

Disc Harrows

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.

TO THE CUSTOMER

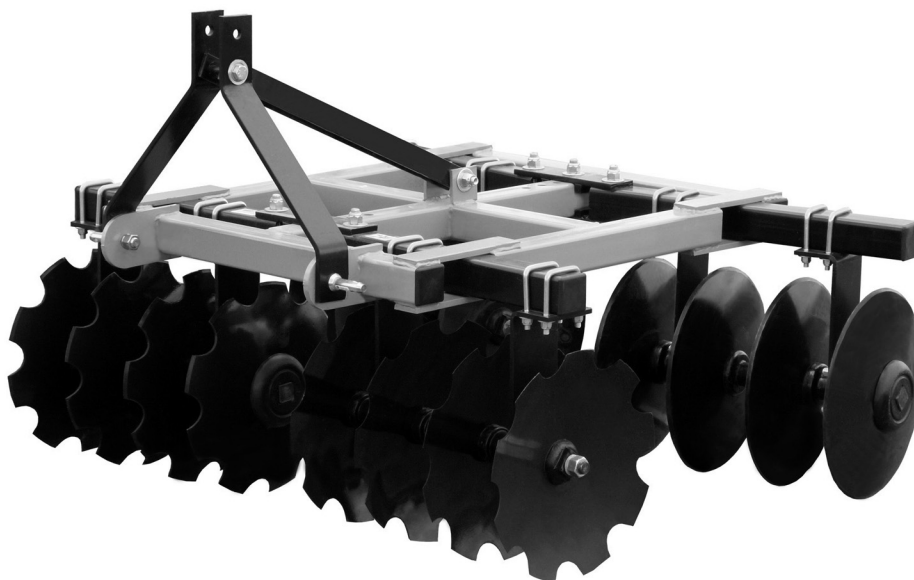
This manual contains valuable information about your new Disc Harrow. It has been prepared to give you helpful suggestions for safety, operation, adjustment and service.

It is the owner's and or operator's responsibility to:

- Read and understand the information contained in this manual. The use of this equipment is susceptible to certain hazards that 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 using.

- Operate, lubricate, assemble, and maintain the equipment in accordance with all instructions and safety procedures in this manual.
- Inspect the equipment prior to each use and replace or repair any parts that are worn or damaged.



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

SAFETY

READ AND FOLLOW THE INSTRUCTIONS IN THIS MANUAL, ESPECIALLY IN THE SAFETY SECTION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.



**THIS SYMBOL MEANS
ATTENTION! BE ON THE ALERT!
YOUR SAFETY IS INVOLVED!**

TAKE NOTE! THIS SAFETY ALERT SYMBOL IS FOUND THROUGHOUT THIS MANUAL. THIS SYMBOL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS CONCERNING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS.

CRITICAL TERMS:

The critical terms **DANGER**, **WARNING** and **CAUTION** are used with the safety messages in this manual and with each safety decal. They are defined as follows:



DANGER: Indicates an immediate hazardous situation that, if not avoided, could result in serious injury or death. This Critical Term is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.



WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



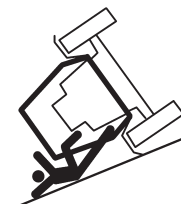
CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It also may be used to alert against unsafe practices.

EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one of the main concerns in designing and developing

a Disc Harrow. However, every year accidents occur which could have been avoided by a few moments of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions and insist those working with or for you adhere to them.

- **Keep all guards in place.** If guard removal becomes necessary for repairs, reinstall the guard prior to use.
- Replace any safety decal that is not legible or is missing. The locations of such safety decals are indicated in this manual.
- Never operate this equipment while using alcoholic beverages or drugs that can hinder alertness or coordination. Consult your doctor about operating this machine while taking prescription medications.
- **Under no circumstances should children under the age of 18 be allowed to work with or around this equipment. Do not allow anyone to operate or assemble this equipment until they have read this manual and have developed a thorough understanding of the safety precautions and operation.** Review safety instructions with all users often.
- This equipment is dangerous to anyone unfamiliar with its operation. The owner/operator is responsible for reading and following all of the instructions in the manual. The operator should be a responsible, properly qualified and physically able person familiar with farm machinery and competent in this equipment's operation.
- Never exceed the limits of a piece of machinery. If its ability to do a job, in a safe manner, is in question - **DON'T TRY IT.**
- Use a tractor equipped with a Roll Over Protective System (ROPS) and seat belts. Only properly trained people should operate this machine. 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.



ASSEMBLY, OPERATION, & MAINTENANCE INSTRUCTIONS

- Do not modify the implement in any way. Unauthorized modifications could result in serious injury or death and may impair the function and shorten the life of the equipment and void any warranty coverage.
- In addition to the design of this implement, including safety decals and safety equipment, accident prevention is dependent upon the awareness, common sense, forethought, and proper training of everyone involved in the operation, transport, maintenance, and storage of the machine. Also refer to safety messages and operating instructions in each of the appropriate sections of the tractor manual. Pay close attention to the safety decals affixed to both the tractor and Disc Harrow.
- The Disc Harrow is designed for speeds of 5 mph or less. Reduce speed on rough surfaces. Speeds beyond those recommended may cause damage to the implement and void the warranty.
- Never place hands or feet under Disc Harrow. Stay clear of all moving parts.
- Do not reach or place any part of your body under the equipment until it is blocked securely.
- Never allow riders on the Disc Harrow or tractor at any time. There is no safe place for riders.
- **DISC BLADES ARE SHARP! BE CAREFUL!** Avoid situations where discs may accidentally roll over or fall on any part of your body. Be especially careful working with wrenches which may slip near sharp blade edges.
- Worn edges can seriously affect the Disc Harrow's penetration. Check for wear before each use and sharpen or replace if necessary.
- Ensure Disc Harrow is properly mounted, adjusted and in good operating condition.
- Ensure that all safety guards and safety decals are properly installed and in good condition.
- Do not operate unless all personnel, livestock, and pets are several hundred feet away to prevent injury by thrown objects. Never direct the discharge chute toward anyone.
- Never operate tractor and Disc Harrow under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the rotating blades.
- Stop Disc Harrow and tractor immediately upon striking an obstruction. Turn engine off, remove key, then inspect and repair any damage before resuming operation.
- Stay alert for uneven terrain, holes, rocks roots and other hidden hazards. Keep away from drop-offs and hazards that could cause a rollover. Use extreme care and maintain minimum ground speed when transporting or operating on hillsides, over rough ground and when operating close to ditches or fences. Be careful and slow down when turning sharp corners and changing direction on slopes. Do not start or stop suddenly on slopes and avoid operating on steep slopes. In extremely uneven terrain, rear wheels weights, front tractor weights, and/or tire ballast should be used to improve stability.
- Drive Disc Harrow diagonally over sharp dips and avoid sharp drops to prevent tractor and Disc Harrow from "hanging up". Always move downward on slopes, never cut across the face. Always check tractor manual for proper use on slopes. Practice will improve your skills in maneuvering on rough terrain.

PREPARATION

- Never operate the tractor and Disc Harrow until you have read and completely understand this manual, the Tractor Operator's Manual, and any messages found on the safety decals on the tractor and Disc Harrow.
- Do not wear loose fitting clothing or jewelry and be sure to contain long hair around equipment.
- Always wear your seat belt. Serious injury or even death could result from falling off the tractor - particularly during a rollover when the operator could be trapped under the ROPS or the tractor.
- A minimum of 20% of the tractor and equipment weight must be on the tractor's front wheels. Without this weight, the tractor could tip over, causing personal injury or death. The weight may be attained with a front-end loader, front wheel weights, ballast in the tires or front tractor weights. When attaining a minimum 20% of the tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. **Do NOT guess or estimate!**

- Disc Harrows are designed to fit Category 1 tractors equipped with a standard 3-Point hitch. The tractor should have a horsepower rating between 20 and 70 hp.

ASSEMBLY

Unpack all bundles and lay out the parts.

NOTE: If your tractor lift arms spacing is 32", place the pins on the outside of the yoke legs. If your tractor lift arms spacing is 26" or less, place pins on the inner side of the yoke legs.

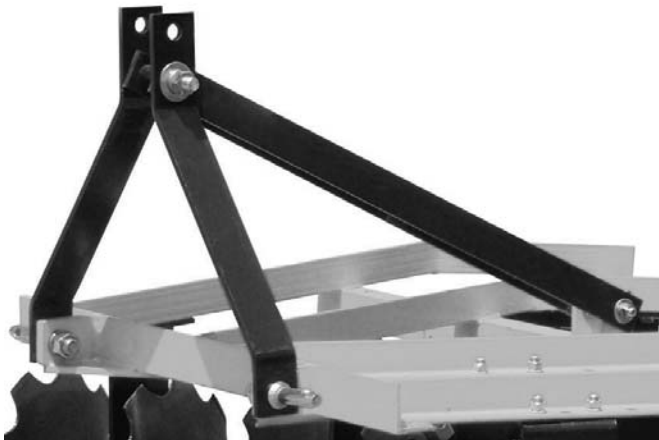
Assemble 3-Point hitch first.

Attach 3-Point straps to the front lower lugs using 7/8" lift pins, lock washers and 7/8" hex nuts. **DO NOT TIGHTEN AT THIS TIME.**

Attach 3-Point brace to the Harrow's center beam with 3/4" - 10 x 4 1/2" GR5 hex head cap screw and 3/4" lock nut. **DO NOT TIGHTEN AT THIS TIME.**

Insert 3/4" - 10 x 5" GR5 hex head bolt through left side of 3-Point brace, left 3-Point strap, spacer, right 3-Point strap and out through the right side of 3-Point brace. Secure with 3/4" lock nut. Tighten all connections at this time.

See finished detail below.



WARNING

Be very careful when working around disc blades as the edges are sharp. Always wear gloves.

ATTACHING TO TRACTOR

Never stand, or allow anyone else to stand, between the tractor and the Disc Harrow while backing the tractor up to the hitch.

Attach to the tractor's 3-Point hitch as described in the Tractor's Operator's Manual.

It is not recommended that sway bars or chains be used with the Disc Harrow. The draw bar should be checked to handle the weight of the Harrow when the unit is being raised for the first time.

Align lower link arms of tractor to hitch lugs on the Disc Harrow. Insert lower lift pins into lower ball swivels and attach lynch pins. Attach top link to upper hitch of the Disc Harrow. Secure with pins. NOTE: When using a Category 1 quick hitch, the lower bushing of the upper hitch of the Disc Harrow is the connecting point.

Check to see that the Disc Harrow is level front to back. The Harrow is leveled by adjusting the length of the tractor's top link. Experience will allow the operator to determine the best setting for each application.

OPERATING INSTRUCTIONS

DANGER

Never allow anyone to stand between the tractor and the Disc Harrow. Always stand to the side until the tractor is in park.

Check the site for ditches, holes or obstacles which could cause the tractor to roll. Make sure it is clear of any debris which might cause damage to the Harrow. Check with your local utility company for buried electrical or gas lines.

WARNING

DO NOT take a ditch at 90° (straight on). Always go in at an angle or damage may occur.

Be sure tractor tires and rims are in good working condition and tires are properly inflated.

It is recommended that only tractors with wide front axles be used with the Disc Harrow. Tricycle front wheel arrangements are inherently unstable and can cause rollover accidents.

On soils with light to medium plant cover, it is usually acceptable to disc the ground once or twice to cut up the plant growth to prepare the soil. In most cases, multiple passes may be required to achieve the desired soil preparation.

Adding additional weight to the Disc Harrow will aid it in cutting deeper into the soil. It will also require an increase in your tractor's horsepower.

Do not attempt to disc wet or mucky soil. All areas should be well drained and capable of being walked on without having soil stick to your shoes.

Ground conditions and the finish you require will determine the angle position of the front and rear gangs. The sharper the angle is set, the more aggressive the cutting action in the soil profile will be.

If the soil is building up or sticking to the discs, the soil is too wet and discing should be discontinued until the ground is drier and more workable.

The speed of the tractor will be determined by the condition of the soil. You may need to use more or less angle depending on the job. Speed of the tractor should not exceed 5 mph. Operating at faster speeds will not allow for good penetration into the soil and can cause damage to the blades. When you are turning, lift the unit from the ground.

Successive passes should be made with outer blade approximately 7" from the previous pass to match spacing and prevent ridging.



CAUTION



DO NOT disc in reverse. The Disc Harrow was designed to only go forward. For turns in tight places, lift unit up, back into a corner or other tight area, then lower disc to the ground and proceed to disc forward.

Adjusting Disc Angles

By adjusting the gangs in the front and rear, you are able to set the disc to different angles, depending on the tillage desired.

On the **Disc Harrow** models there are four positions in the front and rear.

Before adjusting, raise Harrow off the ground. Adjust the desired angle by removing the bolt(s) and nut(s), slide the gang to the desired position and rebolt.

TRANSPORT SAFETY

- Always observe state and local laws governing highway safety and the travel of farm machinery on public roads.
- The use of flashing amber lights is acceptable in most locations. However, some locations prohibit their use. Local laws should be checked for all lighting and marking requirements.
- When driving the tractor and equipment on roads or highways, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph. Reduce speed on rough roads and surfaces.
- Plan your route to avoid heavy traffic.
- Always install transport locks, pins or brackets before transporting.
- Do not drink and drive.
- Be a safe and courteous driver. Always yield to oncoming traffic in all circumstances, including narrow bridges, intersections, etc. Watch for traffic when crossing or operating in close proximity to roadways.
- Turn curves and go up and down hills only at a low speed at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe control. Always check tractor manual for proper use on slopes.
- Use extreme care and maintain minimum ground speed when operating close to ditches and/or fences. Be careful when turning sharp corners.
- Never allow riders on either the tractor or Disc Harrow.

MAINTENANCE

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Keep service area clean and dry.
- Be sure electrical outlets and tools are properly grounded.
- Use adequate light for the job at hand.
- Make sure there is ample ventilation. Never operate the tractor engine in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this Disc Harrow, be certain all moving parts on attachments have come to a complete stop, shut off the engine, set the brakes, and remove the ignition keys before attempting to perform any maintenance.
- Never work underneath equipment unless it is blocked securely.
- Always use eye and hand protection when performing any service or maintenance.
- Check Harrow discs frequently. They should be sharp, free of nicks and cracks and securely fastened in place. Sharp cutting edges disc easier and better. Check more often if discing in rocky soil conditions.
- Periodically tighten all bolts, nuts, screws and check that all cotter pins are properly installed to make certain unit is safe to operate. Torque disc gang axle nuts to 250 ft. lbs. after the first initial 5 hours of operation.
- When completing maintenance or service, make sure all safety guards and devices are installed before using the Disc Harrow.
- After servicing, be sure all tools, parts and service equipment are removed from the Disc Harrow.
- Where replacement parts are necessary for periodic maintenance and servicing, factory replacement parts must be used to restore your equipment to original specifications.
- The manufacturer and/or distributor will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- A first aid kit should be kept readily accessible while performing maintenance on this equipment.

Lubrication

Disc Harrow Models

Disc Harrow models contain sealed bearings. No lubrication is required.

Disc Replacement



WARNING



Be very careful when working around disc blades as the edges are sharp. Always wear gloves.

1. Remove the nuts, lock washers, cap screws, and bearing top plate from both bearing mounts that secure the Disc Harrow to the frame.
2. Remove jam nut, axle nut, and small end cap washer on the end of the disc gang.
3. Slide disc spacers and bearing mounts off axle as needed to replace desired discs and bearings.

4. Reassemble gang with new disc and bearings.
5. Secure gang assembly to frame using nuts, lock washers, cap screws, and bearing top plate that was previously removed.

NOTE: If replacing notched blades, assemble blades in a spiral pattern. Maintain proper order of discs, spacers, and bearing mounts for easier reassembly.

Cleaning and Storage

After each use:

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

Before extended storage:

- Wash Disc Harrow using low-pressure water spray. Be careful when spraying around scratched or torn 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.
- Sand down scratches or edges where paint is missing and repaint to prevent rust.
- Remove dirt from discs. Dirty or rusty discs will pull harder in the soil and use more horsepower.
- Inspect implement and replace worn or damaged parts. Replace any safety decals that are missing or not readable.
- Store the unit in an area away from human or animal activity under a tarpaulin. The disc blades should be resting on boards or some other object to keep them out of the soil.

Trouble-shooting Guide

PROBLEM: Tractor 3-Point hitch will not lift Disc Harrow.

Possible Solutions:

- Tractor too small, use larger tractor.
- Disc is weighted too heavy. Remove some weight.
- Faulty 3-Point hydraulic system. Repair as necessary.

PROBLEM: Disc won't cut ground

Possible Solutions:

- Ground too hard, wait for rain or irrigate.
- Disc too light, add weight.
- Too much plant growth. Mow first or disc several times.

PROBLEM: Front end of tractor comes up

Possible Solutions:

- Tractor too small, use larger tractor.
- Not enough weight on front end of tractor, add weight.
- Operator releasing clutch too rapidly. Ease off clutch gradually when starting out.

PROBLEM: Tractor won't pull Disc Harrow or rear wheels spin

Possible Solutions:

- Ground too wet or soil is too loose. Wait for drier conditions or use larger tractor.
- Operator trying to turn disc while in ground. Raise disc when making turns.
- Disc is cutting too deep. Raise disc until through "soft" spot. Remove some weight from Disc Harrow.

PROBLEM: Front/Rear disc gangs cutting but not rear/front

Possible Solutions:

- Incorrect top link. If front is cutting, but not rear, lengthen top link. If rear is cutting, but not front, shorten top link.

PROBLEM: Disc blades wobble on axle

Possible Solutions:

- Axle nut loose, tighten nut.

PROBLEM: Disc blades broken

Possible Solutions:

- Hit obstructions. Remove rocks, etc. and mark so they are avoided.
- Operator trying to turn with disc in ground. Raise disc.
- Operator trying to back up while disc is in ground. Raise disc before backing up.
- Disc blade too loose on axle. Tighten axle nut.

PROBLEM: Soil sticking to discs

Possible Solutions:

- Sticky soil or soil too wet. Wait for soil to dry.
- Disc blades dirty or rusty. Remove dirt or rust.

PROBLEM: Tall weeds or grass wrap around disc axle

Possible Solutions:

- Crop residue is too tall. Mow before discing. If wrapping problem occurs on second time over field, change direction or mow second time in different direction.

PROBLEM: Bearings wearing rapidly

Possible Solutions:

- Inadequate lubrication or abrasive (sandy) soil. Grease bearing more often.

PROBLEM: Disc leaves ridge in center

Possible Solutions:

- Excessive speed. Slow down.

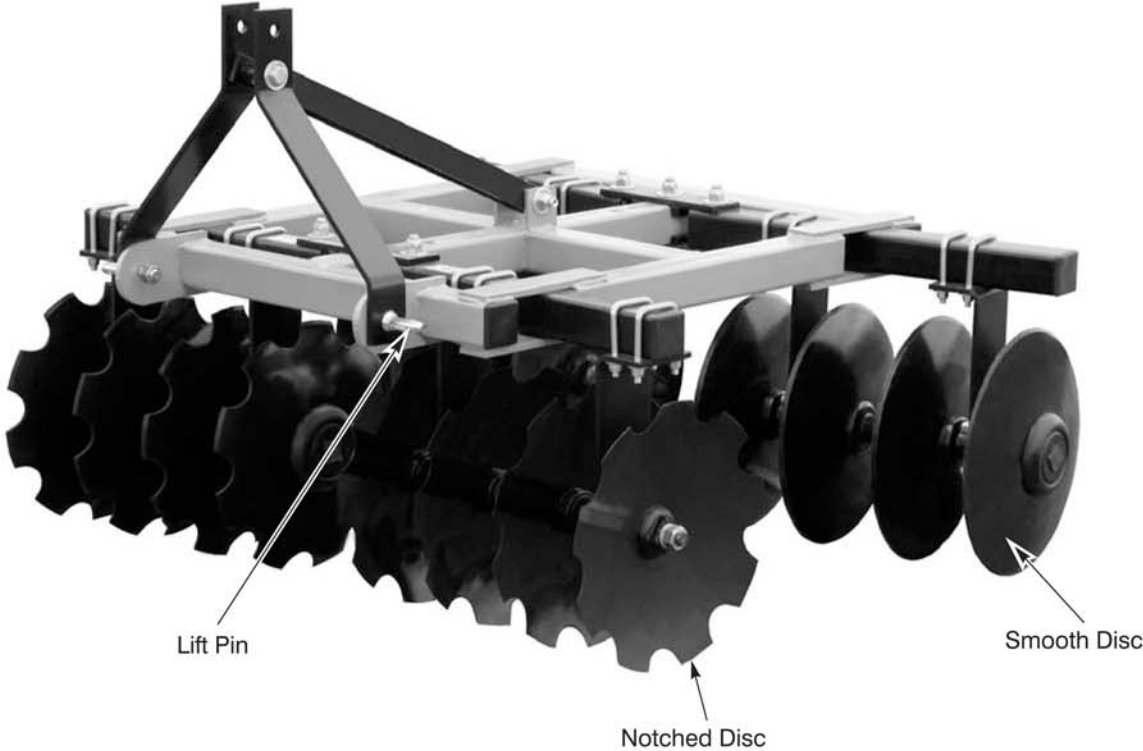
- rear gangs cutting too deep. Reduce gang angle.

- Top link too long. Shorten top link.

PROBLEM: Disc leaves center valley

Possible Solutions:

- Insufficient speed. Speed up.
- Rear gang angle too shallow. Increase gang angle.
- Top link too short. Lengthen top link.



Parts Listing

Description	Cat. 1 Lift Pin	Smooth Disc	Notched Disc
Disc Harrow	3018352	3018399	3018398