

# OPERATORS MANUAL



## HC-3000 SERIES HIGH CLEARANCE RAKE

DURABILT INDUSTRIES, LLC  
Pocahontas, AR 72455 Phone: 870-892-4501 [www.durabiltindustries.com](http://www.durabiltindustries.com)

## To the Owner/Operator/Dealer

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the 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.

### **BEFORE YOU START!!**

**Read the safety messages on the implement as shown in your 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 the machines. It is the rake owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating:

1. Reads and understands the operator's manuals.
2. Is instructed in safe and proper use.

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 using. If there is something in this manual you do not understand, ask your supervisor, or your dealer, to explain it to you. Most accidents occur because of neglect or carelessness. Keep all helpers and bystanders twenty-five feet (25') from an operating rake. Only properly trained people should operate this machine. It is recommended the tractor be equipped with a Rollover Protection System (ROPS) and a seat belt that is used. Always engage parking or place transmission in "Park" before dismounting tractor. Never leave equipment unattended with the tractor running.



#### **THIS SYMBOL MEANS**

- ATTENTION!
- BECOME ALERT!
- YOUR SAFETY IS INVOLVED!

THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY WARNING MESSAGES. CAREFULLY READ EACH WARNING MESSAGE THAT FOLLOWS. FAILURE TO UNDERSTAND AND OBEY A SAFETY WARNING, 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 TRACTOR AND ATTACHED EQUIPMENT.



## EQUIPMENT SAFETY GUIDELINES

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them. The term implement refers to the particular implement this operators manual is written for.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition.

Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

To prevent injury or death, use a tractor equipped with a Roll-Over Protective System (ROPS). Do not paint over, remove or deface any safety signs or warning signs on your equipment. Observe all safety signs and practice the instruction on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**

Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and Operation instruction in each of the appropriate sections of the Tractor and Implement Manuals.

Pay close attention to the Safety Signs affixed to the Tractor and the Implement. Replace any CAUTION, WARNING, DANGER or instruction safety sign that is not readable or is missing. Location of such safety signs is indicated in this booklet.

Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations.

**Do not allow persons to operate, assemble or service this implement until they have read this manual and have developed a thorough understanding of how to operate, assemble and service this implement.**



## SAFETY SIGNS

Keep safety signs clean and legible at all times.

Replace safety signs that are missing or have become illegible.

Replaced parts that displayed a safety sign should also display the current sign.

Safety signs are available from your Distributor or Dealer Parts Department or the factory.



## PERSONAL PROTECTION

Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around moving parts.



**PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!** Tractors with or without attachments can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss. **NOTE: Hearing loss from loud noise** (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

Ensure implement is properly mounted, adjusted and in good operating condition.

Please remember it is important that you read and heed the safety signs on the rake, and the safety rules set forth. Clean or replace all safety signs if they cannot be clearly read and understood. They are there for your safety as well as the safety of others. The safe use of this machine is strictly up to you, the operator.

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



## Safety Instructions

Hydraulic oil under high pressure can penetrate the skin. Make sure that all operating and service personnel know that in the event hydraulic fluid penetrates the skin, it must be surgically removed within a few hours by a doctor familiar with this form of injury, or gangrene may result.

If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.

Before servicing the machine, engage the parking brake or place the transmission in "Park", shut off the tractor and remove the key. Relieve all hydraulic pressure in lines.

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

Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the rake. Do not allow long hair, loose fitting clothing or jewelry to be around moving parts.

Always use two people or a mechanical lift device to handle heavy, unwieldy components during assembly, installation, removal, or moving the rake or components.

Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing, removal, or moving the rake.

Never place yourself between the tractor and rake while implement is in operation.

Do not walk or work under a raised wings unless it is securely blocked or held in position. Do not depend on the tractor hydraulic system to hold the wing in place.

Never leave rake wings in the partially raised position. Always lower wings to the ground or to the transport position when storing.

Always install the transport lock pins before transporting or storing rake in the transport position.

A heavy load can cause instability of the tractor. Use extreme care during travel. Slow down on turns and watch out for bumps.

Be especially cautious on hill sides. Always operate tractor at a safe speed for the conditions experienced.

Do not allow riders on the rake or tractor at any time. There is no safe place for any riders.

Before you operate the rake, check over all pins, bolts and connections to be sure all are securely in place.

Replace any damaged or worn parts immediately.

Do not allow anyone who is not familiar with the safety rules and operation instructions to use this rake.

Never allow children to operate or be around this implement.

Use safety chain when towing implement.

Do not operate implement on steep hillsides.

Watch out for low overhead electrical wires and limbs when operating or transporting the implement. Check clearance of doorways when entering a building.

Install transport lock pins and pin clips before transporting or storing the rake.



**NEVER INSERT FINGER IN TRANSPORT PIN HOLE TO CHECK ALIGNMENT.**

Always use care when operating rake.



**ALWAYS OBEY SAFETY WARNINGS!**



## TRANSPORT SAFETY

Comply with state and local laws governing highway safety and movement of farm machinery on public roads.

The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.

When driving the tractor and equipment on the road or highway under 20 mph (32 kph) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Except when prohibited by law.

Watch out for low overhead electrical wires and limbs when operating or transporting the implement. Check clearance of doorways when entering a building.

Always be sure the implement is in the proper raised position for transport.

Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control.

Plan your route to avoid heavy traffic.

Always shut off hydraulic transport lock valves before transporting.

Do not drink and drive!

Watch for traffic when operating near or crossing roadways.

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.

Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.

Never allow riders on either tractor or implement. Falling off can kill. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.

Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.



## STORAGE SAFETY

Following operation, or when unhooking, stop the tractor, set the tractor brakes, lower wings all the way to the ground and release hydraulic pressure, disengage the PTO, shut off the engine and remove the ignition keys.

Store the unit in an area away from human activity.

Do not permit children to play on or around the stored unit.

Make sure all parked machines are on a hard, level surface and engage all safety devices.

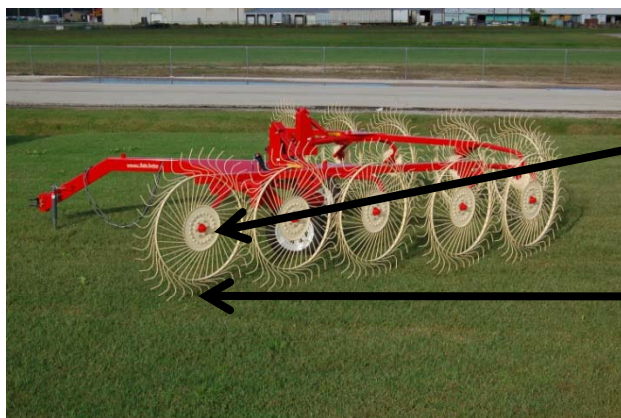
If blocking is used, make sure it is solid and secure before leaving area.

Never stand between tractor and implement when tractor is being backed up to implement to hitch up implement.

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## ASSEMBLY INSTRUCTIONS

The HC-3000 series rake comes from the factory fully assembled with the exception of the rake wheels. Install the rake wheels onto the rake arms using the supplied hardware. The rake wheels are directional, there are rights and lefts. The tines where the rake wheel touches the ground should point towards the front of the rake and the heads of the carriage bolts should be on the side of the wheel that contacts the hay as pictured below.



Nuts on this side, carriage heads on inside where hay contacts wheel.

Tines point forward at bottom of wheel.



# OPERATING INSTRUCTIONS

## ATTACHING HC-3000 SERIES RAKE TO THE TRACTOR

Before hitching the rake to the tractor make sure both are in good operating condition. Slowly back up to the rake until the tractor drawbar lines up with the hitch clevis on the rake. Insert proper size hitch pin ( not included with rake) and retaining clip. Adjust hitch clevis on rake so that horizontal part of the tongue is level.



**Warning: do not stand between tractor and implement while tractor is being backed up to implement!**

Plug both hydraulic hoses into tractor remotes.

## PUTTING THE RAKE INTO WORKING POSITION AND ADJUSTING

Open the shut off valves on both cylinders and lower the rake arms into working position.

Open shut off valve, closed position is shown.

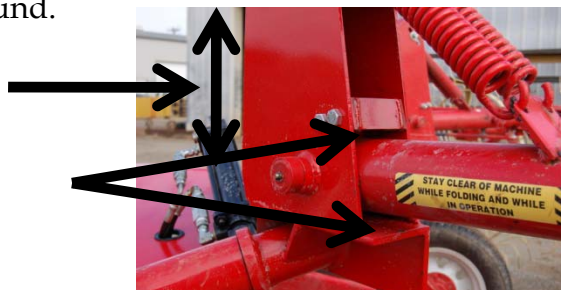


**Warning: Make sure area is clear to either side of rake before lowering wings to the ground!**

Using the tractor hydraulic remotes lower the wings to the ground, make sure the cylinders are retracted all the way. If the cylinders are not retracted all the way, and the spring towers are not all the way vertical, the rake arms will not be able to float as they should. If the cylinders are adjusted properly the back of the spring tower should be vertical and the rake arm tube will be centered between the up stop and the bottom of the spring tower assembly when the rake wheels are on level ground.

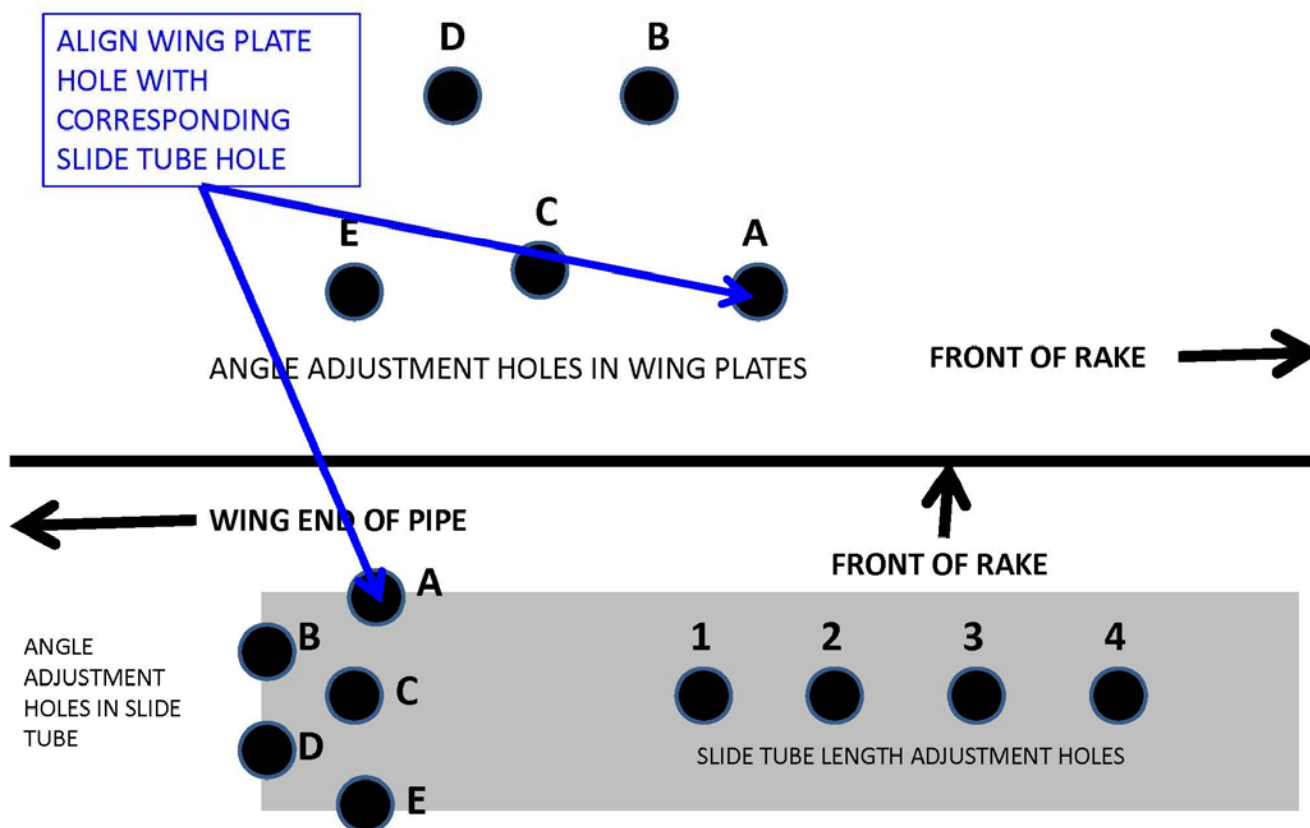
Should be vertical

Should be close to equal spacing top and bottom



Adjust the wing angle and slide tube extensions to get the raking width and windrow width desired. Adjust the rake wheel angle first. **Remember the rake wheel angle should be adjusted according to crop conditions.** For heavy crop you want narrower raking width with less angle on rake wheels and for light crop you want wider raking width with more angle on the rake wheels. Then fine tune the windrow width by sliding the wings in or out.

## RAKE WHEEL ANGLE ADJUSTMENT



The chart on the next page is a guide to adjust the rake. All of the adjustments will vary depending on crop conditions.

To adjust the rake wheel angle pull the pin in the main arm triangle pivot plate, swing main arm to desired location and reinstall pin and clip.

To fine tune windrow width remove the pin in the wing slide tube, slide wing in or out to desired location and reinstall pin and clip.

## RAKING WIDTH (WINDROW WIDTH) 8 WHEEL

WILL VARY DEPENDING ON CROP CONDITIONS

PIN POSITIONS		1	2	3	4
(LIGHT CROP)	A	17'3" (3')	17'6" (3'3")	17'9" (3'6")	18' (3'9")
	B	16'9" (3'6")	17' (3'9")	17'3" (4')	17'6" (4'3")
(NORMAL CROP)	C	16'3" (4')	16'6" (4'3")	16'9" (4'6")	17' (4'9")
	D	15'9" (4'6")	16' (4'9")	16'3" (5')	16'6" (5'3")
(HEAVY CROP)	E	15'3" (5')	15'6" (5'3")	15'9" (5'6")	16' (5'9")

## RAKING WIDTH (WINDROW WIDTH) 10 WHEEL

WILL VARY DEPENDING ON CROP CONDITIONS

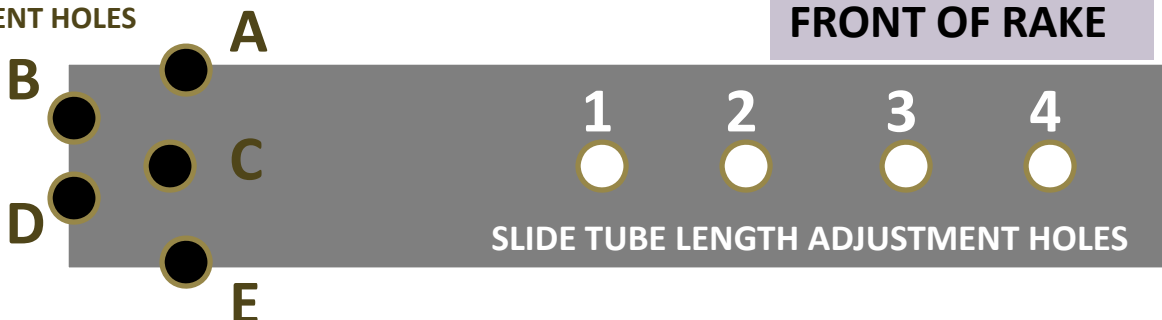
PIN POSITIONS		1	2	3	4
(LIGHT CROP)	A	20'3" (3')	20'6" (3'3")	20'9" (3'6")	21' (3'9")
	B	19'9" (3'6")	20' (3'9")	20'3" (4')	20'6" (4'3")
(NORMAL CROP)	C	19'3" (4')	19'9" (4'3")	19'9" (4'6")	20' (4'9")
	D	18'9" (4'6")	19' (4'9")	19'3" (5')	19'6" (5'3")
(HEAVY CROP)	E	18'3" (5')	18'6" (5'3")	18'9" (5'6")	19' (5'9")

## RAKING WIDTH (WINDROW WIDTH) 12 WHEEL

WILL VARY DEPENDING ON CROP CONDITIONS

PIN POSITIONS		1	2	3	4
(LIGHT CROP)	A	23'3" (3')	23'6" (3'3")	23'9" (3'6")	24' (3'9")
	B	22'9" (3'6")	23' (3'9")	23'3" (4')	23'6" (4'3")
(NORMAL CROP)	C	22'3" (4')	22'9" (4'3")	22'9" (4'6")	23' (4'9")
	D	21'9" (4'6")	22' (4'9")	22'3" (5')	22'6" (5'3")
(HEAVY CROP)	E	21'3" (5')	21'6" (5'3")	21'9" (5'6")	22' (5'9")

RAKE WHEEL ANGLE  
ADJUSTMENT HOLES



## ADJUSTING GROUND PRESSURE ON ALL RAKES



Tighten bolt for less ground pressure and loosen bolt for more ground pressure. When correctly adjusted the tines on all of the rake wheels should be deflected the same when the rake is in operation. If they are not you will need to add more ground pressure. For the rake to perform properly the rake wheels must have enough ground pressure for the tines to be deflected where they contact the ground while raking.

## ADJUSTING FRONT SINGLE WHEEL ARM SPRING ON 10 WHEEL RAKE

Pull retaining pin for front rake arm and raise arm until second hole in inner tube is visible. Reinsert pin into this hole, this holds the rake arm in the up position for raking with 8 wheels instead of 10. Loosen retaining nuts on threaded rod and adjust rod so spring has slight tension on it and is not loose. This is the starting point for adjusting the spring, from this position adjust the threaded rod to put more tension on spring as needed. If you need more ground pressure lengthen the rod and if you need less ground pressure shorten the rod. **Make sure that you never adjust the spring so that it is loose when the arm is pinned up into the 8 wheel raking position because the spring could come loose from the rake and be lost!**

Spring Adjuster Rod  
**Never allow spring to be loose when the arm is pinned up into the position for raking with 8 wheels.**

Pin for locking the rake arm up for 8 wheel raking.



## PUTTING THE RAKE INTO TRANSPORT POSITION

Remove the retaining pin from the wing adjuster tube and slide the wings all the way in. Replace the retaining pin and clip.



**Always slide wings all the way in for transport.**

Raise the wings all the way up until the spring towers are resting on the transport stops. Close the shut off valves on both cylinders.



Retract wing all the way in.



Close shut off valve (closed position is shown).

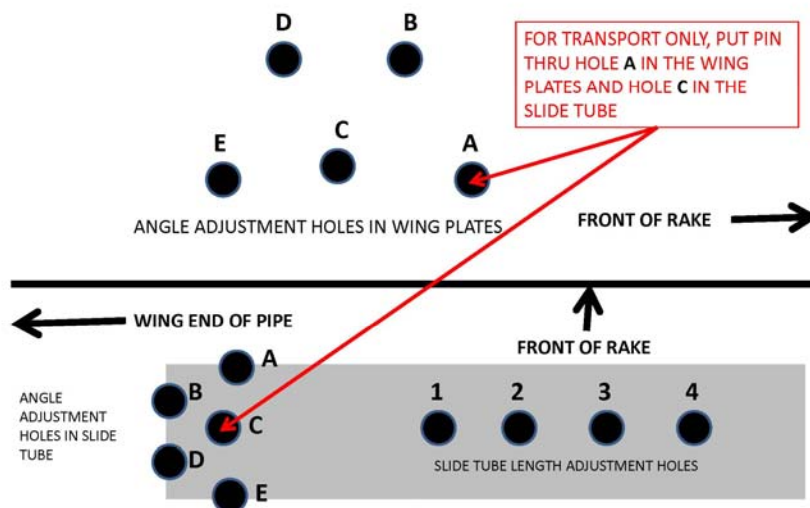
For transport with the wings level at their minimum height adjust the wings as follows before folding them up into the transport position.

- Remove the wing angle pins and swing the wings to close completely the windrow area at the back of the rake. Reinsert the pin into hole "A" on the rake arm and position "C" on the wing adjuster tube.

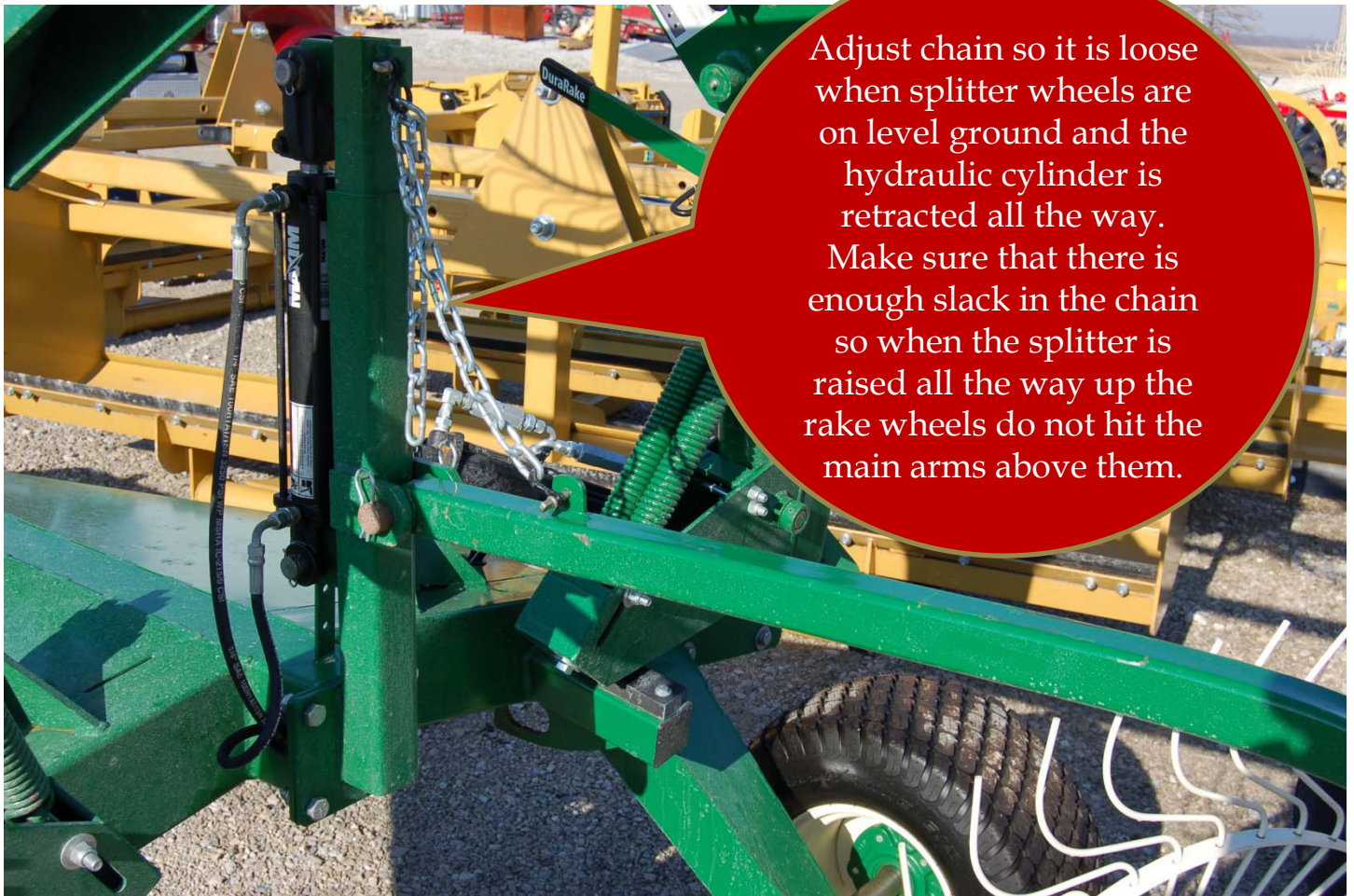
When pin is in proper holes for level transport it will line up with the centerline of the tube.



### WING LEVEL FOR TRANSPORT ADJUSTMENT



# Splitter Wheel Adjustment



Adjust chain so it is loose when splitter wheels are on level ground and the hydraulic cylinder is retracted all the way. Make sure that there is enough slack in the chain so when the splitter is raised all the way up the rake wheels do not hit the main arms above them.

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## SERVICE AND MAINTENANCE

- Before each use inspect rake for missing, damaged, worn or loose parts, pins, clips and fasteners including but not limited to nuts, bolts, clips, roll pins, etcetera.
- Before each use inspect all hydraulic hoses, fittings, cylinders and valves for damage and/or leaks.



**Warning: Hydraulic fluids are under extremely high pressure. Escaping fluid can penetrate clothing and skin causing serious injury. If this should occur, seek medical attention immediately!**

- It is recommended that you add grease to all grease fittings on your rake daily.
- Replace any damaged and/or worn components as necessary.



**Warning: Anytime service, repairs or maintenance is performed on rake, all normal safety measures should be taken. This would include but is not limited to wearing of proper safety clothing and eye protection. Only properly trained mechanics should perform service and repairs.**

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### STATEMENT OF POLICY

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

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## SPECIFICATIONS

Description	8 Wheel	10 Wheel	12 Wheel
• Min. HP. Required	20	20	30
• Hyd. Remotes Required	1	1	1
• Min. Transport Height	9'	9'	9'
• Min. Transport Width	9'	9'	9'
• Shipping Weight	1856 lbs	1880 lbs	2384 lbs
• Tire Size	195/65R15	195/65R15	195/65R15



Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

**⚠ DANGER** : Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

**⚠ WARNING** : Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, 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 may also be used to alert against unsafe practices.

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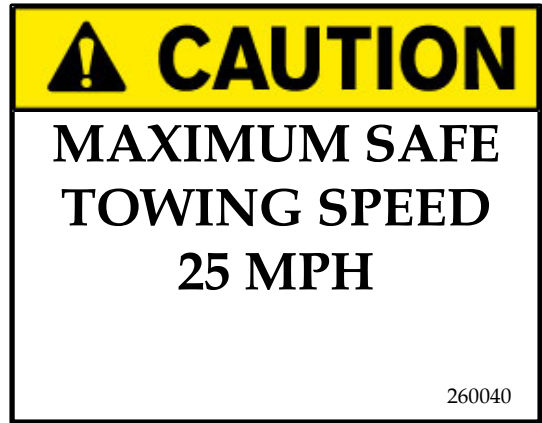
If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or the manufacturer directly.



(located on top of pivot pipe at transport lock hole)



(located on top of tongue at hitch clevis)



(located on top of tongue at hitch clevis)



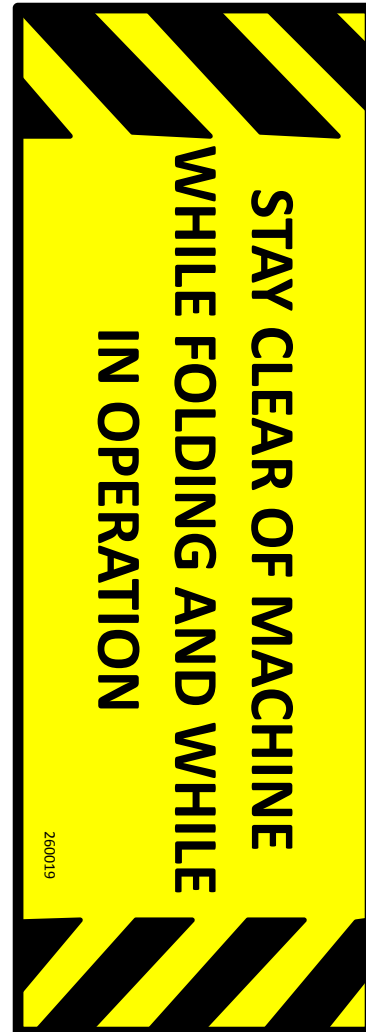
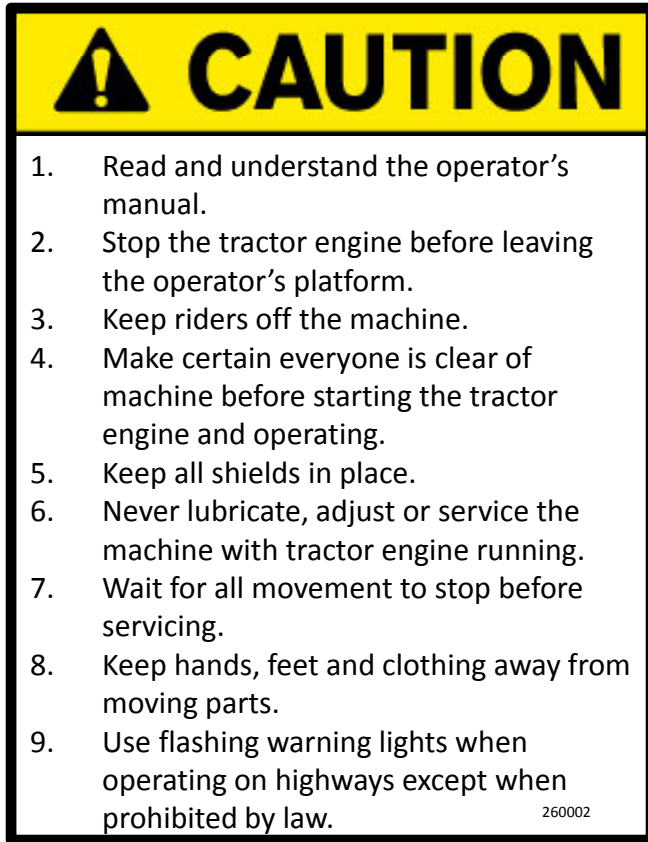
(located on top of pivot pipe at transport lock hole)



(located on top of frame in front of hydraulic cylinders)

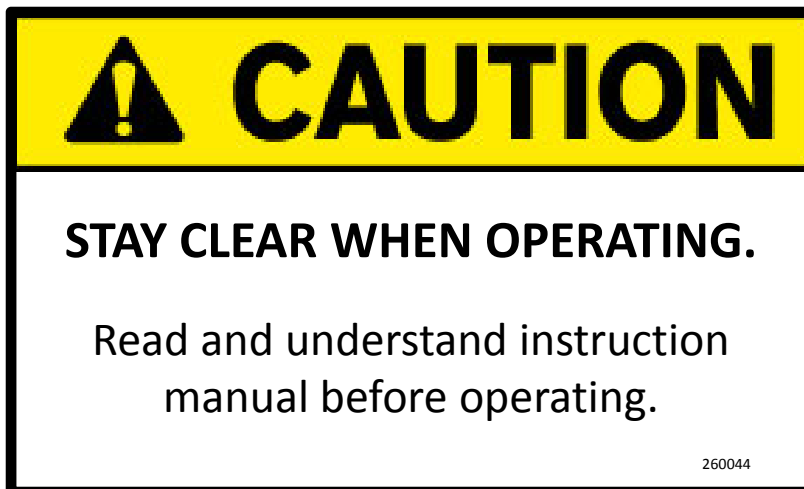


( Top of tongue just below hose hole)



( Front of wing adjuster tube left side of pin hole and Underside of wing on triangle plate right side up when folded in transport position)

( Front of spring tower right side up when rake is in working position)



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# **DURABILT INDUSTRIES, LLC**

**Phone: 870-892-4501**

## **LIMITED WARRANTY**

**(Effective November 24, 2008)**

**Durabilt Industries, LLC warrants its products to be free from defects in material or workmanship, under normal intended use, for a period of one year from the date of sale to the original private customer. The term of the warranty for commercial customers including rental operations is 6 months from date of original sale. This warranty is not transferable and is therefore valid only to the original customer or legal entity.**

**Durabilt Industries, LLC shall not be liable for any incidental or consequential loss or damages (including but not limited to loss of use, loss of profits and damage to the equipment to which the Durabilt unit may be attached) occurring for any reason at any time.**

**For the warranty to be valid the warranty registration card that you received with your machine must be filled out and on file with Durabilt Industries, LLC prior to any warranty repairs being performed. The warranty registration card must be filled out and mailed to Durabilt Industries, LLC within 30 days of purchase.**

**The Durabilt Industries, LLC limited warranty covers parts and labor for authorized repairs. All warranty repairs must be authorized by Durabilt Industries prior to the work being started. Call your dealer to schedule warranty repairs. Your dealer must request a warranty repair authorization number. This number must be provided on all warranty claims for them to be considered for reimbursement. In no event shall Durabilt's liability exceed the purchase price of the unit.**

**The Limited Warranty is void if the product has been altered or modified in any way. Improper use, poor maintenance, abuse, accidental damage, alteration or removal of the serial number tag among other things or actions will void the limited warranty. This limited warranty does not cover wear items such as blades, hoses, tires, chains, couplers, etc. Depreciation due to normal wear is excluded from the warranty.**

**Only parts received from Durabilt Industries will be considered for reimbursement. Durabilt Industries, LLC reserves the right to alter, update or improve its products at any time without incurring any obligation to past customers.**



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