Turf Teq, LLC

SIDEWINDER

OPERATOR'S MANUAL

POWER RAKE

DISCLAIMER: THE INFORMATION IN THIS MANUAL IS PROVIDED TO PROMOTE THE SAFE USE OF, AND ASSIST THE OPERATOR IN ACHIEVING MAXIMUM PERFORMANCE FROM THE MODEL 1305 Power Rake AS DESCRIBED IN THIS MANUAL.

TABLE OF CONTENTS

INTRODUCTION

This manual is provided as a guide to help you safely operate the product and to achieve the maximum performance from your Power Rake.

Before operating the Power Rake, thoroughly read the entire manual. It is important that you, the operator, thoroughly understand how to operate the machine and adhere to all safety and operating procedures. Special attention should be paid to all Safety Precautions which are detailed in this manual.

Instructions were written from the perspective that the operator is standing behind the machine grasping the handlebars and facing the forward direction of travel.

Some pictures in this manual may show optional equipment installed or may not depict current production.

Please contact Turf Teq, LLC directly if, after reading the manual, you have questions about the safe operation of this machine.

Turf Teq, LLC

Congratulations!

Thank you and congratulations on your purchase of a new Turf Teq Power Rake!

We are confident that your Power Rake will be one of the most gratifying pieces of equipment you will ever own. As a result of your investment in the Power Rake, you will eliminate the need for manual back–breaking work and you will see an increase in productivity.

Your happiness is our goal, so please let us know of any questions or issues you may have so that we may answer them or address them as quickly as possible. (Please have your serial number available when you call us). We would also like to hear from you on how much you enjoy your new Power Rake!

Turf Teq, LLC Toll Free (866) 503–TURF

Total Customer Satisfaction is our Goal

The Power Rake is designed to provide trouble–free operation. To ensure that you are satisfied with your Power Rake, we offer the following Guarantee of Satisfaction:

- The Power Rake is GUARANTEED TO THE ORIGINAL PURCHASER FOR ONE FULL YEAR against defects in materials and workmanship. If you feel that a part is defective, contact us and we replace the defective part and provide repair instructions as required.
- The engine is guaranteed by the engine manufacturer:
  Honda Engine: Two years in consumer use; two years in commercial use
- If your have questions or are not 100% satisfied with your Power Rake within the first 30 days of use, call us toll free at **1–866–503–TURF** and we will work to answer your questions and to resolve your concerns.

Please have the following information from your packing slip and from the Power Rake available when contacting our customer service department:

Name of Purchaser _____

Tractor

Model _____

Serial Number _____

Date Purchased _____

Sales Order Number _____

Power Rake

Model _____

Serial Number _____

Date Purchased _____

Sales Order Number _____

Turf Teq, LLC

WARRANTY AND LIMITATION OF LIABILITY

(Customer Copy – Page 1)

COVERAGE PROVIDED

Turf Teq, LLC, hereinafter called “Turf Teq” warrants to the original retail purchaser of each new Turf Teq Product that Turf Teq will replace any part thereof found to be defective in materials or workmanship within the time periods identified below.

DEFINITION

“Products” are machines, attachments, and Replacement Parts therefore supplied by Turf Teq.

WARRANTY PERIOD

12 months from the date of first retail purchase.

Replacement Parts are warranted for 60 days or to the end of the Warranty Period, whichever is longer.

LIMITATIONS, INCLUDING DISCLAIMER OF IMPLIED WARRANTIES AND CONSEQUENTIAL DAMAGES

This warranty gives you specific legal rights and you may also have other rights that vary depending on state or provincial laws.

Turf Teq does not authorize any person or Dealer to create for it any other obligation or liability in connection with these Products. **TO THE EXTENT ALLOWED BY LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS APPLICABLE TO THIS PRODUCT IS LIMITED TO THE STATED DURATION OF THIS WRITTEN WARRANTY. TURF TEQ IS NOT LIABLE FOR LOSS OF THE USE OF THE PRODUCT, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS OR CONSEQUENTIAL DAMAGES.**

Some states and provinces do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

The remedy of repair or replacement of a defective part during the warranty period herein specified shall be the purchaser’s exclusive remedy.

RIGHT TO MAKE DESIGN CHANGES

Turf Teq reserves the right to make changes in the design and other changes in its Products at any time and from time to time without notice and without incurring any obligation with respect to any product previously ordered from it, sold or shipped by it.

Turf Teq, LLC

WARRANTY AND LIMITATION OF LIABILITY

(Customer Copy – Page 2)

The warranty period will begin on the date of first retail sale.

The obligation of Turf Teq to purchase under this warranty is limited to the repair or replacement of defective parts free of charge using genuine Turf Teq Replacement Parts. Repair or replacement in accordance with this warranty shall constitute fulfillment of all liabilities of Turf Teq in respect to such Products.

Your dealer shall review these warranty provisions with the purchaser prior to retail sale, secure his acknowledgement of delivery of this warranty and record the date of first retail sale.

WHAT IS NOT COVERED BY THE WARRANTY?

This warranty shall **NOT** apply under the following conditions:

1. With respect to vendor warranty items such as engines, which shall be warranted by their manufacturer, or local representative
   a. **Honda Engines** have a **2 YEAR WARRANTY** that is covered by American Honda Motor Corporation.
2. If the Product has been subject to misapplication, abuse, misuse, improper maintenance or other negligence, fire or other accident.
3. If parts or attachments other than those made or marketed by Turf Teq have been used in connection with the Product, and in the sole judgment of Turf Teq such use affects its performance, stability or reliability.
4. If the Product has been altered or repaired in a manner which, in the sole judgment of Turf Teq, affects its performance, stability or reliability.
5. Turf Teq shall have no liability for used equipment sold beyond the specified coverage period.
6. No warranty shall apply to damage resulting from accident or damage caused by environment (such as exposure to corrosive material). Turf Teq shall not be responsible for any costs relating to rental equipment used to replace the Product being repaired.
7. The warranty shall **NOT** apply to normal maintenance services, to normal replacement of service items, or to normal deterioration due to use or exposure. Turf Teq shall not be responsible for normal replacement parts such as belts, chains, clutches, filters, oil, brushes, or other parts that are worn out, unless they are determined by Turf Teq to be defective in material or workmanship.

Customer Signature _____

Date of Purchase _____

Date of Signature _____

Tractor Model Number _____

Tractor Serial Number _____

Powe Rake Model Number _____

Power Rake Serial Number _____

Turf Teq, LLC

WARRANTY AND LIMITATION OF LIABILITY

(Turf Teq Warranty Registration Copy – Page 1)

Important: This copy must be completed, signed and returned to Turf Teq to register the product and activate the warranty.

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4. If the Product has been altered or repaired in a manner which, in the sole judgment of Turf Teq, affects its performance, stability or reliability.
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Customer Signature _____

Date of Purchase _____

Date of Signature _____

Tractor Model Number _____ Power Rake Model Number_____

Tractor Serial Number _____ Power Rake Serial Number_____

Important: This copy must be completed, signed and returned to Turf Teq within 30 days of purchase to register the product and activate the warranty.

RETURN TO: **Turf Teq, LLC**
P.O. Box 127
New Holland, PA 17557

SAFETY INFORMATION

PERSONAL SAFETY

SAFETY PRECAUTIONS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read and take the following precautions before operating the machine. Equipment should be operated only by those who are properly trained.

GENERAL INFORMATION

1. Read the Operator's Manual carefully before using the machine.
2. Only allow properly trained and qualified persons to operate the machine.
3. Keep safety decals clean.
4. Install shields before starting or operating the machine.
5. Make sure all shields are in place at all times.
6. Do not operate the Power Rake over cables, wires, pipes or other objects.

PERSONAL PREPARATION AND ATTIRE

1. Wear safely glasses while operating the machine to protect your eyes.
2. Wear safety shoes with non-slip treads. Do not go barefoot or wearing open-toed shoes while operating the machine.
3. Wear long pants
4. Use ear muffs or ear plugs to protect your hearing.

MACHINE SAFETY

MACHINE PREPARATION

1. Read the Operator's manual for the machine and engine before operating the machine.
2. Become familiar with the controls BEFORE starting to operate the machine.
3. Inspect the area you will be working in for hidden objects such as large rocks, wires and other obstructions. Operating the machine over obstacles could damage the machine, cause property damage or cause personal injury.
4. Wait for the engine to cool before refueling.
5. Fill the gasoline tank with the engine turned off and the machine outdoors.
6. Do not smoke while handling gasoline.
7. Keep any type of open flame away from the machine.
8. Make sure all shields are installed and secured.

OPERATING THE MACHINE SAFELY

1. Shut off the engine, place the transmission selector in the engaged position when the machine is not in use. Engage the optional park brake if equipped.
2. Do not operate the machine engine in an enclosed building without adequate ventilation.
3. Make sure all shields are in place before starting the machine.
4. Do not leave the attachment in the raised position when the machine is parked.
5. Only allow properly trained personnel to operate the machine
6. Keep bystanders at least 75 feet away from the machine. The Power Rake can throw objects at great speed and strike a bystander. Do not operate the machine when children or pets are in the area.
7. Disengage the main drive and stop the engine when a person or pet approaches the machine.
8. Be sure the main drive and the hydrostatic control are disengaged before starting the engine.
9. NEVER operate the machine without all the shields installed.
10. NEVER reach under the shields when the engine is running.
11. ALWAYS shut off the engine and disconnect the spark plug wire before making any adjustments to the machine.
12. ALWAYS shut off the engine and disconnect the spark plug wire before cleaning the machine.
13. Operate the machine during daylight hours.
14. Lower the attachment arm to the ground when the machine is turned off.
15. Keep the machine clean and do not allow combustible materials to accumulate on the machine.
16. Operate slowly on slopes and uneven terrain
17. DO NOT weld, cut, bend or otherwise modify your Turf Teq machine including any shielding. Altering or modifying your machine will void the warranty and may make the machine unsafe.
18. Make sure you operate at a speed where you have 100% control of the machine at all times.
19. Do not backup unless there is adequate clear space to safely maneuver.
20. Engage the attachment drive before lowering the attachment to the ground.
21. Keep feet and hands away from rotating components.

SERVICING THE MACHINE SAFELY

1. Stop the engine before performing any service on the machine.
2. Remove the spark plug wire when working on the machine.
3. Wait for the engine to cool before working around the engine and muffler.

GENERAL INFORMATION ON PLANNING AND USING THE POWER RAKE FOR MAXIMUM PRODUCTIVITY

The Power Rake is a machine designed to quickly prepare a level, fine-textured bed, ready for seeding turf grass.

1. It is intended for conditioning and leveling the top layer of soil.
2. It is not designed to be used as a deep tiller.
3. If hard, unbroken soil is encountered, it is recommended that a chisel be used first for two reasons:
   A. To break up the soil for more efficient operation.
   B. To allow more water to be absorbed, thereby reducing surface erosion.

WARNING: To prevent personal injury, make certain all tractor and power rake safety shields are in place and secure before operating.

SUGGESTIONS FOR EFFICIENT SEEDBED PREPARATION

The following suggestions are to be understood as general in nature, since each operator will develop their own style of operation, specific to the plot and terrain that is being prepared.

Soil type and conditions vary considerably and must be addressed individually, as they are encountered.

There are three basic operations that a Power Rake performs: **CLEARING, TILLING**, **and LEVELING**. The following provides more suggestions for each operation.

1. **CLEARING** involves removing rocks from the soil surface. This is generally the final operation, but in extremely rocky conditions it is advisable to clear the area of excessive rocks for more efficient operation.

CAUTION: Do not attempt to operate the power rake in areas with heavy weeds, rope, wire, package strapping, or anything that can wrap around the end of the rotor. Steel strapping is extremely abrasive and causes excessive and premature wear when caught in the tiller.

NOTE: *When clearing an area with excessive rocks, adjust rotor depth so it just touches soil surface, then proceed to work and windrow rocks.*

NOTE: *Rock windrows should be picked up before they become too large. Large windrows affect performance and cause premature wear of the Power Rake.*

The adjustable angling feature of the Power Rake provides added efficiency when clearing an area. By reversing the angle, it is possible to continue moving rocks toward the collection area, while traveling in either direction.

2. **TILLING** is the main operation the machine performs. Experience will give the operator a feel for the best setting to use. Excessive depth can cause rock jamming.

In rocky conditions the Power Rake should be set at a shallow working depth for more efficiency. When there is a build-up of soil in front of the rotor, the soil build-up prevents rocks from being discharged away from the rotor and thus the machine jams much more readily. It is more efficient to make an extra pass at a shallower setting.

Overloading can be caused by an object such as a rock or root caught in the machine or by tilling too deeply in heavy, wet soil. Release clutch immediately when belt slippage occurs.

3. **LEVELING** occurs during the tilling process. Deeper rotor depth produces the best leveling. More shallow settings produce the smoothest seedbed.

When possible, it is best to work along contours rather than across them. The leveling function will cut off ridges and fill in valleys.

The operator may choose to angle the rotor parallel to the tractor axle to gain maximum leveling. However, when the rotor is straight, rocks will not discharge to the side. All dirt and rocks gather in front of the rotor. **The operator should be careful not to overload the tiller when the rotor is in this position.**

Learning to operate your Power Rake properly will allow you to get the most efficient use from it with minimal downtime. By keeping the following points in mind, you will be able to work more effectively and efficiently.

SURVEY THE AREA

Take a few minutes to walk around the jobsite. These few minutes are time well-spent because you can:

1. **Plan a strategy**. Ask yourself some questions about doing the job most efficiently. Where are the highest points on this job? Where are the lowest? Where should I start? Where should I deposit the rocks? These are the types of questions that you should ask yourself before starting each job.
2. **Look for obstructions**. Walk around the jobsite to spot the enemies of your Power rake. These enemies include: roots, steel strapping, rope, wire, plastic wrapping, or anything that may hinder or damage your machine. Remove these enemies before you start operating. Also, look for permanent objects that may often be buried or hidden on jobsites. These include: drainage pipe, electrical wiring, sewer vents, well covers, concrete slabs, etc.

WARNING: Be aware of electrical wires or pipes which may have a shallow cover of earth.

3. **Prepare for final clean-up**. Clean-up is made easier when you choose an area beforehand that is better for gathering and cleaning up rocks. Areas that are close to your trucks, on solid ground, along a street or grass-covered are ideal for depositing rocks and debris. Work the final windrows towards this area

PERSONAL SAFETY DECALS

This manual shows machine decals with safety messages on, “WARNING,” and “DANGER.” These safety messages are intended for your personal safety and those working with you. Please read the safety messages and the specific information they contain.

WARNING: THE WORD “WARNING” IS USED WHERE THERE IS A POTENTIAL OR HIDDEN HAZARD WHICH HAS THE POSSIBILITY FOR SERIOUS INJURY OR DEATH IF YOU DO NOT FOLLOW THE OPERATING INSTRUCTIONS FOR YOUR MACHINE. IT IS USED TO WARN OPERATORS AND OTHERS TO EXERCISE EVERY APPROPRIATE MEANS TO AVOID A SURPRISE INVOLVEMENT WITH MACHINERY.

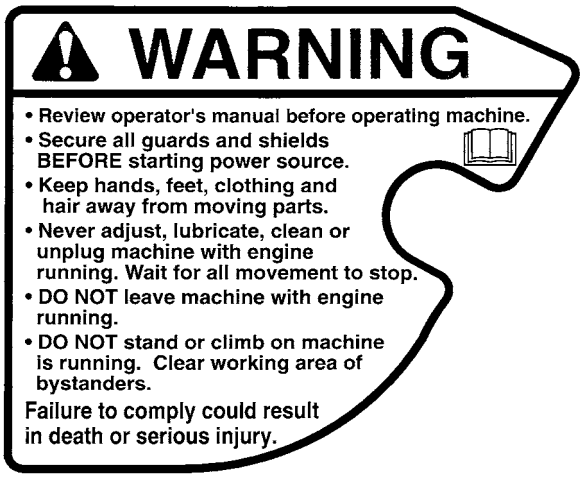
DANGER: THE WORD “DANGER” IS USED WHERE YOU ARE AT RISK OF BEING KILLED OR SERIOUSLY INJURED IF YOU DO NOT FOLLOW THE OPERATING INSTRUCTIONS IN CONNECTION WITH A SERIOUS HAZARD.

FAILURE TO FOLLOW THE “WARNING” AND “DANGER INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

SAFETY DECAL INFORMATION

The following safety decals were installed on the machine in the areas indicated. They are on the machine for your safety.

Keep the decals clean and legible at all times.



Located on the control console.

Located on Power Rake top cover.

Located on each side of the Power Rake.

SERIAL NUMBER LOCATIONS

TRACTOR SERIAL/MODEL NUMBER LOCATION

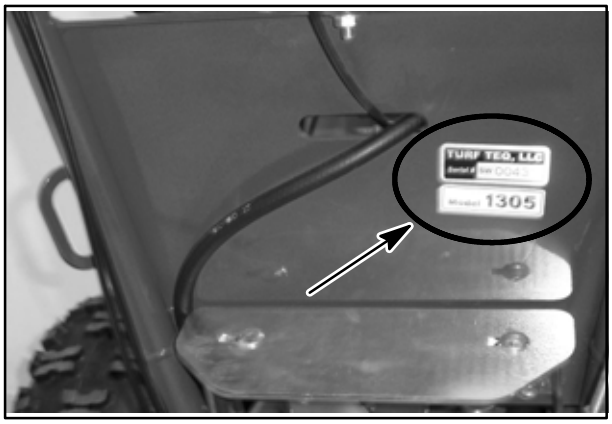
The serial and model numbers are located below the control panel as shown.

The serial and model numbers will be required when ordering parts.

For easy reference, enter Model and serial number on the lines:

Model _____

Serial Number _____



1

ENGINE SERIAL NUMBER LOCATION

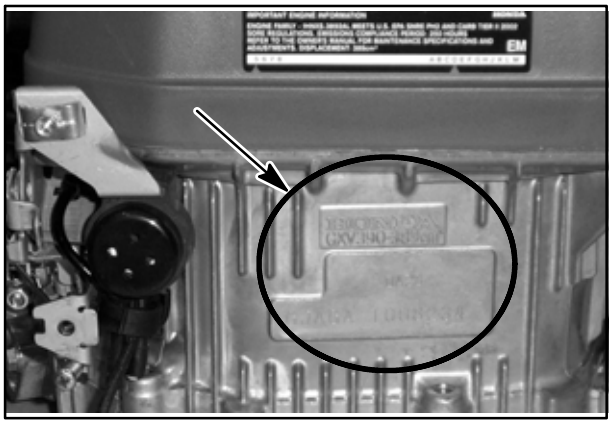
The Honda engine serial number is located on the backside of the engine as shown.

The serial number will be required when ordering parts.

For easy reference, enter the engine manufacturer and the serial number on these line:

Manufacturer _____

Serial Number _____



2

POWER RAKE SERIAL NUMBER LOCATION

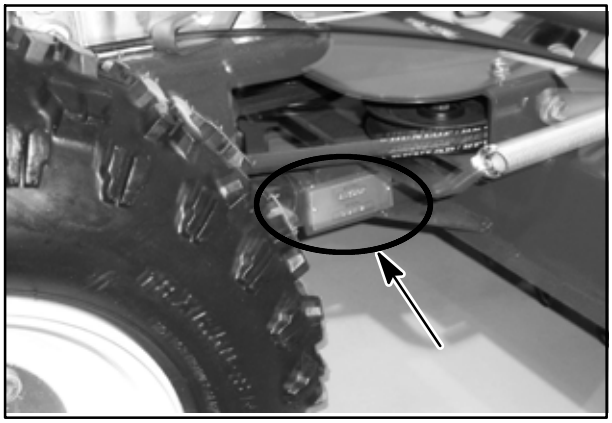
The serial number is located on the right side of the Power Rake attachment arm as shown.

The serial number will be required when ordering parts.

For easy reference, enter Model and serial number on the lines:

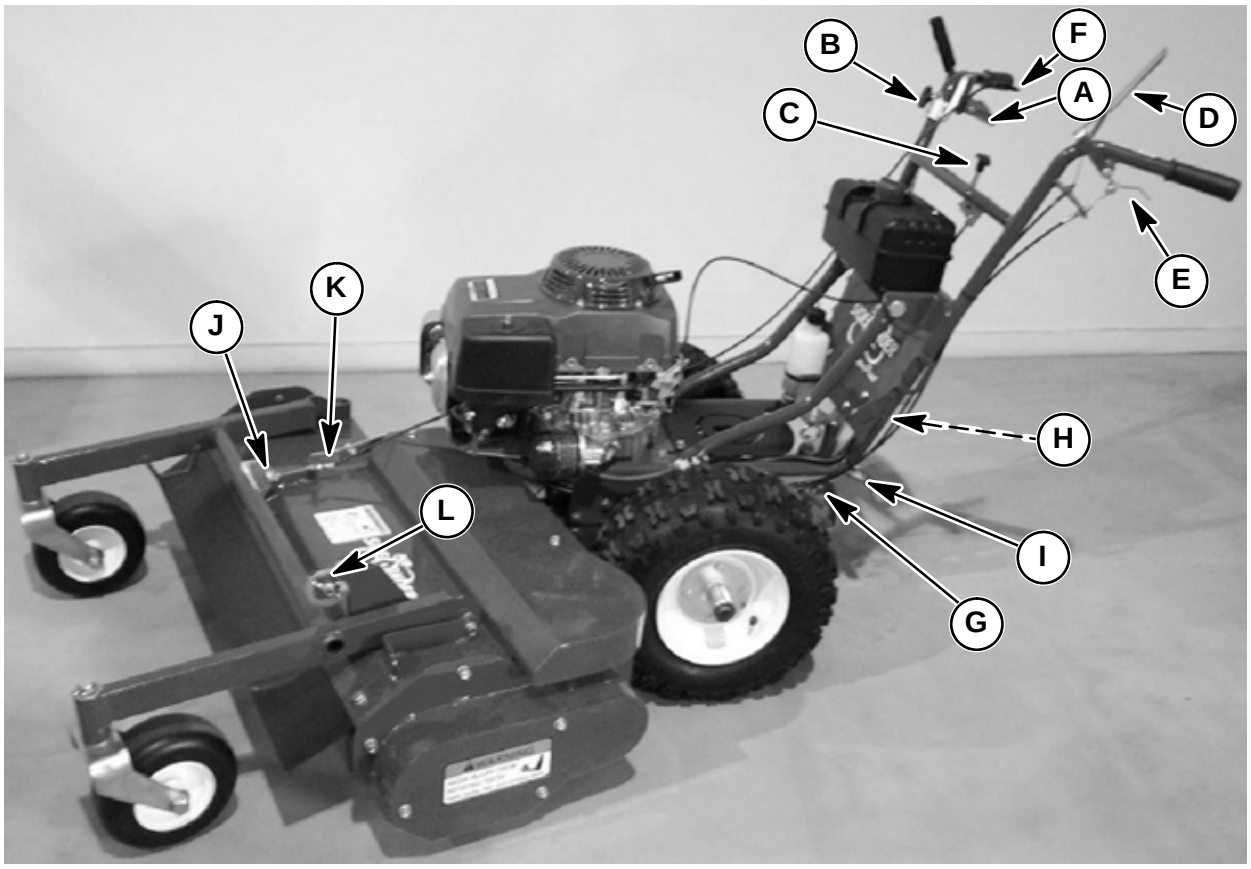
Manufacturer _____

Serial Number _____



3

CONTROL LOCATIONS – OVERVIEW



A. Hydrostatic transmission control lever
B. Adjustable speed control
C. Throttle control
D. Attachment drive engage/disengage with brake control lever
E. Swing control lever
F. Transport lock control lever
G. Transmission engage/disengage (tow valve) control lever
H. Park brake lever (Optional)
I. Differential lock control lever
J. Transport lock latch
K. Tension lever for Power Rake drive belt
L. Depth control cam

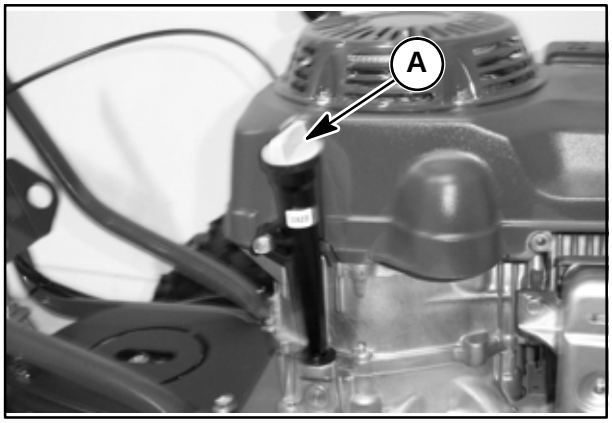
DAILY CHECKS TO PERFORM BEFORE STARTING THE ENGINE

NOTE: *Perform all checks with the machine on a flat, level and hard surface*

CHECK ENGINE OIL LEVEL

1. Remove the oil dipstick, A.
2. Check the oil level as indicated in the engine owner's manual and fill with the recommended motor oil.

NOTE: *OVERFILLING THE ENGINE OIL WILL CAUSE LOSS OF POWER.*

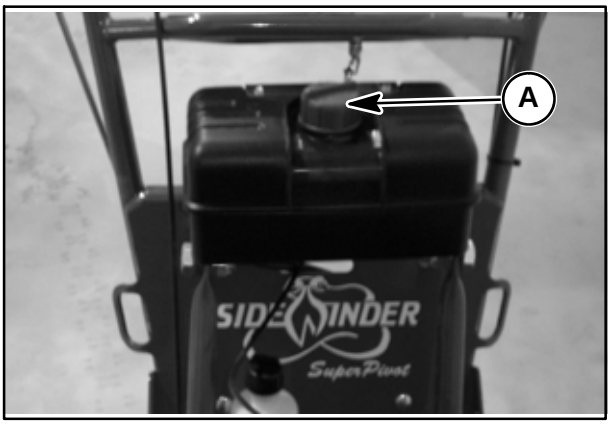


4

CHECK FUEL LEVEL

1. Remove the fuel tank cap, A.
2. Fill tank to the bottom of the fuel tank neck.
3. Use minimum of 86 octane gasoline.
4. Wipe any spilled fuel before staring the engine.

DO NOT OVERFILL THE FUEL TANK. OBSERVE ALL SAFETY STATEMENTS LISTED IN THE SAFETY INFORMATION SECTION

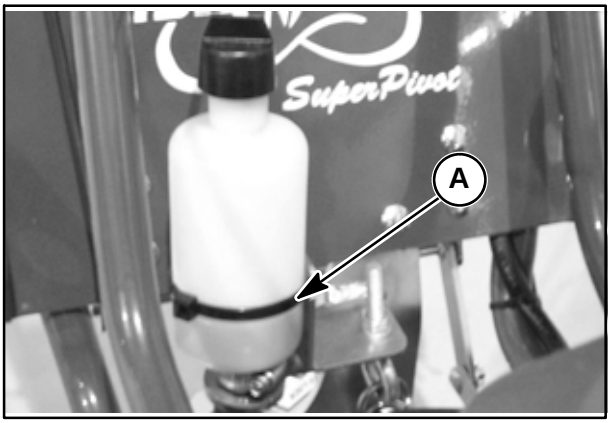


5

TRANSMISSION OIL LEVEL

1. Check that the oil level is to the full line, A, on the reservoir bottle.
2. Add 10W30 API motor as required as described in the "Service" section.

DO NOT OVERFILL.

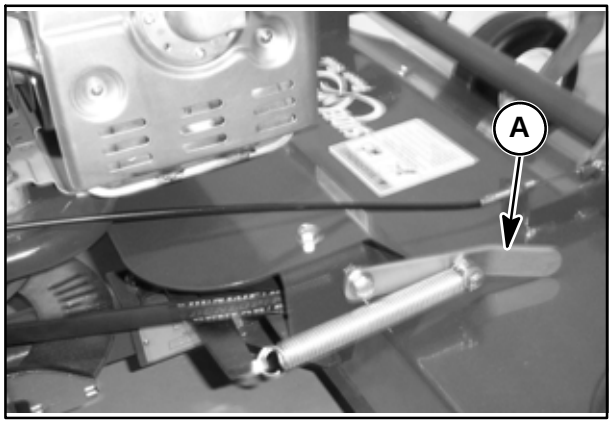


6

MAIN DRIVE BELT TENSION

1. Check that the main drive belt tension handle is facing forward as shown.
2. The tension handle, A, must be positioned facing forward as shown to apply tension to the belt.
3. If the belt slips during operation refer to the “Maintenance Section” for the procedure to use to tension the belt.

NOTE : *If the tension handle is positioned upward, the belt is not tensioned. Place the handle in the forward position before operating the Power Rake. or machine damage may occur.*

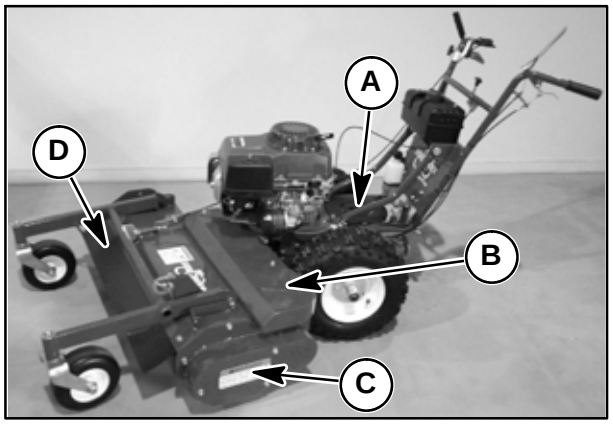


7

CHECK THAT ALL SHIELDS ARE INSTALLED AND ATTACHING HARDWARE IS TIGHT

1. Check the hydrostatic drive belt shield, A.
2. Check the main drive belt shield, B.
3. Check the drive chain cover, C.
4. Check the rubber dust shield, D.

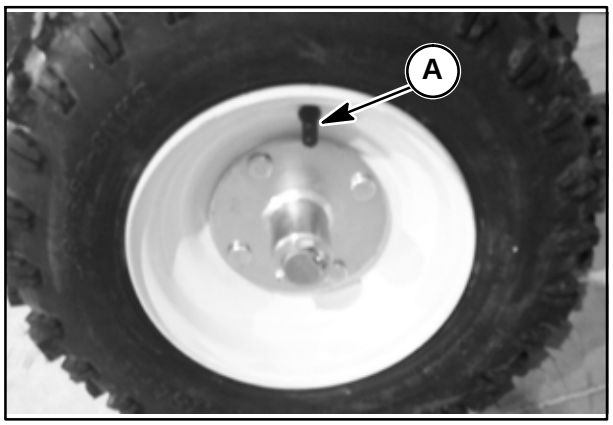
NOTE: *DO NOT OPERATE THE MACHINE WITH LOOSE OR MISSING SHIELDS. REPLACE MISSING SHIELDS IMMEDIATELY.*



8

CHECK TIRE PRESSURES

Check tire pressures in the two rear tires and inflate to 14 psi. The tires may have liquid in them so when checking the tire pressure, the valve stem, A, should be located at the top as shown.



9

GENERAL CONTROLS

PARK BRAKE (OPTIONAL EQUIPMENT)

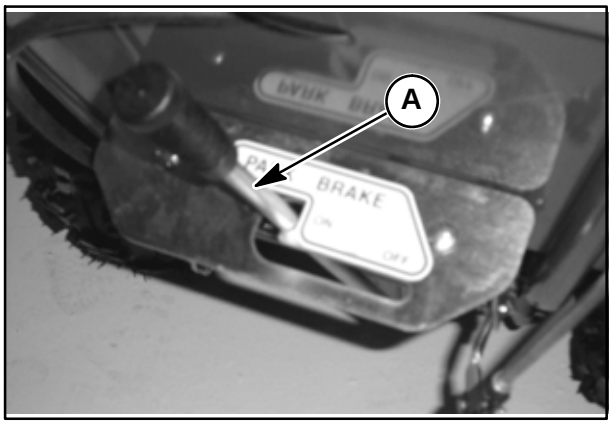
NOTE: *The Park Brake is an option and will not be on every machine*

When the Park Brake is engaged, the machine will keep the machine from moving when the engine is not running. When the Park Brake is disengaged, the machine can be moved.

NOTE: *The Park Brake must be disengaged before moving the machine or the Park Brake and transmission may be damaged.*

Park Brake Engaged

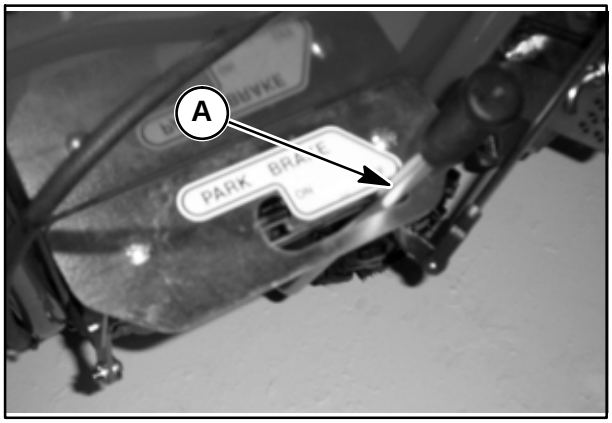
1. To engage, place the Park Brake lever, A, to the ON position. In this position the Park Brake will keep the machine from moving when the engine is not running.



10

Park Brake Disengaged

1. To disengage, place Park Brake lever, A, to the OFF position. In this position the Park Brake is disengaged and the machine can be moved.



11

TRANSMISSION CONTROL LEVER (TOW VALVE)

The TRANSMISSION CONTROL LEVER engages and disengages the transmission drive to the engine. This feature makes it easy to position the machine when the engine is not running.

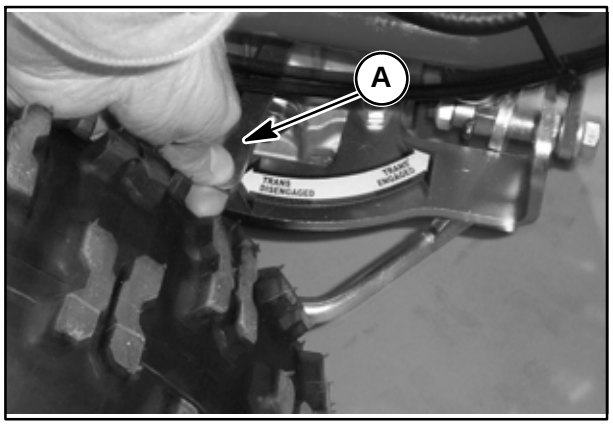
NOTE: *The Transmission control lever must be in the engaged position for the machine to move using engine power.*

Transmission Disengaged

When LEVER, A, is position forward as shown, the machine can be pushed or pulled without the engine running.

NOTE: *In the Transmission Disengaged position, the transmission will not propel the machine in forward or reverse when the engine is running and the hydrostatic control lever is activated.*

NOTE: *Lever must be pushed to the detent position of the end of the lever's travel.*



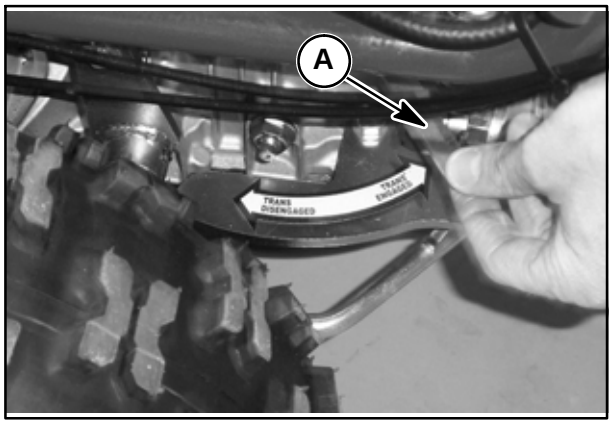
12

Transmission Engaged

When LEVER, A, is position rearward as shown, the machine will be very hard to push or pull when the engine is not running.

NOTE: *In the Transmission Engaged position, the transmission will propel the machine forward or reverse when the engine is running and the hydrostatic control lever is activated.*

NOTE: *Lever must be pushed to the detent position of the end of the lever's travel.*



13

DIFFERENTIAL CONTROL

The differential control lever is used to position the differential in either a unlocked or locked position.

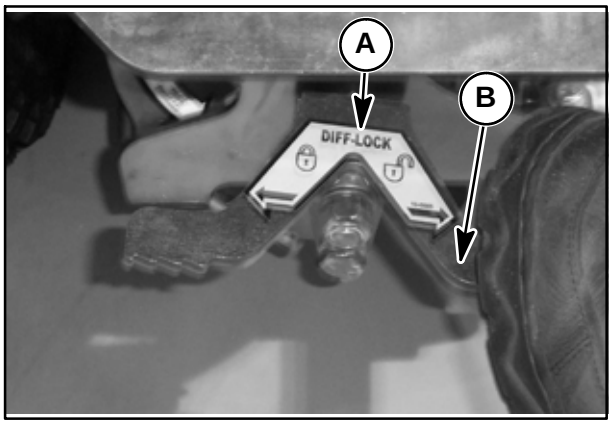
The machine should be operated in the Unlocked position until one tire starts to spin, then stop machine travel by placing the hydrostatic level in the neutral position. Place the Differential Lock in the Locked Position then resume machine travel.

NOTE: Only change the position of the Differential Lock when machine travel is stopped.

Unlocked Position

In the Unlocked position, the wheels may drive at different speeds depending on the traction available at each wheel. This position may provide reduced traction in certain ground conditions but will require the least effort to steer the machine.

1. Place the foot control, A, in the unlocked position by pushing down on the right side of the pedal, B, until the pedal locks in place.

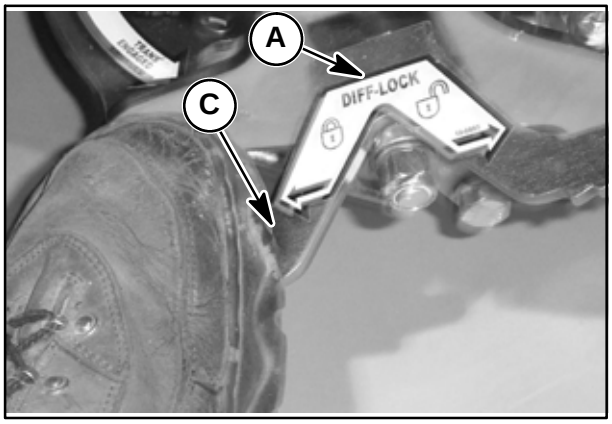


14

Locked Position

In the Locked position, both wheels will continuously drive at the same speed regardless of the available traction at each wheel. This position provides maximum traction but will increase the effort needed to steer the machine.

1. Place the foot control, A, in the locked position by pushing down on the left side of the pedal, C, until the pedal locks in place.

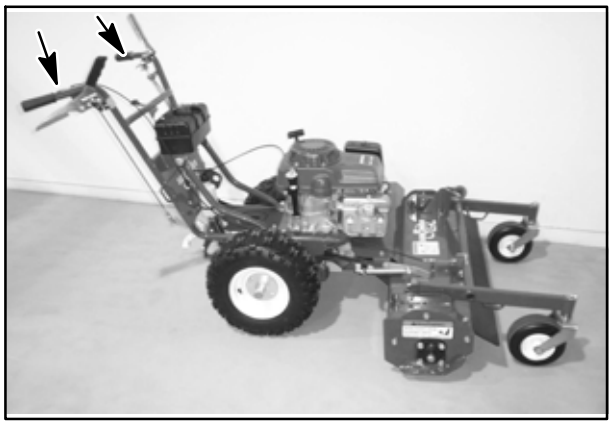


15

TRANSPORT AND OPERATING POSITION CONTROLS

The transport lock is used to keep the Power Rake in the raised position when transporting the machine.

NOTE: *When transporting the machine, the Power Rake must be locked in the transport position or the Power Rake or rotor may be damaged.*

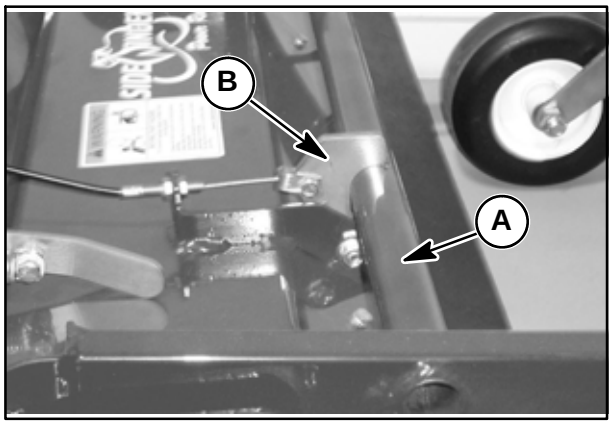


16

Transport Position

To position the Power Rake in the transport position:

1. Push down on the handlebars to raise the Power Rake lock bar, A, until it is captured by the Transport Lock, B.
2. Slowly reduce pressure on the handlebars. The transport lock holds the Power Rake in the transport position.

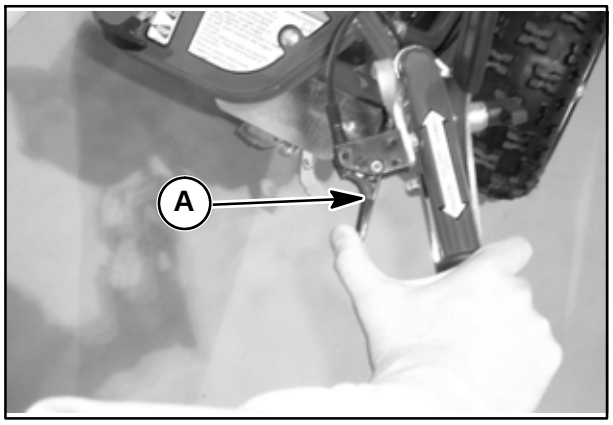


17

Operating Position

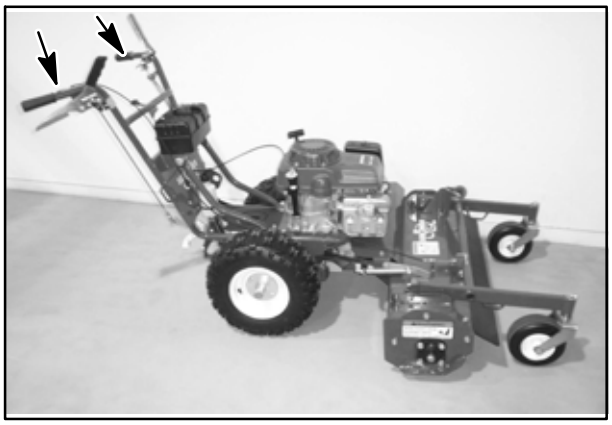
To position the Power Rake in the operating position:

1. Place light pressure on the Transport Lock Control Lever, A. as shown.



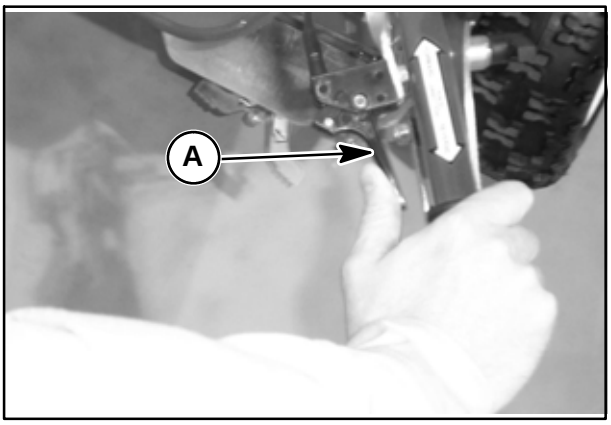
18

2. Push down on the handlebars to remove pressure from the transport lock.



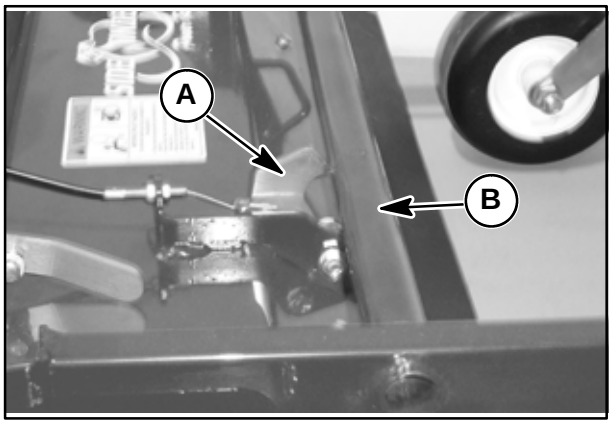
19

3. When the pressure is removed from the transport lock, the control lever, A, will be able to be fully depressed.



20

4. When the control lever is fully depressed, the transport lock, A, will unlatch from the lock bar, B.

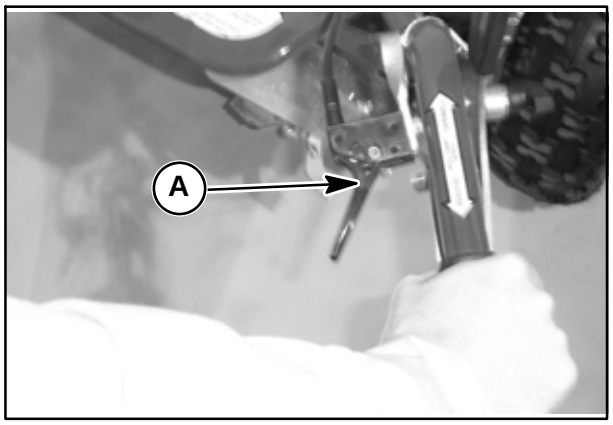


21

5. Slowly lower the Power Rake to the ground.

22

6. Release the pressure from the control lever, A.



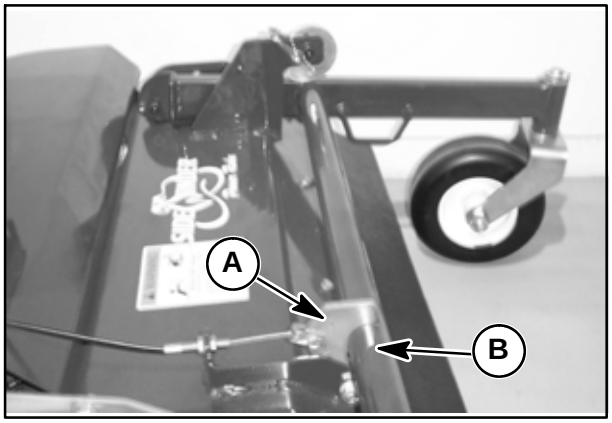
23

DEPTH ADJUSTMENT CONTROL

The Depth Control is used to adjust the working depth of the Power Rake rotor. This is the depth the earth will be tilled.

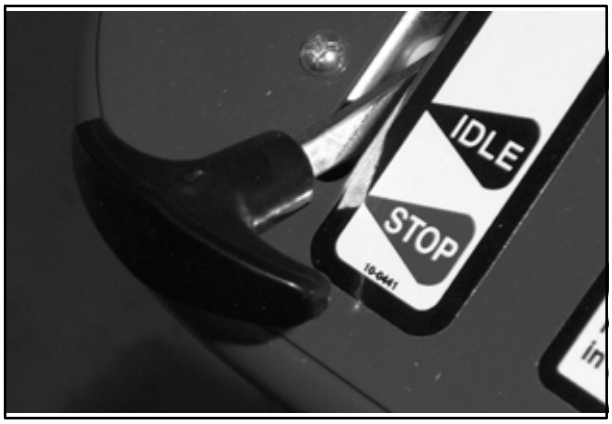
Adjusting The Depth Control

1. Raise the Power Rake to the transport position and ensure the transport lock, A, has captured the lock bar, B.



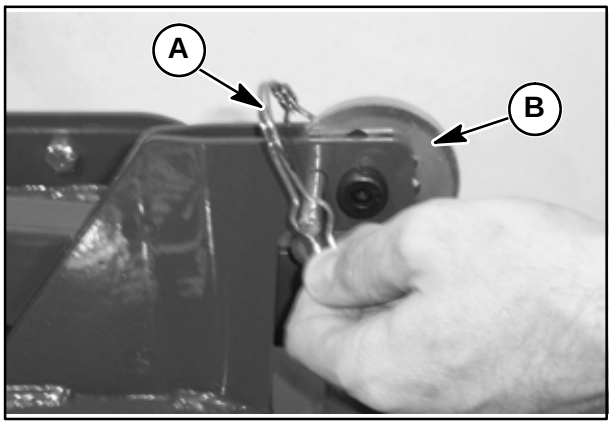
24

2. Stop the engine.



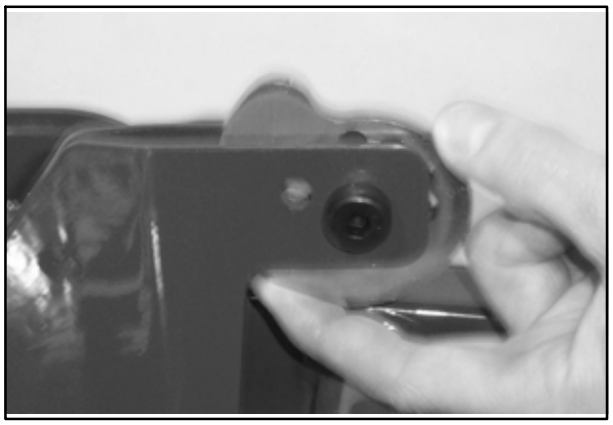
25

3. Remove the Lock Pin, A, from the Depth Adjustment Cam, B.



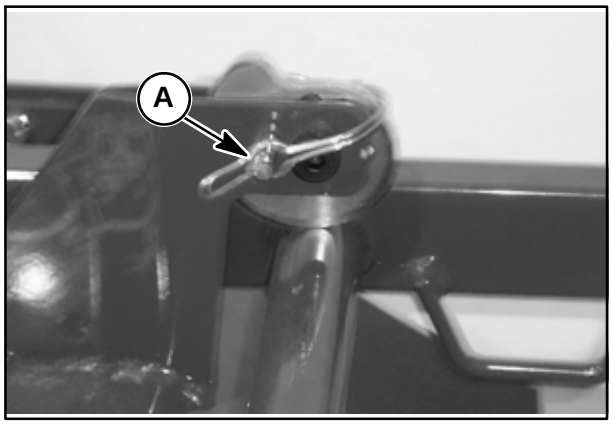
26

4. Rotate the cam to achieve the desired depth



27

5. Reinsert the lock pin, A.



28

POWER RAKE SWING CONTROL

Positioning The Power Rake Angle

POSITION THE POWER RAKE ATTACHMENT STRAIGHT FORWARD FOR TRANSPORTING AS THIS PROVIDES MAXIMUM STABILITY.

NOTE: *Only change the Power Rake angle when the machine is on a level surface.*

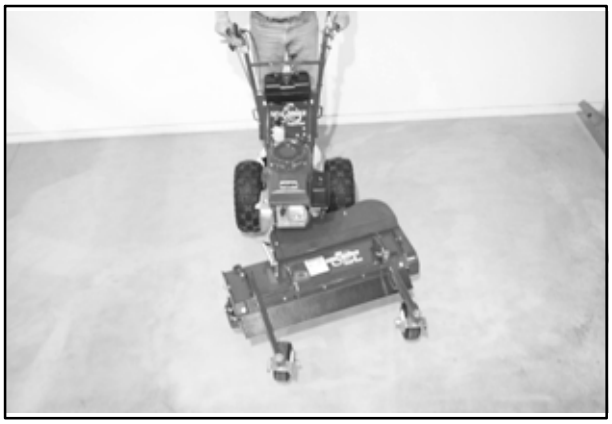
NOTE: *Left and right are determined by standing behind the machine facing the direction of travel.*

The POWER RAKE can be positioned as follows:

1. Straight ahead

29

2. Pivoted to the Left



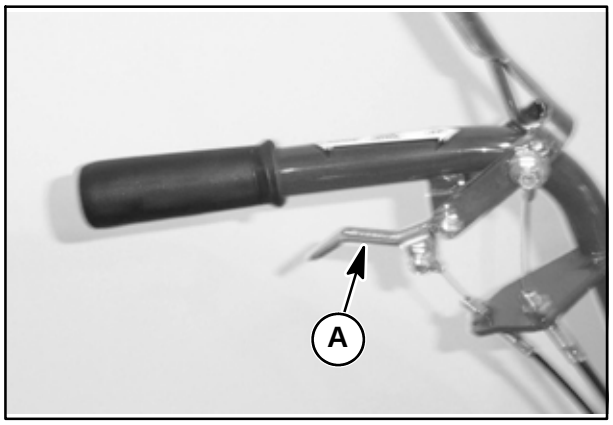
30

3. Pivoted to the right

31

Power Rake Swing Control Lever

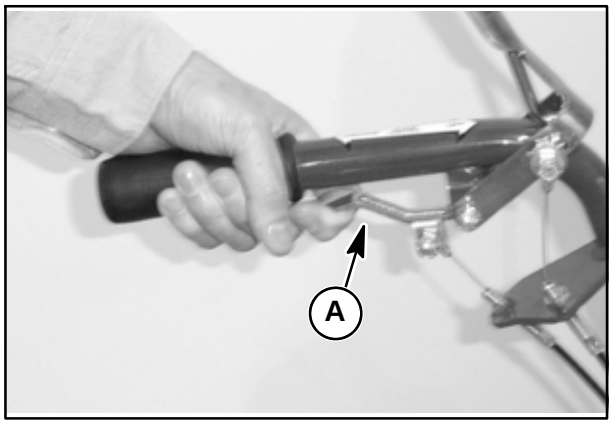
The swing control lever is shown at A.



32

Adjusting Power Rake Angle

1. Lift up and hold the SWING CONTROL LEVER, A.



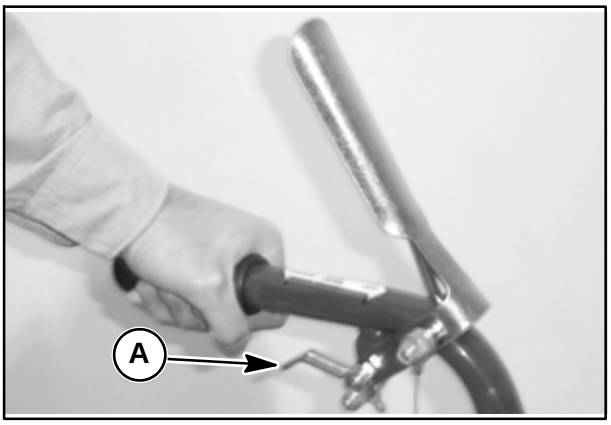
33

2. Push forward on the handlebar on the side you want the Power Rake to pivot toward. At the same time, pull rearward on the other handlebar until the desired angle is achieved.

NOTE: *Only change Power Rake position when the machine is on a level hard surface.*

34

3. Release the SWING CONTROL LEVER, A, and it will lock the Power Rake in position.

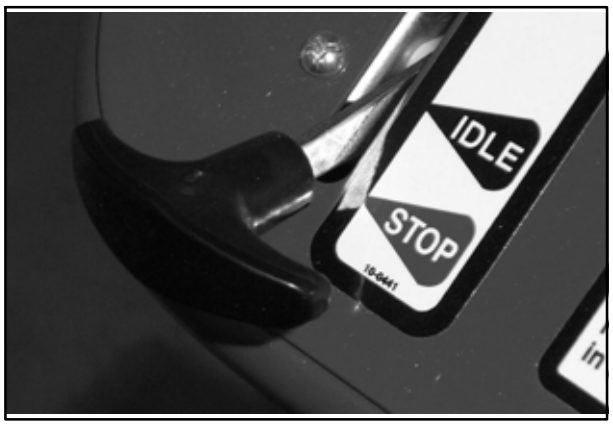


35

PARKING THE MACHINE

When parking the tractor, use the following procedure.

1. Stop the engine by placing the throttle control to the **STOP** position.

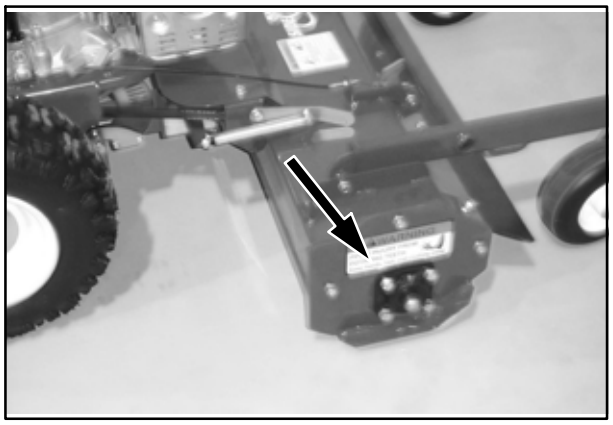


36

2. If equipped with the OPTIONAL PARK BRAKE, put the brake to the ON position.

37

3. Lower the Power Rake to the operating position as described in the “Transport and Operating Position section.”



38

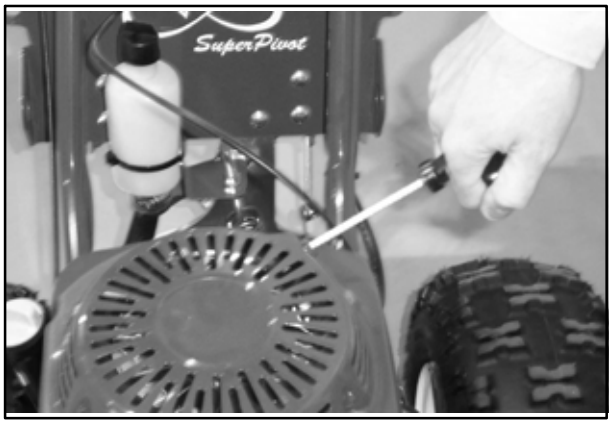
ENGINE OPERATION

STARTING A COLD ENGINE

1. Place the throttle control to the **CHOKE** position.

39

2. Pull the starter rope slowly and with low force until the slack is out of the rope and resistance is felt.
3. When resistance is felt, pull the rope with enough force to turn the engine fast enough to start the engine. Return the pull rope gently to the retracted position.

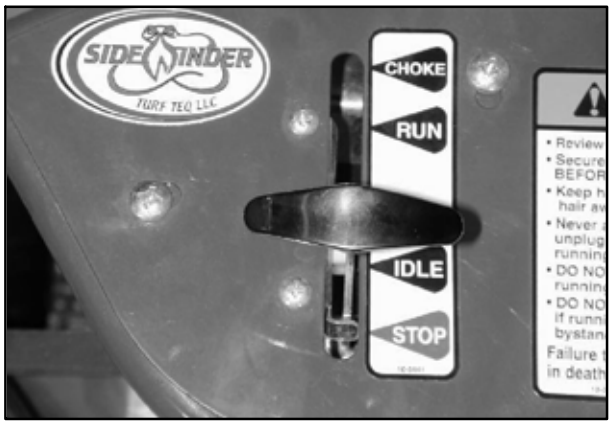


40

4. When the engine starts, position the throttle to the **RUN** position for 30 seconds to allow the engine to warm up.

41

5. After the engine has warmed up, slowly place the throttle to the **IDLE** position.



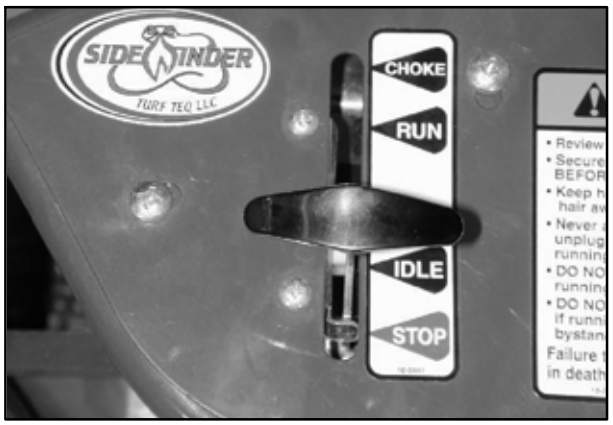
42

6. Move the throttle to the **RUN** position when operating the machine.

43

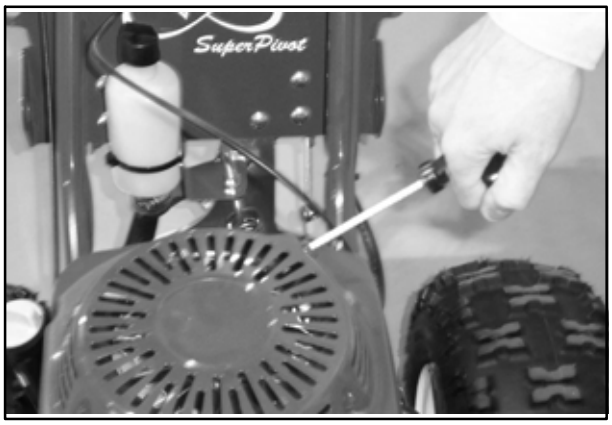
STARTING A WARM ENGINE

1. Place the throttle control slightly past the **IDLE** position.



44

2. Pull the starter rope slowly and with low force until the slack is out of the rope and resistance is felt.
3. When resistance is felt, pull the rope with enough force to turn the engine fast enough to start the engine.



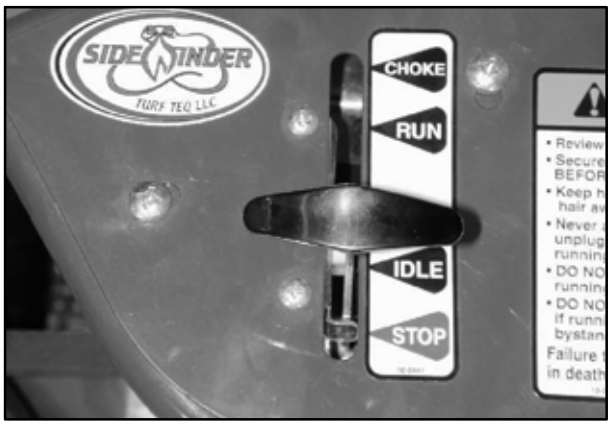
45

4. Move the throttle to the **RUN** position when operating the machine.

46

STOPPING THE ENGINE

1. Place the throttle to the **IDLE** position and allow the engine to idle for 30 seconds.



47

2. Place the throttle in the **STOP** position and the engine should stop running.

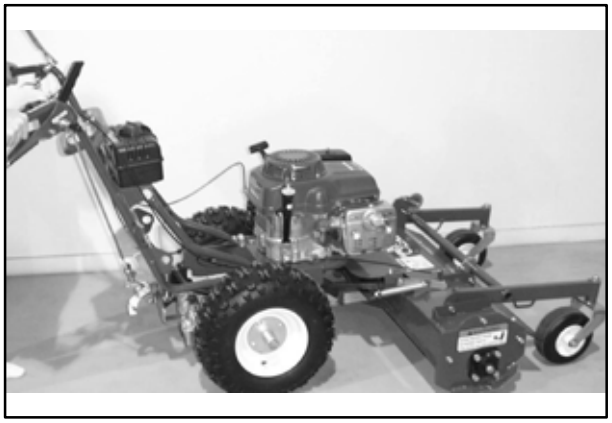
NOTE: *ENGINE COMPONENTS GET VERY HOT DURING OPERATION. STOP THE ENGINE AND ALLOW IT TO COOL BEFORE DOING ANY WORK ON THE ENGINE.*

48

OPERATING THE DIRECTIONAL SPEED CONTROLS

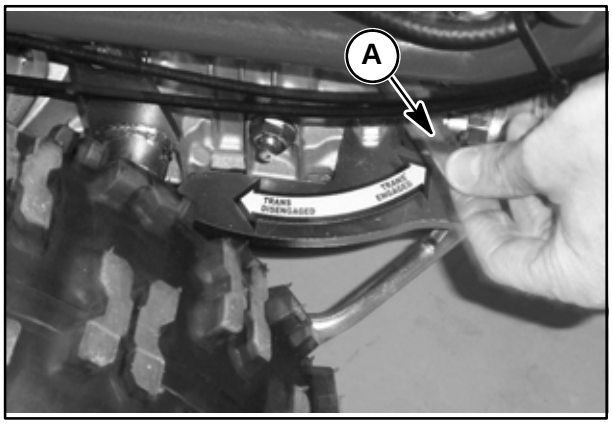
PRELIMINARY STEPS TO MOVING THE MACHINE IN ANY DIRECTION WITH ENGINE RUNNING

1. Raise the Power Rake to the transport position using the procedure described in the “CONTROLS” Section.



49

2. Place LEVER, A, in the TRANSMISSION ENGAGED position as shown.



50

3. Start the engine using the procedure described in the “ENGINE OPERATION” Section.

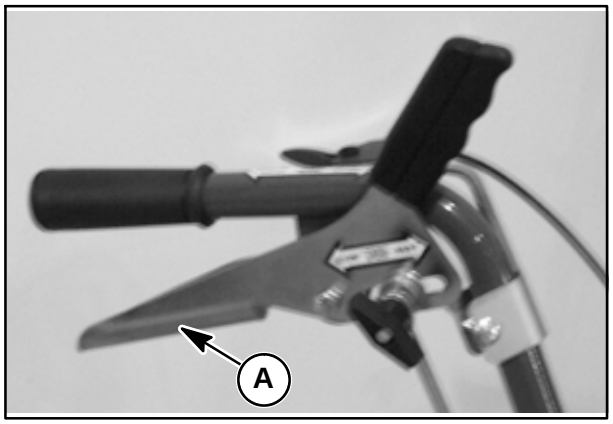
51

4. If equipped, place the OPTIONAL PARK BRAKE in the OFF position.

52

STOPPING MOVEMENT WITH ENGINE RUNNING

1. RELEASE the HYDROSTATIC CONTROL LEVER, A. The lever will automatically go the neutral position as shown.
2. When the hydrostatic lever is in the neutral position the machine will not move.



53

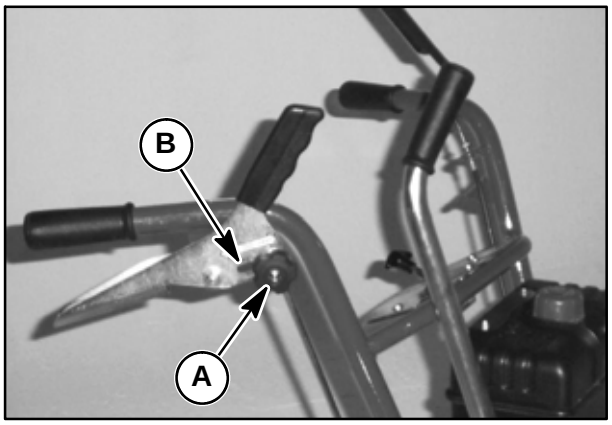
VARIABLE SPEED CONTROL ADJUSTMENT

1. Adjust to slowest speed.

The maximum forward and reverse speeds can be adjusted to meet specific operating conditions by moving the Control Knob, A, in the adjustment slot.

WARNING: Adjust to slowest speed setting, B, while learning to operate the machine and when operating in confined spaces.

NOTE: *Only adjust the variable speed control when the engine is stopped.*



54

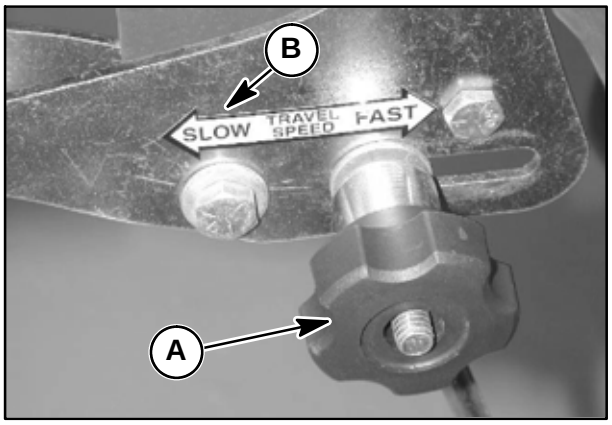
ADJUSTING THE VARIABLE SPEED CONTROL

1. Loosen the control knob, A.
2. Move the VARIABLE SPEED CONTROL KNOB forward to the FAST position to increase maximum speed. (Knob shown in fastest position.)
3. Move the VARIABLE SPEED CONTROL KNOB rearward to the SLOW position to decrease maximum speed.
4. Tighten control knob, A.

NOTE: *The optimum location of the VARIABLE SPEED CONTROL KNOB allows you to fully engage the hydrostatic control lever to achieve a comfortable operating speed for the ground conditions.*

NOTE: *Moving the VARIABLE SPEED CONTROL KNOB toward the FAST position increases hydrostatic control level effort.*

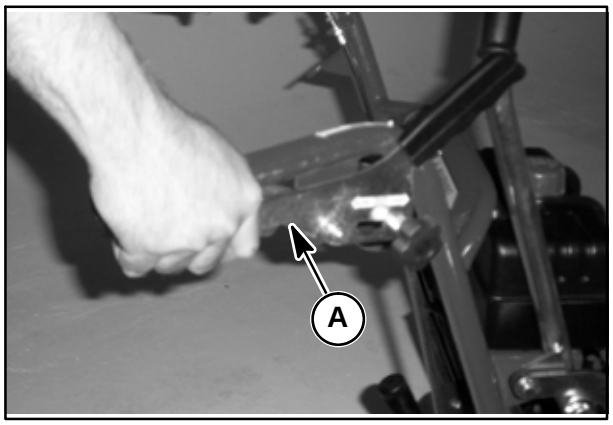
NOTE: *Moving the VARIABLE SPEED CONTROL KNOB toward the SLOW position decreases hydrostatic control level effort.*



55

FORWARD DIRECTION

1. Complete the 4 steps in the PRELIMINARY STEPS TO MOVING THE MACHINE if not already completed.
2. SLOWLY apply pressure and gradually PULL UP on the HYDROSTATIC CONTROL LEVER, A, to provide a smooth start.
3. Forward speed is directly proportional to the amount the hydrostatic control lever is moved.
4. The more the lever is pulled up, the faster the forward ground speed will be.



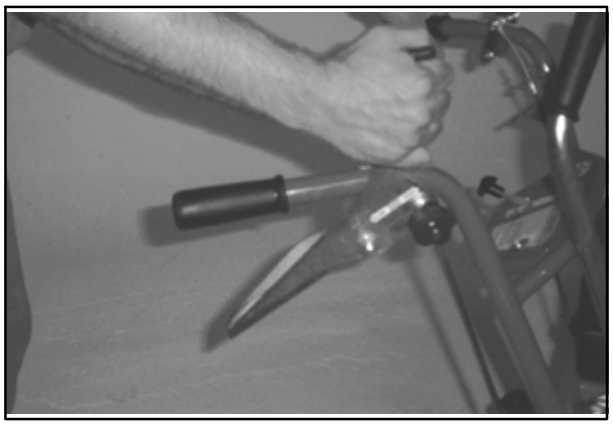
56

CAUTION: When stopping, gradually release pressure on the speed control level to provide a smooth stop.

REVERSE DIRECTION

1. Complete the 4 steps in the PRELIMINARY STEPS TO MOVING THE MACHINE if not already completed.
2. SLOWLY apply pressure and gradually PULL BACK on the HYDROSTATIC CONTROL LEVER to provide a smooth stop.
3. Reverse speed is directly proportional to the amount the hydrostatic control lever is moved.
4. The more the lever is pulled back, the faster the reverse ground speed will be.

NOTE: *Do not back up with the attachment on the ground.*


57

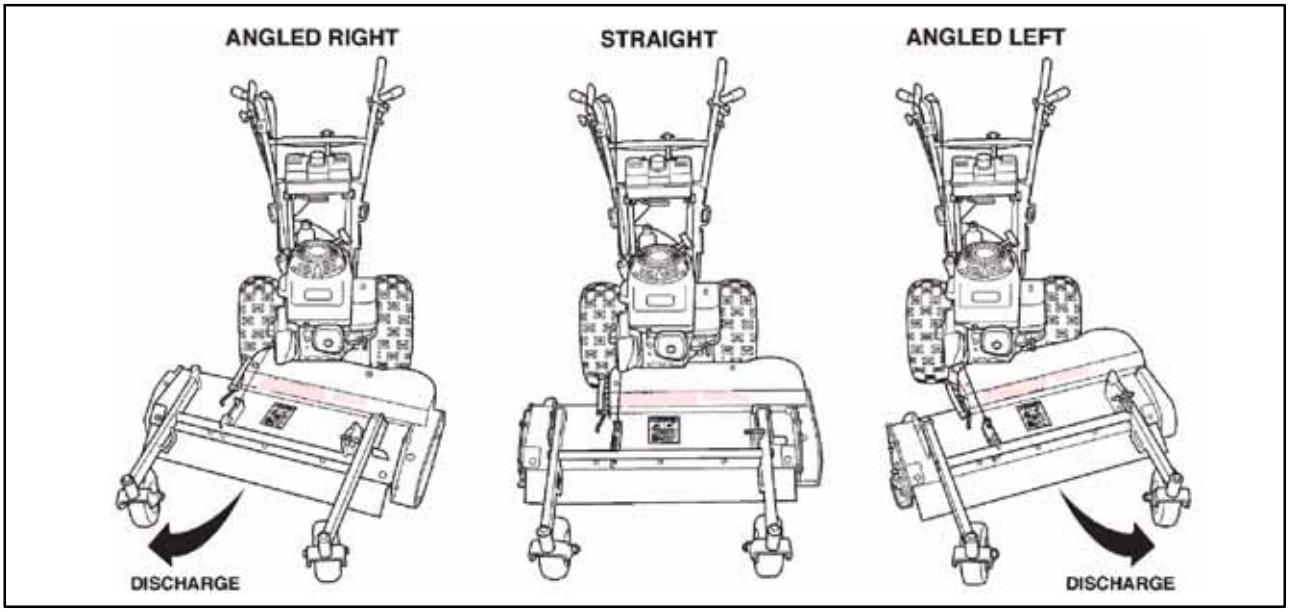
OPERATING THE ATTACHMENT

POSITIONING THE POWER RAKE ANGLE

POSITION THE POWER RAKE ATTACHMENT STRAIGHT FORWARD FOR TRANSPORTING AS THIS PROVIDES MAXIMUM STABILITY.

NOTE: *Only change the Power Rake angle when the machine is on a level surface.*

NOTE: *Left and right are determined by standing behind the machine facing the direction of travel.*



58

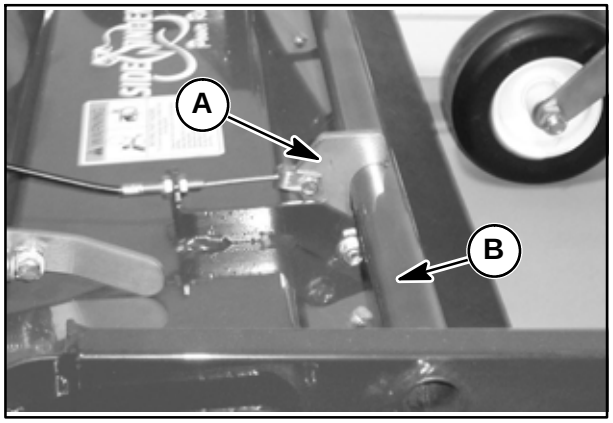
POWER RAKE POSITION

1. Refer to the “Controls” Section for the procedure to adjust the angle of the Power Rake.
2. Position the Power Rake to the appropriate position so the debris is discharged as shown.

OPERATING THE POWER RAKE

STARTING THE POWER RAKE

1. Raise the Power Rake to the transport position by pushing down on the handlebars until the transport lock, A, engages lock bar, B, and holds the attachment in the transport position as described in the “Controls” section.
2. Adjust the depth adjustment cam to the desired working depth as described in the “Controls” section.

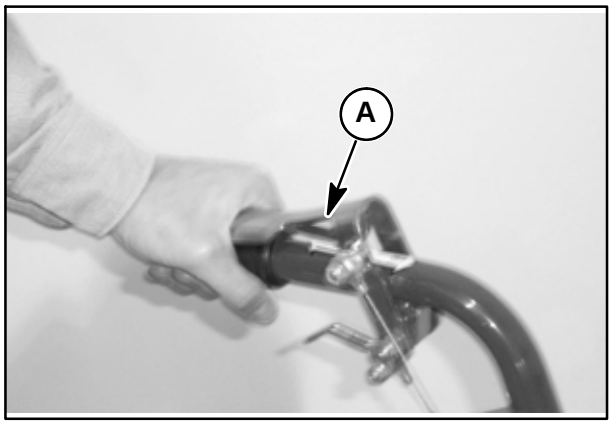


59

3. Start the engine and place the throttle to the run position as described in the “STARTING THE ENGINE” section.

60

4. Depress the POWER RAKE DRIVE CONTROL AND BRAKE LEVER, A, as shown. This releases the attachment drive brake and engages the drive.



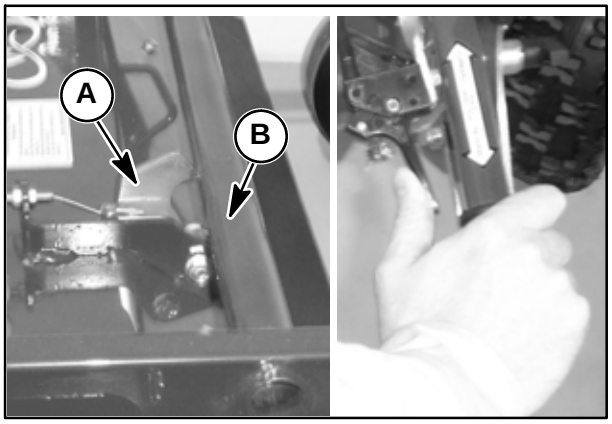
61

WARNING: Rotation of the rotor may cause tractor to move backwards, under certain soil conditions, if tractor is not moving forward under power, or Tow Valve is in ON position.

CAUTION: Operating at excessive speeds can cause excessive wear or damage to the machine.

NOTE: *Engage attachment before lowering onto the ground.*

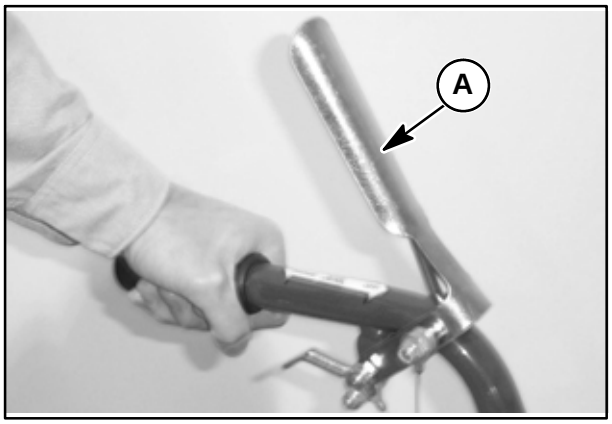
5. Lower the Power Rake to the operating position by pushing down on the handlebars until the transport lock lever, A, can be depressed fully, releasing lock, B, then slowing lower the Power Rake to the ground as described in the “Controls” section.



62

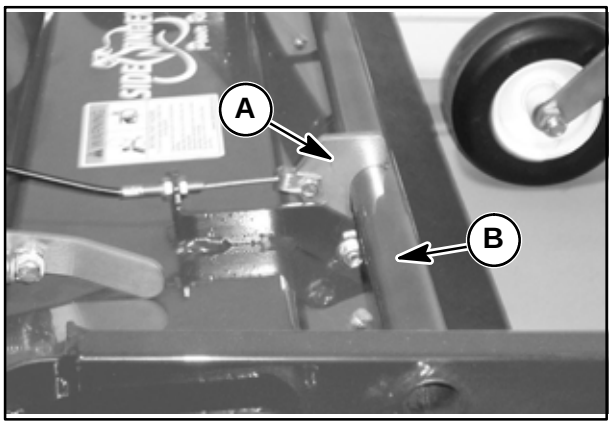
STOPPING THE POWER RAKE

1. Release the POWER RAKE DRIVE CONTROL AND BRAKE LEVER, A, as shown. This will disengage the drive and apply the brake to stop the Power Rake from turning.



63

2. Raise the POWER RAKE to the transport position by pushing down on the handlebars until the transport lock, A, engages bar, B, and holds the attachment in the transport position as described in the “Controls” section.



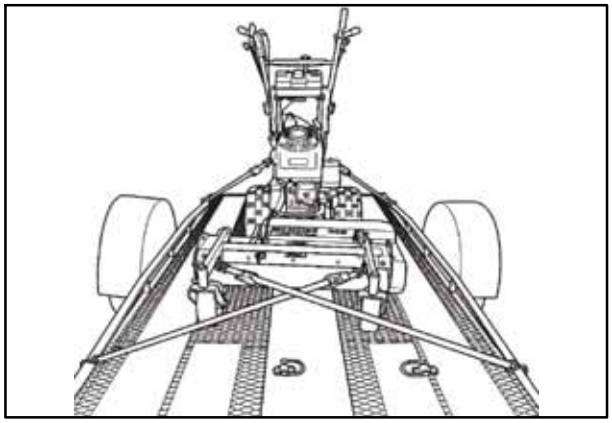
64

SECURING THE POWER RAKE FOR TRANSPORT

1. Position the Power Rake on a trailer or other vehicle.
2. Stop the engine.
3. Lower the Power Rake until the rotor rests on the deck.

NOTE: *The attachment must be fully lowered during transport or the frame may be damaged.*

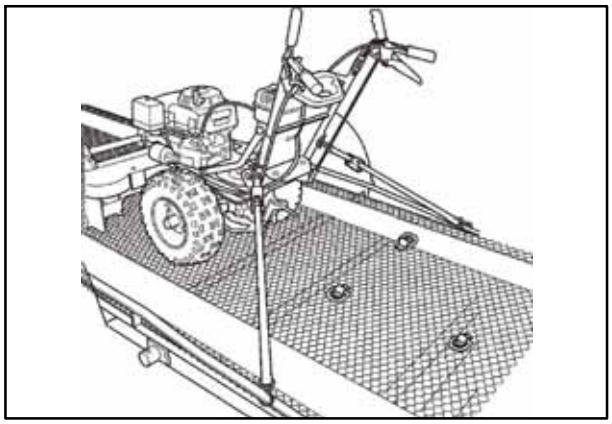
4. Use the front tie down loops on the bottom of the wheel frame to secure the front of the machine.



65

5. Secure the rear of the tractor using the tie down loops as shown.

NOTE: *Do not over tighten the tie down straps or the frame or tires may be damaged.*



66

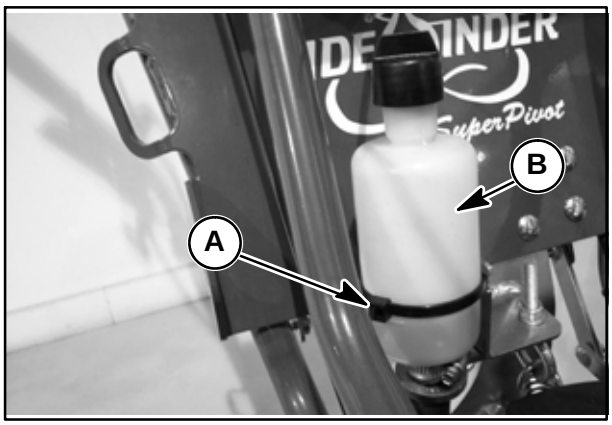
SERVICE

ENGINE MAINTENANCE

See engine manufactures owners manual.

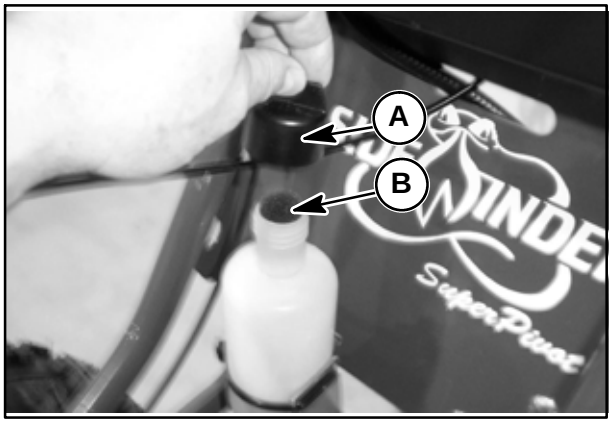
TRANSMISSION OIL LEVEL

1. Check the oil level when the transmission is cool.
2. The oil level should be to the full line, A, on the reservoir ,B.
3. Use 10W30 API motor oil to fill the reservoir.



67

4. Add oil by removing cap, A, then remove foam element, B.
5. Add oil as required.
6. Replace foam element and replace cap.



68

LUBRICATION

Lubricate the following grease points every 10 hours or on an annual basis whichever comes first.

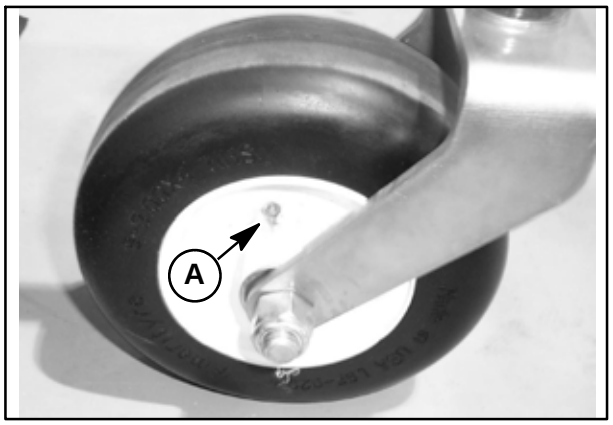
Use a SAE all weather, high temperature, multipurpose grease.

Add grease to the fittings until there is a slight increase in effort needed to operate the grease gun handle.

CAUTION: Worn grease fittings that will not hold the gun, and fittings with a stuck check ball, must be replaced.

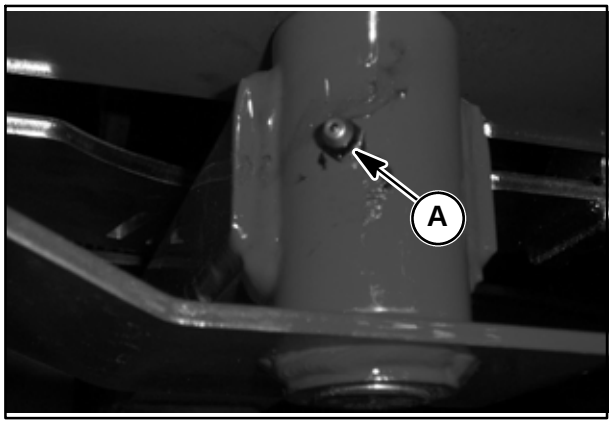
Items not equipped with grease fittings (linkages, cables, pins, levers, etc.) should be lubricated with SAE 30 oil before the start of each operating day, or more frequently as conditions require.

Dolly wheels – Apply grease to zerk, A, on each wheel.



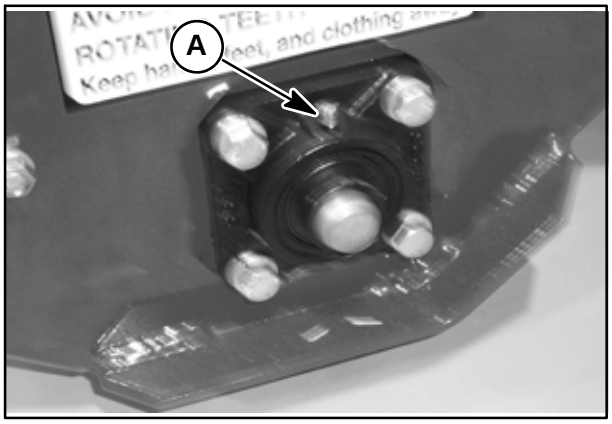
69

Attaching pivot located at the pivot located under the frame below the engine. Apply grease to zerk, A.



70

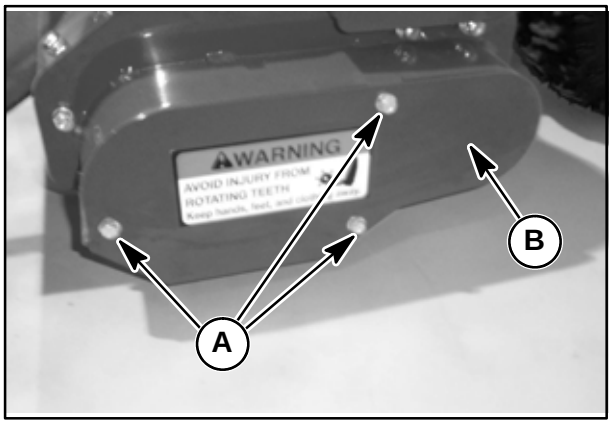
Right side rotor bearing. Apply grease to zerk, A.



71

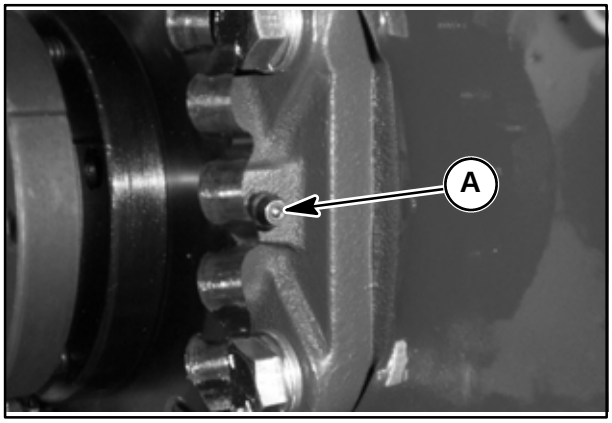
Left side rotor bearing.

1. Remove three retaining bolts, A, from cover, B.



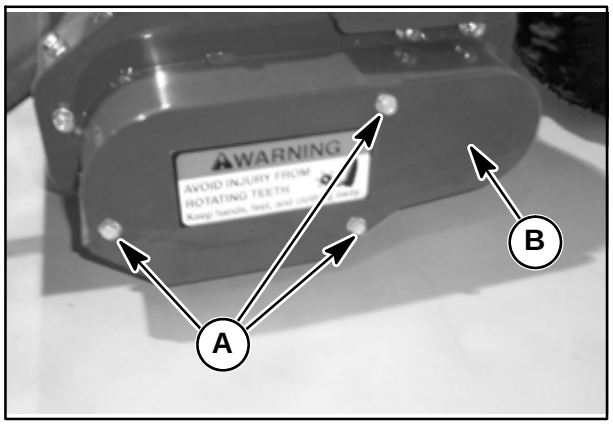
72

2. Apply grease to zerk, A, located behind the front sprocket.



73

3. Reinstall cover, B, and tighten retaining bolts, A.



74

MAIN DRIVE BELT

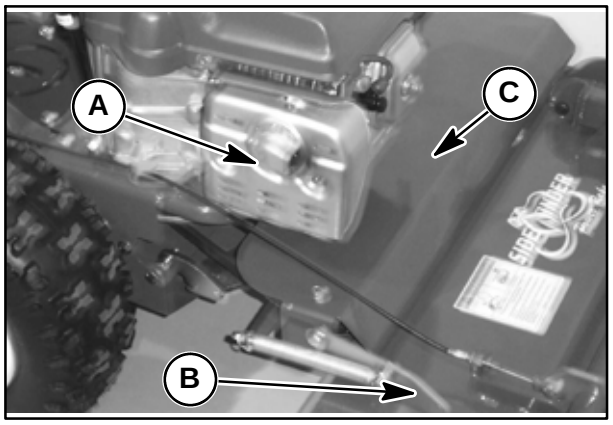
The main drive belt transfers power from the engine to the Power Rake. It is tensioned by a spring attached to the idler assembly.

WARNING: Before starting any work:

1. **Allow the engine and muffler to cool before starting work.**
2. **Remove the spark plug wire from the spark plug.**
3. **Place the throttle control to the Stop position.**
4. **Lower the Power Rake to the ground.**

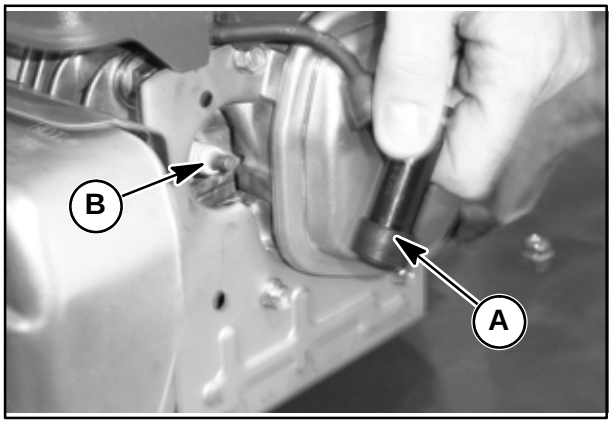
CHECK MAIN DRIVE BELT TENSION

1. Allow the engine and muffler, A, to cool before attempting to work around the engine, main drive belt tension level assembly, B, or to remove the drive main belt shield, C.



75

2. Remove the spark plug wire, A, from the spark plug, B.

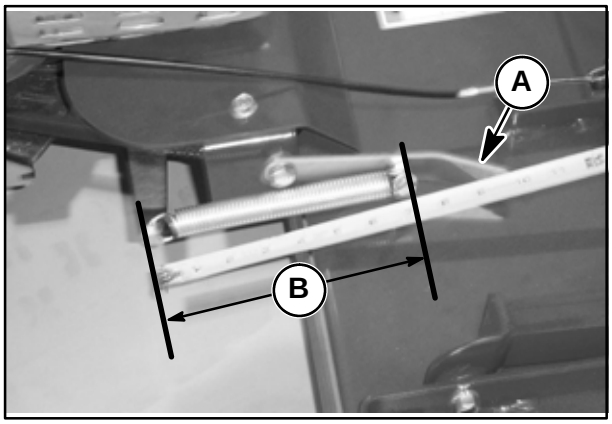


76

3. Measure the length of the tensioning spring with the belt tension handle, A, forward as shown.
4. The spring length at B, should be 7-1/2 inches measured from the end of the hook to the end of the other hook.

ATTENTION: *If the tension is incorrect proceed to the "Adjust Main Drive Belt" section.*

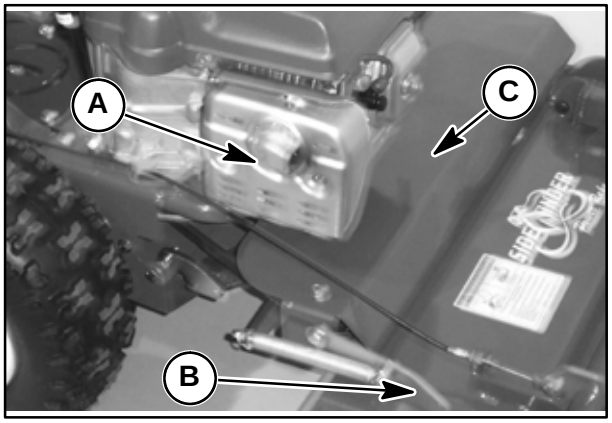
If the tension is correct but the belt continues to slip, the belt Must be replaced. Proceed to the "Replace Main Drive Belt" section.



77

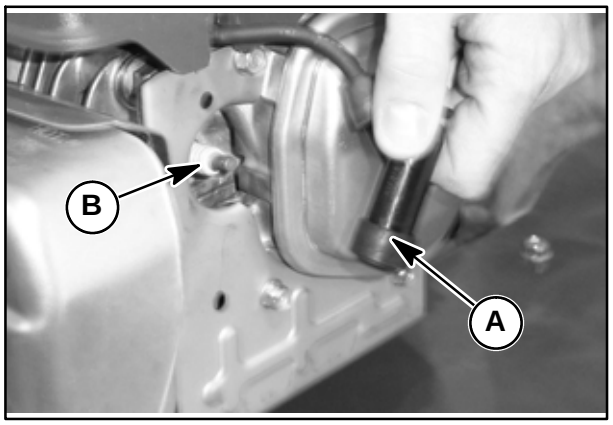
ADJUSTING MAIN DRIVE BELT

1. Allow the engine and muffler, A, to cool before attempting to move the main drive belt tension level, B, or to remove the drive main belt shield, C.



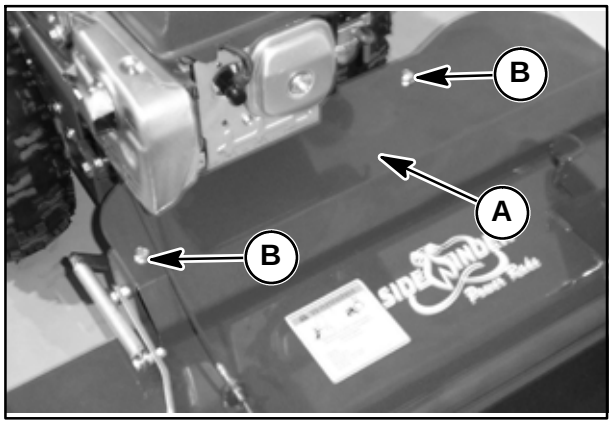
78

2. Remove the spark plug wire, A, from the spark plug, B.



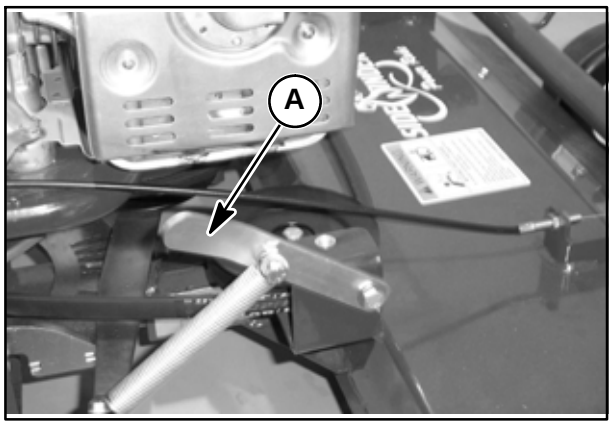
79

3. Remove the main drive belt shield, A, by removing the two attaching bolts, B.



80

4. Move the tension lever, A, rearward to the disengaged position as shown.



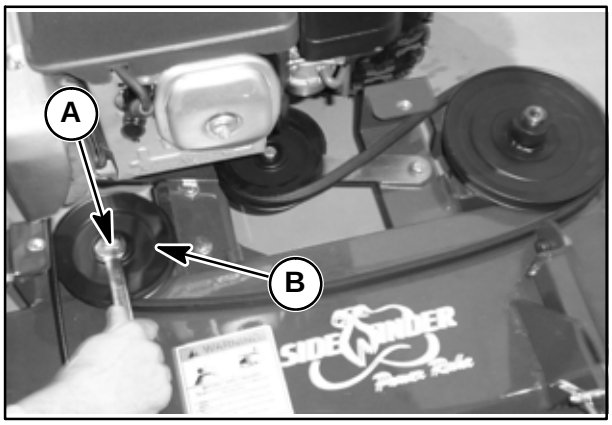
81

5. Loosen attaching bolt, A, for idler pulley, B.

Note: *Move the pulley outward to increase spring tension if the spring measurement was under 7-1/2 inches.*

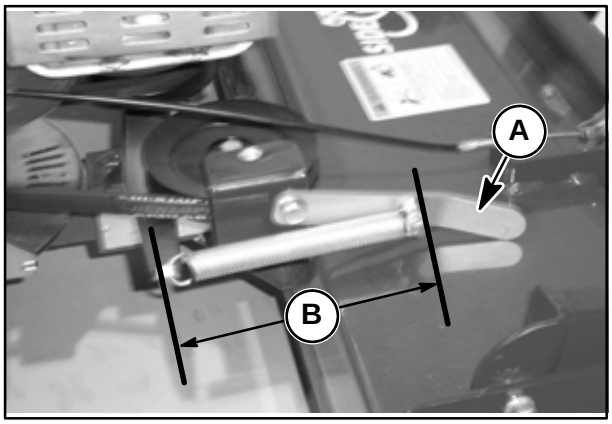
Note: *Move the pulley inward to reduce spring tension if the spring measured over 7-1/2 inches.*

Tighten the idler attaching bolt, A.



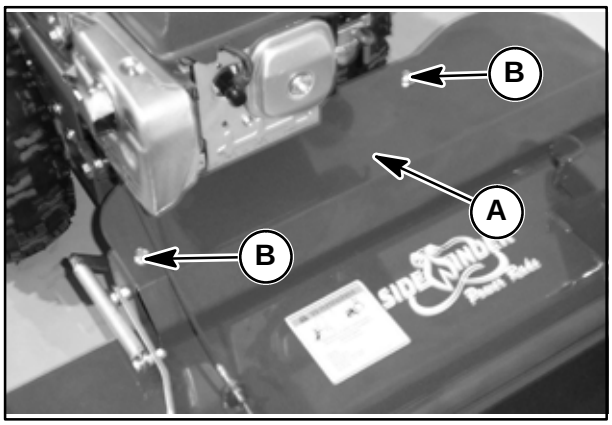
82

6. Place the tension handle, A, forward to the tension position as shown.
7. The spring length at B, should be 7-1/2 inches measured from the end of the hook to the end of the other hook.
8. Repeat steps 4, 5, 6 and 7 until the 7-1/2 inch spring dimension is achieved.



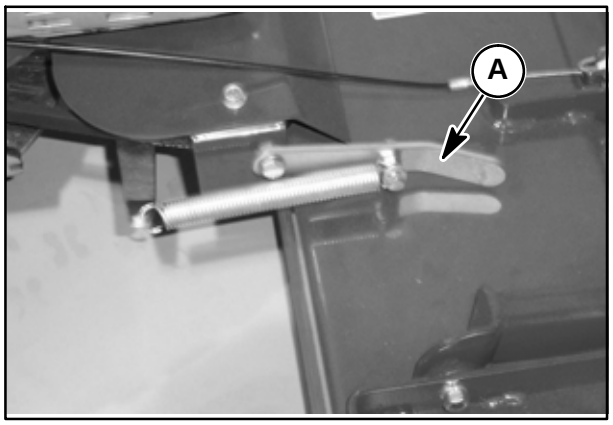
83

9. Install main belt shield, A, and tighten bolts, B.



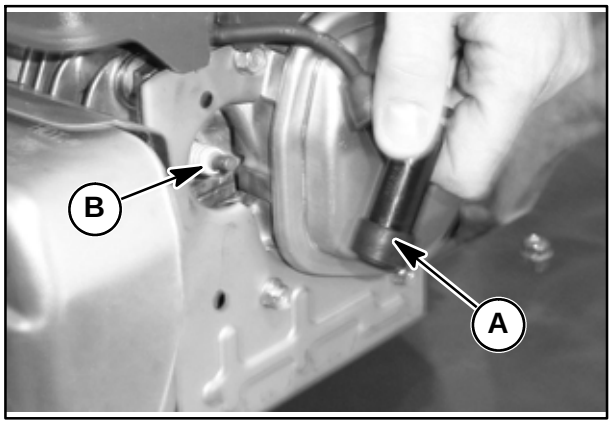
84

10. Place the tension lever, A, forward in the belt tension position.



85

11. Install the spark plug wire, A, on the spark plug, B.



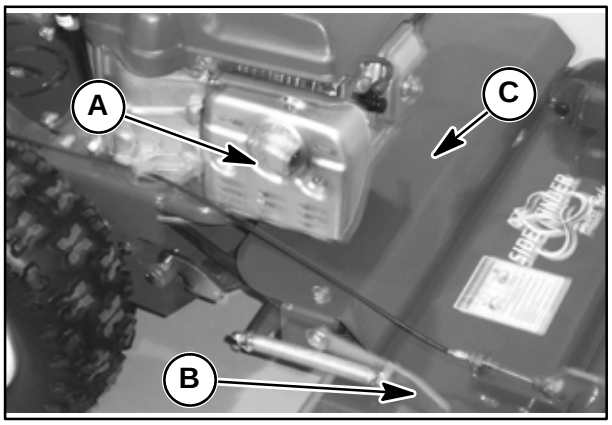
86

12. Check for proper operation and correct any problems before placing the machine back in operation.

REPLACING THE MAIN DRIVE BELT

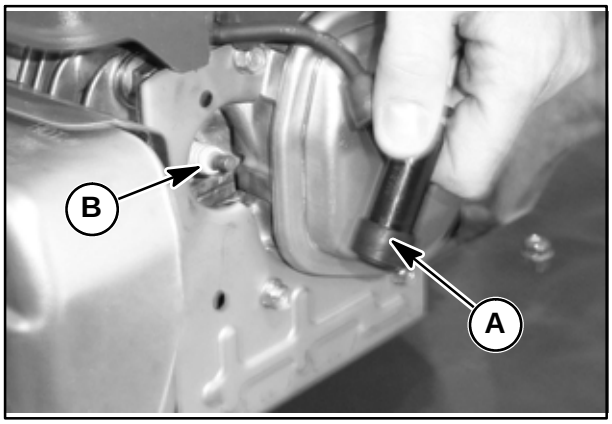
Removing the Main Drive Belt

1. Allow the engine and muffler, A, to cool before attempting to work around the engine, main drive belt tension level assembly, B, or to remove the drive main belt shield, C.



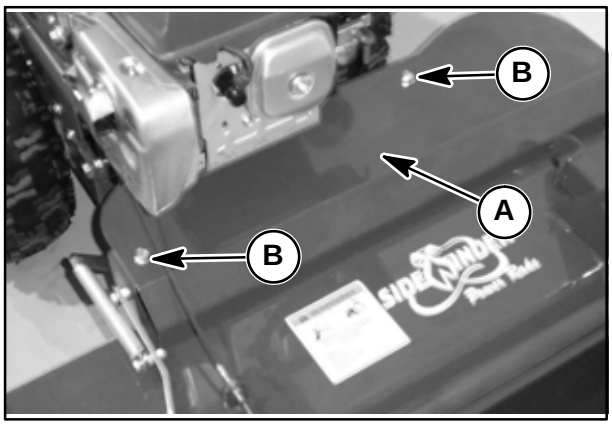
87

2. Remove the spark plug wire, A, from the spark plug, B.



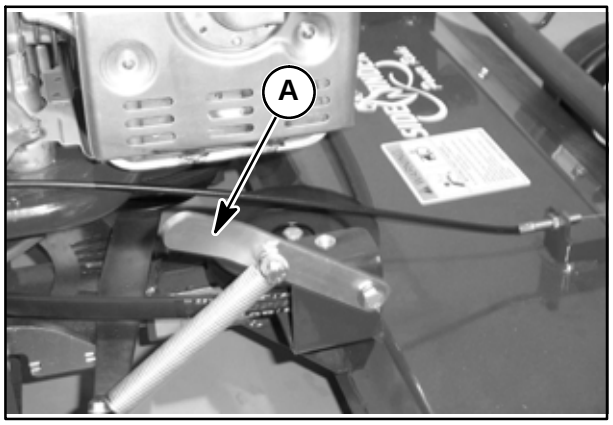
88

3. Remove the main drive belt shield, A, by removing the two attaching bolts, B.



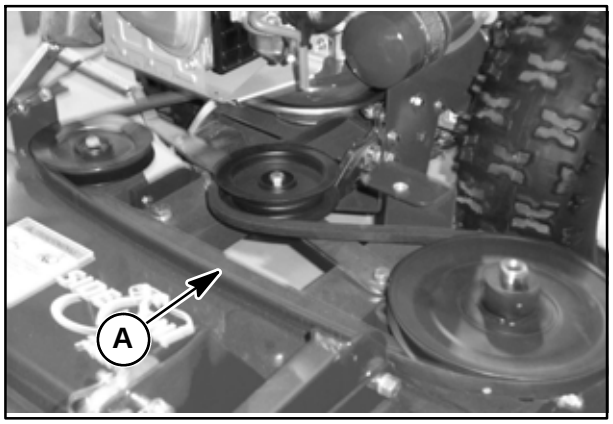
89

4. Move the tension lever, A, rearward to the disengaged position as shown.



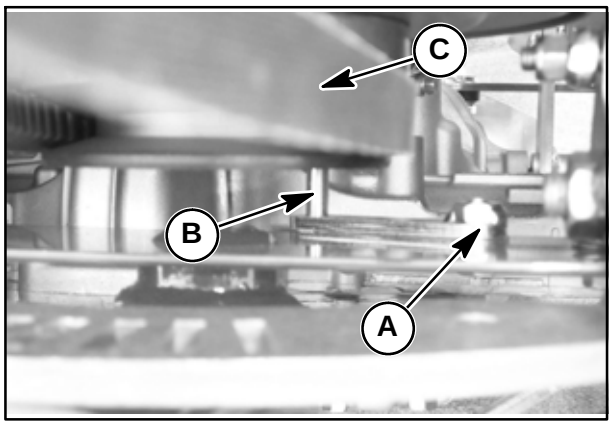
90

5. Remove main drive belt, A, from the pulleys.



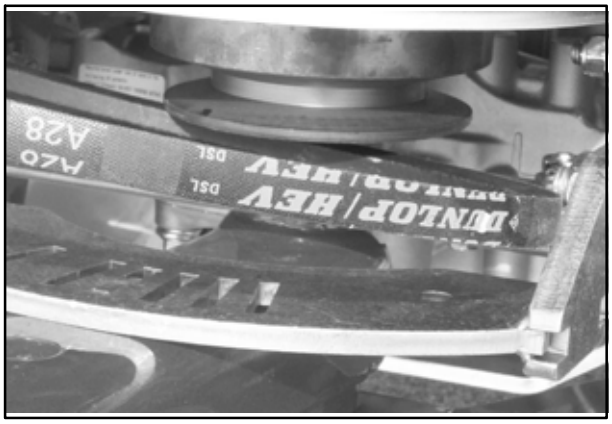
91

6. Loosen the main engine belt guide bolt, A, then push the guide, B, away from the belt, C.



92

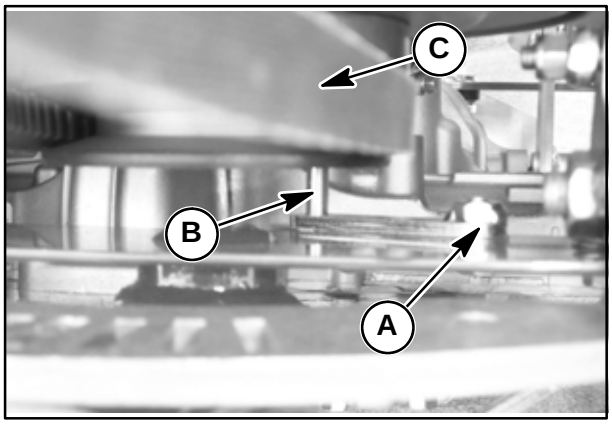
7. Remove the belt by sliding it between the pulley and the frame as shown.



93

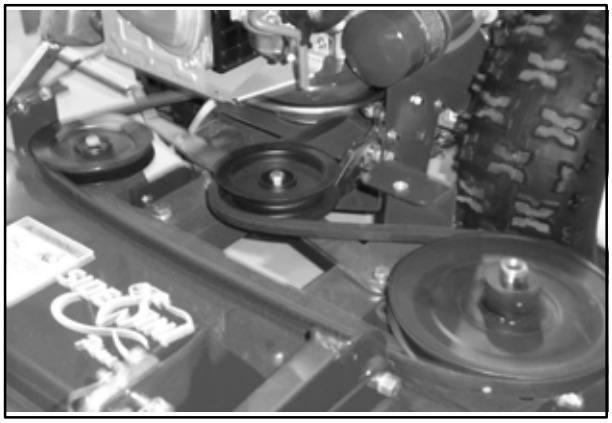
Installing the Main Drive Belt

8. Install the new belt, C, and position on the engine pulley.
9. Position the engine belt guide, B, 1/4 inch from the engine pulley and tighten bolt, A.



94

10. Install belt on the remaining pulleys as shown.



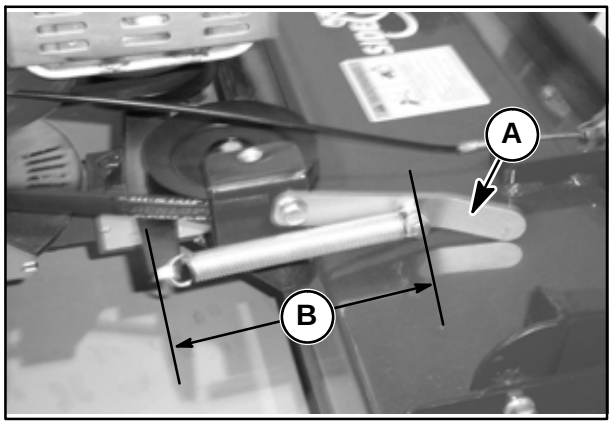
95

11. Place the tension handle, A, forward to the tension position as shown and measure the spring length at B. The length at B, should be 7-1/2 inches measured from the end of the hook to the end of the other hook.

ATTENTION:

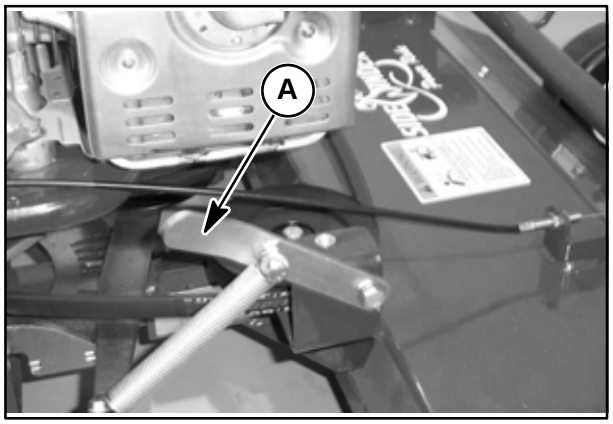
If tension is correct proceed to step 16

If tension is incorrect proceed to step 12



96

12. Move the tension lever, A, rearward to the disengaged position as shown.



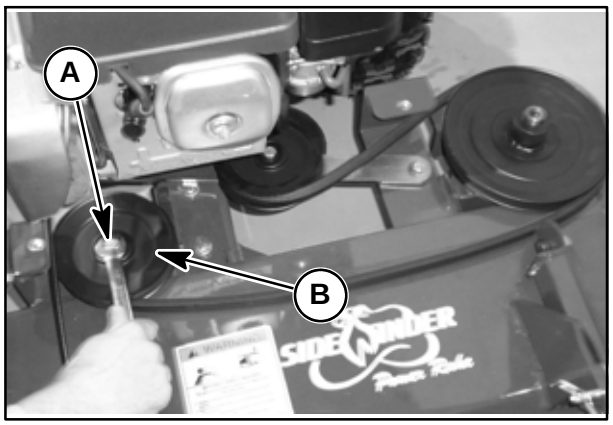
97

13. Loosen the attaching bolt, A, for idler pulley, B.

NOTE: *Move the pulley outward to increase spring tension if the spring measurement was under 7-1/2 inches.*

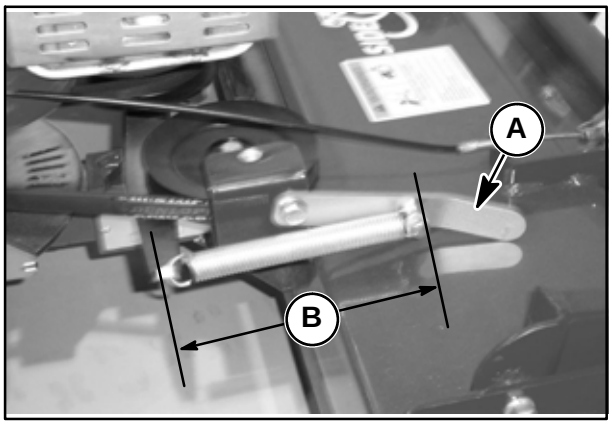
NOTE: *Move the pulley inward to reduce spring tension if the spring measured over 7-1/2 inches.*

Tighten the idler attaching bolt, A.



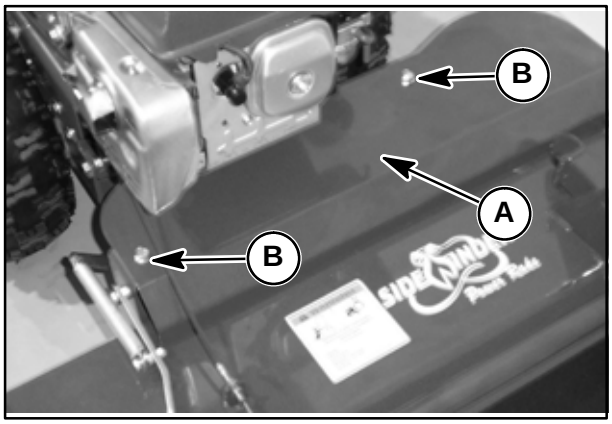
98

14. Place the tension handle, A, forward to the tension position as shown. The spring length at B, should be 7-1/2 inches measured from the end of the hook to the end of the other hook.
15. Repeat steps 12,13 and 14 until the 7-1/2 inches spring dimension is achieved.



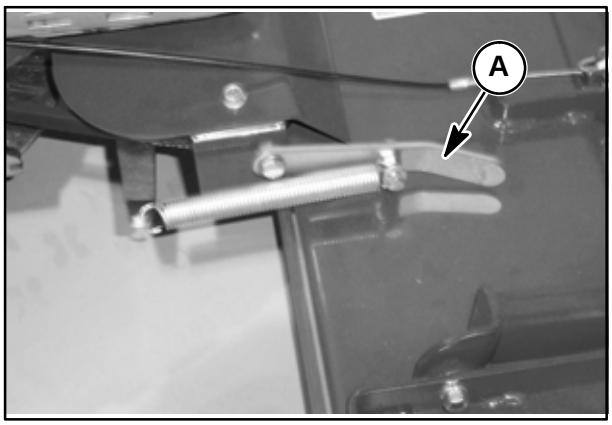
99

16. Install main belt shield, A, and tighten bolts, B.



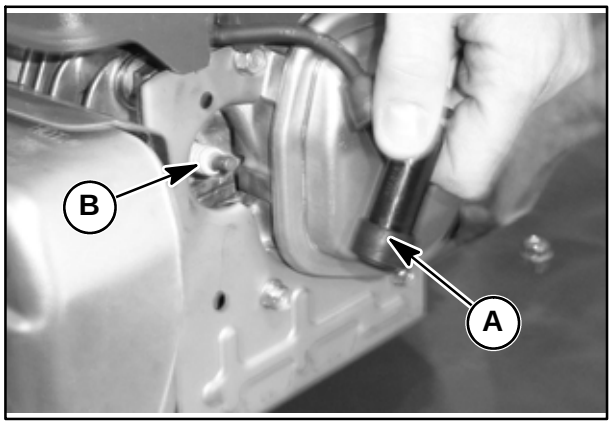
100

17. Place the tension lever, A, forward in the belt tension position.



101

18. Install the spark plug wire, A, on the spark plug, B.



102

19. Check for proper belt operation and correct any problems before placing the machine back in operation.

TRANSMISSION DRIVE BELT

The belt delivers power from the engine to the transmission.

The best does not need attention unless it starts to slip.

NOTE: *If the belt starts to slip check belt tension as described below. If the tension is correct, the belt MUST be replaced.*

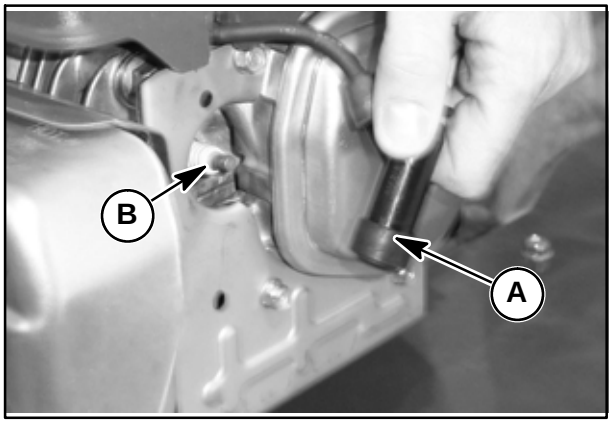
NOTE: *Do not over tighten the belt. Over tightening the belt will cause damage to the engine and/or transmission.*

WARNING: Before starting any work:

1. **Allow the engine and muffler to cool before starting work.**
2. **Remove the spark plug wire from the spark plug.**
3. **Place the throttle control to the Stop position.**

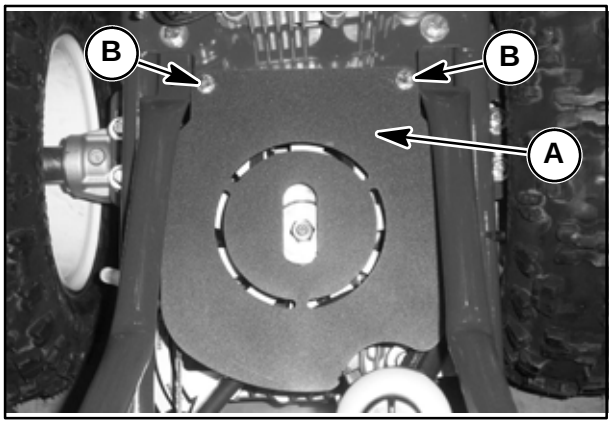
CHECK AND ADJUST TRANSMISSION DRIVE BELT TENSION

1. Remove the spark plug wire, A, from the spark plug, B.



103

2. Remove transmission shield, A, after removing two bolts, B.



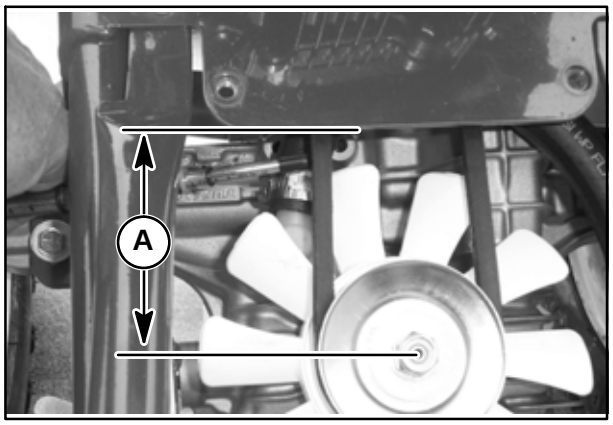
104

3. Check the belt for glazed belt edges, cracks or missing pieces. Replace the belt if any of the previous conditions are found. Proceed to the “Belt Replacement” section.
4. Check that the distance at A, from the frame to the center of the transmission input shaft, is between 3-5/8 to 3-3/4 inches as shown.

ATTENTION:

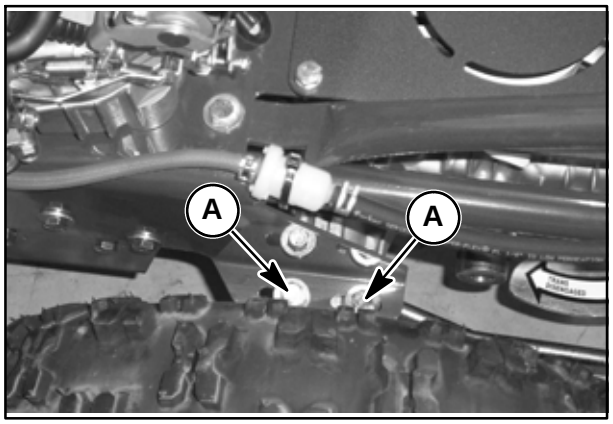
If the distance is less then 3-5/8 inches, proceed to step 5.

If the distance is 3-3/4 inches or greater, proceed to the “Belt Replacement” section.



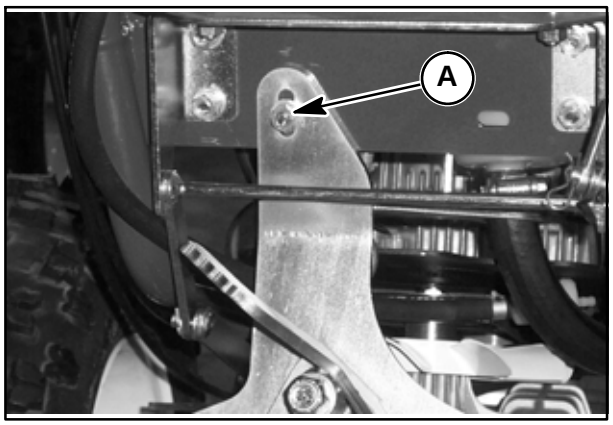
105

5. Loosen the two retaining bolts, A, that attach the left axle to the frame. Also, loosen the two retaining bolts securing the right axle to the frame.



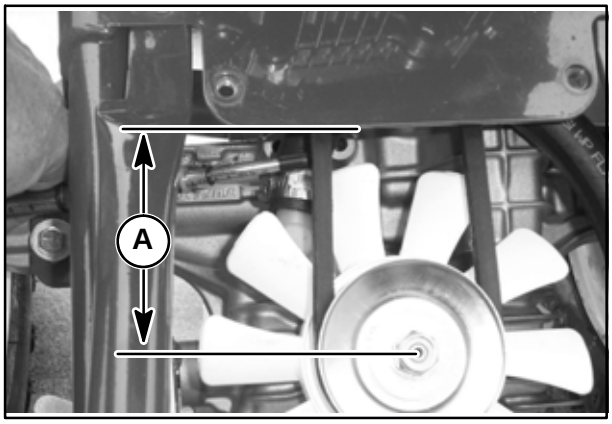
106

6. Loosen bolt, A, that attaches the transmission to the support.



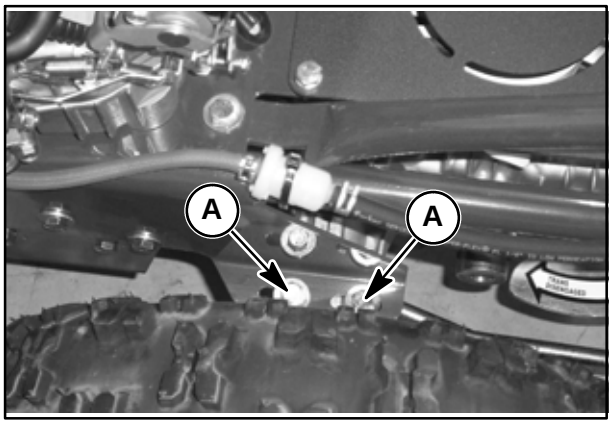
107

7. Adjust dimension at A, from the frame to centerline of the transmission shaft to 3-5/8 to 3-3/4 inches.



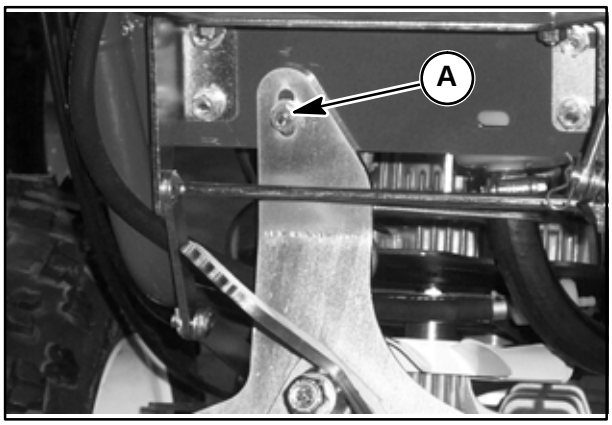
108

8. Tighten the two axle to frame attaching bolts, A, for the left axle. Tighten the two axle to frame bolts on the right axle.



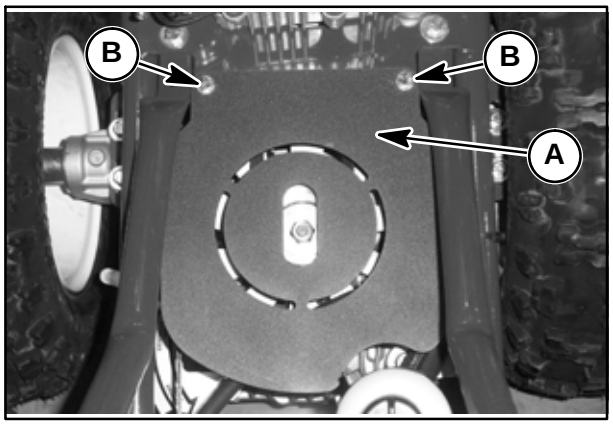
109

9. Tighten attaching bolt, A.



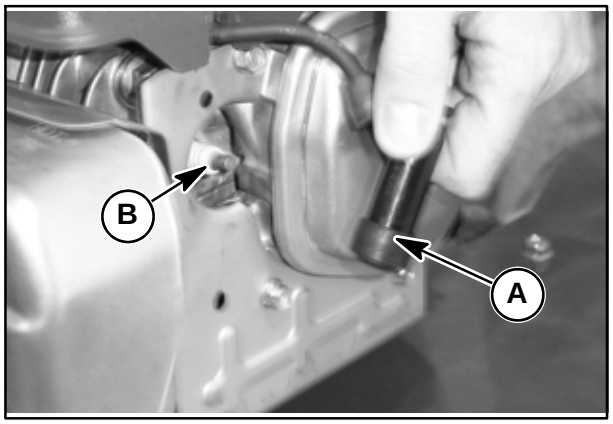
110

10. Install the transmission shield, A, and secure with bolts, B.



111

11. Install the spark plug wire, A, on the spark plug, B.



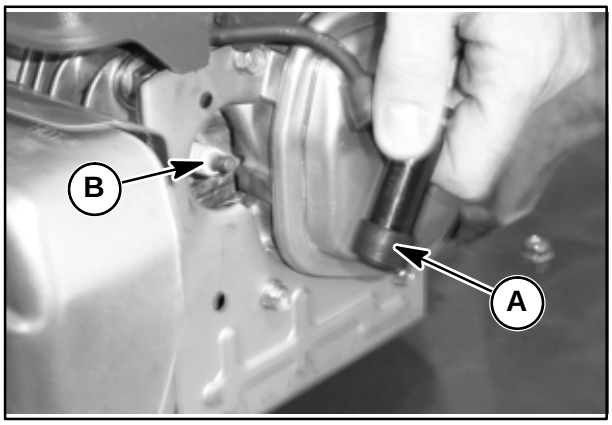
112

12. Start the engine and check for proper operation. Correct any issues before using the machine.

TRANSMISSION DRIVE BELT REPLACEMENT PROCEDURE

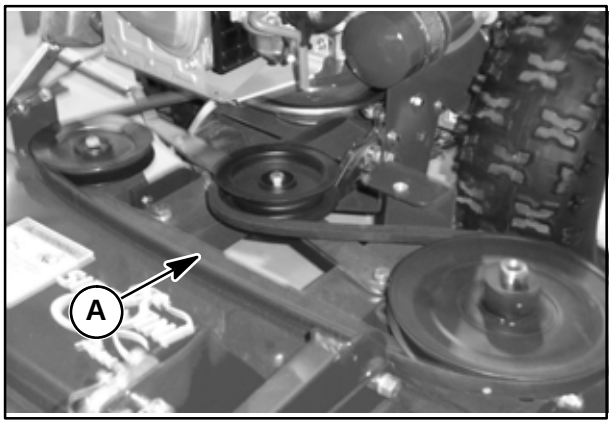
Belt Removal

1. Remove the spark plug wire, A, from the spark plug, B.



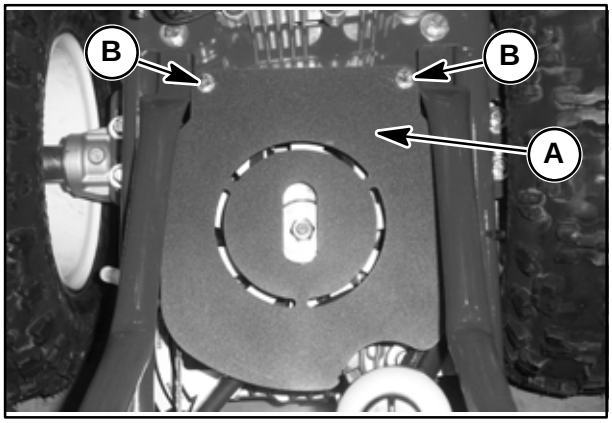
113

2. Remove the Power Rake main drive belt, A, from the engine pulley as described in the “Remove Main Drive Belt” section.



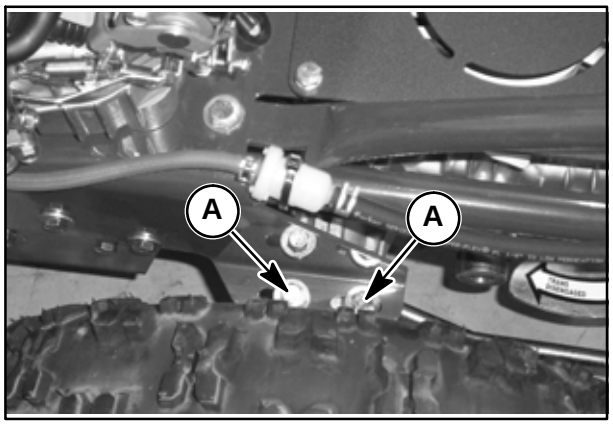
114

3. Remove transmission shield, A, after removing two bolts, B.



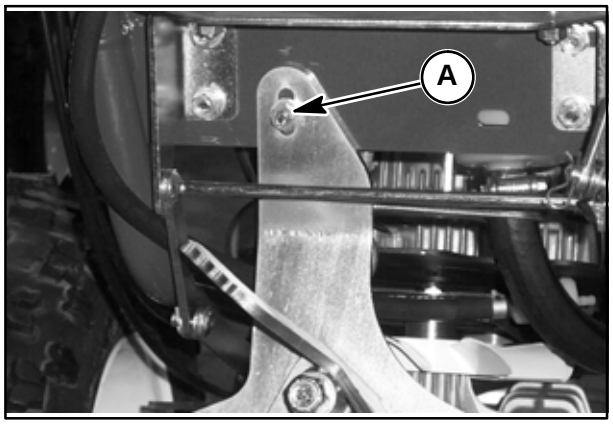
115

4. Loosen the two retaining bolts, A, that attach the left axle to the frame. Also, loosen the two retaining bolts securing the right axle to the frame.



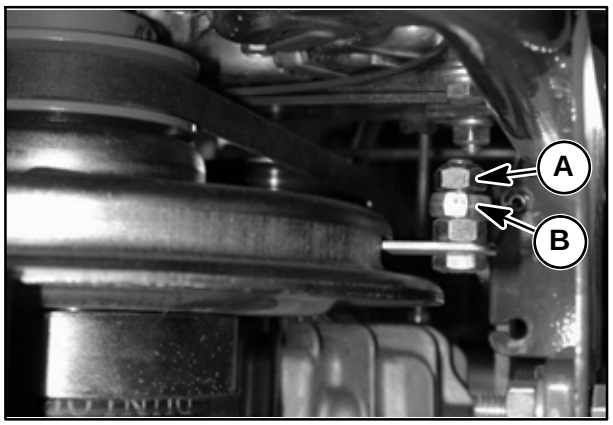
116

5. Loosen bolt, A, that attaches the transmission to the rear frame support.



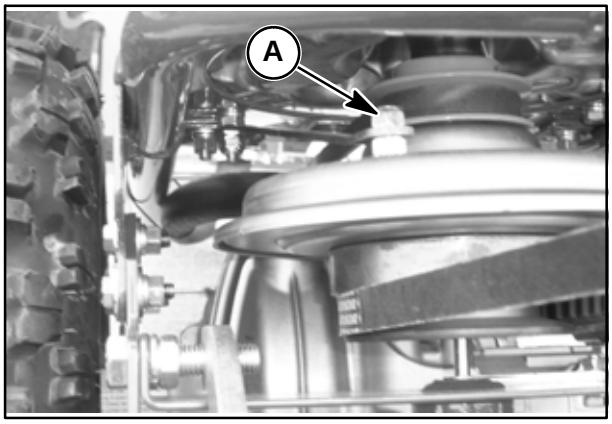
117

6. Remove the clutch brake cable jam nut, A, then remove the cable yoke, B, from the stud.



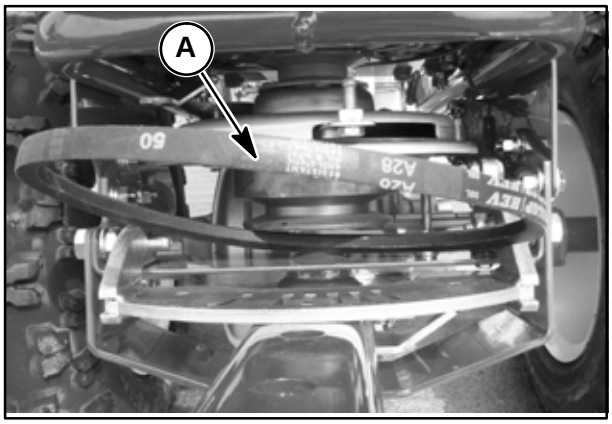
118

7. Remove nut, A, that hold the clutch brake torque strap then remove the strap from the stud and swing the strap toward the frame.



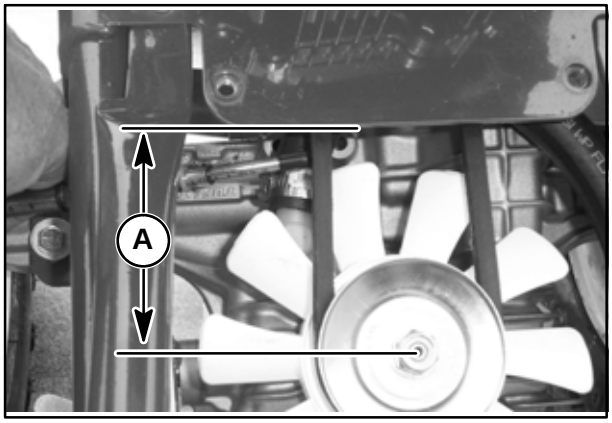
119

8. Remove the transmission belt, A, from the engine and transmission pulleys and from the tractor as shown.



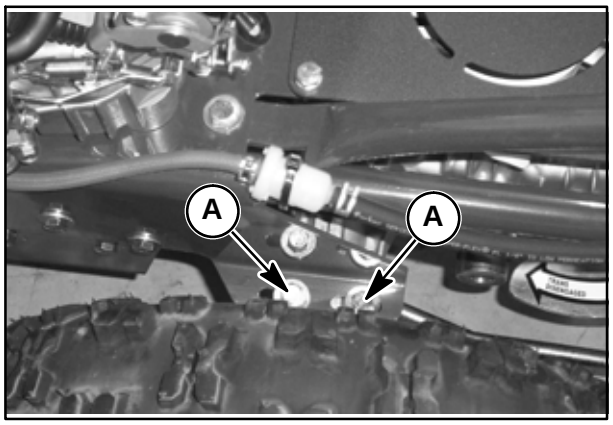
120

9. Adjust dimension at A, from the frame to centerline of the transmission shaft to 3-5/8 to 3-3/4 inches.



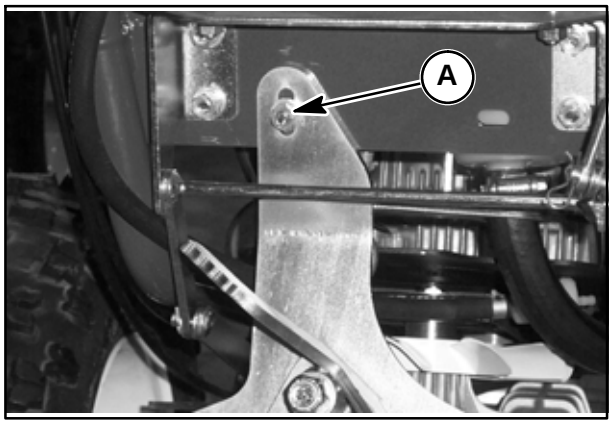
121

10. Tighten the two axle to frame attaching bolts, A, for the left axle. Tighten the two axle to frame bolts on the right axle.



122

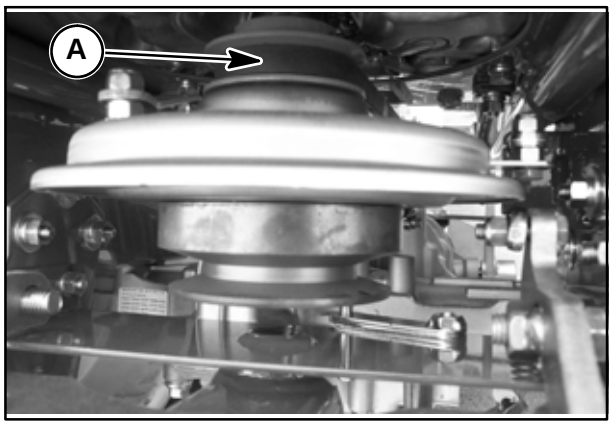
11. Tighten attaching bolt, A.



123

Belt Installation

12. Install the new transmission belt, A, and place on the engine sheave.

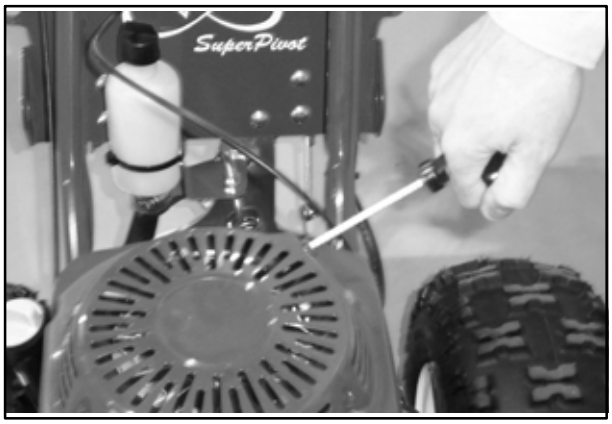


124

13. Place the belt on the transmission pulley as shown.

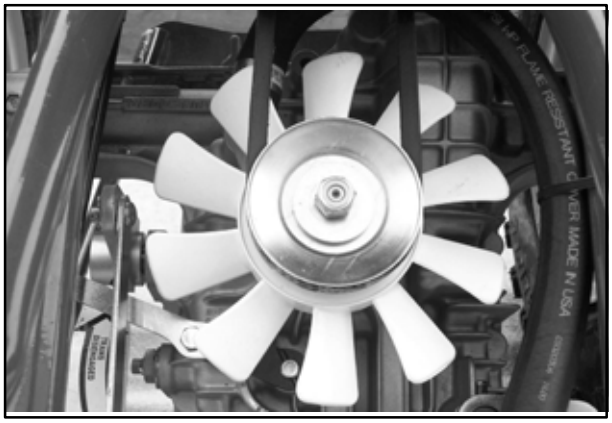
125

14. Slowly pull on the engine starter rope to place the belt on the pulley.



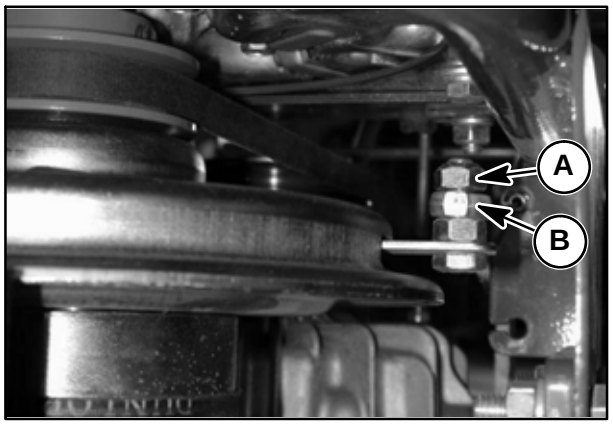
126

15. After the belt has seated on the pulley, pull the starter rope 4 times and check that the belt is fully seated on the pulleys, running straight, not contacting any objects and is not damaged. Correct as required.



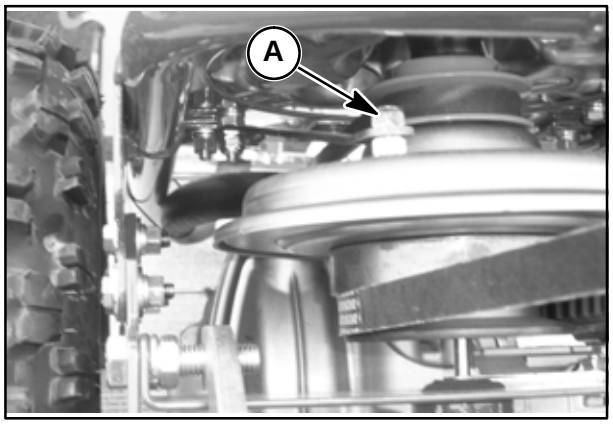
127

16. Install cable yoke, B, on the stud. Put two drops of red Locktite #277 on the threads of the jam nut, A, then tighten on the stud until there is 1/64 inch clearance between the jam nut and the yoke.



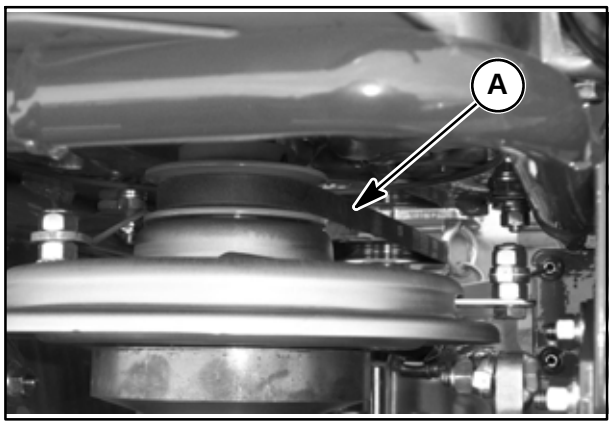
128

17. Reinstall the clutch brake torque strap. Put two drops of red Locktite #277 on the threads of the jam nut, A, then tighten securely.



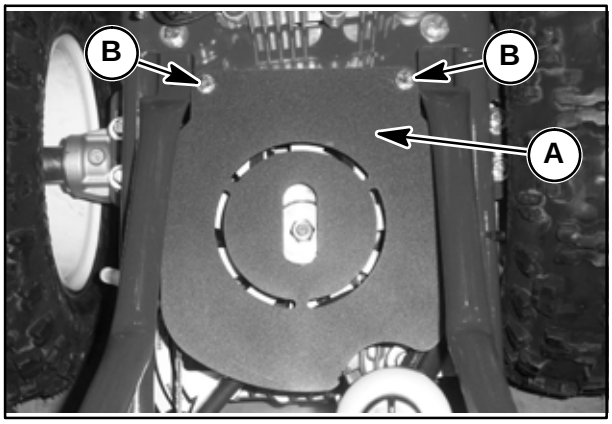
129

18. Check that the transmission drive belt, A, is tracking correctly and not contacting any objects.



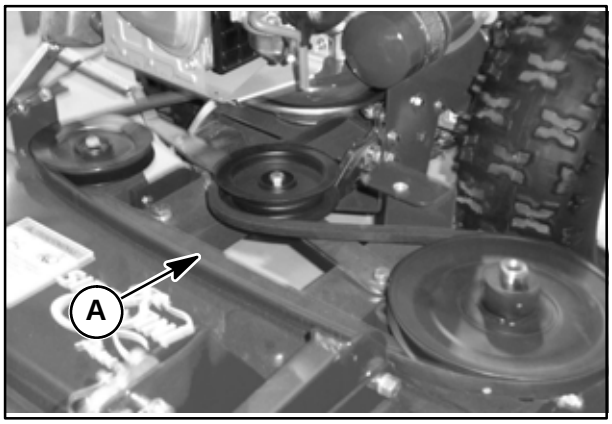
130

19. Install the transmission shield, A, and secure with bolts, B.



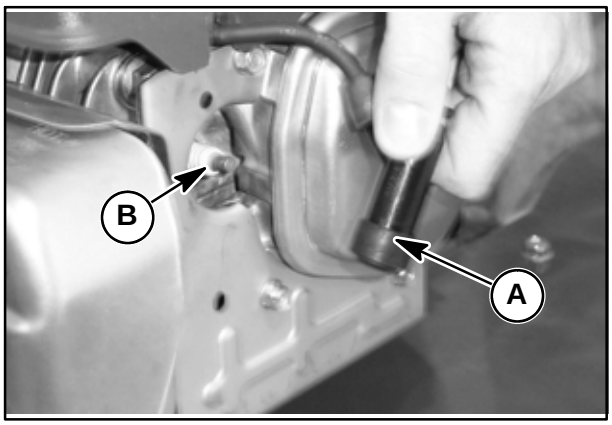
131

20. Install the Power Rake drive belt, A, as described in the “Replace Main Drive Belt” section.



132

21. Install the spark plug wire, A, on the spark plug, B.



133

22. Start the engine and check for proper operation. Correct any issues before using the machine.

ROTOR DRIVE CHAIN ADJUSTMENT

The Main Drive belt delivers power from the engine to the 90 degree gearbox located on the left side of the Power Rake frame. The Rotor Drive Chain delivers power from the 90 degree gearbox to the rotor.

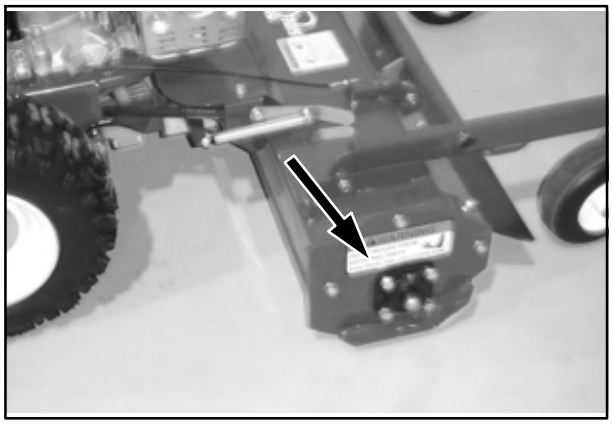
Chain tension should be checked after the first 40 hours of operation then check chain tension ever 100 hours use or annually whichever comes first.

WARNING: To prevent injury perform the following before starting work:

1. **Position the Power Rake on a flat level hard surface.**
2. **Lower the power Rake to the ground.**
3. **If the power Rake must be raised to perform work you must place blocking under the Power Rake frame before doing any work.**
4. **Allow the machine to cool to ambient temperature before working on the Power Rake.**
5. **Remove the spark plug wire from the spark plug.**

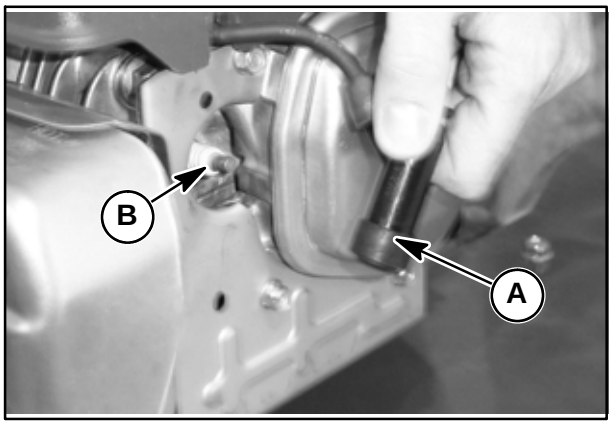
CHECK CHAIN TENSION

1. Lower the Power Rake to the ground.



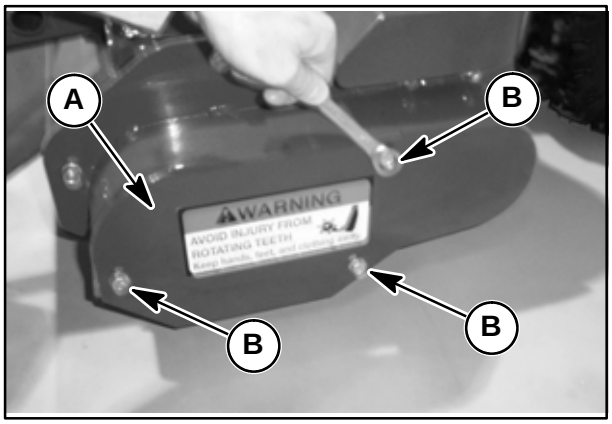
134

2. Remove the spark plug wire, A, from the spark plug, B.



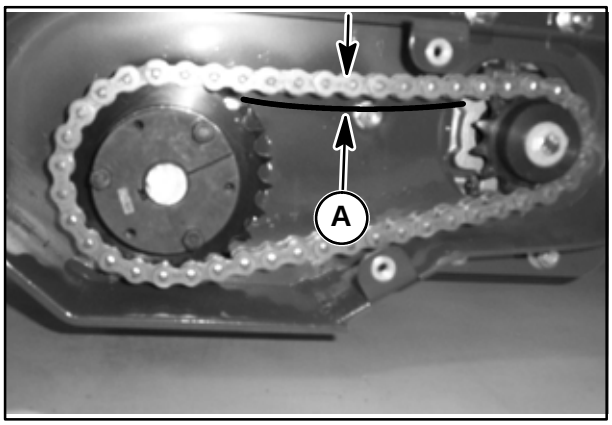
135

3. Remove shield, A, after removing the three bolts, B.



136

4. Measure chain slack midway between the sprockets at A, on the top side of the chain. Chain slack should be from 1/4 to 3/4 inch.

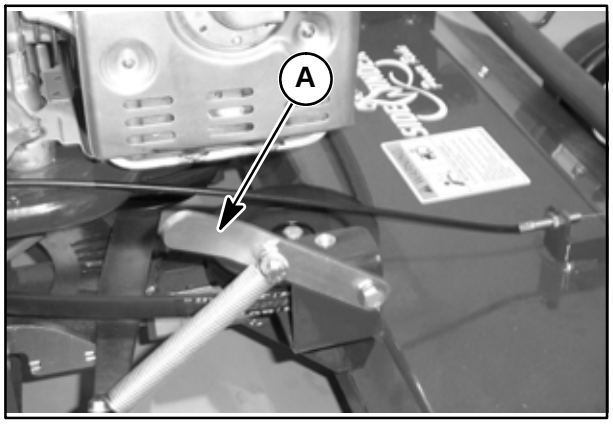


137

ATTENTION: *If slack is within range proceed. If slack exceeds maximum limit proceed to step 5.*

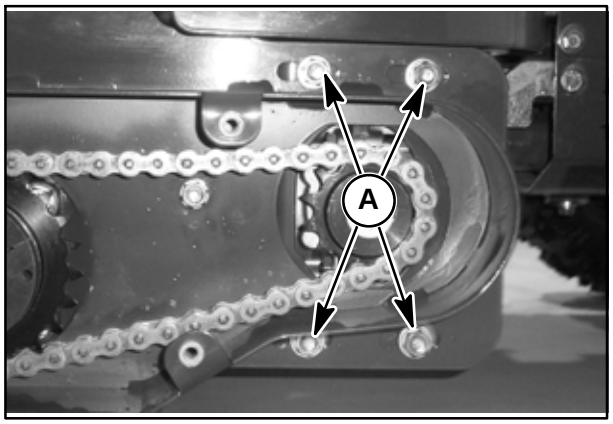
Adjusting chain slack

5. Place the main drive belt tension lever, A, rearward to the disengaged position.



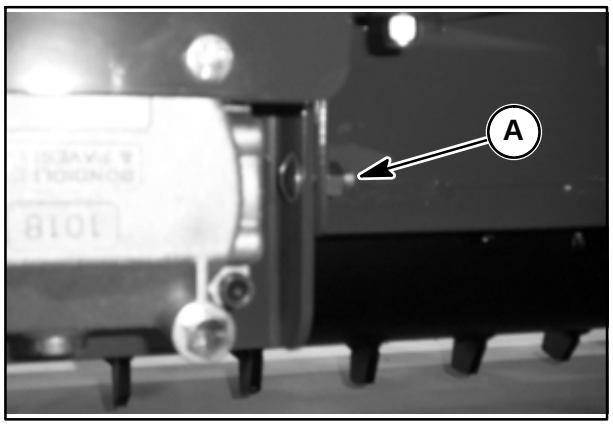
138

6. Loosen the four gearbox mounting bolts, A.



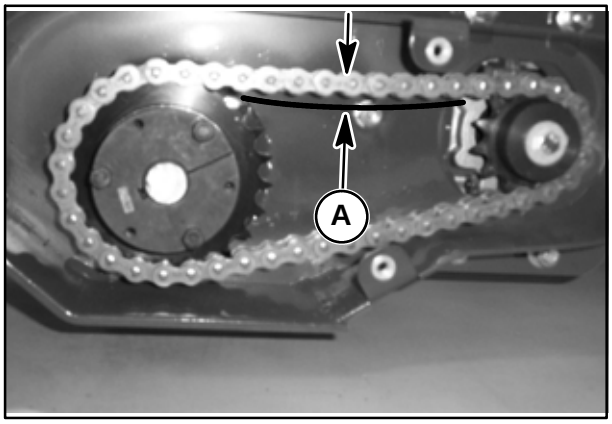
139

7. Loosen mounting bolt, A, that attaches the inner gearbox support bracket to the frame.



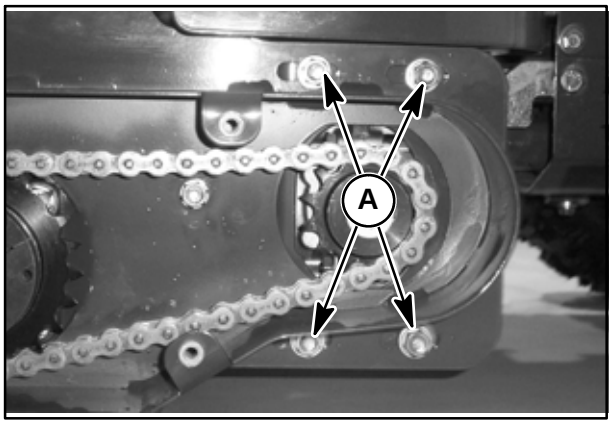
140

8. Move the gearbox toward the tractor to tighten the chain and reduce slack.
9. Snug two attaching bolts then recheck slack. For 1/4 to 3/4 inch slack at A.
10. Repeat steps 8 and 9 until the proper slack is obtained.



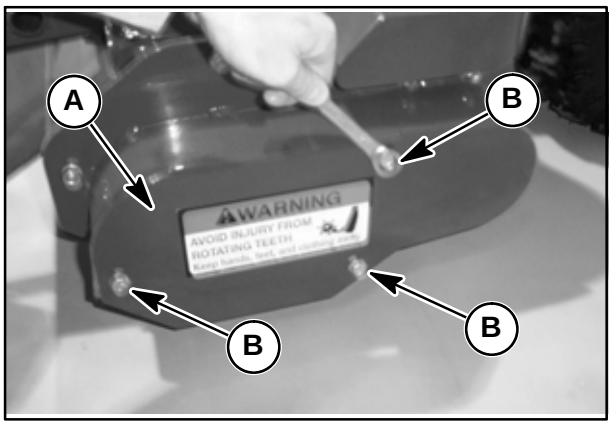
141

11. Tighten the five attaching bolts loosened previously. The four gearbox mounting bolts, A, and the mounting bolt that attaches the inner gearbox support bracket to the frame.



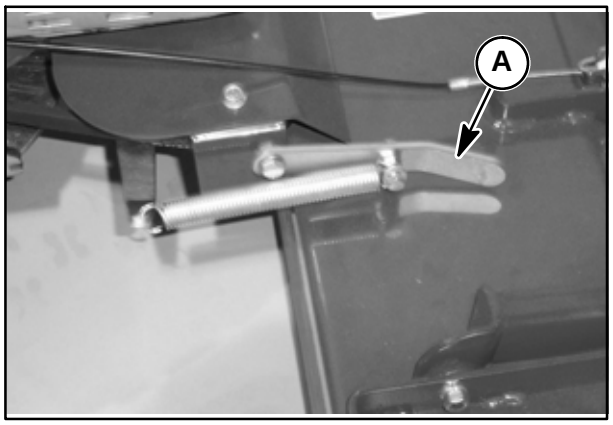
142

12. Install the shield, A, and tighten three bolts, B.



143

13. Place the main drive belt tension lever, A, forward to the engaged position.



144

14. Operate the Power Rake for proper operation and correct any problem before placing the machine back in service.

ROTOR TEETH INSPECTION AND REPLACEMENT

The rotor teeth contact the ground and perform the tilling operation.

Rotor tooth length is crucial to efficient operation.

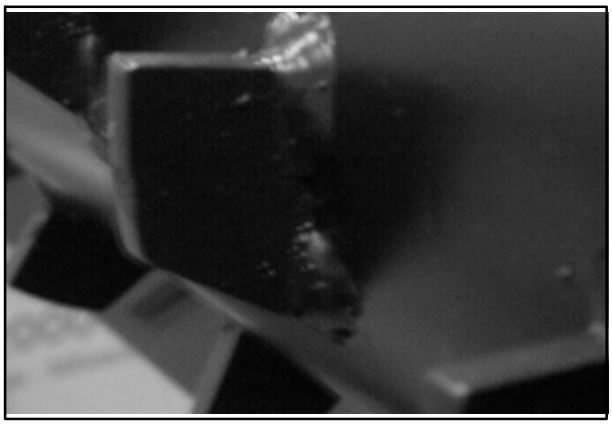
NOTE: *Teeth should be checked daily for wear and replaced when teeth are 1/2 inch minimum.*

WARNING: To prevent injury perform the following before starting work:

1. **Position the Power Rake on a flat level hard surface.**
2. **Lower the power Rake to the ground.**
3. **If the power Rake must be raised to perform work you must place blocking under the Power Rake frame before doing any work.**
4. **Allow the machine to cool to ambient temperature before working on the Power Rake.**
5. **Remove the spark plug wire from the spark plug.**

NOTE: *Two type teeth are available:*

Standard teeth are made of AR steel.



145

Carbide teeth have a carbide tip on the end of the tooth.

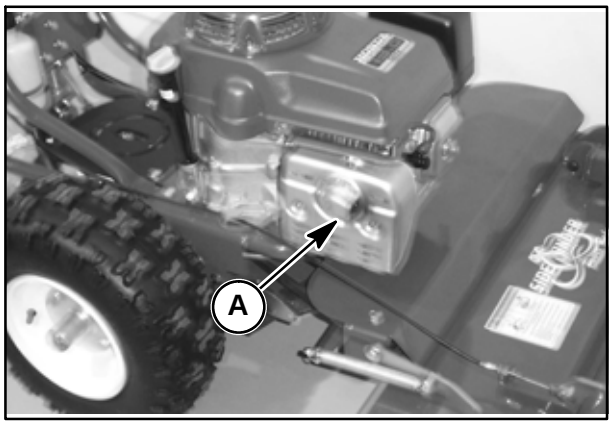
NOTE: *Carbide teeth offer much longer life than Standard teeth. Due to tooth spacing and rotor tube material, carbide teeth cannot be welded to a standard tooth rotor. A new rotor with carbide teeth can be ordered through your dealer.*

CAUTION: When welding teeth to the rotor the ground cable MUST be connected directly to the rotor to prevent current from flowing through the rotor bearings which will cause damage to the bearings.

146

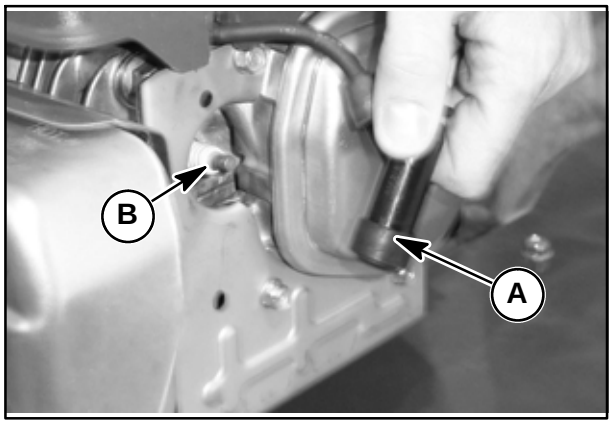
CHECK AND REPLACE ROTOR TEETH

1. Allow the engine and muffler, A, to cool before attempting to work on the machine.

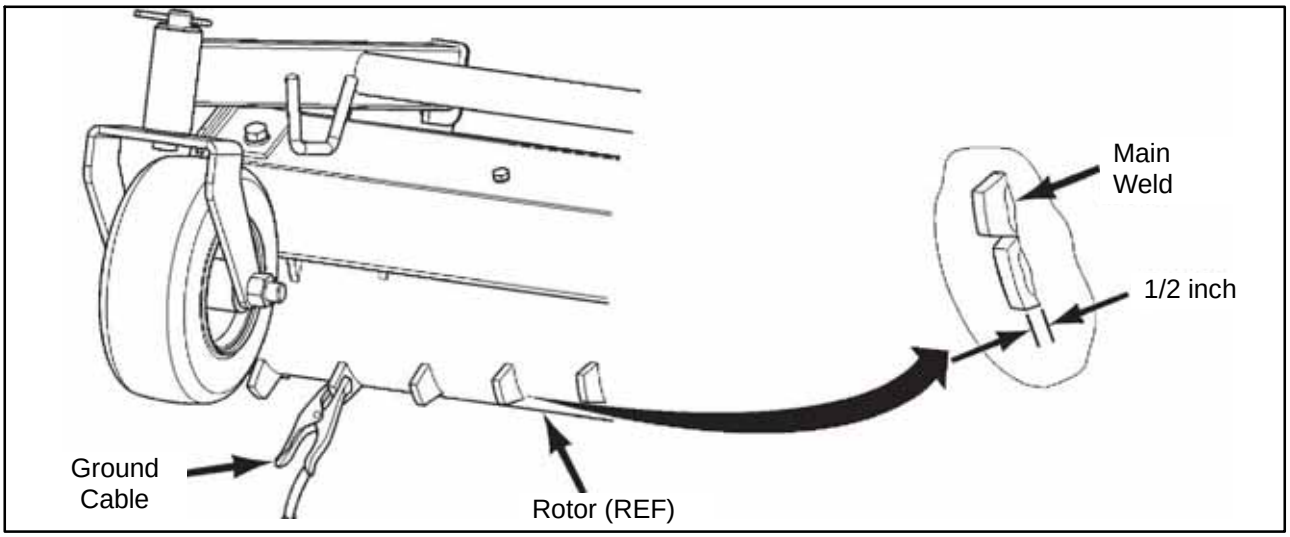


147

2. Remove the spark plug wire, A, from the spark plug, B.



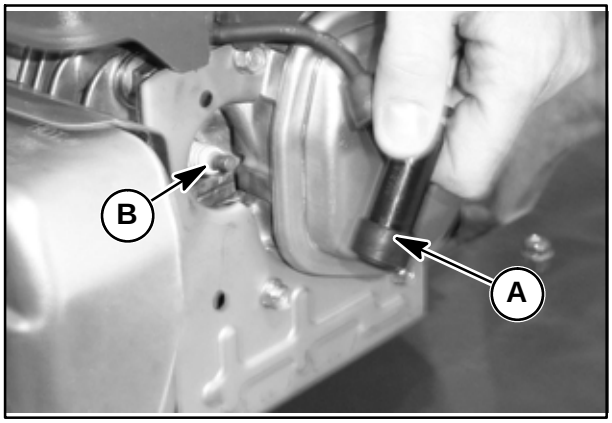
148



149

WARNING: Support the Power Rake and securely block it before working on the rotor.

3. Measure the height of the teeth.
4. Replace teeth at the minimum 1/2 inch height by having a certified welder weld new teeth in front of the original teeth in the same spiral pattern as the original teeth. Replace Teeth in pairs 180 degrees apart to maintain rotor balance.
5. Attach the ground connection to a rotor tooth and weld the new teeth as shown.
6. After welding new teeth in place and removing the ground cable.
7. Install the spark plug wire, A, on the spark plug, B.
8. Operate the rotor and make sure it is in balance and operates properly.
9. Correct any problems before placing the machine back in service.



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END OF SEASON STORAGE SERVICE

CLEAN THE ENTIRE MACHINE AND ENGINE

Thoroughly clean the machine and engine then blow dry with 50 PSI compressed air.

ENGINE SERVICE

1. Refer to the engine manufactures manuals for specific recommendations and procedures.

MACHINE SERVICE

1. Lubricate all grease point as shown in the Lubrication Section.
2. Lubricate all linkage pivot points.
3. Spray exposed cabled with a fluid lubricant to prevent binding and rust.
4. Lubricate chain with chain lubricant.
5. Examine all belts for damage and replace as required.
6. Check the condition of all shields and replace as required.
7. Check safety decals and replace as required.
8. Check all bearing and gearboxes for bearing condition. Replace any loose bearings.
9. Check condition of the teeth on the rotor and replace as required.

SPECIFICATIONS

ENGINE
Honda – GXV390K1 13.0 HP

FUEL TANK
1.0 US Gallon

TRANSMISSION
Hydrostatic Infinite variable control

GROUND SPEED
0 – 4.2 mph

WEIGHT
440 Lbs.

DIMENSIONS
42” W x 45” H x 76” L

POWER RAKE ROTOR WIDTH
36”

POWER RAKE ROTOR TEETH
Standard – Steel
Optional – Carbide

DRIVES
Engine mounted clutch/brake
Heavy duty bevel gearbox with sealed bearings
B76 main drive belt
#50 o–ring drive chain

TIRES
Rear = 18 x 6.5 heavy 4-Ply lugged

ATTACHMENT ARM
Variable angle 0 to 18 degrees each side

CONTROLS
Variable speed control lever
Implement positioning lever
Differential lock
Park Brake – optional

FRAME
Heavy formed tube mainframe

BEFORE EACH USE

1. Check tiller daily for loose, bent, broken, or missing parts.
2. Observe tiller's general condition, noting points that may need attention.
3. Check rotor to be sure no foreign objects such as wire or weeds are wrapped around them.
4. Make certain drive line shields are in place and in good condition.
5. During operation, listen for abnormal sounds which might indicate loose parts, damaged bearings or other damage. Correct any problem immediately.

AFTER EACH USE

1. Clean all debris from tiller especially on the rotor.
2. To prevent rusting, touch up any spots where paint may have worn off.
3. Store in a clean, dry place.

TROUBLESHOOTING

SYMPTOM	POTENTIAL CAUSE	REMEDY
Rotor does not turn.	Tractor is not engaged.	Engage tractor Attachment Drive. Control and Brake Lever
	Obstruction jammed between the rotor and frame.	Clear obstruction from the rotor.
	Main Drive Belt not adjusted correctly.	Adjust Main Drive Belt. (See Main Drive Belt adjusting).
	Main Drive Belt is worn out.	See dealer for appropriate service.
Rotor stalls too easily.	Working depth too deep.	Reduce working depth.
	Ground speed too fast.	Reduce ground speed.
	Main Drive Belt not adjusted correctly.	Adjust Main Drive Belt. (See Main Drive Belt adjusting).

Turf Teq, LLC

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