

JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER
EQUIPMENT DIVISION

Rotary Tiller
647, 655, 665, 673, 681

OMLVU18907 J6
OPERATOR'S MANUAL



JOHN DEERE

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John Deere Worldwide Commercial and Consumer Equipment Division

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North American Version
Litho in U.S.A.

INTRODUCTION

Introduction

Using Your Operator's Manual

Read this entire operator's manual, especially the safety information, before operating.

This manual is an important part of your machine. Keep all manuals in a convenient location so they can be accessed easily.

Use the safety and operating information in the attachment operator's manual, along with the machine operator's manual, to operate and service the attachment safely and correctly.

If your attachment manual has a section called Preparing the Machine, it means that you will have to do something to your tractor or vehicle before you can install the attachment. The Assembly and Installation sections of this manual provide information to assemble and install the attachment to your tractor or vehicle. Use the Service section to make any needed adjustments and routine service to your attachment.

If you have any questions or concerns with the assembly, installation, or operation of this attachment, see your local John Deere dealer or call the John Deere Customer Contact Center at 1-800-537-8233 for assistance.

Warranty information on this John Deere attachment can be found in the warranty that came with your John Deere tractor or vehicle.

Product Identification

Product Compatibility

The rotary tiller is designed for use with a John Deere compact utility tractor.

Contact your John Deere dealer for specific tractor compatibility information.

When tiller model 647 is installed on some tractor models, the larger working width of the tractor may exceed the working width of the tiller, affecting tiller performance.

Record Identification Numbers

All Models Serial No. (010001-)

If you need to contact an Authorized Service Center for information on servicing, always provide the product model and serial number.

You will need to locate the model and serial numbers for the rotary tiller and record the information in the spaces provided below.

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:

PRODUCT SERIAL NUMBER (A):

Safety

Read the general safety operating precautions in your machine operator's manual for additional safety information.

Operating Safely

- Read the machine and attachment operator's manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the machine and disengage the controls quickly.
- Do not let children or an untrained person operate machine.
- Never operate the machine without proper guards or other safety devices in place.
- Disengage all clutches and shift into neutral before starting the engine.
- Inspect machine before you operate and at frequent intervals while operating. Be sure hardware is tight. Repair or replace damaged badly worn, or missing parts.
- Make any necessary adjustments before you operate. Never attempt to make any adjustments while the engine is running, unless if recommended in adjustment procedure.
- Take all possible precautions when leaving the machine unattended. Shut off the engine before unplugging the attachment, or when making any repairs, adjustments, or inspections. Disengage the PTO, lower the attachment, lock the parking brake, stop the engine, and remove the key.
- Only operate during daylight or with good artificial light.
- Look behind machine before you back up. Back up carefully.
- Do not let anyone, especially children, ride on machine or attachment. Riders are subject to injury such as being struck by foreign objects and being thrown off. Riders may also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.
- Do not operate machine when you are tired or ill or under the influence of drugs or alcohol.
- Never operate the machine at high transport speeds on slippery surfaces.
- Use only attachments and accessories approved by the manufacturer of this product.
- After striking a foreign object, park machine safely, thoroughly inspect the machine for any damage, and repair the damage before starting and operating the machine.
- Use extreme caution when operating on or near gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
- If the machine vibrates abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Disengage any power to the attachment when the machine is transported or not in use.
- Do not wear radio or music headphones while operating the machine. Safe operation requires your full attention.
- Always refer to the Storage section of the operator's manual for important details if storing this product for a long period of time.

Parking Safely

1. Stop machine on a level surface, not on a slope.
2. Disengage PTO and stop attachments.
3. Lower attachments to the ground.
4. Lock park brake.
5. Stop engine.
6. Remove key.
7. Wait for engine and all moving parts to stop before you leave the operator's station.

SAFETY LABELS

- 8. Close fuel shut-off valve, if your machine is equipped.
- 9. Disconnect the negative (-) battery cable before servicing the machine.

Checking Area to be Tilled

- Clear the area to be tilled of objects that you do not want tilled into the ground or that might damage the tiller.
- Keep people and pets out of the work area. Keep children indoors when operating the machine and attachment. Turn the machine off if anyone enters the area.
- Set up a safe tilling pattern. Do not till under conditions in which traction or stability is doubtful.

Practice Safe Maintenance

- Only qualified, trained adults should service this machine.
- Understand service procedure before doing work. Keep area clean and dry.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Never lubricate, service or adjust the machine or attachment while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Lower any attachment completely to the ground or to an existing attachment mechanical stop before servicing the attachment. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Disconnect battery or remove spark plug wire (for gasoline engines) before making any repairs.
- Before servicing machine or attachment, carefully release pressure from any components with stored energy, such as hydraulic components and springs.
- Release hydraulic pressure by lowering attachment or cutting units to the ground or to a mechanical stop and move hydraulic control levers.
- Securely support any machine or attachment elements that must be raised for service work. Use jack stands or lock service latches to support components when needed.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Replace all worn or damaged safety and instruction decals.
- Check all hardware at frequent intervals to be sure the equipment is in safe working condition.
- Do not modify machine or safety devices. Unauthorized modifications to the machine or attachment may impair its function and safety.

Avoid Injury from Moving Parts

Before cleaning, repairing, or inspecting, make certain all moving parts have stopped. Disconnect the tractor spark plug wire or battery to prevent accidental starting.

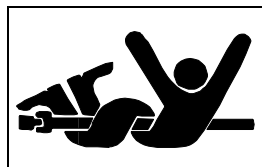
Do not put hands or feet near or under rotating parts. Keep clear of any discharge area at all times.

Protect your hands when you inspect or unplug the attachment. Wear gloves and use proper tools.

Before you dismount to unplug or adjust attachment:

- Disengage PTO.

- Stop the engine.
- Lock the park brake.
- Remove the key.
- Wait for all moving parts to stop.
- Keep hands, feet and clothing away from attachment when engine is running.



Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

- Wear close fitting clothing.
- Stop the engine and be sure PTO driveline is stopped before getting near it.



Avoid High Pressure Fluids

- Hydraulic hoses and lines can fail due to physical damage, kinks, age, and exposure. Check hoses and lines regularly. Replace damaged hoses and lines.

- Hydraulic fluid connections can loosen due to physical damage and vibration. Check connections regularly. Tighten loose connections.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.

Safety Labels



Understanding The Machine Safety Labels

The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards.

On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards.

The operator's manual also explains any potential safety hazards whenever necessary in special safety messages that are identified with the word, CAUTION, and the safety-alert symbol.

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INSTALLING

DANGER



MX15427, MX15426

- GUARD MISSING
- DO NOT OPERATE

DANGER

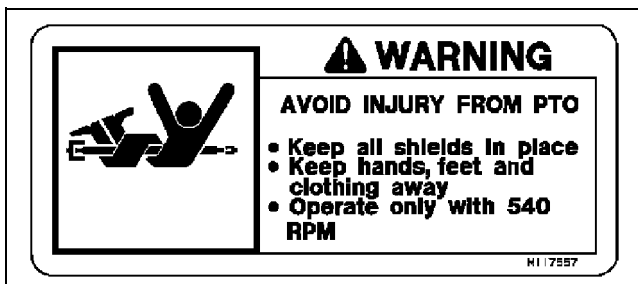


MX15427, MX15428

ROTATING DRIVELINE CONTACT CAN CAUSE DEATH. KEEP AWAY! DO NOT OPERATE WITHOUT:

- ALL DRIVELINE GUARDS, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE GUARDS THAT TURN FREELY ON DRIVELINE

WARNING



M117557

AVOID INJURY FROM PTO.

- Keep all shields in place.
- Keep hands, feet and clothing away.

- Operate only with 540 RPM.

WARNING



M117556

AVOID INJURY FROM ROTATING KNIVES

- Keep hands, feet and clothing away

CAUTION



M117555

CAUTION - AVOID INJURY

- Read operator's manual.
- Ballast power unit per operator's manual.
- Know location and function of controls.
- Keep all shields in place.
- Stay clear of power driven parts.
- Never carry riders.
- Keep children and pets a safe distance away from machine.
- Before servicing or leaving machine:
 - Stop engine.
 - Set park brake.
 - Lower or block up machine.
 - Remove key.

Installing

Preparing Machine

Required Equipment

Compact utility tractor must have a Category 1, 3-point hitch installed

INSTALLING

before installing the tiller.

Installing Ballast



CAUTION: Avoid injury! Proper ballasting is required for safe operation. Install the correct number of front weights to help maintain tractor steering control and stability.

Machines With Category 1, 3-point Hitch Only

Tiller Model	Machine Model	Required Weights**
647	2210, 2305, 2320, 2520, 4010, 4100, 4110, 4115	[5]
655	770, 790	[5]
655	970, 990	3
655	2320*, 2520*, 4100, 4110*, 4115*	[7]
655	4200-4400, 4210-4410	1
665	770*, 790*	[8]
665	970, 990	6
665	4200-4400, 4210-4410	4
665	4500-4600, 4510-4710	3
673	970*, 990*	8
673	4500-4600, 4510-4710	4
681	970*, 990*	11
681	4500-4600, 4510-4710	8

*A weight extension bracket must be used to install the required weights on this machine model or series.

**The number of 32 kg. (70 lb) front weights. Numbers in brackets [] are 20 kg. (42 lb) front weights to be used.

Machines With Optional iMatch™ Quick-Attach Hitch

Tiller Model	Machine Model	Required Weights**
647	2210*, 2305*, 2320*, 2520*, 4010*, 4100*, 4110*, 4115*	[6]
655	770*, 790*	[6]
655	970, 990	4
655	2320*, 2520*, 4100*, 4110*, 4115*	[8]
655	4200-4400, 4210-4410	2
665	770*, 790*	[9]
665	970*, 990*	7
665	4200-4400, 4210-4410	5
665	4500-4600, 4510-4710	4

Tiller Model	Machine Model	Required Weights**
673	970*, 990*	9
673	4500-4600, 4510-4710	5
681	970*, 990*	12
681	4500-4600*, 4510-4710*	9

*A weight extension bracket must be used to install the required weights on this machine model or series.

**The number of 32 kg. (70 lb) front weights. Numbers in brackets [] are 20 kg. (42 lb) front weights to be used.

All Other Machines

Contact your John Deere dealer to confirm the tiller is compatible with your tractor model.

Find the Implement Code for your tiller model in the following table, and see the Ballasting Machine instructions in your tractor operator's manual to find the number of weights required. If installing the tiller on the Autohitch, use the Autohitch Code from the following table, and see the Implement Code Using iMatch Quick-Attach Hitch table in your tractor operator's manual.

IMPORTANT: Avoid damage! If the implement code exceeds the maximum implement code for your tractor, the tractor/implement combination is not recommended. If the implement code is less than the minimum implement code for your tractor, ballast is not required.

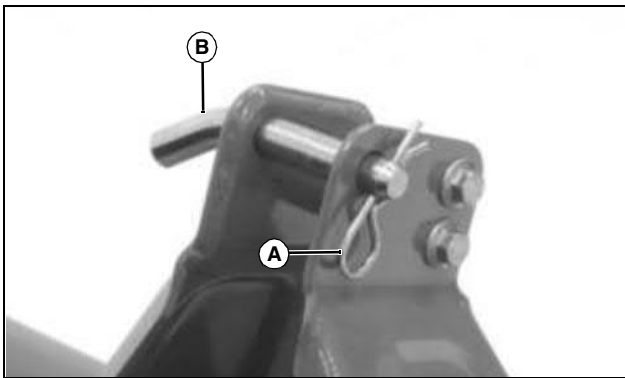
Tiller Model	Code	Autohitch Code
647	23	24
655	26	27
665	39	40
673	43	44
681	61	62

Installing Tiller

IMPORTANT: Avoid damage! Gearbox and chaincase are shipped with oil. Check oil levels before operating tiller.

1. Review instructions on using 3-point hitch, using optional iMatch™ (quick-attach) hitch, and using rear PTO included in your machine operator's manual.
2. Follow machine operator's manual instructions to position 3-point hitch center link in middle hole of mounting bracket for medium and heavy draft load.

REMOVING



MX13543

Picture Note: Some models have different style hitch pin. Bushings are also installed on hitch pins when optional quick-attach hitch is used.

3. Remove three cotter pins (A) and hitch pins (B) stored in tiller center link bracket and draft link brackets.

4. Follow machine operator's manual instructions to:

a. Adjust 3-point hitch draft links to rigid position.

b. Install optional quick-attach hitch.

c. Install tiller on quick-attach hitch or on machine 3-point hitch draft links and center link using hitch pins and cotter pins. Install iMatch bushings on hitch pins if optional quick-attach hitch is used.

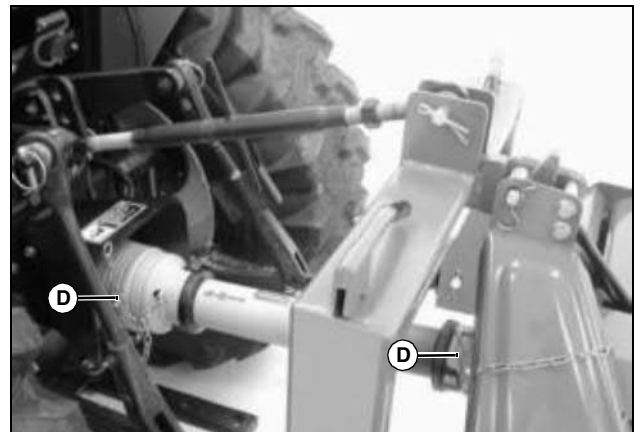


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5. Install tiller PTO driveshaft on machine:

a. Pull collar (C) back and install driveshaft on machine PTO shaft.

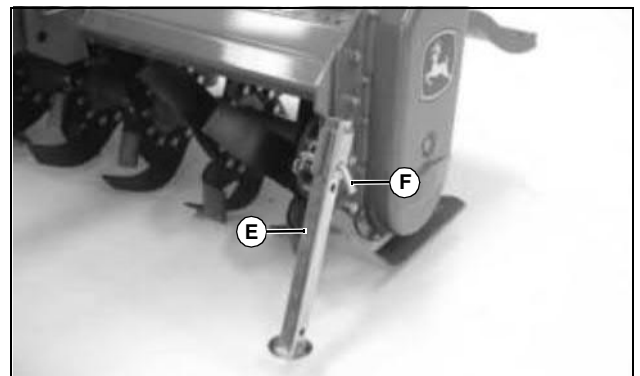
b. Push driveshaft until it snaps into locked position. Push and pull driveshaft to be sure collar is locked.



MX13556

Picture Note: Optional quick-attach hitch shown.

c. Connect driveshaft guard chains (D) to tiller mast and machine PTO guard. Allow guard to turn freely.



MX13559

6. Follow machine operator's manual instructions to use the rockshaft control lever and raise the tiller off the park stand (E).

7. Remove locking pin (F) and fully raise the front park stand.

8. Install locking pin and cotter pin as shown. Some models have a locking pin which does not use a cotter pin.

9. Raise and lock the rear park stand (not shown).

10. Follow machine operator's manual instructions to:

a. Level tiller front-to-rear and side-to-side.

b. Adjust tiller side-to-side sway to a maximum of 25 mm (1 in.) on each side.

Removing

Removing Tiller

NOTE: Before removing the tiller for long term storage, move the tiller skid shoes to lowest position to support the tiller weight. Put blocks under the skid shoes when needed to keep tiller weight off the tines.

1. Park machine safely.



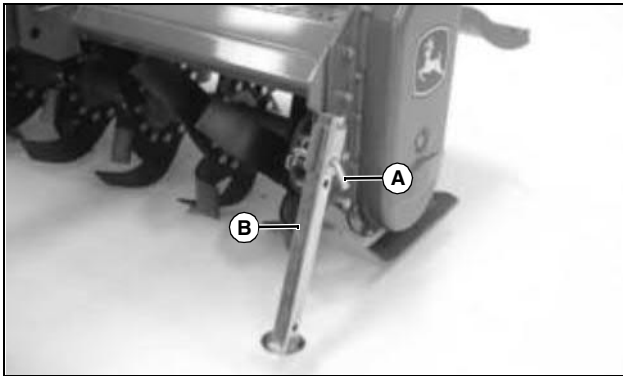
Suggest:

If the above button click is invalid.

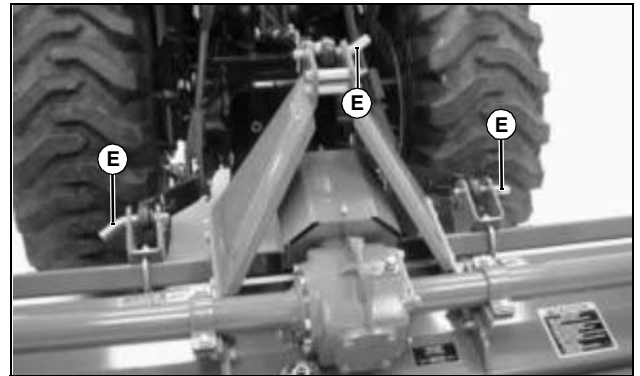
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OPERATING TILLER



MX13559



MX13560

2. Remove locking pin (A) and move the tiller front park stand (B) to lowest position.
3. Install locking pin and cotter pin as shown. Some models have a locking pin which does not use a cotter pin.
4. Move the rear park stand (not shown) and lock it in lowest position.

6. Remove three cotter pins and hitch pins (E) from tiller center link bracket and draft link brackets.
7. Install 3-point hitch center link in storage position.
8. Install hitch pins and cotter pins in tiller center link and draft link brackets for storage.



MX13556

CAUTION: Avoid injury! When the attachment is removed, also remove any ballast that was added to the machine. Use only attachments and accessories recommended by the manufacturer.

9. If machine will be driven, remove front weights installed for tiller ballast.

Operating Tiller

Daily Operating Checklist

- ☐ Clean and inspect tines.

Raising and Lowering Tiller

CAUTION: Avoid injury! When raising tiller out of ground or lowering tiller into ground, tractor may surge forward.

- Be ready to stop PTO and tractor.
- Never lower tiller into ground while tractor is turning.
- Avoid disengaging tractor transmission before raising tiller out of ground.

1. Review instructions on using 3-point hitch, using rockshaft control lever, and using rate of drop/lock valve included in your machine operator's manual.

CAUTION: Avoid injury! Excessive rate of drop speed may cause injury to bystanders or damage the tiller. Adjust for slow rate of drop speed.

2. Follow machine operator's manual instructions to raise and lower the tiller.
3. Do not engage PTO when 3-point hitch is fully raised.

Picture Note: Optional quick-attach hitch shown.

5. Remove tiller PTO driveshaft from machine:
 - a. Disconnect driveshaft guard chain (C) from machine PTO guard.



MX23828

- b. Pull collar (D) back and pull driveshaft off machine PTO shaft.

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