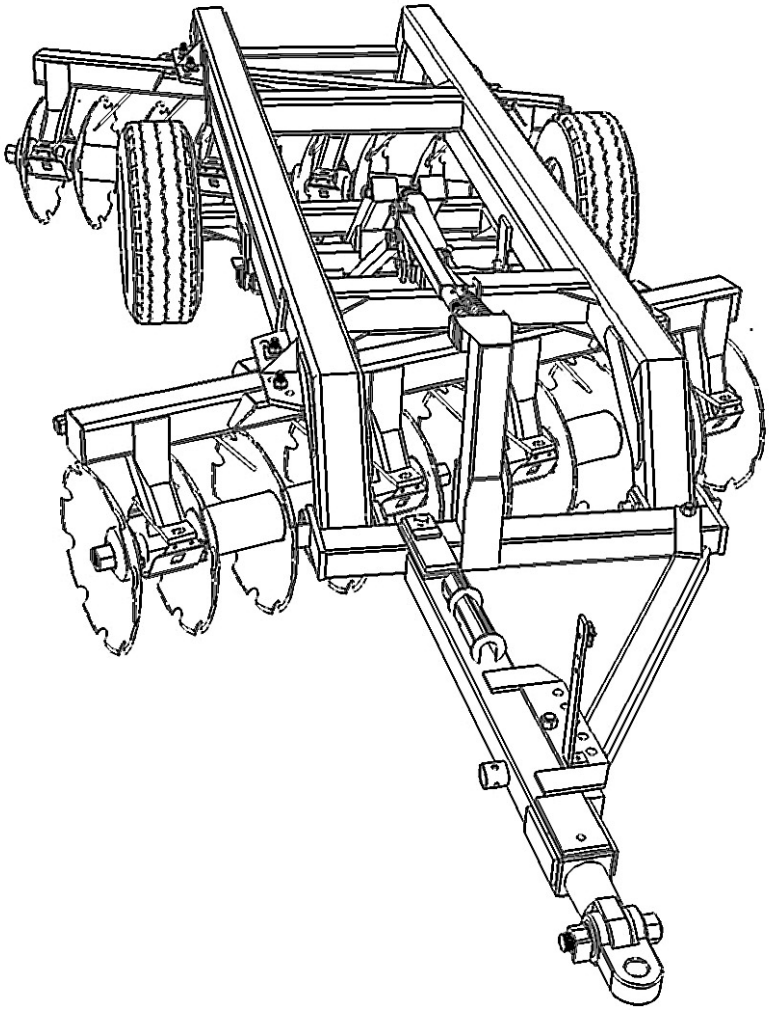
Model 400 / 500 / 600
Offset Industrial Discs

Owner's Manual



Models 400 –1830B
2030B
2230B
2430B
2630B
Models 500 – 1832B
2032B
2232B
2432B
Models 600 – 1636B
1832B
2036B
2236B

KELLO-BILT

#16-37337 Burnt Lake Trail
Red Deer County, Alberta
CANADA T4S 2K5
Phone: (403)347-9500
Toll Free: (877) 613-9500

Introduction

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may be ordered from your Kello-Bilt dealer.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

MEASUREMENTS in this manual are given in customary Imperial units. Only use the correct replacement parts and fasteners.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction the implement will travel when going forward.

WRITE DOWN PRODUCT IDENTIFICATION NUMBERS. Accurately record all the numbers to help in tracing the machine should it be stolen. Your Kello-Bilt dealer also needs these numbers when you order parts. File the identification numbers in a secure place away from the machine.

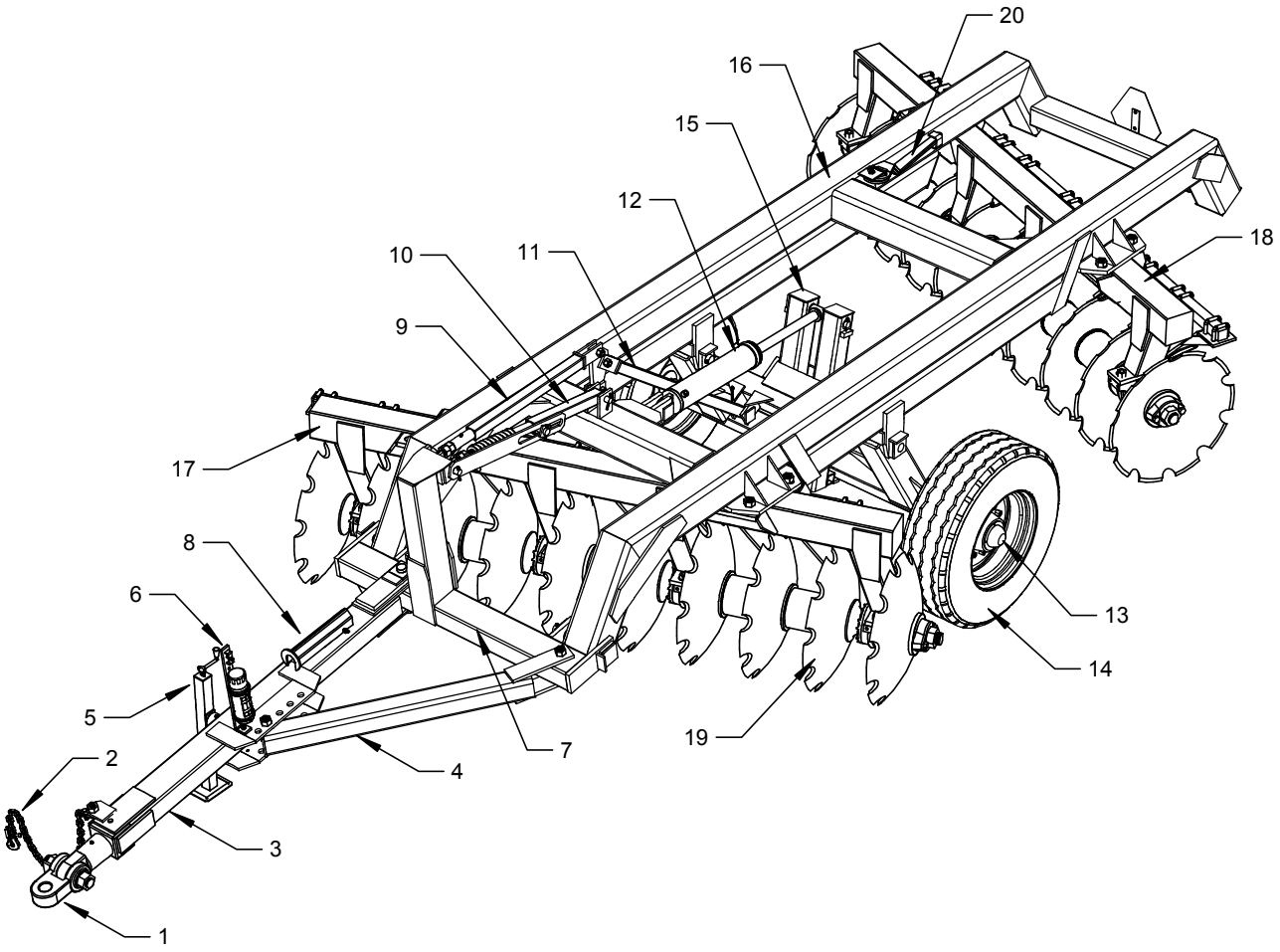
WARRANTY coverage is provided by Kello-Bilt according to the terms of the Construction, Utility, and Forestry Products Standard Warranty Statement. Carefully read the warranty statement on the back of your original purchase order for details on coverage and limitations of this warranty.

This warranty provides you the assurance that Kello-Bilt will back its products where defects appear within the warranty period. In some circumstances, Kello-Bilt also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused or modified to change its performance beyond the original factory specifications, or if the equipment is used for a purpose other than that which it was designed for, the warranty will become void and field improvements may be denied.

THE TIRE MANUFACTURERS warranty is separate and apart from the equipment warranty and may not apply outside Canada or the U.S.

Contents

PRODUCT GENERAL ARRANGEMENT AND IDENTIFICATION



1. Hitch Tongue
2. Safety Chain
3. Hitch
4. Side Arm
5. Jack
6. Hose Holder & Manual Cannister
7. Bridle
8. Transport Stay (Storage Location)
9. Top Transport Control Arm
10. Leveling Control Arm
11. Bottom Transport Control Arm
12. Hydraulic Cylinder
13. 10-Bolt Hub
14. Wheel and Tire Assembly
15. Transport Assembly
16. Main Frame
17. Front Gang Bar c/w Scraper Bar
18. Rear Gang Bar c/w Scraper Bar
19. Disc Gang
20. Gang Wrenches

General Information

TO THE DEALER

Assembly and delivery of this product is the responsibility of the Kello-Bilt dealer. Read manual instructions and safety rules. Make sure all items on the Dealers Pre-Delivery and Delivery Checklists in the Operators Manual are completed before releasing the equipment to the owner.

TO THE OWNER

Read this manual before operating your Kello-Bilt equipment. The information presented will prepare you to do a better job. Keep this manual handy for ready reference. Require all operators read this manual carefully and become acquainted with all the adjustment and operating procedures before using the equipment. Replacement manuals can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it requires cleaning and upkeep. Lubricate the unit as specified. Many of the features of this equipment necessary for it to perform its intended task are inherently dangerous, so please observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Kello-Bilt dealer has trained mechanics, genuine original manufacturer service parts and the necessary tools and equipment to handle your needs.

Use only genuine original manufacturer service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided.

Date of Purchase _____

Model _____

Serial Number _____

Provide this information to your dealer to make a warranty claim or obtain correct repair parts.

Checklists

PREDELIVERY CHECKLIST: After the disk has been completely assembled and lubricated, inspect it before delivery to the customer to ensure proper operation. Check off each item of inspection in the list as it is found satisfactory.

- □ The disk has been assembled according to instructions and all nuts and bolts are present and tight.
- □ All grease fittings are installed and the disk has been lubricated.
- □ Tires are properly inflated and wheel lug nuts are present and properly torqued.
- □ Disk gangs rotate freely without dragging on scrapers.
- □ Check all pins to make sure retaining hardware is in place.
- □ Touch-up paint damage due to shipping and assembly.
- □ Connect disk to tractor drawbar, connect hydraulic hoses and check the hydraulic system for leaks and proper operation of the hydraulic cylinder.
- □ Safety chain is attached. SMV sign is installed and visible from the rear of disk.
- □ Light Kit is installed and operating correctly. All safety decals are present and legible.
- □ This disk has been checked and to the best of my knowledge, is ready for delivery to the customer.

Set-Up Date _____ **Signature of Assembly Person** _____

DELIVERY CHECKLIST: The following list is a reminder of important information that should be conveyed directly to the customer upon delivery of the disk. Check off each item as it is fully explained.

- □ Advise customer the life expectancy and performance of this, like any other machine, is dependent on regular lubrication and maintenance as described in this manual.
- □ Explain the importance of safe and proper operation of the machine. Point out decals warning the operator of the dangers of unsafe operation procedures and conditions.
- □ The customer has been told to keep all bolts tight.
- □ When the disk is transported on road or highway at night or during the day, accessory lights and devices should be used for adequate warning to operators of other vehicles. Replacement safety lights and safety devices are available from your Kello-Bilt dealer. In this regard, suggest customers check their local governmental regulations.
- □ Insure completion of the Delivery Registration forms, listing the Serial Number of the machine.
- □ Show the customer how to hitch the machine and operate the controls relating to the machine.
- □ Explain the adjustments for proper operation of the disk.
- □ Advise use of the safety chain.
- □ Give the Operators Manual to the customer and explain all operating adjustments and lubrication fully.
- □ To the best of my knowledge, this machine has been delivered ready for use and the customer has been fully informed as to its proper care and operation.

Set-Up Date _____ **Signature of Delivery Person** _____

Checklists

AFTER-SALE CHECKLIST: It is suggested the following items be checked sometime during the first six months operation of the disk.

- □ Check the entire disk for loose or missing hardware.
- □ Check for broken or damaged parts. Make necessary repairs.
- □ Re-torque the hardware with special attention to the gang axle nuts and locks.
- □ Safety chain is properly installed and undamaged.
- □ If possible, run the disk to insure it is functioning properly.
- □ Check the bearing wear plates are present and not excessively worn.
- □ Visually check the oil-bath bearing for leaks. If parked unused for a long period in extreme weather conditions, there may be seepage due to expansion and contraction of the metal duo-cone seals. This condition will correct itself when the disk is operated. Lost oil should be replaced before operation.
- □ Review the entire Operators Manual with the customer and stress the importance of proper and regular lubrication and safety precautions.
- □ Advise the customer of optional attachments that are available.

Date Checked_____ **Signature**_____

EACH DAY OF OPERATION CHECKLIST

- □ Lubricate items required daily and those whose lubrication time is due.
- □ Look for loose or missing bolts and parts.
- □ Check hydraulic system for leaks and abraded hoses.
- □ Check tire pressures and wheel lug nuts.
- □ Check all pins have retaining hardware in place.
- □ Check all oil-bath bearing assemblies for leaks. Check bearing wear plates are present.
- □ Be sure all gang components are tight on the axles and axle nuts are tight and axle locks are present.

BEFORE EACH SEASON CHECKLIST

- □ Be sure recommended lubrication is performed.
- □ Inspect all oil-bath bearing assemblies are tight and dry and if wear plates need replacement.
- □ Check hydraulic system for proper operation and leakage.
- □ Check tire pressures and wheel lug nuts. Check for end play in wheel bearings and repack if necessary.
- □ Be sure proper operating adjustments have been made for your conditions.

Safety Decal Identification and Placement

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	LG2KB	KELLO-BILT Decal	2
2	-see parts section	Model Number Decal	2
3	RFLYW	Yellow Reflector Strip	4
4	DWPHF	WARNING - Avoid serious injury from injection of pressurized.....	1
5	DCASI	CAUTION - To Avoid Serious Injury:	1
6	DDDNA	DANGER - To avoid injury or death, do not adjust.....	1
7	DWMTS	WARNING - Do not exceed implements maximum transport speed.....	1
8	DWPPH	WARNING - Pinch Point Hazard	1
9	DWICL	WARNING - Avoid serious injury from crushing or pinning.....	1

Safety First Guidelines

When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Indicates death or serious injury will result if proper precautions are not taken.

Indicates death, serious injury or property damage can result if proper precautions are not taken.

Indicates some injury or property damage may result if proper precautions are not taken.

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your Kello-Bilt dealer.

Learn how to operate the machine and how to use the controls properly. Do not let anyone operate the machine without instruction. Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your Kello-Bilt dealer.

Prepare for Emergencies: Keep a first aid kit and a fire extinguisher handy. Keep emergency numbers for doctors, ambulance service, hospital and fire department nearby.

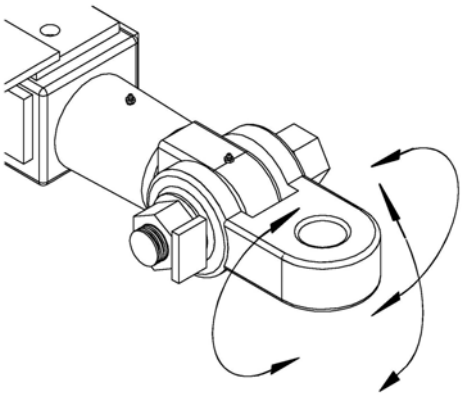
Wear Protective Clothing: Wear close fitting clothing and safety equipment appropriate to the job. Operating equipment safely requires the full attention of the operator. Do not wear headphones or use a cell phone while operating the machine.

Protect Against Noise: Prolonged exposure to loud noise can cause hearing impairment or loss. Wear suitable hearing protection to prevent damage to your hearing.

Store Equipment Safely: Securely store equipment by either lowering to ground or chocking wheels to prevent movement. Do not allow children or others to play on or around equipment.

Dispose of Waste Properly: Improperly disposing of waste can threaten the environment and the ecology. Potentially harmful waste used in this equipment includes gear oil in the oil-bath bearings and fluid in the hydraulic system. Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them. Do not pour waste onto the ground, down a drain or into any water source. Obtain information about the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your Kello-Bilt dealer.

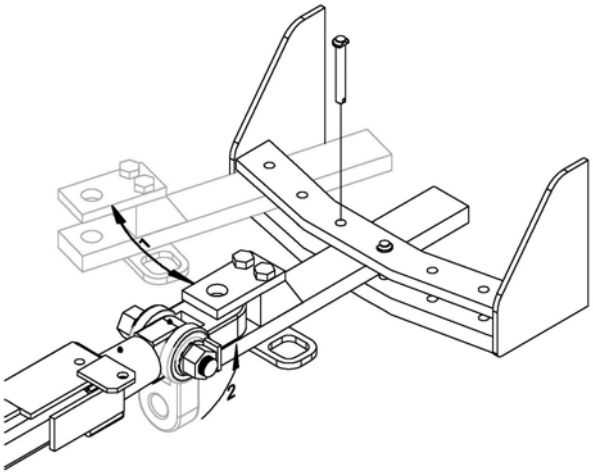
Attaching the Disk to the Tractor



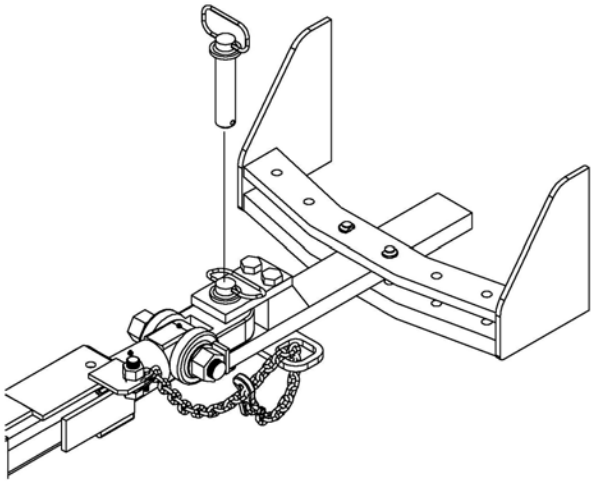
The disk is equipped with a heavy tongue that both flexes and swivels to accommodate the most rugged terrain including large rocks and tree stumps. This is an essential design feature; however it requires extra care when attaching the disk to a tractor.

For best results, the tractor used to pull this unit should be equipped with a swinging drawbar with a clevis end.

The following procedure is recommended.



This procedure is best carried out with the disk in the raised position and the transport lock installed over the hydraulic cylinder. Use the hitch jack to raise or lower the tongue to the level where the tongue will lay on the drawbar. Unpin the swinging drawbar and slide it to one side. Back the tractor to the approximate point where swinging the drawbar back to the center will trap the tongue in the clevis. With the tractor parked and the brake engaged, lift the tongue (2) and swing the drawbar into the center position (1).



Install the drawbar pin and its retaining hardware. This may require moving the tractor forward or backward slightly. An articulated tractor or belted tractor can swing the drawbar side to side by turning the steering wheel slightly. This procedure may take more than one attempt – *safety takes time.*

Attach the safety chain.

If the tractor is not equipped with a swinging drawbar, it is recommended to fabricate a prop from a length of wood to hold up the tongue while the tractor is backed into place.

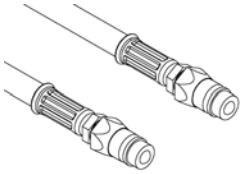
CAUTION:

Do not allow others to stand between the tractor and disk when moving the tractor.

Do not allow someone to hold up the tongue while backing the tractor into place.

Prevent serious injury or death to you or others caused by unexpected movement of the machine. Engage the parking brake and/or place transmission in PARK, shut off engine and remove key before working around hitch.

Transporting the Disk

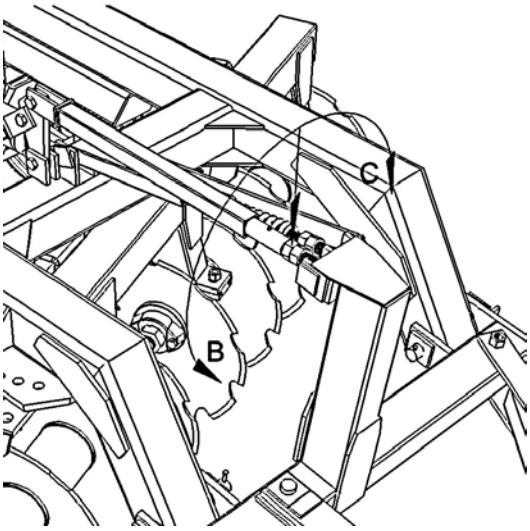


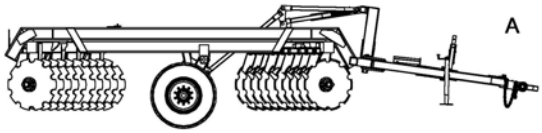
- □ Clean both quick disconnects and tractor couplers before connecting. Shut off the tractor engine and move the hydraulic levers back and forth to relieve pressure in the hydraulic system. Connect the hydraulics hoses to the tractor hydraulic couplers. For ease of use it is recommended the hoses be attached in the order which lowers the disk when the hydraulic lever is pushed forward and raises it when the lever is pulled back.

⚠ CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid this hazard by relieving the pressure before disconnecting hydraulic or other lines. Tighten all the connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

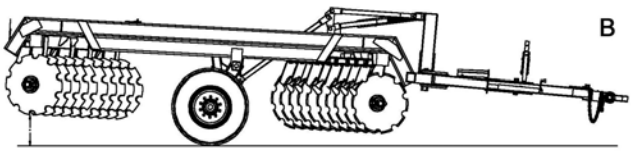
- □ Turn jack handle to take weight off hitch jack. Unpin jack, remove pin, swing jack up into transport (i.e. horizontal) position and re-pin.
- □ If the tractor is equipped with a swinging drawbar. Make sure the drawbar is locked in the center position.
- □ Connect warning lights to the tractor outlet and make sure they are functioning properly. Make sure the SMV sign is installed and visible from the rear of the machine.
- □ Check tire pressure and adjust if necessary.

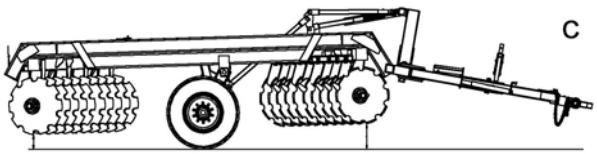
Adjusting the Transport Levelling Control Arm





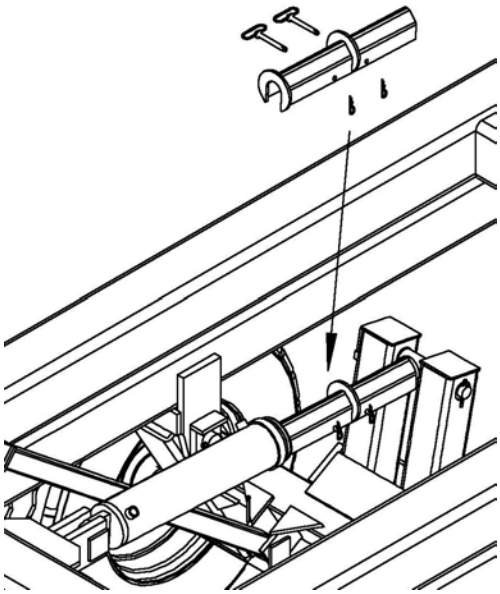
With the disk attached to the tractor, the hydraulics connected and with the transport stay removed from the hydraulic cylinder; the machine can be adjusted to transport level as in illustration A. The adjustment is carried out by turning the nut indicated in the illustration. When the disk is raised out of the ground in the transport position, there is a significant amount of pressure against this nut. Therefore, to make the adjustment easier, lower the disk to the ground to take the pressure off the nut. The nut can then be turned easily by hand or with a large adjustable wrench. To tilt the disk forward as in illustration B, turn in the direction indicated as B. To tilt the disk back as in illustration C, turn in the direction indicated as C. It may be necessary to raise and lower the disk a number of times to attain the desired result. Once the disk is level, lock the nut in position with the second nut on the eyebolt shaft. This adjustment remains unchanged as long as there is no change in the hitch height of the tractor.





⚠ WARNING: To avoid serious injury to self or to others, do not allow anybody on or near the disk when it is being raised or lowered. In particular, if someone other than the tractor operator is making adjustments to the disk, the tractor should be switched off while the adjustments are being made and only restarted when that person is well clear of the disk.

Transporting the Disk



- Raise the disk to its maximum height by completely extending the hydraulic cylinder. Install the transport stay over the hydraulic cylinder rod with the plated end against the head gland of the cylinder. Install the pins provided. Switch the tractor off and move the hydraulic lever back and forth, releasing the pressure in the system and allowing the weight of the disc to be taken up by the transport stay.

⚠ Transport Safety ⚠

- Never allow riders on the tractor or disk. Serious injury or death can result from falling in the path of the disk while in operation or transport.
- Observe laws and regulations while transporting disk. Never transport disk at speeds greater than 20 mph (32 km/h). Reduce speed and exercise caution on turns, bridges, rough roads, steep grades and other adverse conditions.
- Install all locking devices before transporting disk. Without these devices installed, the disk could fall during transport and cause injury or death to the operator or bystanders and/or damage to the disk, tractor and property.
- Always used safety chains to secure the disk to the tractor during transport. Provide only enough slack in chain to permit turning. A safety chain will help control drawn equipment should it accidentally separate from the drawbar.
- Ensure the load does not exceed the recommended specifications of the tractor. The tractor must be heavy and powerful enough with adequate braking power for the towed load.
- Keep the SMV emblem and side and rear reflectors clean and visible.
- Use headlights, flashing warning lights and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible and in good working order. Replace or repair lighting or marking that has been damaged or lost.
- Use the proper size and grade of pin to attach the disk to the tractor.
- If the tractor is equipped with a swinging drawbar, be sure to pin it in the center position before transporting the disk.
- Check wheel lug nuts for tightness and ensure tires are properly inflated and free of damaging cuts and abrasions. The failure of either of these components can cause the disk to swing uncontrollably and make it difficult to control the tractor.
- Remove debris and loose soil from the disk before traveling on public roads. Falling debris and soil can be a hazard to following and approaching traffic.
- Do not tow another implement behind the disk unless proper modifications have been made and it is permitted by local ordinances.

⚠ Operating Safety ⚠

- □ Become familiar with the disk and its operation before using the unit. Read this manual carefully and contact your dealer if you have any questions.

- □ Never allow riders on the tractor or disk. Serious injury or death could result from falling in the path of the disk while in operation or transport.

- □ Be sure bystanders are clear of the disk before raising or lowering the disk. Accidental movement of the controls or hydraulic failure could cause the disk to suddenly fall.

- □ Be sure bystanders are clear of the disk before operating the disk. Before entering the tractor, walk around the disk making sure no one is on, under or in front of the disk. Moving the disk while someone is between or in front of the gang assemblies could result in serious injuries or death.

- □ Never work under a raised disk. Always lower the disk to the ground before inspecting or servicing. Never rely on the hydraulic system to hold up the disk.

- □ Use extreme caution when working around disk blades. The blades are sharp and could cut hands, legs, etc. Wear gloves to handle disk blades or gang assemblies.

- □ Do not operate close to ditches, deep bodies of water or on excessively steep slopes.

- □ Before dismounting from the tractor to service or make adjustments, always

    1. Lower the disk to the ground.
    2. Shut the tractor off.
    3. Engage the tractor's parking brake or place transmission in park.
    4. Relieve the hydraulics by moving the control back and forth.
    5. Remove the key.

  Unanticipated movement of the disk while working around the disk gangs could result in serious personal injury or death.

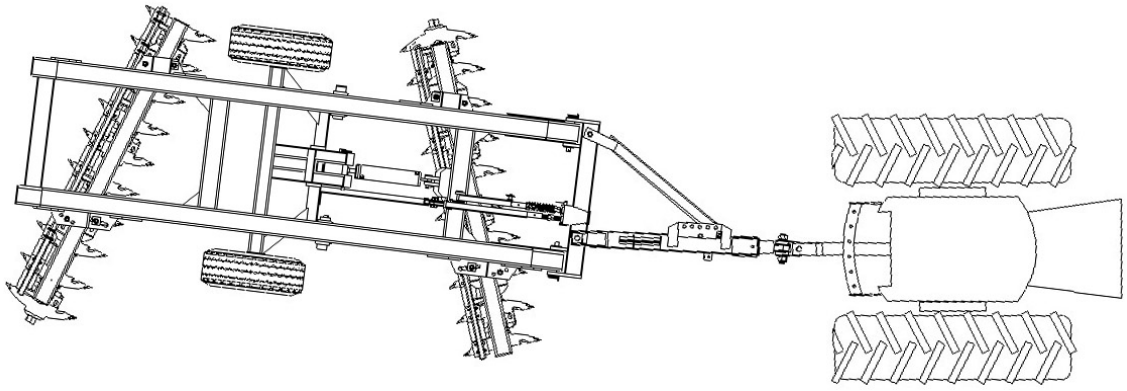
Operating the Disk

General Operating Guidelines

- □ Use the recommended size tractor. Weight is as important as horsepower. Too light a tractor will be overpowered by the plowing action of the disk and its front end will be swung to the left, requiring constant steering corrections.
- □ Always raise the disk out of the ground before turning. If pulling a harrow, roller or other toolbar behind the disk, raise the disk just clear of the ground before turning.
- □ In the field do not back-up with the disk in the fully raised position. This will prevent the disk from overbalancing to the rear which may damage the control arms.
- □ Speed, depth and soil type all determine how level the ground left behind the disk. To minimize ridging or gouging, limit the disking speed to 4-6 mph.
- □ On tractors equipped with a swinging drawbar, allow the drawbar some movement when working in level or gently rolling fields. In severely rocky conditions, heavy clay or tree stumps allow more swing in the drawbar. In all other conditions, lock the drawbar in the center position.
- □ Pulling a drag or heavy harrow behind the disk can reduce side draft and aid in levelling the soil.

Disk Adjustments

All single offset disks have a single characteristic in common. Because the front gang of disk blades are set at an angle to their direction of movement and because these blades are working in “new” ground compared to the rear disks which are working in ground already partially tilled by the front blades, a single offset disk tries to rotate clockwise as it is pulled forward through the field. To perform optimally and to reduce stress and premature wear on components, it is desirable that the machine draft in a straight line behind the tractor. As well, the concavity of the disk blades is such that in the center angle setting the blades will accomplish the most tillage with the least horsepower and minimum wear to the blades. When the disk drafts to one side (i.e. “dog tracking” or “crabbing”) the gang angles are changed and the quality of the tillage suffers.
There are three types of adjustments that affect the draft of the disk.

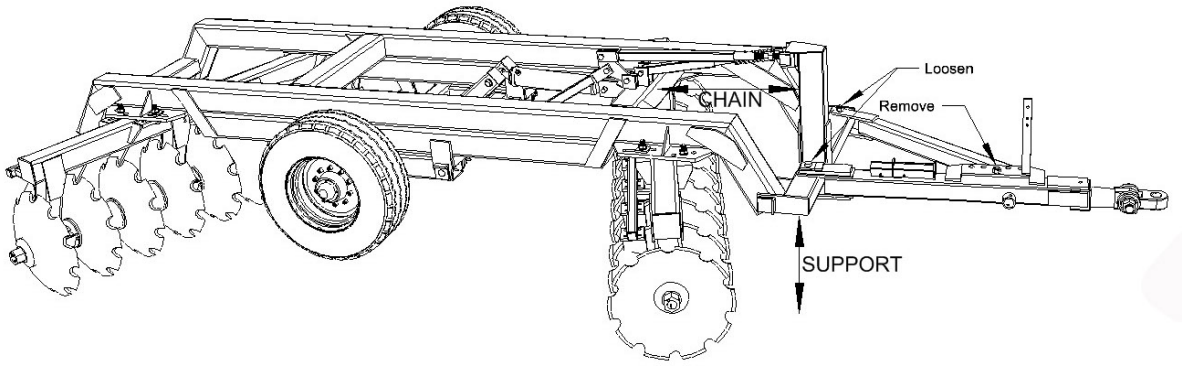


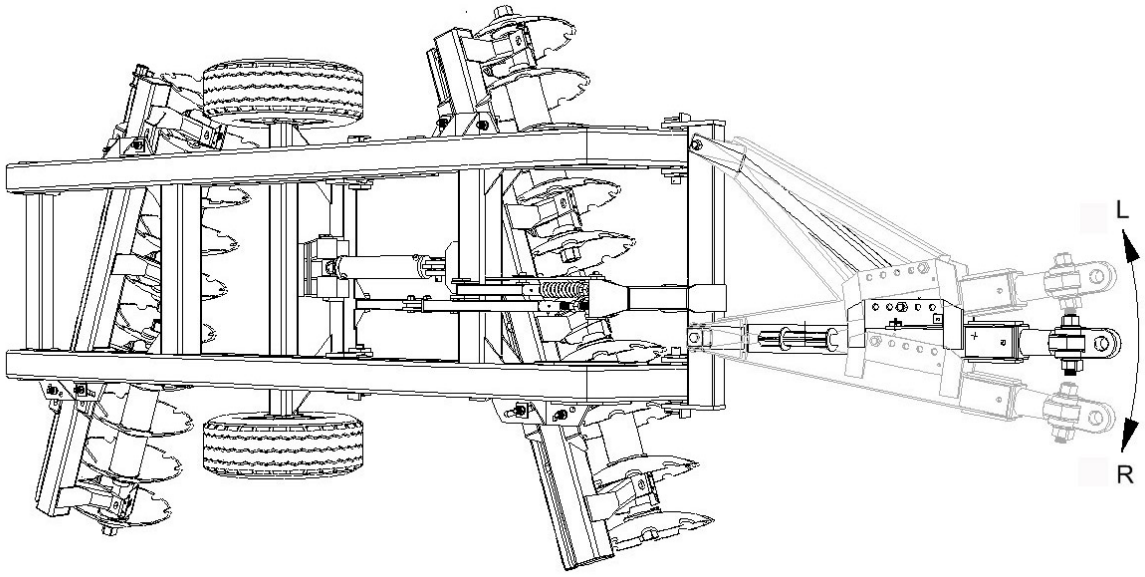
REPOSITION THE HITCH.

This adjustment is best accomplished when the disk is not attached to the tractor. Support the bridle crossbar to which the hitch and side arm are attached with a jack and stand. Alternatively the head of the bridle mast can be chained back to the first member of the main frame. Next loosen the large fabricated bolt and the 1-1/4” bolt attaching the hitch and side arm to the bridle. Remove the 1-1/4” bolt attaching the side arm to the plates on the side of the hitch.

The hitch bar can be placed in five fixed positions. Moving the hitch towards “L” as illustrated will cause the rear of the disk to move to the left when viewed from behind. Moving towards “R” will cause the rear of the disk to move to the right when viewed from behind.

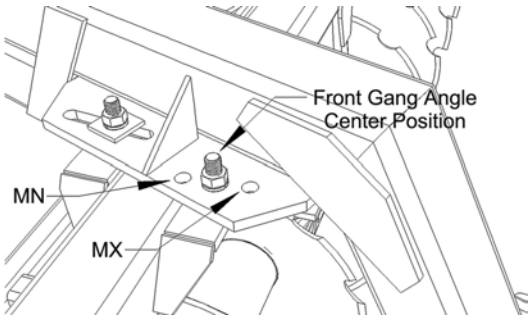
Swing the hitch to the desired position and reattach the side arm through the appropriate bolt holes in the plates on the side of the hitch. Tighten the 1-1/4" bolts to 1500 ft/lbs and the 2" fabricated bolt to 2000 ft/lbs and recheck after the next 10 hrs of use.

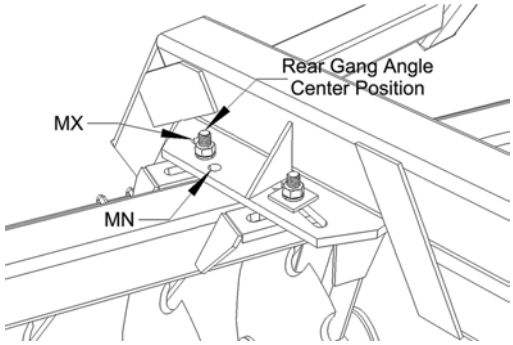


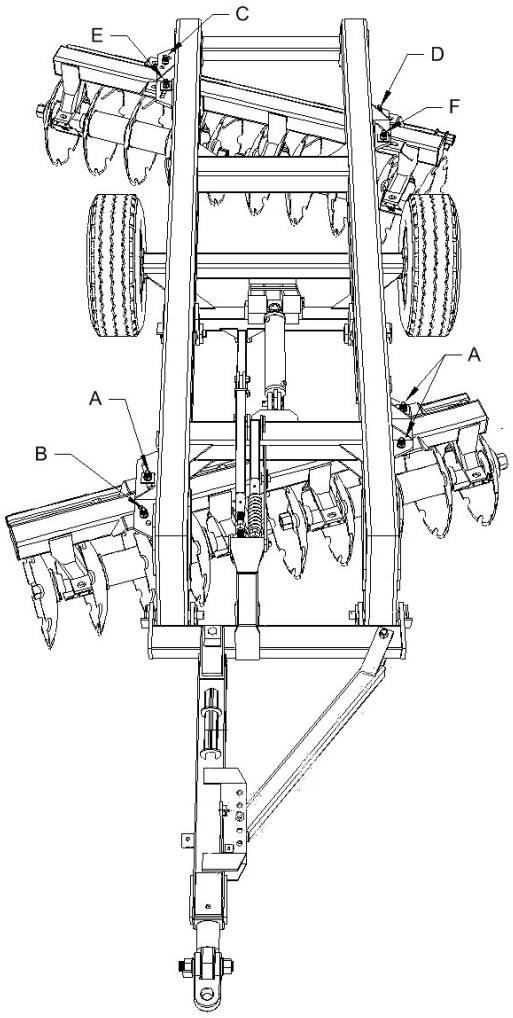


CHANGE THE GANG ANGLES

Changing the angle of the front and rear gangs will affect the penetration of the gangs and mixing of the soil. By changing the gang angle, the operator can adjust for different soil conditions and change draft of the disk. Too little total angle between the gangs (minimum angles – MN) may leave uncut areas and poor penetration. Too much total gang angle (maximum angle – MX) may cause the disk to side draft in hard or soft ground conditions. The maximum front gang angle may cause the gang to bulldoze so the soil will not flow through the disk blades. The ideal situation is for the front and rear gangs to have equal amounts of angle so they both plow to the same depth.



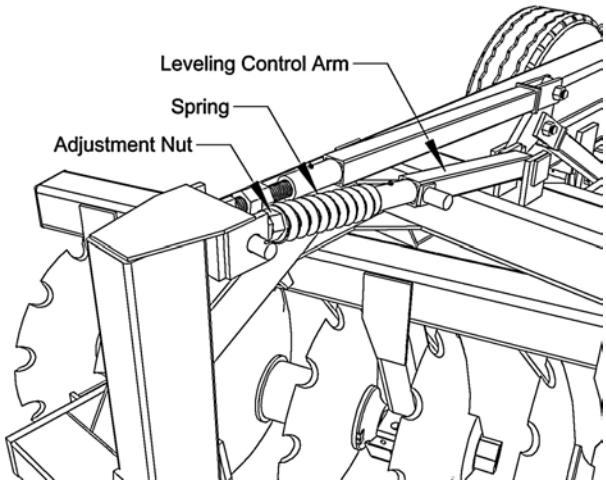




To change the angle of the front gang, loosen the bolts at positions A and remove the bolt at position B. With the disk slightly lowered into the ground, use the tractor to carefully move the disk either forward or backwards to the desired position. Reinstall bolt B and tighten all four bolts to 1500 ft/lbs.
To change the angle of the rear gang, loosen the bolts at positions D, E and F and remove C.

The rear gang of the disk can also be adjusted from side to side. If the rear gang is moved to the left, it increases the amount of soil being thrown into the furrow. If the rear gang is moved to the right, it will decrease the amount of soil being thrown into the furrow. To shift the rear gang, loosen the bolts at positions C and F and remove the bolts at D and E. With the disk blades resting on the ground, moving the disk either forward or backward will cause the gang carrier to shift to the right or left as desired. Align the bolt holes, reinstall the bolts and tighten all four bolts to 1500 ft/lbs.

Increasing the angle of the rear gang relative to the front gang, may correct a condition where the front gang is causing the disk to dog track behind the tractor.



ADJUST THE LEVELING CONTROL ARM

The leveling control arm is used to transfer pressure to the rear of the disk in order to increase penetration of the rear disk blades. Pressure is increased by tightening the adjustment nut against the spring. This adjustment is easiest to make when the disk is in the raised transport position and there is no pressure on the nut. Once the desired setting is made, lock the first nut with the second nut on the eyebolt. When the disk is lowered to the operating position, take care the spring is never fully compressed. Increasing pressure against the spring will put more down pressure on the rear blades. Carrying the disk slightly with the wheels while operating will allow the disk to pivot on the wheels and result in more even blade penetration front to rear. If the disk is operated with the wheels fully raised, little or no pressure should be placed on the spring. If disking through a sharp depression or ditch, raise the disk slightly to prevent excessive pressure on the spring and levelling arm.

Increasing pressure on the rear gang can reduce dog tracking by creating a side thrust opposite to the thrust of the front gang.

Service and Maintenance Safety

- □ Before servicing the disk, always:

  1. Lower the disk to the ground.
  2. Shut the tractor engine off.
  3. Engage the tractors parking brake and/or place transmission in park.
  4. Relieve the hydraulics by moving the control lever back and forth.
  5. Remove the ignition key.

- □ Never work under a raised disk. The disk could fall suddenly causing serious personal injury. Never rely on the hydraulic system to hold the disk up.

- □ Periodically visually inspect the entire disk. Hydraulic fluid leaks and broken, missing or faulty parts can create a hazard. Make necessary repairs.

- □ Use caution when inflating tires. Use a clip-on air chuck, extension hose with gauge, and stand to one side away from the tire when inflating to avoid the possibility of personal injury due to blow-offs, etc. Maintain proper air pressure in the tires. Never exceed the manufacturer's maximum p.s.i. displayed on the sidewall of the tire.

- □ Before disconnecting any hydraulic line relieve the pressure. Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing serious personal injury. If injured by escaping hydraulic fluid, obtain medical treatment immediately.

- □ Handle the gang assemblies with care. The disk blades are sharp and can cut or slice skin. Use chock blocks to prevent the gang assemblies from rolling during servicing. Wear gloves when handling the disk blades or gang assemblies.

- □ After working on the hydraulic cylinder or any other components of the hydraulic system, carefully cycle the hydraulic cylinder several times to purge air from the system and check all components for leaks. Always be sure the hydraulic lines are free of air and do not leak. ORB fittings may not leak even though they are only finger tight – tighten with a wrench. Check hydraulic hoses for cuts or abrasions and replace if necessary.

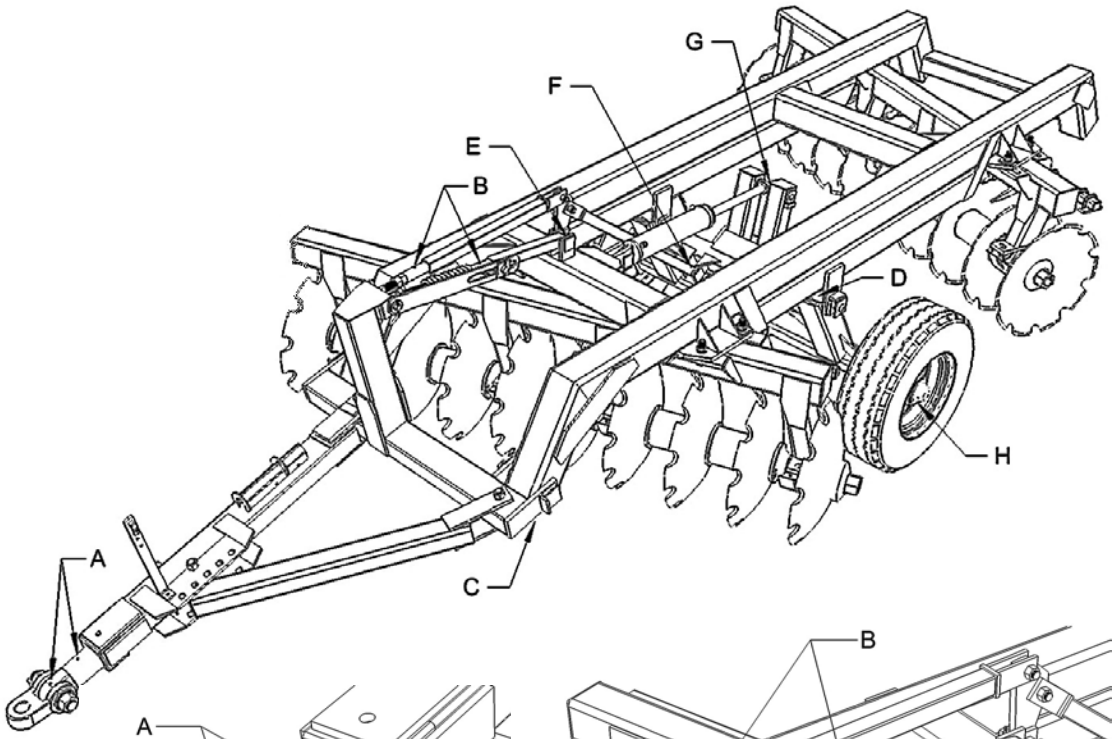
- □ Securely support any machine elements that must be raised for service work. Use suitable lifting devices and support stands where required. If using chains or straps make sure they are of sufficient strength for the load and are in good repair.

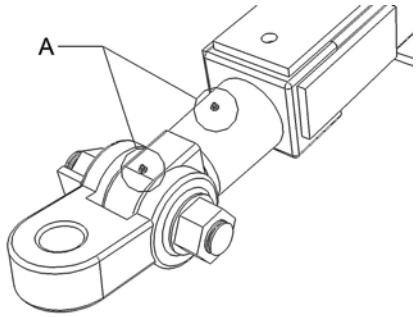
- □ To avoid injury wear gloves, steel-toe boots, safety glasses, hearing protection, safety helmet and other safety equipment where warranted.

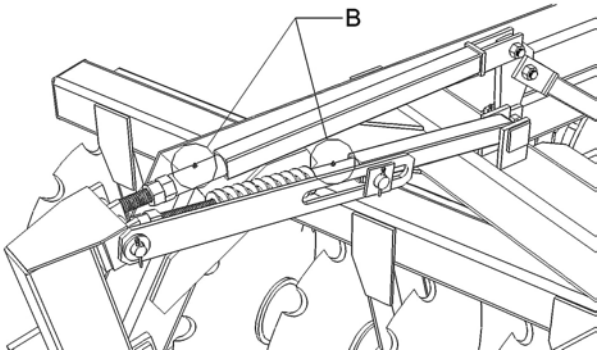
- □ Understand the service procedure before doing the required work. Keep the work area clean and dry.

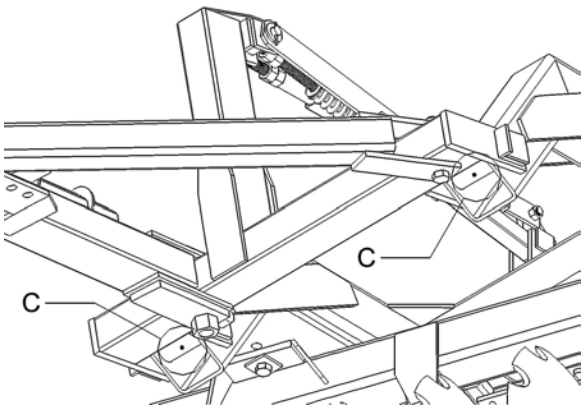
Lubricate the Disk

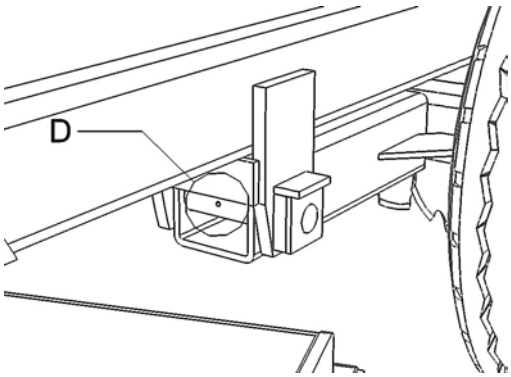
- The following illustrations highlight those areas of the disk subject to stress and wear. Unless indicated otherwise, these fittings should be greased daily or after every 10 hours of operation.
- Use a pressure lubrication gun and apply a sufficient amount of No. 2 multi-purpose lithium grease or equivalent to flush out the old grease. Wipe the grease fitting clean before greasing.
- Grease all fittings before first use of the season and before storage at the end of the season.

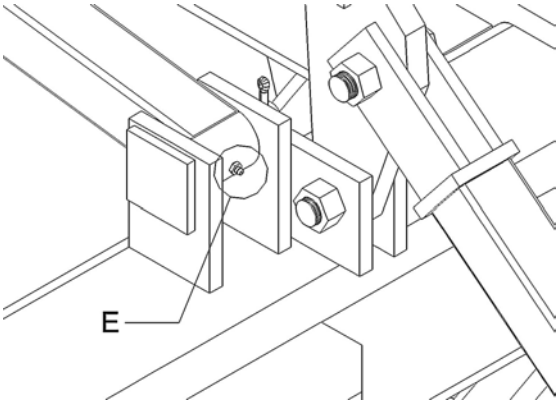


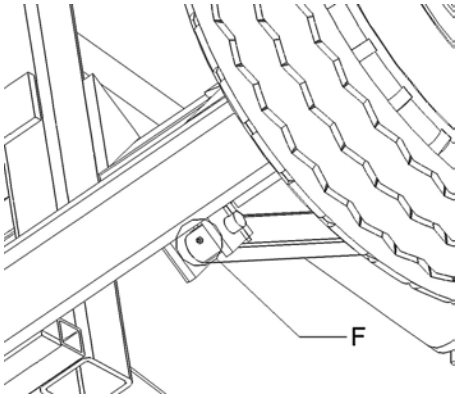


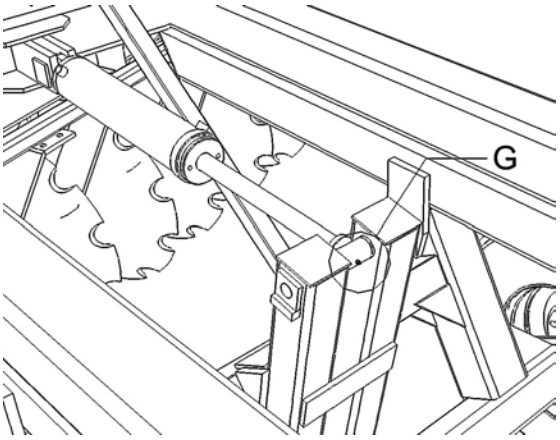


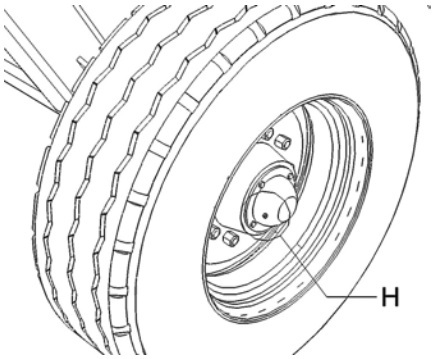








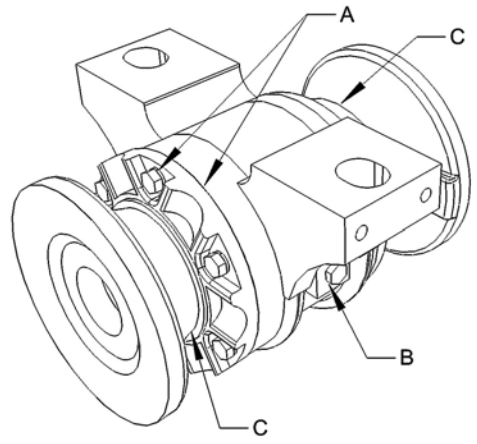




Grease wheel bearings (H) sparingly – six “shots” of grease every 150 hours.

Check the Oil-Bath Bearings

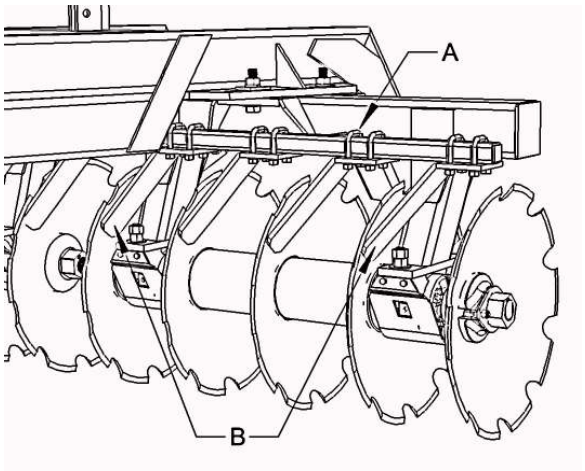
Visually check the oil-bath bearings daily. Oil-bath bearing assemblies can leak oil from three locations and attention should be paid to these areas. **A** - Oil can seep from between the bearing housing and the end cap or from around the bolts that hold the end cap to the housing. This condition is caused by loose bolts or damaged gaskets. Gaskets are placed between the end cap and the housing to preload the taper bearings in the housing. The solution is to tighten the bolts (30 ft/lbs) or replace the gaskets. **B** – Oil can seep past the check plugs. Plugs may use a pipe thread. Remove, clean the threads, apply “pipe dope” or Teflon tape and reinstall. **C** – Oil may seep by the metallic duo-cone seals. This may be caused by worn seals, loose gang axles or extreme temperature fluctuations. Worn seals should be replaced immediately to prevent catastrophic bearing failure. Such a failure will ruin all the other components of the bearing. Loose gang axles can allow the bearing flanges to move outwards and thereby allow the seals to separate. Be sure to keep gang axles tight. Because the seals are made of metal, they can expand and contract with extreme temperature fluctuations. When they contract the sealing surfaces separate and small amounts of oil can escape. This will normally occur when the disk is in storage. Putting the disk to use will normally allow the seals to re-seat themselves. Check the oil and add 90W gear oil if necessary.



Adjusting the Scrapers

Adjust the scrapers as close to the disk blades as possible without touching the blades. To move a scraper first loosen equally the u-bolts (A) holding it to the scraper bar. Use a hammer to alternatively tap the top side of the u-bolts and the scraper itself in the required direction. Once in position tighten the u-bolts equally. Turn the blades occasionally while tightening the u-bolts to ensure the scraper is not contacting the disk blade.

In some conditions (e.g. heavy trash or virgin ground) plugging can occur at the bearings. Removing the scrapers (B) at these locations can alleviate the problem.

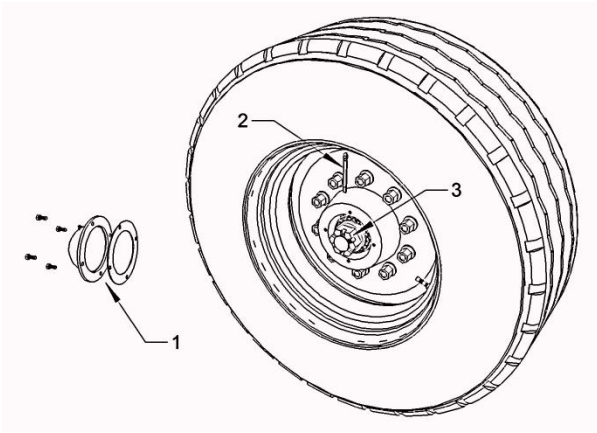


Repack and Pre-Load Wheel Hub Bearings

The wheel bearing pre-load should be set periodically or more often if transported frequently. Raise the tire so it can rotate and:

1. Remove the dust cap and gasket from hub.
2. Remove cotter pin from nut and spindle.
3. While turning the tire tighten the castellated nut until there is a slight but noticeable drag on the bearing. Do not back the nut off. Place the cotter pin in the nearest hole to secure the nut. Replace the dust cap and gasket.

Repack the wheel hub bearings yearly by:



1. Remove the tire from the hub.
2. Remove the dust cap and gasket.
3. Remove the cotter pin and remove the castellated nut from the end of the spindle.
4. Slide the hub off the spindle.
5. Clean bearing cones, dust cap and nut with kerosene or other appropriate solvent.
6. Clean the inside of the hub and inspect the bearing cups and the seal. If they show excessive wear or are damaged, replace both the cups and cones and seal. Though it is not always necessary, it is advisable to replace the seal whenever repacking the hubs.
7. Pack the bearing cones and inside cavity of the hub with No. 2 multi-purpose lithium grease or equivalent. Make sure no foreign material contaminates the lubricant.
8. Place the rear bearing cone into the back of the hub and press the seal into the hub. Place a light film of grease on the seal surface and carefully slide the hub onto the spindle taking care not to damage the seal.
9. Place the outside bearing cone over the spindle and into the hub.
10. Install the castellated nut and follow the procedure for setting the pre-load.
11. Reinstall the dust cap and tire.

Check the wheel lug nuts and wheel bearing pre-load after the next week of operation.

Fluid and Fastener Specifications

□ DISK GANG ASSEMBLY AXLES: The disk gang assembly axles are 2-1/2" in diameter and are threaded at either end. A 4" heavy cast nut is installed at either end and tightened to complete the rigid gang assembly. To insure proper functioning and maximum durability, the axle nuts should be checked and tightened daily during the first (7) seven days of operation when the disk is new or after replacing any of the gang assembly components. When installing the nut, apply an anti-seize compound to the threads.

Recommended Torque – 2000-2200 ft/lbs

□ FASTENERS: Tighten all fasteners after the first day of operation and seasonally thereafter to the following settings.

Bolt Diameter	Torque (ft/lbs)	
	Grade 5	Grade 8
3/8"	23	33
1/2"	57	80
5/8"	112	159
3/4"	200	282
7/8"	322	454
1"	483	682
1-1/4"	840	1363
1-1/2"	1462	2371

The torque values in table are for plated unlubricated bolts and nuts.

Grade 5 

Grade 8 

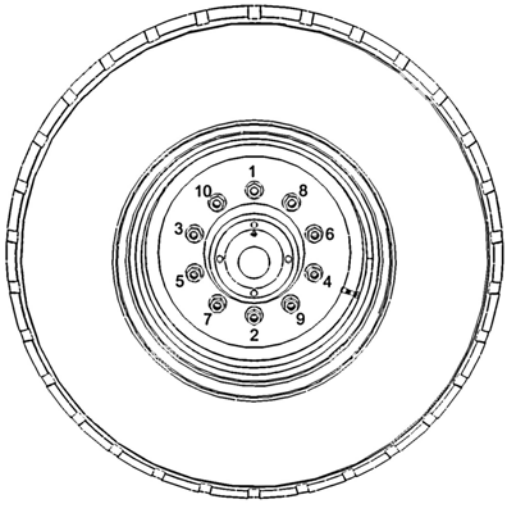
□ OIL-BATH BEARING OIL: The oil-bath bearing contains back-to-back tapered roller bearings operating in gear oil. The bearing has a check plug on the side of the housing. Oil is filled to the bottom of the check plug hole. Fill oil until it begins to run out the hole.

Recommended Gear Oil – SAE 90W (API GL-4)

A heavier weight of gear oil may be used in hot climates where there may be constant temperatures in excess of 90°F.

□ TIRE AND WHEEL SERVICE

When checking wheel nut for tightness or remounting the wheel, tighten the wheel bolts in the sequence illustrated.



Torque wheel nuts to 280-300 ft/lbs.

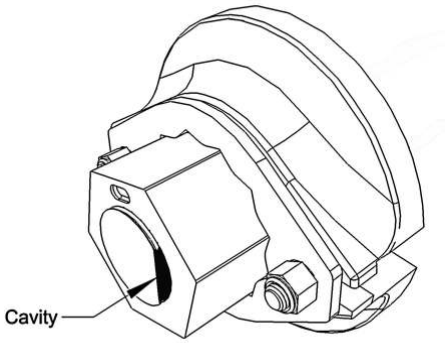
Check the tires regularly for cuts or other damage.

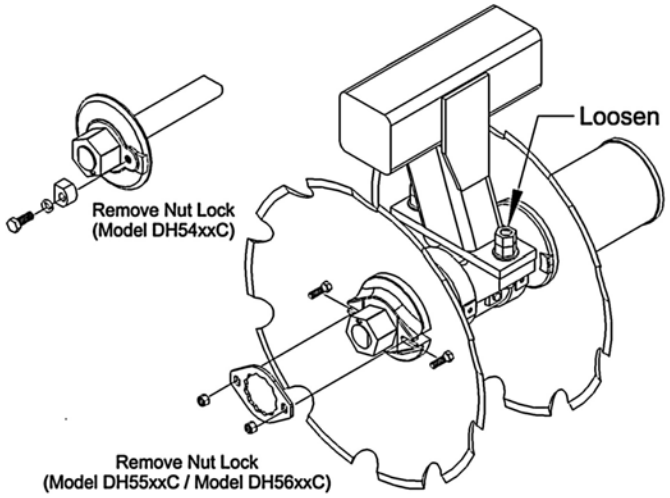
Check and adjust tire pressure when tire is cold.

Maintain tire pressure at 90 psi (max 120 psi).

Keep Gang Assemblies Tight

- To ensure proper function and maximum durability, the axle nuts should be checked and tightened daily during the first (7) days of operation when the disk is new or after replacing any of the gang components.
- Loose axles may bend or break or cause damage to other components of the gang assembly. Maintaining tight gangs is necessary to ensure maximum bearing life.
- A loose gang assembly is evident when some disk blades stop turning when disking or turn at a different speed than other disks on the same assembly.
- To tighten the axle without removing the gang assembly from the disk:
  To minimize the possibility of thread damage, clean out the cavity between the inside of the nut and the flat milled surface at the end of the axle. After using compressed air or a pressure washer to remove as much material as possible, pour or spray a light oil or penetrating fluid into the cavity.





Unbolt and remove the nut locks from the end washers on both ends of the axle.
Loosen but do not remove the bolts holding the bearings to the bearing standards.
Place one wrench on an axle nut to prevent the axle from turning.
Use the other wrench and an extension (i.e. 4 to 5 foot length of 2" pipe) or a sledge hammer to tighten the axle nut on the opposite end of the axle. Tighten the nut to approximately 2000-2200 ft/lbs.

Retighten the bearing bolts.
If the gang is excessively loose it may be necessary to completely disassemble the entire assembly and clean the mating surfaces between the spools, bearings, end washers and disk blades.

- If it is necessary to remove and disassemble the gang assembly, use suitable lifting devices and supports to prevent injury.

  With the disk lowered to the ground, first remove the scrapers and then unbolt the bearings from the bearing standards. There are four 1-1/4" x 5" bolts holding each gang assembly to the gang bar. Once the bolts are removed, raise the disk high enough to either roll or pull the assembly from under the disk. Block the gang to prevent it from rolling. Remove the nut locks from both ends of the assembly. Use one wrench to keep the gang from turning while using the other wrench to tighten the nut at the opposite end of the assembly.

  It may not be possible to properly tighten the gang if dirt, grit or debris has built-up between the components. In this case remove a nut from one end of the axle, slide off the end washers, bearings, spools and disk blades. Thoroughly clean the mating surfaces between the components and reassemble on the disk gang (see assembly section). Clean the threads on the axle and in the axle nut. Apply an anti-seize compound to the axle threads and reinstall the nut. Tighten the nut and reinstall the nut locks. Place the assembly under the disk and bolt to the gang bar bearing standards. Occasionally turn the gang while tightening the bolts to check the gang turns freely. Retighten the bearing bolts after the first 10-12 hours of operation.

⚠ Assembly Safety ⚠

- □ Wear proper attire when assembling disk. Always wear relatively tight and belted clothing to avoid entanglement in equipment. Wear sturdy, grip work shoes and protective equipment for eyes, hands, hearing and head.

- □ Handle the disk gang components with care during assembly. The disk blades are sharp and can cut hands, feet, etc.

- □ Disk blade assemblies and disk weldments and components are heavy and awkward. Two-person assembly is recommended. When working with others, try to maintain visual contact and communicate actions and procedures which may present a danger to them.

- □ Read assembly instructions thoroughly before beginning.

- □ Use the proper tools and equipment for assembly. Make sure you understand the safe procedures for the motorized equipment and lifting devices you will be using. Make sure tools and equipment are in good repair.

- □ Use proper supports for the job and chock tires or any other components that could roll inadvertently.

- □ Purge air from hydraulic systems before operation. After connecting the hydraulic lines, carefully cycle the hydraulic cylinder several times to purge air from the system. Visually check all connections for leaks.

- □ Never use your hands to check for hydraulic leaks.

Assemble the Disk

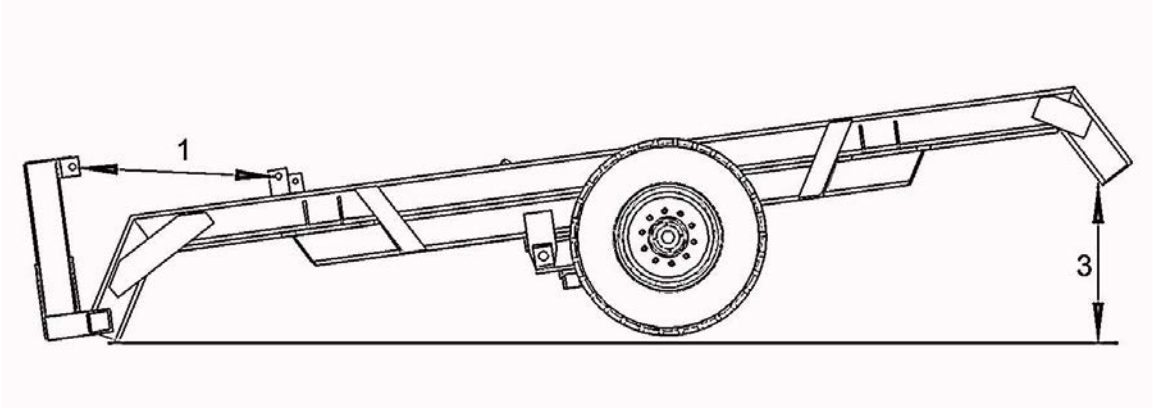
- □ The disk is normally shipped with the bridle and transport assemblies attached to the frame. The gang assembles are bolted to the gang bars and the scrapers are bolted to the scraper bars. The hitch, side arm, levelling control assemblies, transports control assemblies, jack and hose holder are bundled together. Tires are shipped loose and the remaining components (hydraulics, lighting, etc) are usually crated.

- □ The parts diagrams in this manual may facilitate assembly of the disk.

- □ These instructions require a forklift, boomlift or similar type of equipment which is capable of lifting the disk weldments. A minimum 8000 lb outdoor application forklift with fork extensions is a good choice. A tractor to move the disk and charge and operate the hydraulic cylinder will also be required.

- □ The following tools will also be required:
  1. A selection of chains and straps.
  2. Box end wrench set to 1-1/4” plus 1-1/2” and 1-7/8”.
  3. Socket and rachet sets to 1-1/4” plus 1-1/2” and 1-7/8”.
  4. Hammers and sledge hammer.
  5. Pinch bar.
  6. 24” adjustable wrench.
  7. Pliers and vise grips.
  8. ½” and ¾” drive air wrench and sockets.

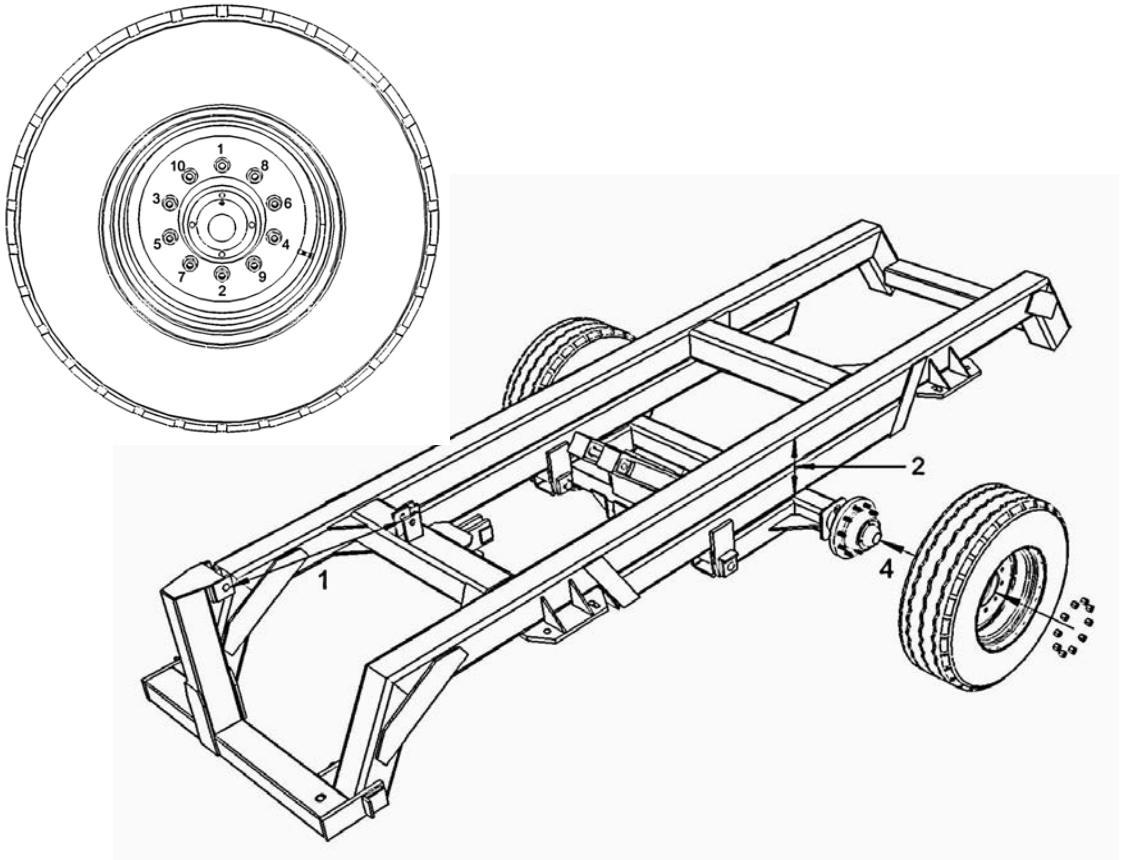
1. Run a chain or strap from the top of the bridle mast to the first frame cross member to keep the bridle from falling forward while working on the disk. A preferred method is to place the pin in the clevis at the top of the mast and the pin in the clevis on the frame cross member. It is then possible to run a light chain or a strap around the pins. This will help prevent damage to the paint. Ideally the bridle mast should be held at a 90 degree angle to the top of the frame.

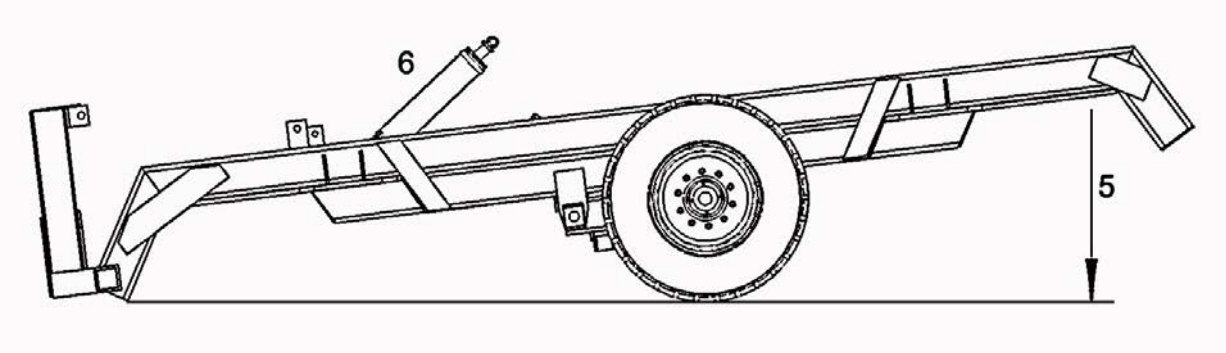


2. Use a chain or strap around the frame and the leg of the transport to keep the transport from dropping when the frame is lifted (see 3). If using a chain, place rubber or matting under the chain to prevent damage to the paint.

3. Lift the back of the disk high enough to mount the tires on the hubs. One method is to place the forks of a forklift under the rear cross member.

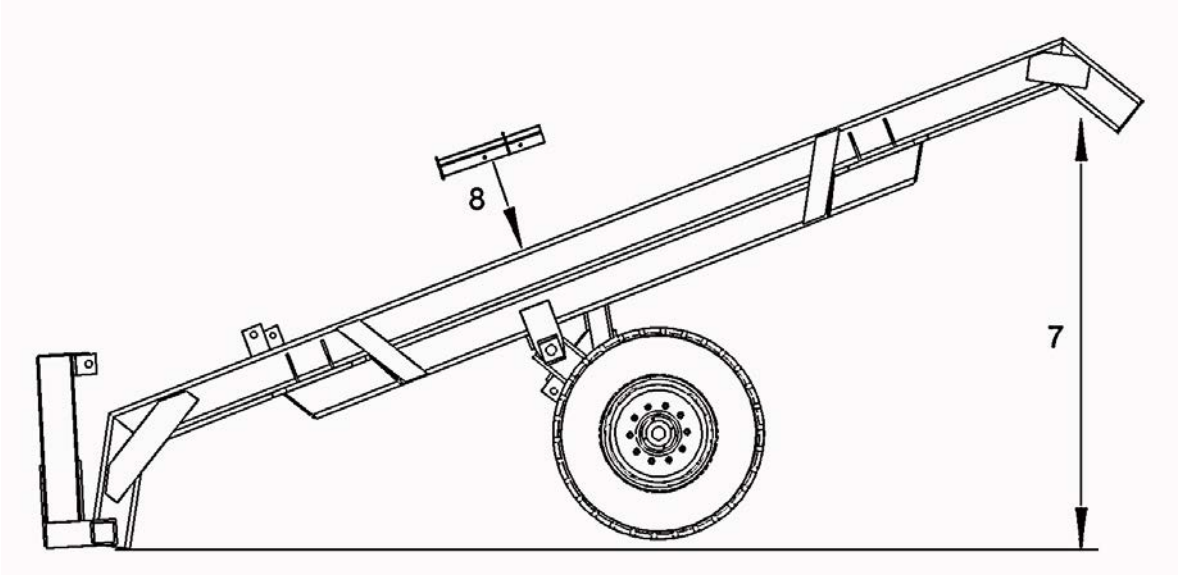
4. Install the hub spindles into the axle pipes and install retainer bolts. Mount the tires and wheels on the hubs and tighten the wheel lugs in the sequence illustrated.

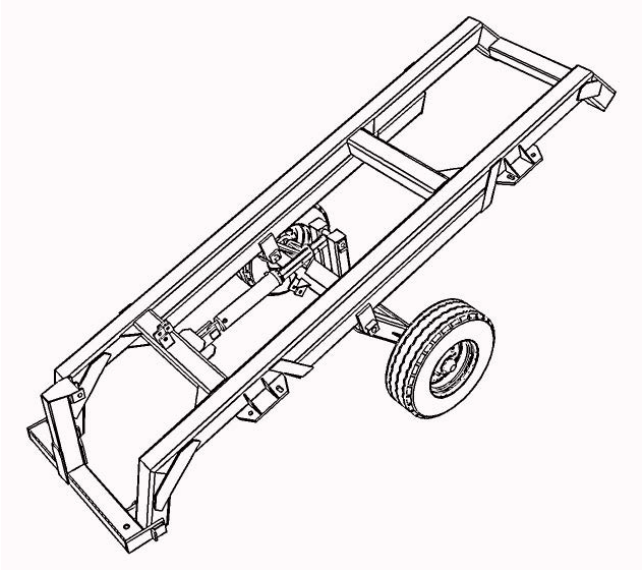




5. Lower the frame to the ground and remove the chain or strap placed in step 2.

6. Attach the hydraulic cylinder to the frame at the clevis on the cross member. Remove the plugs from the cylinder ports to prevent an air lock when the rod moves in the cylinder barrel.

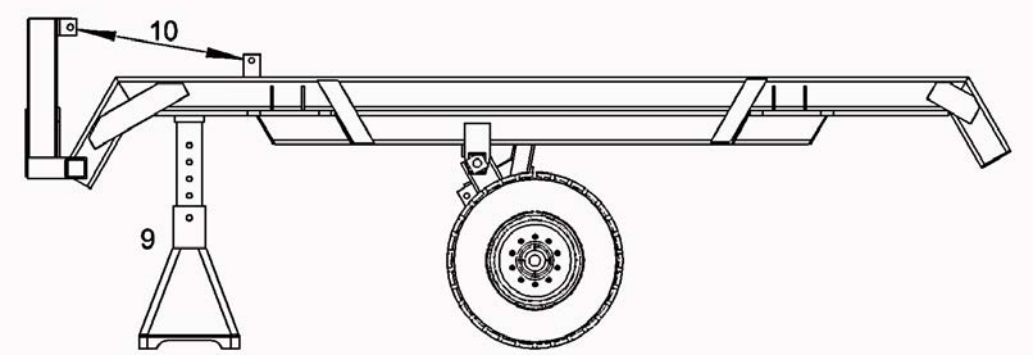




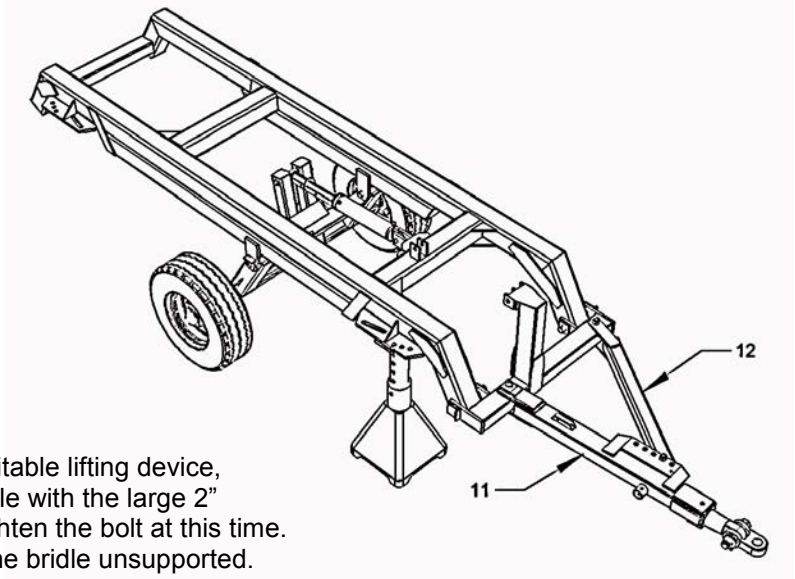
7. By raising and lowering the back of the frame, the transport uprights can be moved until the rod end of the cylinder can be pinned to the transport. Once the cylinder is connected, raise the rear of the disk until the wheels clear the ground. At that point the cylinder should be fully extended.

8. Place the transport stay over the cylinder and lower the disk to the ground

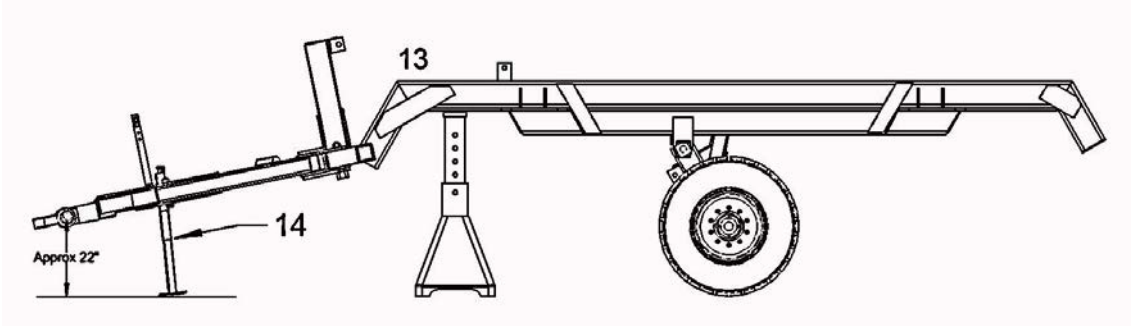
9. Chock the tires and place a support under the front right corner of the disk frame.



10. If necessary, adjust the chain or strap between the bridle mast and frame cross member to ensure the mast is as vertically straight as possible. This will simplify the installation of the hitch.

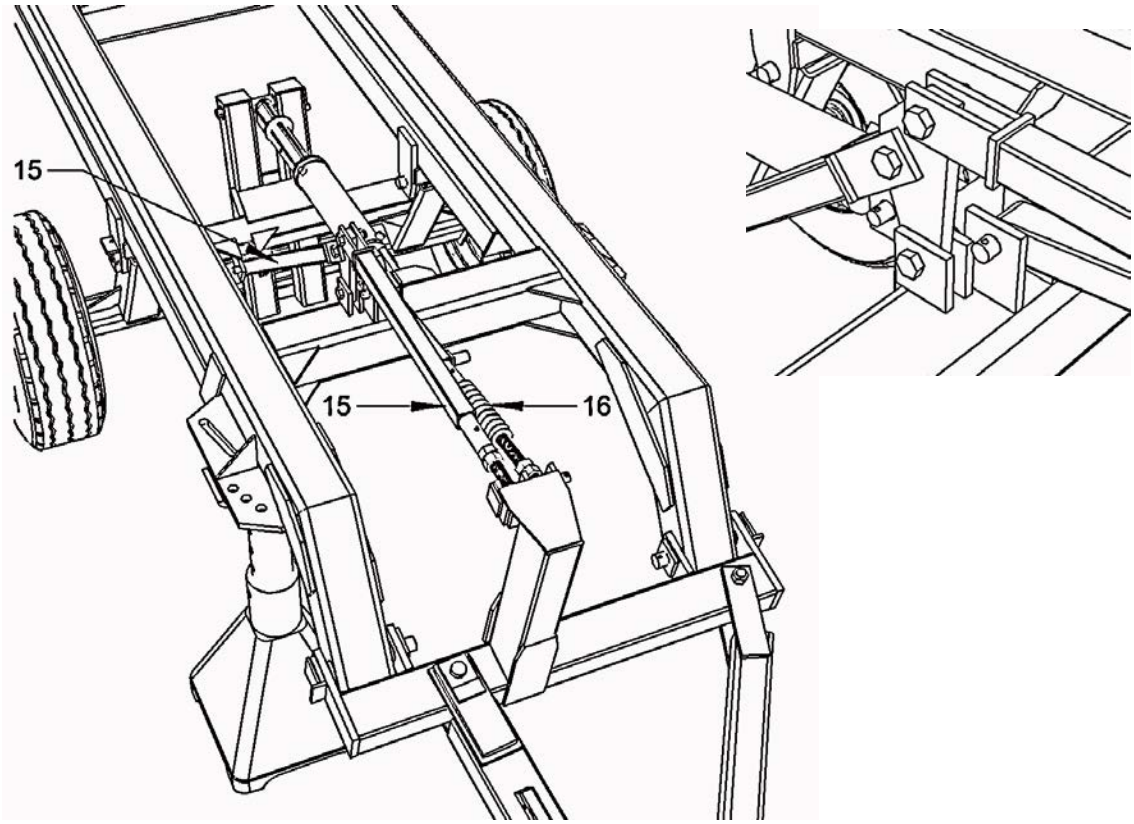


11. Using a forklift or other suitable lifting device, attach the hitch to the bridle with the large 2" fabricated bolt. Do not tighten the bolt at this time. The hitch will hang from the bridle unsupported.
12. Again using a forklift or other suitable lifting device, attach the sidearm to the bridle with the 1-1/4" bolt inserted up from the bottom. Do not tighten at this time. Swing the sidearm and hitch towards each other and attach the sidearm to the hitch at the second hole from the front of the side plates on the hitch. Again insert the 1-1/4" bolt up from the bottom. Tighten all three bolts.
13. Lift the hitch and remove the chain or strap between the bridle mast and frame cross member.
14. Attach the jack to the hitch and adjust it to support the tongue at approximately 22" (tractor drawbar height) from the ground. Attach the hose holder to the hitch.

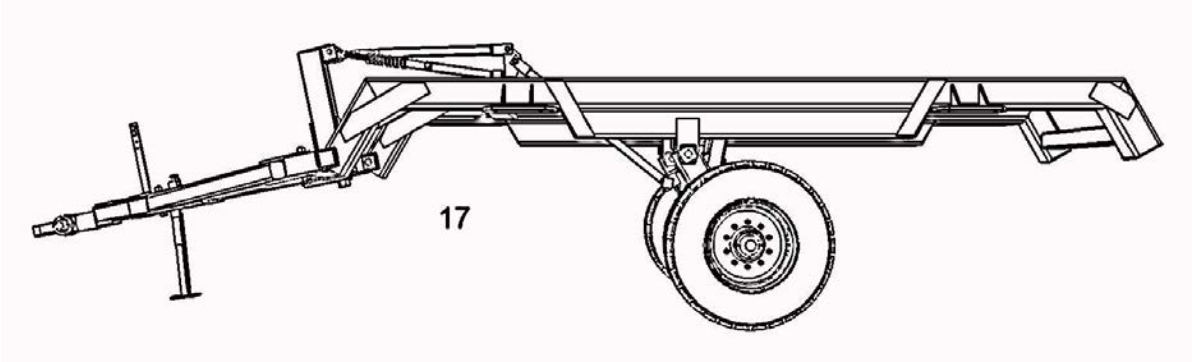


15. Bolt the triangular shaped lever plate (Item 15 – page 35) into the clevis on top of the first frame cross member. Install the bottom transport control arm (Item 14 – page 35) between the clevis on the transport assembly and the lever plate. Install the top transport control arm and eyebolt (Items 7 and 8 – page 35) between the lever plate and the bridle mast. Turn the nuts on the eyebolt clockwise (facing towards the back of the disk) until the rear most nut contacts the pipe end of the transport arm.

16. Install the levelling assembly (Items 7, 9, 10 and 11 – pg 35) between the mast and the frame. There should be no pressure against the spring.

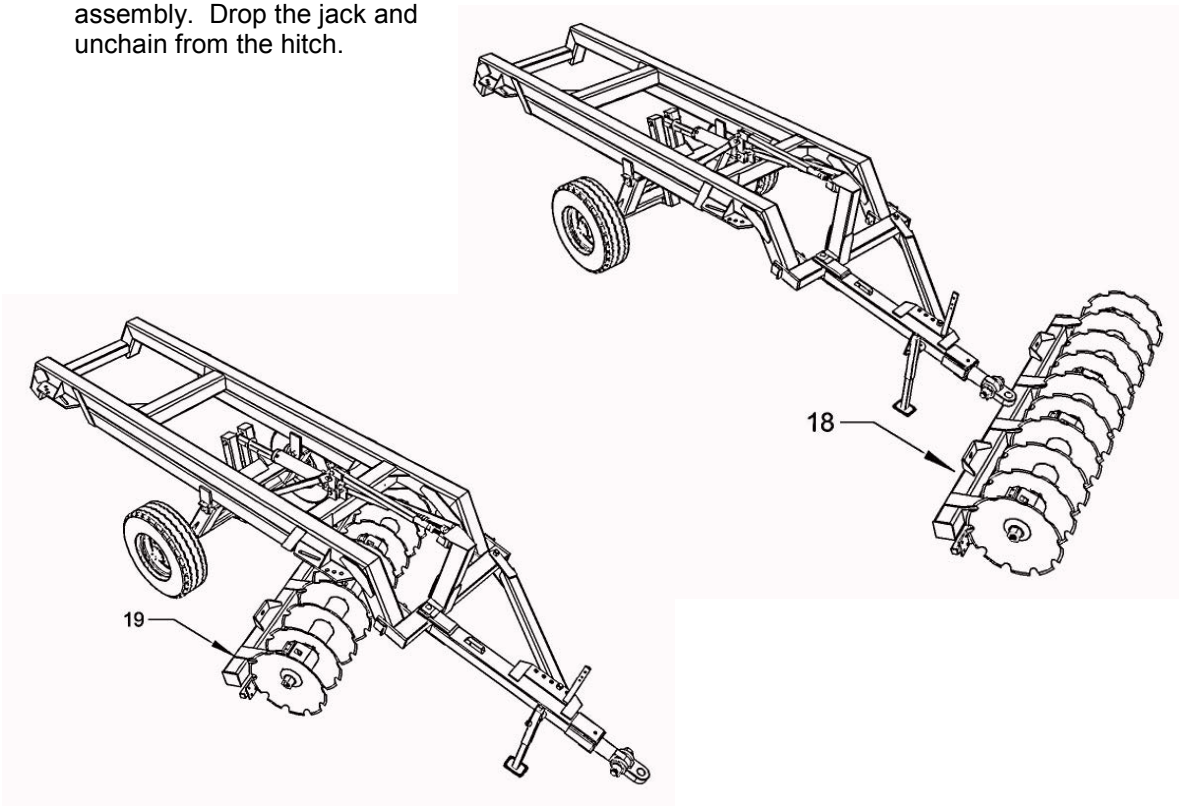


17. It is now possible to lift the hitch of the disk and remove the support from under the frame. Leave the tire chocks in place. At this point the hydraulic hoses can be connected to the cylinder but do not charge the system.

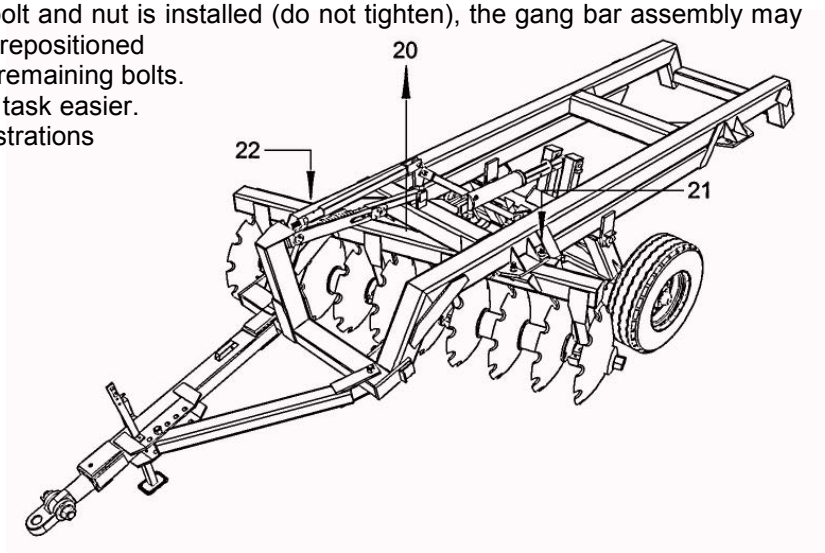


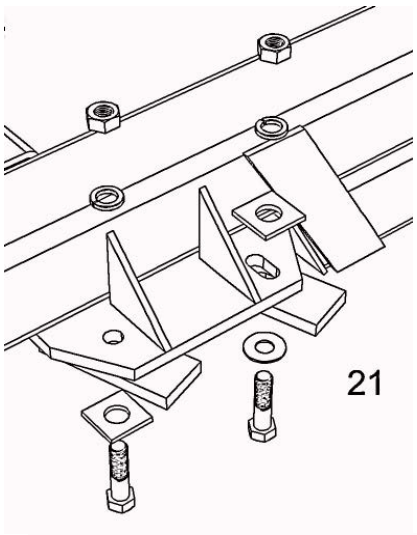
18. Place the front gang bar assembly ahead of the hitch at an approximate 20 degree angle and with the disk blades facing the direction illustrated. When the gang bar assembly is attached to the frame the blade scrapers must be to the rear.

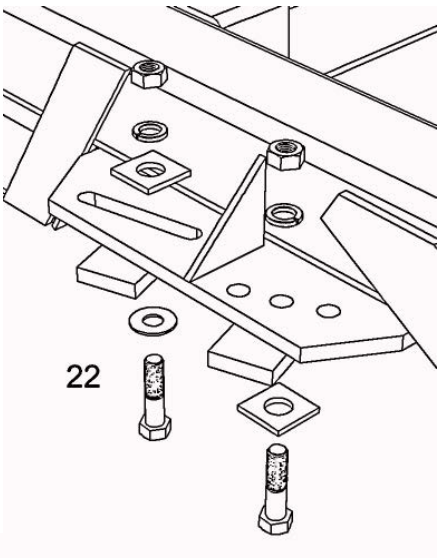
19. Using a forklift or similar equipment, chain to the end of the hitch. Lift the hitch; unpin the jack, swivel it up and re-pin; and pulling the disk forward, lift it up and over the gang bar assembly. Drop the jack and unchain from the hitch.

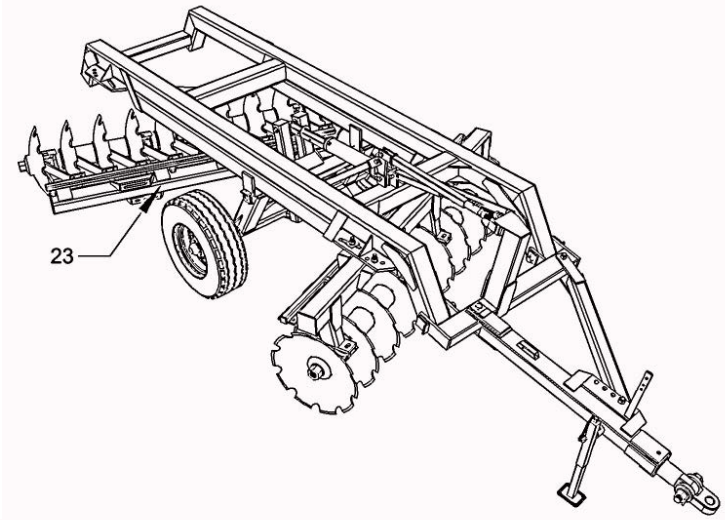


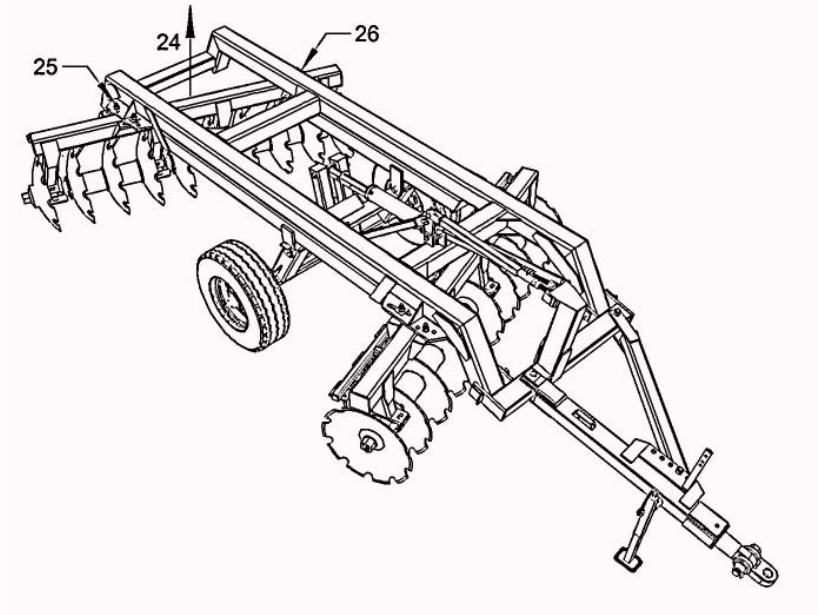
20. Using a single strap or chain of sufficient strength wraped around the center balance point of the gang bar, lift straight up throught the frame. This may require fork extensions or a boomlift. Once a single bolt and nut is installed (do not tighten), the gang bar assembly may be lowered and the chain repositioned to ease installation of the remaining bolts. A pinch bar will make this task easier. Install the bolts as per illustrations 21 and 22 on page 30.







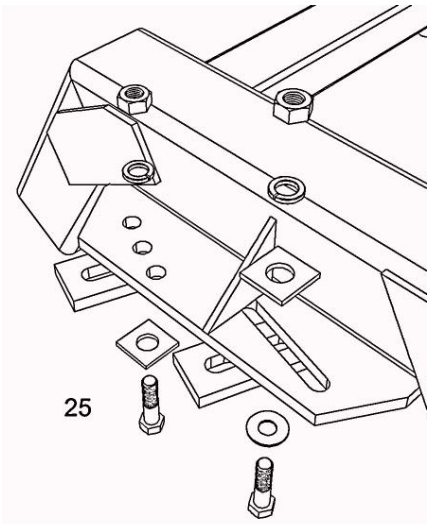


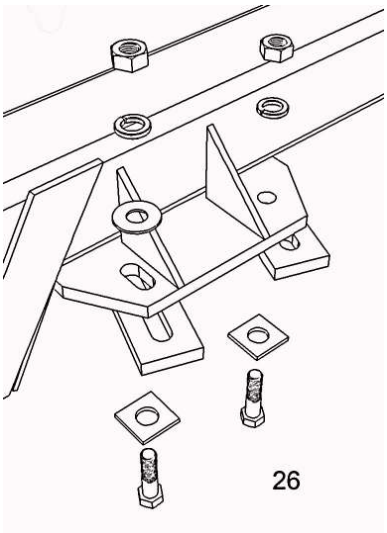


21 - 22. Note: Gang bars deleted for clarity.

23. Place the rear gang bar assembly under the rear of disk with blades facing in the direction illustrated.

24. Use a single strap or chain of sufficient strength wrapped around the gang bar at its center point of balance to lift the bar up to the frame. This may require fork extensions or a boomlift. Once a single bolt and nut is installed (do not tighten), the gang bar assembly may be lowered and the chain repositioned to ease installation of the remaining bolts. A pinch bar will make this task easier. Install the bolts as per illustrations 25 and 26 on page 31.

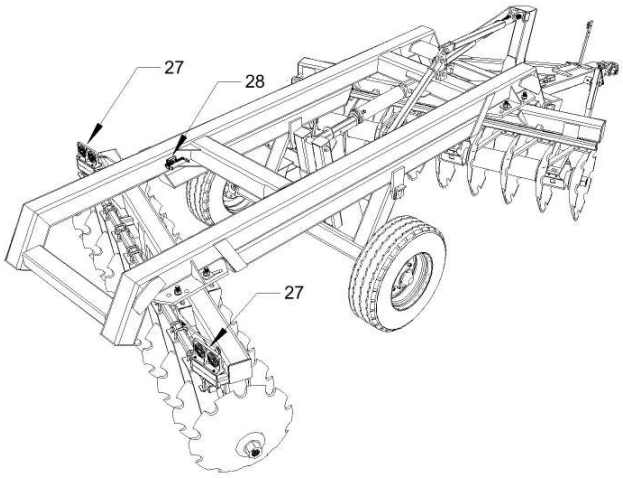


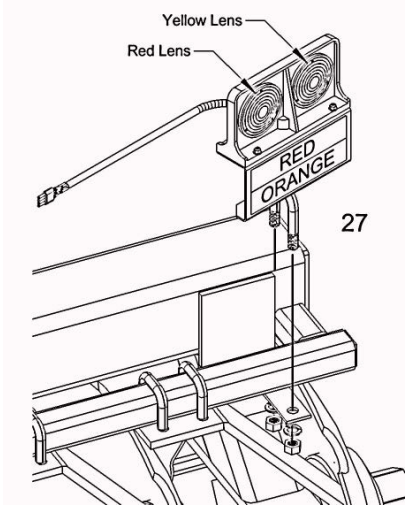


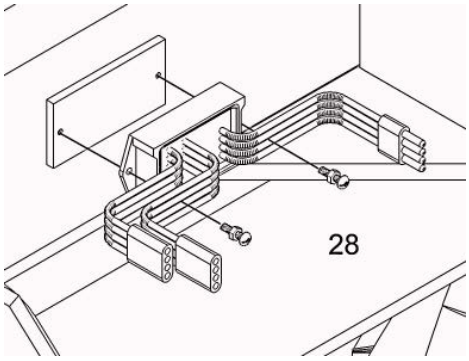
25 – 26. Note: Gang bars deleted for clarity.

27. Install lights on the rear gang scraper bar and within 16” of the outside extents of the disk width.

28. Install the light kit module. Run the cables between the lights and the module as per the tags on the module pigtails indicating right hand and left hand. Run the single cable from the module to the front of the disk.

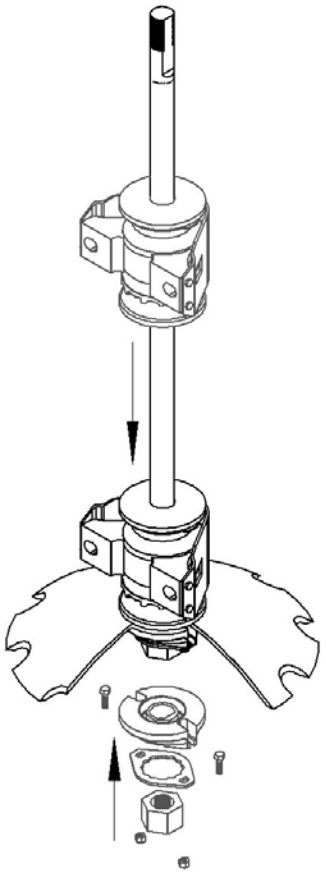






Plug the light connector into the tractor receptacle and check for proper operation.
Install the safety chain on the front of the hitch.
Install the hose holder on hitch and clamp the hoses to the holder.
If not already attached, hitch the disk to the tractor. Couple the hydraulic hoses to the tractor. Charge the hydraulic cylinder. It will be necessary to hold the hydraulic control open for a minute or two in order to completely fill the cylinder and extend the cylinder rod enough to remove the transport stay. Remove the transport stay and lift the disk up and down a number of times to purge the system of air and reveal any leaks. Replace the fluid removed from the tractor hydraulic system.
Check all the safety decals are present and undamaged.

Disk Gang Assembly Procedure

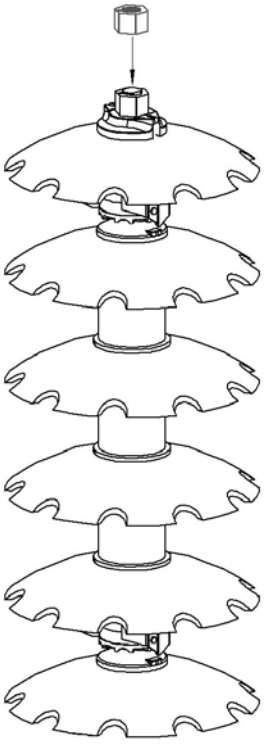


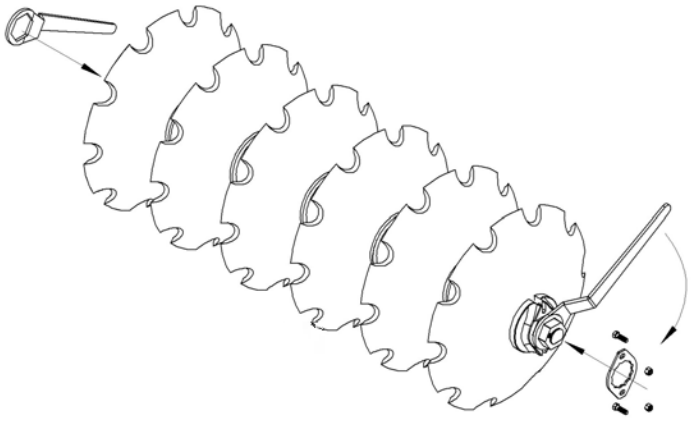
A disk gang consists of an axle on which disk blades, spacer spools and bearings are mounted. The axle is threaded at each end. End washers are then placed on both ends of the axle. Heavy axle nuts are then threaded onto each end and tighted to a recommended torque of 2000-2200 ft/lbs. The axle nuts are locked into place by bolting a nut lock plate around the nut and to the end washers with bolts and lock nuts. The disk blades, spacer spools and bearings have both concave and convex surfaces. Care must be taken to match convex with concave surfaces during assembly. End washers are either concave or convex and the appropriate washer should be placed at each end of the axle.

⚠ **CAUTION: Gang components are heavy. Two-person assembly is recommended. Follow Safety Guidelines.**

To assemble, install the convex end washer and nut on one end of the axle. Slide one blade concave side down the axle against the convex end washer. Next slide a bearing onto the axle, concave end first, against the disk blade. The axle can now be raised to the vertical position and it will stand without being held. In the upright position, the convex end washer should be snug against the underside of the disk blade. If necessary, tilt the axle and disk blade and place a spacer (eg. a length of 1" X 4" wood) between the nut and the floor or ground. This ensures the top threaded end of the axle will be exposed when the gang is completely stacked and the nut can be installed.

With the axle in the upright position, the remaining components can be stacked. Keep all the spacer spools between the bearings with the bearings in the outermost positions on the axle. While stacking the components, make sure all mating surfaces are free of dirt, rust, grease, grit or any other material that interferes with the mating surfaces. After the last disk is in place, drop the concave end washer into place. Apply an anti-seize compound to the axle threads and install the axle nut. Tighten the nut to remove as much slack as possible. Lower the entire assembly to the ground using hoist or forklift and chock both sides of the assembly to prevent it from rolling. Using the gang wrenches provided with the disk, tighten both axle nuts as tight as possible. It may be necessary to use a length of 2" pipe on the wrenches for extra leverage. A sledge hammer may be used to strike the wrench handle for the final adjustment to fit the nut lock plates. Install the nut lock plates over the axle nuts and attach to the end washer with the four bolts and lock nuts provided.



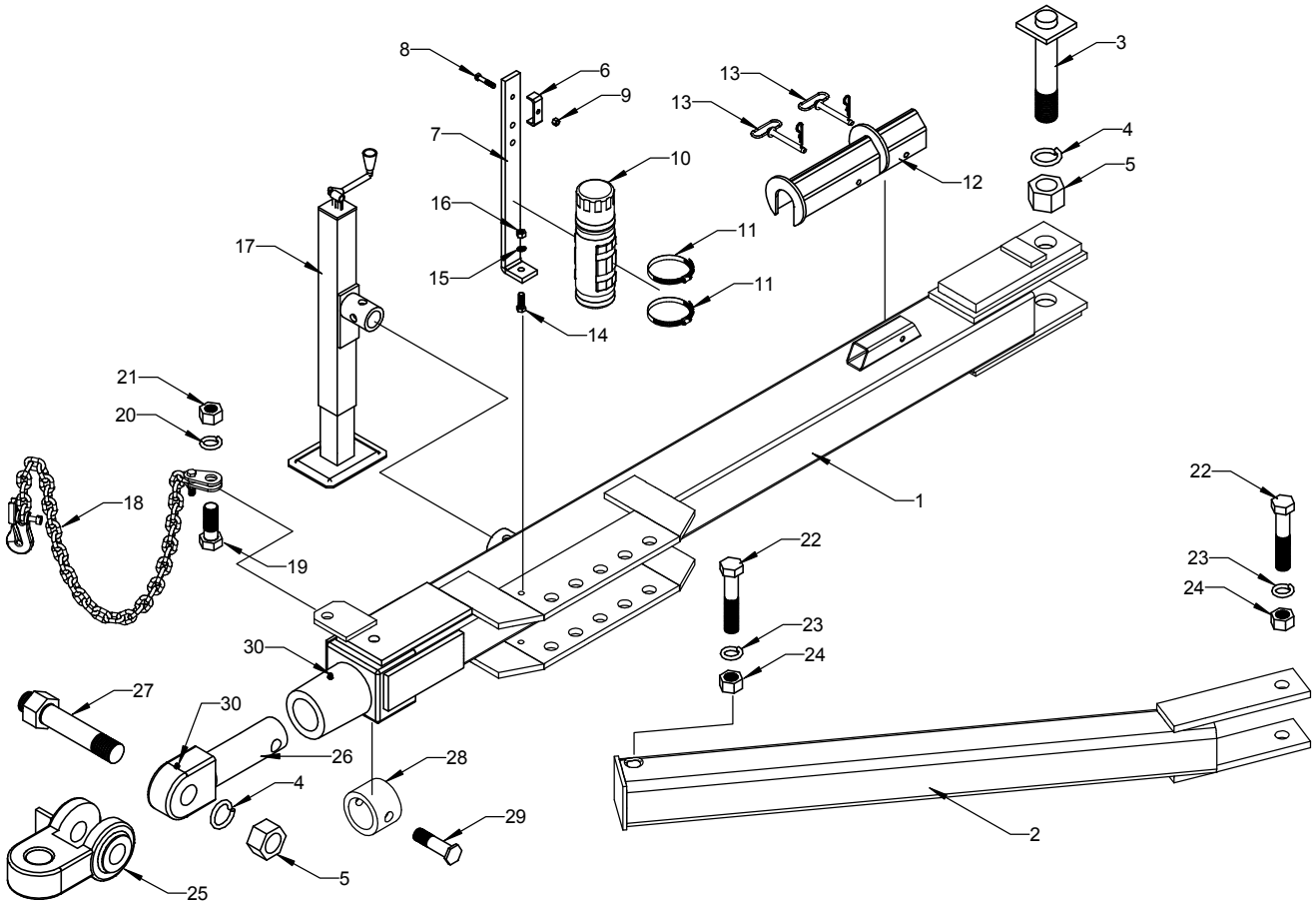


Detailed Parts Diagrams

- The illustrated parts diagrams will assist in procuring replacement parts from your Frontier Dealer. However, to be sure of receiving the correct parts, please have the Model Number and Serial Number of your disk available when ordering parts.

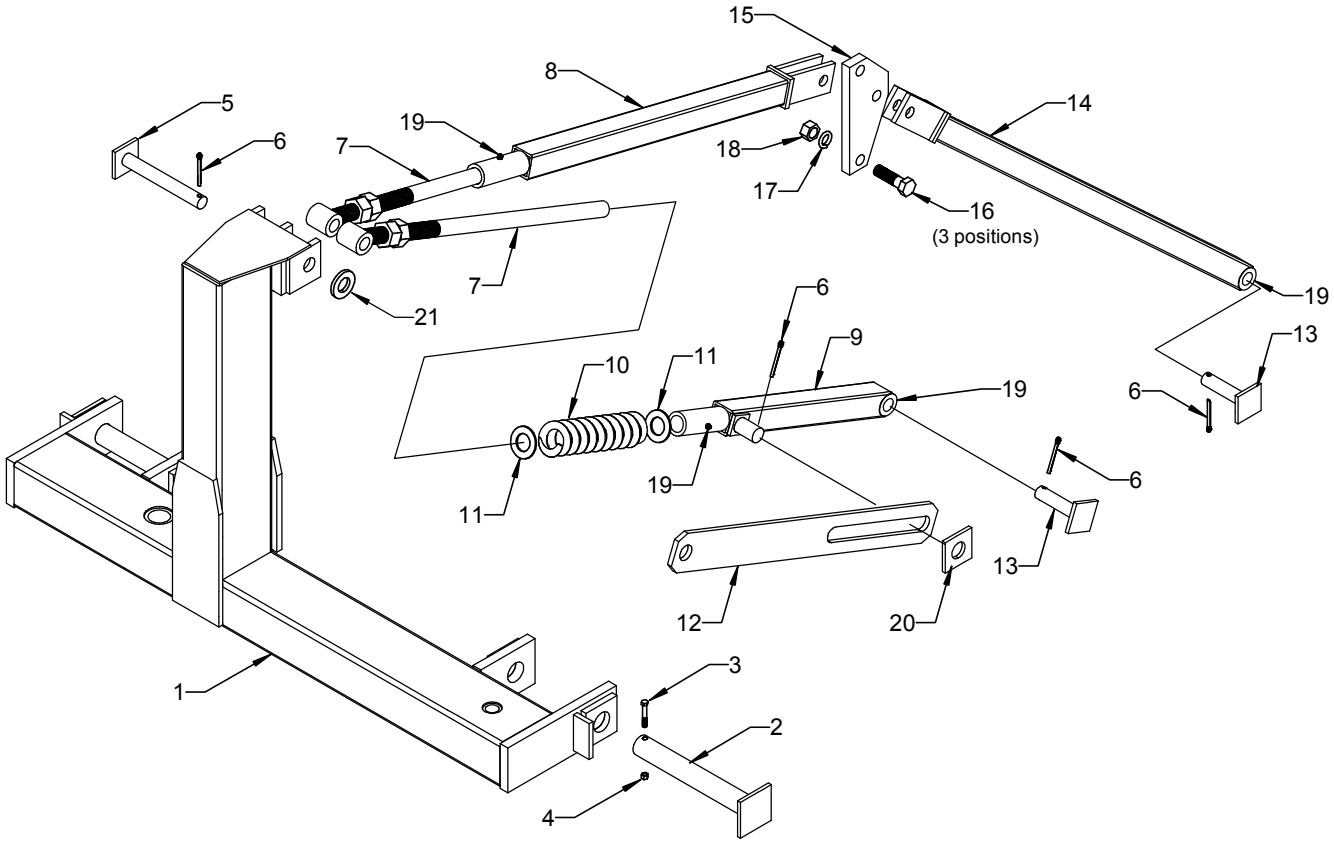
- In the event the serial number plate is missing the following information can help to identify your disk:
  - the total number of disk blades on the unit.
  - the spacing in inches between the disc blades.

- The parts diagrams can also aid in the assembly and maintenance of your disk.



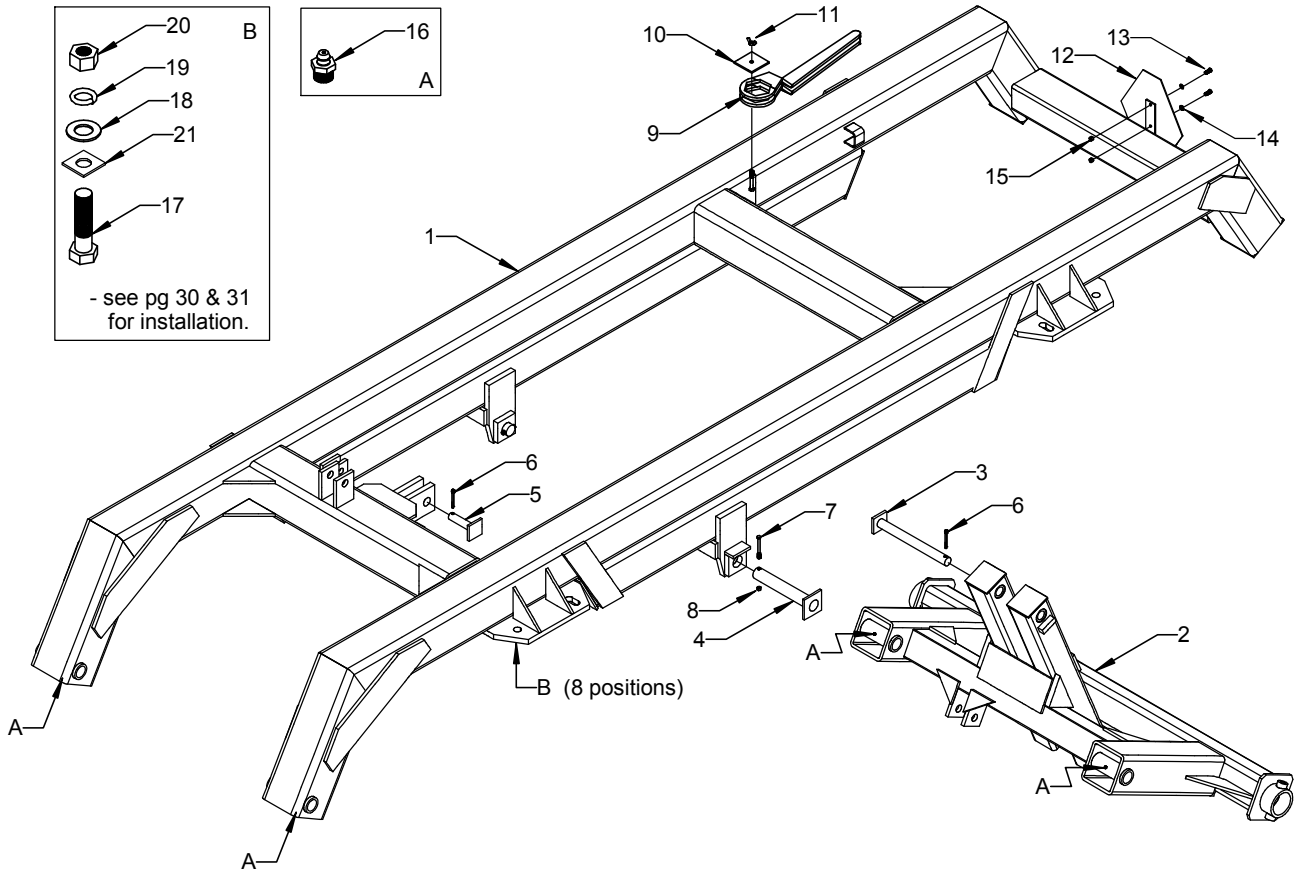
Hitch and Side Arm Assembly

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	4560003	Hitch Pole	1
2	4560004	Side Arm	1
3	4561005	2" Fabricated Bolt	1
4	LW200	2" Spring Lock Washer	2
5	NC200	2" Hex Nut	2
6	TBX50	Hose Clamp	1
7	501064054	Hose Holder	1
8	038200B5	3/8" X 2" UNC Bolt	1
9	NC0385L	3/8" Nylon Lock Nut	1
10	DOCH914	Operator's Manual Canister	1
11	HAS64	Screw/Band (Worm Gear) Clamp	2
12	CTS200	Transport Stay	1
13	442160	Pin C/W Hair Pin	2
14	050150B5	1/2" X 1-1/2" UNC Bolt	1
15	LW050	1/2" Spring Lock Washer	1
16	NC050	1/2" Hex Nut	1
17	TBX8H	Hitch Jack	1
18	PPSC21A	Safety Chain (CAT II)	1
19	100350B8	1" X 3-1/2" UNC Bolt	1
20	LW100	1" Spring Lock Washer	1
21	NC100	1" Hex Nut	1
22	125900B8	1-1/4" X 9" UNC Bolt	2
23	LW125	1-1/4" Spring Lock Washer	2
24	NC125	1-1/4" Hex Nut	2
25	502040293	Hitch Clevis	1
26	502040264	Plunger	1
27	4561006	2" Fabricated Bolt	1
28	4561007	Collar	1
29	125500MB8	1-1/4" X 5" Modified Bolt	1
30	11100	Grease Zerk	2



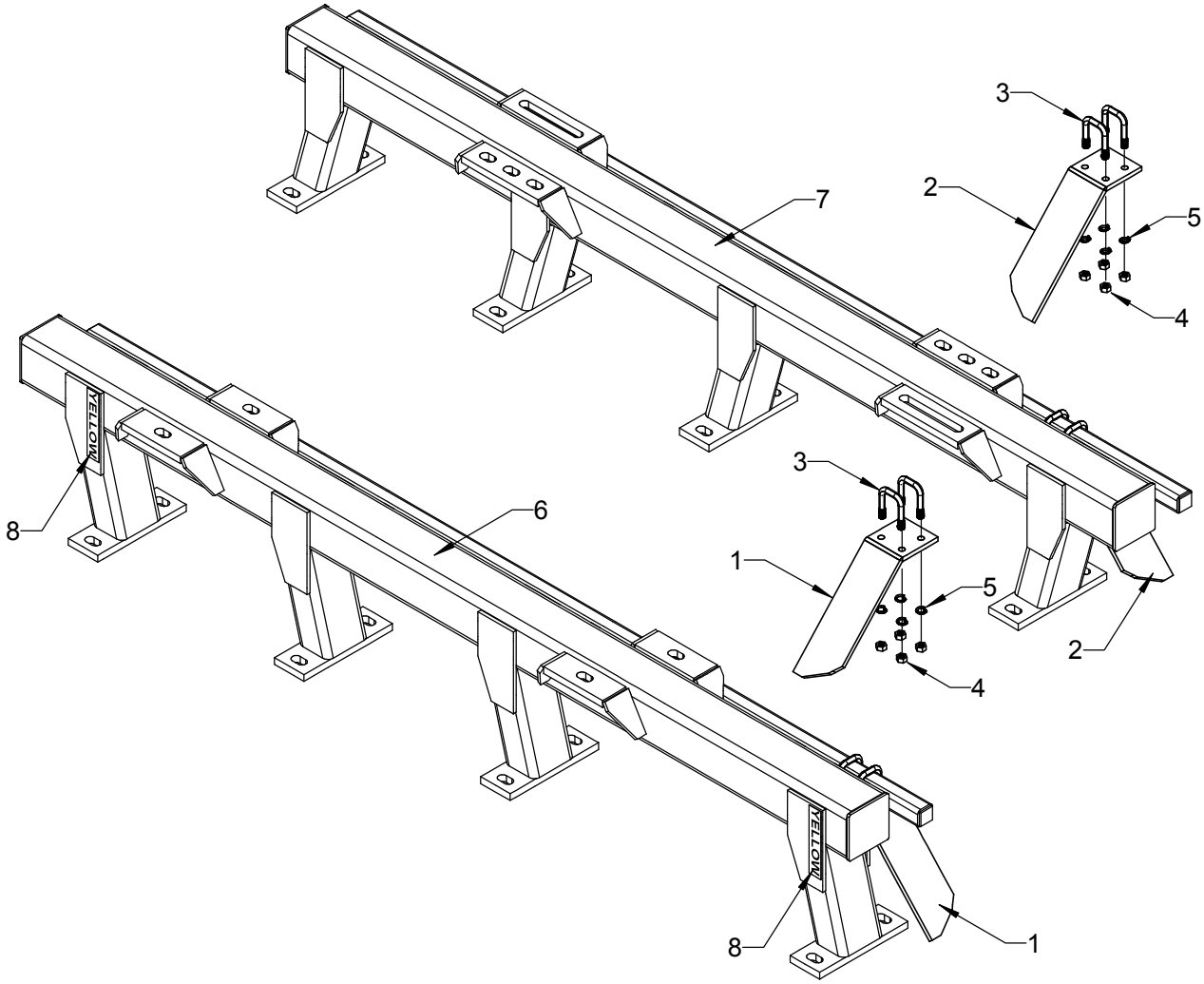
Bridle and Control Arm Assembly

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	4560005	Bridle	1
2	4561001	Bridle Pin	2
3	038350B5	3/8" X 3-1/2" UNC Bolt	2
4	NC0385L	3/8" Nylon Lock Nut	2
5	4561002	Top Control Arm Pin	1
6	375300CP	Cotter Pin	4
7	4560009	Eye Bolt	2
8	4560006	Top Transport Control Arm	1
9	4560008	Leveling Control Arm	1
10	5004979	Compression Spring	1
11	FW150	1-1/2" Flat Washer	3
12	4560010	Limiter Arm	1
13	4561003	Bottom Control Arm Pin	2
14	4560007	Bottom Transport Control Arm	1
15	4560011	Pivot Plate	1
16	100350B8	1" X 3-1/2" UNC Bolt	3
17	LW100	1" Lock Washer	3
18	NC100	1" Hex Nut	3
19	11100	Grease Zerk	4
20	4561011	1-1/4" Square Washer	1
21	FW125	1-1/4" Flat Washer	1



Main Frame and Transport Assembly

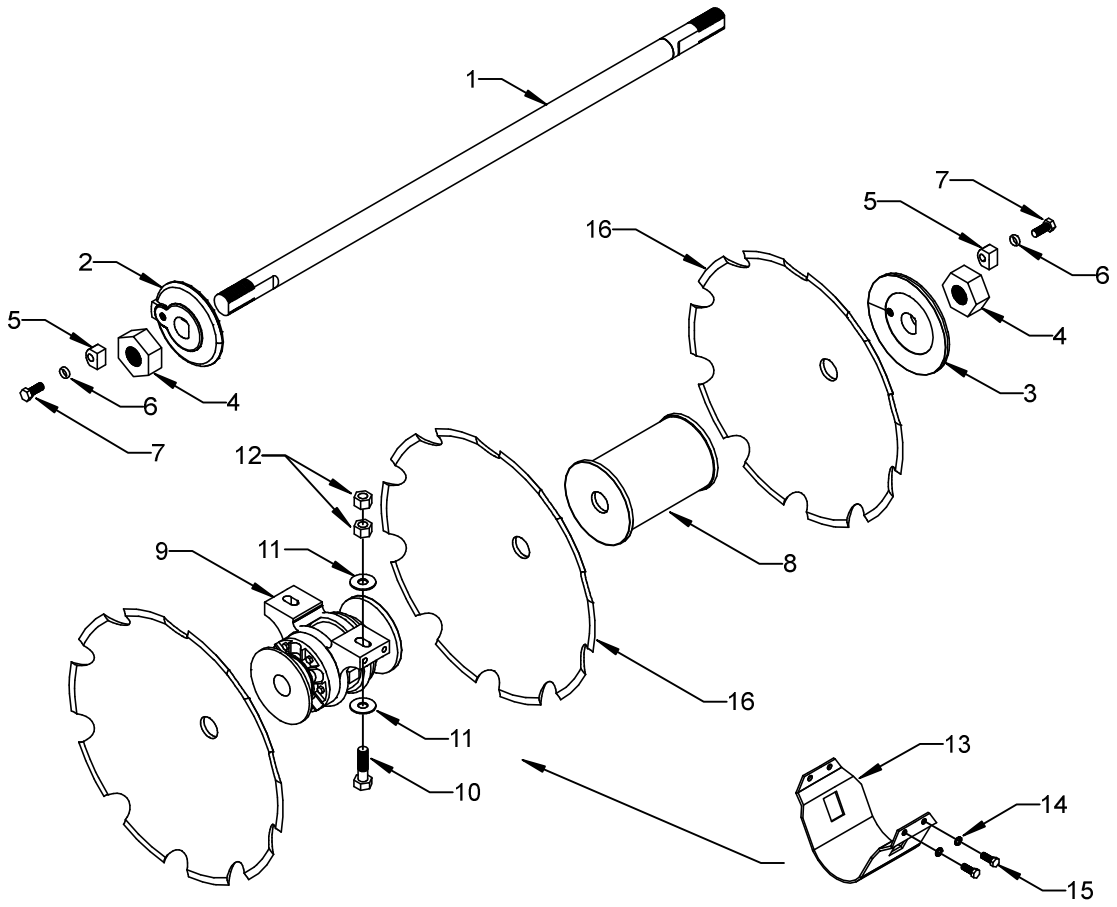
REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	4560001	Main Frame - Models DH54xxC	1
1	4560012	Main Frame - Models DH55xxC and DH56xxC	1
2	4560002	Transport Assembly - Models DH54xxC	1
2	4560013	Transport Assembly - Models DH55xxC and DH56xxC	1
3	4561008	Cylinder Rod End Pin	1
4	4560009	Transport Pin	2
5	4561010	Cylinder Base End Pin	1
6	038400CP	Cotter Pin	2
7	038350B5	3/8" X 3-1/2" UNC Bolt	2
8	NC0385L	3/8" Nylon Lock Nut	2
9	2R81	Gang Wrench	2
10	3043010	Hold Down Plate	1
11	NC050W	1/2" Wing Nut	1
12	FBSMVTUF	Slow Moving Vehicle Sign	1
13	025100B5	1/4" X 1" UNC Bolt	2
14	FW025	1/4" Flat Washer	2
15	NC0255L	1/4" Nylon Lock Nut	2
16	11100	Grease Zerk	4
17	125500B8	1-1/4" X 5" UNC Bolt	8
18	FW125	1-1/4" Flat Washer	4
19	LW125	1-1/4" Lock Washer	8
20	NC125	1-1/4" Hex Nut	8
21	4561004	1-1/4" Square Washer	8



Gang Bars and Scrapers

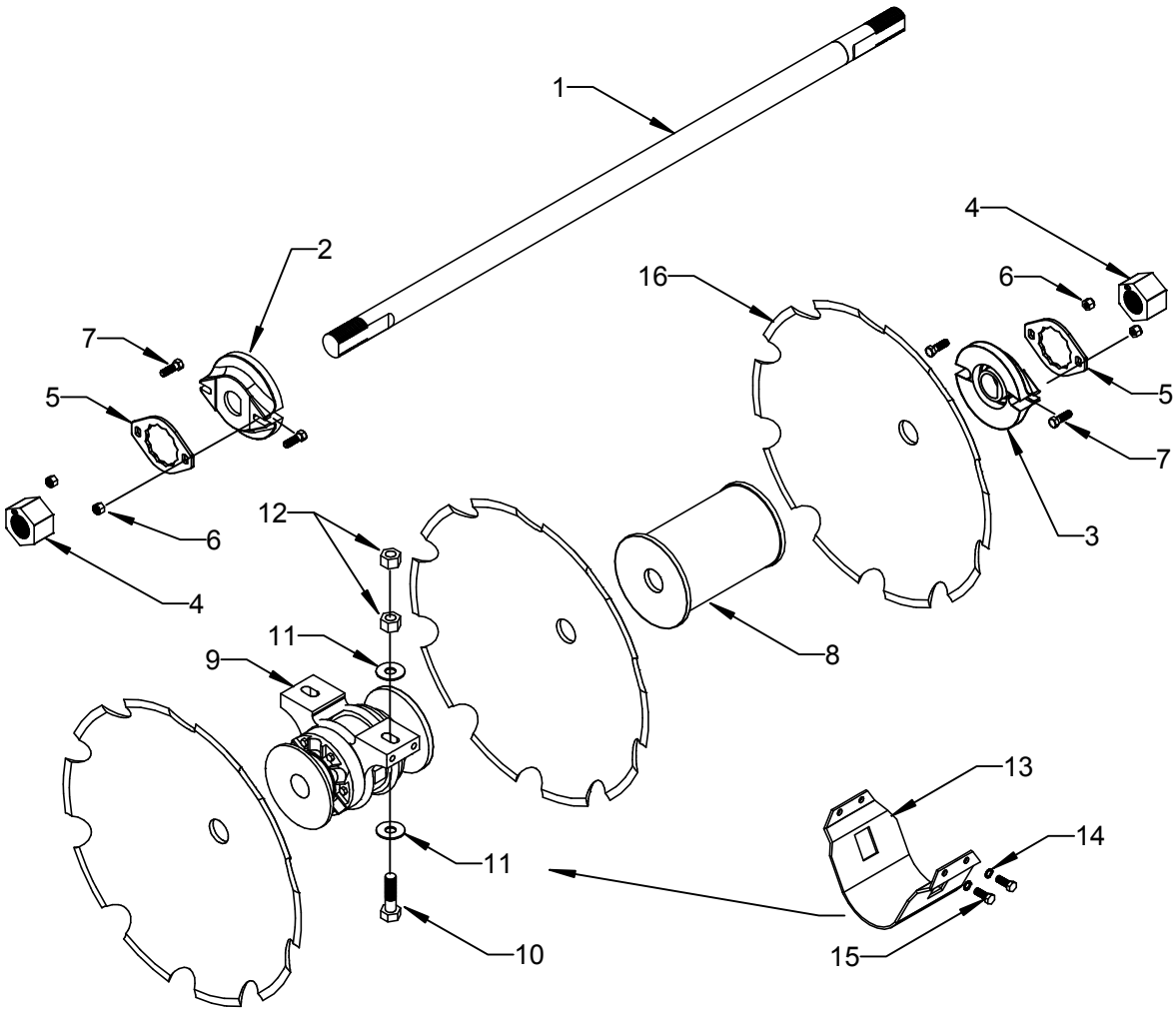
REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	K27730	Right Hand Scraper (Front Gang)	1
2	K27700	Left Hand Scraper (Rear Gang)	1
3	3027140	3/4" U-Bolt	2
4	NC075	3/4" Hex Nut	4
5	LW075	3/4" Lock Washer	4
8	456DYR	Yellow Reflector Strip	2

MODEL NO	6 - FRONT GANG	K27730 Req'd	7 - REAR GANG	K27700 Req'd
400-1830B	F40018	8	R40018	8
400-2030B	F40020	9	R40020	9
400-2230B	F40022	10	R40022	10
400-2430B	F40024	11	R40024	11
400-2630B	F40026	12	R40026	12
500-1832B	F50018	8	R50018	8
500-2032B	F50020	9	R50020	9
500-2232B	F50022	10	R50022	10
500-2432B	F50024	11	R50024	11
600-1636B	F60016	7	R60016	7
500-1836B	F60018	8	R60018	8
600-2036B	F60020	9	R60020	9
600-2236B	F60022	10	R60022	10



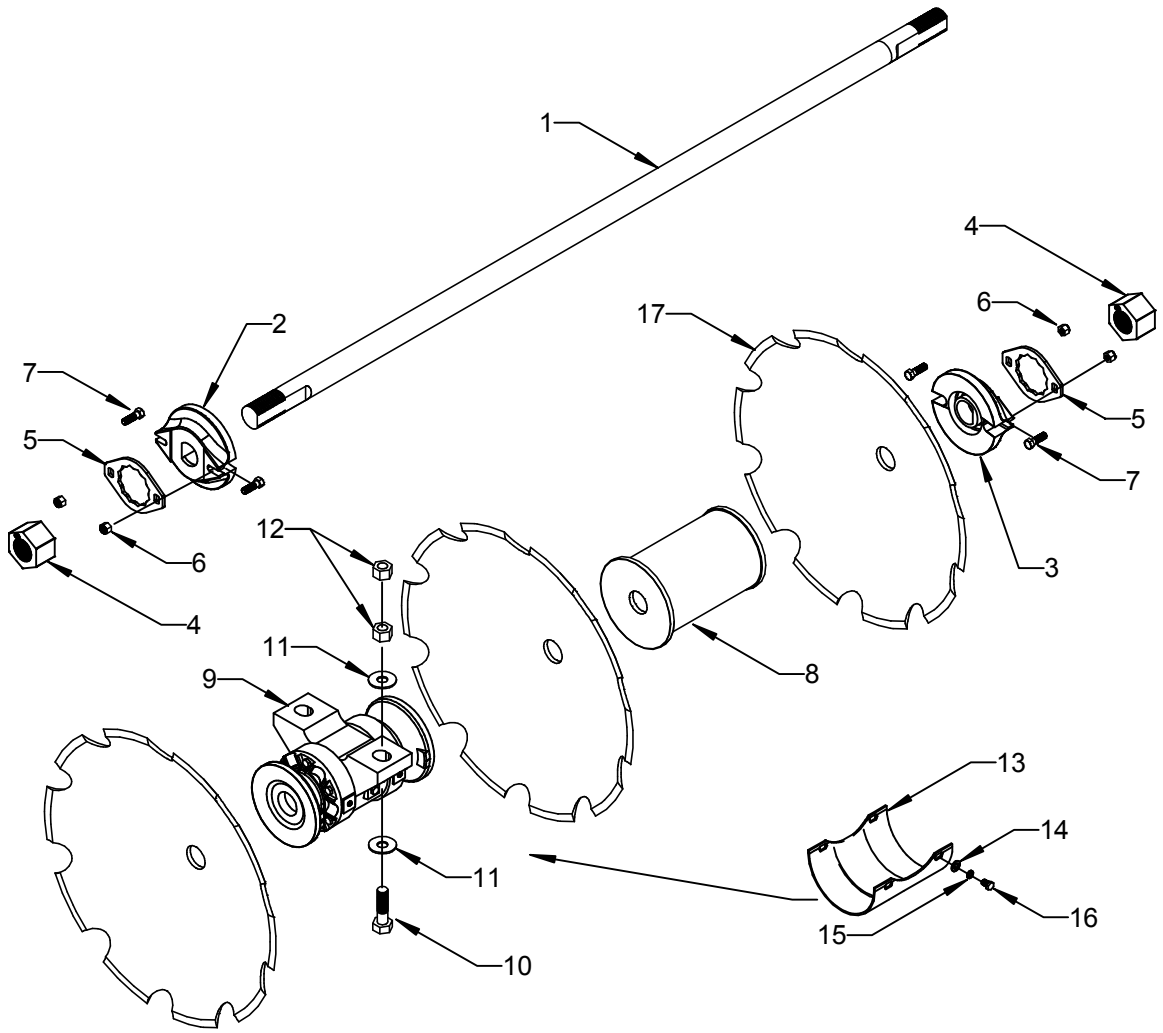
Gang Assembly - Model 400

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D (per Assembly)
1	501010452	Axle 2-1/2"dia X 50" (4 Blades)	1
1	501010453	Axle 2-1/2"dia X 63-3/4" (5 Blades)	1
1	501010454	Axle 2-1/2"dia X 77" (6 Blades)	1
1	501010455	Axle 2-1/2"dia X 90-1/2" (7 Blades)	1
2	4R60B	Convex End Washer	1
3	4R64A	Concave End Washer	1
4	4N225	Hex Nut	2
5	NL225	Nut Lock	2
6	LW075	3/4" Lock Washer	2
7	075175B5	3/4" X 1-3/4" UNC Bolt	2
8	511065282	13" Spacer Spool	1 / 2 / 3 / 4
9	501040230	Oil-Bath Bearing Assembly	2
10	125500B8	1-1/4" X 5" UNC Bolt	4
11	FW125H	Hardened Flat Washer	8
12	NC125	1-1/4" Hex Nut	8
13	511016372	Replaceable Bearing Wear Plate	2
14	LW050	1/2" Lock Washer	8
15	050075B	1/2" X 3/4" UNC Bolt	8
16	602040102	1/2" X 30" Notched Disc Blade	



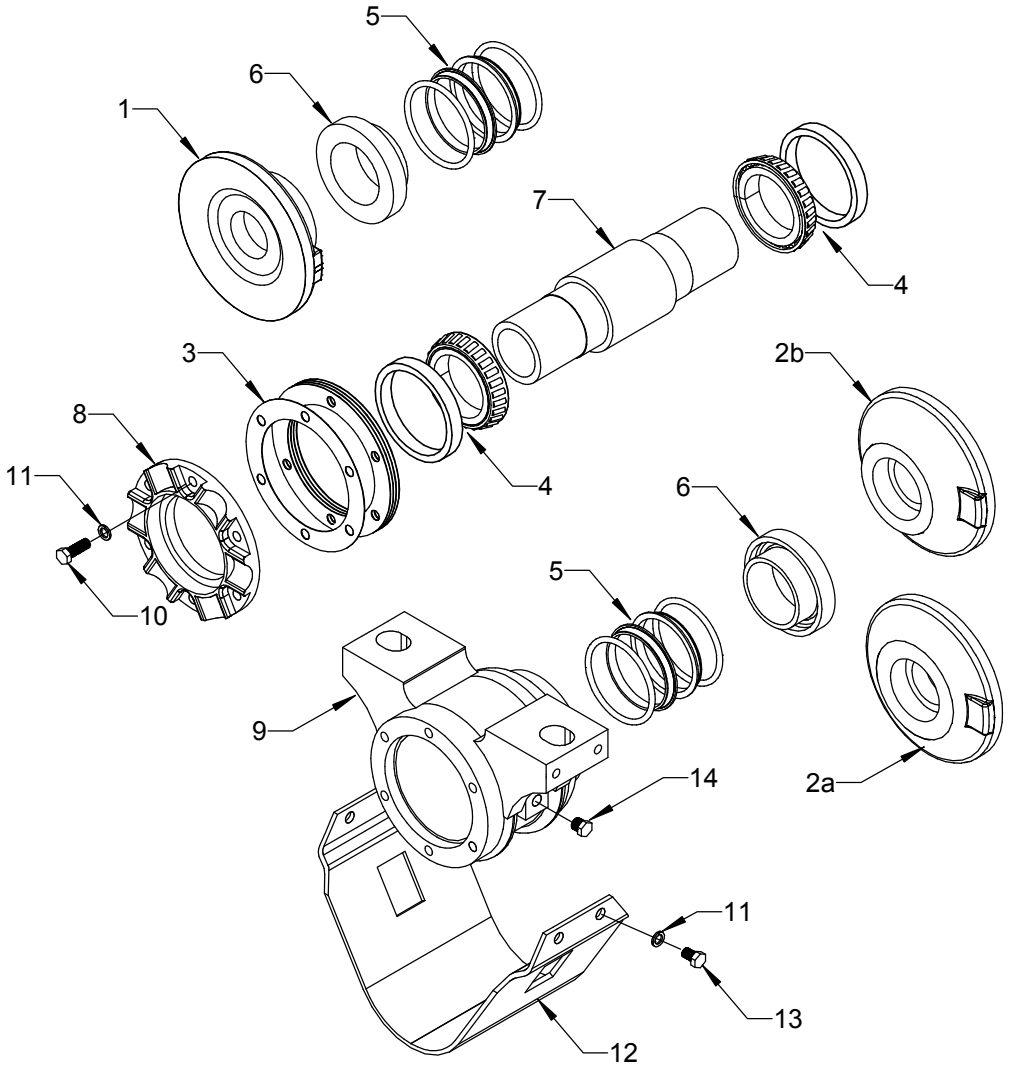
Gang Assembly - Model 500

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D (per Assembly)
1	501010356	Axle 2-1/2"dia X 54-1/2" (4 Blades)	1
1	511018625	Axle 2-1/2"dia X 68-1/2" (5 Blades)	1
1	511018626	Axle 2-1/2"dia X 82-3/4" (6 Blades)	1
2	502010592	Convex End Washer	1
3	502010593	Concave End Washer	1
4	4N225	Hex Nut	2
5	501010348	Nut Lock	2
6	NC0635L	5/8" Nylon Lock Hex Nut	4
7	063200B5	5/8" X 2" UNC Bolt	4
8	501068330	14" Spacer Spool	1 / 2 / 3
9	501047190	Oil-Bath Bearing Assembly	2
10	125500B8	1-1/4" X 5" UNC Bolt	4
11	FW125H	Hardened Flat Washer	8
12	NC125	1-1/4" Hex Nut	8
13	511016372	Replaceable Bearing Wear Plate	2
14	LW050	1/2" Lock Washer	8
15	050075B	1/2" X 3/4" UNC Bolt	8
16	602044163	1/2" X 32" Notched Disc Blade	



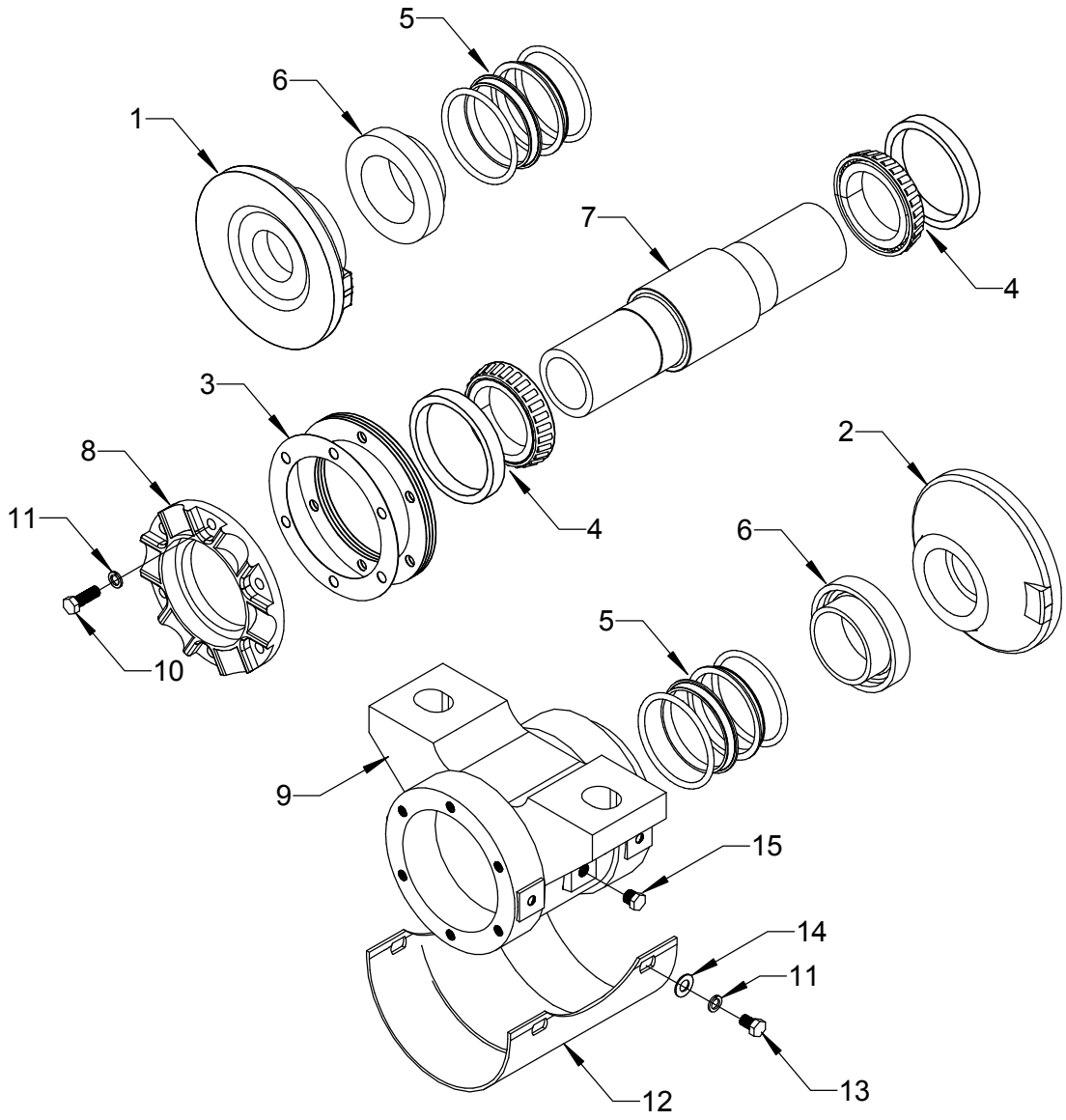
Gang Assembly - Model 600

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D (per Assembly)
1	501010358	Axle 2-1/2"dia X 63" (4 Blades)	1
1	501010357	Axle 2-1/2"dia X 80-3/8" (5 Blades)	1
1	501010359	Axle 2-1/2"dia X 98" (6 Blades)	1
2	502010592	Convex End Washer	1
3	502010593	Concave End Washer	1
4	4N225	Hex Nut	2
5	501010348	Nut Lock	2
6	NC0635L	5/8" Nylon Lock Hex Nut	4
7	063200B5	5/8" X 2" UNC Bolt	4
8	501068331	17" Spacer Spool	1 / 2 / 3
9	501047191	Oil-Bath Bearing Assembly	2
10	125500B8	1-1/4" X 5" UNC Bolt	4
11	FW125H	Hardened Flat Washer	8
12	NC125	1-1/4" Hex Nut	8
13	501018437	Replaceable Bearing Wear Plate	2
14	FW050	1/2" Flat Washer	8
15	LW050	1/2" Lock Washer	8
16	050075B	1/2" X 3/4" UNC Bolt	8
17	602048045	1/2" x 36" Notched Disc Blade	



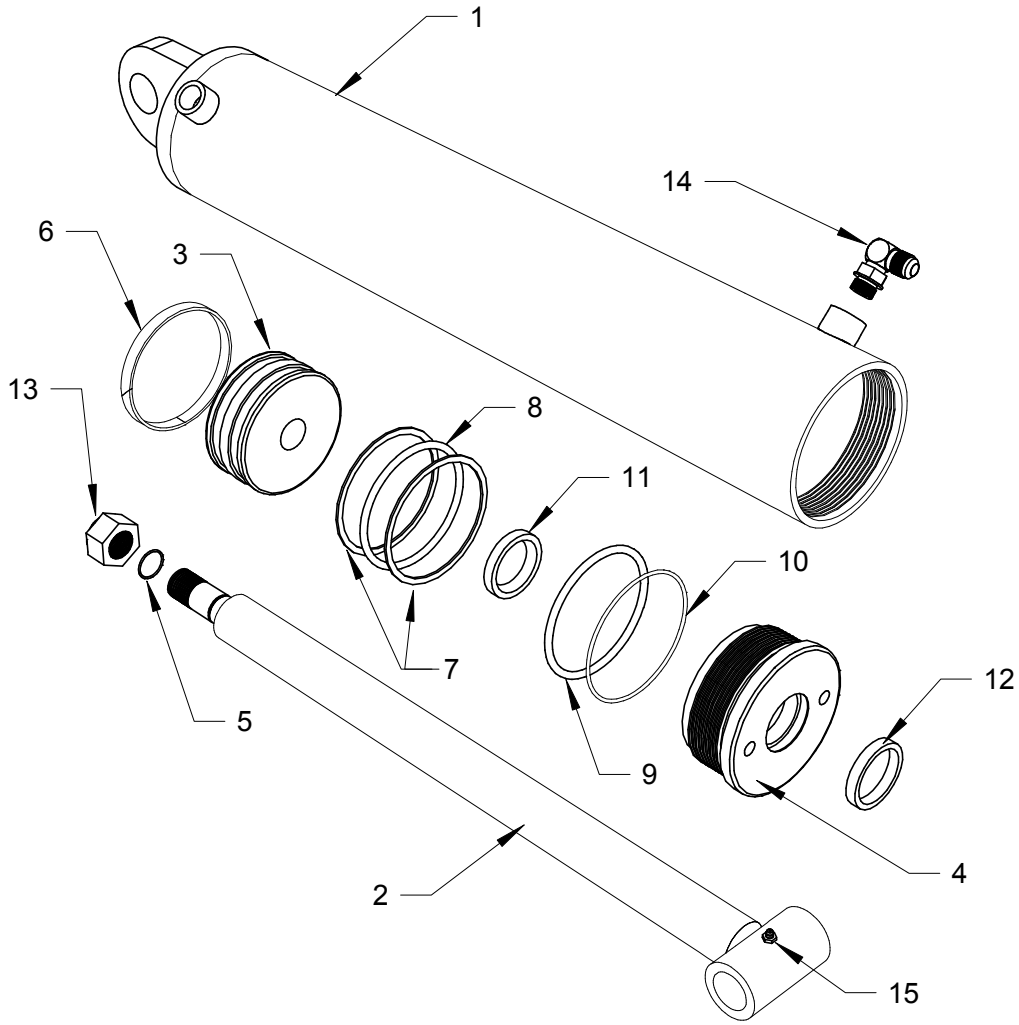
501040230 - Oil-Bath Bearing Assembly (Model 400)
501047190 - Oil-Bath Bearing Assembly (Model 500)

REF NO	PART NUMBER		DESCRIPTION	NO REQ'D
	501040230 (13")	501047190 (14")		
1	502040167	502040167	Concave Flange	1
2a	502011553		Convex Flange	1
2b		502040168	Convex Flange	1
3	503030687 503030537	503030687 503030537	0.10 mm Gasket (Shim) 0.40 mm Gasket (Shim)	
4	503010482	503010482	Bearing, Cup and Cone	2
5	503030029	503030029	Duo-Cone Seal	2
6	502040119	502040119	Seal Retainer	2
7	502040204	502040204	Bearing Axial	1
8	502010208	502010208	End Cap	1
9	502011685	502011685	Bearing Housing	1
10	050150B5	050150B5	1/2" X 1-1/2" UNC Bolt	6
11	LW050	LW050	1/2" Lock Washer	10
12	511016372	511016372	Wear Plate	1
13	050075B	050075B	1/2" X 3/4" UNC Bolt	4
14	503010856	503010856	Check Plug	2



5KB501047191 - Oil-Bath Bearing Assembly (Model 600)

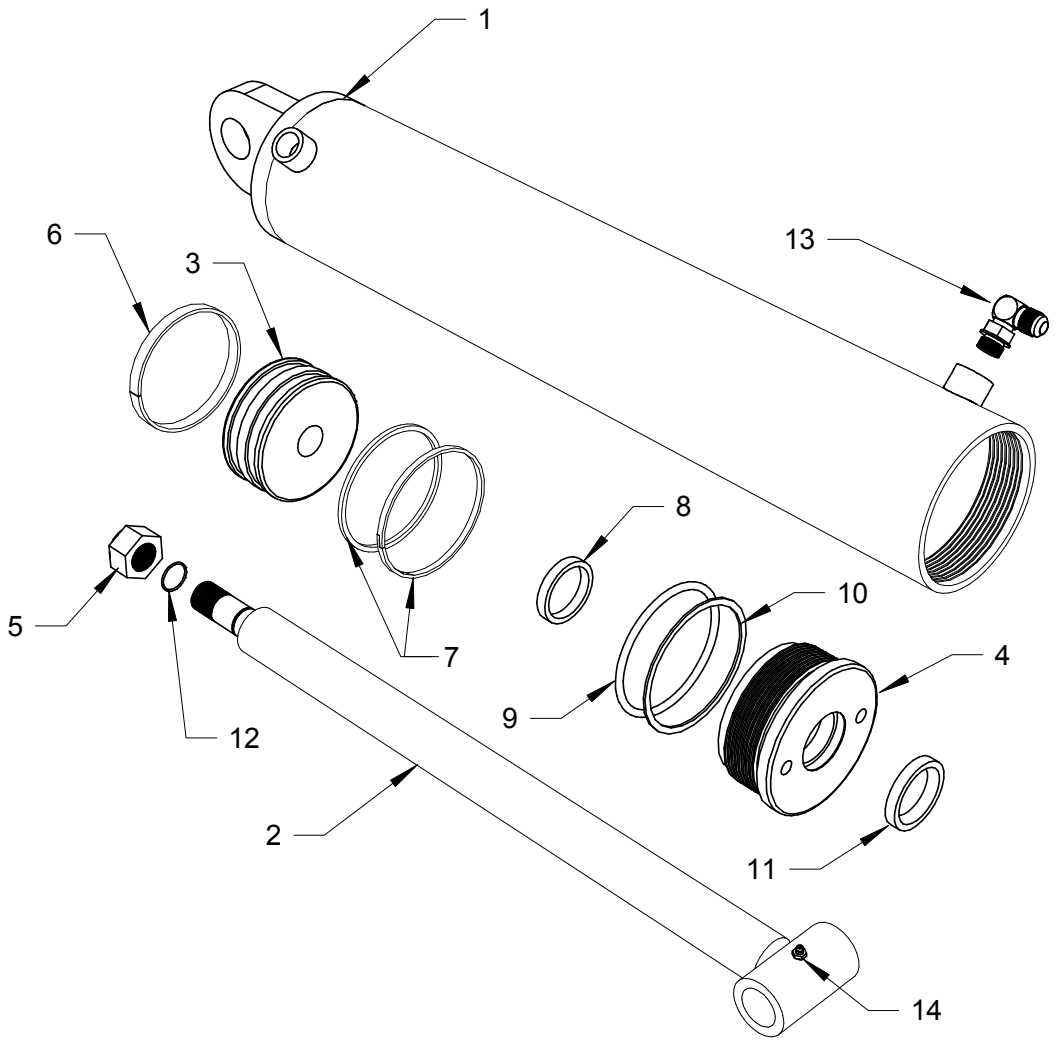
REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	502040164	Concave Flange	1
2	502040165	Convex Flange	1
3	503030687 503030537	0.10 mm Gasket (Shim) 0.40 mm Gasket (Shim)	
4	32218	Bearing, Cup and Cone	2
5	503030029	Duo-Cone Seal	2
6	502040119	Seal Retainer	2
7	502040039	Bearing Axial	1
8	502010208	End Cap	1
9	502010747	Bearing Housing	1
10	050150B5	1/2" X 1-1/2" UNC Bolt	6
11	LW050	1/2" Lock Washer	10
12	501018437	Wear Plate	1
13	050075B	1/2" X 3/4" UNC Bolt	4
14	FW050	1/2" Flat Washer	4
15	503010856	Check Plug	2



20" Hydraulic Cylinder - 5004974

(CTD - Canadian Tool & Die - C50-158A)

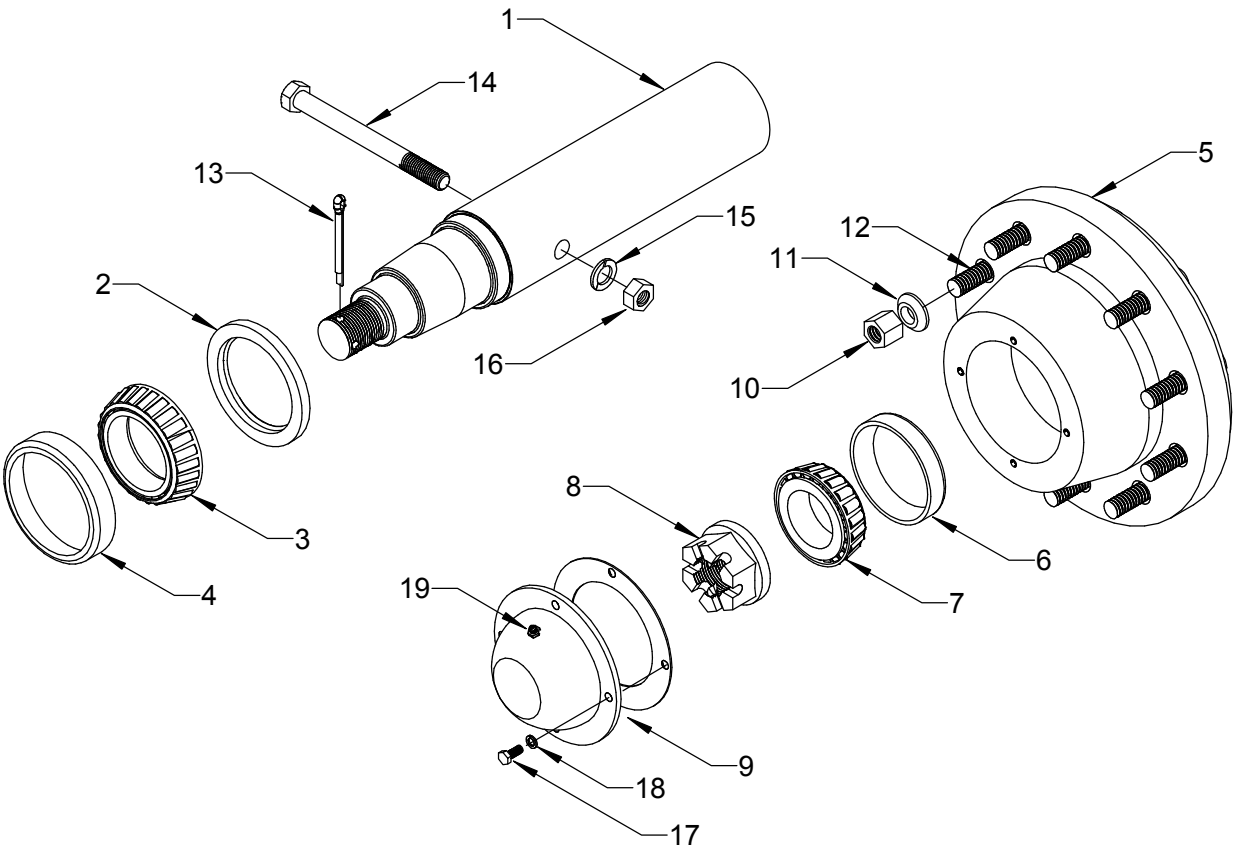
REF NO	PART NUMBER	DESCRIPTION		NO REQ'D (per assembly)
1	TUW5096	Barrel		1
2	RODW5096	Rod		1
3	5005032	Piston		1
4	5005022	Gland		1
5	5005014	Locknut		1
6		Wear Ring		1
7		Back-up Ring		2
8		O-Ring (white)		1
9		O-Ring (black)	-use either 9 or 10 depending on fitment to gland.	1
10		O-Ring (white)		1
11		Rod Seal (blue)		1
12		Rod Wiper		1
13		O-Ring		1
14	5000611	90 deg Elbow Fitting		2
15	11100	Grease Zerk		1
	SKC5086AK	Seal Kit (Nos. 6,7,8,9,10,11,12,13)		



20" Hydraulic Cylinder - R4507785

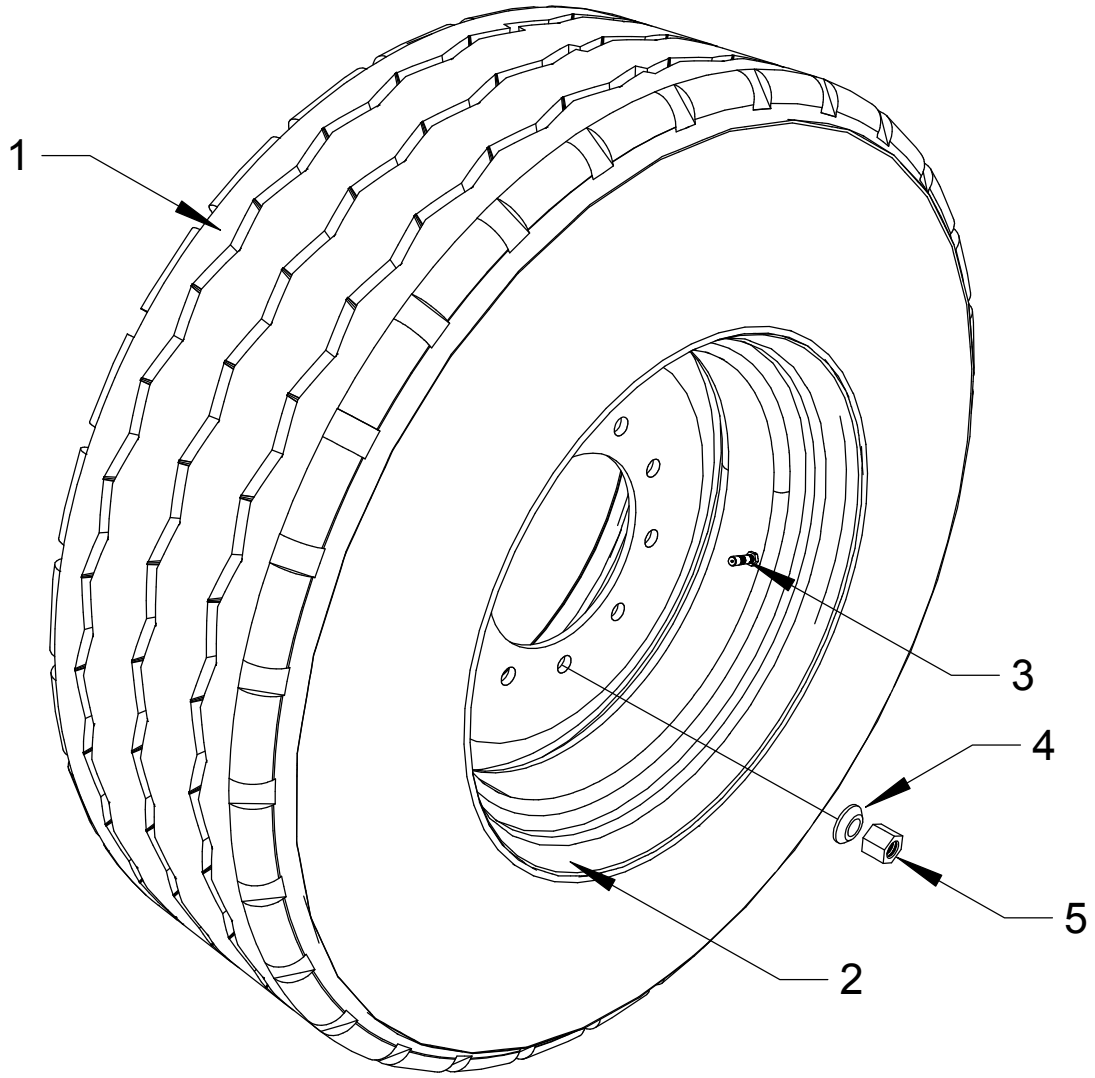
(RAM Industries - R4507785)

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D (per assembly)
1	R5507785	Barrel	1
2	R4207785	Rod	1
3	R4607782	Piston	1
4	R4707782	Gland	1
5	R3005009	Locknut	1
6		Wear Ring	1
7		Piston Seal (2 piece)	2
8		Rod Seal	1
9		O-Ring	1
10		Back-up Ring	1
11		Rod Wiper	1
12		O-Ring	1
13	5000611	90 deg Elbow Fitting	2
14	11100	Grease Zerk	1
	R3607782	Seal Kit (Nos. 6,7,8,9,10,11,12,13)	



10 Bolt Hub Assembly

REF NO	PART NUMBER	DESCRIPTION	NO REQ,D
1	910691	Spindle c/w Nut/Washer (5KB914969)	1
2	910698	Seal	1
3	914695	Inner Cone	1
4	914697	Inner Cup	1
5	912686	Hub c/w Wheel Studs	1
6	914696	Outer Cup	1
7	910615	Outer Cone	1
8	914969	Nut / Washer	1
9	910694	Cap / Gasket	1
10	912707	Lug Nut	10
11	W750	Taper Washer	10
12	912711	Press-In Stud	10
13	VS201HP	Cotter Key	1
14	075800B8	Bolt	1
15	LW075	Lock Washer	1
16	NC075	Hex Nut	1
17	031075B5	Bolt	4
18	LW031	Lock Washer	4
19	11100	Grease Zerk	1



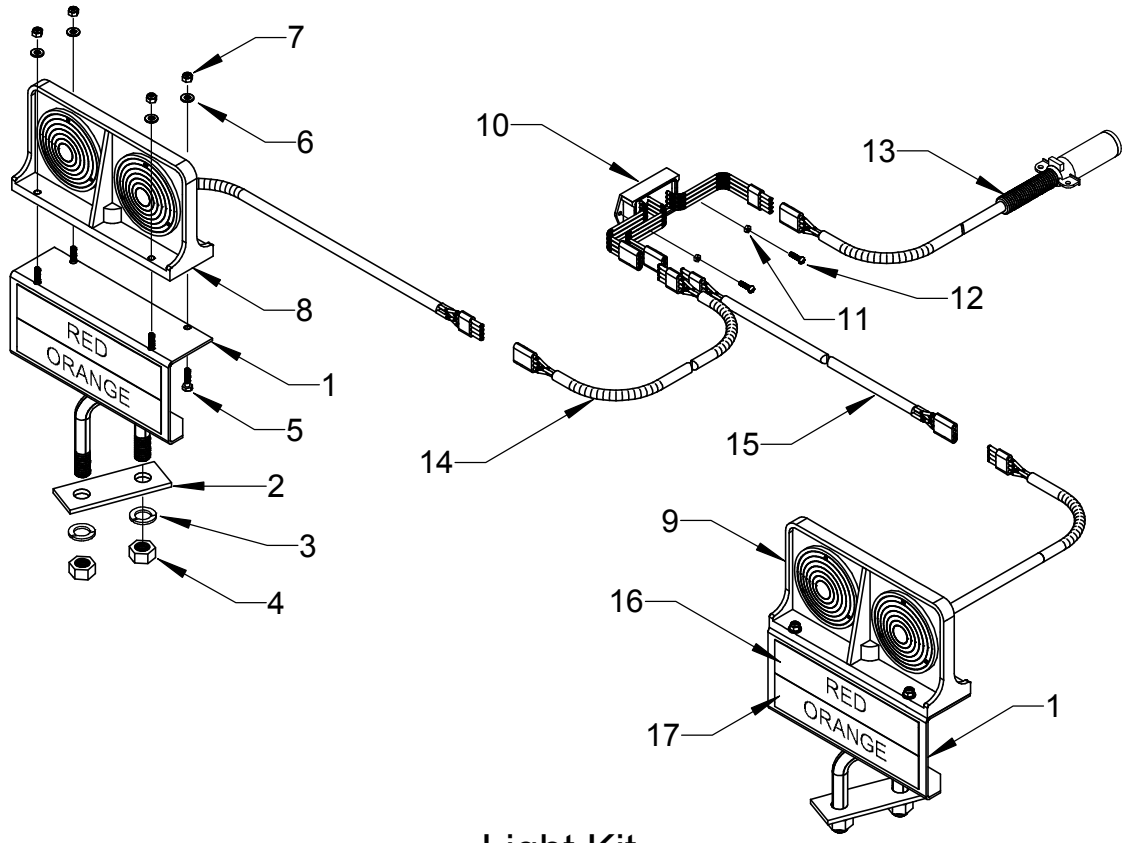
Tire and Wheel Assembly

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	38565R225	Radial Truck Tire	1
2	93238700	10 Bolt Steel Wheel	1
3	1020039	Valve Stem	1
4	W750	Taper Washer	10
5	912707	Lug Nut	10

Maintain tire pressure at 90 psi (max 120 psi).

Check and adjust tire pressure when tire is cold.

Torque Wheel nuts to 280-300 ft/lbs.



Light Kit

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	4560050	Light Mount	2
2	4560051	Clamp Plate	2
3	LW075	3/4" Lock Washer	4
4	NC075	3/4" Hex Nut	4
5	025100B5	1/4" X 1" UNC Bolt	8
6	FW025	1/4" Flat Washer	8
7	NC0255L	1/4" Nylon Lock Nut	8
8	9212LBW	Left Light Set	1
9	9212RBW	Right Light Set	1
10	ML246W	Module	1
11	MN1024	No. 10-24 Machine Nut	2
12	MS1024100	No. 10-24 Machine Screw	2
13	456CBL	Primary Cable	1
14	456SLC	Left Intermediate Cable - Fits Models: 400-1830/400-2030/400-2230 500-1832/500-2032/600-1636/600-1836	1
14	456LLC	Left Intermediate Cable - Fits Models: 400-2430/400-2630 500-2232/500-2432/600-2036/600-2236	1
15	456SRC	Right Intermediate Cable - Fits Models: 400-1830/400-2030/400-2230 500-1832/500-2032/600-1636/600-1836	1
15	456LRC	Right Intermediate Cable - Fits Models: 400-2430/400-2630 500-2232/500-2432/600-2036/600-2236	1
16	456DRR	Red Reflector Strip	1
17	456DOR	Orange Reflector Strip	1
	LK456N	Light Kit (Items 8 / 9 / 10 / 13 / 14 / 15) Fits Models: 400-1830/400-2030/400-2230 500-1832/500-2032/600-1636/600-1836	
	LK456W	Light Kit (Items 8 / 9 / 10 / 13 / 14 / 15) Fits Models: 400-2430/400-2630 500-2232/500-2432/600-2036/600-2236	

1. 

2. 

3. 

4. 

5. YELLOW

6. RED

7. ORANGE

8. 

9. 

10. 

11. 

12. 

13. 

Decals, Reflectors and Logos

REF NO	PART NUMBER	DESCRIPTION	NO REQ'D
1	LG2KB	Kello-Bilt Logo (Large)	2
2	400DKB	Model 400 Logo	2
3	500DKB	Model 500 Logo	2
4	600DKB	Model 600 Logo	2
5	RFLYW	Yellow Reflector	6
6	RFLRD	Red Reflector	2
7	RFLOR	Orange Reflector	2
8	DWPHF	WARNING – Avoid serious injury from injection of pressurized….	1
9	DCASI	CAUTION – To Avoid Serious Injury: …..	1
10	DDDNA	DANGER – To avoid injury or death, do not adjust…….	1
11	DWMTS	WARNING – Do not exceed implements maximum transport…	1
12	DWPPH	WARNING – Pinch Point Hazard	1
13	DWICL	WARNING – Avoid serious injury from crushing or ……..	1

Specifications

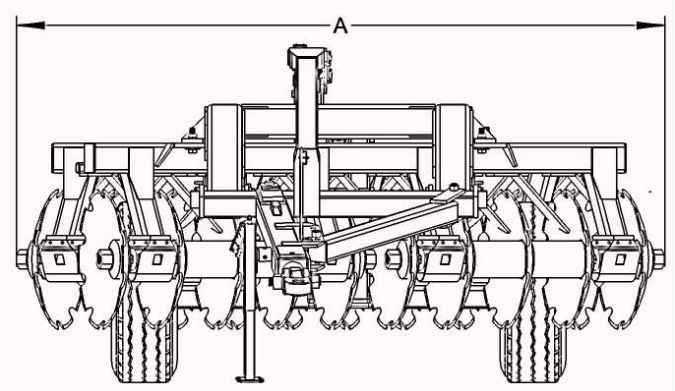
STANDARD EQUIPMENT AND FEATURES

- □ Oil-Bath Bearings with back-to-back tapered roller bearings in a ductile cast housing sealed with metal industrial cone seals. Two bearings per disk gang assembly and four disk gang assemblies per machine.
- □ Replaceable bearing wear plates.
- □ Adjustable disk blade scrapers.
- □ 2-1/2" diameter alloy gang axles threaded at each end.
- □ Heavy duty fabricated steel spacer spools.
- □ Separate transport levelling and field levelling mechanisms simplify adjustment.
- □ Hydraulic control group includes 20" stroke welded 5" diameter hydraulic cylinder with 2" rod, hose holder, hoses with fittings and quick disconnects to reach tractor couplers.
- □ Flex / Swivel tongue hook-up to minimize torsional stress in extreme working environments.
- □ 385/65R225 Industrial Truck tires on 10-bolt wheels and hubs.
- □ Major fasteners minimum Grade 8 plated.
- □ Two fabricated steel gang axle wrenches.
- □ Hitch jack, safety chain and transport stay.
- □ Safety decals, mounted SMV sign and Light Kit

MODEL	Cut Width	Trans Width (A)	Blade Size	No of Blades	Blade Spacing	Weight - lbs	D.B.H.P.*
400-1830B	10'	10' 10"	½" X 30"	18	13"	10500	175+
400-2030B	11'	11' 9"	½" X 30"	20	13"	10875	200+
400-2230B	12'	12' 8"	½" X 30"	22	13"	11755	225+
400-2430B	13'	13' 7"	½" X 30"	24	13"	12650	275+
400-2630B	14'	14' 6"	½" X 30"	26	13"	13100	300+
500-1832B	10	11' 8"	½" X 32"	18	14"	11500	200+
500-2032B	11'	12 ' 8"	½" X 32"	20	14"	12000	225+
500-2232B	12'6"	13' 11"	½" X 32"	22	14"	12500	250+
500-2432B	13'9"	14' 10"	½" X 32"	24	14"	13300	300+
600-1636B	10'	12' 6"	½" X 36"	16	17"	13900	225+
600-1836B	11'6"	13' 10"	½" X 36"	18	17"	14500	275+
600-2036B	13'	15' 2"	½" X 36"	20	17"	15200	325+
600-2236B	14'6"	16' 7"	½" X 36"	22	17"	15900	350+

* Drawbar Horsepower requirements vary with soil conditions, topography, weight added to the disk and tractor type (e.g. rubber track, rubber wheel, straight frame, articulated).

Note: The manufacturer reserves the right to make improvements and modifications which may, without notice, change these specifications.



Storage

At the end of the season and when putting the disc into storage:

- □ Clean dirt and debris from around moving parts and from the top of the frame, gang bars, hitch and bridle.
- □ Pay special attention to cleaning the area around the bearings. Spray a light coating of oil or rust preventative around the seal area of the bearings.
- □ Lubricate all grease fittings to prevent moisture infiltration.
- □ It is recommended to park with the disk in the raised position, coat the exposed hydraulic cylinder rod with grease, install the transport stay and relieve the hydraulic pressure. Place a block under the hitch jack to prevent it from sinking into the ground and be sure the tires are properly inflated. Chock the tires front and rear.
- □ Clean disk blades to minimize rust.
- □ Coat the quick disconnects in grease and wrap in plastic to prevent rust.
- □ Make a final inspection for worn, damaged or missing parts and make necessary repairs before the next season.