BIG DOG DISC USER MANUAL



36, 40, 48, 56, 64, 72, 80, 88 SIZE DISC PLOWS

Understanding Safety Statements

You will find various types of safety information on the following pages and on the machine signs (decals) attached to the implement. This section explains their meaning



The Safety Alert Symbol means ATTENTION! YOUR SAFETY IS INVOLVED!

NOTE

Means that failure to follow these instructions could cause damage to the equipment or cause it to operate improperly.

NOTICE			
Special notice - read and thoroughly understand			
		CAUTION	
Caution means serious equipment or other property damage can occur if instructions on this label are not properly followed.			

Decal Safety

- 1. Examine safety decals and be sure you have the correct safety decals for the implement.
- Keep these signs clean so they can be observed readily. It is important to keep these decals cleaned more frequently than the implement. Wash with soap and water or a cleaning solution as required.
- Replace decals that become damaged or lost. Also, be sure that any new implement components installed during repair include decals which are assigned to them by the manufacturer.
- 4. When applying decals to the implement, be sure to clean the surface to remove any dirt or residue. Where possible, sign placement should protect

the sign from abrasion, damage, or obstruction from mud, dirt, oil etc.

DANGER

- Do not allow anyone to ride on the tractor or implement. Riders could be struck by foreign objects or thrown from the implement.
- Never allow children to operate equipment.
- Keep bystanders away from implement during operation.

WARNING

П

Warning means serious injury or death can occur if safety measures or instructions on this label are not properly followed.

DANGER

Danger means a life-threatening situation exists. Death can occur if safety measures or instructions on this label are not properly followed.

Transporting Safety

It is the responsibility of the owner/operator to comply with all state and local laws.

- 1. When transporting the implement on a road or highway, use adequate warning symbols, reflectors, lights and slow moving vehicle sign as required. Slow moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
- 2. Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of the towing vehicle.
- 3. Carry reflectors or flags to mark the tractor and the implement in case of breakdown on the road.
- 4. Do not transport at speeds over 20 MPH under good conditions. Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.
- 5. Avoid sudden stops or turns because the weight of the implement may cause the operator to lose control of the tractor. Use a tractor heavier than the implement.
- 6. Use caution when towing behind articulated steering tractors; fast or sharp turns may cause the implement to shift sideways.
- 7. Keep clear of overhead power lines and other obstructions when transporting. Know the transport height and width of your implement.

NOTE

Make sure you read and understand the information contained in this manual and on the machine signs (decals) before you attempt to operate or maintain this vehicle.

Attaching, Detaching, and Storage

- 1. Do not stand between the tractor and implement when attaching or detaching implement unless both are not moving.
- 2. Block the implement so it will not roll when unhitched from the tractor.
- 3. Store in a safe area where children normally do not play.

Maintenance Safety

- 1 Understand the procedure before doing the work. Use proper tools and equipment.
- 2 Make sure all moving parts have stopped.
- 3 Do not make any adjustments or lubricate implement while it is in motion.
- 4 Block the implement so it will not roll when working on or under it to prevent injury.

High Pressure Fluid Safety

- 1. Escaping fluid under pressure can be nearly invisible and have enough force to penetrate the skin causing serious injury. Use a piece of cardboard, rather than hands, to search for suspected leaks.
- 2. Avoid the hazard by relieving pressure before disconnecting hydraulic lines.

Protective Equipment

- 1. Wear protective clothing and equipment.
- 2. Wear clothing and equipment appropriate for the task. Avoid loose fitting clothing.





3. Wear suitable hearing protection, such as earmuffs or earplugs.

Prepare for Emergencies

Keep a First Aid Kit and Fire Extinguisher handy.

Tyre Safety

Tyre changing can be dangerous and should be performed by trained personnel using correct tools and equipment.

When inflating tyres, use a clip-on chuck and extension hose long enough to allow you to stand to one side, not in front of or over the tire assembly. Use a safety cage if available.

When removing and installing tyres use tyre-handling equipment adequate for the weight involved. Never stand on tyres

Safety Chain

Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.

If two or more implements are pulled in tandem, a larger chain may be required.

Chain capacity must be greater then the TOTAL weight of all towed implements.

A second chain should be used between each implement.

Attach the chain to the tractor draw-bar support or specified anchor location. Allow only enough slackin the chain to permit turning. The distance from hitch pin to attachment point or intermediate support point should not exceed 9 inches.

Replace the chain if any links or end fittings are broken, stretched or damaged.

Do not use a safety chain for towing.

Safety Precauctions

1.Safety precautions

1.1.1 Prior to the use and service of this machine, operators must first read this instruction manual carefully to familiarize themselves with the safety and protection requirements of the machine, the performance of the machine and the technical points for proper installation, use and adjustment of the machine.

1.1.2 When installing or dismantling the harrow, the harrow frame should be fixed firmly after being lifted to prevent falling down; when installing or removing the harrow group, limit the harrow blade from rolling using square wood, bricks and so on.

1.1.3 Before the harrow starts to work, completely check whether all fasteners are secure and whether the harrow is well and reliably connected to the tractor.

1.1.4 The tractor should give a signal before traveling, and starts to travel only after confirming that people around the machine are away from the machine.

1.1.5 When the harrow is in operation, keep away from the machine, and do not adjust, repair or maintain the machine, or sit or stand on the harrow frame.

1.1.6 Tractor is strictly prohibited to make a sharp turn, left turn or reverse during the operation. The turning

radius should be not less than 5 meters when turning right. In case of no choice but

to turn left or reverse, only perform after lifting the harrow.

1.1.7 When the harrow is in transportation, the hydraulic cylinder locking device "Safety Clamp" must be clamped between the cylinder and the landing boom to unload the cylinder and ensure the transportation to be safe and reliable.

1.1.8 The rear of the harrow should be pasted with a contour reflection sign to ensure safety during nighttime transportation.

1.1.9 When folding or unfolding the foldable harrow, ensure that the relevant personnel are away from the machine before operation. The safety pin must be pulled out before unfolding the foldable harrow to avoid damage to the machine.

1.1.10 When transporting or parking the foldable harrow, the foldable part must be folded and locked with a safety pin.

Safety warning signs

1.2.1 The main beam of the harrow frame and other parts are pasted with safety warning signs (as shown below) to remind people of the danger or potential danger in the operation, maintenance and transportation of the machine. Operate, maintain and transport the machine in accordance with the requirements of this manual to avoid personal injury.

1.2.2 Keep the safety warning signs clean and clear, and remove soil and dirt off them after each operation to ensure they are clear and easily visible.

1.2.3 If the safety warning signs are lost, damaged or unclear, replace them promptly and paste the new ones in the original position. You may obtain new safety warning signs by contacting your local dealer or directly contacting our company.

SAFETY DECALS & IMPORTANT WARNINGS

WARNING

It is dangerous to be close to the machine when it is starting and operating. In order to avoid personal injury, personnel must keep a safe distance from the machine.

WARNING

Before operating and maintaining the machine, please read the instruction manual carefully to familiarize yourself with the requirements of safety precautions and technical points of operation.

DANGER

Disc blades are extremely sharp. Exercise extreme care when working on or near disc blades. Do not allow discs to roll over or fall onto any bodily part. Do not allow wrenches to slip when working near disc blades. Never push wrenches toward disc blades. Do not climb over machine above disc blades. Failure to stay clear of disc blade edges can cause serious personal injury or

WARNING

When the machine is in transportation, the locking device of the hydraulic cylinder should be locked and the safety clamp should be clamped between the cylinder and the landing boom.

2 Purpose and scope of use

710 series hydraulic offset heavy-duty harrow is applicable to stubble cleaning before ploughing and soil breaking after ploughing on wasteland, adhesive soil and cultivated land. It can also replace the plow for the first-time work on the cultivated land, i.e. "Replacing Ploughing with Harrowing". With the advantages of flat land, strong soil breaking and in-depth ability, and no phenomenon such as harrow missing or ridge formation after harrowing, it can meet the agricultural technology requirements of land preparation operations in a variety of soil environments.

710 series hydraulic offset heavy-duty harrow adopts the square pipe as the main body of the integral harrow frame, which has simple structure, strong craftsmanship, and good rigidity and is sturdy and durable. The machine is equipped with transport rubber wheels with hydraulic lifting and lowering, making it easy to transfer, and occupying small working field. The harrow group bearing that adopts a fully sealed rolling bearing has small traction resistance and is easy to use, maintain and service. This foldable heavy harrow series adopts the hydraulic cylinder folding method, which is convenient and quick. The hydraulic lock that the folding cylinder is equipped with makes the main harrow group and the foldable harrow group realize a rigid connection, which ensures the stability and consistency of the harrowing depth. The heavy harrow series is currently the most widely used domestic tillage equipment, and matches with tracked and wheeled tractors with hydraulic output.

The harrow is only applicable to conventional farmland and operation of similar purposes.

3 Main structure of the harrow

The heavy harrow series is mainly composed of the harrow frame, traction longitudinal beam, adjustable auxiliary traction rod, traction beam, wheel frame axle, front-row harrow group, rear-row harrow group, leveling mechanism, traveling wheel, oil cylinder, oil pipe and other parts. Foldable heavy harrow is generally used if the working width is 4 m or more. See Figure 1 and Figure 2 for its main structure.

The harrow has two forms of folding. One is the harrow group beam foldable type. This model has no foldable auxiliary harrow frame, and its main harrow group and foldable harrow group are connected into one. The other form is the auxiliary harrow frame foldable type, which has a foldable auxiliary harrow frame, and the foldable harrow group is installed on the auxiliary harrow frame.



Figure 1: Schematic Diagram of Non-Foldable and Foldable Harrow Group Beam General Assembly ① Traction Beam; ② Auxiliary Traction Rod; ③ Semi-Suspension Traction Beam; ④ Traction Longitudinal Beam; ⑤ Spring-Type Leveling Mechanism; ⑥ Harrow Frame; ⑦ Front-Row Harrow Group; ⑧ Lift Cylinder; ⑨ Wheel Frame Axle; ⑩Travelling Wheel Combination; ⑪ RearRow Harrow Group



Figure 2: Schematic Diagram of Auxiliary Harrow Frame Folding General Assembly
1 Traction Beam; 2 Adjustable Auxiliary Traction Rod; 3 Semi-Suspension Traction Beam;
4 Traction Longitudinal Beam; 5 Cylinder-Type Leveling Mechanism; 6 Front-Row Main
Harrow Group; 7 Folding Cylinder; 8 Main Harrow Frame; 9 Right Auxiliary Harrow Frame;
10 Front Right Foldable Harrow Group; 11 Lifting Cylinder; 12 Traveling Wheel Combination; 13
Wheel Frame Axle; 4 Rear Right Foldable Harrow Group; 15 Rear-Row Main Harrow Group;
16 Front Left Foldable Harrow Group; 17 Left Auxiliary Harrow Frame; 18 Rear Left Foldable Harrow Group

4 Main specifications and technical parameters

 Table 1 Main specifications and technical parameters

Serial Number	Item Name	Unit	Parameter Value				
1	Product Name	/	Hydr ulic Offset Heavy-duty Harrow				
2	Product Model	/	710-4.0	710-4.5	1BZ-5.5	710-6.5	710-7.5
3	Connection Type	/	Traction				
4	Whole Machine Configuration Form	/	Traction				
5	Whole Weight	kg	3,820	4,020	4,500	5,730 (5,980)	7,060
6	Number of harrow blades	Pieces	36	40	48	56	64
7	Specification of harrow blade	mm	Φ710×8				
8	Pitch of harrow blade	mm	230				
9	Working width	m	4.0	4.5	5.5	6.5	7.5
10	Design harrow depth	mm	180				
11	Harrow group deflection angle	0	11°, 14°, 17°, 20°				
12	Matching power	kw	132~147	147~161	176~191	191~220	205~235

Note: 1. The standard harrow blade when leaving the factory is configured as notched harrow blade, and the user may choose the harrow blade of notched disc as the front row and disc as the rear row or full round harrow blades.

2. Both foldable types are available for 710-6.5 model, with the value in the whole weight's brackets being the weight with the auxiliary harrow frame folded.

5 Harrow installation

Before installation, open the parts package, and make an inventory of spare parts and standard parts carefully with reference to the manual. Choose a flat site for installation.

5.1 Installation sequence

Install front and rear harrow groups – connect harrow frame with harrow group – connect scraper beam with harrow group and install scraper – connect wheel frame axle with harrow frame and install traveling wheel – connect oil cylinder and harrow frame with wheel frame axle – connect traction part with harrow frame – install leveling mechanism – install oil pipes.

5.1.1 Harrow group installation

Before installation, distinguish between the front and rear harrow group beams. There are installation position marks on all harrow group beams. Based on the tractor forward direction, one end of the front harrow group beam is marked with "↑FR", meaning that this end should be installed at the right end of the front harrow group. One end of the rear harrow group beam is marked with "↑RR", meaning that this end should be installed at the right end of the rear harrow group.

5.1.2 Installation of harrow axis

Install the outer pad, harrow blade, inter-pipe, short inter-pipe, bearing support arm combination, and inner pad in turn on the square shaft. When installing notched harrow blades, notches of two adjacent harrow blades should be staggered.

Pay attention to the following during installation:

--Put the outer pad into the square shaft first, and the inner pad into the square shaft last. When installing the inter-pipe, put its convex end (small end) into the square shaft first. When installing the short inter-pipe, put the short inter-pipe convex end into the square shaft first. --Distinguish bearing support arms. The bearing support arm marked with "F" should be installed on the front harrow group. The bearing support arm marked with "R" should be installed on the rear harrow group.

--- Distinguish harrow blade direction for the front and rear harrow groups. Based on the tractor forward direction, the blade concave surface of the front-row harrow group faces left, and the blade concave surface of the rear-row harrow group faces right.

Looking forward from the rear of the harrow, see Figure 3~Figure 6 for harrow group installation.

5.1.3 Leveling mechanism installation

See Figure 7 and Figure 8 for leveling mechanism installation.

5.1.4 Hydraulic Fold System

- 1. The 710 folding type is equipped with a hydraulic fold system to raise and lower the wing frames for narrow transport.
- 2. Be sure the system is fully charged with hydraulic oil before attempting to fold/unfold the unit. Air in the system can allow uncontrolled dropping of the wing frames causing serious personal injury or machine damage. The system needs to be charged with oil initially and any time the system has been opened for repair such as cylinder, hose, or fitting replacement/repair.



Figure 5-1: Hydraulic Leak Detection

- 3. To charge the system, carefully hitch the 710 folding to the tractor. Unpin the end(s) of the fold cylinders, and position them so they can extend and retract without contacting any frames or other parts. Check the tractor hydraulic fluid level to make sure it is full of the manufacturer's recommended hydraulic fluid. Connect the cylinder hoses to the tractor and fully extend and retract the cylinders several times. The cylinder rod travel should be smooth and positive when all air has been purged from the system. Due to large amounts of hydraulic oil required, recheck the tractor fluid level to make sure it is within proper operating limits.
- 4. The hydraulic fold system is equipped with restrictors in the rod end of cylinders to prevent uncontrolled falling of wing frames when unfolding. Removal or improper assembly of these restrictors can cause the machine to fold improperly and result in serious machine damage.





IMPORTAN

5. To fold the 710 folding, find a level area large enough to accommodate the disc when it is fully unfolded. The tractor should be stopped and not moving with the unit fully raised. Remove the wing lock pins from the mounts and install them in the storage locations.

Failure to remove the lock pins when unfolding will result in serious damage to the implement. Be sure other people and pets are a safe distance away.

- **6.** Slowly engage the tractor lever and fold/unfold the wing frames. When the wings are unfolded, continue holding the tractor lever to fully extend all fold cylinders. This will allow the wings to fully flex in the field.
- **7.** When the unit is fully folded, remove the wing lock pins from the storage location and install in the mounts provided on each side of the machine.
- **8.** If wing lock pin or plates are bent or deformed during unfolding procedure, replacement parts may be ordered (wing lock pin p/n 2-557-010409 and wing lock plate p/n 206639).

5.2 General assembly of harrow

First, connect the harrow axis with the respective harrow beam to form a harrow group. Then connect the front and rear harrow groups with the harrow frame, and connect the scraper beam with scraper on the harrow group by bolts. Finally, assemble the wheel frame axle weldment, traction part, traveling wheel, leveling mechanism, hydraulic cylinder and oil pipe into a whole harrow. See Figure 1 and Figure 2 for details.



Figure 3: Schematic Diagram of Harrow Group Beam Foldable Type Front-Row Harrow Group



Figure 4: Schematic Diagram of Foldable Harrow Group Beam Rear-Row Harrow Group



Figure 5: Schematic Diagram of Front-Row Harrow Group



Figure 6: Schematic Diagram of Rear-Row Harrow Group





Figure 8: Schematic Diagram of Oil Cylinder Levelling Mechanism

6 Use of the harrow

6.1 All fasteners should be firmly tightened, especially nuts on the square shaft, which should be re-tightened when working for the first time for 0.5 - 1 hour.

6.2 Tighten the harrow group first, making harrow group parts tightly fitted, and then tighten other bolts.

6.3 All pin shafts and pins on the harrow should be installed in place, and cotter pins should be split up.

6.4 Timely clear silt and tangled grass off the harrow blade and mud scraper.

6.5 Do comply with the safety requirements specified in 1.1 of this instruction manual in the installation and use of harrow.

7 Harrow adjustment

7.1 Harrow depth adjustment

7.1.1 Change the harrow group deflection angle: In general, the harrow depth increases with the increase of harrow group deflection angle, and the harrow depth decreases with the decrease of harrow group deflection angle. There is a connecting hole at the joint of the harrow frame and the harrow group beam. Lift the harrow, loosen the connecting bolts between the harrow group and the harrow frame, and rotate the harrow group to the corresponding adjustment holes for deflection angle adjustment. The harrow deflection angle is 11°, 14°, 17° and 20° in turn.

7.1.2 Change the position of the hitch pin hole of the traction part. Raising the traction point can also increase the harrow depth.

7.2 Adjustment of the traveling straightness of the machine (adjustment for deflective traction) Deflective traction can be eliminated by adjusting the lateral position of the traction point,

which can be achieved by changing the position of the hole connecting the auxiliary traction

rod and traction longitudinal beam with the traction beam. Minor adjustments can be made using the lead screw on the auxiliary traction rod.

It can also be adjusted by changing the harrow group deflection angle, generally the deflection angle of the rear harrow group is one gear lager than that of the front harrow group.

7.3 Adjustment of the scraper

A clearance of 1 mm~8 mm should be kept between the scraper and harrow blade concave surface, taking the little one when working on the ground with high water content or weeds.

8 Fault causes and troubleshooting methods

8.1 The depth into the soil is too much due to too loose soil, resulting in blockage:

If the soil is too loose, operating at a large angle is not allowed, otherwise the depth into the soil will be too much because of large deflection angle of the harrow group, even causing the harrow to be stuck in the soil and leading to blockage. Under such circumstances, lift the harrow and remove excessive soil and then decrease the harrow group deflection angle.

8.2 Too much soil adhered on the harrow blades due to high moisture content of soil, resulting in blockage

The soil adhesion on harrow blades is serious in case of high moisture content of the soil, making the scraper work poorly, resulting in blockage. At such time stop operation, lift the harrow and clear adhered soil and excessive soil, and reduce the clearance between the scraper and harrow blade concave, generally not touching with the harrow as the limit. If the soil moisture is too large, it is not appropriate to work. 8.3 In case of the tractor towing stacked piles caused by too many residual plants or soil blocks on the surface, lift the harrow and bypass these piles to proceed to work.

8.4 Bearing rotation not flexible, operation not normal:

---- Incorrect bearing support arm installation position;

---- Loose nuts on the square shaft;

---- Broken inter-pipe and short inter-pipe;

---- Square shaft deformed

The above conditions make the bearing under axial pre-pressure, which is easy to damage the bearing. Stop it for repair and adjustment, replace damaged parts and tighten nuts on the square shaft.

8.5 There is leakage in the hydraulic system. At such time stop the machine immediately for repair.

9 Maintenance and service

9.1 Before and after the operation, check whether all fasteners have been tightened, whether the rotation parts are flexible, and whether the clearance between the scraper and the harrow blade is properly adjusted.

9.2 Frequently lubricate movable parts, among which, fill grease in the oil cup of wheel frame axle seat at least once a week.

9.3 After an operating season, disassemble and maintain the whole harrow once and remove soil adhered on the machine. For rust prevention purpose, make up paint if any peeling-off is found.

9.4 Disassemble the bearing and wash it, and fill lubricant to full when assembling.9.5 Wash the harrow blades clean and paint them with anti-rust paint or used machine oil.

9.6 In unused seasons, the harrow should be placed inside the warehouse to prevent exposure to the sun and rain.

10 Regulations on three-guarantees

10.1 Warranty regulations

In order to protect the legitimate rights and interests of users and ensure product quality, the company will implement guarantees for the products in accordance with the relevant national quality regulations.

10.1.1 If the following situations occur when users use it normally according to the requirements of the instruction manual within the guarantees period, the company provides guarantees:

---- repair free of charge for damage to the machine or its parts caused by manufacturing quality problems;

---- replace or return if the machine cannot work normally because technical requirements are not met after three times of repair.

10.1.2 Three-guarantees duration for the whole machine and main parts is 12 months from the date of purchase. Main parts include: harrow frame, front and rear harrow group beams, traction longitudinal beam, traction beam, wheel frame axle weldment, bearing support arm, and harrow blade.

10.1.3 Users can only enjoy guarantees with the warranty and purchase invoice.

10.2 No-warranty regulations

10.2.1 No warranty and purchase invoice, document contents inconsistent with physical objects, or unable to prove that the product is within the valid duration of guarantees.

10.2.2 Damage caused by installation, use and maintenance not in accordance with the scope of use and requirements of the manual.

10.2.3 Reduced reliability of the machine or damage to the machine due to unauthorized modification or the use of non-original parts.

10.2.4 Other man-made damage caused due to non-quality reasons.

10.2.5 Damage to the product caused by force majeure, such as fire and flood.

Disc Harrow Products Guarantees Certificate

Warranty

User's Name	Contact Number	
User Address		
Product Name	Specification Model	
Manufacture Date	Manufacture Number	
Dealer Name	Dealer's Contact Number	

Repair Record

First Repair					
Date of repair Date	Reported fault				
Repair situation		·			
Exchange and Return Certificate					
Date of delivery	Repaired by	User's signature			
	Second Repair				
Date of repair Date	Reported fault				
Repair situation					
Exchange and Return Certificate					
Date of delivery	Repaired by	User's signature			
	Third Repair	· · · · · ·			
Date of repair Date	Reported fault				
Repair situation					
Exchange and Return Certificate					
Date of delivery	Repaired by	User's signature			

(signed copy must be emailed back to seller within 7 days of purchase)







Farm machinery is dangerous if operated incorrectly so please read this manual in its entirety prior to operating the machine.

Regardless of experience operating farm machinery, no operator should try to operate a machine they have not been properly educated to operate. You can get training assistance from your local Department of Agriculture, the majority of Occupational Health and Safety offices, agricultural colleges and schools, and farm equipment dealers.

It is important to adhere to all safety guidelines found in the tractor operator's manual. cease the tractor engine first and wait for all moving parts to cease before making any machine adjustments. To keep the tractor safe to operate, maintain it. Don't use broken or defective equipment.

Extreme caution should be taken when fitting equipment to the tractor's three point linkage. Avoid standing between the implement and the tractor when coupling machinery.

All machines should be mounted and retained correctly. All guards must be kept in place and correctly maintained. Decals must be visible and legible at all times. Keep well clear of all moving parts.

Keep all people and animals at a safe distance from all moving parts. Children must not be allowed to operate this equipment and all passengers must have the same level of protection as the operator. This equipment is never to be ridden on.

Wear protective clothing where appropriate.

Never operate when tired (not alert) or in poorly lit areas and stay alert for humps and other hidden hazards. Remove all timber, rocks and foreign objects prior to operation.

Avoid operating the machine in wet conditions.

Exercise extreme caution when changing direction on hills. Avoid sudden movement, sudden breaking, high speeds, rough terrain and steep slopes.



Watch overhead clearance and beware of underground pipes and cables.

Where fitted, hydraulic hoses and fittings must be maintained so as to prevent damage.

Do not modify this equipment in anyway, or use it for any other purpose than it was designed to do.

Never work under unsupported machines or adjust unsupported machines. Do not enter the danger zone where a load being carried by a machine could fall on you, for example a round bale from a bale fork, a log from a carryall or material from a rear end loader.

These instructions should be used in conjunction with any local regulations regarding safety ie OHS.

Maintenance is essential for safe operation. Ensure maintenance is carried out regularly by people qualified to do so. This is of particular importance on P.T.O. drive machines where driven parts can fly off at high speed if wearing parts are not properly maintained.

FAILURE TO FOLLOW THESE INSTRUCTIONS AND PROCEDURES MAY RESULT IN EQUIPMENT MALFUNCTION, OR DAMAGE, SERIOUS INJURY OR EVEN DEATH.

INTRODUCTION:

This manual was developed specifically for the machine you have purchased. The information within is to assist you in preparing, operating and maintaining your machine. Please read and understand the contents of the manual completely before attempting to operate your machine, paying special attention to <u>all</u> safety details. With our policy of continuous improvement, products and specifications may change without notice and without incurring the obligation to install such changes on any unit previously delivered.

MACHINE ASSEMBLY

The machine should be completely assembled prior to delivery. It may be necessary to make some minor alterations prior to operation depending on the tractor it is connected to and the job required.

Drawbar set-up (main springs)

CAUTION:

Ensure the transport lock top links are removed from each wheel before hydraulically operating the wheelkit. Ensure that nobody is in close proximity of the discs when operating the hydraulics.

Lower the wheels slowly until they are all the way down. If the settings are correct then the main frame should lift evenly at the front and back. A visual inspection of this parallel lift should be sufficient.

CAUTION:

Keep a close eye on the springs as you lower the wheels to ensure the main threaded rod arrangement does not come in contact with the main frame. If it gets too close then stop immediately as damage may occur. This indicates that your settings are not correct and some adjustment will need to be made to your toplink or possibly the height of the tongue at the tractor end.

Once you have achieved parallel lift you are ready to connect the hydraulics for the front and rear gangs to the tractor. Start off by completely closing the gangs so that they are parallel with the main frame. Should they not be parallel, adjust the individual top link for each gang to move them in line with the frame. This will ensure that every time you close the gangs they will return to the same position.

OPERATION

<u>Jack</u>

Prior to moving the machine, retract jack well clear of the ground, and if the implement is to cross very rough terrain, consider removing the jack completely.

<u>Transit</u>

When the machine is being transported, close the four gangs up using the hydraulics, connect the top link on each side of the machine to the wheelkit. This will remove any undue stress away from the hydraulic ram. A recommended maximum travelling speed is 20km/hr however due consideration must be given to varying surface conditions. Always secure the top links when travelling on roads or between jobs. Ensure the rear transport lights are connected to the tractor and are operating.

Gang Setting

This machine is capable of a variety of gang angles. The front gang is always working in harder ground than the rear gang, so there should always be approximately two degrees more angle on the rear gang to compensate. The more angle the greater the bite of the disc.

It is best to pre-determine your angles and then mark them out on the turntable so that you can revert back to them easily.

CAUTION:

Don't be afraid to experiment with gang angles or ever moving gangs or discs, as the machine must be set to achieve the ultimate result and this will vary because of soil, moisture content, tractor speed etc.

1) Ridging

Avoid accepting ridging as it stems from one of the following causes; if you know why, you can find a solution.

a) Speeding too quickly: lowering the rear gang angle might be the answer.

b) Close gangs up or decrease speed if gang angles are too large for the speed traveled.

c) If the back gang is positioned too near to one another in the middle of the gang frames, move them away from the machine's center by following the instructions in the note on "moving disc gang."

NOTE: It is considered as a general rule, the earth that the front gangs throw out the rear gang <u>must</u> throw back, otherwise unevenness will occur.

2) Crumble Roller

Should you be faced with a hollow depression left in the centre of the harrowed area - this can be rectified by reversing the "ridging" solution instructions.

The gangs are able to be opened right out to almost 90° from the frame. To achieve this you may need to adjust the individual toplinks on each gang. Remember that any alterations at this point will provide a different gang position when closing them up. Ie they will no longer be parallel with the main frame.

Scrapers

Set scrapers when discs are revolving, don't have scrapers touching (otherwise the scallop in the disc may pick up the blade).

<u>Turning</u>

Do not turn sharp and fast at corners. Should this be unavoidable lift disc clear of the ground.

<u>Discs</u>

This machine is made to work in the worst conditions, but since we, the manufacturers, know that someone will need large gang angles to plough very tight soil, we advise using a backing disc to support the opening discs. This can be done affordably by using a worn disc with a smaller diameter behind the opening discs.

CAUTION:

Don't alter the design, or attempt to add weight to implement's frame.

MAINTENANCE

Bolts, Pivot Pins and Bronze Bushes

Keep all bolts tight, in particular gang bolts. All bronze bushes should be checked each season as they are a wearing part and may need replacing.

Gang Bolts

Don't forget to keep the gang bolts tight with regular checks, particularly when the machine is new (when the machine is new friction will cause the disc and spacers to wear in). The gang bolt is vulnerable to damage or breakage if not in tension and damage caused because of loose gang bolts would void warranty.

Furrow Fillers & Furrows

Since the furrow filler disc is not a cutting disc and should just flick surface debris back into the furrow, operators will notice that it begins to form a furrow as the discs wear. Since its diameter will not wear as quickly as other discs, it should occasionally be changed with a smaller disk to get the most out of it. A discarded, worn-out disc can easily be used to meet this requirement.

Lubrication

Lubrication plays a very important part in extending the life of wearing parts.

- 1) Threaded rod should be kept covered with a smear of grease to keep nuts and thread corrosion FREE.
- 2) Gang slide regularly lubricated with oil will produce very easy gang adjustment.
- Grease nipples have been provided on heavily worked parts and are to be greased regularly. It is important that the turntables be kept adequately lubricated as they do most of the work
- 4) Wheel hubs are pre-packed with grease and should only need attention at the end of each season, unless dusty conditions cause seals to break down. Force wheel bearing grease between rollers cone and cage, using hand method or grease packing equipment. Add grease in wheel hub between hub between caps and fill hub cap.

Disc Bearings

These are a greasable bearing and should be kept adequately lubricated.