W6) Component Location. (Group 9015-10.)	
	Check for continuity across pins A and B.	**YES:** Replace air filter restriction switch.
	Is continuity indicated?	**NO:** Go to Engine Air Filter Check.

TF19527,0001D24 -19-24SEP18-5/7

4 Short Circuit Check	Ignition OFF.	
	Disconnect engine control unit (ECU) connector (X72) and engine air filter restriction switch (B19). See Engine Harness (W6) Component Location. (Group 9015-10.)	
	Ignition ON, engine OFF.	
	Check circuit M006 PUR for voltage between pin F2 on ECU connector (X72) and all other pins.	**YES:** Circuit M06 PUR is short to power. Repair circuit or replace harness. See Engine Harness (W6) Wiring Diagram. (Group 9015-10.)
	Is system voltage (approximately 24 volts) present?	**NO:** Go to Program Controller.

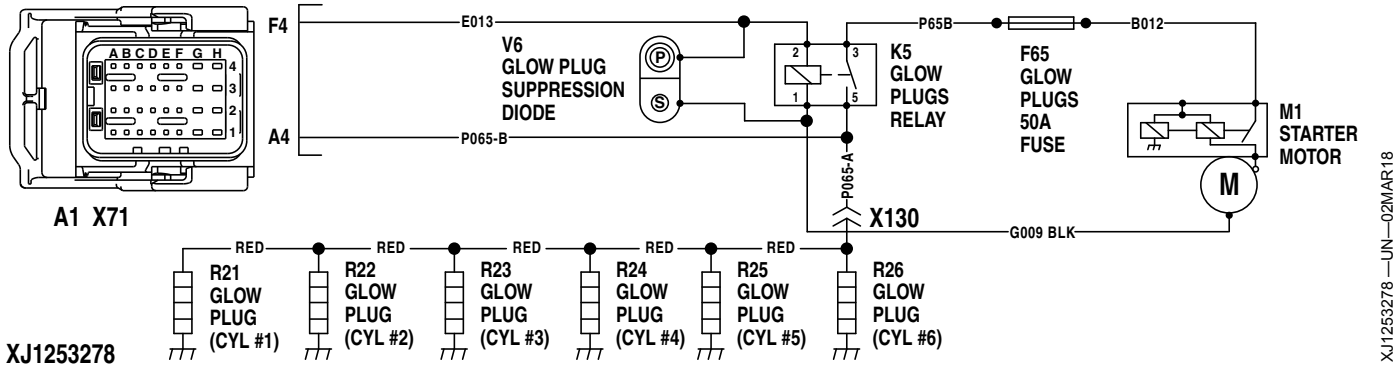
TF19527,0001D24 -19-24SEP18-6/7

5 Program Controller	Program engine control unit (ECU).	
	Check for active codes.	**YES:** Replace controller.
	Is ECU code 000107.00 present?	**NO:** Checks complete.

TF19527,0001D24 -19-24SEP18-7/7

000676.03 — Engine Heat Short to Power

Glow plugs relay output is short to power when relay is energized by the engine control unit (ECU).



Engine Glow Plug Circuit

A1—Engine Control Unit (ECU)
F65— Glow Plugs 50-Amp Fuse
K5—Glow Plugs Relay
M1—Starter Motor
R21— Glow Plug (cylinder 1)
R22— Glow Plug (cylinder 2)
R23— Glow Plug (cylinder 3)
R24— Glow Plug (cylinder 4)
R25— Glow Plug (cylinder 5)
R26— Glow Plug (cylinder 6)
V6—Glow Plug Coil Suppression Diode
X130— Engine Harness-to-Glow Plug Harness Connector
X71— Engine Control Unit (ECU) Connector

Alarm Level:

- Warning Indicator

Machine Response:

- None

Circuit Information:

- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Wiring Diagram. (Group 9015-10.)

Diagnostic Test Box Information:

- Not Applicable

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

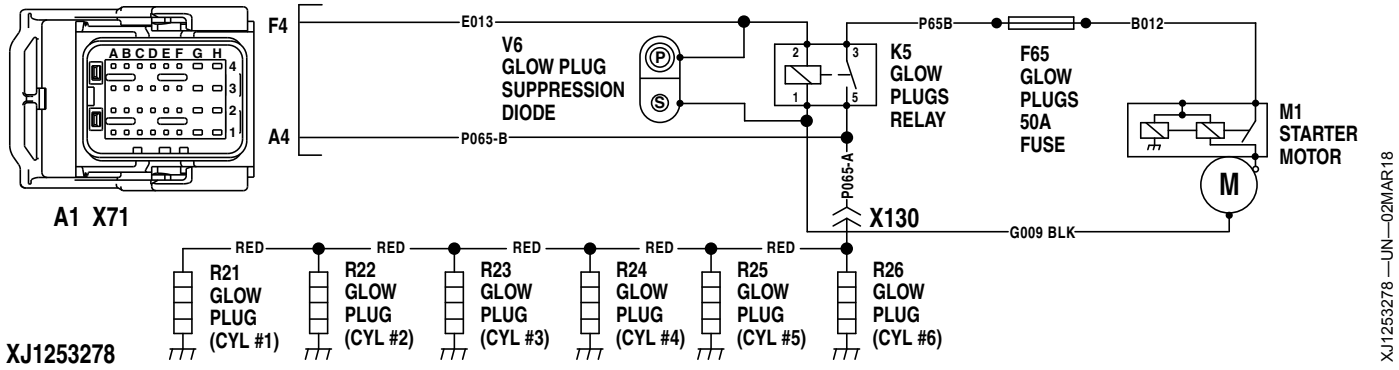
Possible Causes:

1. Circuit is shorted to power.
2. Software malfunction. Program controller.

TF19527,0001D25 -19-02MAR18-1/1

000676.05 — Engine Heat Open or Short

Glow plugs relay output is low when relay is energized by the engine control unit (ECU).



Engine Glow Plug Circuit

A1—Engine Control Unit (ECU)
F65— Glow Plugs 50-Amp Fuse
K5—Glow Plugs Relay
M1—Starter Motor
R21— Glow Plug (cylinder 1)
R22— Glow Plug (cylinder 2)
R23— Glow Plug (cylinder 3)
R24— Glow Plug (cylinder 4)
R25— Glow Plug (cylinder 5)
R26— Glow Plug (cylinder 6)
V6—Glow Plug Coil Suppression Diode
X130— Engine Harness-to-Glow Plug Harness Connector
X71— Engine Control Unit (ECU) Connector

Alarm Level:

- Warning Indicator

Machine Response:

- None

Circuit Information:

- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Wiring Diagram. (Group 9015-10.)

Diagnostic Test Box Information:

- Not Applicable

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

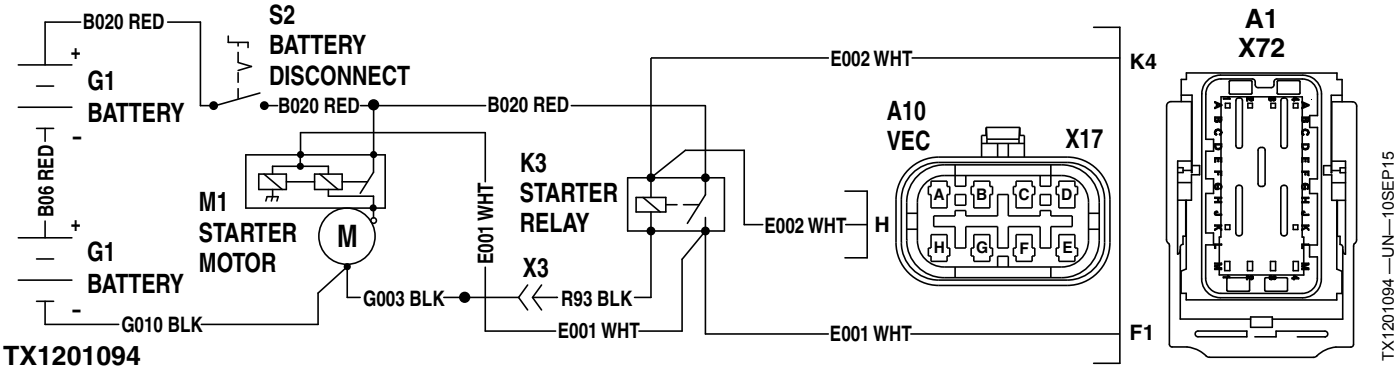
Possible Causes:

1. Circuit is open or shorted to ground.
2. Software malfunction. Program controller.

TF19527,0001D26 -19-02MAR18-1/1

001321.05 — Starter Relay Open Circuit

Current is below normal or open circuit.



Starter Relay Circuit

A1—Engine Control Unit (ECU)
A10— Vehicle Electrical Center (VEC)
G1—Battery (2 used)
K3—Starter Relay
M1—Starter Motor
S2—Battery Disconnect Switch
X3—Load Center Harness-to-Engine Harness Connector
X17— Vehicle Electrical Center (VEC) Connector
X72— Engine Control Unit (ECU) Connector

Alarm Level:

- Warning Indicator

Machine Response:

- None

Circuit Information:

- See Vehicle Control Unit (VCU) Circuit Theory of Operation. (Group 9015-15.)
- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Component Location. (Group 9015-10.)
- See Load Center Harness (W3) Component Location. (Group 9015-10.)

Diagnostic Test Box Information:

- Not Applicable.

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

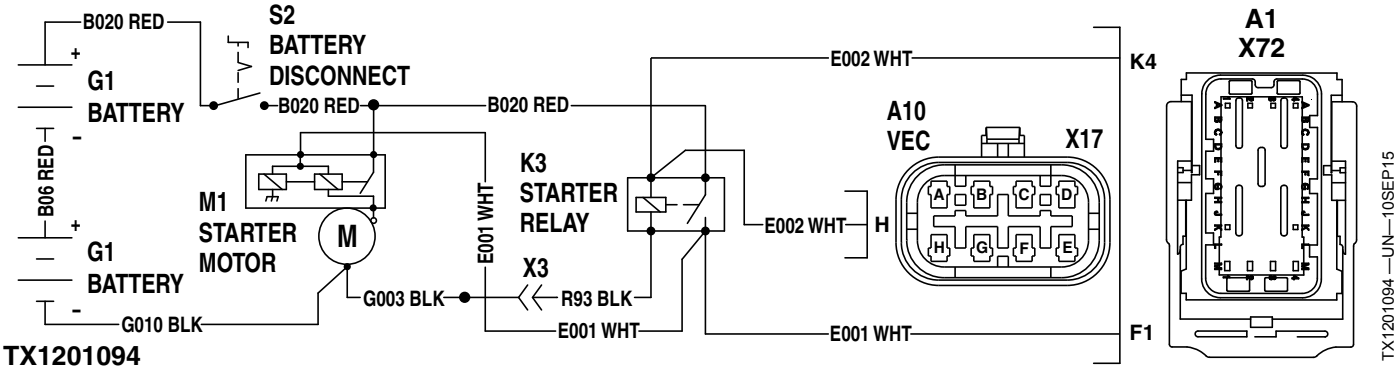
Possible Causes:

1. Circuit is open or shorted to ground.
2. Software malfunction. Program controller.

TF19527,0001D27 -19-09SEP15-1/1

001321.06 — Starter Relay High Current

Current is above normal.



Starter Relay Circuit

A1—Engine Control Unit (ECU)
A10— Vehicle Electrical Center (VEC)
G1—Battery (2 used)
K3—Starter Relay
M1—Starter Motor
S2—Battery Disconnect Switch
X3—Load Center Harness-to-Engine Harness Connector
X17— Vehicle Electrical Center (VEC) Connector
X72— Engine Control Unit (ECU) Connector

Alarm Level:

- No Warning Indicator

Machine Response:

- None

Circuit Information:

- See Vehicle Control Unit (VCU) Circuit Theory of Operation. (Group 9015-15.)
- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Component Location. (Group 9015-10.)
- See Load Center Harness (W3) Component Location. (Group 9015-10.)

Diagnostic Test Box Information:

- Not Applicable.

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

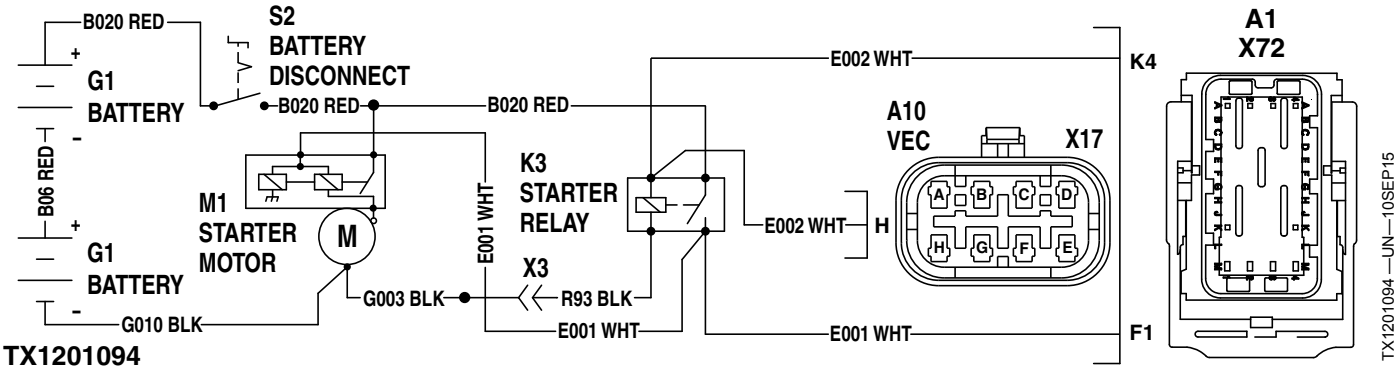
Possible Causes:

1. Circuit is shorted to power.
2. Software malfunction. Program controller.

TF19527,0001D28 -19-09SEP15-1/1

001321.09 — Starter Signal Invalid

Starter relay (K3) circuit is receiving an invalid start signal from engine control unit (ECU).



Starter Relay Circuit

A1—Engine Control Unit (ECU)
A10— Vehicle Electrical Center (VEC)
G1—Battery (2 used)
K3—Starter Relay
M1—Starter Motor
S2—Battery Disconnect Switch
X3—Load Center Harness-to-Engine Harness Connector
X17— Vehicle Electrical Center (VEC) Connector
X72— Engine Control Unit (ECU) Connector

Alarm Level:

- No Warning Indicator

Machine Response:

- None

Circuit Information:

- See Vehicle Control Unit (VCU) Circuit Theory of Operation. (Group 9015-15.)
- See Engine Control Unit (ECU) Circuit Theory of Operation. (Group 9015-15.)

Component Location:

- See Engine Harness (W6) Component Location. (Group 9015-10.)
- See Load Center Harness (W3) Component Location. (Group 9015-10.)

Diagnostic Test Box Information:

- Not Applicable.

Additional References:

- See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.)
- See Service ADVISOR™ Connection Procedure. (Group 9015-20.)

Possible Causes:

1. Software malfunction. Program controller.

TF19527,0001D29 -19-09SEP15-1/1

002003.09 — CAN Communication Lost for TCU

CAN communication error; the engine control unit (ECU) has lost communication with the transmission control unit (TCU).

TF19527,0001D2A -19-24SEP18-1/9

CAN Communication Lost For TCU Diagnostic Procedure

Alarm Level:

No Warning Lamp

Continued on next page

TF19527,0001D2A -19-24SEP18-2/9

1 Intermittent Check	Does DTC periodically “go away”?	**YES:** DTC is intermittent. See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.) **NO:** Go to Controller Sensors Check.

TF19527,0001D2A -19-24SEP18-3/9

2 Controller Sensors Check	View transmission control unit (TCU) monitored sensor outputs, by accessing the Diagnostics / Transmission Sensors submenu on the advanced display unit (ADU). See Display Unit—Main Menu—Diagnostics—Transmission/Axle. (Operators Manual.) Are all transmission sensor values displayed on the ADU?	**YES:** Go to Program Engine Control Unit. **NO:** Go to Fuse Check.

TF19527,0001D2A -19-24SEP18-4/9

3 Fuse Check	Ignition OFF. Remove fuses (F18 and F28). See Fuse and Relay Specifications. (Group 9015-10.) Check fuses (F18 and F28) for continuity. Is continuity indicated in both fuses?	 **YES:** Go to Voltage Check. **NO:** Replace fuse(s) without continuity indicated.

TF19527,0001D2A -19-24SEP18-5/9

4 Voltage Check	Ignition OFF. Disconnect transmission control unit (TCU) connector (X23). See Load Center Harness (W3) Component Location. (Group 9015-10.) Ignition ON, engine OFF. Check for voltage at the following pins on TCU connector (X23): • 23—circuit P018 RED • 45—circuit P028 RED • 68—circuit P018 RED Is voltage present at all pins?	 **YES:** Go to Ground Circuit Check. **NO:** Circuit(s) without voltage is open. Repair circuit or replace harness. See Load Center Harness (W3) Wiring Diagram. (Group 9015-10.)

Continued on next page

TF19527,0001D2A -19-24SEP18-6/9

5 Ground Circuit Check	Ignition OFF. Disconnect transmission control unit (TCU) connector (X23). See Load Center Harness (W3) Component Location. (Group 9015-10.) Check circuit G001 BLK for ground at pins 1 and 2 on TCU connector (X23). Is ground present at all pins?	 **YES:** Go to CAN Circuit Check. **NO:** Circuit G001 BLK is open. Repair circuit or replace harness. See Load Center Harness (W3) Wiring Diagram. (Group 9015-10.)

TF19527,0001D2A -19-24SEP18-7/9

6 CAN Circuit Check	Perform CAN circuit test. See CAN Circuit Test. (Group 9015-20.) Does CAN circuit test good?	**YES:** Replace controller. **NO:** Repair CAN circuit.

TF19527,0001D2A -19-24SEP18-8/9

7 Program Engine Control Unit	Program engine control unit (ECU). Check for active ECU codes. Is code 002003.09 present?	 **YES:** Replace controller. **NO:** Checks complete.

TF19527,0001D2A -19-24SEP18-9/9

002033.09 — CAN Communication Lost for VCU

CAN communication error, engine control unit (ECU) has lost communication with vehicle control unit (VCU)

TF19527,0001D2B -19-24SEP18-1/11

CAN Communication Lost for VCU Diagnostic Procedure

Alarm Level:

No Warning Lamp

TF19527,0001D2B -19-24SEP18-2/11

1 Intermittent Check	Does DTC periodically “go away”?	**YES:** DTC is intermittent. See Intermittent Diagnostic Trouble Code (DTC) Diagnostics. (Group 9015-20.) **NO:** Go to Controller Sensors Check.

Continued on next page

TF19527,0001D2B -19-24SEP18-3/11

❷ Controller Sensors Check	Ignition ON, engine OFF.	
	View vehicle control unit (VCU) monitored outputs by accessing the Diagnostics / Hydraulic Sensors submenu on the advanced display unit (ADU). See Display Unit—Main Menu—Diagnostics—Hydraulic Sensors. (Operators manual.)	**YES:** Go to Program Engine Control Unit.
	Does the monitor show a reading for all sensors?	**NO:** Go to Fuse Check.

TF19527,0001D2B -19-24SEP18-4/11

❸ Fuse Check	Ignition OFF.	
	Remove fuses (F15, F20 and F21). See Fuse and Relay Specifications. (Group 9015-10.)	
	Check continuity of fuses (F15, F20 and F21).	**YES:** Go to Ignition Relay Check.
	Is continuity indicated?	**NO:** Replace fuse (F15, F20 or F21).

TF19527,0001D2B -19-24SEP18-5/11

❹ Ignition Relay Check	Ignition OFF.	
	Disconnect ignition relay (K4). See Load Center Harness (W3) Component Location. (Group 9015-10.)	
	Apply 24 volts and ground to coil of ignition relay (K4).	
	Check for continuity between remaining pins on ignition relay (K4).	**YES:** Go to Power Circuit Check.
	Is continuity indicated?	**NO:** Ignition relay (K4) malfunction. Replace relay.

TF19527,0001D2B -19-24SEP18-6/11

❺ Power Circuit Check	Ignition OFF.	
	Disconnect vehicle control unit (VCU) connectors (X40, X42, and X43). See Load Center Harness (W3) Component Location. (Group 9015-10.)	
	Ignition ON, engine OFF.	
	Check circuit B010 RED for voltage between pin 1 on VCU connector (X43) and machine ground.	
	Check circuit P015 RED for voltage between pin M1 on VCU connector (X40) and machine ground.	
	Check circuit P020 RED for voltage between pin 2 on VCU connector (X42) and machine ground.	
	Check circuit P021 RED for voltage between pins L1 on VCU connector (X40) and machine ground.	**YES:** Go to Ground Circuit Check.
	Is system voltage (approximately 24 volts) present?	**NO:** Open circuit in load center harness. Repair circuit with no voltage or replace load center harness. See Load Center Harness (W3) Wiring Diagram. (Group 9015-10.)

Continued on next page

TF19527,0001D2B -19-24SEP18-7/11

6 Ground Circuit Check	Ignition OFF. Disconnect vehicle control unit (VCU) connector (X40 and X41). See Load Center Harness (W3) Component Location. (Group 9015-10.) Check circuit G001 BLK for ground at pins F3, L2 and M2 on VCU connector (X40). Check circuit G001 BLK for ground at pin 2 on VCU connector (X41). Is ground present?	**YES:** Go to CAN Circuit Check. **NO:** Open circuit in load center harness. Repair or replace harness. See Load Center Harness (W3) Wiring Diagram. (Group 9015-10.)

TF19527,0001D2B -19-24SEP18-8/11

7 CAN Circuit Check	Perform CAN circuit test. See CAN Circuit Test. (Group 9015-20.) Does CAN circuit test good?	**YES:** Go to Program Vehicle Control Unit. **NO:** Repair CAN circuit.

TF19527,0001D2B -19-24SEP18-9/11

8 Program Vehicle Control Unit	Program vehicle control unit (VCU). Check for active codes. Is ECU code 002033.09 present?	**YES:** Replace controller. **NO:** Checks complete.

TF19527,0001D2B -19-24SEP18-10/11

9 Program Engine Control Unit	Program engine control unit (ECU). Check for active codes. Is ECU code 002033.09 present?	**YES:** Replace controller. **NO:** Checks complete.

TF19527,0001D2B -19-24SEP18-11/11

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