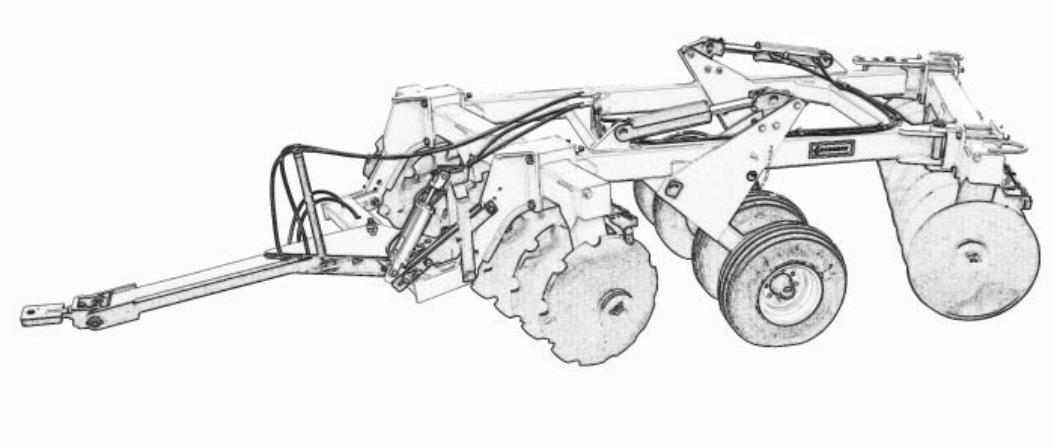
GEARMORE INC.

WHEEL OFFSET STUBBLE DISCS



Assembly, Operation, Service, & Parts Manual For 900 Series

July 2011

Form: StubbleDisc900

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1 INTRODUCTION

Congratulations on your choice of our pull type offset stubble disc. This equipment is manufactured to precise specifications using the best quality parts and materials available. With proper care and maintenance, this piece of equipment should last for many years. Before operating this machine, thoroughly read and become familiar with this manual.

1.1 OPERATOR'S RESPONSIBILITY

Safe, efficient and trouble free operation of your Disc requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Troubleshooting information contained within the Operator's Manual.

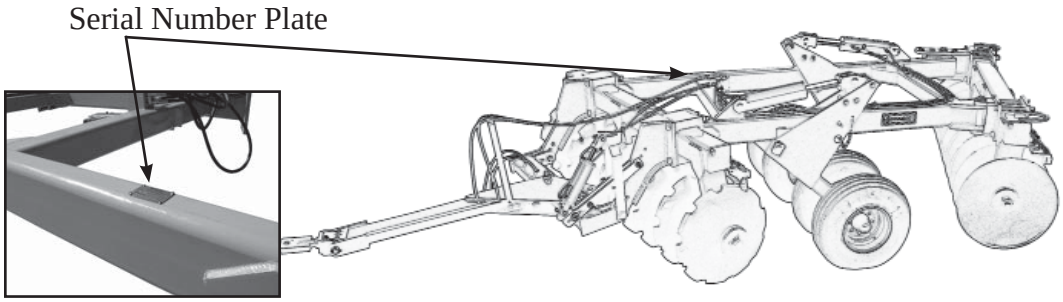
It is the responsibility of the user/purchaser to lubricate and maintain this product according to the schedule in this manual. The user is responsible for inspecting the machine, and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts. All fasteners should be checked and tightened periodically and as necessary. When supporting the frame or the machine, use stands that are capable of handling the weight of the assembly. Insure that the supports are on a clean, dry surface. It is the user's responsibility to deliver this product to the dealer when repairs that are covered by the standard warranty need to be made.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Gearmore dealer if you need assistance, information or additional copies of the manuals.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the driver's seat and facing in the direction of travel.

1.2 SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Disc when ordering parts or requesting service or other information. The serial number plate is located where indicated. Please mark the number in the space provided for easy reference.



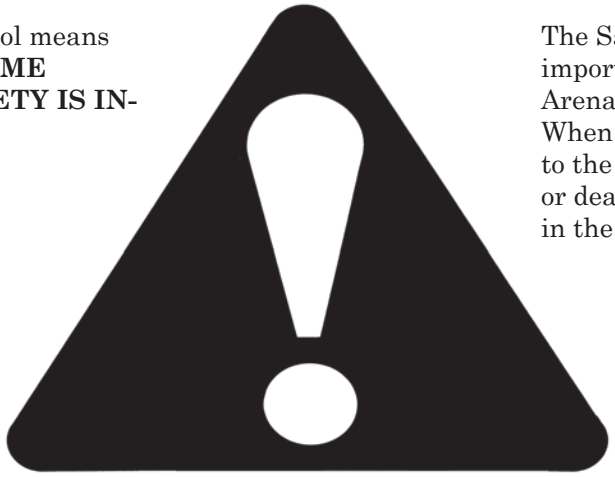
DATE OF PURCHASE: _____

MODEL NUMBER: _____

SERIAL NUMBER: _____

SAFETY ALERT SYMBOL

This Safety Alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



The Safety Alert symbol identifies important safety messages on the Arena-Comb and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons
- **Accidents Disable and Kill**
- **Accidents Cost**
- **Accidents Can Be Avoided**

SIGNAL WORDS:

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

SI NO LEE INGLES, PIDA AYUDA A AIGUIEN QUE SI LO LEA PARA QUE LE TRADUZCA LAS MIDIDAS DE SEGURIDAD.

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

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

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

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

2.1 GENERAL SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your Disc. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Disc be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Disc.

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

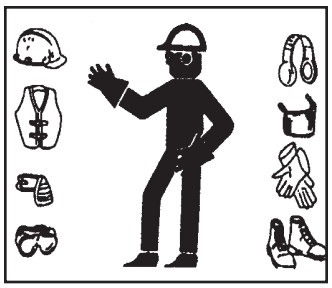
- Disc owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually there after per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety feature on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- **DO NOT** modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- **Think SAFETY! Work SAFELY!**

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining or adjusting the disc.

2. Have a first-aid kit available for use should the need arise and know how to use it.

3. Have a fire extinguisher available for use should the need arise and know how to use it.

4. Wear appropriate protective gear. This list includes but is not limited to:
   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective goggles, glasses or face shield
   - Heavy gloves
   - Protective clothing



5. Install and secure all guards before starting.
6. **DO NOT** allow riders.
7. Wear suitable ear protection for prolonged exposure to excessive noise.

8. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, or repairing.
9. Clear the area of people, especially small children, before starting.
10. Review safety related items annually with all personnel who will be operating or maintaining the Disc.

2.2 EQUIPMENT SAFETY GUIDELINES

Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them.

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

- **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.** Review the safety instructions with all users annually.

- This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with farm machinery and trained in this equipment's operations. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.

- Use a tractor equipped with a Roll Over Protective Structure (ROPS) and a seat belt.

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

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

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

Think SAFETY! Work SAFELY!

2.3 SAFETY TRAINING

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.

It has been said, ***"The best safety feature is an informed, careful operator."*** We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.

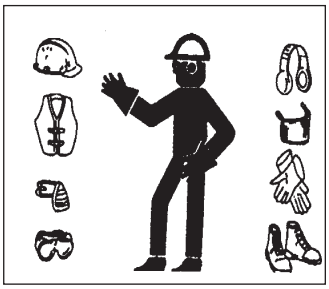
Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to operating:

a. Reads and understands the operator's manuals.
b. Is instructed in safe and proper use.

Know your controls and how to stop tractor, engine and machine quickly in an emergency. Read this manual and the one provided with your tractor. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.

2.4 PREPARATION

1. Never operate the tractor and machine until you have read and completely understand this manual, and the Tractor Operator's Manual.

2. 
Personal protection equipment, including hard hat, safety glasses, safety shoes and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal or moving the implement. **DO NOT** allow long hair, loose fitting clothing or jewelry to be around equipment.

3. 
PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!
Tractors with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long- term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss.
NOTE: Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

4. 
Operate the machine only with a tractor equipped with an approved Roll-Over Protective Structure (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor particularly during a turn-over when the operator could be pinned under the ROPS or the tractor.

5. Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.

6. Operate only in daylight or good artificial light.

7. Be sure machine is properly mounted, adjusted and in good operating condition.

2.5 OPERATING SAFETY

All things with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices.

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

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

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

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

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

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

A heavy load can cause instability of the tractor. Use extreme care during travel. Slow down on turns and watch out for bumps. The tractor may need front counterweights to counterbalance the weight of the machine.

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

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

Before you operate the machine, check over all pins, bolts and connections to be sure all are securely in place. Replace any damaged or worn parts immediately.

Clear the work area of objects which might be picked up and snagged or entangled in the machine.

Keep hands, feet, hair, jewelry, and clothing away from all moving and/or rotating parts.

2.6 TRANSPORT SAFETY

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

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

3. At all times, when driving the tractor and equipment on the road or highway under 20 mph (32 kph) use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.

4. Plan your route to avoid heavy traffic.

5. To transport the machine, extend the axle cylinders and place the transport pin into the transport slots.

6. Do not drink and drive.

7. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.

8. Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces.

9. Never allow riders on either tractor or machine.

2.7 STORAGE SAFETY

1. Store the unit in an area away from human activity.

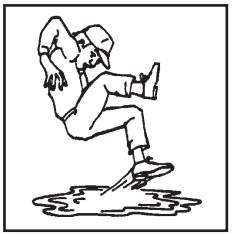
2. Do not permit children to play on or around the stored machine.

3. Store the unit is a dry, level area. Support the frame with planks if required.

2.8 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

2. Follow good shop practices.
   - Keep service area clean and dry.
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand.



3. Make sure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation.

4. Before working on this machine, shut off the engine, set the brakes, and remove the ignition key.

5. Never work under equipment unless it is blocked securely.

6. Use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work.

7. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts **must** be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.

8. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment

9. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.

10. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

3 SET-UP & ASSEMBLY

Your 900 Series Disc was assembled at the factory with the gangs set in the straight position for shipping purposes. Because of varying soil conditions, desired cutting depth, and tractor speed, gang adjustment must be made for even and uniform discing. Before using this disc, check all nuts and bolts to make sure everything is tightened.

3.1 SET-UP INSTRUCTIONS

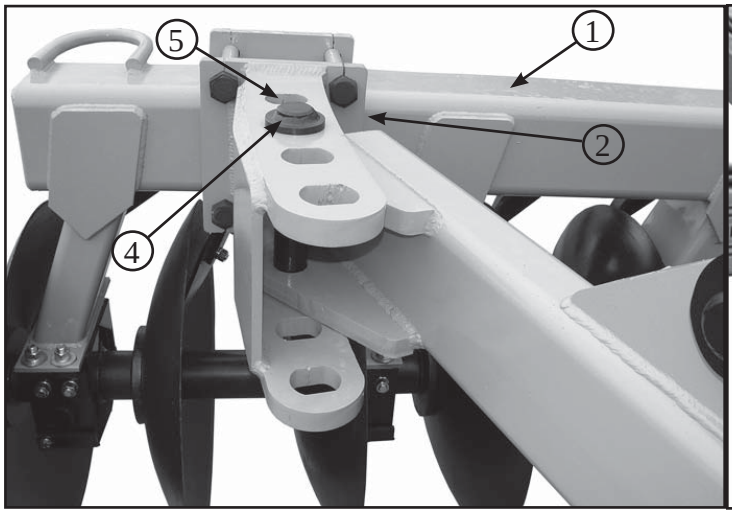


Figure 21

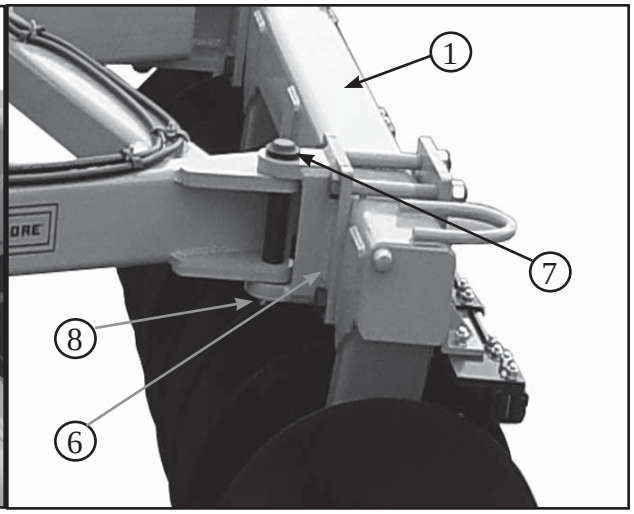


Figure 22

1. Rear Gang Frame
2. R.H. Hinge Assembly
4. R.H. Hinge Pin
5. Minimum Angle Hole
6. L.H. Rear Hinge Assy.
7. L.H. Hinge Pin
8. Bolt

3.1.1 MAIN FRAME

Raise the main frame and support it on stands or barrels of adequate strength, at a height of 36" (914 mm) above the floor. The longest frame channel should be on the R.H. side with the anchors for the hydraulic lift cylinders being on the top side of the frame.

3.1.2 REAR HINGE ASSY (Fig. 21 & 22)

R.H. Rear Hinge

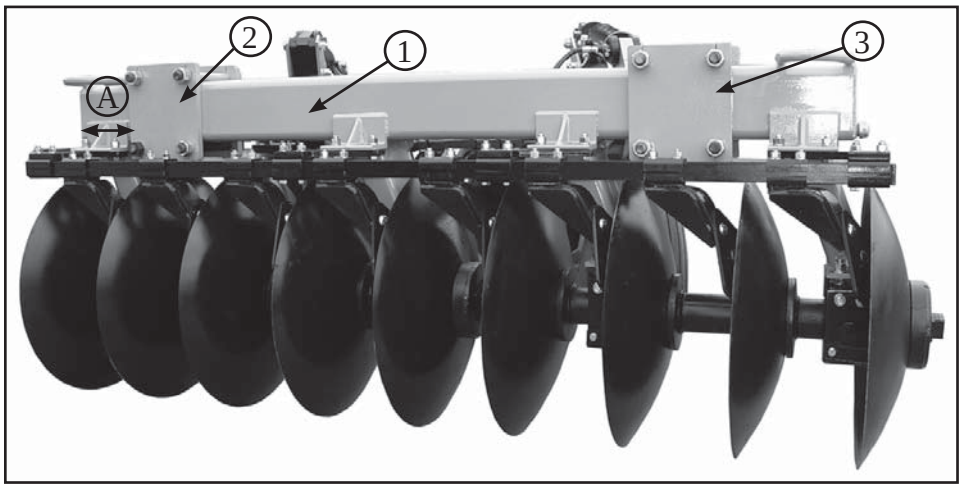
Install the R.H. rear hinge assembly (2) onto main frame as shown in Figure 21 placing the pin (4) in the hole for minimum rear gang angle (5) and secure with a bolt.

L.H. Rear Hinge

Install the L.H. rear hinge (6) onto main frame as shown in Figure 22. Install the pin (7) in the pivot hole and secure with a bolt (8).

3.1.3 REAR GANGS

Attach the rear gang frame (1) to the hinge assemblies using the plates and 1 ¼" diameter bolts so the nuts are on the rear side of the plates.



1. Rear Gang Frame
2. L.H. Hinge Plate
3. R.H. Hinge Plate

"A" - Dimension from L.H. end of rear gang frame to side of L.H. hinge plate

Figure 23

The lateral offset of the rear gangs (Dimension "A", Figure 23) will vary with different size disc harrows. Refer to chart to obtain Dimension "A". Torque nuts on the 8 bolts in the L.H. and R.H. hinge plates to 715 ft./lbs. (969 N m).

SIZE HARROW	"A" DIMENSION
11' (3.4 m)	21" (533 mm)
13' (4.0 m) and 15' (4.6 m)	27" (686 mm)
17' (5.7 m)	40" (1016 mm)
19' (5.8 m)	53" (1346 mm)
21' (6.4 m)	63" (1600 mm)

3.1.4 TRANSPORT WHEEL STRUTS (Fig. 24 & 25)

Remove support from the rear of the disc frame allowing the rear gangs to rest on the floor. **CAUTION:** ***Block the rear gangs to prevent any rolling of the gangs.***

To assemble the wheel struts to the frame:

1. Remove cylinder block bolts (2), block (1), and pivot pins (4) from both wheel strut assy.

2. Install strut on R.H. side pointing toward the front of disc frame (Fig. 24) and the strut on the L.H. side pointing toward the rear of the disc frame (Fig. 25).

3. Install the pivot pins (4) castellated nuts, and tighten, securing the nuts with the bolts (5).

4. Install the cylinder block (1) between the strut plates with the block pointing towards the cylinder lug welded to the main frame and the hole at the bottom (Fig. 24 & 25) frame. Torque the 1" (25.4 mm) dia. cylinder retaining bolts (2) to 680 ft./lbs. (922 N m).

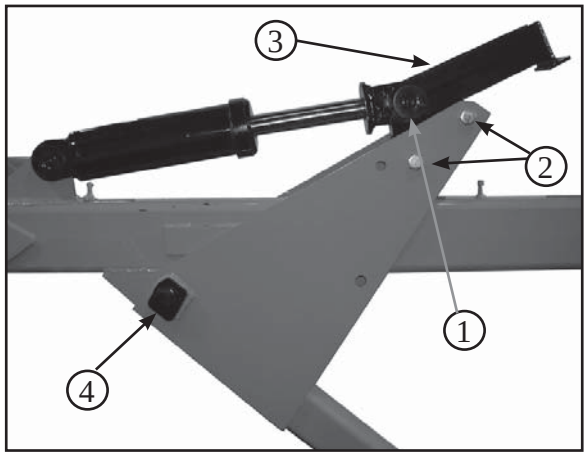


Figure 24 - R.H. Wheel Strut

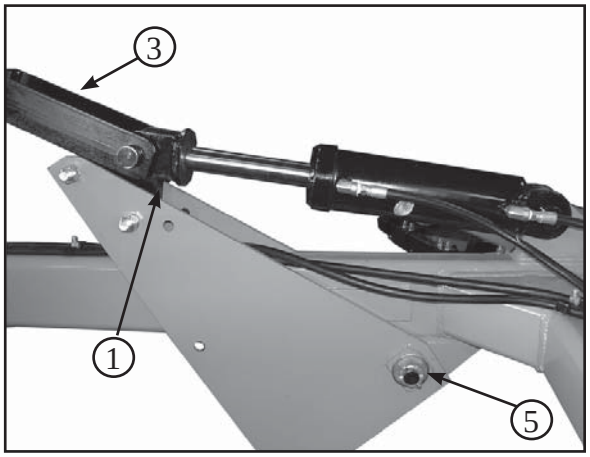


Figure 25 - L.H. Wheel Strut

1. Cylinder Block
2. Cylinder Block Bolts
3. Transport Lock
4. Pivot Pin
5. Bolt

3.1.5 SPINDLE & HUB INSTALLATION (Figure 26)

The spindles (1) slip into pipe. Align spindle hole with hole on pipe. Slip bolt through hole and tighten with lock washer and nut.

3.1.6 WHEELS AND TIRES

Check air pressure in tires and inflate to 44 PSI (303 kPa).

Install wheels on hubs and torque wheel lug bolts to 125 - 140 ft./lbs. (169 - 190 N m). Install jam nuts on the lug bolts on the inside of the hub flange and tighten securely

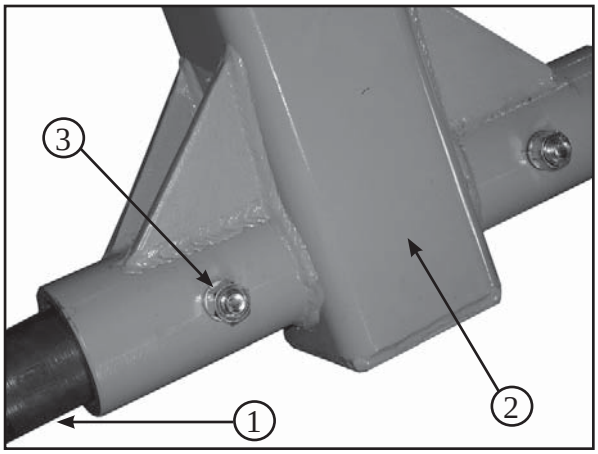


Figure 26 - Wheel Spindle Installation

1. Spindle
2. Wheel strut
3. Bolts, nut and lockwasher

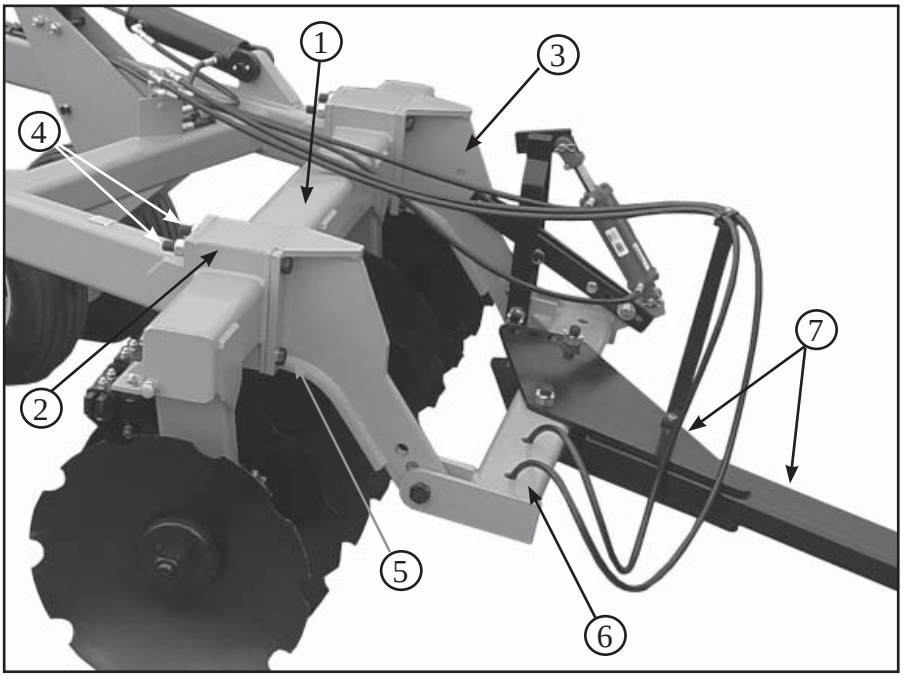


Figure 27

1. Front Gang Frame
2. R.H. Pull Bar
3. L.H. Pull Bar
4. 1 ¼" Bolts
5. 1 ¼" Diameter Bolts
6. Drawbar
7. Tongue

3.1.7 FRONT GANGS AND PULL BARS (Figure 27)

Attach the front gang frame assembly to main frame using 1 ¼" diameter bolts in top holes and 1 ¼" diameter bolts in the lower holes. Upper bolts must be 1 ¼" diameter. The bolts should be inserted from the front and R.H. and L.H. pull bars must be installed leaving the nuts on all bolts loose at this time.

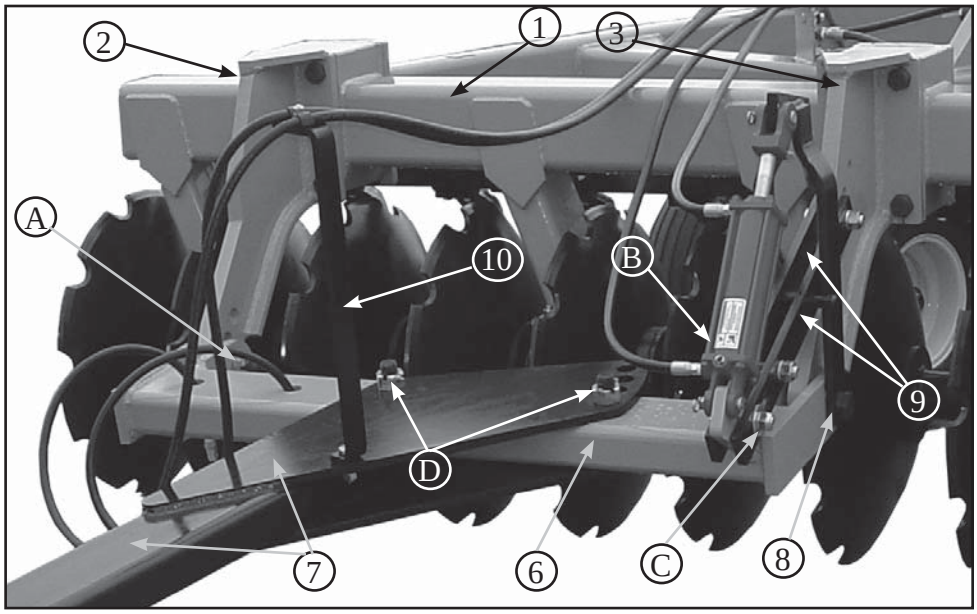


Figure 28

1. Front Gang Frame
2. R.H. Pull Bar
3. L.H. Pull Bar
6. Drawbar
7. Tongue
8. Cylinder Arm
9. Leveling Bars
10. Hose Stand

3.1.8 LEVELING BAR & LEVELING MECHANISM (Figures 27 & 28)

Bolt the drawbar (6) to the pull bars (2 and 3) in the lowest holes on the pull bar. Use a 6" (152 mm) long bolt ("A") with a washer net to the bolt head, and nut. On the left hand side, use a 7 ½" (191 mm) long bolt ("B") with a flat plate washer next to bolt head, and nut, through the drawbar ears and cylinder arm (8). Torque the 1 ½" diameter bolts ("A") & ("B") to 1120 ft/lbs. (1518 N m) and install bolts in castellated nuts.

3.1.9 LEVELING BAR INSTALLATION (Fig. 28)

Install the leveling bars (9) to the lowest hole in top of the L.H. pull bar (3) with the slotted end of the straps down next to the drawbar (6).

Install the bolt (C) in the upper end of leveling bar (9) using the elastic nut and tightening nut only enough so straps pivot freely with no side play. Install cotter pin. In the slotted hole in the leveling bar (9), install a bolt (C) with a flat washer (11) between both the bolt head and the nut next to the leveling bars (9). (See Fig. 28). Tighten the elastic nut to remove side play, but still allowing slide freely in leveling bar slots, install cotter pin.

3.1.10 PULL BAR BOLTS TIGHTENING

Tighten the pull bar bolts (4) & (5) (Figure 27) evenly so the front gang frames are flat against the plates on the disc frame. The upper four 1-¼" diameter bolts (4) should be torqued to 1120 ft./lbs. The lower four 1-¼" (31.75 mm) diameter bolts (5) should be torqued to 2000 ft./lbs. (2712 N m).

3.1.11 TONGUE AND HOSE STAND (Fig. 28)

As a starting point, install the tongue in the left hand set of holes on the drawbar as shown in Figure 28. Install the hose stand as shown in Figure 28 on the pole plate.

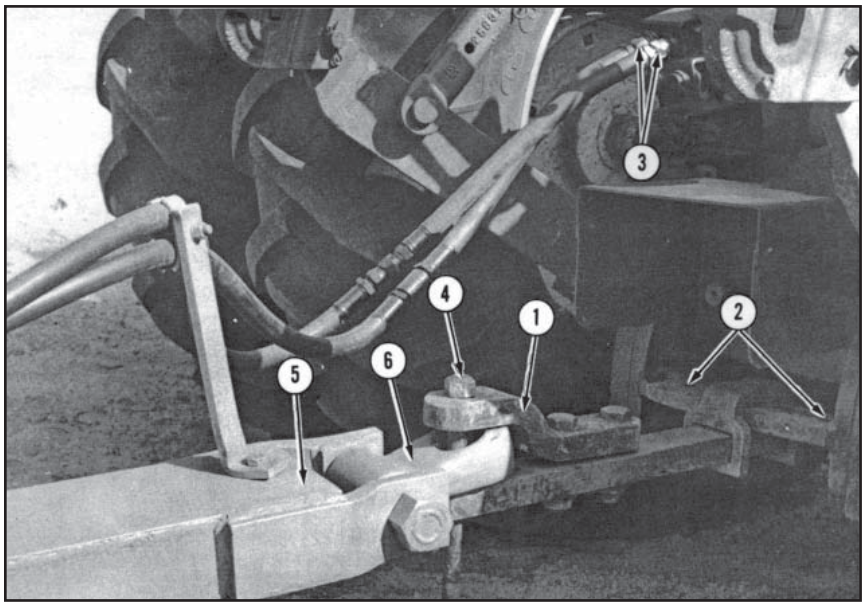
3.2 ADJUSTMENTS

The design of the 900 Series Disc permits more or less angle to be set to the rear gang. The more angle set to the rear gang, the greater soil breaking will occur, with increased penetration. A smother and more leveling type of operation will occur if less angle is set to the rear gang. To Adjust the cutting angle on the rear gang, remove the bolt from the adjusting pin, pull the adjusting pin out, slide the gang backward or forward to obtain the desired cutting angle, then replace the adjusting pin and bolt.

Improper adjustments can cause discing problems. If problems should occur after following instructions in the manual, check the ***Troubleshooting Chart*** for possible remedies.

4 FIELD OPERATIONS & ADJUSTMENTS

4.1 TRACTOR PREPARATION



1. Drawbar Clevis
2. Drawbar Bale Pins (Removed)
3. Remote Hydraulic Outlets
4. Hitch Pin
5. Disc Tongue
6. Tongue Clevis

Figure 10 - Hitching the Tractor

DRAWBAR CLEVIS (Figure 10)

The tractor must be of the clevis (1) type for hitching to the disc. If tractor is not equipped with a drawbar clevis (1) it may be purchased from the tractor dealer.

NOTE: On some of the new, larger 4WD tractors it may be advantageous to lower the tractor hitch point to obtain improved front disc gang penetration. To lower the hitch point assemble the tractor drawbar clevis on the bottom side of the drawbar. The reverse of this condition might be encountered on some of the older crawler tractors where the hitch point should be raised.

DRAWBAR BALE PINS (Figure 10)

The drawbar bale pins (2) should be removed for field operation with the disc. This allows the tractor drawbar to swing on the bale for both wheel and crawler tractors, which aids in steering the tractor.

WARNING: Always pin the drawbar so it cannot swing on the bale when transporting the disc. Also always be sure the safety tow chain is properly connected between unit and the towing vehicle.

WHEEL WIDTH SETTING

On wheel type tractors, the wheel width setting should be as narrow as possible and still provide stability for hillside operation.

TRACTOR WEIGHTS

Add front end weights to the tractor to maintain tractor stability and also steerability, especially when additional rear wheel weights are added.

HYDRAULIC SYSTEM

The tractor must be equipped with a two way remote hydraulic outlet (3) for operating the two way cylinders on the disc.

HITCH PIN (4)

The hitch pin (4) should be of adequate size to pull the disc and should be equipped with a safety device to prevent pin from coming out of tractor drawbar.

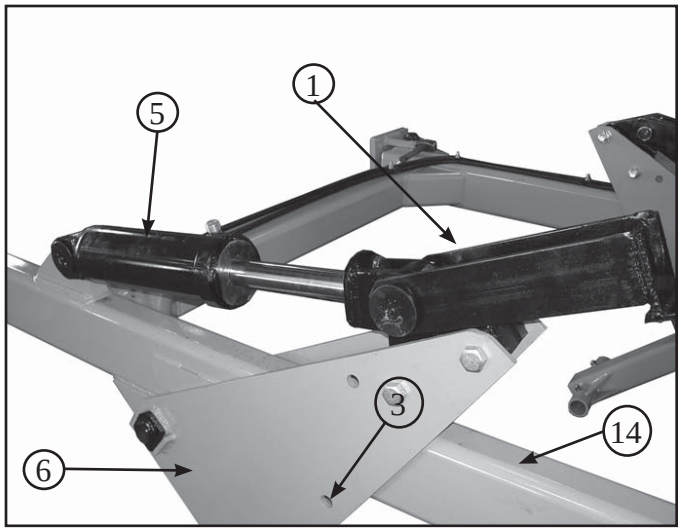


Figure 11 - R.H. Rear Lift Cylinder

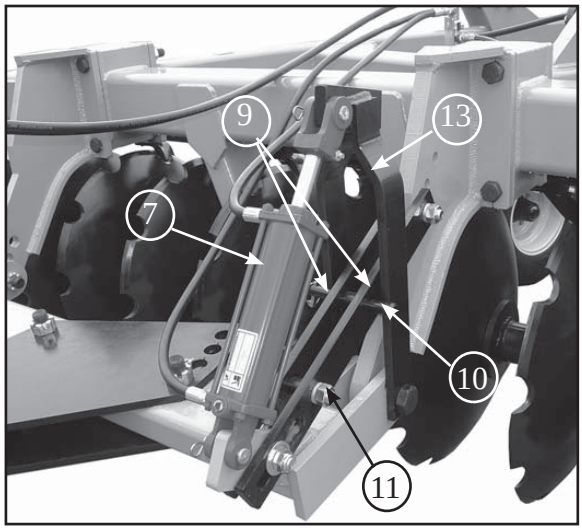


Figure 12 - Leveling Cylinder

1. Wheel Transport Lock
3. Transport Position Holes
5. R.H. Rear Lift Cylinder
6. Outside Wheel Strut Plate
14. Main Frame Tube

7. Leveling Cylinder
9. Leveling Bars
10. Lift Position Holes
11. Discing Position Holes
13. Leveling Cylinder Arm Assembly

4.2 HITCHING & UNHITCHING THE DISC

The disc harrow should always be in the lowered position when hitching or unhitching the disc harrow.

The disc should be adequately blocked to prevent any movement of the disc during the process of hitching or unhitching the disc.

WARNING: Always pin the drawbar so it cannot swing on the bale when transporting the disc. Also always be sure the safety tow chain is properly connected between unit and the towing vehicle.

4.2.1 HITCHING THE DISC (Figure 10)

1. Back the tractor until hole in the drawbar and clevis is directly over the hole in the disc harrow pole hitch (6).

2. Set tractor parking lock or brakes.

3. Swing the tractor drawbar to one side.

4. Place tractor remote cylinder control lever in float position. Connect the hydraulic hoses from the disc harrow to the remote outlets on the tractor in such a way that PUSHING the control lever FORWARD lowers the disc.

5. Slowly raise the transport wheels on the disc which will also raise the disc hitch (6 in Fig. 10) up to the tractor drawbar level.

6. Swing the tractor drawbar back until the disc harrow hitch (6 in Figure 10) is positioned between the tractor drawbar and drawbar clevis.

7. Install and secure tractor drawbar hitch pin (4 in Figure 10).

8. If the disc is to be transported refer to Fig. 11 and fully raise the disc until the cylinders (5) are fully extended. Swing the transport lock down until they lay on the cylinder barrel. To take the disc out of transport position, make sure the cylinders are fully extended, then swing the transport lock up.

4.2.2 UNHITCHING THE DISC

With the disc harrow in the fully raised position, and the parking lock or brakes set:

1. Install the leveling cylinder transport pin (8) in the lift position holes (10) in the leveling cylinder leveling bars (9) (Figure 12).

2. Carefully lower the disc until it rests on the ground. Then continue to feather the hydraulic control lever in the lower direction to carefully raise the hitch (6, Figure 10) until it is not supported by the tractor drawbar.

3. Remove the tractor drawbar pin and carefully swing the drawbar to the side until the disc harrow pole can be lowered.

WARNING: DO NOT GET FEET UNDER POLE

4. Lower the pole to the ground with the tractor hydraulic control valve, place lever in float, and disconnect the hydraulic hoses from the tractor.

WARNING: The disc pole must be blocked in the raised position or lowered to the ground to prevent any accidental dropping of the pole.

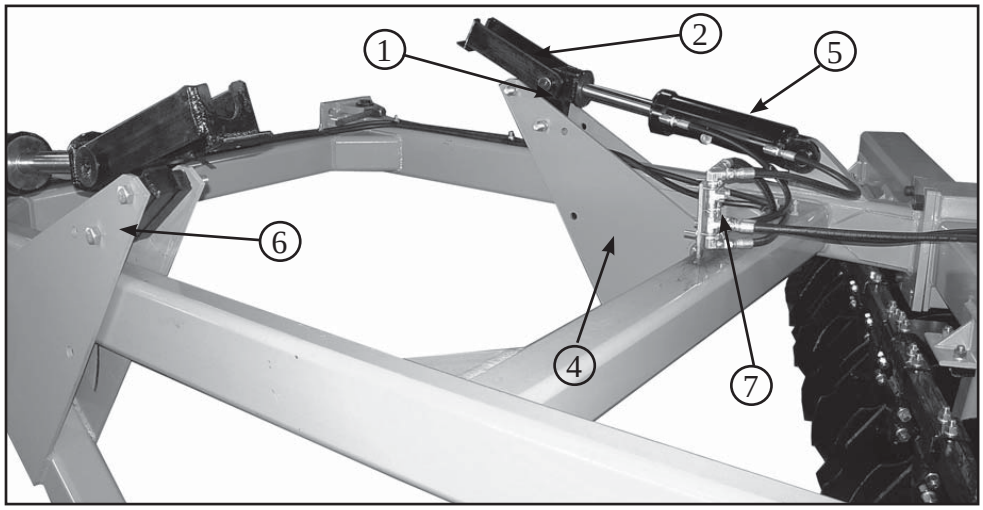


Figure 13

1. Cylinder Block
2. Transport Lock
4. L.H. Wheel Strut Assembly
5. L.H. Rear Lift Cylinder
6. R.H. Wheel Strut Assembly
7. Flow Control Manifold

4.3 FIELD ADJUSTMENTS

The following adjustment sequence should be followed when the disc harrow is adjusted in the field. If additional information is needed for any adjustment, refer to the "General Information on Operation" in this manual.

NOTE: It is generally recommended to start with minimum set up for working angle, depth of cut and left hand offset and then adjust for small increases until the desired field performance is obtained.

4.4 DISCING POSITION (Wheel Disc - Fig. 13 & 14)

To place the Disc in the discing position from the transport position, the following sequence should be used:

1. Using the tractor hydraulic control lever, raise the disc harrow to the fully raised position.

2. See figure 13. Remove the cotter pins from the wheel strut transport pins (1) in the R.H. & L.H. wheel strut assemblies (4) & (6). Remove pins (1) from the transport position holes (3) and install them in the discing position holes (2) in the two strut assemblies and secure each pin with a cotter pin.

3. The disc harrow can now be lowered into the discing position.

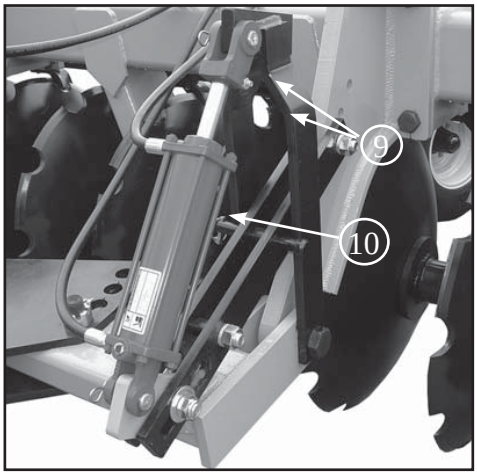


Figure 14 - Leveling Cylinder

9. Leveling Bars
10. Discing Position Holes

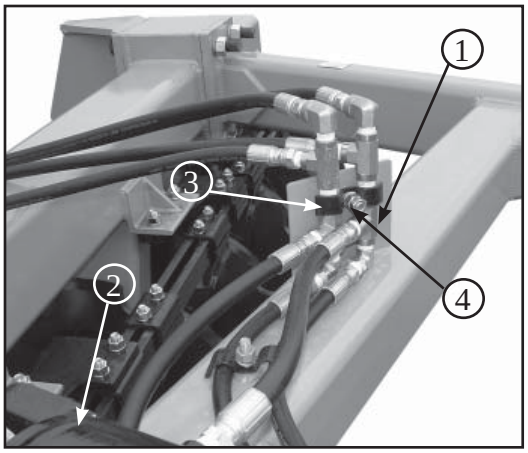


Figure 15

1. Hydraulic Flow Manifold
2. Rear Lift Cylinder
3. Bracket
4. Locknut

4.5 STARTING IN THE FIELD (Fig. 16 & 17)

The following adjustment sequence should be followed.

1. Lower the disc to the desired depth of operation and install the desired amount of stroke control stops to each of the wheel strut cylinder rods.

NOTE: With the stroke control blocks installed on the lift cylinders, always retract the leveling cylinder (1) completely so the tongue (2) can float on uneven terrain.

2. Angle the tongue (2) on the drawbar (3) so the L.H. side of disc is offset to the left side of the tractor.

NOTE: If adequate L.H. offset cannot be obtained by changing tongue angle, the tongue can be shifted laterally on the drawbar to another set of holes.

3. If adequate depth cannot be obtained increase the rear gang angle, this will increase the total working angle of the front and rear gangs, causing the disc to go deeper. This may also change the L.H. offset of the disc harrow behind the tractor. To compensate for it, change the tongue angle.

To change the rear gang angle, the disc should be in the lowered position. Remove the bolt (9) from the R.H. hinge pin (10) and remove the pin.

To decrease rear gang angle, back the disc slowly. To increase rear gang angle, pull the disc forward slowly.

Install the hinge pin (10) and secure with the bolt (9).

4. If front and rear gangs are not operating at the same depth: Raising the drawbar (3) on the pull bars (4) will tend to make the front gangs go deeper - lowering the drawbar will tend to make the rear gangs go deeper.

NOTE: Leveling bars (5) on the leveling cylinder (1) assembly should be in the corresponding hole on the pull bars (4) as the drawbar (3) is in on the pull bar.

This adjustment may affect the L.H. offset of the disc which can be compensated for by readjusting tongue angle.

5. Check to see that the L.H. rear gang blade is filling the furrow left by the L.H. front gang blade. Where the disc is operated in relation to the previous round will affect the filling of the furrow so the operator should drive the unit to the left or right and observe the effects in the filling the furrow. The furrow from the previous round should always be on the left side of the disc. The ground speed of the disc will also affect the filling of the furrow, as speed is increased the soil is moved further.

6. In order to determine if the rear gangs must be shifted laterally, the following must be checked:

A. Is the L.H. rear blade moving the soil far enough to fill the furrow?

If not, the rear gangs should be shifted to the left in relation to front gangs.

B. If the L.H. rear blade is moving the soil far enough to the left, but doesn't have enough soil to move, the rear gang should be shifted to the right to obtain more soil.

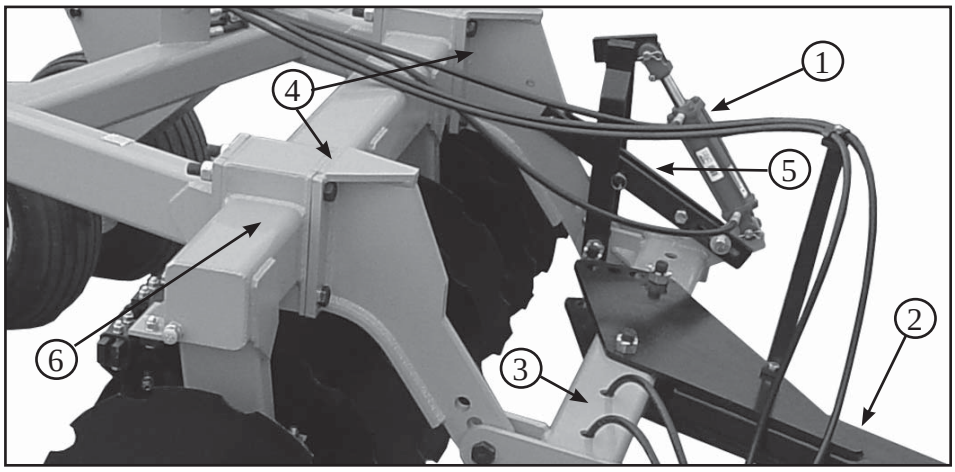


Figure 16

1. Leveling Cylinder
2. Tongue
3. Drawbar
4. Pull Bar
5. Leveling Bars
6. Front Gang

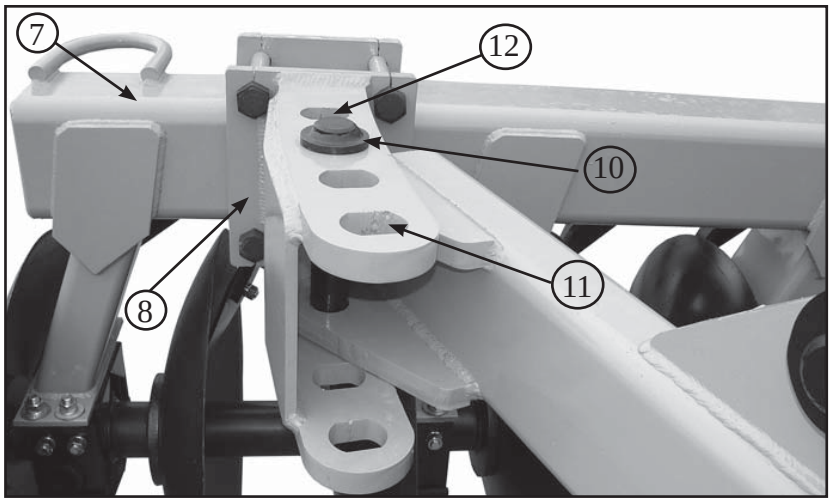


Figure 17 - R.H. Rear Hinge Assembly

7. Rear Gang
8. R.H. Rear Hinge Assembly
9. Bolt (not pictured)
10. R.H. Hinge Pin
11. Maximum Angle Hole
12. Minimum Angle Hole

4.6 LATERAL ADJUSTMENT (Rear Gangs Figure 17 & 23)

Loosen the nuts on the four bolts holding the rear gangs to the L.H. and R.H. hinge assembly (8).

Mark a line along both sides of clamp plate to determine how far gang is being shifted.

To shift the rear gangs to the right, pull the disc forward with the gangs contacting the ground and work gangs over to the right.

To shift the rear gangs to the left, back the disc with the gangs contacting the ground and work gangs over to the left.

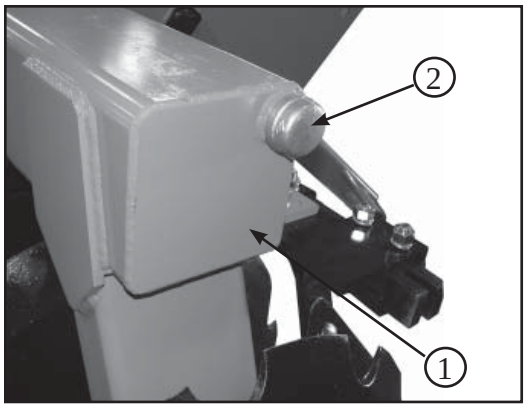


Figure 18

1. Gang Frame **2.** Filler Plug

4.7 LIQUID BALLAST

Additional weight can be added by filling the front and rear gang frames (1) with water if the desired working depth cannot be obtained when the disc gangs are at maximum angle.

Figure 18 shows the fill plug (2) with one being located on both the front and rear gang frames.

Figure 19 shows the drain plug (3) with one being located on both the front and rear gang frames.

NOTE: Always drain the water from the gang frames (1) before freezing temperatures are encountered or damage will occur to the gang frames.

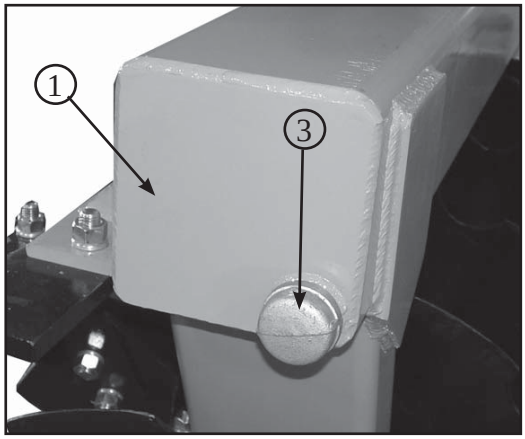


Figure 19

1. Gang Frame **3.** Drain Plug

5 MAINTENANCE

Wheel offset disc harrow should be inspected **after the discing season**. Note excessively worn or broken parts and replace during the off-season. That way it is ready for use when needed.

After a **few hours of operation**, the gang bolts should be checked for tightness. To insure correct performance and avoid needless wear and breakage, these bolts must be tight at all times.

- √ Regularly check all nuts and bolts and make sure they are tight.
- √ Regularly check all pins and lynch pins to make sure they are in place.
- √ Check scraper blades and replace as needed.
- √ If bearing dirt shields are used, check and replace as needed.
- √ Discs are equipped with greaseable sealed ball bearings. Regularly check bearings and make sure gang turns freely Replace bearing if needed.
- √ Store disc out of weather.

Scraper blades and mounts were assembled on the disc at the factory. Each scraper is individually mounted and adjusted. To adjust the scraper, loosen the nut on the mount arm, slide the scraper in or out until it is approximately ⅜" away from the disc blade, and tighten nut.

5.1 LUBRICATION

Your disc is equipped with pre-lubricated, greaseable gang bearings. No additional lubricant is required for start up. However, they should be greased daily when using the disc. When greasing, rotate the gangs to insure even distribution of grease in the bearing. Always use a hand powered pump as air or electric powered pumps provide too much pressure and result in ruptured seals. Ruptured seals are not covered by warranty. Use enough grease to fill each bearing.

The axle bearings and hydraulic pins require multi-purpose grease and should be greased **every 10 hours** of operation.

The wheel hub bearings should be checked for end-play and repacked with SAE multi-purpose grease **before operation and every 200 hours** thereafter. Should endplay occur in the hub, remove hubcap and cotter pin. Tighten the spindle nut until the bearing binds. Loosen spindle nut until bearing turns free with no endplay and reinstall cotter pin (nut may be tightened slightly for hole alignment). Replace hubcap.

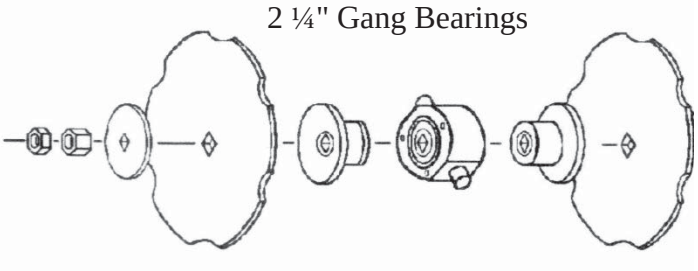
5.2 GANG BOLTS

After **first 8 hours of use**, check gang bolts for correct tightness. Gang bolts nuts should be tightened to a pull of approximately 100 lbs. with a five-foot extension on the wrench for correct tightness.

Be sure to only press against the outer race of the bearing to avoid damage to the bearing.

Special care must be taken so that the proper side of the bearing is placed into the housing. Note in the illustration below that the small grease holes in the outer race are offset to match the grease groove machined in the bearing housing. These holes should align with the grease groove when the bearing is placed into the housing.

2 ¼" Gang Bearings

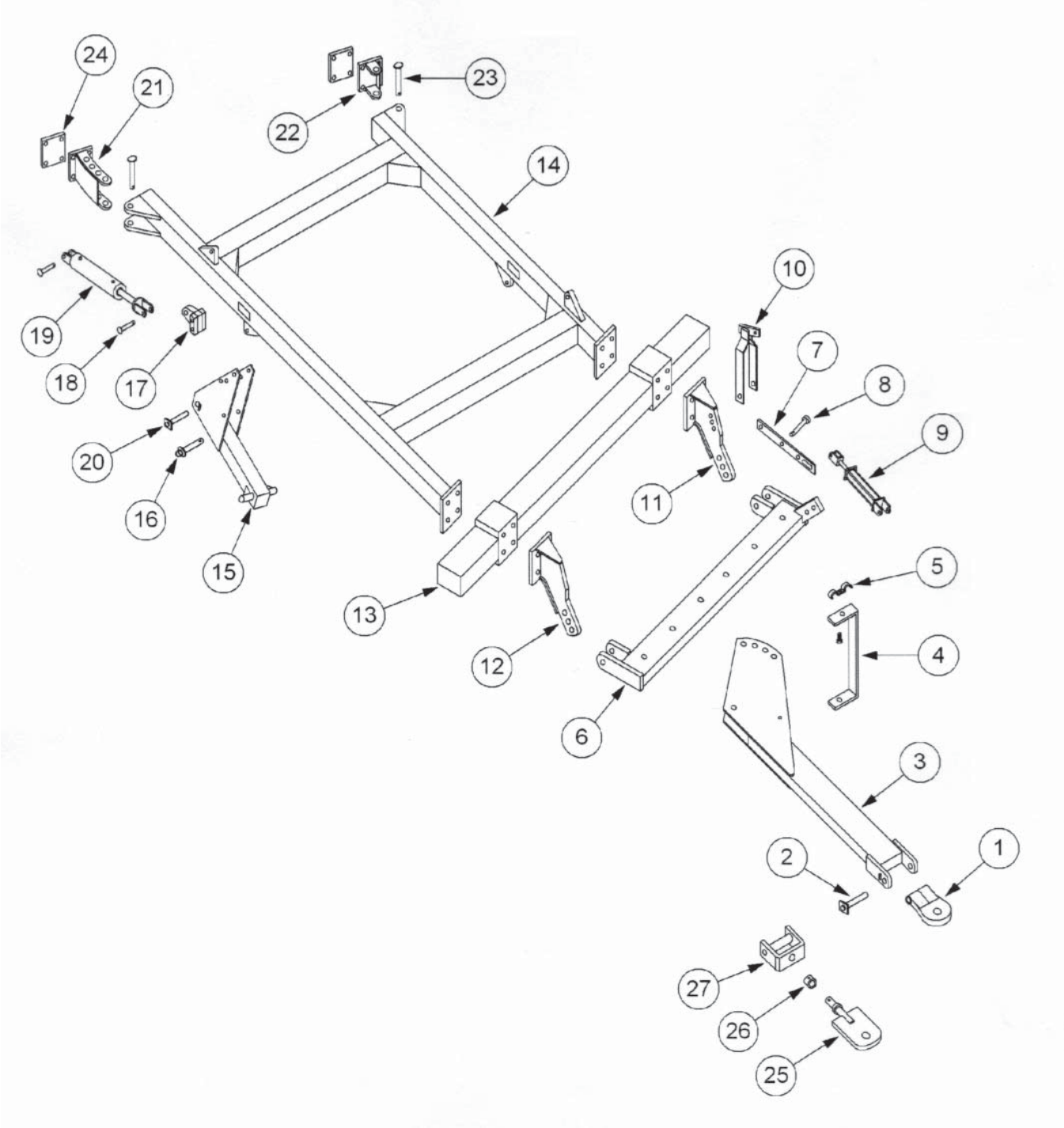


6 TROUBLE SHOOTING

PROBLEM	POSSIBLE REMEDY
Rear gang leaving ridge in center	• Space rear gangs proper distance apart (14" - 16"). • Decrease angles in rear gang and/or increase angle in front gang. • Decrease the operating depth of rear gangs and/or increase the depth of the front gangs.
Bedding on each side of disc	• Increase angles on rear gang and/or increase depth of rear gangs. • Decrease angle of front gang and/or decrease depth of front gang. • Space rear gangs proper distance (14" - 16").
Disc will not penetrate	• Increase angle on all gangs equally.
Disc moves from side to side	• Make sure all gangs are an equal distance from center of frame. • Correct gang angle settings.
Furrow left directly behind tractor	• Increase angle of gangs to increase depth of cut. • Increase tractor horsepower or decrease width of cut.
Bending front outside disc blade and/or gang bolt	• Lift disc off ground before turning.
Bearing failure	• Check gang bolt. If bent, straighten or replace as needed. • Tighten nut on gang bolt if needed.
Gang bolt bending	• Check nut on gang bolt, tighten if needed. • Check spacer spool, replace if needed.
Disc does not pull straight	• Always go to the field with a stubble disc set at maximum angle then field adjust. • Split blade back rear to front • Check to make sure disc is level

7 PARTS LIST

7.1 MAIN FRAME



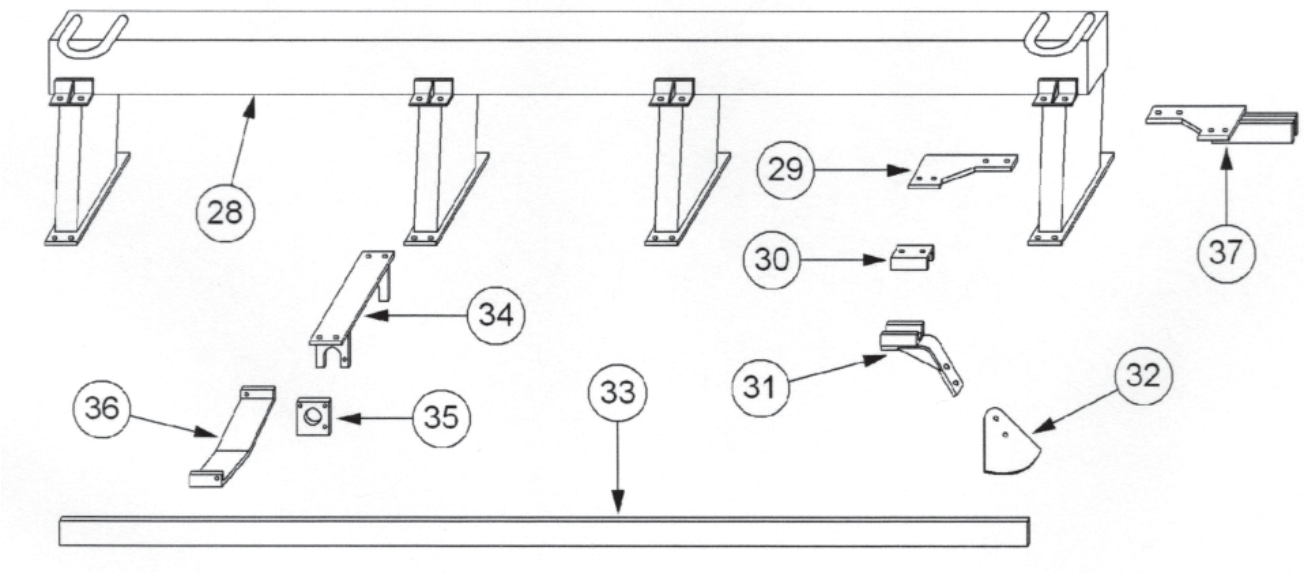
7 PARTS LIST (CONTINUED)

7.1 MAIN FRAME (CONTINUED)

REF.	PART NO.	DESCRIPTION
1	DTO5048	Swivel Clevis
2	DTO5024	Swivel Clevis Bolt
3	DTO5057	Tongue for Swivel Clevis
4	DTO5054	Tongue Hose Guide
5	770108	Hydraulic Hose Clamp
6	DTO5058	Drawbar
7	DTO5059	Leveling Bar
8	DTO5061	Leveling Pin
9	DTO5023	Leveling Cylinder, Tongue
10	DTO5060	Leveling Mechanism
11	DTO5062	Left Pull Bar
12	DTO5063	Right Pull Bar
13	DTO5064-9	Front Gang Beam - 9' 9"
13	DTO5064A	Front Gang Beam - 13' 0"
13	DTO5064B	Front Gang Beam - 14' 1"
13	DTO5064C	Front Gang Beam - 15' 2"
13	DTO5064D	Front Gang Beam - 16' 3"
13	DTO5064E	Front Gang Beam - 17' 4"
13	DTO5064E2	Front Gang Beam - 18' 5"
13	DTO5064F	Front Gang Beam - 19' 6"
13	DTO5064F2	Front Gang Beam - 20' 7"
13	DTO5064G	Front Gang Beam - 21' 8"
14	DTO5065SMF	Main Frame -9' 9"
14	DTO5065	Main Frame - 13' - 18' 5"
14	DTO5065LGF	Main Frame - 19' 6" - 21' 8"
15	DTO5066	Gauge Wheel Bracket
16	DTO5040	Transport Pin
17	DTO5067	Gauge Wheel Cylinder Block
18	DTO5047	Hydraulic Cylinder Pin - 1 ¾"
19	DTO5046	Hydraulic Cylinder
20	DTO5068	Gauge Wheel Pin
21	DTO5070	Pivot Adjusting Hinge
22	DTO5069	Pivot Hinge
23	DTO5076	Hinge Pin
24	DTO5071	Hinge Attaching Plate
25	DTO5048A	Swivel Clevis
26	DTO5048L	Swivel Clevis Lock
27	DTO5048CM	Swivel Clevis Mount

7 PARTS LIST (CONTINUED)

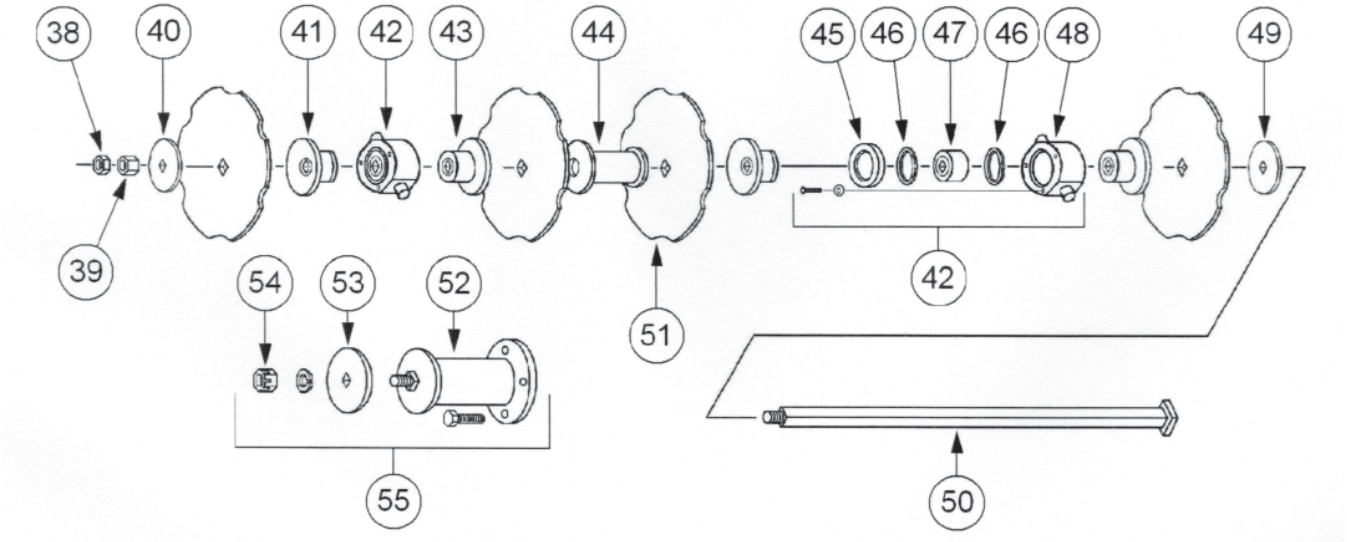
7.2 REAR GANG FRAME



REF.	PART NO.	DESCRIPTION
28	DTO5073-9	Rear Gang Beam - 9' 9"
28	DTO5073A	Rear Gang Beam - 13' 0"
28	DTO5073B	Rear Gang Beam - 14' 1"
28	DTO5073C	Rear Gang Beam - 15' 2"
28	DTO5073D	Rear Gang Beam - 16' 3"
28	DTO5073E	Rear Gang Beam - 17' 4"
28	DTO5073E2	Rear Gang Beam - 18' 5"
28	DTO5073F	Rear Gang Beam - 19' 6"
28	DTO5073F2	Rear Gang Beam - 20' 7"
28	DTO5073G	Rear Gang Beam - 21' 8"
29	DTO5072	Scraper Bar Mount Plate
30	DTO5037	Scraper Bar & Arm Cap
31	DTO5028F	Scraper Mount Arm - Front
31	DTO5028R	Scraper Mount Arm - Rear
32	DTO5027	Scraper Blade
33	DTO5074-9	Scraper Bar - 9' 9"
33	DTO5074A	Scraper Bar - 13' 0"
33	DTO5074B	Scraper Bar - 14' 1"
33	DTO5074C	Scraper Bar - 15' 2"
33	DTO5074D	Scraper Bar - 16' 3"
33	DTO5074E	Scraper Bar - 17' 4"
33	DTO5074F	Scraper Bar - 19' 6"
33	DTO5074G	Scraper Bar - 21' 7"
34	DTO5051	Bearing Mount
35	DTO5053	Bearing Mount Plate
36	DTO5052	Bearing Guard
37	DTO5072E	Extension Scraper Assembly

7 PARTS LIST (CONTINUED)

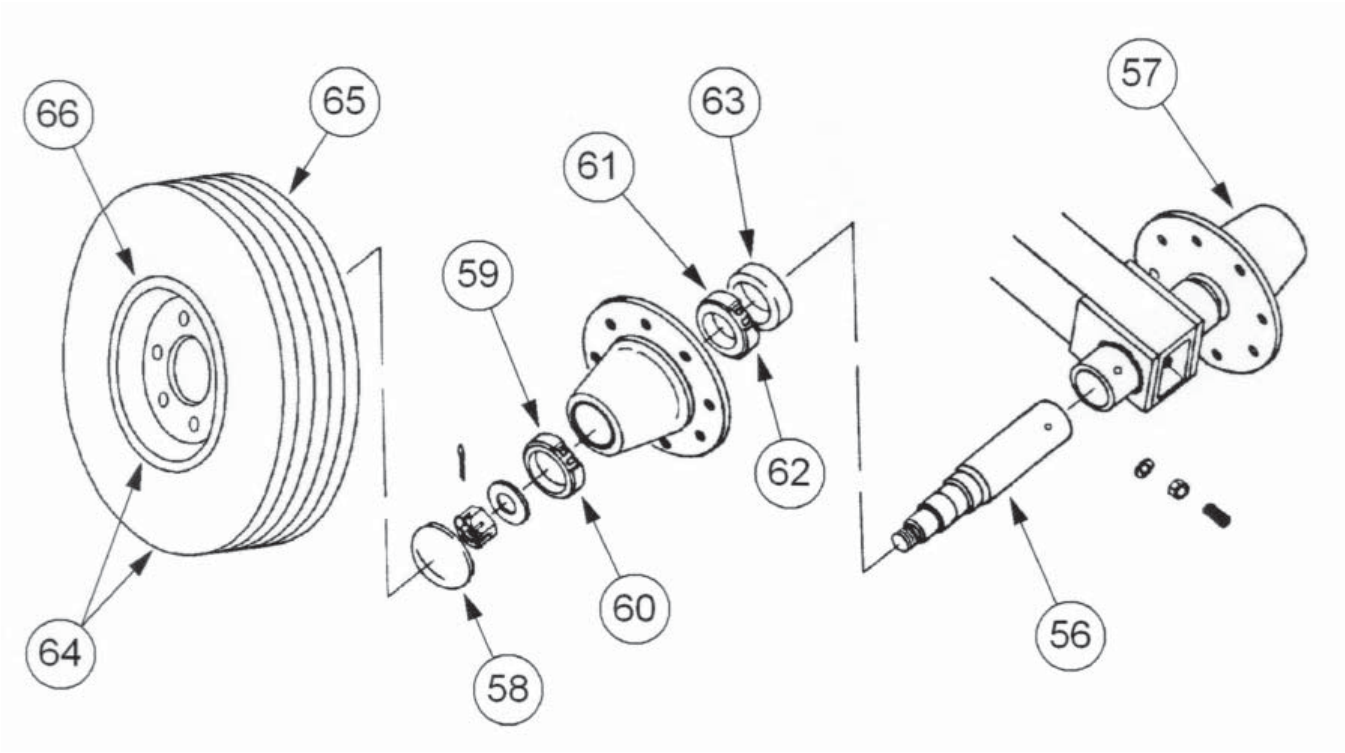
7.3 DISC GANGS



REF.	PART NO.	DESCRIPTION
38	DTO5004	Axle Jam Nut
39	DTO5003	Axle Nut
40	DTO5001	Nut Washer
41	DTO5005	Half Spool, Convex
42	DTO5012	Complete Bearing Housing with Seal
42	DTO5012A	Complete Bearing Housing without Seal
43	DTO5006	Half Spool, Concave
44	DTO5007	Full Spool
45	DTO5016	Seal
46	DTO5017	Ring
47	DTO5015	Bearing
48	DTO5014	Housing
49	DTO5000	Bumper Washer, Plain - 3 Required
49	DTO5000A	Bumper Washer, Threaded - 1 Required
50	DTO5011	Axle, 4-Blade
50	DTO5075	Axle, 5-Blade
50	DTO5008	Axle, 6-Blade
50	DTO5009	Axle, 7-Blade
50	DTO5010	Axle, 8-Blade
51	-----	Disc Blades - Call and specify
52	DTO5042	Furrow Filler Spool
53	DTO5043	Concave Washer
54	DTO5045	1 ¾" Slotted Nut
55	DTO5041	Furrow Filler Complete (less blade)

7 PARTS LIST (CONTINUED)

7.4 HUB ASSEMBLY



REF.	PART NO.	DESCRIPTION
56	770039A	Slip-on Spindle (Q821)
57	770038	Hub Complete
58	DTO5029	Dust Cap
59	DTO5030	Outer Race
60	DTO5034	Outer Bearing
61	DTO5032	Inner Race
62	DTO5033	Inner Bearing
63	DTO5031	Seal
64	DTO5080A	Wheel and Tire
65	DTO5080	Tire - 12L x 15
66	DTO5036	8 On 8 Wheel

8 LIMITED WARRANTY

GEARMORE INC.

GEARMORE, INC., warrants each new Gearmore product to be free from defects in material and workmanship for a period of twelve (12) months from date of purchase to the original purchaser. This warranty shall not apply to implements or parts that have been subject to misuse, negligence, accident, or that have been altered in any way.

Our obligation shall be limited to repairing or replacement of any part, provided that such part is returned within thirty (30) days from date of failure to Gearmore through the dealer from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any other expenses, for any other reasons.

Gearmore in no way warranties engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

Gearmore reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners or units previously sold.

GEARMORE, INC.
13477 Benson Ave.
Chino, CA 91710

Always refer to and heed machine operating warning decals on machine.

The serial number of this product is stored in our computer database, thus submitting a warranty registration card is not required.