



OWNER'S MANUAL
Model Number

700312-1



BERCO
Rotary Tiller
Universal mount for
YARD & GARDEN
Tractors

- * ASSEMBLY
- * OPERATION

- * REPAIR PARTS
- * MAINTENANCE

CAUTION:

**READ & FOLLOW ALL SAFETY RULES & INSTRUCTIONS
BEFORE OPERATING YOUR EQUIPMENT**

LIMITED WARRANTY

Conditions and Products Covered:

BERCOMAC guarantees any part of the product or accessory manufactured by BERCOMAC and found in the reasonable judgment of BERCOMAC to be defective in material and or workmanship will be repaired or replaced by an authorized dealer without charge up to our maximum labor rates and pre-established times. For replacement parts only standard ground freight services are covered. This warranty extends to the original retail purchaser only and is not transferable to any subsequent purchasers.

Warranty Period

(from date of the original retail purchase):

- Residential use: 1 year
- Commercial or rental use: 90 days

Exceptions Noted Below: the following items are guaranteed by the original manufacturer and have their own warranty, conditions and limited time:

- Tire Chains: 90 days
- Engines (supplied with BERCOMAC equipment): 2 years

Please refer to the engine manufacturer's warranty statement included with the unit. BERCOMAC is not authorized to handle warranty adjustments on engines.

Items and Conditions NOT Covered:

This warranty does not cover the following:

- Pick-up or delivery charges or in-home services fees.
- Any damage or deterioration of the unit, parts and or finish of these due to normal use, wear and tear, or exposure.
- Cost of regular use or maintenance service or parts, such as gas, oil, lubricants, tune-up parts, and adjustments.
- Any part or accessory which has been altered, modified, misused, neglected, accidentally damaged or not properly installed, maintained, stored or repaired not in accordance with the instructions in the owner's manual.
- Repair due to normal wear and or any wear items such as shear pins, bolts, belts, etc.
- Expedited freight fee services for replacement parts.
- Shear bolts and shear pins are to be considered as a preventive measure not as an assured protection, any damages resulting from the lack of shear bolts breakage are not covered.

NOTE: All warranty work must be performed by an authorized dealer using original (manufacturer) replacement parts.

Note: Bercomac reserves the right to change or improve the design of any part or accessory without assuming any obligation to modify any product previously manufactured.

Instructions for Obtaining Warranty Services:

Contact dealer where equipment was purchased or any other BERCOMAC Service Dealer to arrange service at their dealership. To locate a dealer convenient to you, access our website at www.bercomac.com. Bring the product and your proof of purchase (sales receipt) to the BERCOMAC dealer.

Owner's Responsibilities:

BERCOMAC's defective equipment or part must be returned to an authorized dealer within the warranty period for repairs. In the event that defective merchandise must be returned to manufacturer for repairs, freight fees are prepaid and a written authorization from BERCOMAC must be obtained by dealer prior to the shipment. This warranty extends only to equipment operated under normal conditions. To validate a warranty claim, it is the user's responsibility to maintain and service the unit as specified in the owner's manual at their expense.

General Conditions:

The sole liability of BERCOMAC with respect to this warranty shall be strictly and exclusively repair and replacement as mentioned herein. BERCOMAC shall not have any liability for any other costs, loss or damage, including but not limited to, any incidental or consequential loss or damage.

In particular, without being limited to, BERCOMAC shall have no liability or responsibility for:

- Travel time, overtime, after hours time or other extraordinary repair charges or relating to repairs and or replacements outside of normal business hours.
- Rental of like or similar replacement equipment during the period of any, repair or replacement work.
- Any communicating or travel charges.
- Loss or damage to person or property other than that covered by the terms of this warranty.
- Any claims for lost revenue, lost profit or any similar costs as a result of damage or repair.
- Attorney's fees.

BERCOMAC's responsibility in respect to claims is limited to making the required repairs or replacement without charge up to our maximum labor rates and pre-established times and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any product or accessory.

This warranty gives you specific legal rights. You may also have other rights, which vary from state to state.

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INTRODUCTION

TO THE PURCHASER

This new attachment was carefully designed to give years of dependable service. This manual has been provided to assist in the safe operation and servicing of your attachment.

NOTE: All photographs and illustrations in the manual may not necessarily depict the actual models or attachment, but are intended for reference only and are based on the latest product information available at the time of publication.

Familiarize yourself fully with the safety recommendations and operating procedures before putting the machine to use. Carefully read, understand and follow these recommendations and insist that they be followed by those who will use this attachment.

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THIS SAFETY ALERT SYMBOL IDENTIFIES AN IMPORTANT SAFETY MESSAGE IN THIS MANUAL THAT HELPS YOU AND OTHERS AVOID PERSONAL INJURY OR EVEN DEATH. DANGER, WARNING, AND CAUTION ARE SIGNAL WORDS USED TO IDENTIFY THE LEVEL OF HAZARD. HOWEVER, REGARDLESS OF THE HAZARD, BE EXTREMELY CAREFUL.

DANGER: Signals an extreme hazard that will cause serious injury or death if recommended precautions are not followed.

WARNING: Signals a hazard that may cause serious injury or death if the recommended precautions are not followed.

CAUTION: Signals a hazard that may cause minor or moderate injury if the recommended precautions are not followed.

Record your attachment serial number and purchase date in the section reserved below. Your dealer requires this information to give you prompt, efficient service when ordering replacement parts. Use only genuine parts when replacements are required.

If warranty repairs are required please present this registration booklet and original sales invoice to your selling dealer for warranty service.

This manual should be kept for future reference.

Please check if you have received all the parts for your kit with the list of the bag and the list of the box.

SERIAL NUMBER : _____

PURCHASE DATE : _____

In this manual, right and left sides are determined by sitting on the tractor seat facing forward.

In this manual, "attachment" means accessories that you install on the tractor, such as, snowblower, rotary broom, blade, rotary tiller, cab, subframe, etc...

SAFETY PRECAUTIONS

Careful operation is your best insurance against an accident. Read this section carefully before operating the tractor and rotary tiller. All operators, no matter how experienced they may be, should read this and other manuals related to the tractor and rotary tiller before operating. It is the owner's legal obligation to instruct all operators in safe operation of rotary tiller.

TRAINING

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This symbol, "Safety Alert Symbol", is used throughout this manual and on the rotary tiller safety labels to warn of the possibility of personal injury. Please take special care in reading and understanding the safety precautions before operating the rotary tiller or the tractor.

1. Read this owner's manual carefully. Be thoroughly familiar with the controls and proper use of the rotary tiller. Know how to stop the unit and disengage the controls quickly.
2. Never allow children to operate rotary tiller. Never allow adults to operate rotary tiller without proper instructions.
3. No one should operate the unit while intoxicated or while taking medication that impairs the senses or reactions.
4. Keep the area of operation clear of all persons, particularly small children and pets.

PREPARATION

1. Thoroughly inspect the area where the rotary tiller is to be used and remove rocks, wood, all foreign objects and the like.
2. Disengage all clutches and shift into neutral before starting engine.
3. Do not operate the rotary tiller without wearing adequate garments such as close fitting clothing and adequate footwear that will improve footing and protect your toes.
4. Handle fuel with care, it is highly flammable.
 - a) Use approved fuel container.
 - b) Never add fuel to a running engine or hot engine.
 - c) Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
 - d) Replace fuel cap securely and wipe up spilled fuel.

5. Never attempt to make any adjustments while the engine (motor) is running (except when specifically recommended by manufacturer).
6. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eyes from foreign objects that may be thrown from the machine.
7. Do not wear audio headphones while operating the tiller.
8. Wear appropriate protective device such as earplugs or earmuffs to protect ears from loud noises which can cause hearing impairment or even loss of hearing.

OPERATION

1. Do not put hands or feet near or under rotating parts.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
3. After striking a foreign object stop the machine and inspect for damage. Repair any damage before restarting and operating.
4. If the unit should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning of trouble.
5. Stop the engine (motor) whenever you leave the operating position.
6. Take all possible precautions when leaving the machine unattended. Disengage the power take-off, lower the attachment, set the parking brake, stop the engine and remove the key. Wait for all moving parts to stop before leaving the driver's seat.

SAFETY PRECAUTIONS

7. Before cleaning, unclogging, repairing or inspecting, make certain all moving parts have stopped. Disconnect wire from the spark plug(s) and keep wire away to prevent accidental starting.
8. Do not run the engine indoors, except when starting the engine and for transporting the rotary tiller in or out of the building. Do not operate or let motor run in a storage area without ventilation because gas contains carbon monoxide which is odourless, colorless and can cause death.
9. Do not till across the face of slopes. Exercise extreme caution when changing direction and slow down on slopes. Do not attempt to till steep slopes, (more than 10%), near the edge of a ditch or a bank since the tiller can push the tractor.
10. Never operate the rotary tiller without proper guards, plates, or other safety protective devices in place. Never operate the rotary tiller with the deflector in the raised position. Never remove the deflector from the back of the tiller.
11. Never operate the rotary tiller near glass enclosures, automobiles, window wells, drop-offs. Keep children and pets away.
12. Never operate the rotary tiller at high transport speed. Use special care when backing up.
13. Disengage power to the rotary tiller when it is transported or not in use.
14. Use only accessories approved by the manufacturer of the tractor (such as wheel chains, front counterweights, cabs and the like).
15. Never operate the rotary tiller without good visibility or light.

MAINTENANCE AND STORAGE

1. Never store the machine with fuel in the fuel tank inside a building where ignition sources are present such as hot water and space heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.
2. Always refer to the owner's manual when you store the rotary tiller.
3. Maintain or replace safety and instruction labels, as necessary.

WHENEVER YOU SEE THIS SYMBOL

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IT MEANS:

WARNING!

BECOME ALERT !

YOUR SAFETY IS INVOLVED!

SAFETY DECALS

REPLACE IF DECALS ARE DAMAGED
SEE PARTS BREAKDOWN FOR DECAL LOCATION



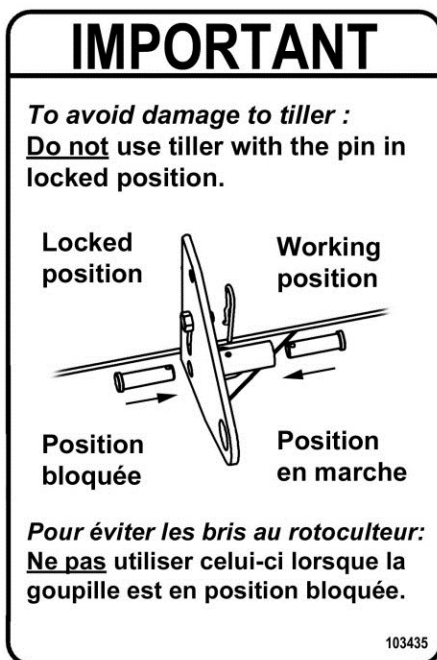
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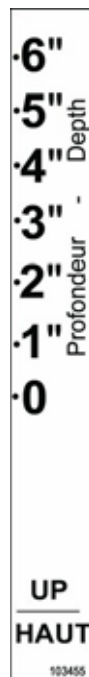
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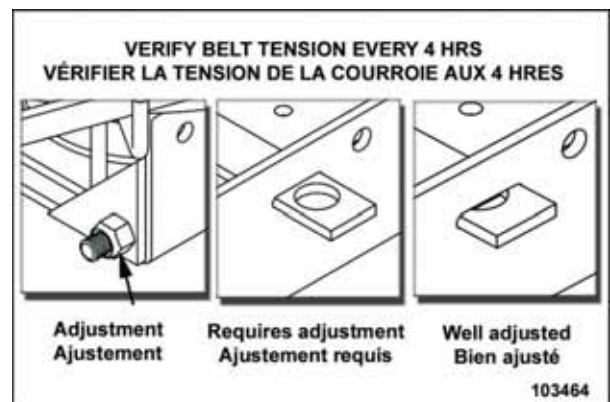
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Decal #103435



Decal #103455



Decal #103464

ASSEMBLY

STEP 1

TRACTOR PREPARATION:

9 WARNING 9

TO PREVENT INJURIES:

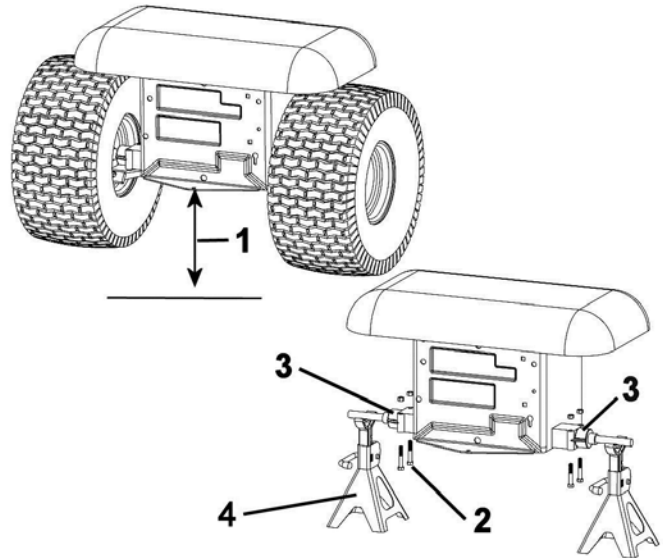
Stop the motor.
Apply parking brake.
Remove the ignition key.
Disconnect the wire from the spark plug(s) and keep away from spark plug(s) to prevent accidental starting.

Remove the mower deck. See the tractor owner's manual for dismounting instructions.

Measure the height (item 1) between the tractor's rear tow hitch and the ground. **This measurement is needed for Step 2.**

Block the front wheels of the tractor. Using a jack, lift the rear end of the tractor and remove the wheels. Block in place with an axle stand (item 4) under each side. Determine which bolt holes measure 16 1/4" center to center (item 3) in order to bolt the mounting brackets. If bolts (item 2) are already installed, remove them.

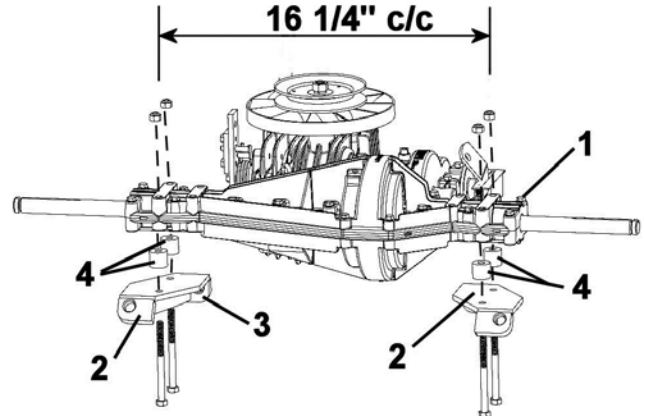
THIS ATTACHMENT IS A UNIVERSAL MOUNT. THE MANUFACTURER DOES NOT GUARANTEE THAT IT CAN BE SUCCESSFULLY INSTALLED ON EVERY BRAND/MODEL OF TRACTOR. A BELT SIZE OTHER THAN THE BELTS SUPPLIED MAY BE NECESSARY.



Remove wheels and bolts

Tractors with parallel transaxle:

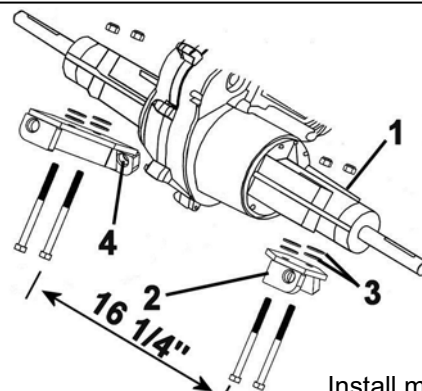
Install the mounting brackets (item 2), the 90° end towards the front with the hole (item 3) towards the center as shown. Shim with flat washers or sleeves (item 4) as needed between the mounting bracket and the transaxle so that the mounting bracket is parallel with the transaxle. Secure with the appropriate length bolts and nuts as shown. Do not tighten.



Install mounting brackets

Tractors with angled transaxle:

Install the mounting brackets (item 2), the angled end towards the front with the hole (item 4) towards the center. If needed, shim with flat washers (item 3) between the mounting bracket and the transaxle so that the mounting bracket is parallel with the transaxle. Secure with the appropriate length bolts and nuts as shown. Do not tighten.



Install mounting brackets

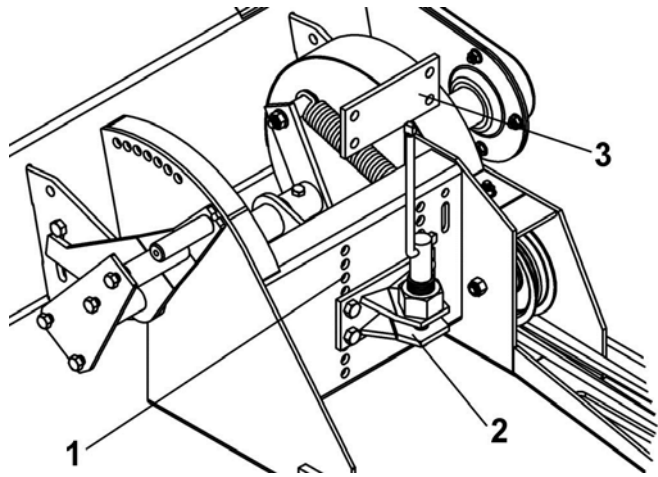
ASSEMBLY

STEP 2

ROTARY TILLER PREPARATION

Determine the set of holes (item 1) to use to attach the tiller's hitch (item 2) by using the following chart:

*Measurement from the ground to the tow hitch	Set of holes from the top
7.00" to 7.63"	8 th
7.63" to 8.25"	7 th
8.25" to 8.87"	6 th
8.87" to 9.5"	5 th
9.5" to 10.12"	4 th
10.12" to 10.75"	3 rd
10.75" to 11.37"	2 nd
11.37" to 12.00"	1 st



*These measurements are given as a reference only.

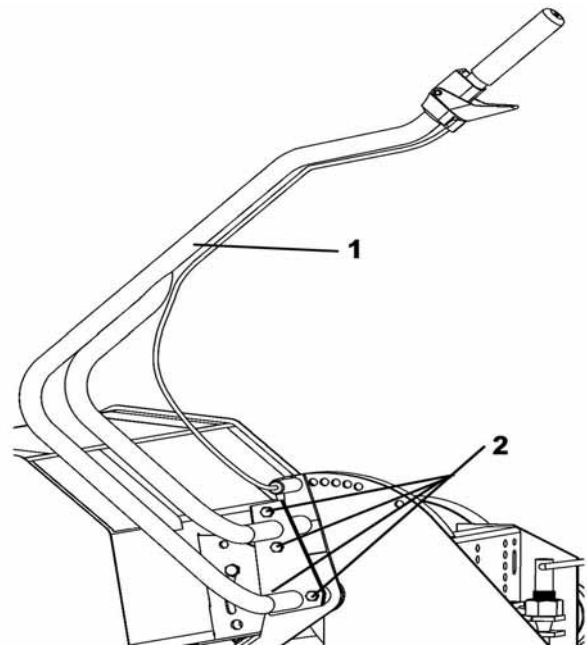
After installing the rotary tiller, the frame should be 4.5" to 5.5" off the ground.

Attach the tiller's hitch

Note: If the tiller's frame touches the back of the tractor, you may add one to four shims (item 3) between the tiller's back wall and the tiller hitch (item 2). If using more than two shims, use the 3/8 x 2" hex bolts.

Verification: Make sure the tiller's frame will pass under the transaxle when dismantling the tiller.

Install the lift arm (item 1) with four 5/16 x 3/4" bolts (item 2) and flange nuts.



Install the lift arm

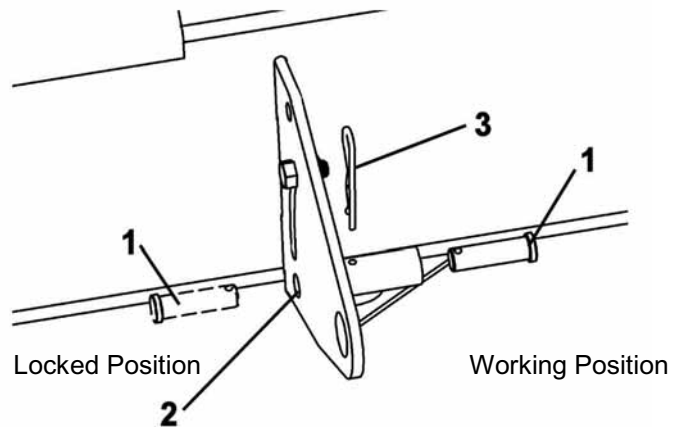
ASSEMBLY

For Installation Purposes Only:

Remove the pin (item 1) from the working position and insert it in the locked position (item 2). Secure in place with a hair pin (item 3).

IMPORTANT:

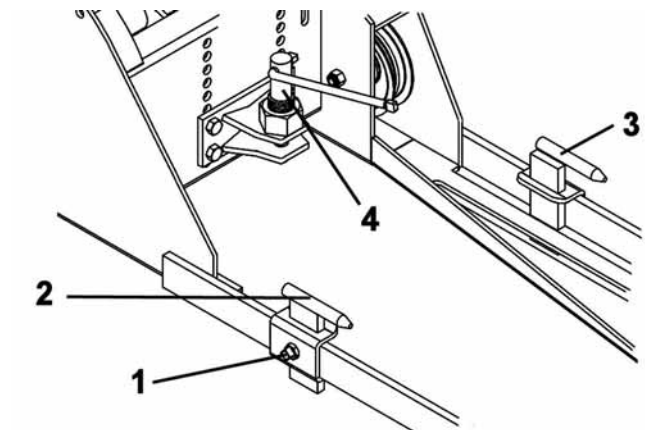
To avoid damage to the tiller, never use tiller with pin in locked position.



Move the pin to locked position

Loosen the square head set screw (item 1) that holds the mounting pin (right and left) (items 2 & 3). Slide the mounting pins towards the back of the frame.

Unscrew and remove the hitch pin (item 4).



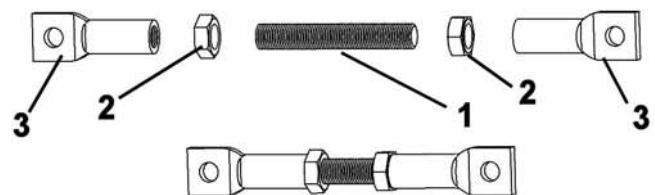
Prepare the pins

Prepare the adjusting link as shown.

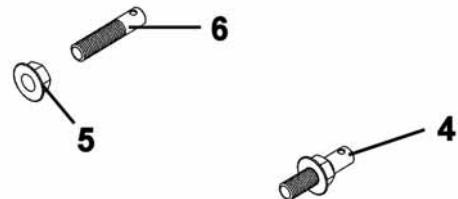
Apply grease on the adjusting rod (item 1).

Insert the two nuts (item 2) on the adjusting rod and screw to the middle.

Install the two links (item 3) on each end of the adjusting rod.



Insert a flange nut (item 5) (head first) on the bolt (item 6) and screw down to the end of the threads as shown (item 4).



Prepare the adjusting link

ASSEMBLY

STEP 3

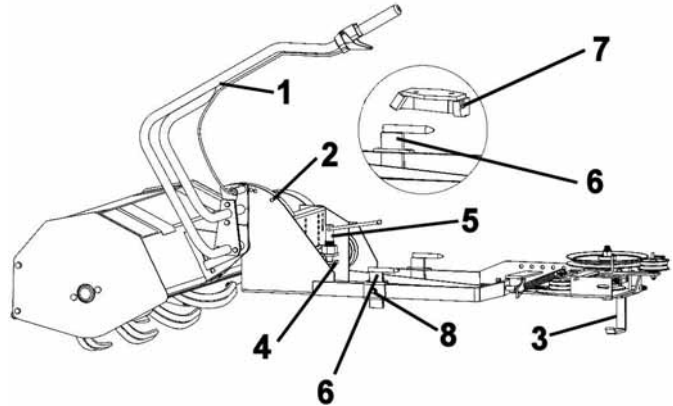
ROTARY TILLER INSTALLATION: (Primary installation)

Lower the lift arm to place the rotary tiller's frame flat on the ground. Slide the rotary tiller under the tractor.

Lower the lift arm (item 1) until it locks in the "UP" position (item 2) to lift the front portion then lower the support (item 3) onto the ground.

Raise the lift arm until the rotary tiller's hitch (item 4) is even with the tractor's tow hitch. Slide the rotary tiller hitch onto the tractor's tow hitch (the holes must be aligned). Secure by screwing the hitch pin (item 5) firmly.

Line up the rotary tiller's frame with the tractor's frame. Lift and slide the mounting pins (item 6) into the mounting bracket's holes (item 7) (both sides previously installed on transaxle). Lightly tighten the square head screws on the mounting brackets (item 8).



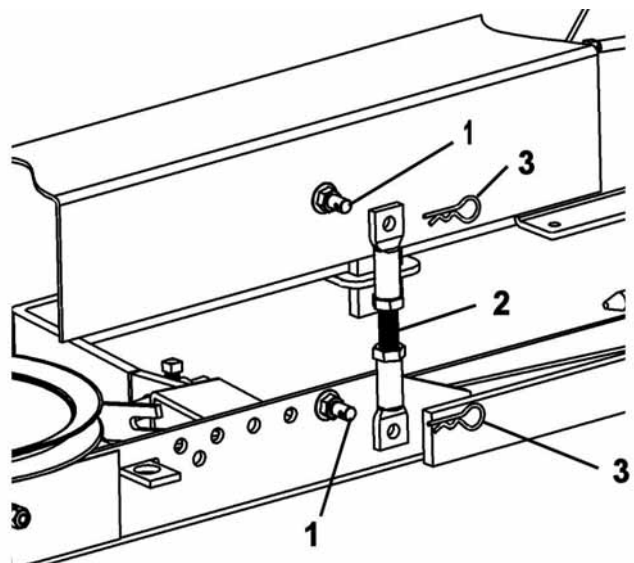
Install the tiller to tractor

To install the adjustable link, locate or if needed drill a hole in the tractor's frame directly above the hole on the tiller's frame as shown.

Note: Check the primary belt alignment before drilling the hole.

Install the special bolt (item 1) from the outside of the frame and secure in place with a flange nut (on the inside of the tractor frame). Tighten firmly. Do the same on the rotary tiller's frame.

Attach the link (item 2) on the bolts (item 1) installed. Secure with two 2.5 mm. hair pins (item 3).



Install the adjustable link

ASSEMBLY

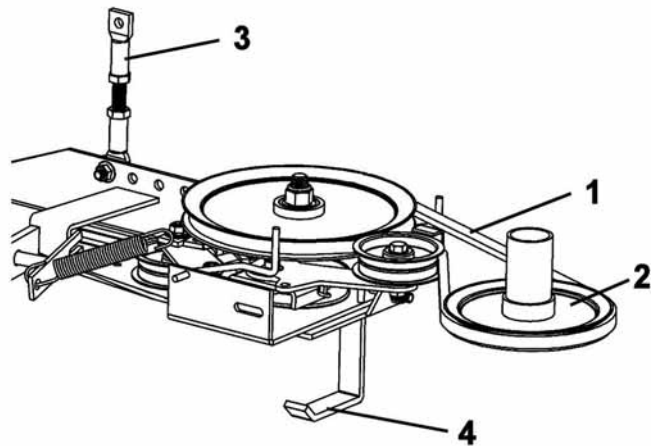
Install the primary belt (item 1) on the engine pulley (item 2).

Note: Choose the appropriate belt among the ones supplied. **However, the rotary tiller being a universal mounting, a belt size other than the ones supplied may be necessary.**

Align the belt by raising or lowering the front end of the rotary tiller using the adjusting link (item 3).

Tighten the nuts on the links very firmly.

Lift the support (item 4).



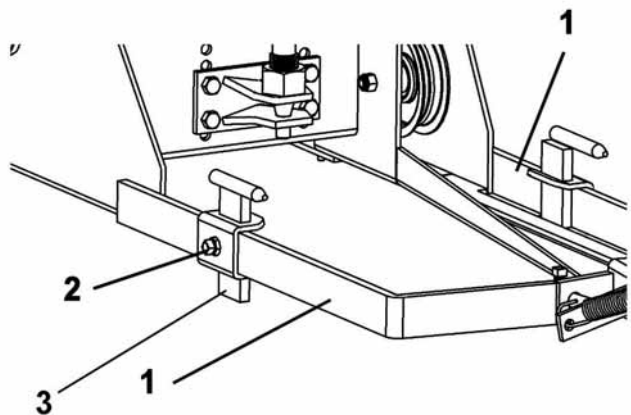
Install primary belt

Make sure both sides of the rotary tiller's frame (item 1) are at the same height from the ground.

Tighten firmly the bolts that hold the mounting brackets to the transaxle.

Tighten the square head set screws (item 2) very firmly on the mounting pins (both sides of tractor).

TIP: To make sure the frame is even, the bottom portion (item 3) of the mounting pins must measure equally on both sides. Tire pressure in both rear tractor tires must be identical.



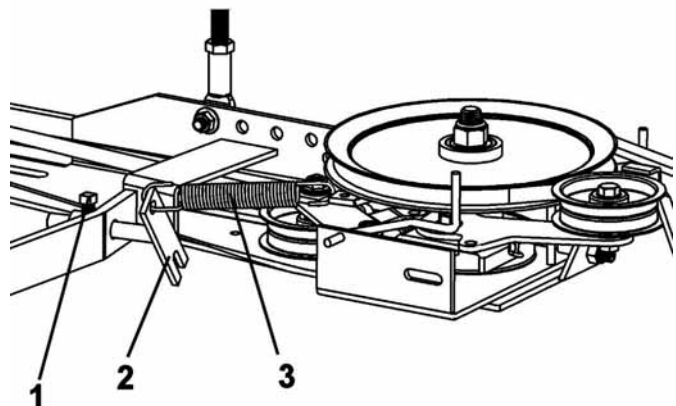
Tighten the screws

PRIMARY BELT ADJUSTMENT

Tractors with an electric clutch mechanism:

Adjust the tension on the primary belt by loosening the square head set screw (item 1). Pull the tension rod (item 2) to stretch the spring (item 3) by 3/4" to 1".

Tighten the square head screw securely.



Adjust spring

ASSEMBLY

CLUTCH CABLE INSTALLATION

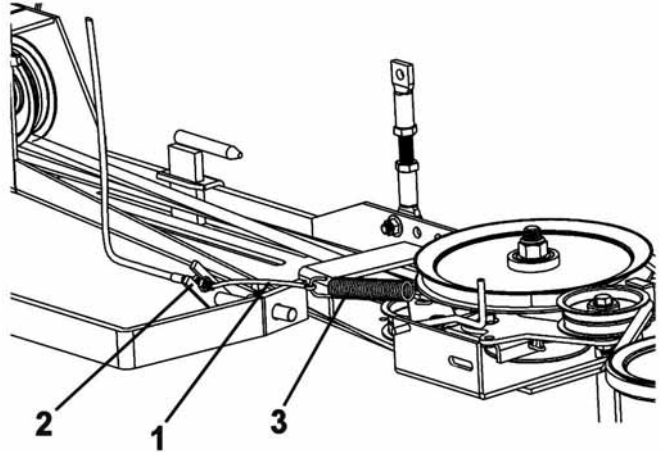
Tractors with manual clutch mechanism:

Disengage the clutch:

If your cable (item 1) does not have a spring at the end, attach the cable to the spring (item 3) on the tiller and attach the cable on the adjustable tension rod (item 2). Secure in place.

Note: The tension rod (item 2) can be adjusted or inverted (as shown) to accommodate the length of the cable.

Note: If you have a cable with a spring at the end, go to the next step.

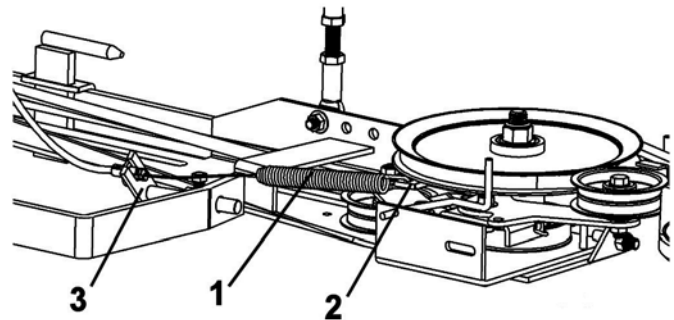


Install cable

If your clutch cable has a spring at the end, you must remove the original spring from the tiller.

Attach the cable's spring (item 1) to the extension bar (item 2). Attach the cable shield on the tension rod (item 3) and secure in place with a hair pin.

Note: The tension rod can be adjusted and rotated to accommodate the length of the cable.

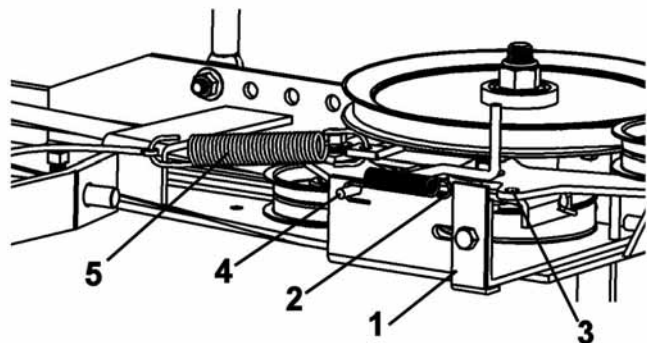


Install spring

Install the spring (item 2) that releases the tension on the belt, the short hook in the idler arm (item 3) and the long hook on the rod (item 4).

Adjust the cable when the clutch is engaged. The spring (item 5) should be stretched to approx. 3/4" to 1"

Install the stopper (item 1) with a 5/16 x 3/4" bolt, flat washer on the slot and flange nut. Adjust the stopper in order to be sure the belt does not fall off the engine pulley when the P.T.O. is disengaged. However, the belt must be loose enough to allow tiller to stop turning immediately when P.T.O. is disengaged.



Install spring and stopper

OPTION

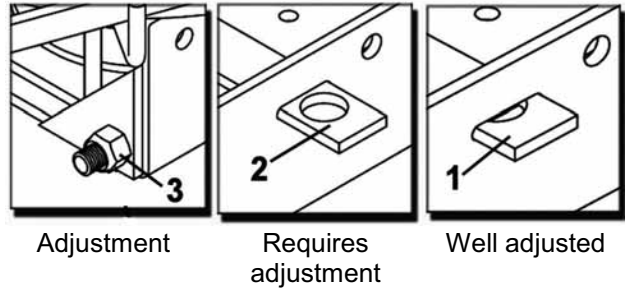
If your tractor does not have a clutch cable or the cable is too short, a "clutch mechanism kit" under model number #700319 is available as an option.

ASSEMBLY

VERIFY THE ADJUSTMENT OF THE ROTARY TILLER'S SECONDARY BELT:

When the belt is correctly adjusted, you should barely see the hole in the tension gauge (item 1).

If the hole is exposed (item 2), readjust the belt by screwing the nut (item 3) until well adjusted (item 1).



Adjust tension

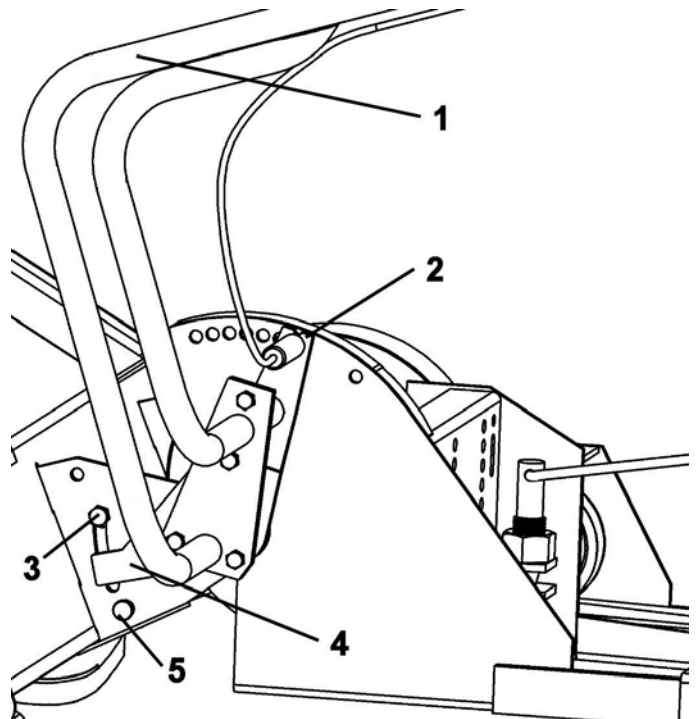
Reinstall the rear wheels on the tractor.

Move the lift arm (item 1) to the hole (item 2) identified "0 depth".

Loosen the bolt (item 3) and slide it down in the slot till it touches the lift arm (item 4).
Tighten firmly.

Remove the pin (item 5) from the locked position and install it in the working position.
Secure with the hair pin.

Raise the rotary tiller and let it run under supervision.
Make sure everything is running smoothly and that both V belts do not touch the belt guides.



Last adjustments

ASSEMBLY

RE-INSTALLATION:

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WARNING

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TO PREVENT INJURIES:

Stop the motor.

Apply parking brake.

Remove the ignition key.

Disconnect the wire from the spark plug(s) and keep away from spark plug(s) to prevent accidental starting.

On a level surface remove the mower deck from tractor.

Remove the pin (item 1) from the working position and install it in the locked position. Secure with the hair pin.

Place the rotary tiller's frame flat on the ground by lowering the lift arm.

Slide the rotary tiller under the tractor.

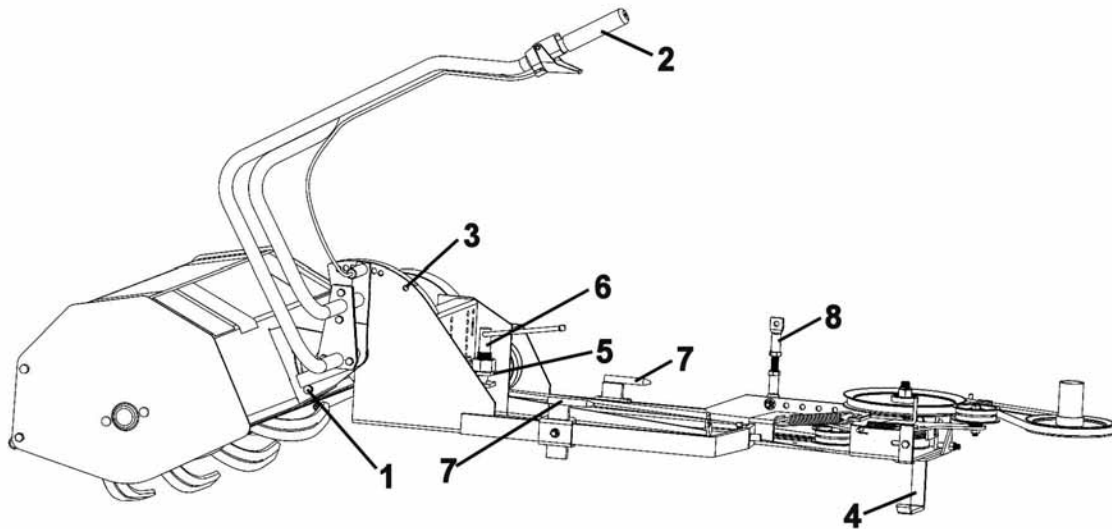
Lower the lift arm (item 2) until it locks into the "UP" position (item 3) to lift the front portion then lower the support (item 4) to rest the tiller's frame on the ground.

Raise the lift arm until the rotary tiller's hitch (item 5) is even with the tractor's tow hitch. Slide the rotary tiller hitch onto the tractor's tow hitch (the holes must be aligned) and make sure the mounting pins (item 7) slide into the mounting bracket's holes (both sides left on tractor frame).

Secure by screwing firmly the hitch pin (item 6).

Install the link (item 8) on the special bolt left on the tractor.

Secure with a 2.5 mm hair pin.



Re-installation

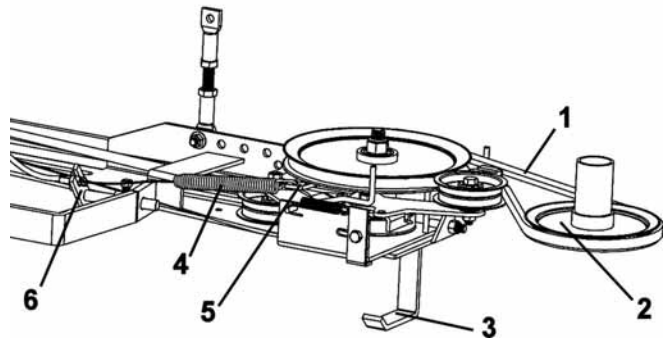
ASSEMBLY

Install the drive belt (item 1) on the engine pulley (item 2).

Lift the support (item 3).

If your tractor is equipped with a manual clutch, install the spring (item 4) at the end of cable to the extension bar (Item 5). Attach the cable shield to the adjustable tension rod (item 6).

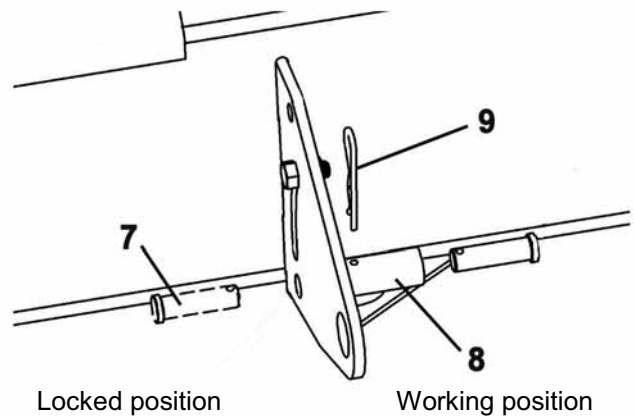
Secure in place with a hair pin.



Install belt and cable

Raise the tiller and remove the pin (item 7) from locked position and insert it in the working position (item 8) inside of the plate.

Secure with a hair pin (item 9).



Move the pin to working position

OPERATION

9

CAUTION

9

TO PREVENT INJURIES:

- Remove all objects and keep people away from the working area.
- Never let children operate the rotary tiller or tractor.
- Never let children ride on the tractor or rotary tiller.
- Never operate the rotary tiller without the guards and shields in place.

9

WARNING

9

FRONT WEIGHT IS REQUIRED TO COUNTERBALANCE THE WEIGHT OF THE ROTARY TILLER.

BEFORE TILLING:

- Mow the grass and weeds before tilling, these can wrap around the tines or tine shaft.
- Remove all objects that can damage the rotary tiller such as rocks, branches, etc...
- Check the tines before tilling. Repair or replace any loose, bent or broken tines.
- Do not till when the ground is too wet (if the soil forms a ball in your hand when squeezed). The wet soil will stick to the tines and tine shaft.

9

IMPORTANT

9

AVOID DAMAGE TO THE ROTARY TILLER
Never back up or make sharp turns with the rotary tiller in the ground.

When breaking ground, it is recommended to till in two to four stages. The first pass should be tilled at a shallow depth then progressively deeper with each pass.

When only a small area is to be tilled, make a pass through the middle, then circle the pass going towards the outside.

Whenever possible, till straight ahead, tilling in circles will leave ridges.

OPERATING THE ROTARY TILLER

- Lower the tiller and adjust the tilling depth to 1" or deeper after first pass.
- Push the throttle lever to the medium position.
- Disengage the parking brake.
- Put the P.T.O. control in the ON position to engage the rotary tiller. (See tractor's owner's manual for instructions).
- Engage the transmission in first gear or move forward slowly if the tractor has a hydro transmission.
- Till the ground at a shallow depth and at slow traveling speed.

9

CAUTION

9

TO PREVENT INJURIES

Tiller may push tractor forward when tilling in firm soil.

TRANSPORTING THE ROTARY TILLER:

Always lift the rotary tiller off the ground by lowering the lift arm as far as it will go when moving from one tilling area to another. Drive at a safe traveling speed when the tiller is off the ground because of the extra weight due to the rotary tiller, the tractor is unbalanced. Drive slowly on slopes and rough ground. Even with front weights, it is dangerous to climb slopes greater than 10%. Never work across the face of a slope

INSPECTING, CLEANING OR PARKING THE ROTARY TILLER

9

CAUTION

9

TO PREVENT INJURIES

Always stop the engine and wait for all moving parts to stop before leaving the driver's seat to avoid injuries from the tines.

9

WARNING

9

TO PREVENT INJURIES:

- Stop the motor.**
- Apply parking brakes.**
- Remove the ignition key.**
- Disconnect the wire from the spark plug(s) and keep away from spark plug(s) to prevent accidental starting.**
- Lower the tiller to the ground.**

MAINTENANCE

9

WARNING

9

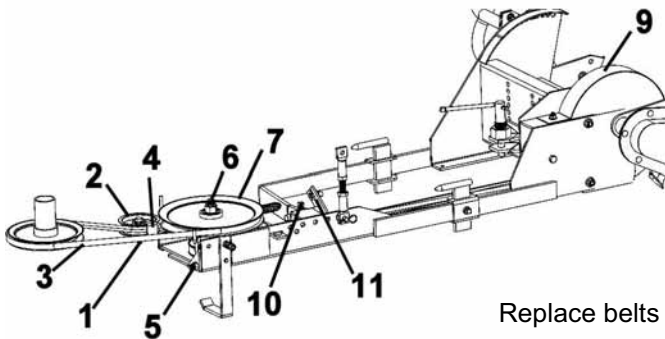
TO PREVENT INJURIES:

- Stop the motor.**
- Apply parking brake.**
- Remove the ignition key.**
- Disconnect the wire from the spark plug(s) and keep away from spark plug(s) to prevent accidental starting.**

BELT REPLACEMENT:

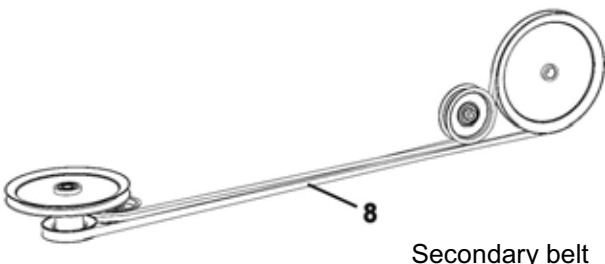
Primary belt:

- Remove the belt from engine pulley.
- Remove the bolt (item 1) that holds the idler (item 2).
- Remove the belt (item 3) and reinstall the new one on the double pulley (item 7) as shown.
- Reinstall the idler (item 2) and belt guide (item 4) in the same manner as removed. Make sure the belt guide is 90° with the idler arm.
- Reinstall the belt on the engine pulley.



Secondary Belt:

- Unscrew the belt tension nut (item 5).
- Remove the bolt (item 6) and remove the double pulley (item 7).
- Remove the belt guard (item 9).
- Remove the belt (item 8) and install the new one. Make sure it is routed as shown.
- Reinstall as dismantled by reversing the steps.
- Screw the tension nut to adjust the V-belt until you barely see the hole in the tension gauge.
- See secondary belt adjustment instructions



Secondary belt

PRIMARY BELT ADJUSTMENT

Tractors with an electric clutch mechanism:

Adjust the tension on the front belt by loosening the square head set screw (item 10). Pull the adjustable tension rod (item 11) to stretch the spring by 3/4" to 1". Tighten the screw securely.

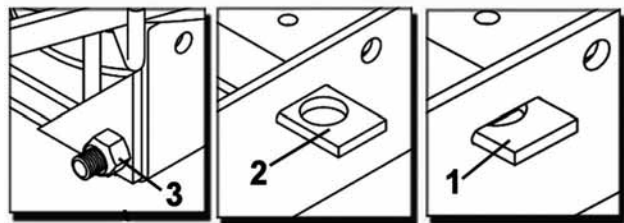
Tractors with a manual clutch mechanism:

Adjust the cable so that the spring is stretched by 3/4" to 1" when the clutch mechanism is engaged.

SECONDARY BELT ADJUSTMENT

When the belt is correctly adjusted, you should barely see the hole in the tension gauge (item 1).

If the hole is exposed (item 2), adjust the belt by screwing the nut (item 3) until well adjusted.



Adjustment

Requires adjustment

Well adjusted

Adjust tension

MAINTENANCE

After every hour:

- Remove trash from the tines if necessary.

After every 4 hours:

- Check belt tension
- Adjust if needed
- Clean under the belt.

After every 8 hours or once a year:

- Grease the tiller drive shaft.
- a) Provide adequate blocking before working under the tractor or rotary tiller when in raised position.
 - b) Check mounting bolts at frequent intervals for proper tightness in order to prevent costly repairs. Make sure your rotary tiller is in good working condition.

MAINTENANCE

REPLACING THE TINES

9 WARNING 9

TO PREVENT INJURIES:

Stop the motor.
 Apply parking brake.
 Remove the ignition key.
 Disconnect the wire from the spark plug(s) and keep away from spark plug(s) to prevent accidental starting.

Note: To facilitate replacing the tines, you may remove the tiller from the tractor and turn it upside down.

- Park the tractor safely.
- Raise the tiller as high as it will go and put some blocks under the tiller.

Note: Each group of tines must have two left tines and two right tines.

For reference purposes:

- Alternate left and right tines in each group.
- A bolt with **no spacer** is 3/8 x 1 1/4" long.
- A bolt with **one spacer** is 3/8 x 1 3/4" long.
- A bolt with **two spacers** is 3/8 x 2 1/4" long.

LEFT GROUP OF TINES:

Remove the nuts (item 1), bolts (item 2) spacers (item 3), two left tines (4) and two right tines (item 5). Install the new tines with same hardware in exactly the same position as the old ones were installed.

MIDDLE GROUP OF TINES:

Remove the nuts (item 6), bolts (item 7), spacers (item 8), two left tines (item 9) and two right tines (item 10). Install the new tines with same hardware in exactly the same position as the old ones were installed.

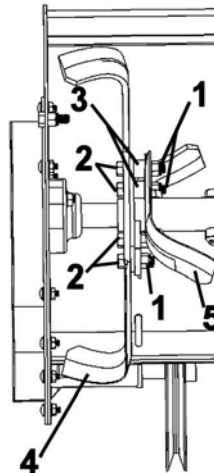
RIGHT GROUP OF TINES:

Remove the nuts (item 11), bolts (item 12) spacers (item 13), two left tines (item 14) and two right tines (item 15). Install the new tines with same hardware in exactly the same position as the old ones were installed.

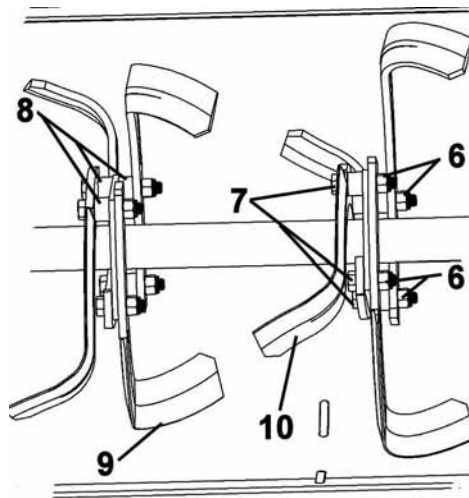
9 CAUTION 9

TO PREVENT INJURIES:

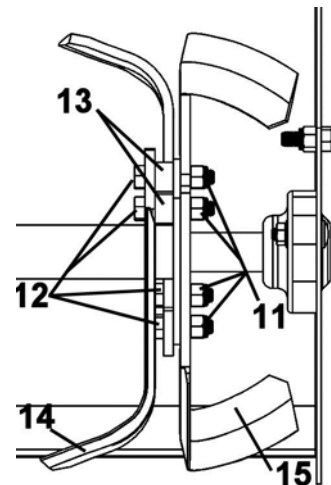
Always safely block the tiller if you have to work under it. It is not recommended to work under the tiller because it could fall on you and cause very serious injuries.



Left group of tines



Middle group of tines



Right group of tines

DISMOUNTING

DISMOUNTING THE ROTARY TILLER

9

WARNING

9

TO PREVENT INJURIES:

Stop the motor.

Apply parking brake.

Remove the ignition key.

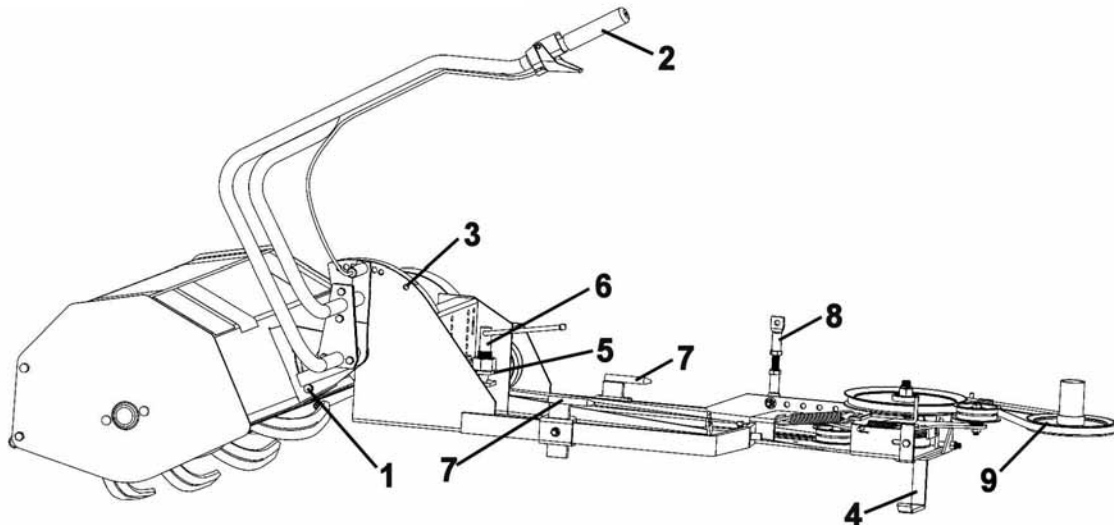
Disconnect the wire from the spark plug(s) and keep away from spark plug(s) to prevent accidental starting.

On a level surface, park the tractor and apply the parking brake.

- a) Install the pin (item 1) in the locked position.
- b) Lower the tiller to the ground.
- c) Remove the V-belt from the engine pulley (item 9).
- d) Disconnect the clutch cable if installed.
- e) Lower the front support (item 4).
- f) Remove the link (item 8) from the tractor frame.
- g) Raise the tiller's lift arm (item 2) to support the tiller frame.
- h) Unscrew the pin (item 6) from the hitch.
- i) Pull out the tiller from the tractor hitch.
- j) Using the lift arm, lower the tiller to the ground and raise the front support.
- k) Place the lift arm so the tiller rests flat on the ground.
- l) Slide out the tiller from the tractor.

END OF SEASON STORAGE:

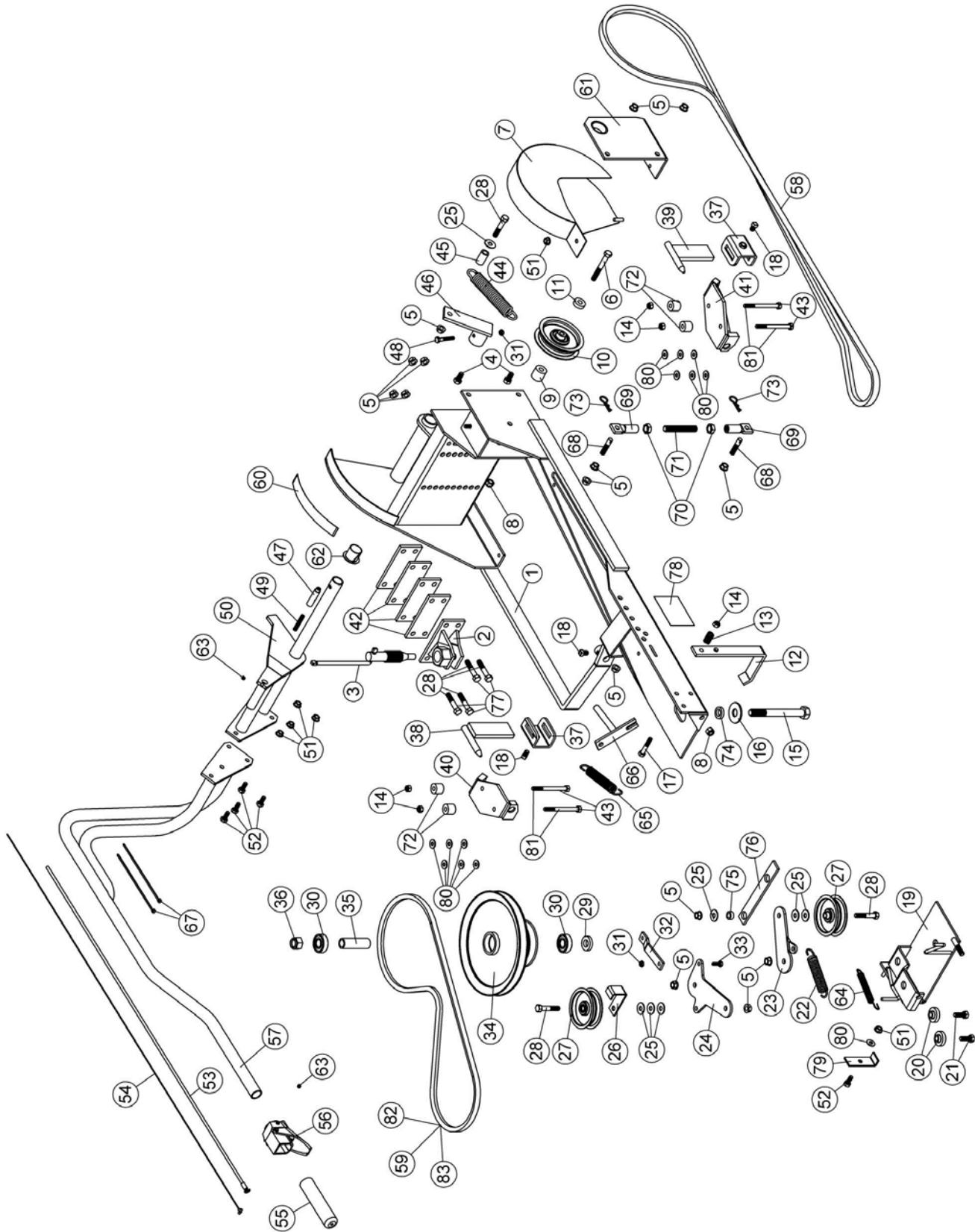
- a) Clean the rotary tiller.
- b) Check the belts.
- c) Replace damaged or worn parts.
- d) Paint scratched surfaces to prevent rust.
- e) Lubricate the grease points.
- f) Store the tiller on a hard level surface in a clean, dry place. If tiller must stay outside, wrap it in a waterproof cover.



TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	CORRECTIVE ACTION
Tiller will not turn.	Belt is damaged.	Replace the belt.
	Belt is broken.	Replace the belt.
Tiller operates irregularly.	Belts are loose.	Tighten belts.
	Belts are damaged.	Replace belts.
	A group of tines may be packed up.	Remove any debris from the tines.
		Till at a slow steady speed.
		Make more than one pass. Start by shallow pass then gradually deeper.
		Replace damaged or bent tines.
Tiller is noisy or bouncing at the back of tractor.	Tines are damaged or too many rocks.	Replace bent or damaged tines. Remove any rocks from tilling area.

PARTS BREAKDOWN / NOMENCLATURE DES PIÈCES ROTARY TILLER (FRAME) / ROTOCULTEUR (CHÂSSIS)



PARTS LIST / LISTE DES PIÈCES

Ref. Réf.	English description	Description française	Qty. Qté.	Part # Pièce #
1	Frame	Châssis	1	103436
2	Hitch	Attache	1	103437
3	Hitch pin	Goupille d'attache	1	103438
4	Hex. bolt 3/8" n.c. x 3/4"	Boulon hex. 3/8" n.c. x 3/4"	2	O/L
5	Flange nut 3/8" n.c.	Écrou à bride 3/8" n.c.	15	O/L
6	Hex. bolt 3/8" n.c. x 3"	Boulon hex. 3/8" n.c. x 3"	1	O/L
7	Belt guard	Garde-courroie	1	103439
8	Nylon insert lock nut 3/8" n.c.	Écrou à garniture de nylon 3/8" n.c.	2	O/L
9	Spacer	Douille	1	103429
10	Flat pulley	Poulie plate	1	102765
11	Spacer	Espaceur	1	102241
12	Support	Support	1	103440
13	Spring	Ressort	1	102892
14	Nylon insert lock nut 5/16" n.c.	Écrou à garniture de nylon 5/16" n.c.	5	O/L
15	Hex. bolt 5/8" n.c. x 5 1/2"	Boulon hex. 5/8" n.c. x 5 1/2"	1	O/L
16	Flat washer 11/16" hole	Rondelle plate 11/16" trou	1	O/L
17	Hex. bolt 5/16" n.c. x 1 3/4"	Boulon hex. 5/16" n.c. x 1 3/4"	1	O/L
18	Square head set screw 3/8" x 1/2"	Vis à pression à tête carré 3/8" x 1/2"	3	O/L
19	Mounting plate	Plaque de montage	1	103441
20	Flange washer	Rondelle à bride	2	102081
21	Hex. bolt 3/8" n.c. x 1"	Boulon hex. 3/8" n.c. x 1"	2	O/L
22	Spring	Ressort	1	102152
23	Idler arm	Bras de tension	1	103442
24	Idler arm	Bras de tension	1	103443
25	Flat washer 3/8" hole	Rondelle plate 3/8" trou	7	O/L
26	Belt guide	Guide-courroie	1	102840
27	Flat pulley	Poulie plate	2	102839
28	Hex. bolt 3/8" n.c. x 2"	Boulon hex. 3/8" n.c. x 2"	7	O/L
29	Spacer	Espaceur	1	102753
30	Bearing	Roulement à billes	2	102736

O/L = Obtain locally/obtenir localement

PARTS LIST / LISTE DES PIÈCES

Ref. Réf.	English description	Description française	Qty. Qté.	Part # Pièce #
31	Nylon insert lock nut 1/4" n.c. (thin)	Écrou à garniture de nylon 1/4" n.c. (mince)	2	O/L
32	Extension bar	Barre d'extension	1	103444
33	Hex. bolt 1/4" n.c. x 3/4"	Boulon hex. 1/4" n.c. x 3/4"	1	O/L
34	Double pulley inc. 102736 & 102782	Poulie double inc. 102736 & 102782	1	103416
35	Sleeve	Douille	1	102782
36	Nylon insert lock nut 5/8" n.c.	Écrou à garniture de nylon 5/8" n.c.	1	O/L
37	Clamp	Crampe	2	103445
38	Right mounting pin	Goupille de montage droite	1	103446
39	Left Mounting pin	Goupille de montage gauche	1	103447
40	Right mounting bracket	Support de montage droit	1	103448
41	Left mounting bracket	Support de montage gauche	1	103449
42	Shim	Cale	4	103450
43	Hex. bolt 5/16" n.c. x 3 1/2"	Boulon hex. 5/16" n.c. x 3 1/2"	4	O/L
44	Spring	Ressort	1	102861
45	Sleeve	Douille	1	102418
46	Arm	Bras	1	103451
47	Pin-lock	Goupille de barrure	1	103398
48	Hex. bolt 1/4" n.c. x 1 3/4"	Boulon hex. 1/4" n.c. x 1 3/4"	1	O/L
49	Spring	Ressort	1	102868
50	Lift mechanism	Mécanisme de relevage	1	103452
51	Flange nut 5/16" n.c.	Écrou à bride 5/16" n.c.	6	O/L
52	Hex. bolt 5/16" n.c. x 3/4"	Boulon hex. 5/16" n.c. x 3/4"	5	O/L
53	Cable shield	Gaine de câble	1	104304
54	Cable	Câble	1	104305
55	Handgrip	Poignée	1	103453
56	Lever w/104304 - 104305 - s. screw	Levier a/104304 - 104305 - v. pression	1	104306
57	Lift arm	Bras de relevage	1	103454
58	V-belt, B-99 (sb)	Courroie en v, B-99 (sb)	1	103414
59	V-belt, A-53	Courroie en v, A-53	1	103400
60	Decal depth	Décalque profondeur	1	103455

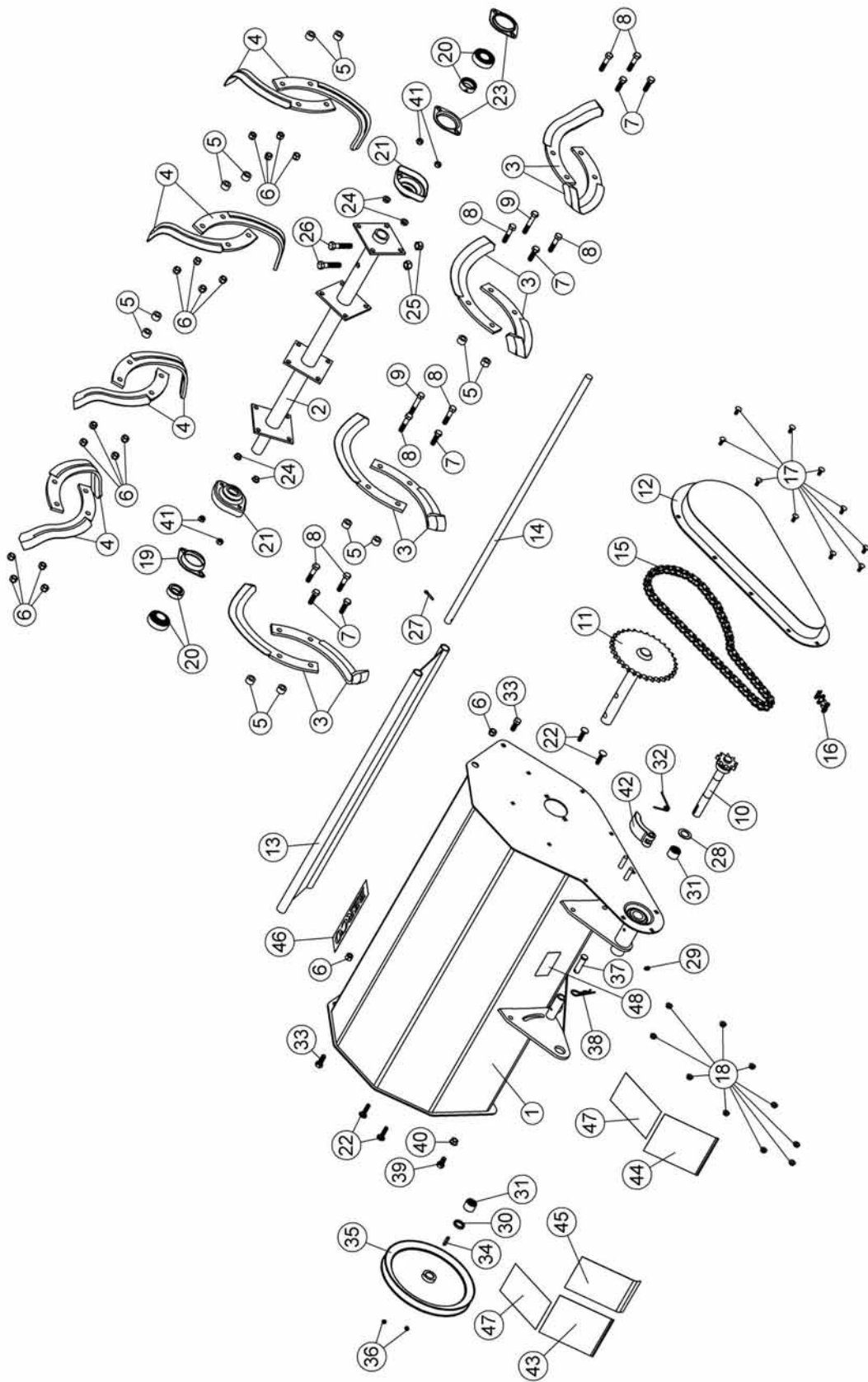
O/L = Obtain locally/obtenir localement

PARTS LIST / LISTE DES PIÈCES

Ref. Réf.	English description	Description française	Qty. Qté.	Part # Pièce #
61	Left Bracket	Plaque de fixation gauche	1	103456
62	Nylon bushing	Coussinet en nylon	1	103087
63	Hex. socket set screw 1/4" n.c. x 1/4"	Vis à pression hex. 1/4" n.c. x 1/4"	2	O/L
64	Spring 1/2"	Ressort 1/2"	1	102003
65	Spring	Ressort	1	102304
66	Adjustable tension rod	Tige de tension ajustable	1	103457
67	Tie wrap 7"	Attache de nylon 7"	2	O/L
68	Special bolt	Boulon spécial	2	103458
69	Link	Lien	2	103459
70	Hex. nut 1/2" n.c. (thin)	Écrou hex. 1/2" n.c. (mince)	2	O/L
71	Adjusting rod	Tige d'ajustement	1	103460
72	Spacer	Douille d'espacement	4	103463
73	Hair pin 2.5mm	Goupille à ressort 2.5mm	2	102013
74	Spacer	Douille	1	103461
75	Sleeve	Douille	1	102322
76	Tension gauge	Indicateur de tension	1	103462
77	Hex. bolt 3/8" n.c. x 1 1/4"	Boulon hex. 3/8" n.c. x 1 1/4"	4	O/L
78	Decal belt adjustment	Décalque ajustement de la courroie	1	103464
79	Stopper	Butée	1	103486
80	Flat washer 5/16" hole	Rondelle plate 5/16" trou	13	O/L
81	Hex. bolt 5/16" n.c. x 4"	Boulon hex. 5/16" n.c. x 4"	4	O/L
82	V-belt, A-58	Courroie en v, A-58	1	103518
83	V-belt, A-62	Courroie en v, A-62	1	104299

O/L = Obtain locally/obtenir localement

PARTS BREAKDOWN / NOMENCLATURE DES PIÈCES ROTARY TILLER (HEAD) / ROTOCULTEUR (TÊTE)



PARTS LIST / LISTE DES PIÈCES

Ref. Réf.	English description	Description française	Qty. Qté.	Part # Pièce #
1	Frame	Châssis	1	103417
2	Tine shaft	Arbre des dents	1	103418
3	Left tine	Dent gauche	8	103419
4	Right tine	Dent droite	8	103420
5	Spacer	Douille	12	103421
6	Nylon insert lock nut 3/8" n.c.	Écrou à garniture de nylon 3/8" n.c.	18	O/L
7	Hex. bolt 3/8" n.c. x 1 1/4"	Boulon hex. 3/8" n.c. x 1 1/4"	6	O/L
8	Hex. bolt 3/8" n.c. x 1 3/4"	Boulon hex. 3/8" n.c. x 1 3/4"	8	O/L
9	Hex. bolt 3/8" n.c. x 2 1/4"	Boulon hex. 3/8" n.c. x 2 1/4"	2	O/L
10	Drive shaft	Arbre d'entraînement	1	103422
11	Sprocket assembly	Pignon assemblé	1	103423
12	Chain guard	Garde-chaîne	1	103424
13	Deflector	Défecteur	1	103425
14	Rod	Tige	1	103426
15	Roller chain #50 x 66 links/conn. link	Chaîne #50 x 66 mailles/maille acc.	1	103427
16	Connecting link #50	Maille d'accouplement #50	1	104324
17	Carriage bolt 1/4" n.c. x 5/8"	Boulon à carrosserie 1/4" n.c. x 5/8"	10	O/L
18	Flange nut 1/4" n.c.	Écrou à bride 1/4" n.c.	10	O/L
19	Flangette	Flangette	1	102680
20	Bearing with collar and set screw	Roulement à billes avec collet & vis à pres.	2	103466
21	Dust cover	Protège poussière	2	103428
22	Carriage bolt 5/16" n.c. x 1 1/4"	Boulon à carrosserie 5/16" n.c. x 1 1/4"	4	O/L
23	Flangette	Flangette	2	102213
24	Flange nut 5/16" n.c.	Écrou à bride 5/16" n.c.	4	O/L
25	Nylon Insert Lock nut 7/16" n.c.	Écrou à garniture de nylon 7/16" n.c.	2	O/L
26	Hex. bolt 7/16" n.c. x 2" GR8	Boulon hex. 7/16" n.c. x 2" GR8	2	O/L
27	Cotter pin 5/32" x 1"	Goupille fendue 5/32" x 1"	1	O/L
28	Shim washer	Rondelle d'espacement	1	103430
29	Grease fitting 1/4" n.f.	Graisseur 1/4" n.f.	1	O/L

O/L = Obtain locally/obtenir localement

PARTS LIST / LISTE DES PIÈCES

Ref. Réf.	English description	Description française	Qty. Qté.	Part # Pièce #
30	Seal	Joint d'étanchéité	1	103431
31	Needle bearing	Roulement à aiguilles	2	103465
32	Spring	Ressort	1	103291
33	Hex. bolt 3/8" n.c. x 1"	Boulon hex. 3/8" n.c. x 1"	2	O/L
34	Key 3/16" x 3/16" x 1.000"	Clé 3/16" x 3/16" x 1.000"	1	102379
35	V pulley	Poulie en V	1	103415
36	Hex. socket set screw 5/16" n.c. x 5/16"	Vis à pression hex. 5/16" n.c. x 5/16"	2	O/L
37	Pin	Goupille	1	102188
38	Hair pin 3mm	Goupille à ressort 3mm	1	102617
39	Hex. bolt 3/8" n.c. x 3/4"	Boulon hex. 3/8" n.c. x 3/4"	1	O/L
40	Flange nut 3/8" n.c.	Écrou à bride 3/8" n.c.	1	O/L
41	Nylon insert lock nut 5/16" n.c.	Écrou à garniture de nylon 5/16" n.c.	4	O/L
42	Tensioner	Tensionneur	1	103289
43	Decal attention	Décalque attention	1	103433
44	Decal warning	Décalque warning	1	103434
45	Decal important	Décalque important	1	103435
46	Berco decal	Décalque Berco	1	102471
47	Decal danger	Décalque danger	2	103432
48	Serial number	Numéro de série	1	REF

O/L = Obtain locally/obtenir localement

TORQUE SPECIFICATION TABLE

GENERAL TORQUE SPECIFICATION TABLE USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

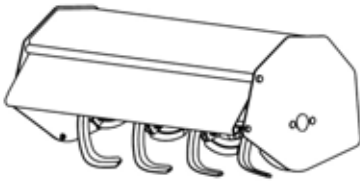
NOTE: These values apply to fasteners as received from supplier, dry or when lubricated with normal oil. They do not apply if special graphited or moly disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SEE Grade No.		2				5				8 *			
BOLT HEAD IDENTIFICATION MARKS AS PER GRADE NOTE MANUFACTURING MARKS WILL VARY		TORQUE				TORQUE				TORQUE			
BOLT SIZE		POUNDS FEET		NEWTON-METERS		POUNDS FEET		NEWTON-METERS		POUNDS FEET		NEWTON-METERS	
Inches	Millimetre	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4"	6.35	5	6	6.8	8.13	9	11	12.2	14.9	12	15	16.3	30.3
5/16"	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8"	9.53	20	23	27.1	31.2	35	42	47.5	57	45	54	61	73.2
7/16"	11.11	30	35	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2"	12.7	45	52	61	70.5	80	96	108.5	130.2	110	132	149.2	179
9/16"	14.29	65	75	88.1	101.6	110	132	149.2	179	160	192	217	260.4
5/8"	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358
3/4"	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8"	22.23	160	200	216.8	271	400	480	542.4	650.9	600	720	813.6	976.3
1"	25.4	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5

*Thick nuts must be used with grade 8 bolts

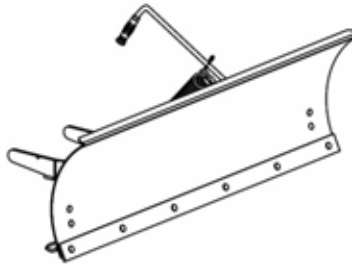
METRIC BOLT TORQUE SPECIFICATIONS							
		COARSE THREAD			FINE THREAD		
Size Screw	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	4T	1.00	3.6 - 5.8	4.9 - 7.9	-	-	-
	7T		5.8 - 9.4	7.9 - 12.7		-	-
	8T		7.2 - 10	9.8 - 13.6		-	-
M8	4T	1.25	7.2 - 14	9.8 - 19	1.00	12 - 17	16.3 - 23
	7T		17 - 22	23 - 29.8		19 - 27	25.7 - 36.6
	8T		20 - 26	27.1 - 35.2		22 - 31	29.8 - 42
M10	4T	1.50	20 - 25	27.1 - 33.9	1.25	20 - 29	27.1 - 39.3
	7T		34 - 40	46.1 - 54.2		35 - 47	47.4 - 63.7
	8T		38 - 46	51.5 - 62.3		40 - 52	54.2 - 70.5
M12	4T	1.75	28 - 34	37.9 - 46.1	1.25	31 - 41	42 - 55.6
	7T		51 - 59	69.1 - 79.9		56 - 68	75.9 - 92.1
	8T		57 - 66	77.2 - 89.4		62 - 75	84 - 101.6
M14	4T	2.00	49 - 56	66.4 - 75.9	1.50	52 - 64	70.5 - 86.7
	7T		81 - 93	109.8 - 126		90 - 106	122 - 143.6
	8T		96 - 109	130.1 - 147.7		107 - 124	145 - 168
M16	4T	2.00	67 - 77	90.8 - 104.3	1.50	69 - 83	93.5 - 112.5
	7T		116 - 130	157.2 - 176.2		120 - 138	162.6 - 187
	8T		129 - 145	174.8 - 196.5		140 - 158	189.7 - 214.1
M18	4T	2.00	88 - 100	119.2 - 136	1.50	100 - 117	136 - 158.5
	7T		150 - 168	203.3 - 227.6		177 - 199	239.8 - 269.6
	8T		175 - 194	237.1 - 262.9		202 - 231	273.7 - 313
M20	4T	2.50	108 - 130	146.3 - 176.2	1.50	132 - 150	178.9 - 203.3
	7T		186 - 205	252 - 277.8		206 - 242	279.1 - 327.9
	8T		213 - 249	288.6 - 337.4		246 - 289	333.3 - 391.6

ATTACHMENTS



ROTARY TILLER #700312

Mounts to the rear of yard & garden tractors 14 to 25 HP. Comes complete with drive & manual lift mechanisms & mounting hardware.



48" UTILITY BLADE #700266

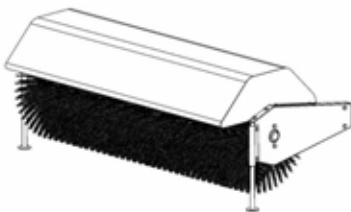
Mounts on the same subframe as the snowblower & rotary broom.



SNOWBLOWER

#700210 40"
#700211 44"
#700255 40"
#700300 48"

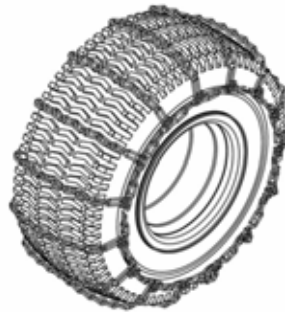
Fits on same subframe as rotary broom and utility blade.



ROTARY BROOM

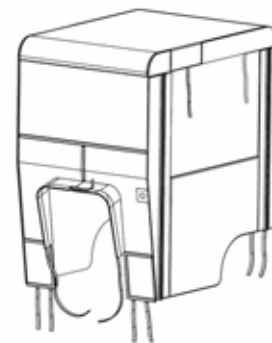
#700380 with nylon brush.
#700381 with polypropylene brush.

Fits on same subframe as snowblower & utility blade. Requires an adaptor.



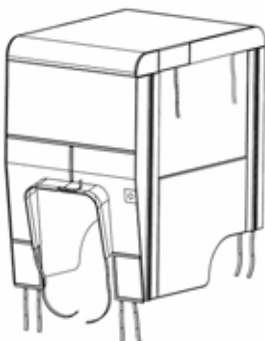
TIRE CHAINS

Two link spacing. Required for traction and safety.
Pkg. of 2



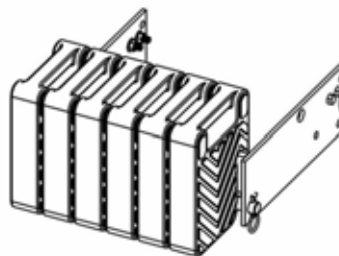
**TRACTOR WINTER CAB
#700271**

Protects in winter conditions. Universal type fits on a wide variety of lawn and garden tractors.



**TRACTOR SCREEN CAB
#700313**

Protects in summer conditions. Universal type fits on a wide variety of lawn and garden tractors.



COUNTERWEIGHT

#700240 Universal rear weights
#700246 Electrolux tractors
Required for safety and traction. Counterbalances weight of attachment.