488
Rotary Tiller

JOHN DEERE

TECHNICAL MANUAL

488
Rotary Tiller

TM1252 (01MAY81) English

John Deere Horicon Works
TM1252 (01MAY81)

LITHO IN U.S.A.
ENGLISH

CONTENTS

0A7; M19;05 A 230461

INTRODUCTION

This technical manual contains service and maintenance information for the John Deere 448 Rotary Tiller.

Basic service information pertaining to removal, disassembly, inspection and repair is given in detail. Emphasis is placed on diagnosing malfunctions for quick reference in determining the cause of machine failure.

This safety alert symbol identifies important safety messages. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

Metric equivalents have been included where applicable throughout this technical manual.

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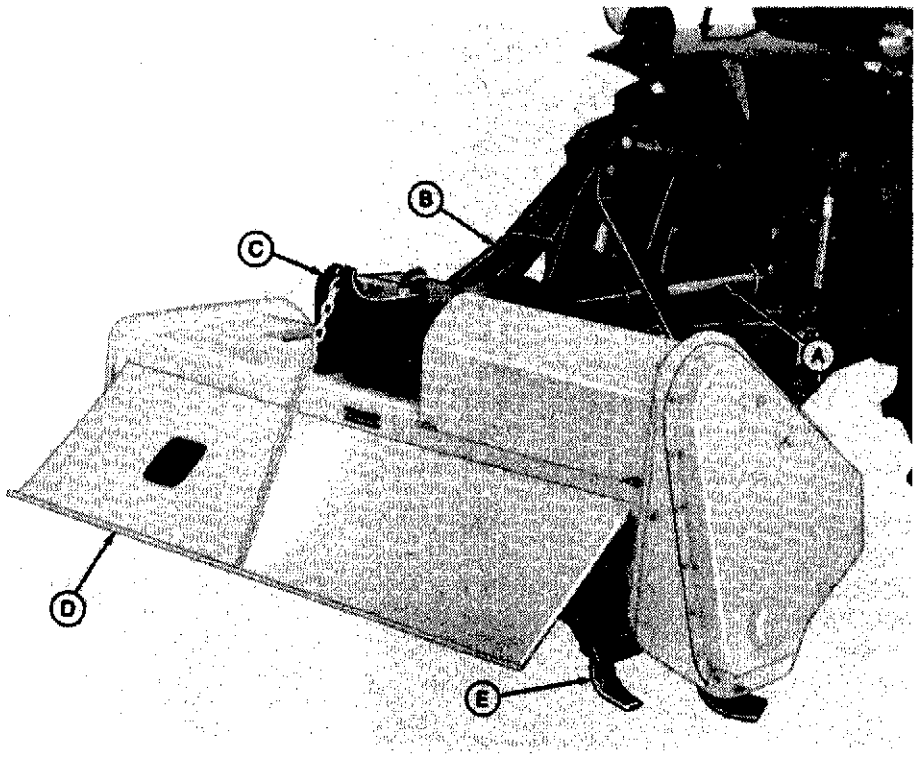
DESCRIPTION



A—Powershaft
B—Hitch Mast
C—Gear Case
D—Leveler Blade
E—Tines

The 448 Rotary Tiller is a heavy-duty integral rotary tiller for use with John Deere Model 650 and 750 Tractors. The rotary Tiller is mounted on the 3-point hitch of the tractor and driven by the rear PTO shaft.

NOTE: The 448 Rotary Tiller may be used on competitive tractors with up to 20 horsepower that are equipped with a category 1 3-point hitch and a 540 RPM PTO.

The powershaft (A) is connected to the tractor PTO shaft and rotary tiller gear case (C).

A pinion and bevel gear is connected to a drive shaft inside the gear case. The gear case drive shaft is connected to a countershaft with a shear bolt. The bolt will shear if the tiller tines strike a solid obstruction. A sprocket and chain drive connected to the countershaft rotates the tines.

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SPECIFICATIONS

Tractor Required* .... John Deere Model 650 and 750

*The Model 448 Rotary Tiller may be used on competetive tractors up to 20 horsepower equipped with a category 1 3-point hitch and a 540 RPM PTO.

Width of Cut	(122 cm) 48 Inches
Rotor Diameter	(406 mm) 16 Inches
Rotor Bearings	(31.8 mm) 1-1/4 Inches Self-Aligning Ball Bearings with Wide Inner Race and Land Riding Seals (Triple Lip)
Gear Case	Right Angle Curtis Model 412 with Forged Gears
Tines	Heat Treated High-Carbon Steel
Drive	U-Joint Shaft From Tractor PTO to Right Angle Gear Case
Shear Protection	Countershaft Shear Bolt
Rotor RPM	185
Tip Speed	(235.7 M/min.) 773 Feet Per Minute
Height of Lift	(381 mm) 15 Inches
Overall Width	(135 cm) 53 Inches
Net Weight	(113.6 kg) 250 Lbs.

(Specifications and design subject to change without notice.)

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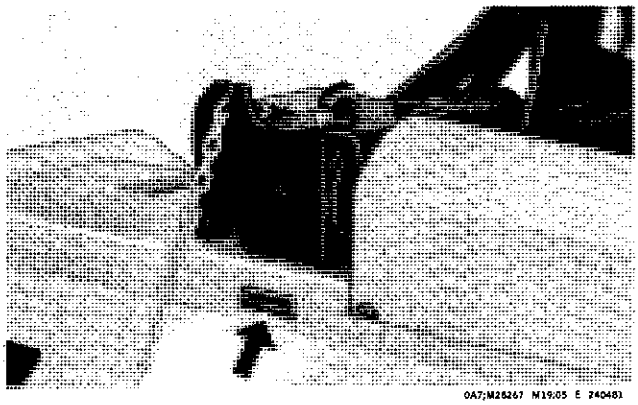
ROTARY TILLER SERIAL NUMBER

The rotary tiller serial number is located on the rear housing below the gear case.



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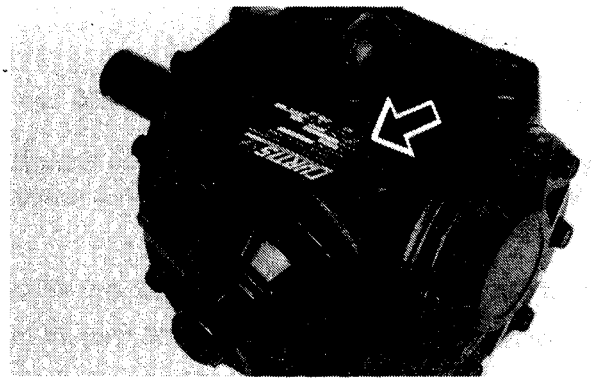
GEAR CASE SERIAL NUMBER

The gear case serial number is located on a plate attached to the gear case.



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BOLT TORQUE CHARTS

Bolt Torque Chart

AVERAGE TIGHTENING TORQUE FOR BOLTS (BASED ON 85% OF YIELD)

BOLT SIZE	A17B			A17D			A17F		
	lb-in	lb-ft	N·m	lb-in	lb-ft	N·m	lb-in	lb-ft	N·m
1/4	72	6	8	120	10	13.5	168	14	19
5/16	156	13	17.6	240	20	27	360	30	40.7
3/8	276	23	31.2	420	35	47.5	600	50	67.8
7/16	420	35	47.5	660	55	74.6	960	80	108.5
1/2	660	55	74.6	1020	85	115.2	1440	120	162.7
9/16	900	75	101.7	1560	130	176.3	2100	175	237.3
5/8	1260	105	142.4	2040	170	230.5	2880	240	325.4
3/4	2220	185	250.8	3600	300	406.7	5100	425	576.2
7/8	1920	160	216.9	5340	445	603.3	8220	685	928.7
1	3000	250	339	8040	670	908.4	12360	1030	1396.5
1-1/8	3960	330	447.4	10920	910	1233.8	17520	1460	1979.5
1-1/4	5760	480	650.8	15000	1250	1694.8	24720	2060	2793

B grade bolts larger than 3/4 are sometimes formed hot rather than cold, which accounts for the lower mean tightening torque.

Set Screw Seating Torque Chart

Screw Size	Seating Torque	
	Inch-Pounds	Newton Meters (N·m)
#5	9	1.0
#6	9	1.0
#8	20	2.3
#10	33	3.7
1/4	87	9.8
5/16	165	18.6
3/8	290	32.8
7/16	430	48.6
1/2	620	70.1
9/16	620	70.1
5/8	1225	138.4
3/4	2125	240.1

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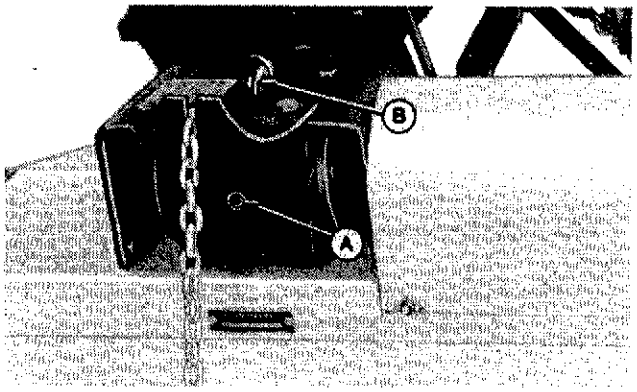
LUBRICATE GEAR CASE

Level rotary tiller gear case with surface. Remove gear case check plug (A). Lubricant should be level with check plug hole. If necessary, add lubricant specified in chart below.

IMPORTANT: Check vent (B) to be sure it is open. If vent is closed, oil will be forced out of seals causing gear case to leak.

A—Check Plug
B—Vent



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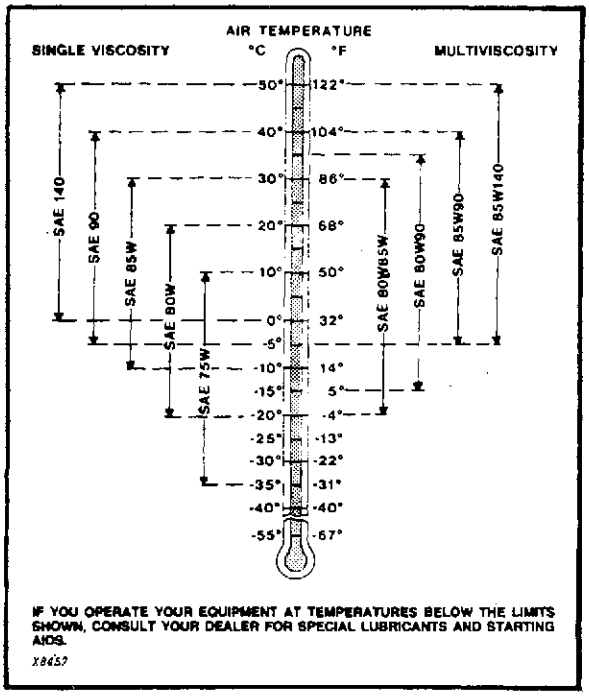
GEAR CASE OIL

John Deere API GL-5 Gear Oil is recommended. If other oils are used, they must meet performance requirements of:

- API Service Classification
  GL-5
- Military Specification
  MIL-L-2105C



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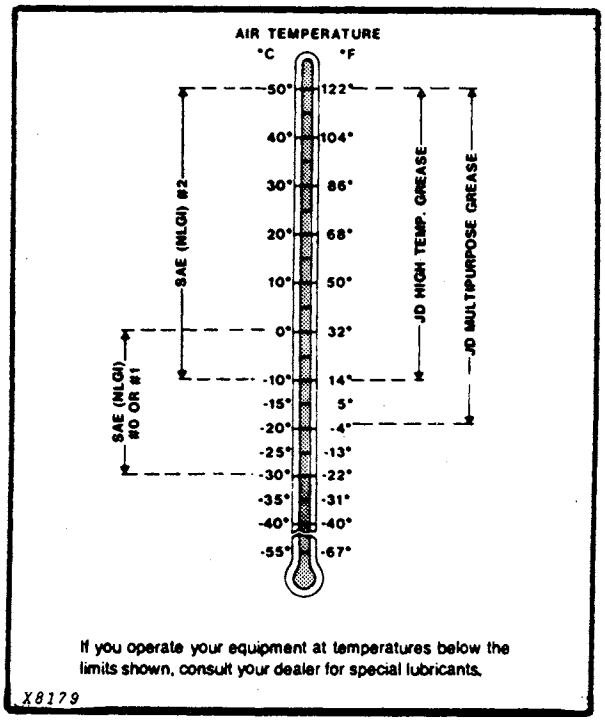
GREASE FITTINGS

John Deere Multipurpose Grease is recommended in all grease fittings at hourly intervals given. If other greases are used, they must meet these specifications:

- SAE Multipurpose Grease
- SAE Multipurpose Grease containing 3 to 5 percent molybdenum disulfide.



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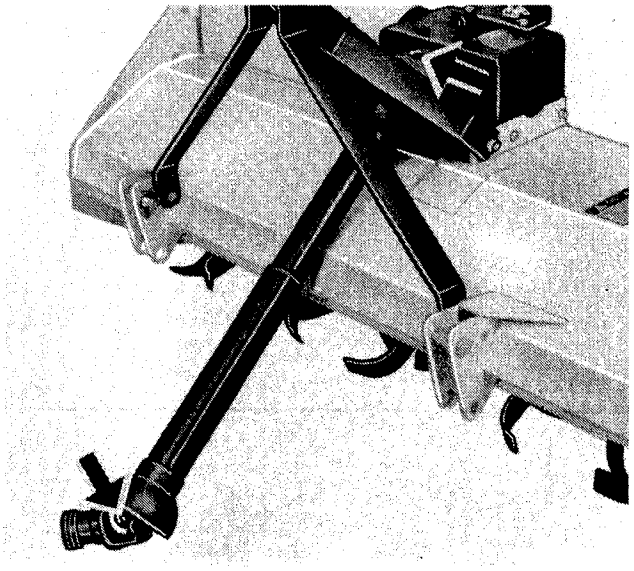
Lubricate two grease fittings on powershaft every 25 hours of operation with a hand-type grease gun.

IMPORTANT: Only one or two strokes from the grease gun are sufficient. If fittings are over-lubricated, seals will be damaged and dirt will enter bearings.



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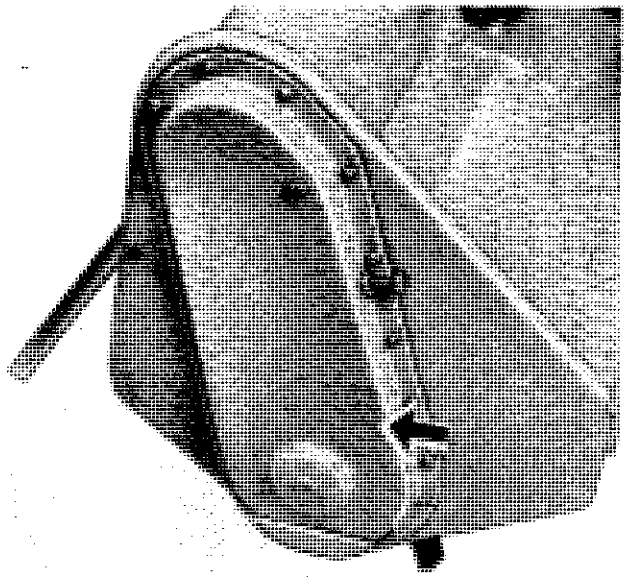
Use multipurpose grease shown in chart whenever drive chain housing is disassembled. Pack lower part of shield with approximately (0.68 kg) 1-1/2 pounds of grease.



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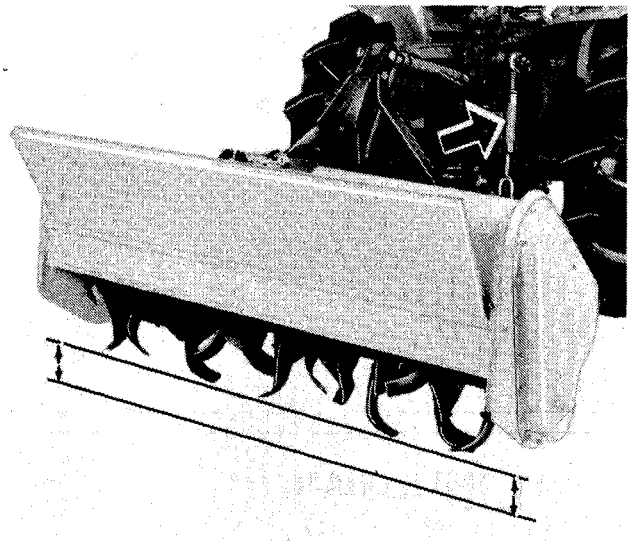
LEVEL TILLER SIDE-TO-SIDE

Start tractor engine and raise tiller to maximum height. Stop tractor engine and set parking brake.

IMPORTANT: Adjustment must be made on a level surface such as a cement shop floor.

Lengthen or shorten adjustable right-hand draft link until there is equal clearance between outside tine and surface on both sides.



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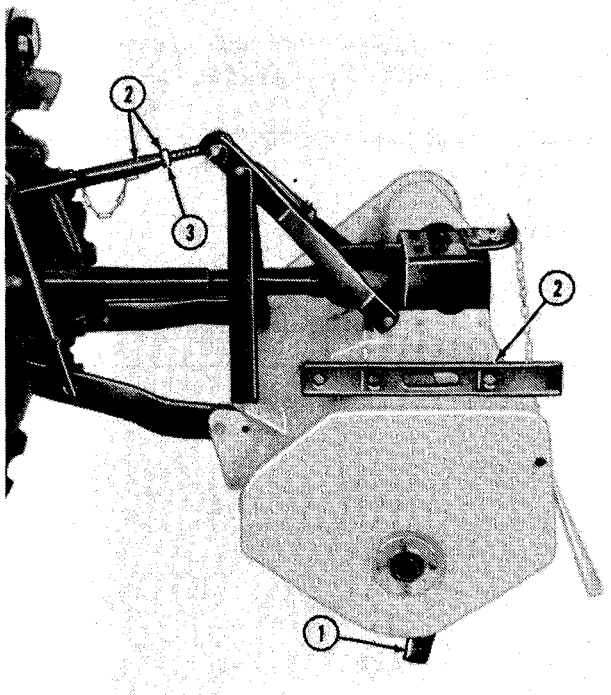
LEVEL TILLER FRONT-TO-REAR

1. Lower tiller until tines are (6.35 mm) 1/4-inch off surface.

2. Place a level across top of tiller housing. Loosen center link lock nut and adjust center link until tiller housing is level with surface.

3. Tighten lock nut on center link.



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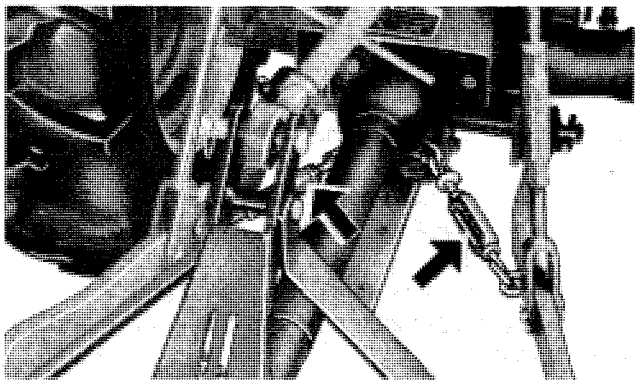
ADJUST SWAY CHAINS

Adjust turnbuckles on sway chains to eliminate slack.



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ADJUST DRIVE CHAIN

1. Start tractor engine and raise tiller. Stop engine and set parking brake.

CAUTION: Remove tractor ignition key. Place wood blocks or stands under tiller housing to keep it in the raised position.

2. Loosen jam nut.

3. Turn screw in until a slight drag is felt.

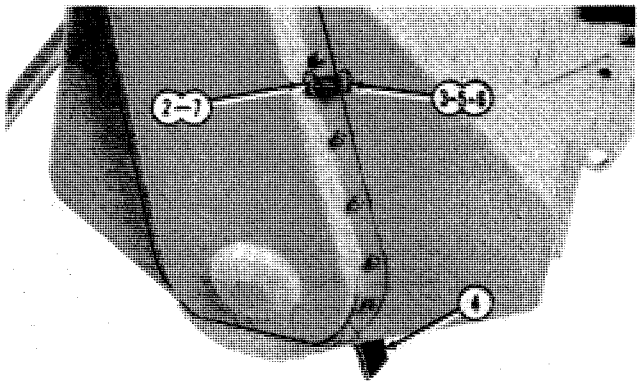
4. Move tiller tines back and forth until chain slack (backlash) is felt.

5. Continue turning screw while moving tiller tines until no backlash can be felt and a slight drag exists on chain.

6. Back screw out approximately 1/2 turn or until tiller tines turn freely.

7. Tighten jam nut.

IMPORTANT: Do not overtighten chain tensioner or chain and tightener will wear excessively.



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