

870, 970, and 1070 Tractors

**John Deere Horicon Works
OMM79639 Issue B9**

LITHO IN U.S.A.
ENGLISH

Introduction

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



THIS MACHINE is of metric design. Measurements in this manual are metric with the customary U.S. measurement following. Use only metric hardware and tools as specified.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction the implement will travel when going forward.

WRITE IDENTIFICATION NUMBERS in the Specifications 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. If this manual is kept on the

machine, also 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 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.



970 Tractor

M52821
-UN-12JAN89

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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.

OMM79639 B9-19-06DEC89

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A John Deere ILLUSTRATION™ Manual

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Safety

RECOGNIZE SAFETY INFORMATION

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

Follow recommended precautions and safe operating practices.



O53,ALERT -19-16JUN87

T81389 -UN-07DEC68

UNDERSTAND SIGNAL WORDS

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

Safety signs with signal word DANGER or WARNING are typically near specific hazards.

General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



O53,SIGNAL -19-07OCT85

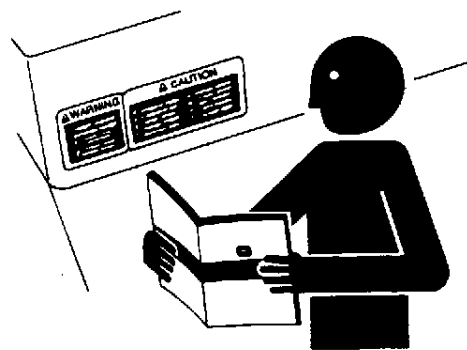
TS187 -19-30SEP88

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.

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.



O53,READ -19-23APR87

TS201 -UN-23AUG88



PROTECT CHILDREN

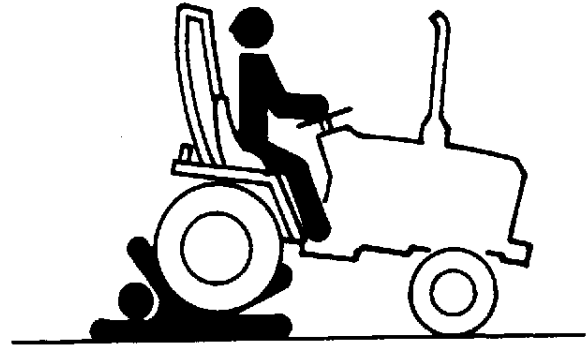
Keep children and others away when you operate machine.

BEFORE YOU BACK UP:

- Stop the PTO.
- Look behind tractor for children.

Do not let children operate tractor.

Do not let children ride on tractor or any implement.



M61505 -UN-26SEP88

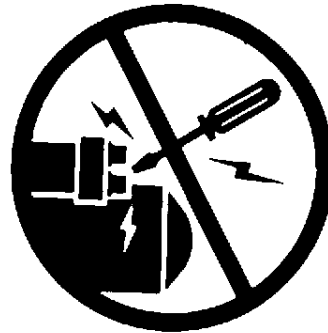
MX,SABT,B -19-03JAN89

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.



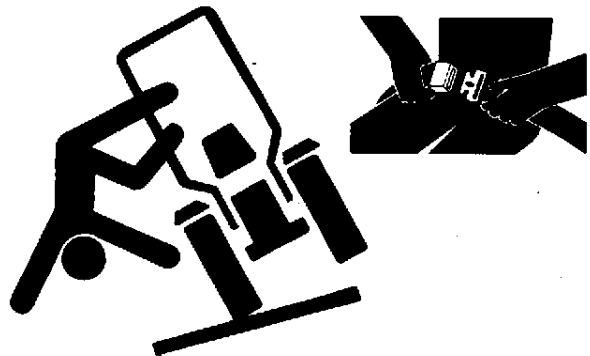
TS177 -UN-11JAN69

O53,BYPAS1 -19-21MAY85

USE SEAT BELT PROPERLY

Use a seat belt when you operate with a roll-over protective structure (ROPS) to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS.



TS205 -UN-23AUG88

O53,ROPS1 -19-23APR87



AVOID TIPPING

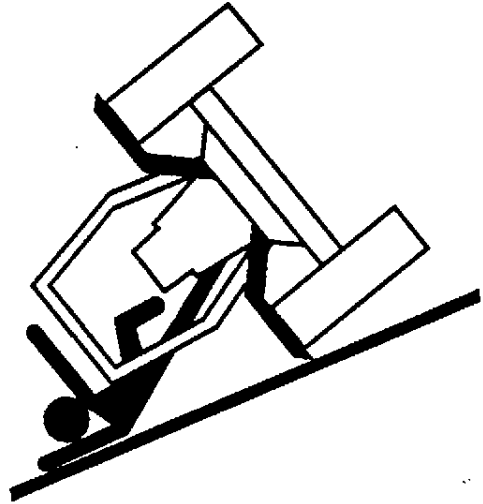
Do not drive where the machine could slip or tip.

Stay alert for holes, rocks, and roots in the terrain, and other hidden hazards. Keep away from drop-offs.

Slow down before you make a sharp turn.

Driving forward out of a ditch or mired condition or up a steep slope could cause tractor to tip over backward. Back out of these situations if possible.

Use care when pulling loads or using heavy equipment. Use counterweights or wheel weights suggested in this operator's manual.



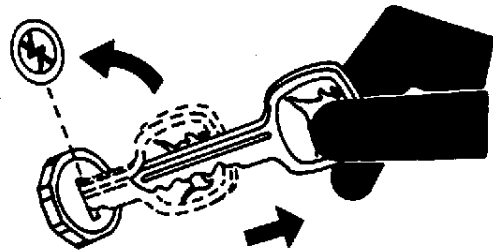
MX,SABT.C -19-27SEP88

IM61727 -UN-04OCT88

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.



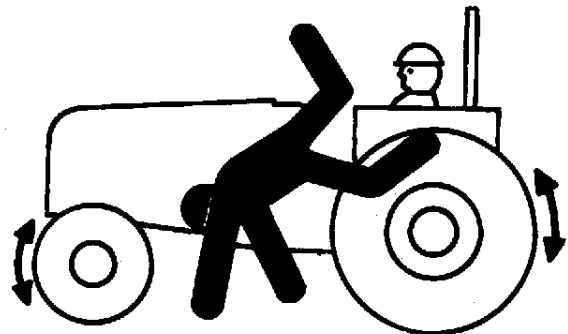
O53,PARK -19-05JAN88

TS230 -UN-24MAY88

KEEP RIDERS OFF MACHINE

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



O53,RIDER -19-03MAY88

TS290 -UN-23AUG88



HANDLE FUEL SAFELY—AVOID FIRES

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

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

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



O53_FIRE1 -19-23APR87

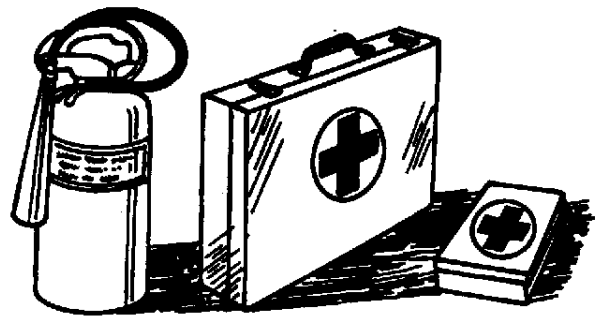
TS202 -UN-23AUG88

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.



O53_FIRE2 -19-03MAR88

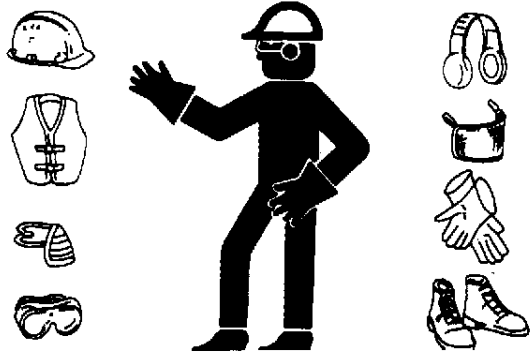
TS291 -UN-23AUG88

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.



O53_WEAR -19-23APR87

TS206 -UN-23AUG88

STAY CLEAR OF ROTATING DRIVELINES

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



O53_PTO -19-16JUN87

TS198 -UN-23AUG88

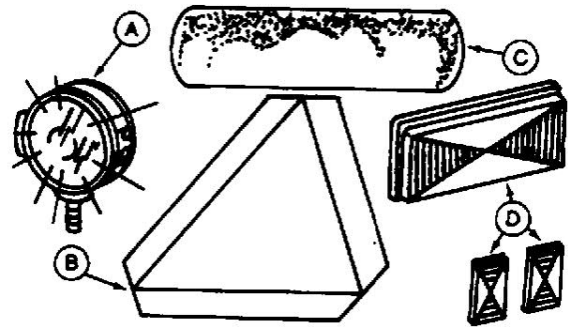


USE SAFETY LIGHTS AND DEVICES

Use of flashing warning lights and turn signals are recommended when towing this equipment on public roads unless prohibited by state or local regulations. An implement safety lighting kit is available from your John Deere dealer.

Keep safety items in good condition. Replace missing or damaged items.

- A—Lights
- B—Slow Moving Vehicle Emblem
- C—Reflector Tape
- D—Reflectors



N36564 -UN-10FEB89

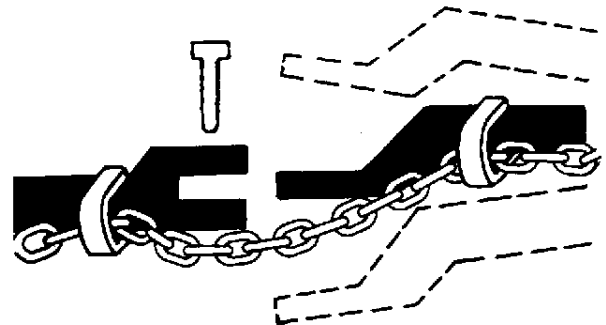
O53,FLASH -19-11OCT85

USE A SAFETY CHAIN

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



T5217 -UN-23AUG88

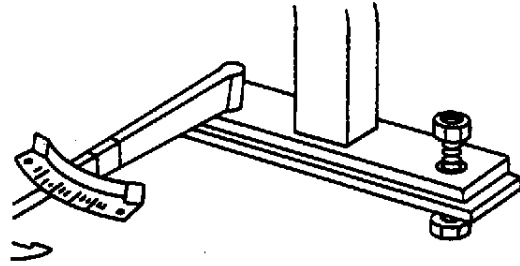
O53,CHAIN -19-17DEC87



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.



O53,ROPS3 -19-23APR87

-UN-23AUG88
TS212

PRACTICE SAFE MAINTENANCE

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

Never lubricate or service 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.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.



O53,SERV -19-21DEC87

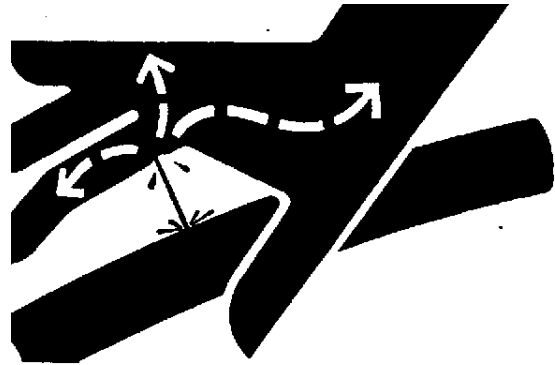
-UN-23AUG88
TS218



AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before unhooking hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard to search for leaks.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



O53,FLUID -19-18SEP87

-UN-23AUG88
X9811

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).



O53,SPARKS -19-05JAN88

-UN-23AUG88
TS204



PREVENT ACID BURNS

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

Avoid the hazard by:

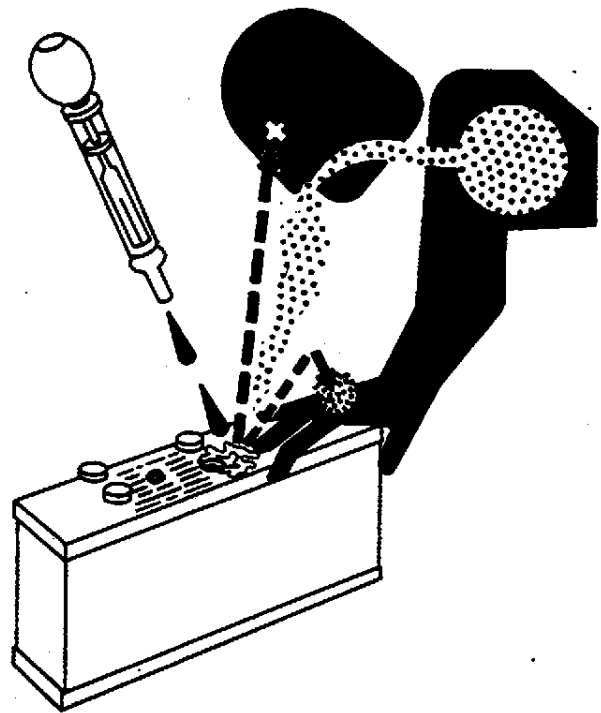
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10—15 minutes. Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



O53_POISON -19-21DEC87

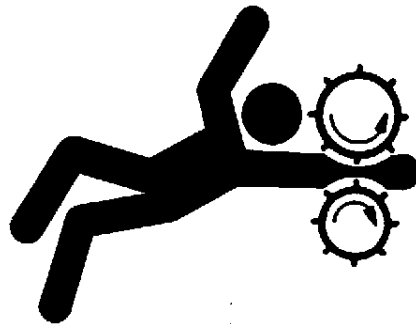
-UN-23AUG88

T5203

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.



O53_LOOSE -19-21DEC87

-UN-23AUG88

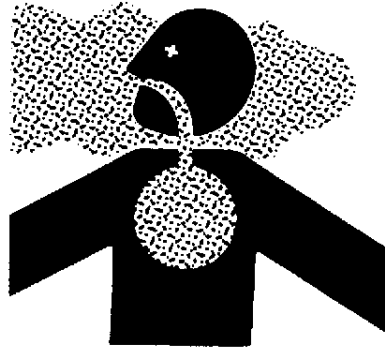
T5228



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.



O53,AIR -19-05JAN88

TS220 -UN-23AUG88

UNDERSTAND CORRECT SERVICE

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.

Catch draining fuel, oil, or other fluids in suitable containers. Do not use food or beverage containers that may mislead someone into drinking from them. Wipe up spills at once.



O53,LIGHT -19-23FEB88

TS223 -UN-23AUG88



SERVICE TIRES SAFELY

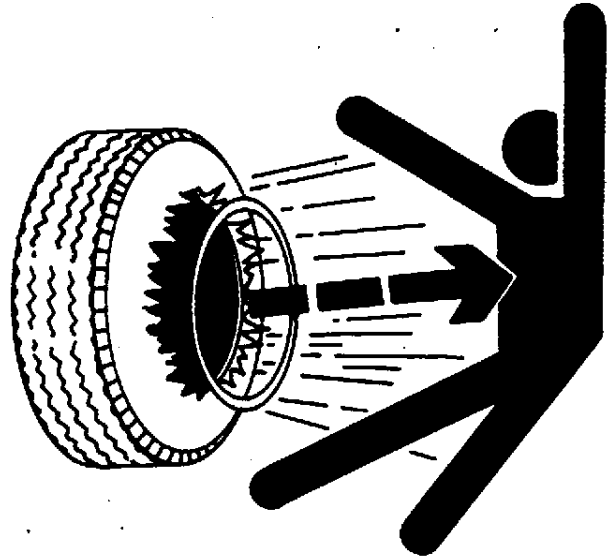
Explosive separation of a tire and rim parts can cause serious injury or death.

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.

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.



O53,RIM -19-21DEC87

-UN-23AUG88

TS211



⚠ WARNING



DO NOT try to jump if machine overturns. You could be crushed.

USE SEAT BELT

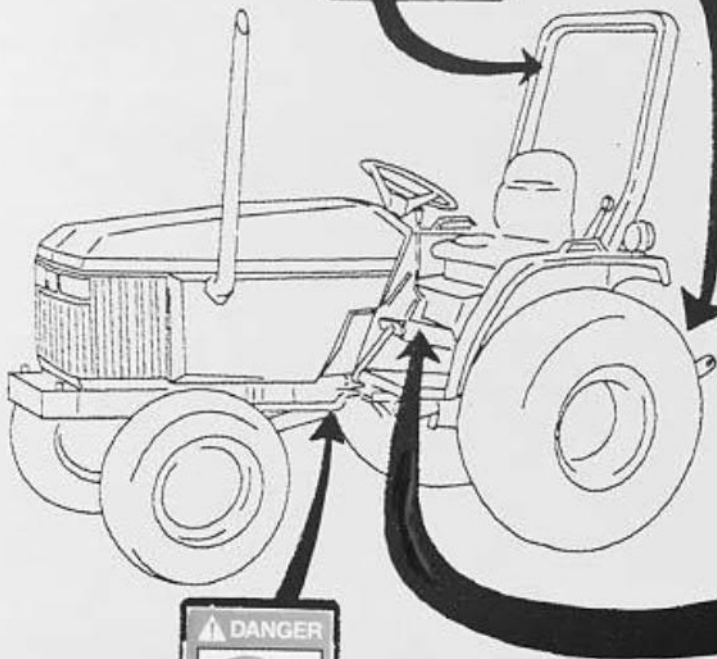


⚠ WARNING



AVOID INJURY FROM PTO

- Keep all shields in place
- Keep hands, feet and clothing away
- Operate only with 540 RPM



⚠ CAUTION

HELP AVOID INJURY

- AVOID TURNS, HOUGH TERRAIN AND SLOPES THAT MAY CAUSE TIP OVER
- ROLL-OVER PROTECTIVE STRUCTURE (ROPS) SHOULD BE INSTALLED UNLESS PROHIBITED BY LOW CLEARANCE OPERATION
- USE SEAT BELT UNLESS TRACTOR IS OPERATED WITHOUT ROPS
- USE RECOMMENDED BALLAST
- STAY CLEAR OF POWER DRIVEN PARTS
- KEEP CHILDREN AND OTHERS AWAY
- LOOK BEHIND BEFORE BACKING
- NEVER CARRY RIDERS
- KNOW ALL CONTROLS
- LATCH BRAKES TOGETHER FOR TRANSPORT AND PARKING
- BEFORE LEAVING SEAT
 - LOWER ATTACHMENT IMPLEMENT
 - LOCK PARK BRAKE
 - STOP ENGINE
- READ OPERATOR MANUAL FOR TRAINING



⚠ DANGER



Start only from seat in park or neutral. Starting in gear kills.

M62426 -19-02MAY89

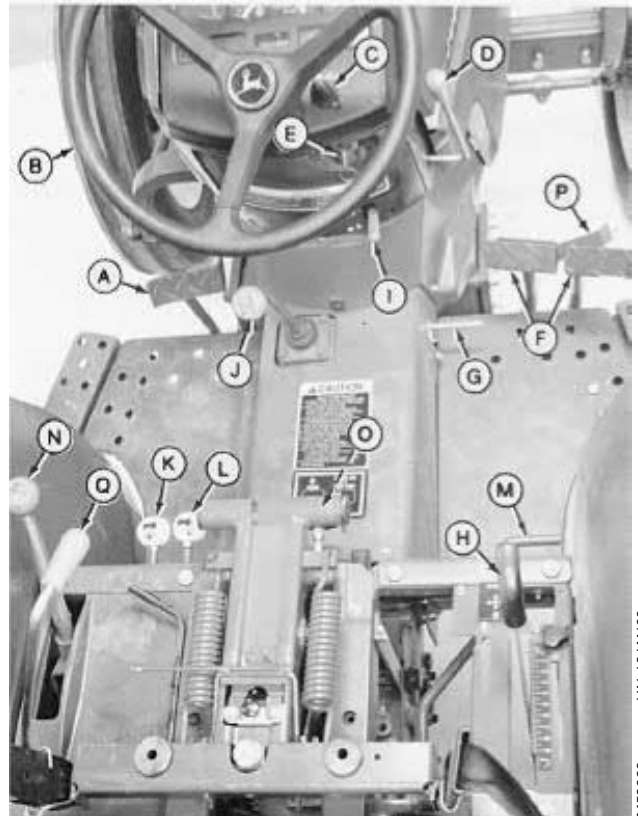
MX,SABT.A -19-07SEP88

Controls

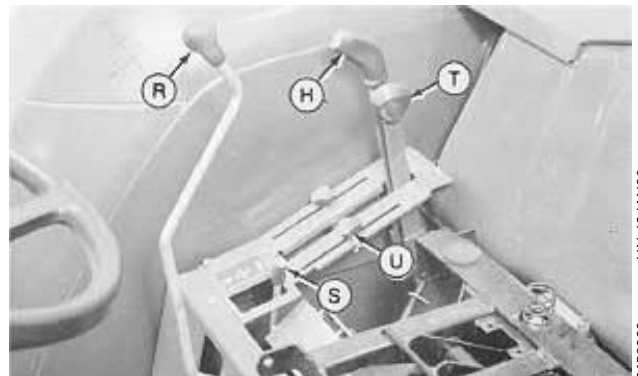
TRACTOR CONTROLS

NOTE: Seat is removed for illustrative purpose.

- A—Clutch Pedal
- B—Steering Wheel
- C—Light Switch
- D—Engine Speed Control Lever
- E—Ignition Key Switch
- F—Brake Pedals
- G—Foot Throttle
- H—Rockshaft Control Lever
- I—Park Brake Lever
- J—Transmission Shift Lever
- K—Mid PTO (Power-Take-Off) Lever
- L—Rear PTO (Power-Take-Off) Lever
- M—Differential Lock Pedal
- N—Range Shift Lever
- O—Rockshaft Speed-of-Drop Lock Valve
- P—Brake Latch
- Q—Optional Mechanical Front Wheel Drive Lever
- R—SCV (Selective Control Valve) Lever
- S—SCV Lever Lock
- T—Draft Control Lever (1070 only)
- U—Adjustable Depth Stop



970 Tractor

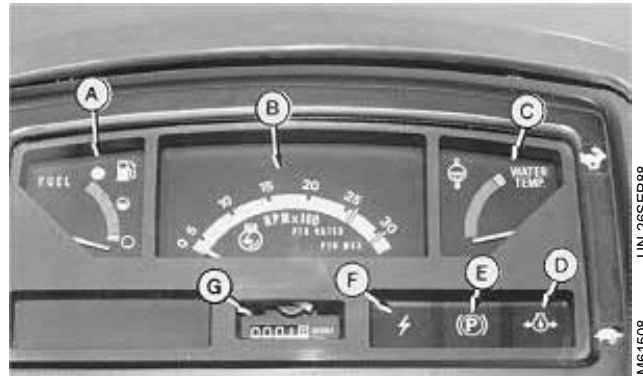


1070 Tractor

MX,CTCP,A1 -19-03JAN89

INSTRUMENTS

- A—Fuel Gauge
- B—Tachometer
- C—Coolant Temperature Gauge
- D— Engine Oil Pressure Indicator
- E—Park Brake Indicator
- F—Charging System Indicator
- G—Hour Meter



M61508 -UN-26SEP88

MX,CTBT,B -19-07SEP88



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Operating the Engine

BEFORE STARTING ENGINE

CAUTION: Before starting engine inside a building, be sure there is plenty of ventilation.

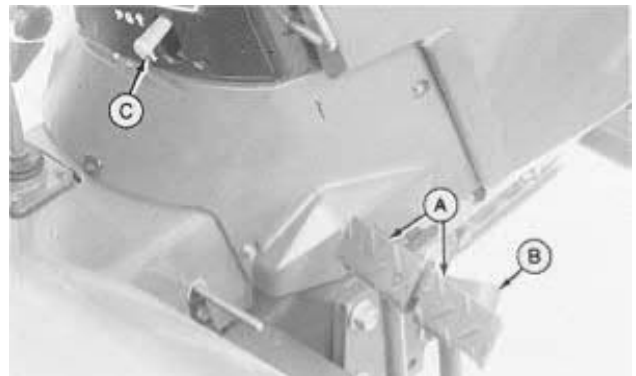
1. Open hood and check engine oil and coolant levels. See Service section.
2. Open fuel shut-off valves. Check fuel filter and fuel/water separator bowls. See Service section.
3. If temperature is below 40°F (4°C), see Cold Weather Starting in this section.

MX,OECP,A1 -19-03JAN89

STARTING ENGINE

IMPORTANT: To prevent engine damage, **DO NOT** use starting fluid to start engine.

1. Lock both brake pedals (A) together with brake pedal latch (B).
2. Lift park brake lever (C) and push brake pedals (A) down to lock park brake. Remove foot from pedals. Pedals should stay down.

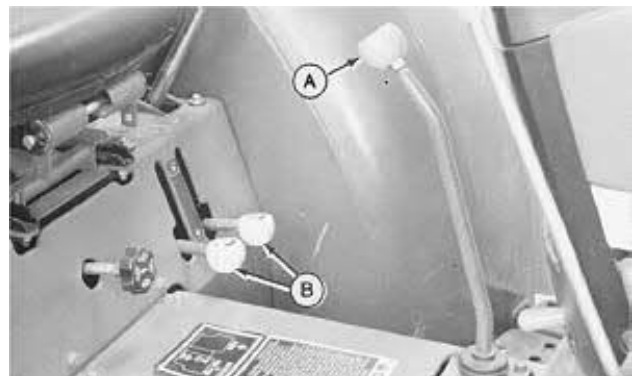


MX,OECP,A2 -19-03JAN89

M52824 -UN-12,JAN89

NOTE: Mid PTO is optional equipment.

3. Place gear shift lever (A) and PTO lever(s) (B) in neutral position. Starter will not operate if gear shift lever and PTO lever(s) are not in neutral.



MX,OECP,A3 -19-03JAN89

M52825 -UN-12,JAN89

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