

JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER
EQUIPMENT DIVISION

Rotary Tiller for Compact Utility Tractors
647, 655, 665, 673, 681

OMLVU14759 A3

OPERATOR'S MANUAL



JOHN DEERE

North American Version
Litho in U.S.A.

INTRODUCTION

Thank You for Purchasing a John Deere Product

We appreciate your business and wish you many years of safe and satisfied use of your machine.

Using Your Operator's Manual

This manual is an important part of your machine and should remain with the machine when you sell it.

Reading your operator's manual will help you and others avoid personal injury or damage to the machine.

Information given in this manual will provide the operator with the safest and most effective use of the machine.

Knowing how to operate this machine safely and correctly will allow you to train others who may operate this machine.

If you have an attachment, use the safety and operating information in the attachment operator's manual along with the machine operator's manual to operate the attachment safely and correctly.

This manual and safety signs on your machine may also be available in other languages (see your authorized dealer to order).

Sections in your operator's manual are placed in a specific order to help you understand all the safety messages and learn the controls so you can operate this machine safely. You can also use this manual to answer any specific operating or servicing questions. A convenient index located at the end of this book will help you to find needed information quickly.

The machine shown in this manual may differ slightly from your machine, but will be similar enough to help you understand our instructions.

RIGHT-HAND and LEFT-HAND sides are determined by facing in the direction the machine will travel when going forward. When you see a broken line (-----), the item referred to is hidden from view.

Before delivering this machine, your dealer performed a predelivery inspection to ensure best performance.

Special Messages

Your manual contains special messages to bring attention to potential safety concerns, machine damage as well as helpful operating and servicing information. Please read all the information carefully to avoid injury and machine damage.



CAUTION: Avoid injury! This symbol and text highlight potential hazards or death to the operator or bystanders that may occur if the hazards or procedures are ignored.

IMPORTANT: Avoid damage! This text is used to tell the operator of actions or conditions that might result in damage to the machine.

NOTE: General information is given throughout the manual that may help the operator in the operation or service of the machine.

PRODUCT IDENTIFICATION

Product Compatibility

The rotary tiller is designed for use with compact utility tractors. The tiller is recommended for installation on these machine models only:

Tiller Model	Machine Model
647	2210, 4010, 4100, 4110, 4115
655	770, 790, 970, 990, 4100, 4110, 4115, 4200-4400, 4210-4410
665	770, 790, 970, 990, 4200-4400, 4210-4410, 4500-4600, 4510-4710
673	970, 990, 4500-4600, 4510-4710
681	970, 990, 4500-4600, 4510-4710

Contact your John Deere dealer before installation on any other machines.

When tiller model 647 is installed on machine models 2210, 4010, 4100, 4110 or 4115; the larger working width of the machine may exceed the working width of the tiller, affecting tiller performance.

Record Identification Numbers

Rotary Tillers

Model 647 Serial No. (100001 -)

Model 655 Serial No. (100001 -)

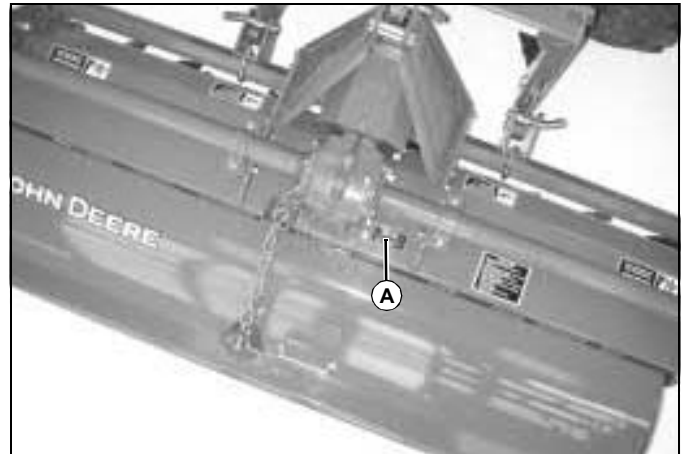
Model 665 Serial No. (100001 -)

Model 673 Serial No. (100001 -)

Model 681 Serial No. (100001 -)

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.



MX13544

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:

PRODUCT SERIAL NUMBER (A):

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Hello dear friend!

Thank you very much for reading.

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The full manual is available for immediate download.

<https://www.ebooklibonline.com>

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Consumer Equipment Division
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OMLVU14759 A3 - English

SAFETY

Understanding The Machine Safety Labels



Safety-Alert Symbol

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.

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: AVOID INJURY FROM PTO



M117557, MX13544

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

SAFETY

operating the machine.

- Avoid operating tiller near a ditch, rock pile, fence, concrete slab, or any object that could be a hazard.
- Exercise 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 the 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.
8. Close fuel shut-off valve, if your machine is equipped.

Checking Area to be Tilled

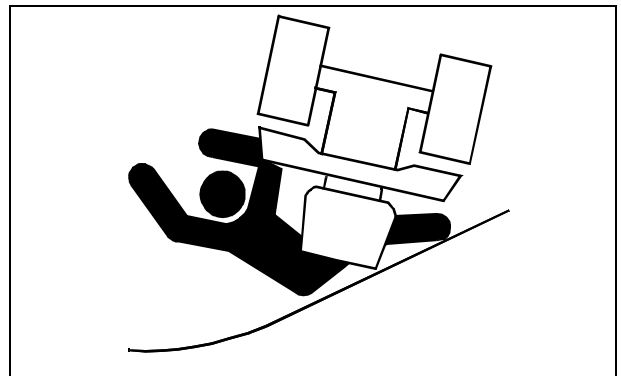
- Clear the area to be tilled of objects that you do not want tilled into the ground or that might damage the tiller.
- Keep people and pets out of the work area. Keep children indoors when operating the machine and attachment. Turn the machine off if anyone enters the area.
- Set up a safe tilling pattern.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

Protect Children

- Tragic accidents can occur if the operator is not alert to the presence of children. Keep children indoors when the machine and attachment are operated and under the watchful care of another responsible adult.

- Never assume that children will remain where you last saw them. Stay alert to the presence of children. Turn the machine off if a child enters the work area.
- Do not let children or an untrained person operate the machine.
- Do not carry or let children ride on any attachment or machine even with the attachment off. Do not tow children in a cart or trailer.

Avoid Tipping



- Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate on it.
- Drive up and down a hill - not across.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction.
- Do not turn on slopes unless necessary. Turn slowly and turn downhill. Do not shift to neutral and coast downhill.
- Do not drive the machine and the attachment up a steep slope. Back the machine up the slope and operate the tiller on the way down.
- Follow the manufacturer's recommendations for wheel weights or counterweights for added stability when operating on slopes or using front or rear mounted attachments. Remove weights when not required.

SAFETY

Keep Riders Off



MIF

- Only allow the operator on the machine. Keep riders off.
- Riders on the machine or attachment may be struck by foreign objects or thrown off the machine causing serious injury.
- Riders obstruct the operator's view resulting in the machine being operated in an unsafe manner.

Avoid Injury from Moving Parts

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

Before you dismount to unplug or adjust tiller:

- Disengage PTO to stop tiller.
- Stop the engine.
- Lock the park brake.
- Remove the key.
- Wait for tiller tines and all moving parts to stop.
- Keep hands, feet and clothing away from tiller 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.

Practice Safe Maintenance



- 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.
- Lower any attachment completely to the ground or to an existing attachment mechanical stop before servicing the attachment.
- Never lubricate, service or adjust the attachment while the machine is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- Before servicing attachment, carefully release pressure from any components with stored energy, such as hydraulic components.
- Disconnect battery or remove spark plug wire (for gasoline engines) before making any repairs.

SAFETY

- 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.
- Do not modify machine or safety devices. Unauthorized modifications to the attachment may impair its function and safety.

INSTALLING

Preparing Machine

Required Equipment

Compact utility tractor must have a Category 1, 3-point hitch and 540 rpm rear PTO (Power-Take-Off) installed 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, 4010, 4100, 4110, 4115	[5]
655	770, 790	5
655	970, 990	3
655	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*, 4010*, 4100*, 4110*, 4115*	[6]
655	770*, 790*	6
655	970, 990	4
655	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
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.

Installing Tiller

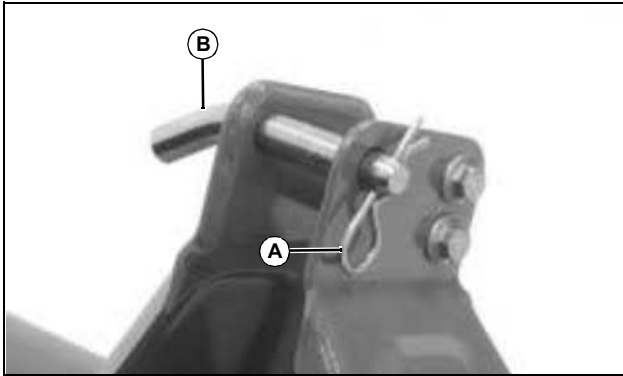
IMPORTANT: Avoid damage! Gearbox and chaincase are shipped with oil. Check oil levels before operating tiller.

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.

INSTALLING



CAUTION: Avoid injury! Tiller not installed on machine may roll backward on uneven ground or when weight balance is shifted. Keep the leveling board fully lowered to help prevent rollover.



MX13543

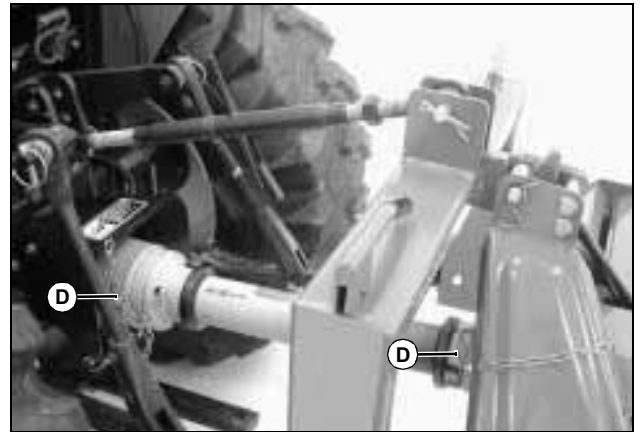
Picture Note: Some models have different style hitch pin. Bushings are also installed on hitch pins when optional quick-attach hitch is used.

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.



MX13554

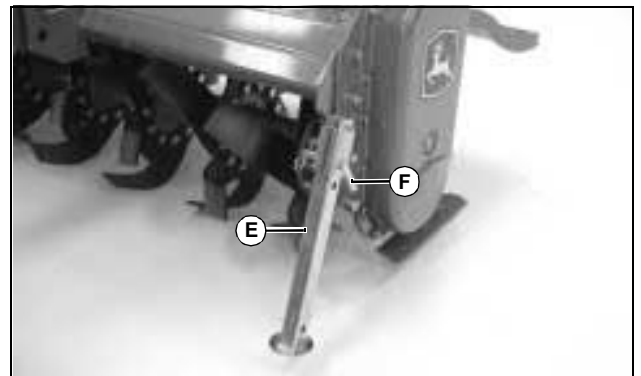
5. Install tiller PTO driveshaft on machine:
 - a. Turn collar (C) clockwise and install driveshaft on machine PTO shaft.
 - b. Push driveshaft until it snaps into locked position. Push and pull driveshaft to be sure collar is locked.



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 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. 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.

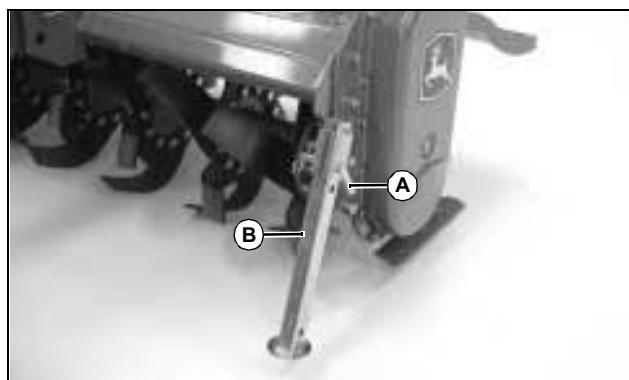
REMOVING

Removing Tiller

CAUTION: Avoid injury! Tiller not installed on machine may roll backward on uneven ground or when weight balance is shifted. Keep the leveling board fully lowered to help prevent rollover.

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.



MX13559

2. Remove locking pin (A) and move the tiller 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.



MX13556

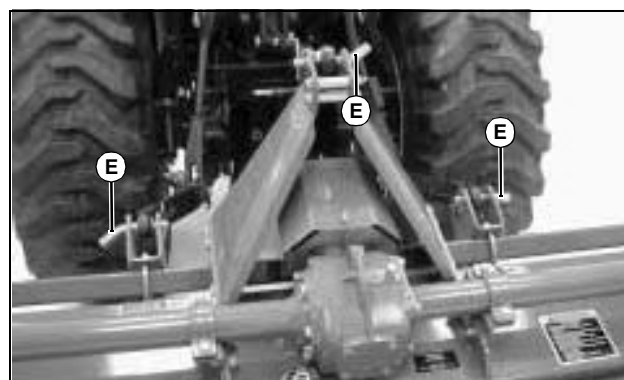
Picture Note: Optional quick-attach hitch shown.

4. Remove tiller PTO driveshaft from machine:
 - a. Disconnect driveshaft guard chains (C) from tiller mast and machine PTO guard.



MX13554

- b. Turn collar (D) clockwise and pull driveshaft off machine PTO shaft.



MX13560

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

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.

8. 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! Machine may surge forward when engaged tiller is raised from or lowered into the ground. Prepare to disengage PTO and stop machine when raising engaged tiller from 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.

Engaging and Disengaging Tiller



**CAUTION: Avoid injury! Clear bystanders from area before engaging tiller.
Do not leave engaged tiller in raised position.**

1. Review instructions on using rear PTO and using 3-point hitch included in your machine operator's manual.
2. Position machine in tilling area.
3. Adjust engine speed to 2600 rpm and rear PTO speed to 540 rpm.
4. Follow machine operator's manual instructions to engage rear PTO and to lower tiller into ground.
5. Raise engaged tiller from ground before disengaging.

Adjusting Skid Shoe Height

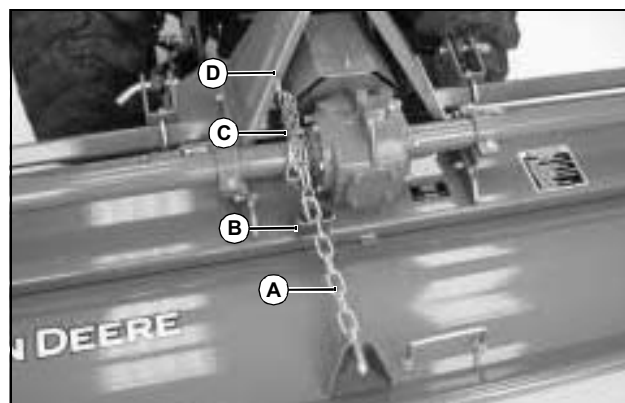
1. Park machine safely, supporting tiller in raised position with blocks or jack stands.



MX13566

2. Loosen nut (A) on pivot bolt.
3. Remove nut (B), lockwasher and bolt.
4. Adjust skid shoes on both sides to same depth:
 - Lowered skid shoe position for shallow tilling.
 - Raised skid shoe position for deep tilling.
5. Install bolts, lockwashers and nuts. Tighten all nuts.

Adjusting Leveling Board



MX13573

Picture Note: Some models have two leveling board chains.

1. Install leveling board chain (A) in bracket (B) to raise or lower leveling board to desired height:
 - Lower the leveling board and move the machine forward at slower operating speed for more fine and level tilling.
 - Raise the leveling board and move the machine forward at faster operating speed for more coarse and rough tilling.
2. Install small chain (C) in leveling board chain link and in hole (D) in mast to secure leveling board chain.



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first, and then click the above link

to download the complete manual.

Thank you so much for reading

REPLACEMENT PARTS

Service Literature

If you would like a copy of the Parts Catalog or Technical Manual for this machine call:

- **U.S. & Canada:** 1-800-522-7448.
- **All Other Regions:** Your John Deere dealer.

Parts

We recommend John Deere quality parts and lubricants, available at your John Deere dealer.

Part numbers may change, use part numbers listed below when you order. If a number changes, your dealer will have the latest number.

When you order parts, your John Deere dealer needs the serial number or product identification number (PIN) for your machine or attachment. These are the numbers that you recorded in the Product Identification section of this manual.

Order Service Parts Online

Visit <http://JDParts.deere.com> for your Internet connection to parts ordering and information.

Part Numbers

Item	Part Number
Tine, RH (Model 647)	LVU14881
Tine, RH (Model 655)	LVU14873
Tine, RH (Model 665, 673)	LVU14877
Tine, RH (Model 681)	LVU14884
Tine, LH (Model 647)	LVU14882
Tine, LH (Model 655)	LVU14875
Tine, LH (Model 665, 673)	LVU14879
Tine, LH (Model 681)	LVU14886
Gasket Kit (Model 647)	LVA12755
Gasket Kit (Model 655)	LVA12754
Gasket Kit (Model 665, 673)	LVA12753
Gasket Kit (Model 681)	LVA12752

(Part numbers are subject to change without notice. Part Numbers may be different outside the U.S.A.)

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