

**870, 970, and 1070
Compact Utility
Tractors**
(Serial No. 100001-)

John Deere Horicon Works
OMM95327 Issue F1
(This manual replaces OMM95327 J0.)
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.

W 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.



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.

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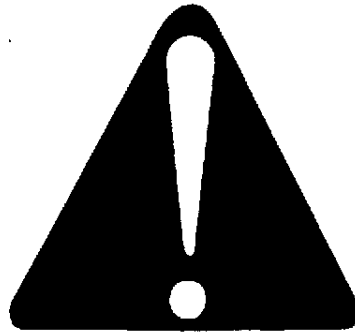
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Safety

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.



DX,ALERT -19-04JUN90

T81389 -UN-07DEC88

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.



DX,SIGNAL -19-04JUN90

TS187 -19-30SEP88

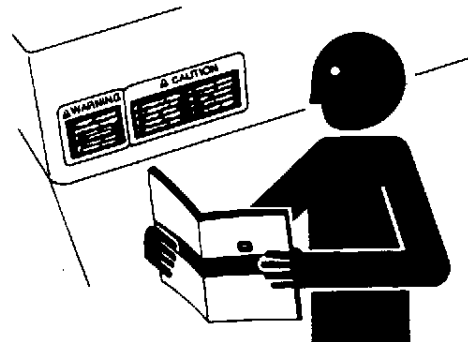
FOLLOW SAFETY INSTRUCTIONS

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. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

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

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

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



DX,READ -19-04JUN90

TS201 -UN-23AUG88

P

PROTECT CHILDREN

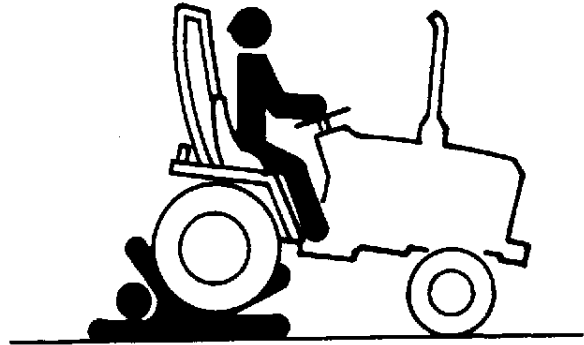
Keep children and others away when you operate machine.

BEFORE YOU BACK UP:

- STOP 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

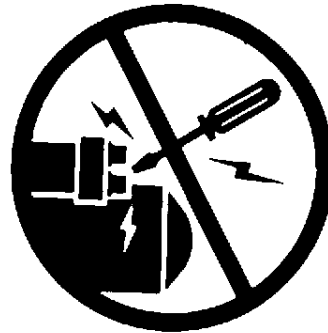
MX,SABT,B -19-07JUN91

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.



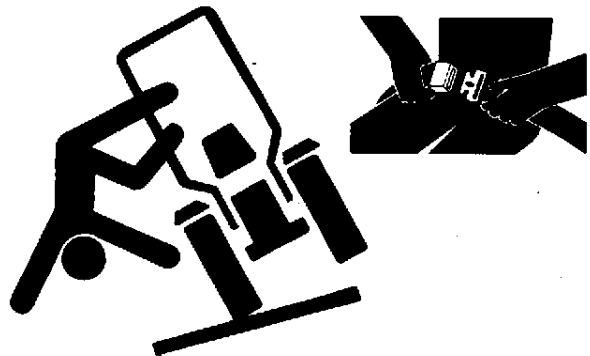
TS177 -UN-11JAN69

DX,BYPAS1 -19-04JUN90

USE SEAT BELT PROPERLY

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

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



TS205 -UN-23AUG88

DX,ROPS1 -19-24AUG90

P

AVOID TIPPING

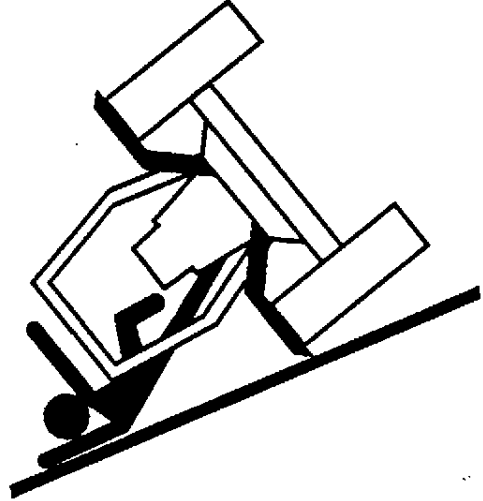
Do not drive where machine could slip or tip.

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.



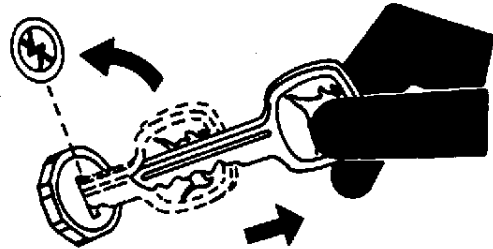
MX,SABT,C -19-07JUN91

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.



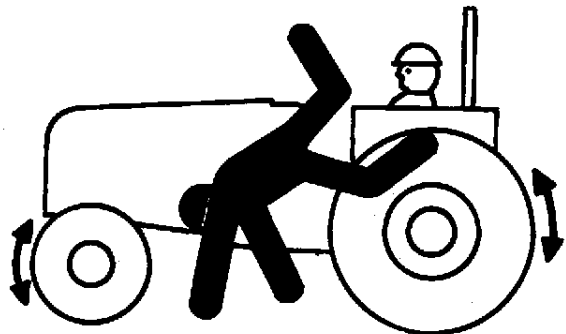
DX,PARK -19-04JUN90

TS230 -UN-24MAY89

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.



DX,RIDER -19-04JUN90

TS290 -UN-23AUG88

P

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.



DX,FIRE1 -19-04JUN90

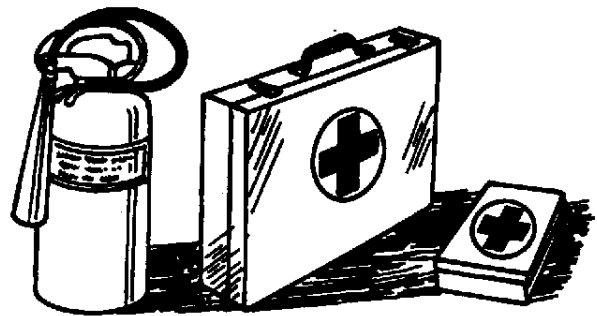
TS202
-UN-23AUG88

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.



DX,FIRE2 -19-04JUN90

TS291
-UN-23AUG88

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.



DX,FIRE3 -19-04JUN90

T6089AU
-UN-23MAR89

P

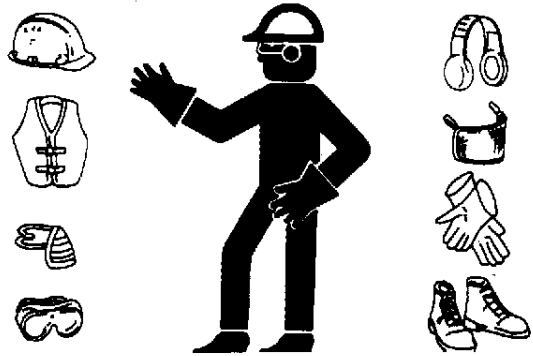
WEAR PROTECTIVE CLOTHING

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.



DX,WEAR -19-10SEP90

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.



DX,PTO -19-04JUN90

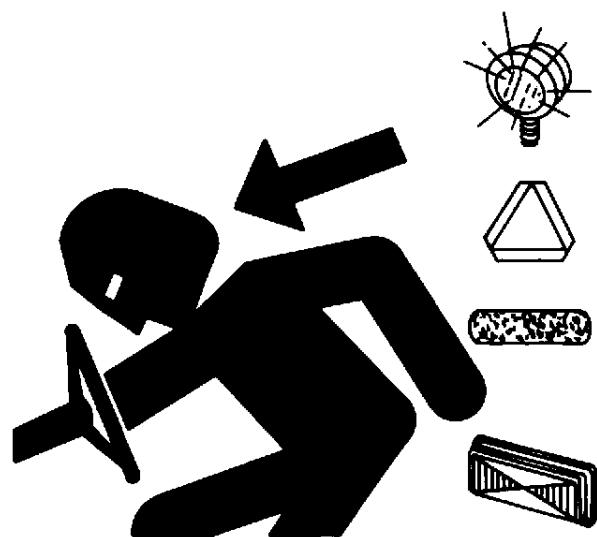
TS198 -UN-23AUG88

USE SAFETY LIGHTS AND DEVICES

Slow moving tractors, self-propelled equipment and towed implements or attachments can create a hazard when driven on public roads. They are difficult to see, especially at night. Avoid personal injury or death resulting from collision with a vehicle.

Flashing warning lights and turn signals are recommended whenever driving on public roads. To increase visibility, use the lights and devices provided with your machine. For some equipment, install extra flashing warning lights.

Keep safety items in good condition. Replace missing or damaged items. An implement safety lighting kit is available from your John Deere dealer.



DX,FLASH -19-04JUN90

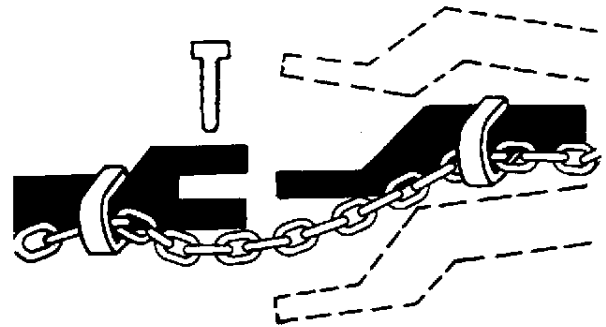
TS951 -UN-12APR90

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.



-UN-23AUG88
TS217

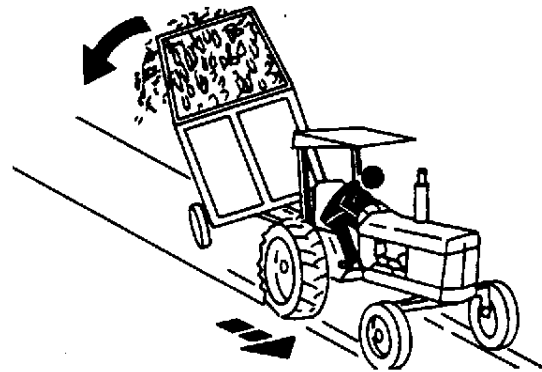
DX,CHAIN -19-04JUN90

REDUCE SPEED WHEN TOWING LOADS

Braking to stop towed loads from transport speeds can cause the towed load to swerve and upset. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes.

Follow recommended speed-weight ratio guidelines:

- Maximum speed is 20 mph (32 km/h) when towing load equal to or less in weight than the tractor.
- Reduce speed to 10 mph (16 km/h) when towing load up to double the tractor weight.
- Do not tow loads exceeding double the tractor weight.
- Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.



-UN-23AUG88
TS216

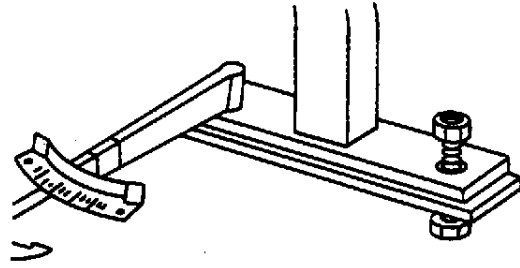
DX,TOW -19-04JUN90

P

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.



DX,ROPS3 -19-04JUN90

-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.



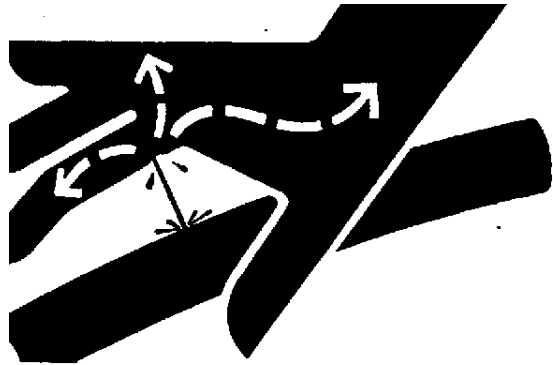
DX,SERV -19-04JUN90

-UN-23AUG88
TS218

P

N **CAUTION:** 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 may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.



X9811 -UN-23AUG88

DX,FLUID2,NA -19-12JUN90

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.

Any high pressure spray injected into the skin must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.



TS443 -UN-02MAR88

DX,SPRAY -19-04JUN90

P

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.



DX.RCAP -19-04JUN90

TS281 -UN-23AUG88

DRAIN GASOLINE WHEN STORING MACHINE

Gasoline stored in fuel tank can explode.

Never store equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.

Always drain gasoline from fuel tank and carburetor bowl when storing machine. Allow engine to cool before storing.



DX.STORE2 -19-26JAN90

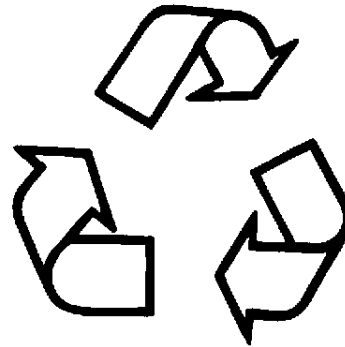
TS227 -UN-23AUG88

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.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer. Do not pour waste onto the ground, down a drain, or into any water source.



DX.DRAIN -19-15MAR91

TS1133 -UN-26NOV90




⚠ 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

⚠ DANGER



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

⚠ CAUTION

HELP AVOID INJURY

- AVOID TURNS THROUGH 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



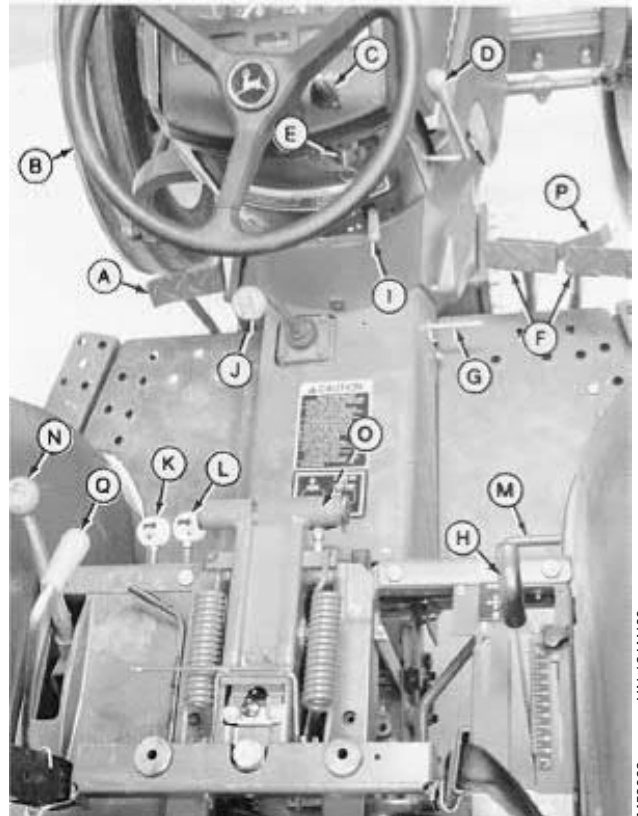
-19-02JUN91

Controls

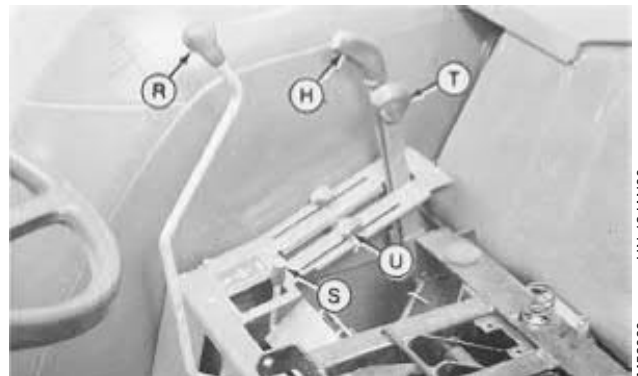
TRACTOR CONTROLS

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

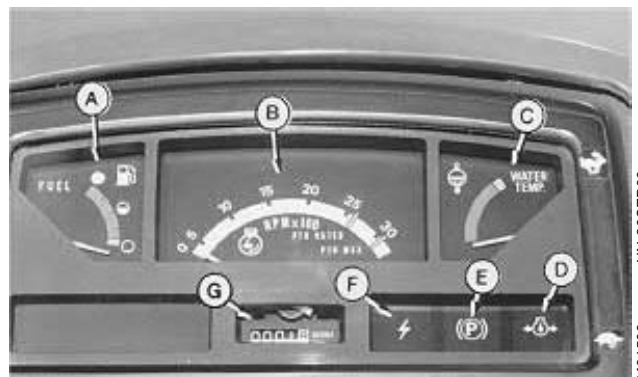


1070 Tractor

MX,CTCP,A1 -19-07JUN91

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



MX,CTBT,B -19-07JUN91

Operating Engine

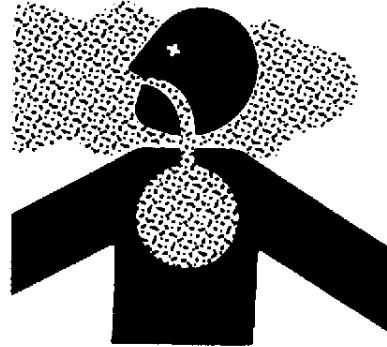
BEFORE STARTING ENGINE

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.

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 -19-07JUN91

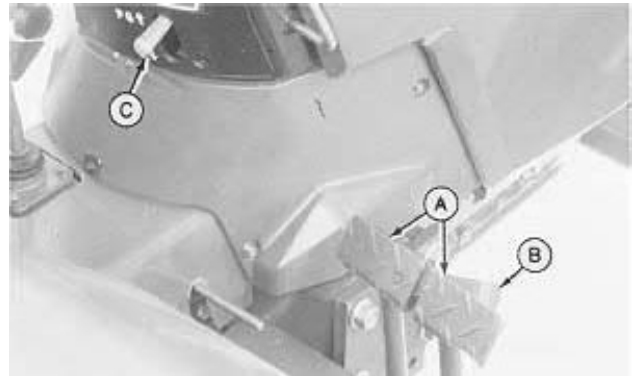
TS220 -UN-23AUG88

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 -19-07JUN91

M52824 -UN-12JAN89

Operating Engine

NOTE: Mid PTO is **OPTIONAL** equipment.

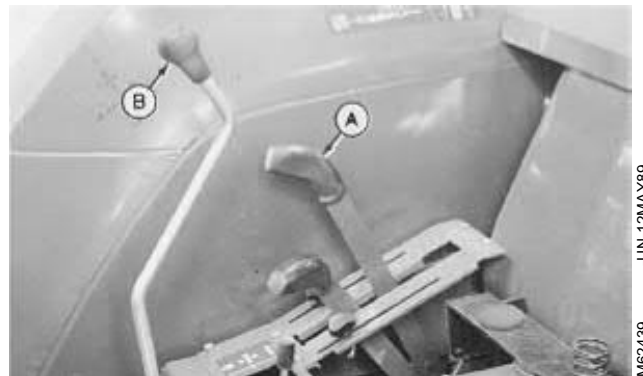
3. Place gear shift lever (A) and PTO lever(s) (B) in NEUTRAL position. Starter will not operate if gear shift lever and PTO lever(s) are not in NEUTRAL position.



MX,OECP,A3 -19-07JUN91

M52825
-UN-12JAN89

4. Lower all attaching equipment to surface with rockshaft control lever (A) and/or **OPTIONAL** SCV lever (B). (See Using Rockshaft Control Lever or Using Optional SCV Lever in Driving Machine section.)



MX,OECP,A4 -19-07JUN91

M62439
-UN-12MAY89

1070 Tractor Shown

5. Push engine speed lever (A) completely forward.

IMPORTANT: As soon as engine starts, pull speed control lever back so engine runs at 1200-1500 rpm.

- Do not run a cold engine at full throttle.



MX,OECP,A5 -19-07JUN91

M52827
-UN-12JAN89



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Operating Engine

6. Turn key switch (A) clockwise to FIRST position.

7. Check indicator lamps:

- Oil pressure indicator (B) will glow.
- Charging system indicator (C) will glow.
- Park brake indicator (D) will flash when park brake is LOCKED.

If any indicator lamps do not light, check with your John Deere dealer.

- A—Key Switch
B—Oil Pressure Indicator
C—Charging System Indicator
D—Park Brake Indicator



M61513 -UN-26SEP88



M61514 -UN-26SEP88

MX,OEBT,F -19-07JUN91

8. Push clutch pedal (A) all the way down.



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MX,OECP,A6 -19-07JUN91

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