DragMaster™

Arena Drag

Version 3 Owner's Manual

Shown with optional High –Flotation Turf Tires and 500 Gallon Water Tank

Absolute Innovations, Inc.

Operator's Manual

Safety related warnings and instructions follow this Alert Symbols are used to get your attention so you may avoid serious injury, or death; to you or others. Read the Operator's Manual in its entirety before

CUSTOMER PREPARATION CHECKLIST

Kiser DragMaster™

The following checklist should be completed using this Operator Manual for reference.

- ☐ Check Fluid levels in Gearboxes.
- ☐ Lubricate/Grease all fittings.
- ☐ Ensure all shields are secured and in good condition.
- ☐ Ensure all fasteners and hardware are fully secured.
- ☐ Operators have read Owner's Manual and understand the safe and proper use of the equipment.
- ☐ I understand that any unauthorized alteration to the Kiser DragMaster voids the warranty.

OSHA, ASABE, SAE and ANSI standards require the use of protective guards at all times for non-agricultural use. ABI strongly recommends that such guards should be used to minimize risk of property damage, serious bodily injury or even death from object hazards or by contacting rotating parts, i.e. driveline, tires, etc.

Model Number: _____

Serial Number: _____

Do not remove this checklist from the Operator's Manual!

It is the responsibility of the owner to complete the procedures listed above.

Table of Contents

Welcome

Your Kiser DragMaster has been designed with care and built by skilled workers using quality materials. Proper maintenance and safe operating practices will help you get years of use from the Kiser DragMaster, while maintaining the ultimate footing for your performance horse(s).

Kiser DragMaster was developed by Bob and Jim Kiser who are the leading experts in the world on arena construction and maintenance. Their knowledge, reputation and experience are unmatched in the industry.

Arena maintenance has dramatically changed over the last 10 years, and to maintain your arena footing requires the right equipment. The two most IMPORTANT reasons that owners have invested in the Kiser DragMaster are:

Improving the horse's performance — incorrect footing causes loss of confidence and concentration of horses while performing maneuvers. The Kiser DragMaster eliminates the hard & soft spots, high & low spots, and improper moisture control. This increases safety and confidence for both horse and rider.

Maintaining the longevity and soundness of your horse — Arena maintenance with the Kiser DragMaster reduces sore legs, tendons & muscle issues, bowed tendons, suspensory ligaments, and permanent joint & bone damage such as splints. Over 80% of soundness issues are related to our equine athletes performing on substandard or dangerous surface material.

REMEMBER SAFETY FIRST!

Be Alert - Eliminate unsafe habits and risky behavior, recognize hazards as they exist. Read and follow the Operator's Manual for your Kiser DragMaster and your tractor!

Application

The Kiser DragMaster is designed and built for optimum performance in maintaining outdoor and indoor arenas. Every square inch of your arena is being maintained by your Kiser DragMaster from adding supplemental moisture, leveling the footing, breaking up the hard spots, removing high and low spots in the base, to fluffing the footing and all of this is accomplished in one pass!

Refer to features and specifications on pages 9-12 for additional information.

Kiser Arena Design Experts

Go to the ABI support website to access additional information on Arena designs, grooming patterns, operation videos, and additional information on the Kiser DragMaster.

Visit our support site at: http://www.abiattachments.com/support/

Using this Manual:

This Operator's Manual is designed to help familiarize you with safety, operation, adjustments, and use of the Kiser DragMaster. Read this manual and follow the recommendations to help ensure safe and efficient operation.

The information contained within this manual was current at the time of printing. Your model may vary in design and configuration from those shown in this manual.
Some parts may change slightly to assure the best performance, and optimal results of the Kiser DragMaster.

To order a New Operator's Manual visit the ABI Support website.

An instructional video is available online as well as this Operator Manual in PDF format. Both have been designed to assist you in achieving optimal results with the Kiser DragMaster.

The Operator Manual is a compilation of engineering data and field experience, and contains general information for adjustments and operation as every arena varies in usage, location specific; with experience using the Kiser DragMaster and this manual, you should be able to find the right procedure that is perfectly suitable to your arena(s) needs.

Terminology

"Right" or "Left" as used in this manual is determined by facing forward in the direction the machine will operate while in use, unless otherwise stated.

Owner Assistance

If customer service or repair parts are required contact Absolute Innovations to reach our trained personnel who will assist you with repair parts and equipment needed to service your Kiser DragMaster. The parts on the Kiser DragMaster have been specifically designed and should only be replaced with genuine Absolute Innovations parts. Therefore, should your Kiser DragMaster require replacement parts contact our Customer Support Department.

Customer Service

Absolute Innovations wants you to be satisfied with your new Kiser DragMaster. If for any reason you do not understand any part of this manual, or are not satisfied with the service required, the following actions are suggested:

Contact our Customer Service Department:

Contact Absolute Innovations Customer Service department for any questions in regards to setup, operation, maintenance, or parts for the Kiser DragMaster.
To contact Customer Service please call:
855-211-0598 M-T 8am-8pm EST Friday 8am-5pm EST

For emails inquiring about the Kiser DragMaster please visit:
http://www.abiattachments.com/support/ - and select the "Go To help Desk" option at the top of the page.

For setup videos, warranty paperwork, or for additional information on the Kiser DragMaster visit:
http://www.abiattachments.com/support/

BE AWARE OF SIGNAL WORDS: A signal word designates a degree of level of hazard seriousness.

NOTE: Provides helpful information to the operator.

IMPORTANT: Indicates failure to observe may cause damage to equipment.

WARNING: Indicates a potentially hazardous situation which, 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.[1]

CAUTION: Indicates an imminently hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. [1]

DANGER: Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes cannot be guarded. [1]

1. Sentry Insurance, FEMA, *Owner's and Operators Manuals for Farm Equipment*, Sentry Insurance, Stevens Point, WI, revised Management Bulletin No. 112, 90-42; March 2007, pp S-2

Safety Alert Symbols

The **SAFETY ALERT SYMBOL** indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of 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 equipment.

Owner/operator can prevent and is responsible for accidents or injuries occurring to other people, themselves, and/or property and equipment.

Thoroughly read and understand the operator's manual, references and other material supplied with the Kiser DragMaster and tractor. If the operator cannot read English, it is the owner's responsibility to explain this material to them.

Refer to the "Safety Label section" and read all instructions noted on them.

We strongly recommend that children are <u>not allowed</u> to operate machinery. Do not allow any untrained person to operate or service equipment.

Operator Safety

- Operator must be familiar with these instructions and functions of the Kiser DragMaster and tractor before use.
- Operate only with tractor equipped with ROPS and seat belts.
- Operate implement from the Driver's seat only.
- Disengage the PTO and Stop the engine and be sure driveline is stopped before dismounting from tractor. Dismounting from a moving tractor could cause serious injury or death.
- Entanglement in rotating driveline can cause death or serious injury.
- Disengage the PTO and Stop the engine and be sure driveline is stopped before dismounting from tractor.

Machinery Safety

- Inspect both the tractor and the Kiser DragMaster before you operate. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts.
- Be sure guards and shields are in good condition and secured before operating the implement. Make any necessary adjustments before operation.
- Do not allow anyone to stand between the Tractor and implement while backing up to the implement.
- Inspect the area where the equipment is to be used and remove all objects prior to operating the Kiser DragMaster and tractor.
- Disengage implement driveline when transporting or not in use.
- Do not leave tractor and Kiser DragMaster unattended while it is running.
- Make sure the operator knows how wide the DragMaster is compared to the tractor.
- Watch out for wires and other obstacles when raising implement.
- Slow down and use care when approaching blind corners or other objects that obscure vision.
- Do not turn sharply. Use additional CAUTION when turning or operating under adverse surface conditions. Use care when reversing.
- Turning tractor too tight may cause implement to ride up on wheels or damage the driveline. This could result in injury or death and equipment damage.
- Look behind and down before backing up to be sure of a clear path.
- If you hit an object or if abnormal vibration occurs, stop the machine and inspect it. Make repairs before resuming operation of equipment. Keep the Kiser DragMaster properly maintained and in good working order.
- Only operate during daylight or with good artificial light.
- Make sure all persons are clear of the working area.
- Stop machine if anyone enters the area. Never carry passengers and keep pets, livestock and bystanders away.

Practice Safe Maintenance

Understand procedures before starting any work. Use proper tools, and equipment, refer to Operator's Manual

for additional information.

- Work in a clean dry level area.
- Check all fluid levels on the tractor before operation.
- If you need to refill fuel or oils wait approximately one hour for these fluids to cool.
- Lower the implement to the ground, put the tractor into park, turn off engine and remove key before performing any maintenance.
- Allow implement to cool completely.
- Support implement securely with blocks before working beneath unit.
- Even with the engine turned off, hydraulic systems and mechanical systems can fail or movement of levers can cause equipment to drop unexpectedly causing severe injury or death.
- Do not grease or oil implement while it is in operation.
- Inspect all parts. Make sure parts are in good condition and installed properly.
- Remove build-up of grease, oil or debris.
- Remove all tools and unused parts from implement before operation.
- Never tamper with safety devices. Check their proper operation regularly.

Emergency Preparedness

- Keep a fire extinguisher on your tractor and check the expiration date periodically!
- Keep a well-stocked first aid kit on your tractor.
- Save In Case of Emergency (I.C.E) numbers on your cell phone (including doctors, hospital and 911 services).
- Keep I.C.E. numbers next to a home or office phone.

Keep Riders off Machinery

- Only allow the operator on the machine. Keep riders off!
- Riders may obstruct the operator's view resulting in the tractor being operated in an unsafe manner.
- Riders on the tractor or Kiser DragMaster may be struck by foreign objects or thrown off the machine causing serious injury.
- Never allow children to operate equipment.

Wear Protective Equipment

- Protective clothing and equipment should be worn.

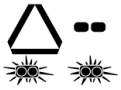
  • Wear clothing and equipment appropriate for the job. Avoid loose fitting clothing to avoid entanglement with moving parts.

- Keep hands, feet, clothing, and long hair or anything worn that can be caught away from power-driven parts.
- Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Operating equipment requires the full attention of the operator.
- Avoid wearing radio headphones, MP3 players or using cell phones while operating equipment.

Stay Clear of Rotating Drivelines

- Entanglement in rotating driveline can cause serious injury or death.
- **DO NOT LEAN OVER** or attempt to step-over a rotating driveline while in operation.
- Do not use the driveline as a step when it is in operation or stopped.

Use Safety Lights and Devices



- Slow moving tractors, self-propelled equipment, and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
- Flashing WARNING lights and turn signals are recommended.
- Use lights and devices provided with the machinery.

Avoid Tipping

- Danger of tipping is increased greatly with tires are set in narrow tread setting and driving at a high rate of speed.
- Kiser DragMaster weight (based on model) plus 2505 pounds of water weight (8.35 x 300 gallons) must not exceed combined weight of tractor and operator. If the Kiser DragMaster + water exceeds this weight then refer to the tractor's manufacturer's recommendations for wheel weights or counterweights for added stability when operating with Kiser DragMaster.

Transporting & Towing Loads Safely

- Comply with state and local laws.
- Maximum transport speed for implement is 20 mph. DO NOT EXCEED!
- Never travel at a speed which does not allow adequate control of steering and stopping.
- Sudden braking can cause a towed load to swerve and upset.
- Reduce speed if towed load is not equipped with brakes.
- IMPORTANT! Do not tow any load that is more than double the weight of the tractor.
- Stopping distance increases with speed and weight of the towed load. Travel slowly and allow extra time and distance to stop.

- Travel only with clean reflectors, SMV and working lights.
- Ensure that the implement components are in “up” or “transport” position before moving. Lower the implement to “field position” when ready to use. This keeps the load pulling below the center of gravity

Tire & Wheel Safety

- Read and understand any manufacturer’s warning contained in literature or molded into the tire sidewall before servicing tires.

- Only use specialized tools as recommended by tire suppliers for mounting or dismounting tires.
- Explosive separation of a tire and rim parts can cause serious injury or death.
- Do not attempt to remove a tire from the rim without removing air pressure as this may cause serious injury or death.
- Check tires for low pressure, bulges (bubbles), cuts, damaged rims or missing lug bolts and nuts.
- Do not re-inflate a tire that has been operated in a run-flat or under inflated condition (80% or less than recommended pressure). Demount and inspect tire and rim parts before re-inflating.

Periodically, inspect the implement’s tires:

- Inspect inside of tire for loose cords, cuts, penetrating objects or other casing damage.
- Inspect valve cores. Replace valve cores if damaged or leaking.
- Lubricate with only approved tire mounting lubricant or mild vegetable oil soap solution. Do not use anti-freeze, silicones or petroleum base lubricants as these will damage tires.
- Un-repairable tires should be destroyed and replaced with tire having the same rim diameter designation and suffix letters.
- Do not mount or use damaged tires or rims.
- Check wheel hardware for tightness. Loose wheel nuts may cause instability resulting in an accident that may result in serious injury. Perform this check often during the first 100 hours of operation.
- Do not attempt to mount a tire without proper equipment or experience in performing this operation.
- Always maintain proper tire pressure. Do not over inflate above the recommended pressure. Low pressure may cause loss of control during operation while on slopes or wet/slick surfaces.
- Never attempt to weld or heat a wheel and tire assembly. Heat increases air pressure resulting in tire explosion causing serious injury or death. Welding can impair the structural integrity by weakening or deforming the wheel.
- To safely inflate tires use a clip-on chuck and extension hose long enough to allow you to stand to one side. **DO NOT STAND or SIT IN FRONT OF or OVER the tire assembly**.
- Never use a tire as a step as the tire may roll and cause serious injury.
- Most agricultural tire, wheel, hub and spindles have a maximum speed of 25 mph.

Avoid High Pressure Fluids Hazard

It is impossible to overemphasize the importance of implementing and adhering to safe practices when working with pressurized fluids, and components in hydraulic & pneumatic systems. A fluid system failure can result in equipment damage, production loses, personal injury, or even death.

CAUTION:
Avoid injury! *Escaping fluid under high pressure can penetrate the skin and cause serious injury. A pinhole leak in any portion of the hydraulic system while pressurized can puncture clothing such as gloves, coveralls and penetrate skin from a distance of as much as four inches. Avoid the hazard by relieving the pressure before connecting hydraulic or other lines otherwise the connectors will not lock safely. Wear protective equipment such as gloves, long sleeves and safety glasses or goggles.*

Absolute Innovations highly recommends that a skilled mechanic familiar with hydraulic safety should check hydraulic hoses for leaks while pressurized when leaks cannot be detected while not under pressure.

Run a piece of cardboard along the hose – NOT BODY PARTS! If the hydraulics need to be activated for any reason during the work, the mechanic should step back a safe distance, then signal the operator to start the machine.

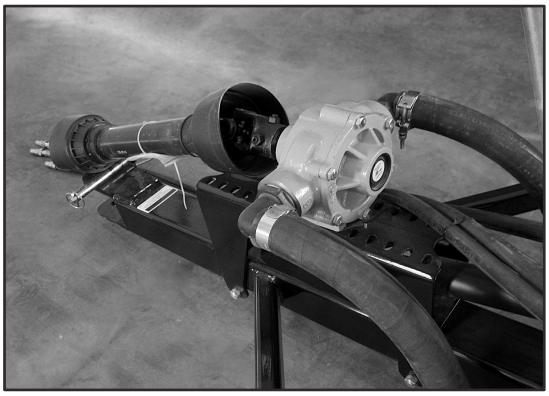
Major areas for maintaining safe conditions and efficient operations with regard to fluid systems:

- Inspecting hoses and components before starting machinery and draining pressure from the hydraulic lines before inspecting them for leaks. Most hydraulic leaks can be detected without the need to pressurize the lines. Even if the machine has been shut off, operators need to ensure that the pressure has been relieved from the hoses.
- Replace worn hoses, any connectors or components with the recommended manufacturer’s replacement parts that meet required specifications for safe operation.
- Tighten all connectors before applying pressure. Follow proper hose assembly and routing guidelines to prevent premature failures and promote hose safety.

If an accident occurs seek immediate medical treatment! Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. If your Doctor is unfamiliar with this type of injury should reference a knowledgeable medical source.

Water Pump Safety

Use a pressure relief device on the discharge side of the pump or immediately shut off the power source after use to prevent damage from pressure buildup. When the pump discharge is blocked or otherwise closed while power source is still running, serious injury could occur.



WARNING:
Never pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Never pump acids (i.e. acid fertilizer) never use in explosive atmospheres. The pump should be used only with liquids compatible with the pump component materials – refer to Hypro Pump Model 1502C online Operator's Manual for specifications and additional information: http://www.hypropumps.com/FileAttachments/Spray/en-us/ - L-0100R_Roller_Pump_Manual.pdf .

Failure to follow this WARNING can result in personal injury and/or property damage and will void the product warranty.

- Never run the pump faster than maximum recommended speed of 540 RPM.
- Never pump at pressures higher than the maximum recommended pressure.
- Never pump liquids at temperatures higher than the recommended maximum temperatures (140°F/60°C) or temperatures under 32°F/0°C as this may damage the pump.
- Make certain that the power source conforms to the requirements of your equipment. Refer to your tractor's owner manual for additional information.
- Provide adequate protection in guarding around the moving parts such as the shaft and pulleys.
- Release all pressure within the system before servicing any component.
- Drain all liquids from the system before servicing any component.
- Check all hoses for weak or worn condition before each use. Make certain that all connections are tight and secure.
- Periodically inspect the pump and the system components. Perform routine maintenance as required by the pump manufacturer's operator's manual.
- Use only pipe, hose and fittings rated for the maximum psi rating of the pump.
- Never use these pumps for pumping water or other liquids for human or animal consumption.

Safety Labels

Your Kiser DragMaster comes equipped with all safety labels in place. They were designed to help you safely operate your implement.

Read and follow their directions:

- Keep all safety labels clean and legible.
- Replace all worn, damaged or missing labels. To order new labels contact our sales department.
- Some new equipment installed during repairs may require new safety labels to be affixed to the replacement component. When ordering new components make sure the correct safety labels are in included in the request.

To install new labels:

a) Spray water on the surface where the label is to be placed and wipe dry.
b) Peel backing from the label.
c) Press firmly onto the surface.
d) Squeeze out air bubbles with the edge of a credit card.

Standard Safety Labels:
WARNING - Pinch Points,
WARNING - Peligro – No Riders No Sesuba
WARNING - Crushing Hazard
WARNING - Hydraulic Fluid - High Pressure Hazard

Seasonal shutdown procedures:

Water System

****Your Unit may be winterized. Please flush unit before use.**

****Failure to properly Winterize/Freeze Protect your water tank may result in damage to the water tank components that may not be covered by Manufacturer Warranty. Please contact ABI Customer Service Department for information on Winterizing your water tank:**

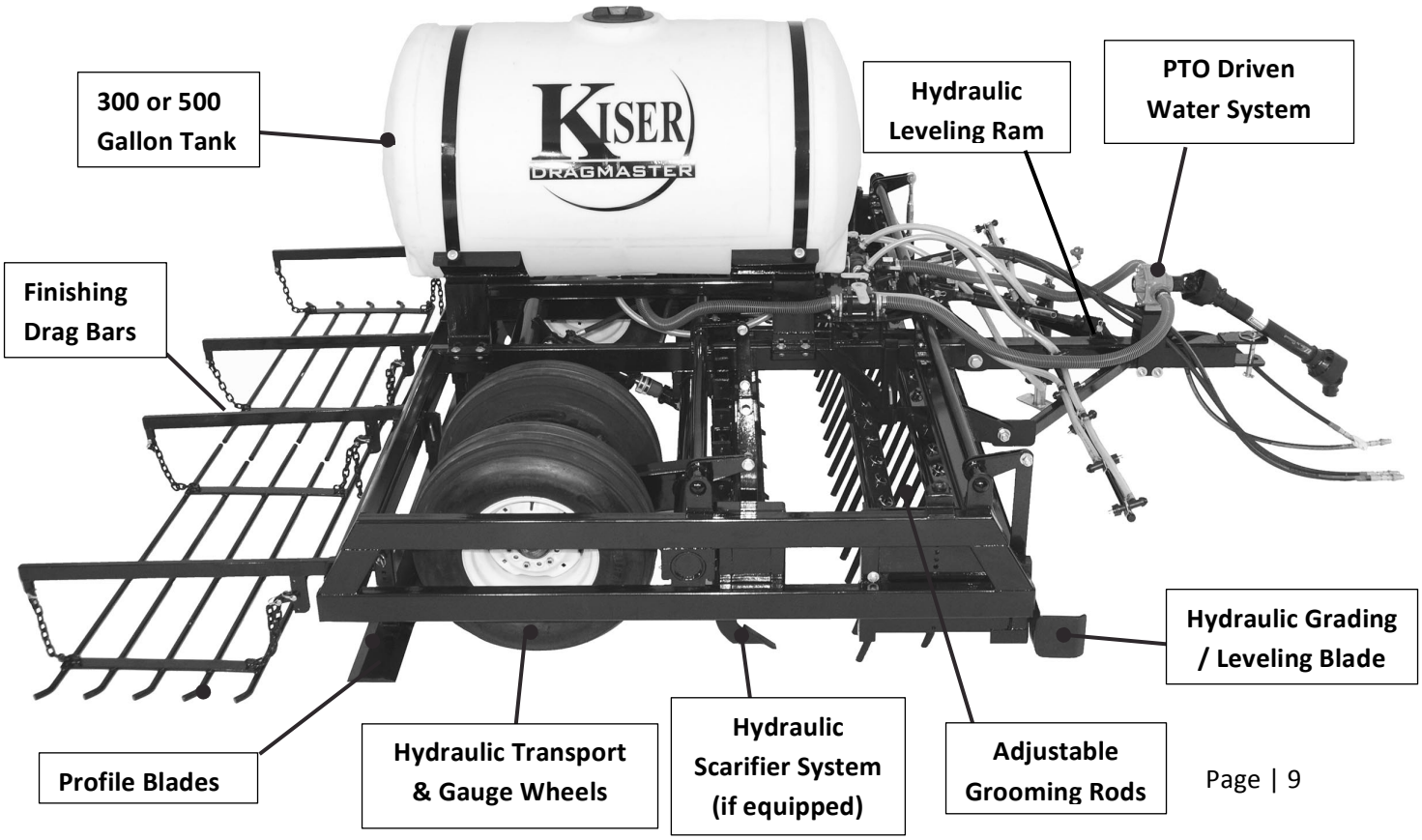
- Run RV/Marine antifreeze through the watering system, including each spray nozzle. Then shut off all water valves.
- Disconnect the water lines from the pump and drain.
- Store lines so these are not kinked or laying on the ground.
- Remove the four cap screws that bolt the water pump onto the DragMaster.
- Drain the water out of the pump and fill the water pump with RV/Marine anti- freeze for winterizing while in storage. This will keep the pump from cracking due to frozen water remaining in the pump and reduce oxidation (rust), as well as lubricating gaskets and parts during long storage periods.
- Drain water from the sprayers by loosening the black cap on each nozzle a little to allow the water to drain out. Do not re-tighten the nozzles; in case there is any residual water still in the system this may allow for some expansion before damage occurs due to freezing.

IMPORTANT: Before reconnecting the water pump after long term storage, remember to drain the anti-freeze into an appropriate container and discard as indicated on the packaging are as noted below:

Handling Waste Product and Chemicals

- Waste products, such as used transmission oil, fuel, coolants, etc. can harm the environment or people.
- Do not use beverage containers for waste fluids – someone may drink from them!
- Contact your local Recycling Center to learn how to recycle or dispose of waste products. Material Safety Data Sheet (MSDS) provides specific details on the chemicals, physical and health hazards, safety procedures for using the chemical and emergency response techniques.
- The retailer of the chemical products used with your machine is responsible for providing the MSDS for that product.

Features



1. 300 – 500 Gallon Water Capacity

- The amount of water in your footing is critical to its strength, cushion, rebound, and dust control!
- The Kiser DragMaster has the largest watering system available on any arena drag in the world. 8'-12' Kiser DragMasters come standard with a 300-gallon tank and the 14' - 16 foot models come standard with a 500-gallon tank. Upgrade available to the 500 gallon tank on 10' & 12" models by request.
- The Kiser DragMaster's watering system has a PTO driven pump that puts out up to 62 gallons per minute through four (4) nozzles mounted in front of the Leveling Blade.
- Being able to control the volume of water applied to the footing from the seat of the tractor is critical to getting an even distribution. With the Kiser DragMaster, you will no longer have wet and dry spots or too much water at the ends. The Kiser DragMaster makes applying the right amount of water a simple task!

2. Hydraulic Grading / Leveling Blade

- The grading blade of the Kiser DragMaster is hydraulically controlled from the seat of the tractor. This blade operates independently from the main frame, which allows the operator to control the amount of material being moved without adjusting the rest of the Kiser DragMaster.
- Because the grading blade is centered in the "ground plane" — the distance between the Kiser DragMaster's axle and the back tires of the tractor — keeping an arena perfectly level has never been easier.
- The grading blade is curved which makes the footing material roll forward, has closed ends to keep footing on the blade, and has an adjustable cylinder on one side of the blade, to allow grading of crowned arena's.
- The optional wall blade can be attached to the leveling blade of the Kiser DragMaster to assist in removing excess build up from the rail of the arena.

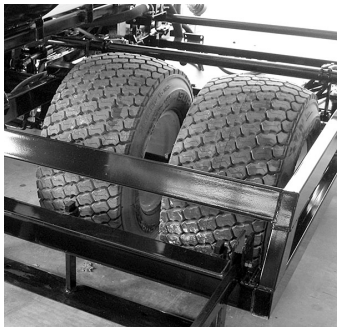
3. Adjustable Grooming Rods

- Following the grading blade are two rows of offset grooming rods. These rods are designed to be the initial loosening action and serve the purpose of incorporating the Kiser DragMaster's water into the footing.
- If the operators desire is for the Kiser DragMaster to create a smooth base (for Reining or Dressage for example) then these grooming rods can be set slightly shallower than the Profile Blade. If the desired effect is for a little bit of scaring above the base for grip, than these grooming rods can be set slightly deeper than the Profile Blades.
- The Kiser DragMaster's grooming rods are 1" in diameter, offer up to ten inches of depth, and the two rows are offset to give the maximum loosening coverage. They are also connected to the main frame of the DragMaster and can all be adjusted as they begin to wear down over time.

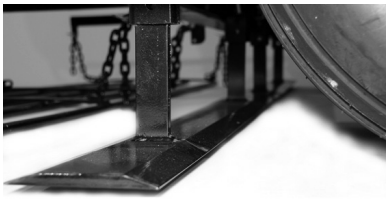
4. Hydraulic Scarifier System

- The Kiser DragMaster's scarifier bar is needed when the arena footing easily compacts and the density of the footing requires more of a "chisel" effect for it to be loosened.
- The offset scarifier's are hydraulically controlled from the seat of the tractor and are operated independently from the main frame of the Kiser DragMaster. This allows the operator to use the scarifier's as needed while either taking the Kiser DragMaster out of action, or leaving the all attachments on the Kiser DragMaster to work the footing.
- The scarifier tips are made from a hardened wear resistant steel, and are bolt on for easy replacement.

5. Hydraulic Transport & Gauge Wheels



- The Kiser Drag Master's Gauge Wheels and axle are the "heart" of this Arena Drag. Four flotation tires support the weight of the Kiser DragMaster and water tank, keeping loosening depth perfectly consistent with every pass.
- Also, used for transportation, these hydraulically controlled gauge wheels are raised and lowered by a cylinder at the center of the axle. This cylinder has a series of "stop collars" and an adjusting nut that gives the operator 100% control of the depth of the loosening action. Every time the DragMaster is raised and lowered, the exact amount of depth is consistent within a 1/16th of an inch.
- These Gauge Wheels also act in conjunction with the rear tires of the tractor to make a "ground plane" which allows the Leveling Blade to easily smooth and level an arena.

6. Revolutionary Profile Blade 	• The patented Profile Blades of the Kiser DragMaster will loosen 100% of the arena footing with every pass! No longer does an operator have to make multiple passes to loosen all the footing. • These Profile Blades slice through the footing similar to a "sod cutter" loosening the footing material from the bottom up, not the top down. This eliminates ALL ridges in the footing allowing the footfall of the horse to be flat and perfect every time! • An additional benefit of the Profile Blades is that, at whatever depth the Profile Blade is working, it is re-establishing the base. So this makes the Kiser DragMaster the only arena drag on the market that can adjust the depth of the footing, both deeper and shallower, with every pass.
7. Finishing Drag Bars 	• The Drag Bars of the Kiser DragMaster are designed to leave a signature finish while moving the footing to fill in any small holes. These bars can be adjusted to apply the perfect amount of pressure to the footing depending on the makeup of, and the amount of moisture in the footing.
8. Hydraulic Leveling Ram 	• The Hydraulic Leveling Ram is designed to allow for easier leveling of the Kiser DragMaster. Once the Hydraulic Leveling Ram is set, no further changes will be needed for use with your standard tow vehicle. • For use with multiple tow vehicles: The Hydraulic Leveling Ram comes with multiple set collars to make changing the levelness of the Kiser DragMaster a simple process. Simply replace the set collar with the proper size, and adjust the fine tune nut as needed to get your Kiser DragMaster running level.

Superior Manufacturing - Made in the USA:

- ABI products are manufactured in a 700,000 sq./ft. state-of-the-art facility, employing hundreds of qualified U.S. workers. Steel is brought in by rail, stored indoors, cut and milled to specification and moved about the facility via massive overhead programmable cranes. These overhead cranes bring the materials to the welding stations that employ both robotic and conventional welding.
- The steel components then go through a state-of-the-art cleaning with 2 acid washes and sand blasting. The completed components are then given a architectural grade powder coating. Assembly is then completed by specially trained workers. All this is completed in-house so quality is controlled throughout manufacturing.

Architectural Grade Powder Coating:

- Not all powder coating processes are created equal, but you can rest assured that the multi-step powder coating process used on ABI products is second to none. Proper material selection, roofed-storage, innovative cleaning & preparation, state-of-the-art equipment, and industry leading "trade- secret" techniques enable ABI to offer a true architectural grade powder coating on all products. The benefits of this architectural grade powder coating include better rust resistance, a fantastic finish and a longer service life. UV inhibitors are applied to resist the damaging effects of the sun.

Working Width Feet / Meters (M)	**8'** **2.44m**	**10'** **3.05m**	**12'** **3.66m**	**14'** **4.27m**	**16'** **4.88m**
Minimum Horse Power	45 h.p	55 h.p	65 h.p	75 h.p	75 h.p
Hydraulic Leveling Ram	Standard on all Kiser DragMasters after Feb. 2013				
Leveling Blade	Hydraulic Control 2" x 8" Cylinder standard on all Kiser DragMaster models				
Laser System (optional)	All models can be manufactured laser ready.				
# Grooming Rods	23	29	35	41	47
Grooming Rods	8" center per par with 4" space 1" Diameter Adjustable and Replaceable				
Scarifier's (optional)	10	12	14	16	18
	Hydraulically controlled using a 2" 8" Hydraulic Cylinder Scarifier tips are a replaceable hardened steel tip				
Maximum Water Capacity Gallons / Liters	300 Gallons—1136 Liters Optional: 500 Gallons—1893 Liters				
Weight at Full Water Capacity Pounds / Kilograms (kg)	300 Gallon Tank - 2505 Pounds / 1137 kg 500 Gallon Tank - 4173 Pounds / 1893 kg				
Profile Blade Technology	Standard on all models after Dec. 2009				
Footing Profile Coverage	100%				
Rail / Wall Blade	**Optional**				
Spray / Fire Hose	**Optional:** Includes an adjustable spray nozzle with a quick coupler to attach the hose to the PTO powered water system.				
2-Way Manual Sequencing Valve	**Optional**: Factory installed option only; Enables a tractor with only 2 sets of ports to use all 3 hydraulic systems on a "Fully Loaded" Kiser DragMaster.				
Water System	PTO Control - #8 Hoses included				
Water Tank	Maximum Water Capacity Gallons / Liters: Standard 300 Gallons—1136 Liters on 8'-12' models. Standard 500 Gallons on 14'-16' models – Upgrades available on 10' &12' models —1893 Liters				
PTO Pump	Cast Iron 6-roller pump with Buna-N shaft seals and Super Rollers. Maximum flow 62 gpm; Maximum pressure 150 psi; Maximum RPM: 540 rpm Shaft 15/16" Diameter (Solid); Intermittent Operation—150 psi; Continuous Operation—100 psi				
Hydraulic Ports Required	2 sets of Ports (2 in and 2 out) (refer to Hydraulics and the Kiser DragMaster on page 12 for additional information. 1-1/2" NPT Inlet & Outlet				
Wheel Lift System	Hydraulic Control 4" x 8" Cylinder Standard on all Kiser DragMaster models				
Wheels	All 300 gallon models are equipped with 4 standard tires: 11L—15Sl 1-1 8-ply, 30.6" MTD Diam., 10.7 MTD Width, 36 Max. PSI.				
	500 Gallon upgrades are equipped with 4 upgraded tires: 31L—15.5 15 8-ply, 30.6" MTD Diam. 14.3 MTD Width, 45 Max PSI.				
Hitch Type	Pin				
Designed Use	Horse Arenas and Riding Facilities				

Setup Requirements

IMPORTANT: Your Kiser DragMaster is shipped completely assembled. The hydraulic hose couplings are equipped with Ford-Style Quick Connect only. You may need to purchase quick connects that are compatible to your tractor before using this implement. Carefully follow the set-up requirements before operating implement.
If your tractor has a multi-speed PTO, be certain that the PTO is set for 540 RPM.

Tractor Hook-Up

Depending upon your facility; you may find that you will need to move your Kiser DragMaster to the desired site before removing any shipping straps. If you do need to relocate the Kiser DragMaster before setup - DO NOT connect the PTO driveline as noted in Steps 14 & 15.

NOTE: Take a preliminary measurement of the tractor's drawbar height and the DragMaster's tongue before hitching makes aligning the two points much easier. The support stand is used to maintain the adjusted height on the DragMaster for hitching and storage.

CAUTION:
Crushing hazard – Always keep hands and feet clear.

1. Cut the tongue shipping straps holding up the tongue on the implement.
2. Attach and position the jack-stand to support the weight of the tongue.
3. Lower the tongue towards the ground.
4. Connect the tongue's hydraulic leveling ram to the tongue and secure using the provided clevis pins. The tongue can be adjusted to connect the hydraulic leveling ram using the jack to raise or lower the tongue as needed. Ensure both sides of the hydraulic leveling ram or connected by operating the Kiser DragMaster.
5. **NOTE:** The jack-stand may interfere with the operation of the PTO driveline; we highly recommend that it is removed and stored while operating the Kiser DragMaster.
6. Adjust the height of the tongue by using the Hydraulic leveling ram to raise or lower the tongue to align with the tractor's hitch.

IMPORTANT: DO NOT attempt to use the 3-Point system drawbar with your Kiser DragMaster.

7. Back tractor up to correct position to align, or "spot," the hole in the hitch with the hole in the tongue. Adjust the tongue height by raising or lowering with the tongue hydraulic leveling ram.
8. Stop the engine, securely park the tractor, and set the brakes.
9. Dismount from the tractor to confirm the Kiser DragMaster tongue height is aligned to the Tractor hitch.
10. Remount and start the tractor to make final adjustment to the "spot." If necessary stop the engine, securely park the tractor, and set the brakes.
11. Attach the DragMaster using the proper hitch pin and locking pin.
12. Ensure that the jack-stand is in transport position or removed from the Kiser DragMaster and stored for use later if needed.
13. Always stop the tractor, set the brake, shut off engine and remove the key before dismounting from tractor.
14. Mount the driveline to determine if this needs to be adjusted. (Refer to Driveline Installation to determine minimum and maximum length, pg.14). Make sure to secure the PTO driveline to the tractor with safety chains.
15. Always make sure that the 3-point lift arms and drawbar are retracted as this may cause serious injury or damage to the implement and PTO driveline.

NOTE: Refer to page 17 for additional information on attaching the hydraulic leveling ram, and for adjusting the hydraulic leveling ram for operating the Kiser DragMaster.

Hydraulic System

CAUTION:
Avoid injury! *AVOID HIGH PRESSURE FLUIDS – Avoid this hazard by relieving pressure before connecting hoses. Do NOT attempt to connect hoses to tractor couplers until all hydraulic system pressure has been relieved. Turn off engine and set park brake. Relieve all hydraulic pressure by moving the tractor's hydraulic control lever rearward-to-forward and side-to-side. Repeat movements if you think all the pressure has not been relieved.*

The hydraulic system allows you to conveniently control many of the features on the Kiser DragMaster from the seat of the tractor. The Kiser DragMaster enables an operator without prior grading skills the capability of precision leveling.

Hydraulic Configurations and the Kiser DragMaster:

IMPORTANT: Refer to the Tractor's Operator Manual before connecting the hydraulic lines to the Kiser DragMaster. If your tractor is not equipped with a 3-port hydraulic system, you may need to purchase a 2-or 3-way sequence valve set for the Kiser DragMaster to be fully operational.

DragMaster Configuration	Base Unit Option Needed	Base Unit w/Scarifier's Option Needed
Tractor Has 2 Sets of Ports	None	Optional 2-way Sequence Valve
Tractor Has 3 Sets of Ports	None	None

Hooking up the hydraulic hoses:

1. Clean the hose couplings before connecting them to the tractor's hydraulic ports or the 2-way sequence valve. *(See Fig. 3-1)* Dirt and debris will shorten the life of the seals or create leaks.
2. Hook up each set of hoses to the hydraulic ports on the tractor. Ensure that each set of hoses is hooked in to the same port set on the tractor.
3. Check the hydraulic lift on the Kiser DragMaster by lifting and lowering to ensure that each hose set is properly connected. Do not engage the Tractor's PTO at this time.

IMPORTANT: Prior to initial start-up: Connect all hydraulic lines and optional valves, turn on the tractor and open the lever. Allow time for the tractor to fill the lines with hydraulic oil and for the outtake lines to remove any air in the system. Initial filling of the hydraulic system may take several gallons of fluid; after the air has been forced out of the system it is important to check the tractor's fluid levels before operating this implement.

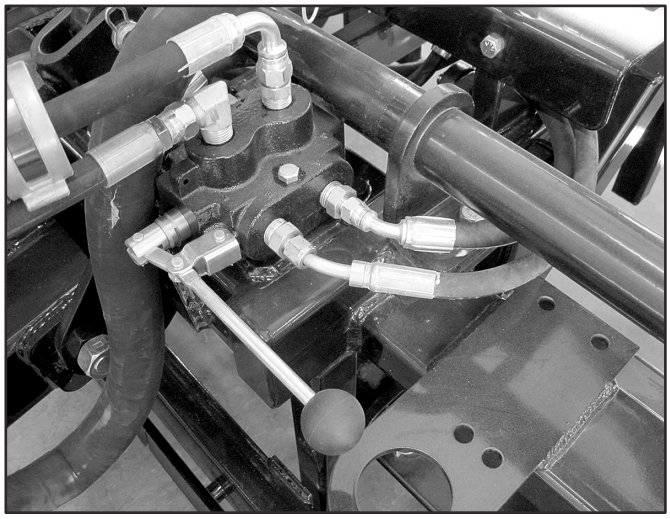


Figure 3-1

Check the hydraulic lifts on the Kiser DragMaster to raise and lower the wheels, and profile blade. If your Kiser DragMaster is equipped with an optional scarifier system, manually switch the sequence valve and check that the scarifier hydraulics are operating properly.

At this point, you may transport the Kiser DragMaster to the location that you will be operating the implement.

1. Engage the hydraulic lift system to raise the unit into transport mode.
2. Choose a level area in the arena.
3. Engage the tractor's park brake, shut down the tractor and remove the key.
4. Cut the shipping straps from the finishing drag bars and lower to the ground.

Driveline Installation

Refer to Figure 3-2.

Your implement's driveline is connected with a push pin coupling to the tractor and a shear bolt attached to the gearbox on the implement. To minimize torque on the driveline when starting up; remember to always engage the PTO at a low engine RPM.

1. Attach implement to your tractor's hitch.
2. Place tractor gear selector into park, turn engine off, set park brake and remove key.
3. Attach the PTO driveline to the Kiser DragMaster's splined input shaft of the PTO pump (See page 15: "*PTO Driven Water System*"). Secure with driveline yoke locking device.
4. Slide the opposite driveline yoke end over the tractor's splined driveline shaft. Secure with driveline yoke locking device. The driveline will require shortening if it is too long to fit between the tractor and implement. The PTO pump may also be moved back on the mounting bracket if the driveline is to long for operation.

DANGER:

ABI Equine advises against the use of PTO adapters as these may defeat the purpose of the master shield on your tractor. PTO adapters create an unguarded shaft area between the tractor and the driveline guards that may cause entanglement that may result in serious injury or death. *Do not attempt to operate your PTO driveline while it is unguarded while determining the minimum and maximum operating lengths as this may cause entanglement that may result in serious injury or death. Tractor PTO shield and all implement guards must be in place at all times during operation*

PTO Driveline:

The PTO driveline minimum and maximum lengths must be checked prior to initial use or when using a different tractor, or adding a quick connect hitch; to ensure that the driveline is compatible with all work conditions required by the Kiser DragMaster.
When fully extended the driveline must have a minimum overlap of the inner and outer shafts by not less than 1/3 the free length with both inner and outer shafts being of equal length or not less than a 6" (76mm) overlap.

Telescoping drivelines will have a variant in lengths due to changes in the vertical angle of ±20° due to uneven terrain or when raising the implement for transport. It is very important not to operate your driveline with less than the 1/3 free length or 6" (76mm) overlap as this may cause your driveline to detach while in operation and pose a safety hazard to the operator and possible damage to the tractor and Kiser DragMaster.

IMPORTANT: If you are switching tractors then you will need to check the driveline maximum and minimum lengths to ensure the safe operation of your equipment. You may find it necessary to use different drivelines.

Before connecting the PTO Drivelines, clean and lubricate driveline connection points. When checking PTO driveline minimum length, it is important to have the tractor's PTO driveline level with the implement's gearbox shaft.
The following pages detail the steps necessary to correctly verify minimum and maximum driveline lengths.

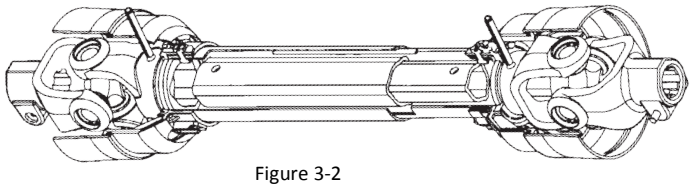


Figure 3-2

Determine your PTO Driveline operating lengths

Pull driveline halves apart until fully extended, just before coming apart. Record this measurement as A and subtract 6" (76mm) and record as C measurement in your operator's manual.

Push the driveline halves together. Record this measurement as B and add 1" (25.4 mm) and record as D measurement in your operator's manual.

IMPORTANT: Never operate equipment with driveline extended beyond measurement C. Never operate equipment with driveline collapsed to less than measurement D.

Driveline Adjustment

Refer to Figures 3-3 for Minimum and Maximum Lengths.

IMPORTANT: Adjusting the PTO Driveline requires that all cuts be made equally to the inner/outer guards and the inner/outer shafts.

NOTE: ABI Equine does not recommend modifications to our products. If it is necessary to shorten the driveshaft, we recommend that you contact your implement dealer for service.

1. Remove the PTO driveline from the tractor's splined output shaft and the implement's splined gearbox.
2. Pull the inner and outer driveline shafts apart.
3. Remove the PTO shields (guarding).
4. Attach the implement end of the inner driveline shaft to the implement's gearbox shaft. Pull on the driveline to ensure that it is securely attached.
5. Attach the tractor end of the outer driveline shaft to the tractor's gearbox shaft. Pull on the driveline to ensure that it is securely attached.
6. Raise and lower the Kiser DragMaster to find the shortest operating distance between the implement end of the inner driveline shaft, and tractor end of the outer driveline shaft.
7. Hold both halves parallel to each other in the shortest operating distance and mark them.
8. Measure the marks made in Step 9 and record them to shorten the outer and inner guards equally
9. Raise and lower the Kiser DragMaster to find the maximum operating distance between the gearbox's inner driveline shaft and tractor's outer driveline shaft.
10. Hold both halves parallel to each other in the maximum operating distance and mark them.
11. Check that the driveline has a minimum of 6" (152.4mm) overlap or 1/3 the total length of the driveline.
12. Measure the marks made in Step 13 and record them.
13. Disconnect and remove the inner and outer driveline shafts from the implement and tractor.
14. Securely clamp the implement end of the driveline guard shield section in a vise and cut off the guard at mark. File off any burrs. Repeat this step for the tractor end of the driveline guard shield. Use one of these sections to create a cutting guide for the driveline shafts.
15. Use a padded vise to securely clamp the inner shaft, do not over tighten or damage to the shaft can occur.
16. Using the guard guide, mark the shaft and cut. File any burrs and clean off filings. Do not round the ends of the shaft when filing.
17. Repeat steps 12 and 13 to shorten the tractor end driveline shaft.
18. Apply grease to the inner shaft.
19. Reassemble the driveshaft, and securely attach the driveline guard and reattach the PTO driveline to the tractor and implement. Make sure that these are securely attached before attempting to engage the PTO driveline.
20. The driveline should now be moved back and forth to insure that both ends are secured to the tractor and implement.
21. Hook driveline safety chain in the hole in the inner driveline guard. Attach the other end to the implement's main frame. Hook driveline safety chain in the hole in the outer driveline guard and attach the other end to the tractor main frame.
22. Start tractor and slowly engage tractor's hydraulic 3-point to raise and lower the Kiser DragMaster.
23. Check to make certain that the driveline overall length does not extend beyond the maximum recorded length as in Step 14.

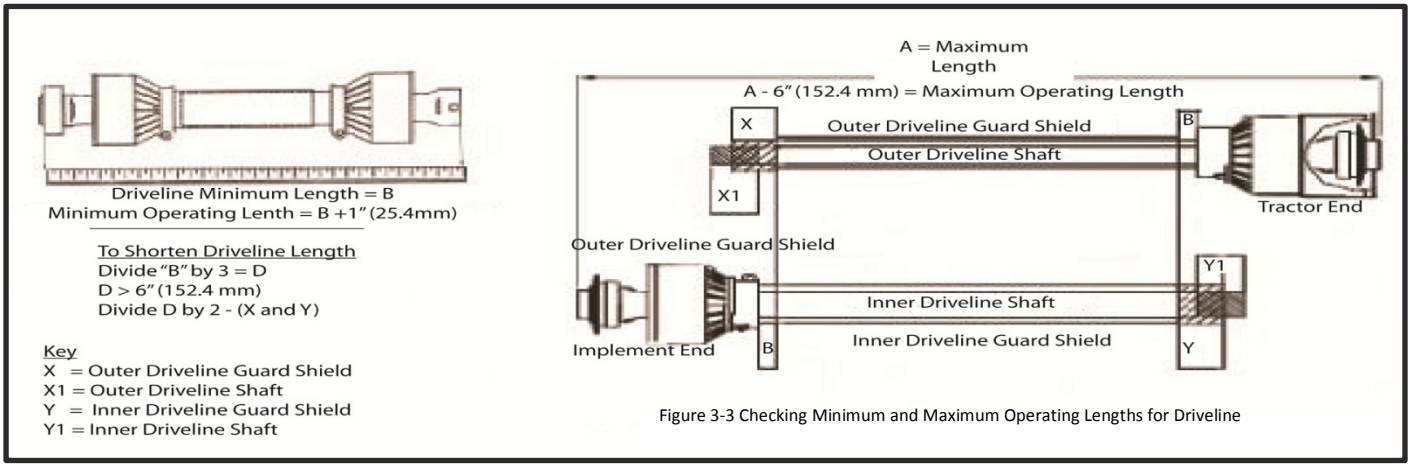


Figure 3-3 Checking Minimum and Maximum Operating Lengths for Driveline

PTO Driven Watering System:

The Kiser DragMaster comes with a Hypro roller pump Model 1502C – cast iron with 6-roller with scooped rotor & standard Super Rollers. (Fig. 3-4) Hypro Pump's Operator's Manual for Installation, Operation, Repair and Parts may be downloaded or viewed on their website:

http://www.hypropumps.com/FileAttachments/Spray/en-us//Literature/ OIPMs/L-0100R-RollerPump.pdf

WARNING:

Never pump corrosive or abrasive liquids as these will cause rapid wear or deterioration of body, rotor, shaft and seals in the pump. The pump should be used only with liquids compatible with pump component parts as well as the water tank. Never exceed maximum 540 RPM and specified pressure. Never run pump dry. Failure to follow this WARNING will void the product warranty.

CAUTION:

Never attach an agitator or any restriction to bypass line of a pressure relief device because system damage may occur.

NOTE: If you live in an area where it freezes and will continue to operate your Kiser DragMaster; we recommend that you add RV/Marine anti-freeze into the water and run it through the pump to prevent freezing water from damaging the watering system. Likewise, do not drain the pump and leave it empty as this will cause premature rusting of internal parts. Refer to Maintenance Section in the pump manufacturer's operator manual.

A. Fill the Water Tank

1. Use the Quick fill on the back to fill the water tank. Connect hose to the bell connectors so you do not have to get up and take the top off the tank.
2. The water pumps are new and will need a slight priming charge of water inside.

a. Open the valve on the main hose line.

b. Open the valve for the Spray Nozzles.

c. Allow air in the water system to bleed out, and then engage PTO.

NOTE: The water tank holds 300 - 500 gallons of water and is used primarily to be a supplemental watering device for any indoor or outdoor arena. Always keep the top on the water tank sealed while not in use. Dirt, sand and debris can cause equipment failure and damage. Use only clean water to fill tank. Avoid using pond or other water sources to prevent debris in the watering system.

B. Connect the PTO Driveline to the Hypro Pump

1. Slide the PTO driveline yoke end over the tractor's splined driveline shaft. Secure with driveline yoke locking device. (See page 13: "*Driveline Installation*")
2. Slide the implement end of the PTO driveline to the splined input shaft of the Kiser DragMaster's Hypro pump. Secure with driveline yoke locking device. The driveline will require shortening if it is too long to fit between the tractor and the pump
3. Check to make sure that the PTO driveline safety chains are secured.

CAUTION:

If the safety chains are not correctly fitted it will result in excessive tension causing the safety hook to open on the protection side; when this occurs it is necessary to replace the damaged hook with an original one. This chain must be attached to the inner driveline shield and to the implement to restrict shield rotation. It is advised to run the safety chain, when possible; around the mounting bracket for the PTO pump.

C. Spray Booms

The water system comes with 2 spray nozzle sets on each side of the Kiser DragMaster for a total of 4 spray nozzles. The operator has the flexibility to use one sprayer at a time or both nozzles on each side, based upon the amount of water desired to maintain moisture in the footing. The PTO driveline controls the water pressure flow to the watering system, though each spray nozzle requires ten pounds of pressure to operate effectively. When you turn off the tractor's PTO the nozzle springs push the diaphragm against the opening and turn off the water flow.

Water Control Valves:

Refer to Figures 3-5.

The Kiser DragMaster's water flow is regulated by the 4 valves on the front of the unit.

Water flow from the tank to the system is controlled by the Main Flow valve, into the pump where it is distributed through the manifold. Whenever the PTO is active and the Main Flow Valve is on, water flows through the primary Spray Nozzles.

Pressure to the Nozzles can be reduced with the Bleed Valve.

Water Flow to the secondary Spray Nozzles is controlled by the valves on the outer manifold.

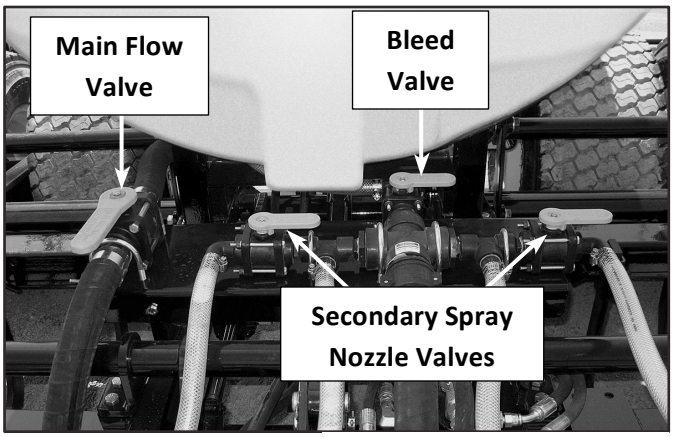


Figure 3-5

Kiser DragMaster Pre-Setup Adjustments:

Some Kiser DragMaster components will need to be adjusted before using the Kiser DragMaster for the first time. Initial adjustments on the Kiser DragMaster are done for general setup for arena use. The Profile Blades on the Kiser DragMaster will need to be adjusted before first use, the Hydraulic Leveling Ram will need to be installed and adjusted, and . the Hydraulic lift system will need to be adjusted for depth in your arena. After the initial setup further adjustments may be needed to fine tune the setup of the Kiser DragMaster. The hydraulic systems on the Kiser DragMaster provide additional flexibility to raise or lower the individual components to fine tune your footing without having to re- adjust the Kiser DragMaster every time.

Before starting any adjustments on the Kiser DragMaster, perform the following:

Attaching the Hydraulic Leveling Ram:

Refer to Figure 3-6

1. Locate the hydraulic leveling ram shipped with the Kiser DragMaster. The hydraulic leveling ram will be attached to the leveling blade of the Kiser DragMaster using two straps.
2. Lower the tongue of the Kiser DragMaster down, making sure the attached hand jack in is the down position.
3. Attach the hydraulic leveling ram to the frame of the Kiser DragMaster, using the provided clevis pins to secure the hydraulic leveling ram. Secure the body of the hydraulic ram to the frame of the Kiser DragMaster, ensuring the stroke arm is pointed toward the tractor.
4. Using the attached hand jack, raise or lower the tongue of the Kiser DragMaster till the end of the stroke arm can be secured to the tongue of the Kiser DragMaster using the provided clevis pins.
5. Once the hydraulic leveling ram has been attached the hand jack can be adjusted back to transport position.

Adjusting the Profile Blades:

The profile blades on the back of the Kiser DragMaster will also need to be adjusted before the Kiser DragMaster can be leveled for use. Follow the steps below to set the profile blades up for the initial setup. Additional adjustments may need to be made later for further fine tuning or to change to depth. Additional information will be provide later in this document for adjust the profile blades further.

1. Loosen the jam nuts located on each of the securing bolts on the profile blade upright receivers. Ensure the jam nut is adjusted up to the head of each securing bolt head.
2. Loosen all of the securing bolts for each upright on the profile blades. The bolts do not need to be removed just backed out enough for the uprights to move freely.
3. Remove the bent pin from each upright on the profile blades.
4. Lower the profile blades down to the second hole from the top of each receiver. Once moved insert bent pin and secure with the provided lynch pins. To ensure the Profile blades are adjusted properly, the top of each profile blade upright will sit level to the top of each receiver.
5. With the Profile blades moved down, tighten each of the securing bolts starting with all of the bottom securing bolts, then move to the top securing bolts. Make sure the jam nuts are tightened back down before operating the Kiser DragMaster. Do not over tighten the jam nuts as that may make them difficult to remove later.

Leveling the Drag:

IMPORTANT: It is important to ensure the Kiser DragMaster is sitting level prior to operation. Leveling the Kiser DragMaster ensures that the front of the DragMaster is at the same operating height as the rear. Example, the front of the Kiser DragMaster may be adjusted for 2-1/2" and the rear is actually operating at 3-1/2". This creates an uneven footing, and depending upon the difference in front/ back angle with the depth of the scarifier's and profile blades; damage to the arena base can occur.

1. To level the Kiser DragMaster move the tractor and Kiser DragMaster to a hard level surface.
2. The DragMaster's side bars should be level on both sides. Use a level on the side bar to make it easier to level the DragMaster from front to back. A level with a magnetic strip on it will allow you to make adjustments to the Kiser DragMaster without having to remove the level during leveling procedures.
3. To level the Kiser DragMaster start with the smallest set collar and clip it to the stroke arm of the hydraulic leveling ram.
4. Lower the Kiser DragMaster to the ground, and check the level to ensure the Kiser DragMaster is sitting level. If the Kiser is not sitting level, use the fine tune nut on the end of the hydraulic leveling ram to try and level the Kiser DragMaster.
5. If the fine tune nut is fully extended and the Kiser DragMaster is still sitting forward, raise the Kiser DragMaster up till the set collar can be removed; and insert the next size up as needed till the Kiser DragMaster sits level or is tilted back.
6. If the set collar size tilts the Kiser DragMaster to far back for operation, adjust the fine tune nut down till the Kiser DragMaster sits level.

Once the Kiser DragMaster is level – secure the remaining set collars to the Kiser DragMaster in case they are needed for multiple tow vehicle operations.

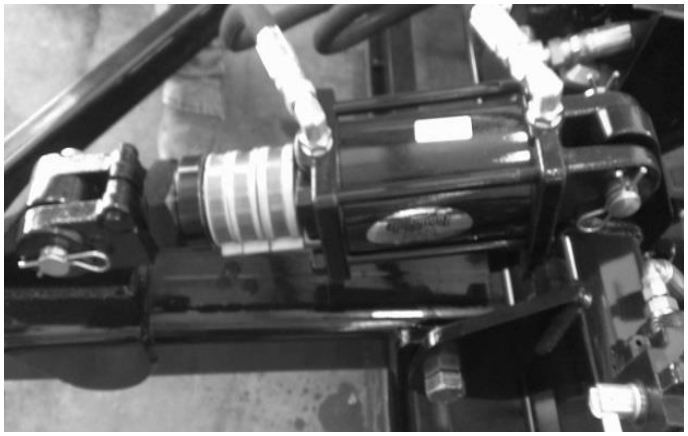


Figure 3-6

Adjusting the Kiser DragMaster for use:

Refer to Figure 3-2

This is the most important adjustment for setting up the Kiser DragMaster to perform, in order to have the weight of the Kiser DragMaster evenly distributed on the tires. Otherwise, the majority of the Kiser DragMaster's weight will be on the individual components that are engaging the ground and will cause these components to wear quickly, and will adversely affect the quality for the arena's footing. The hydraulic lift ram, located under the water tank; comes with 3 set collars that are used to adjust the operating height of the Kiser DragMaster. The hydraulic lift ram has an adjustment lock to maintain the height during operation. These segments are spring loaded and come in (a) 1", (b) 1-1/2", (c) 2" widths. Remove b, c initially. Very seldom will an operator need to use the (c) set collar. Store the set collars on one of the hoses for easy access, or for making adjustments due to multiple tow vehicles.

Never place the set collars between the fine tune nut (red) and the washer as the set collars are made of a soft material and the pressure of the hydraulics will compress them into the nut and may affect the adjustability of the fine tune nut.

Adjust operating depth of the Kiser DragMaster in small increments only!

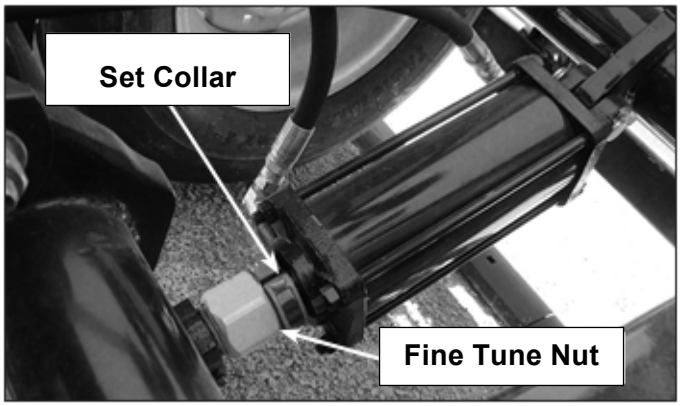


Figure 3-2

Adjusting the operating depth:

1. Engage the hydraulics to raise the Kiser DragMaster. Shut off the tractor, set the park brake and remove the key.
2. Make sure the 1" set collar (a) is in place behind the washer and adjustment nut.
3. To adjust the hydraulic lift ram to operate at:

• Deeper depth - Turn the fine tune nut clockwise. This allows the cylinder to retract farther and the nut and washer will move closer to the front yoke of the cylinder.

• Shallower depth – Turn the fine tune nut counter-clockwise. This allows the hydraulic lift ram to extend. You will notice that the nut and washer move away from the front yoke of the cylinder.

4. Re-mount the tractor. Start the engine and engage the hydraulics to lower the Kiser DragMaster. Shut off the tractor, set the park brake and remove the key.
5. Check to make sure the scarifier's and grooming rods are above ground level.
6. Repeat step 1 above then:

• If you need to go deeper then unsnap the 1" set collar and continue with Steps 4 through 7.

• If you need to go shallower, unsnap the 1" set collar and replace with the 1-1/2" set collar and adjust the fine tune nut.

7. Check the operating height and repeat steps 1-7 as needed until you have obtained the desired operating height.

Operational Adjustments:

The actual operating depth, is controlled by the DragMaster hydraulic cylinder to regulate the gauge wheels for positive depth control. Adjusting the master hydraulic cylinder to run the DragMaster shallower, is accomplished by turning the nut clock-wise, and to run deeper by turning the nut counter clock-wise.

Once you have set the main hydraulic cylinder to operate this implement at the depth your arena requires, you will not have to perform this adjustment every time you operate your DragMaster.

Adjusting the Kiser DragMaster Components:

Before making any adjustments to the individual components; hydraulically raise or lower the wheels until the Kiser DragMaster is resting on the ground.

There are three/two hydraulic hose sets on the Kiser DragMaster. One set of Hydraulic hoses will raise and lower the leveling blade, one set will control the scarifier's (if equipped), and one set will raise and lower the gauge wheels/leveling ram on the Kiser DragMaster. Each component has individual adjustment capabilities. If the optional manual sequencing valve was ordered with the Kiser DragMaster there will only be two sets of hydraulic hoses on the Kiser DragMaster.

- The grooming rods and profile blade systems are attached to the main frame of the Kiser DragMaster, and the operating depth of these two components will depend upon: the set height of the Kiser DragMaster, and the depth setting of the individual components that are adjustable in 1" (2.54 cm) increments.
- The finishing drag bars should be set so the front of the drag bars are just touching the surface of the footing; if the front of the drag bars are set too deep they will be moving more footing than necessary.
- Check the depth of each individual component to ensure that they are set to the desired operating depth by clearing a small area surrounding the profile blades, grooming rods, and scarifier's until the base of the arena is exposed. Details on adjusting each component are provided later in this document.

Adjusting the Hydraulic Leveling Blade:

The leveling blade is the first component to come into contact with the arena footing and can be adjusted to just skim the top of the footing for daily maintenance, or set deeper to move significant amounts of material around the arena; or set to just level the base.

Base leveling is NOT intended for daily or general maintenance of the arena, otherwise you will be moving more material than necessary. Operating the leveling blade at base level is only recommended to remove severe hard pan spots that develop with prolonged or heavy use in the arena. The leveling blade may also be adjusted so one end

is set higher than the other end of the leveling blade to create a crown in the center of the arena.

Daily or General Maintenance

Adjust the leveling blade using the hydraulic system till the leveling blade brushes the top of the footing. For maintaining a smooth surface in the arena the leveling blade should only carry a small amount of material during the grooming process. This will allow the footing to stay at a level depth, and will help to fill in low spots in the arena. The leveling blade can be adjusted during use to carry more or less material as needed.

Leveling the Base

Lower the leveling blade until it is on top of the base, check by clearing an area around the blade to ensure that it is operating at the desired depth. The leveling blade may be adjusted to operate one side higher than the other. This is used for building up footing around sides of the arena or to remove crowns in the arena. To operate the leveling blade with one side set higher use the 11" top link that is attached to one end of the leveling blade. Set one side of the leveling blade lower and operate this side of the implement on the side that the crown needs to be leveled.
If you reverse this then the leveling blade will be deeper on the inside verses leveling the slope.

Adjusting the Grooming Rods System

Refer to Figures 3-4 & 3-5.

NOTE: You will need a 3/4" wrench to perform any adjustments on the grooming rod system. The grooming rods are mounted on two bars and are at the utmost operating position.

1. Remove the front bolts connecting the grooming rod assembly to the Kiser DragMaster, and loosen the back bolt. This will need to be done on both sides before any other adjustments can be made.

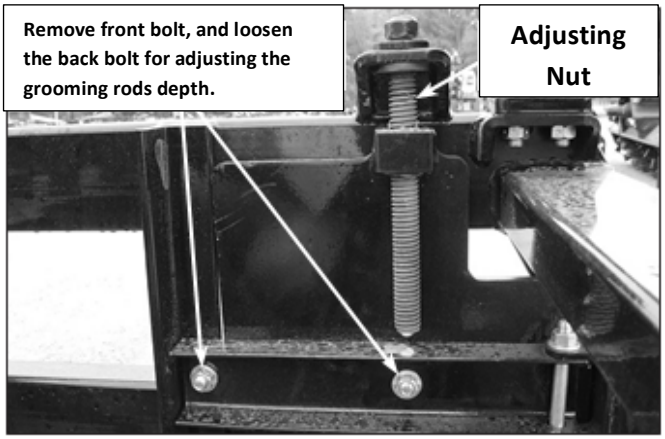


Figure 3-4

2. Remove bent pins and lynch pins on each upright on the grooming rod frame. Ensure both bent pins are removed from both sides before adjusting.

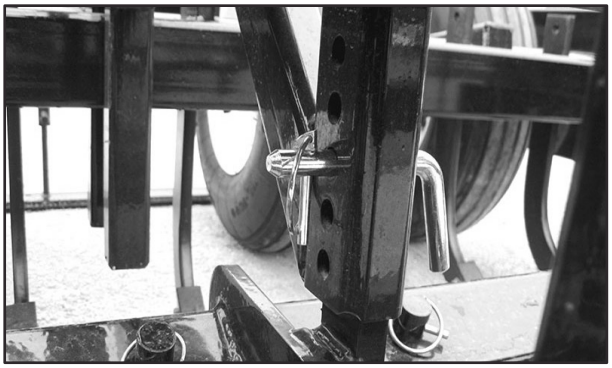


Figure 3-5

3. There is an adjusting nut located on the two inside corners connecting the bars to the frame. **Do not remove these adjusting nuts!** Adjust the grooming rod height by turning the screw up or down to raise or lower the bars. ABI recommends that the adjustment screw is only turned in 1/2" increments. Count the number of times the nut is turned for adjustment, and make sure to use the same number of turns on the other side. (Fig. 3-5)
4. Repeat step 3 on the opposite side, ensuring that the adjustment nut is turned the same amount of times to keep the assembly level.
5. Check to make sure that the frame and bar system holes align and replace the bent pins in the uprights. You may need to turn the adjusting screw up or down to align the holes.
6. Ensure all the hardware has been replaced, and securely tighten each of the outside bolts. It is recommended to check the operating depth periodically as the grooming rods wear down from use, and re-adjust as necessary.

Adjusting the Scarifier's (if equipped)

IMPORTANT: ***DO NOT "bury" the scarifier's deep into the footing initially as you may cause damage to the base or create a deeper footing than desired.***

The scarifier's are intended to go in the footing slightly deeper than the grooming rods and profile blades to help break up hard pan that has developed on the base of the arena. These are individually adjusted by removing the locking pins and selecting the hole that will give you the desired depth, and then replacing the locking pins to secure the scarifier's to the Kiser DragMaster. Each scarifier has 4 holes set 1" (2.54 cm) apart and pre-set at the factory to operate at 5" depth.

For initial use set the scarifier's to groom about 1" (2.54 cm) deep during the initial use to eliminate creating big clumps in the footing as you start working the arena. It is best to go shallow and break up the footing a little at a time, and then lower the scarifier's as needed till the desired depth is reached.

Check to make sure the scarifier's are set so they will not go deeper into the base than desired. The scarifier's are not meant to be used for daily

or general maintenance, only when there is hardpan in the arena.

To increase the operating depth of the Scarifier's

Refer to Figure 4-6 & Figure 4-7

Check the depth of the points of the scarifier's by clearing away the footing that is surrounding the scarifier's. If you need to go deeper into your footing, adjust the operating depth of the scarifier's by: (Example 1: the desired operating depth is 7" and the scarifier's are factory set at 5"; the scarifier's need to be lowered another 2".)

1. Remount the tractor and start the engine.
2. Raise the scarifier bar into the up position approximately 1" (2.54 cm) increments to allow the scarifier's to drop down.
3. Shut down your tractor and set the park brake.

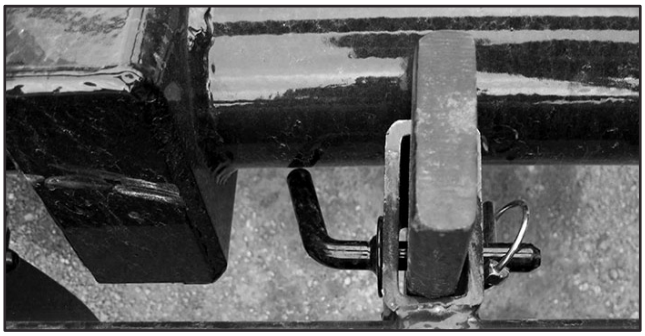


Figure 4-6

4. Each scarifier is individually attached to the scarifier bar and secured with locking pins. Remove the pins and let the scarifier's down 1 hole. Secure each scarifier with the locking pin. Repeat as need to get to depth.
5. Remount the tractor and start the tractor, lower the scarifier bar into the down position.
6. Test an area of the arena by going over it a few times with the scarifier's, Repeat the above steps until the scarifier's operate at the desired depth.

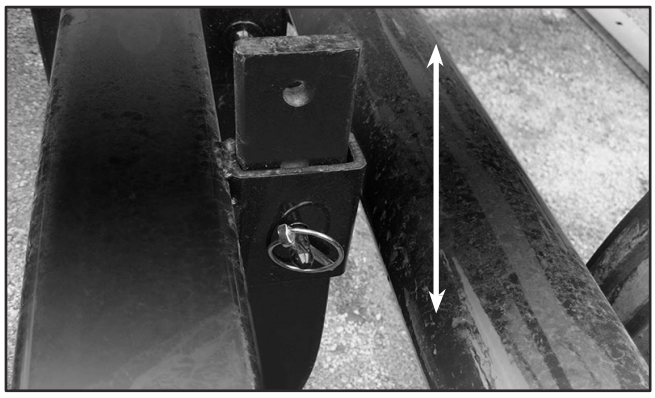


Figure 4-7

To decrease the operating depth of the Scarifier's:

1. Check the depth of the points of the scarifier's by clearing away the footing that is surrounding the scarifier's. If you need to come shallower from your base adjust the operating depth of the scarifier's by: (Example 2: the desired operating depth is 3" and the scarifier's are factory set at 5"; the scarifier's need to be raised by 2".)
2. Each scarifier is individually attached to the scarifier bar and secured with locking pins. Remove the pins and lift the scarifier's up to the desired height. (Example 2, raise each scarifier by 2 holes) to achieve. Secure each scarifier with the locking pin.
3. Remount the tractor and start the tractor, lower the scarifier bar into the down position.
4. Test an area of the arena by going over it a few times with the scarifier's, Repeat the above steps until the scarifier's operate at the desired depth.

Adjusting the Profile Blade

Refer to Figure 4-8

The Kiser DragMaster profile blade loosens footing without creating ridges, similar to a sod cutting blade. The profile blades cut parallel to the arena grade, and remove all excess ridges from the footing of the Arena. So, instead of "ripping" through footing with perpendicular teeth these "profile blades" will slice through the footing in 1" inch increments and will loosen 100% of the footing as deep as six inches.

To ensure proper operation on the profile blade make sure that the tractor and Kiser DragMaster are on level ground and raise the wheels to operating height.

The hydraulic system allows you to adjust the working depth of the profile blade, in addition to the adjustment holes on the profile blades. The adjustment holes allow for blade depth between 1" to 6".

1. Before adjusting the depth of the profile blades you need to check the depth of the profile blades in the footing.
2. Using your hydraulic system lower the Kiser DragMaster till the profile blades are into the footing. Pull the Kiser DragMaster forward a few feet and stop the tractor, leaving the profile blades in the footing.
3. Shut down your tractor and set the park brake.
4. Check the depth of the profile blade by clearing away footing that is surrounding them.

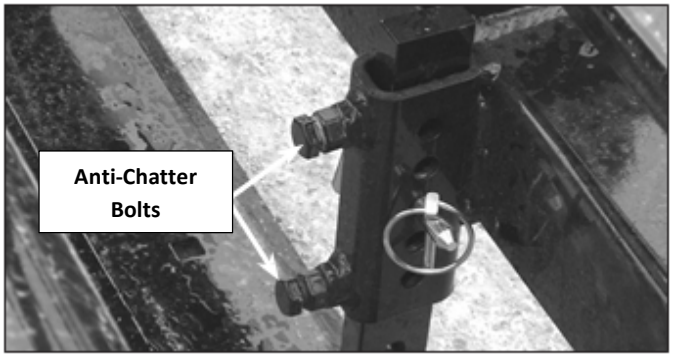


Figure 4-8

If you need to go deeper into the footing or loosen additional hard pan in the footing, adjust the operating depth of the profile blades by:

1. Shut down your tractor and set the park brake.
2. Raise the Finish Drag Bar into the up position to allow easier access to the anti-chatter bolts and locking pins.

3. The profile blades are made in two sections that are secured to the profile bar with anti-chatter bolts and locking pins.
4. Loosen bolts starting with the bottom bolts, then the top; and remove the pins from both uprights and move the profile blade up or down depending upon the depth you desire to achieve, making sure to adjust these evenly.
5. Secure each arm of the profile blade with the locking pin. Tighten anti-chatter bolts starting with the bottom, then secure the top bolts.
6. Repeat process for all other profile blades sections.
7. Make sure that all profile blade sections are set to the same height.
8. It may require additional adjustments until the profile blades are at the desired operating depth.

NOTE: In some cases, you may want to set the grooming rods to run deeper than the profile blades. For example, barrel racers may not want the base to be smooth, so their horses have better traction on tight turns. Reining horses will need to have the profile blade operate at a deeper depth than the grooming rods to remove any hard spots and create a more level base to promote better stops. The actual operating depth is controlled by the Kiser DragMaster hydraulic cylinder to regulate the gauge wheels for positive depth control.

Adjusting the Finishing Drag Bar

Refer to Figure 4-9

The finishing drag bars are preset and raised in transport position, the chains allow for a greater range of height adjustments to suit your arena's needs. ABI highly recommends that the finishing drag bar be set so the front of the drag bar just touches the top of the footing to produce a level finished appearance in your arena. It is not advisable to have the drag bar set to move large amounts of dirt as this may create uneven footing in the arena.

CAUTION:
Crushing Hazard Keep hands and feet clear at all times.

1. Remove the pin and locking lynch pins that are holding the drag bar in transit position and carefully drop the drag bar to the ground.
2. Drop down the drag bar by unhooking the chains.
3. It is important that the each chain is set to the same length to keep the drag bar level, and just touching the top of the footing so the drag bars do not go too deep. Otherwise the drag bars will create ridges in the ground. The drag bars are designed to help break up small clumps and smooth the footing, along with filling in the low spots in the footing finish.
4. Depending upon the desired finish for the arena footing, the drag bar chains may have to be lengthened or shortened. Remove the bolt from the chain and shorten the chain one link at a time till the desired footing finish is achieved.

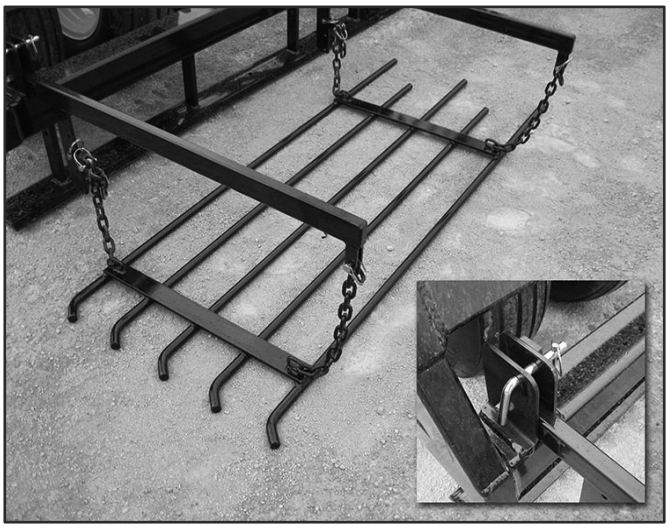


Figure 4-9

IMPORTANT: The front chains should be set so they are doing all the pulling; the rear chains are only used to help lift the drag bar up when raised for transporting, turns and storage. Do not over shorten the rear chains. Front chains should be tight while in operation and rear chains should have a slight amount of slack.

Adjusting the Spray Nozzles

Refer to Figure 4-10

Spray Nozzles can be rotated to redirect the direction of water coverage. This allows distribution of spray on the arena base material. See page 15, section C to adjust the amount of water.)

Adjust the spray nozzles by gently twisting each spray nozzle so that they spray about half way between the back of the Tractor and the leveling blade of the Kiser DragMaster. Adjust the spray distance as needed for your watering needs.

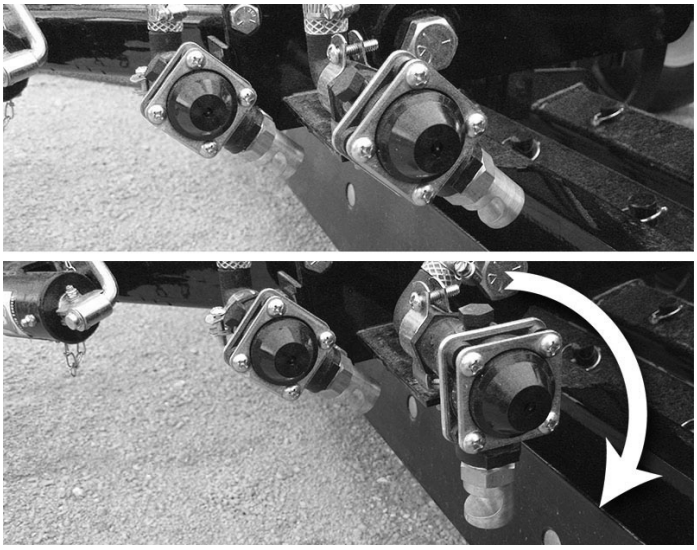


Figure 4-10

Operator Checklist

CAUTION:
Avoid injury! *Escaping fluid under high pressure can penetrate the skin and cause serious injury. Do not use body parts such as hands to detect leaks in the hydraulic or other lines. Do not attempt to change lines while unit is under pressure.*

- Read and follow the "Important Safety Information" section starting on page 4 carefully.
- Read all of the "Operating Instructions" sections.
- Review your tractor's operating instructions.
- Check that the Kiser DragMaster is securely and properly hitched to the tractor.
- Check all safety labels are installed and in good condition, replace if damaged.
- Check the Kiser DragMaster initially and periodically for loose bolts & pins, as well as the hydraulic system for leaks. Refer to Maintenance on page 23.
- Check initially and periodically drag bar chains to ensure that they are level.
- Know your controls and how to stop tractor and engine quickly in an emergency.
- Do not allow riders on the Kiser DragMaster at any time.
- Check that your tractor ROPS and seat belt are in good condition. Keep seat belt securely fastened during operation.

IMPORTANT: Never back up the Kiser DragMaster without using the hydraulic lift to raise all the implements fully from the footing, and raise the drag bar into transport position to avoid damaging the Kiser DragMaster.

Transporting the Kiser DragMaster:

1. Raise the drag bar into transport position.
2. Then using the hydraulic lift, raise the Kiser DragMaster's till all attachments are clear of the surface. This will ensure proper clearance between the profile blades, leveling blade, and scarifier's (if equipped) from damage while in transport.

CAUTION:
Do not make sharp turns with the Kiser DragMaster as this unit has four fixed wheels and may cause interference with the rear tires on the tractor that may result in injury or equipment damage.

Operating Ground Speed:

IMPORTANT: Do not operate the Kiser DragMaster at a speed that will cause the drag bar to bounce. If the drag bars are bouncing during operation decrease the speed at which the Kiser DragMaster is being operated. If the drag bars continue to bounce during operation, stop the tractor, turn off the engine, set the park brake and remove the key, then check the drag bar to ensure it is correctly adjusted and that all the drag bar chains are properly secured.

ABI offers additional videos to assist the operator in using the Kiser DragMaster. Videos for operating the Kiser DragMaster can be found online at http://www.abiattachments.com/support/ and select the Kiser DragMaster drop down menu for training videos.

The Kiser DragMaster should be operated at a consistent speed and should not exceed 4-5 mph during operation. Other factors that will affect operating speed are: 1) contour of the arena, 2) angle of corners and 3) the ability to safely maneuver around fixed objects without having to adjust speed. Inconsistent speeds may cause waves in the footing. Additionally, work corner areas in long sweeping patterns to avoid sharp turns.

NOTE: We recommend that you remove the jack from the tongue while operating the Kiser DragMaster; as this may interfere with the spray pattern of the watering system.

Operating in Sharp corners:

1. Using the hydraulic lift raise the Kiser DragMaster up so that all components are clear of the footing.
2. Put the tractor into reverse and back up into the corner. Assistance may be needed when backing into corners of the arena to prevent damage to the Kiser DragMaster, or arena while backing up.
3. Lower the Kiser DragMaster with the hydraulic lift till it sits firmly in the arena and put the tractor into forward.

Exiting the Arena

Always raise the Kiser DragMaster slowly from the footing while moving forward to help allow excess material from building up on the grooming implements on the Kiser DragMaster. Then ensure all components of the Kiser DragMaster are stowed before exiting the arena; failure to do so will pull expensive footing outside of the arena gate.

Arena Footing 101

This section is provided as an overall general understanding of the dynamics of arena footing that have many variables due to location, climate, types of soils, sands and silts. Proper arena footing assists in achieving consistency in your horse's performance while providing cushioning, traction and support to your horse.
ABI appreciates the fact that many owners want to avoid costly mistakes in maintaining and designing arenas; so we offer all our Kiser DragMaster owners 24/7 customer service, as well as free initial phone consultation on arena footing. If you are interested in speaking with one of our arena consultants then visit our website at: http://www.abiattachments.com/contact/ to request information on arena consultation with ABI.

Material

It is important to understand that footing is a dynamic material that is constantly undergoing property and compositional changes due to use and time. Every arena has an individual life span depending upon arena location (indoor or outdoor), usage, and types of materials. A private personal arena will last longer than a commercial arena. All footing materials despite being organic, inorganic, or man-made materials will deteriorate; and will need to be replenished at some point. It is advisable to plan on replenishing your arena footing every 3 to 5 years and a major overhaul of your arena base may be needed between 8 and 10 years depending upon use; and if it is indoor or an outdoor arena.
The arena sub-base, base and footing types are very important to consider depending upon the type of discipline, and usage; before starting arena construction. If your arena is multi-purpose driven, then it will never be perfect for any one discipline; but can be nearly perfect for all disciplines.

Construction

The type of sub-base and base construction is similar to those used in road construction. The sub-base is compacted, solid and uniform and graded with a slight crown or gentle slope of 1-2% to promote drainage without loss of footing materials being washed away due to downpours.

The base should provide a level surface - no holes, dips, or hard spots to support the footing.

The texture of the base materials should not allow for shifting under the horse while performing tight maneuvers. The depth of the base will depend upon the intended use, i.e. for flat work a 4 to 6" base will be sufficient; for jumping the base may need a depth of 10". The base depth is important in keeping sub-base materials from surfacing.

The footing should be deep enough to provide the horse with enough resistance and cushion to promote the horse's movement without causing the horse to sink deeply into the footing. Footing that is too deep may cause ligament and tendon problems in your horse. Footing also protects the base from hoof penetration, erosion and minimizing ruts or other forms of damage.

Footing for a reining horse is deeper to help enhance and promote sliding stops, compared to the depth needed for barrel racing or jumping; and at the same time provide enough resistance and cushion without shifting to maintain the horse's balance and confidence. Driving requires more resistance so less footing is required otherwise it will make it difficult for the horse to pull a wagon or cart.

NOTE: If you are not sure how deep the footing for a discipline would be necessary: Remember "less is more". It is easier and cheaper to add additional footing materials to create the perfect footing depth later if needed.

Minimize Dust

1. Avoid using fine sand, clays and silts with small particles as these will break down very quickly.
2. Provide even moisture control to reduce dust and improve binding of footing materials.
3. Adding wood chips/shavings, used composted manure/bedding will also aid in reducing dust.
4. Adding salts, calcium chloride or Magnesium Chloride will increase moisture content as these will absorb moisture from the air.
5. Adding microbes (water additive), oil products such as palm, coconut, soybean or mineral oils are environmentally friendly and will also act as binders.
6. Adding Polymers will also act as a binder as well as reduce dust.

NOTE: Organic oils turn rancid and will produce a noticeable odor that is not harmful to animals or humans. Certain oils made from nuts may cause allergic reactions in livestock and humans. Due to EPA regulations do not attempt to reuse motor oil as this is an environmental hazard, and can cause respiratory illnesses in both livestock and humans.

Maintenance

1. Remove weeds, stones or rocks, or other foreign matter that may work up to top of the footing.
2. Perform weekly moisture content checks - there are moisture meters that are sold in garden centers if you want to be precise on maintaining the ideal moisture level of 8% to 12%. You may need to check more frequently depending upon your location, humidity, and season. Too much water in an arena may damage the base, while too little water will create dust and compaction in the arena.
3. Regular scheduled grooming of the arena will aid in mixing the footing materials, improve resiliency by removing compact areas and distribute moisture more evenly through the arena.
4. Use the Kiser DragMaster to re-distribute the footing before you actually see traffic patterns in the footing.
5. Plan to drag the arena at least once a week, or daily if the arena is heavily used.

a. If high traffic areas have cleared the footing away from the base; then the base is now vulnerable to damages such as ruts, as well as creating deep and inconsistent footing areas within the arena. Check the base for ruts and holes, if necessary you may need to use the leveling blade and profile bar to remove hard pan and to move materials to fill in the low spots.
b. If the footing is shifted to the railing, especially in an outdoor arena; it may impede drainage and will create deep and heavy footing as well as slick muddy areas within the arena.

1 YEAR LIMITED WARRANTY

Kiser DragMaster

"ABI" means **Absolute Innovations, Inc.** 1320 Third Street, Osceola, IN 46561 - 877.788.7253

The **ABI** Kiser DragMaster products are warranted for one (1) year, from the original invoice date, against defects in materials and/or workmanship when put to normal and designed consumer/residential or commercial use. This warranty is only valid on new equipment to the original purchaser with proof of purchase.

For the purpose of the warranties, "normal & designed use" refers to such uses shown in **ABI** marketing materials, websites & videos specific to each product and does not include misuse, accidents, or damage due to inadequate maintenance. However, final judgment of "normal & designed use" is the sole opinion of **ABI**.

The warranty holder is responsible for performing reasonable and proper maintenance. The warranty holder is further responsible for performing replacement of normally wearing parts. Attachments and options for these products are not covered by this warranty. **ABI** in no way warrants engines, pumps, tanks, tires, tubes, valves, plumbing or other trade accessories since these items are warranted separately by their respective manufacturers. Some of these warranties may be longer than one year.

ABI's obligation and or liability, under this warranty, of any product defect or claim for injury or damages is limited to repair or replacement of the product, or payment of the reasonable cost of repair or replacement of the product, at **ABI**'s sole discretion. The warranty holder is responsible for the return of product or part transportation charges to **ABI**, if any when product or part return is required. During the warranty period, warranty parts or replacement product will ship by a standard method at no charge to the warranty holder, in the United States & Canada only. Expedited shipping of warranty parts or replacement product is the responsibility of the warranty holder.

To secure warranty service the warranty holder must, (1) report the defect immediately to **ABI** customer service for warranty consideration within the applicable warranty term in writing and discontinue use of the product; (2) present photographic evidence of the warranty claim and valid proof of purchase; (3) return the product or part to **ABI** or independent service technician within 30 days of defect discovery or failure for return, inspection or repair, if required. If **ABI** is unable to repair the product to conform to the warranty after a reasonable number of attempts, **ABI** will provide, at its option, one of the following: (a) a replacement for the product or, (b) a full refund of the purchase price. Repair, replacement, or refunds are the warranty holder's EXCLUSIVE remedies against **ABI** under this limited warranty.

ABI IS NOT RESPONSIBLE FOR THE FOLLOWING: (1) Equipment purchased used; (2) Any equipment that has been altered or modified in ways not approved by **ABI**, including, but not limited to, unauthorized repair, and acts of God; (3) Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions/recommendations; misuse, lack of proper protection during storage or use, vandalism, the elements, freezing of any kind, collision or accident; (4) Normal maintenance/wear parts and/or service, including but not limited to tips, shanks, teeth, scarifiers, top-links, grooming rods/spikes, cables, chains, sprockets, switches, pins, bolts, leveling blades, profile blades, tires, rims, bearings, hoses, rope, spray valves, seals and wear plates. Periodic replacement of normally wearing parts is the responsibility of the warranty holder.

To the extent permitted by law, **the limited warranty stated above is the exclusive warranty given by ABI, without purchase of optional additional charge extended warranty, to the original purchaser, and ABI disclaims any other warranties. There are no other warranties, either express or implied, including any warranty of merchantability, fitness for a particular purpose, or arising from course of dealing or trade usage. ABI shall not be liable in any event for incidental or consequential or other special damages under any theory of strict liability or negligence, or expenses of any kind, including, but not limited to, personal injury, damage to property, cost of equipment rentals, loss of profit, or cost of hiring services to perform tasks normally performed by these products. ABI** reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold. Some jurisdictions do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from jurisdiction to jurisdiction.