

Tine Rakes

Congratulations on your purchase of an authentic ABI 3-point attachment! Please read these instructions thoroughly and contact customer service if further instruction for safe and effective use is needed.



STATEMENT OF POLICY

It is the policy of ABI Attachments to improve its products where it is possible and practical to do so. ABI Attachments reserves the right to make changes or improvements in design and construction at any time, without incurring the obligation to make these changes on previously manufactured units.



CUSTOMER SERVICE CENTER

Ph: (855) 211-0598 M-Th 8^{AM} - 8^{PM}; Fri. 8-5 EST
ABIsupport.com

CAUTION

Safety is a primary concern in the design, manufacture, sale and use of this implement. At ABI Attachments, we want to confirm to you, our customers, our concern for safety.

For safe operation, read rules and instructions carefully.

The following safety precautions should be thoroughly understood before attempting to begin working with this implement.

1. Select a work area that is clean and free of debris which might cause persons working on the assembly to trip.
2. Do **NOT** lift heavy parts or assemblies. Use a crane, jack, tackle, fork trucks or other mechanical devices.
3. Preview the assembly instructions in your operator's manual before proceeding further.
4. If the instructions call for the implement to be blocked up, use only blocking material that is in good condition and is capable of handling the weight of the assembly to be blocked. Also insure that the blocking material is on a clean, dry surface.
5. Unless absolutely necessary, **NEVER** put hands, or any part of the body, under blocked up implement.
6. After completing work, thoroughly inspect the implement to be sure that all nuts, bolts, or any other fastened assemblies have been thoroughly tightened.
7. Before operating the implement, thoroughly read and understand the Operation Section of your operator's manual.
8. Before operating, read and understand the Maintenance Section of your operator's manual to keep your implement in good working order.
9. Before operating equipment, if you have any questions regarding use of this implement, contact ABI Support.

IMPORTANT SAFETY INFORMATION

Please stay alert for these signs.



THIS SAFETY ALERT SYMBOL identifies important safety warning messages. Carefully read each warning message that follows. Failure to understand and obey safety warnings or recognize a safety hazard, could result in an injury or death to you or others around you. The operator is ultimately responsible for the safety of himself, as well as others, in the operating area of the Tine Rake.



WARNING



This safety sign denotes a **POTENTIAL** hazard. If the situation is not avoided it **MAY** result in **INJURY**.



CAUTION



This safety sign denotes a hazard exists that, if not avoided, **CAN** lead to **SERIOUS INJURY** or **DEATH** if proper precautions are not taken.



DANGER



This safety sign denotes an **IMMINENTLY** hazardous situation. If situation is not avoided, it **WILL** result in **SERIOUS INJURY** or **DEATH**.

To the Owner/Operator

All implements with moving parts are potentially hazardous. There is no substitution for a cautious, safety-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer had designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START!!

Read the safety messages on the implement and as shown in the manual. Observe the rules of safety and common sense!

IMPORTANT SAFETY INFORMATION

Working with unfamiliar equipment can lead to careless injuries. Read this manual and the manual for your tractor before assembly or operating, to acquaint yourself with both machines. It is the Owner/Operator's responsibility, if this machine is used by any person other than yourself, or is loaned or rented, to make certain prior to operating:

1. The operator's manual is read and understood.
2. Safety issues are understood and followed, and proper usage is understood.

The use of this equipment is subject to certain hazards which cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to use. If there is something in this manual you do not understand, ask your manufacturer to explain it to you. Improper use can occur on machines that are loaned out or rented to someone who has not read the owner's manual and is not familiar with a Tine Rake.

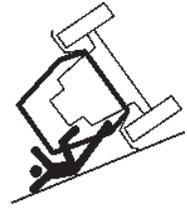


This Tine Rake was designed for one-man operation from the tractor seat. Most accidents occur because of neglect or carelessness. It is the

responsibility of the operator to see that no one is within twenty-five feet (25') when it is in operation. Do not operate the implement with another person near, or in contact with, any part of the Tine Rake. Serious personal injury or death may result if any attempt is made to assist operation by hand.

Only properly trained people should operate this machine. It is always recommended the tractor be equipped with a Rollover Protection System

(ROPS) and a seat belt that is used. Always stop the PTO, set break, shut off the tractor engine, remove the tractor key, and allow implement to come to a complete stop before dismounting tractor. Never leave equipment unattended with tractor running.



All things with moving parts are potentially hazardous. There is no substitute for a cautious, safety-minded operator who recognizes potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached, to minimize the chance of accidents. Study this manual to make sure you have all the safety equipment attached.



When maneuvering close to buildings or passing through narrow areas, be sure to allow sufficient clearance for the implement and tractor. **NEVER** operate tractor and implement under trees with low hanging limbs. Operators can be knocked off tractor and run over by implement.



This Tine Rake is designed for speeds of less than 5 mph. Reduce speed on rough surfaces.



When the use of hand tools is required to perform any part of assembly, installation, adjustment, maintenance, repairing, removal or moving the blade, be sure the tools used are designed and recommended by the tool manufacturer for that specific task.



Personal protection equipment including hard hats, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustments, maintenance, repairing, removal, or moving the Tine Rake, **DO NOT ALLOW** long hair, loose fitting clothing or jewelry to be around moving parts.



Always use two people to handle heavy, unwieldy components during assembly, installation, removal, or moving the Tine Rake.



OPERATION & MAINTENANCE INSTRUCTIONS

-  Never place any part of your body where it would be in danger, if movement should occur during assembly, installation, operation, maintenance, repairing, removal or moving the Tine Rake.
-  Never place yourself between the tractor and Tine Rake while implement is in operation. When removing, or adjusting equipment, be sure your body is never under the implement.
-  A heavy load can cause instability of the tractor. Use extreme care during travel. Slow down on turns and watch out for bumps. The tractor may need front counter-weights to counter-balance the weight of the Tine Rake.
-  Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this implement while taking prescription and some over-the-counter medications.
-  **DO NOT ALLOW RIDERS on the Tine Rake or tractor at any time. There is NO safe place for any riders. NEVER ALLOW CHILDREN TO OPERATE OR BE AROUND BLADE.**
-  Before you operate the Tine Rake, check over all pins, bolts and connections to be sure all are securely in place. Replace any damaged or worn parts immediately.
-  Consult local utility companies to make certain there are no buried gas lines, electrical cables, etc., in the work area before beginning operation.
-  Do **NOT** allow anyone who is not familiar with the safety rules and operation instructions to use this Tine Rake.
-  Never replace any bolt with any length other than what is specified in this manual. A longer, or protruding fastener is more likely to grab loose clothing or gloves which can result in serious injury or death.
-  Watch for hidden hazards on the terrain during operation.

-  Turn curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steering. Slow down on rough or uneven surfaces, and loose gravel.
-  Check that all hardware is properly installed. Always tighten all bolts to proper torque.
-  Make sure attachment is properly secured, adjusted and in good operating condition. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for the use of unapproved parts and/or accessories and the damages that can result in their use.
-  Keep alert and watch the front as well as the rear when working with equipment. **DO NOT** operate close to ditches or creeks. Be careful to avoid catching implement on stumps or other immovable objects.
-  Make adjustments to implement only when it is attached to a tractor and blocked up. Always keep all persons and children away from area when performing adjustments, service or maintenance. Worn edges can seriously affect the Tine Rake's operation. Check for wear before each use and replace as necessary.
-  Know your controls and how to stop your tractor, engine, and implement quickly in an emergency.
-  **Do not operate the Tine Rake without checking that all movable parts are in good working order. Always use care when operating implement.**

INSTRUCTIONS

Tractor Requirements and Preparation

Tine Rakes are designed to fit Category 1 tractors equipped with a standard 3-Point hitch.

OPERATION & MAINTENANCE INSTRUCTIONS

Check the tractor's 3-Point hydraulic lift system. It should operate up and down smoothly and have enough power to lift the Tine Rake. Refer to your tractor's operators manual or dealer for any adjustments necessary to put the 3-Point. Make sure the hydraulic lift system is in good working order. (I & T shop manuals will list most specifications and adjustment instructions — available from most farm equipment dealers).

Check the shield over the PTO stub shaft. Make sure it is in good condition and bolted securely to the tractor. Purchase a new shield if the old shield is damaged or missing.

Smaller size tractors may need front counter weight to counter-balance the weight of the Tine Rake.

Adjust Top Link (not included) so that Tine Rake rides level (back to front) when the Tine Rake is lifted.

Level the A-frame and tine bar with 3-Point connecting links and top link. Adjusting the top link length will change the fore and aft pitch of the tines.

Lengthening the top link will cause the tines to contact the ground with sharper pitch and be more aggressive.

Raise or lower Tine Rake to determine how much or how little material you would like to move.

The deeper you set the Tine Rake the slower you will need to go with your tractor because of the increased stress on the Tine Rake as well as the tractor.

If using the optional Wheel Kit (see below), you may need to adjust it after setting the pitch to maintain the desired working depth.



CAUTION



A heavy load can cause instability in driving a tractor. Make sure the front of the tractor is properly counterbalanced with weights. Tractor front end ballast may not always maintain tractor stability if tractor is operated on rough terrain at high speeds. In such cases, reduce speed and exercise caution - especially around turns. An unstable tractor could steer badly and possibly tip over, causing injury or death.

Mounting Instructions

These Tine Rakes are shipped assembled.

Back the tractor up to the Tine Rake.

Inspect all connections to make sure all are in good working condition.

Adjust the tractor lift arms so they are wide enough to go over the two lift pins on each side of the Tine Rake.

Slide the lift arms on the tractor over the Draw Pins (both sides).

Use one lynch pin (not included) in each Draw Pin to secure Tine Rake.



CAUTION

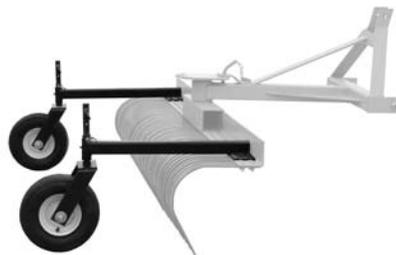


Make sure Rake is at least 6" from tractor tires throughout complete range of 3-Point hitch operation. If Rake is lowered into the tractor tires it is possible to cause damage.

Wheel Kit (Optional)

To adjust the wheels:

- Set Rake tines 1/2" above the ground with the tractor's 3-Point hitch.
- Adjust tractor top link to the center of the float link slots.
- Fine tune grading height by raising or lowering the 3-Point hitch.



OPERATION & MAINTENANCE INSTRUCTIONS

- Spacers can also be added to adjust the wheel height. Make sure to lock case wheel spindle in place with lynch pin.
- Lubricating the wheel is not necessary. The wheel pivot shaft has a zerk fitting to grease the wheel pivot. It is recommended that the pivot shaft be lubricated after every 8 hours of operation.

Preparation Procedure

- Thoroughly read and understand your Operator's Manuals.
- Before beginning operation, contact your local utility company to make certain there are no gas lines, electrical cables, etc., in the work area.
- Check for ditches, stumps, holes, or other obstacles that could cause the tractor to roll.
- Be sure tractor tires and rims are in good condition. Inflate tires to proper air pressure.
- All persons should be at least twenty-five feet (25') away during operation. Clear the area of helpers, bystanders, and especially children.
- Do **NOT** allow anyone to stand between the hitch and implement.
- It is recommended that only tractors with wide front axles use the Tine Rake. Tricycle front wheel arrangements are inherently unstable and can cause rollover accidents.
- Check the tractor master shield over the PTO stub shaft. Make sure it is in good condition and fastened securely to the tractor.
- Check that all equipment is properly installed and securely attached to the tractor.

Operation

If you have any questions regarding the proper operation of this Tine Rake, contact the manufacturer.

The Tine Rake is designed for a wide range of applications: loosening, leveling and clearing soil of debris. The Rake may be angled to windrow debris to the side for removal.

- Set tractor brakes.
- Take tractor out of gear. Shift to "Park" (if applicable).
- Tine Rake should be level when operating. Adjust top link so implement is flat on level surface.
- Before operation, make sure all adjustments have been made to the Rake for desired operation.
- Lower Rake to ground and start moving forward. Your speed will be determined by the condition of the soil. You may need to use less or more angle depending on the job.
- Speed of the tractor should not exceed 5 mph.
- When you are turning, lift the unit from the ground.
- Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" the tractor and Rake.
- Watch for hidden hazards on the terrain during operation.



WARNING



DO NOT TAKE A DITCH AT 90° (straight on)! Always go in at an angle or damage may occur.



CAUTION



Before dismounting power unit or performing any adjustments to the Tine Rake make sure to disengage power to equipment, lower 3-Point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking break, stop engine, remove key and then dismount tractor.

It is essential that everyone involved in the operation, transportation, maintenance, and storage of this equipment be aware, concerned, prudent and properly trained in safety.



DANGER



Exercise extreme caution when working around or near Rake tines.

OPERATION & MAINTENANCE INSTRUCTIONS



CAUTION



Stop power unit and equipment **IMMEDIATELY** upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation. Never leave the seat of the tractor while engine is engaged.

Grading

Adjust the 3-Point hitch upper link so that the frame of the Tine Rake is parallel with the ground. If the Wheel Kit is used, adjust them for the amount of cut you want to take, usually about 1". Set Rake angle adjustment as desired - straight for grading or angled for a windrowing effect. It is recommended to operate the Rake at a slow speed (max 5 mph) to give ample time for fine material to flow through the tines.

Angle Grading

The Rake should be angled horizontally only enough to allow the material to slide along it easily. The angle (tilt) of the Rake must be set to suit conditions. This is controlled by the lift arm leveling assembly (turnbuckle) on the tractor 3-Point hitch.

Leveling

The Rake should be straight across, (i.e. 90°) to the line of travel of the tractor, in other words 0° horizontal angle. There should be a 0° vertical angle, the lift arms on the tractor's 3-Point hitch should be parallel to the ground. The use of gauge wheels will make the leveling operation much easier and improve the quality of the job. When using the Rake with gauge wheels, You may need to adjust the gauge wheels after adjusting pitch to maintain the desired working depth.

Reverse Operation

Depending on the job, the angle grading or leveling position may be used. For heavy work, use a regular 3-Point Rear Blade.



WARNING



When using Rake in a reverse position, use extra care - do **NOT** ram Rake into dirt or packed piles! Tractor lift arms are not

equipped to take high impact loads in this position.

Raking

Vegetative trash and clods or rocks may be raked into piles or into windrows for easier pickup. Do not overload Rake, remove large rocks, roots or limbs by other means.

Incorporating Seed

Seed is best incorporated by making two passes in diagonal directions. Consult your seed supplier for recommended seed depth. Set Rake straight and operate the Rake at two times recommended depth. Grass seed, for example, should be covered approximately 1/4". Operate the Rake at 1/2" penetration and make two passes diagonally. The use of the Wheel Kit will provide much better depth control.

These suggestions are generalities, best results will be obtained after some experience.

Maintenance

Before servicing the machine, engage the parking brake or place the transmission in "PARK", shut off tractor and remove key.

1. Clean unit of dirt and debris to minimize rusting and wear.
2. Replace any worn or damaged parts immediately.
3. Check all bolts and nuts to make sure they are tight.
4. If a Wheel Kit is being used, periodically grease the wheel pivot shaft at the zerk fitting.
5. NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between movable parts even when the engine is turned off. Servicing this Tine Rake does not require going underneath.

The information in this section is written for operators who possess basic mechanical skills. If you need help, call or visit ABISupport. For your protection, read and follow the safety information in this manual.

Replacing Rake Tines

- To service the Tine Rake when attached to the tractor, it must be blocked up off the ground.
- Place two blocks under the tine bar to rest securely on the blocks.
- Remove the nuts and bolts from the damaged teeth. Loosen the other bolts holding the same tooth support plate. Removed damaged tine(s).
- Insert the new tine and secure with the bolts and hex nut previously removed.



Eye protection should be worn when removing or installing damaged rake teeth.

Transportation Guidelines

When transporting unit, it should be lifted as high at the tractor will allow being sure the unit is clear of the ground when transporting.

Care should be taken that at least 20% of tractor weight should be on the front tires. A safe speed should be maintained during transportation. Tractor weight ballast may be needed to even out weight to maintain proper steering.

Do **NOT** lower unit to pavement, blacktop or gravel road while transporting. Damage to the unit can occur.

When transporting on roadways, always use a safety sign, and drive in a manner to allow other vehicles to pass you safely.



When traveling on public roads whether at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. Comply with all federal, state, and local laws.

CLEANING AND STORAGE

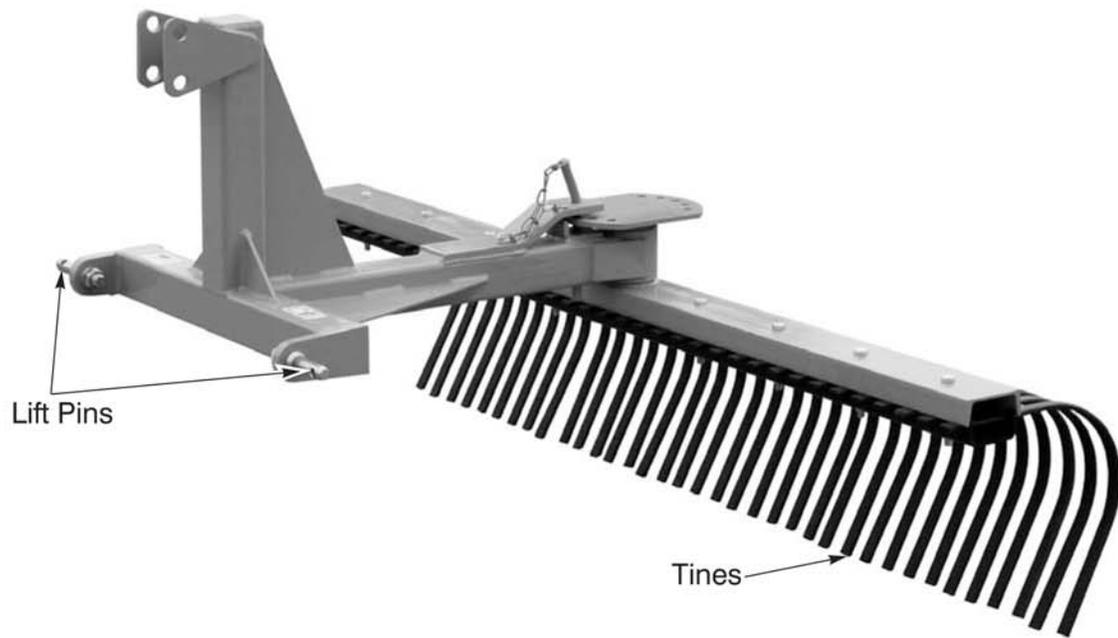
AFTER EACH USE

- Remove large debris such as clumps of dirt, grass, crop residue, etc. from implement.
- Inspect implement and replace worn or damaged parts
- Replace and safety decals that are missing or not readable.

BEFORE EXTENDED STORAGE

- Follow cleaning from above.
- Wash Tine Rake using low-pressure water spray.
- Be careful when spraying near scratched or torn safety decals or near edges of decals as water spray can peel decals off surface. Spraying near chipped or scratched paint can also cause paint to peel.
- Inspect machine for worn or damaged parts, replace any missing safety stickers.
- Sand down scratches and edges where paint is missing and repaint to prevent rust.
- Store the unit in a shed or under tarpaulin to protect from the weather. The tines and tires should be resting on boards or some other object, keep out of soil when storing.
- Store in clean, dry place away from human activity or livestock.

PARTS LIST



Description	Lift Pin	Tines
Tine Rake	3018352	3018367