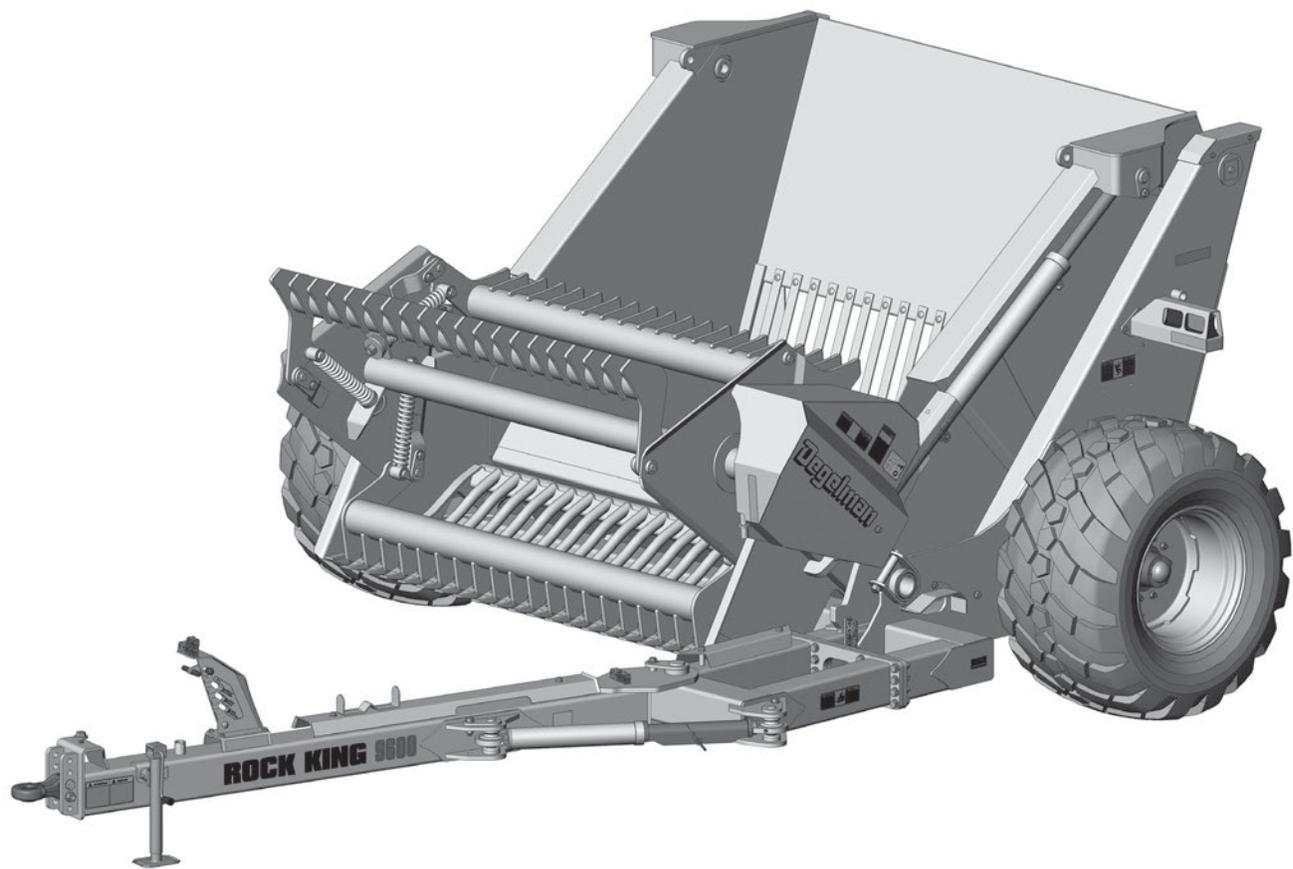

ROCK KING 9600



ROCK KING 9600

143096 v1.1

DEGELMAN INDUSTRIES LP
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ROCK KING 9600
ROCK PICKER

QUICK-START GUIDE*

for ROCK KING Rock Pickers

* Refer to operators manual for complete safety and operation info.



A Hook-up to Rock Picker

NOTE: Stop the tractor engine, place all controls in neutral, set park brake before dismounting.

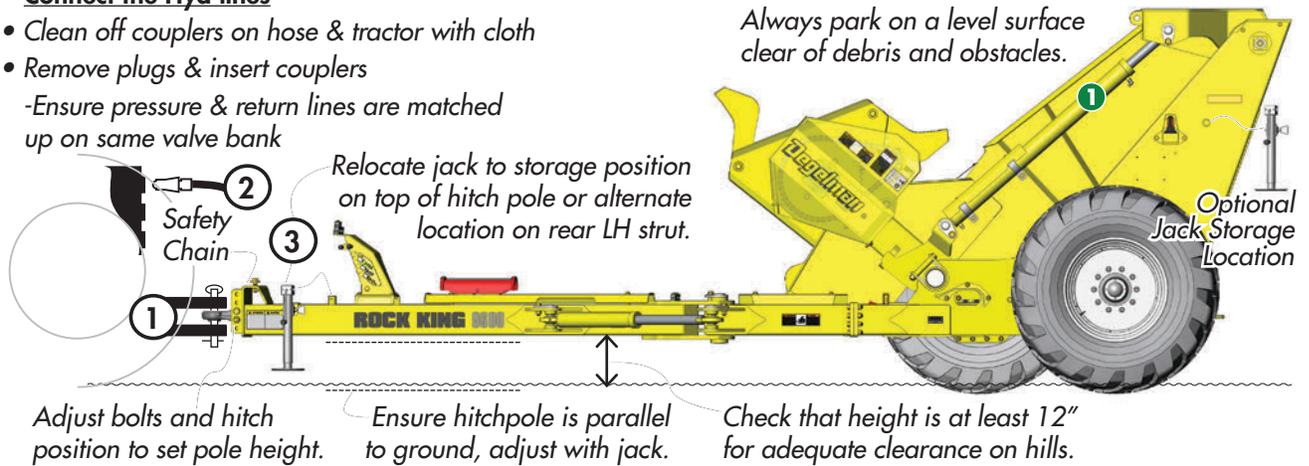
1. Connect and properly secure to tractor drawbar.

2. Connect the Hydraulics.
- ① **HYDRAULIC GRILLE/DUMP...Grille/Dump Cylinders**
 - ② **SWING POLE CIRCUIT.....Swing Pole Cylinder**
 - ③ **HYDRAULIC REEL CIRCUIT.....Hydraulic Motor**

3. Remove and place hitch jack into storage position.

Connect the Hyd lines

- Clean off couplers on hose & tractor with cloth
- Remove plugs & insert couplers
- Ensure pressure & return lines are matched up on same valve bank



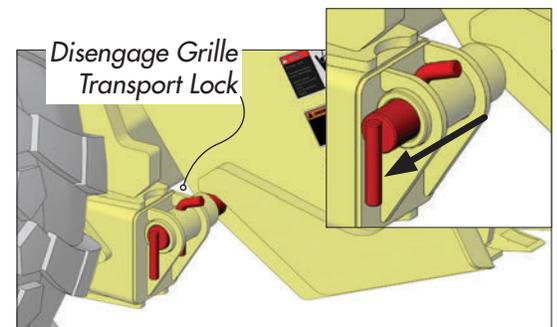
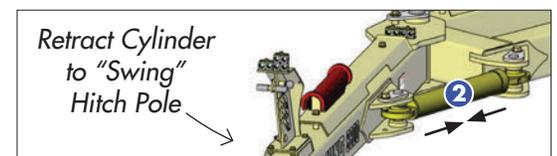
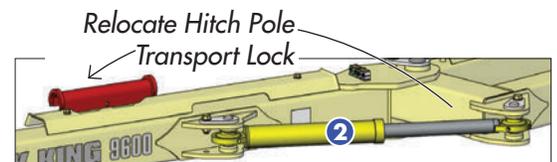
B Preparing the Rock Picker

1. Position Hitch Pole into Field Position.

- Remove and store the swing pole cylinder *transport lock*.
- Retract the *swing pole cylinder* ② to its closed "field" position.

2. Grille Preparation.

- Fully retract the *grille/dump cylinders* ① to take the weight of the grille off the *red transport pin*.
- Disengage the red transport lock pin from its transport position and secure it into field position.



Maintenance

(Check Machine Daily)

* Refer to operators manual for complete safety & operation info.

- Check for missing, worn or damaged parts.
- Working points & pins
- Oil chain & check tension (approx 1/4")
- Hydraulic Connections & Hoses
- Tires, Hubs & Spindles

C Operation Overview

(Refer to operators manual for complete safety and operation info before use.)

- 1. Material Size:** Between 2-3/4" to 28" material that is loose and on top of the ground.
- 2. Grille Height:** Lower to allow the front of the teeth to skim the ground surface.
- 3. Ground Speed:** 4 to 6 MPH (6 to 10 km/h) is a normal operating speed. Reduce travel speed when picking heavy rock windrows.

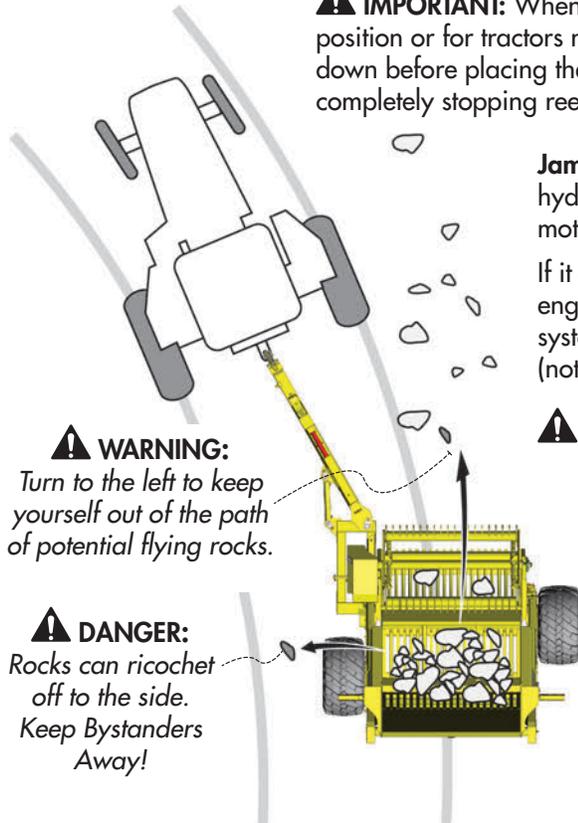


- 4. Reel Speed:** The reel speed is controlled by the hydraulic flow rate . For *Spot Picking*, run about 5% to 40% faster than ground speed. For *Windrow Picking*, reduce forward speed when there are large numbers to control the number of rocks entering the machine.

⚠ IMPORTANT: Do not use the grille to pry out deeply buried rock or debris. Grille teeth striking a buried rock will shock the machine and damage it.

- 5. Loading:** Can be loaded until the hopper box is filled and rocks stay on the back edge of the grille. Do not overfill the box as to overflow onto the grille. When hopper box is full, stop the reel to prevent throwing rocks.

⚠ IMPORTANT: When stopping reel always place the tractor hydraulic lever into float position or for tractors not equipped with float position be sure to idle tractor speed down before placing the hydraulics into neutral. **Never** reverse reel direction without first completely stopping reel. Failure to do this will result in costly hydraulic motor damage.



⚠ WARNING:
Turn to the left to keep yourself out of the path of potential flying rocks.

⚠ DANGER:
Rocks can ricochet off to the side. Keep Bystanders Away!

Jamming/Unplugging: After reel has completely stopped, move the hydraulic control lever the other direction to reverse the hydraulic motor. Reversing the reel will in most cases dislodge the jammed rock.

If it does not unplug the machine, lower grille to ground, stop tractor engine, place all controls in neutral, relieve the pressure in hydraulic system, set park brake, remove ignition key, then use a long pry bar (not hands) to dislodge the material.

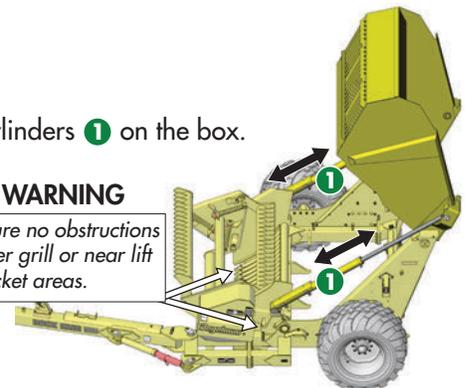
⚠ WARNING: Never use hands. Never get your head or arms into the machine. Stay clear of the paddle when removing any lodged material. The paddles could kick back from hydraulic pressure or spring tension. Always use a long bar to remove object.

⚠ DANGER: There is a danger that the paddle will catch the rocks and throw them forward if the reel speed is too fast.

- 6. Dumping:** The hopper box is unloaded by extending the unloading cylinders  on the box.

- When backing up with a full load, switch the hitch pole back to the transport position. This will prevent damage to the frame.
- Be sure the machine is on level ground when raising the hopper box to unload.
- Ensure there are no obstructions below the grille/grate area or the side cylinder lift bracket area when dumping.

⚠ WARNING
Ensure no obstructions under grill or near lift bracket areas.



⚠ WARNING: Stay clear of the machine and surrounding area when unloading. Keep others away.

ROCK KING 9600

* Reference Sheet Quick-Start Guide

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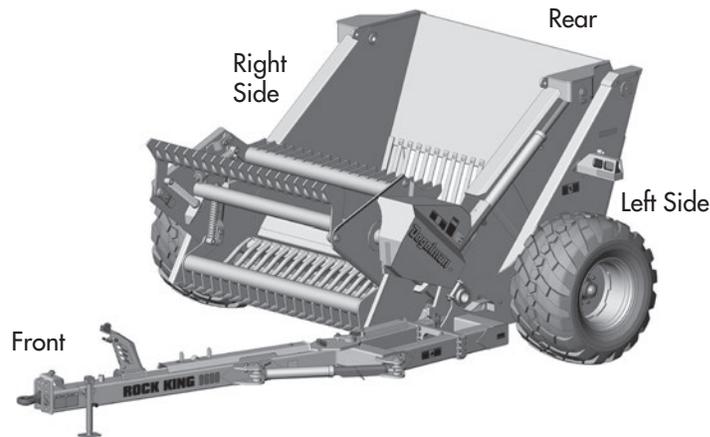
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ROCK KING 9600



CONGRATULATIONS Congratulations on your choice of a Degelman Rock King 9600 Rock Picker to complement your farming operation. It has been designed and manufactured to meet the needs of a discerning Agricultural market for the efficient picking of rocks. Use this manual as your first source of information about this machine. If you follow the instructions given in this manual, your machine will work well for many years.

Safe, efficient and trouble free operation of your Degelman Rock Picker requires that you and anyone else who will be operating or maintaining the Picker, read and understand the Safety, Operation, Maintenance and Troubleshooting information contained within this Manual.

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

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

Why is **SAFETY** important to **YOU**?

3 **BIG** Reasons:

- **Accidents Can Disable and Kill**
- **Accidents Are Costly**
- **Accidents Can Be Avoided**



SAFETY ALERT SYMBOL

The **Safety Alert Symbol** identifies important safety messages applied to the Rock Picker and in this manual. When you see this symbol, be alert to the possibility of **injury or death**. Follow the instructions provided on the safety messages.

The **Safety Alert Symbol** means:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

SIGNAL WORDS

Note the use of the Signal Words: **DANGER**, **WARNING**, and **CAUTION** with the safety messages. The appropriate Signal Word has been selected using the following guidelines:



DANGER: Indicates an imminently hazardous situation that, if not avoided, **WILL** result in death or serious injury if proper precautions are not taken.



WARNING: Indicates a potentially hazardous situation that, if not avoided, **COULD** result in death or serious injury if proper precautions are not taken.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, **MAY** result in minor or moderate injury if proper practices are not taken, or, serves as a reminder to follow appropriate safety practices.

Safety

SAFETY

YOU are responsible for the safe operation and maintenance of your Degelman Rock Picker. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Rock Picker 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 this equipment.

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.

- Rock Picker owners must give operating instructions to operators or employees before allowing them to operate the Rock Picker, and at least annually thereafter.
- The most important safety device 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. All 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!

GENERAL SAFETY

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



2. Install and properly secure all shields and guards before operating. Use hitch pin with a mechanical locking device.

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

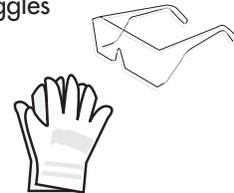


4. Have a fire extinguisher available for use should the need arise and know how to use it.



5. Wear appropriate protective gear. This list includes but is not limited to:

- A hard hat
- Protective shoes with slip resistant soles
- Protective glasses or goggles
- Heavy gloves
- Wet weather gear
- Hearing protection
- Respirator or filter mask



6. Clear the area of people, especially small children, and remove foreign objects from the machine before starting and operating.

7. Do not allow riders.

8. Stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

9. Review safety related items with all operators annually.

Overview

TO THE NEW OPERATOR OR OWNER

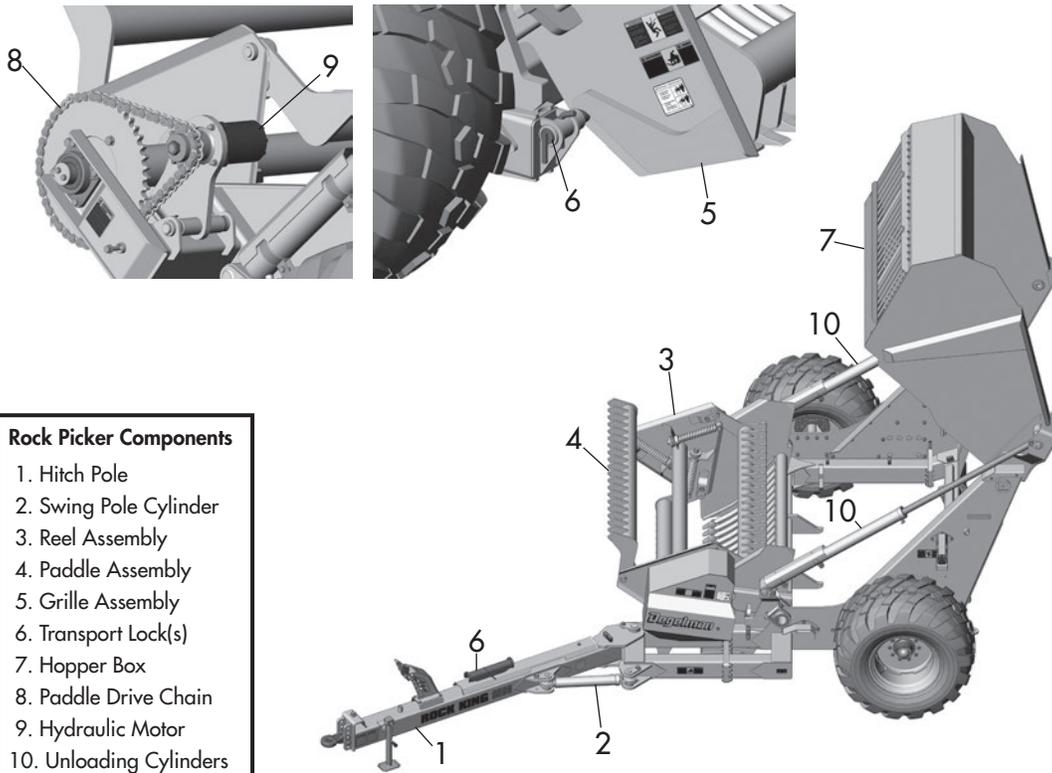
The Degelman Rock King 9600 Rock Picker is designed to efficiently gather rocks from 2-3/4 to 28 inches (70 to 710mm) diameter and debris from fields. Many of the features incorporated into this machine are the result of suggestions made by customers like you.

It is the owner's or operator's responsibility to read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum efficiency. Safety is everyone's business. By following safe operating practices, a safe environment is provided for the operator and bystanders.

The manual will take you step-by-step through your working day. By following the operating instructions in conjunction with a good maintenance program, your machine will provide many years of trouble-free service.

PRINCIPLES OF OPERATION

The Rock Picker is a framework of steel bars called a grille that moves along the surface of the ground to gather rocks and debris. A rotating paddle moves along the top of the grille to move the rocks and material into the hopper box. When the hopper box fills, it is emptied by dumping out the back.



Preparation

OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before using.
2. Lower grille and hopper box, stop tractor engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
4. Do not allow riders on the Rock Picker or tractor during operation or transporting.
5. Keep all shields and guards in place when operating.
6. Clear the area of all bystanders, especially children, before starting.
7. Do not operate machine or raise hopper box on steep side hills or slopes.
8. Use a long pole or bar to dislodge material from paddles or grille. Pressure in hydraulic system and paddle spring tension can cause paddles to kick back if they are jammed.
9. Be careful when working around or maintaining a high-pressure hydraulic system. Ensure all components are tight and in good repair before starting.
10. Clean all reflectors, lights and the SMV sign before transporting on a highway or public road. Be sure to check with local highway authorities and comply with their lighting requirements.
11. Stay well back from machine when operating to prevent being hit by flying rocks. Keep others away.
12. Turn to the left when manoeuvring to keep the tractor away from the path of flying rocks.

BREAK-IN

Although there are no operational restrictions on the Rock Picker when it is new, there are some mechanical checks that must be done to ensure the long term integrity of the unit. When using the machine for the first time, follow this procedure:

 *It is extremely important to follow all of the Break-In procedures especially those listed in the "Before using" section below to avoid damage:*

Before using:

1. Read Safety Info. & Operator's Manual.
2. Complete steps in "Pre-Operation Checklist".
3. Lubricate grease points.
(Swing Pole Cylinder and Front Hitch Casting)
4. Check all bolt tightness.

After operating for 2 hours:

1. Retorque wheel bolts.
2. Check all hardware. Tighten as required.
3. Check all hydraulic system connections.
Tighten if any are leaking.
4. Tighten chain.

After operating for 8 hours:

1. Repeat Step B.
2. Go to the service schedule as outlined in the "Service & Maintenance" section.

Preparation

PRE-OPERATION CHECKLIST

It is important for both personal safety and maintaining the good mechanical condition of the machine that this pre-operational checklist be followed.

Before operating the machine and each time thereafter, the following areas should be checked off: 

- 1. Lubricate the machine per the schedule outlined in the "Service & Maintenance Section".
- 2. Use only a tractor of adequate power (200 hp min.) and weight to carry the Rock Picker.
- 3. Ensure that the machine is properly attached to the tractor using a drawbar pin with provisions for a mechanical retainer. Make sure that a retainer such as a Klik pin is installed.
- 4. Ensure that a safety chain on the hitch is installed.
- 5. Check tires and ensure that they are inflated to the specified pressure: 40 psi (275kPa).
- 6. Check oil level in the tractor hydraulic reservoir. Top up as required.
- 7. Inspect all hydraulic lines, hoses, fittings and couplers for tightness. Tighten if there are leaks. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the tractor's hydraulic system.
- 8. Check roller chain and sprockets for proper alignment and tension. Adjust for tension as required.
- 9. Inspect all moving and rotating parts. Remove any debris that has become entangled in them.
- 10. Make sure that all guards and shields are installed and secured in position.
- 11. Check the paddles, grille and hopper box. Remove any rocks or debris that have become jammed in any of the components.

TRACTOR PREPARATION

Follow this procedure when selecting and preparing a tractor for use with the machine:

1. Use only a tractor of sufficient power and weight to adequately handle the machine. It is recommended that the tractor have at least **200 PTO** horsepower for normal operating conditions.
2. It is recommended to pin the drawbar in its centre draft position.
3. Use only a drawbar pin with provisions for a mechanical retainer such as a Klik pin. Always install the retainer.
4. Always attach a safety chain between the tractor and the machine to prevent unexpected separation.
5. It is not recommended to use a tractor that is equipped with duals. The right outer tire will drive over the rocks, push them into the ground and make them difficult to pick up with the grille.

 **WARNING:** Use extreme care when working around a high pressure hydraulic system. Make sure all connections are tight and all components are in good repair. Wear hand and eye protection when searching for suspected leaks.



 **WARNING:** Use a long pole or bar to dislodge material from paddles or grille. Pressure in hydraulic system and paddle spring tension can cause paddles to kick back if they are jammed.

	 WARNING
	JAMMED PADDLE HAZARD Sudden release of spring pressure can cause serious injury or death. <ul style="list-style-type: none">• Use long pole or pry bar to dislodge.• Do not use hands.

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Preparation

HOOK-UP / UNHOOKING

The Rock Picker should always be parked on a level, dry area that is free of debris and foreign objects. Follow this procedure when attaching:

1. Clear the area of bystanders and remove foreign objects from the machine and working area.
2. Make sure there is enough room to back the tractor up to the hitch pole.
3. Start the tractor and slowly back it up to the hitch point.
4. Stop the tractor engine, place all controls in neutral, set park brake and remove ignition key before dismounting.
5. Use the hitch pole jack to raise or lower the pole to align with the drawbar. Ensure that the rock picker hitch pole is parallel to the ground.
6. Install a drawbar pin with provisions for a mechanical retainer such as a Klik pin. Install the retainer.
7. Install a safety chain between the tractor drawbar and the hitch pole.

8. Connect the hydraulics. To connect, proceed as follows:

- Use a clean cloth or paper towel to clean the couplers on the ends of the hoses. Also clean the area around the couplers on the tractor.
- Remove the plastic plugs from the couplers and insert the male ends.

If the direction of motion is wrong, reverse the couplers.

9. Raise the hitch jack and place it in its storage position. (Top of Hitch Pole or Rear Location)
10. When unhooking from the tractor, reverse the above procedure.

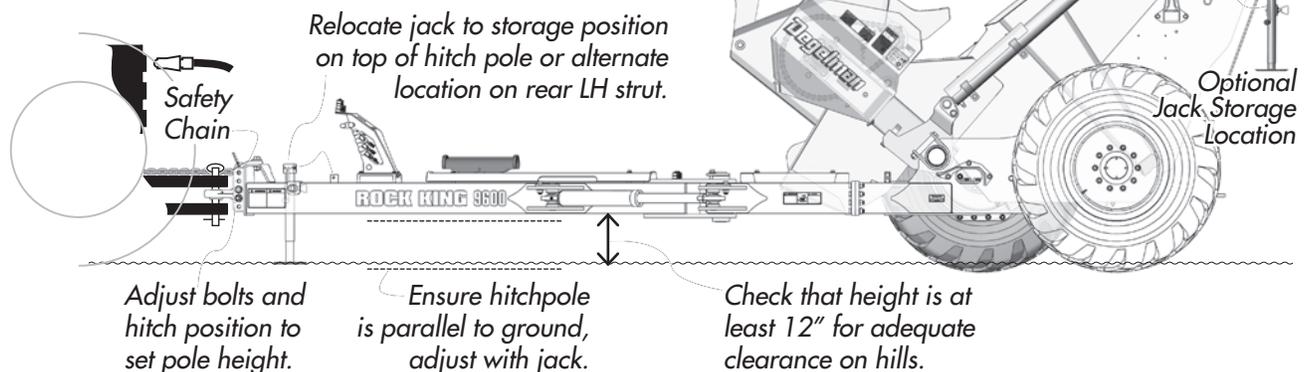
Occasionally air may become trapped in the hydraulic circuit, making it necessary to "bleed" the circuit.

To perform this operation cycle the hydraulics several times or especially on older tractors, temporarily loosen an easily accessible hose fitting enough to allow any trapped air to escape while cycling the hydraulics. Retighten fitting.

Connect the Hyd lines

- Clean off couplers on hose & tractor with cloth
- Remove plugs & insert couplers
- Ensure pressure & return lines are matched up on same valve bank

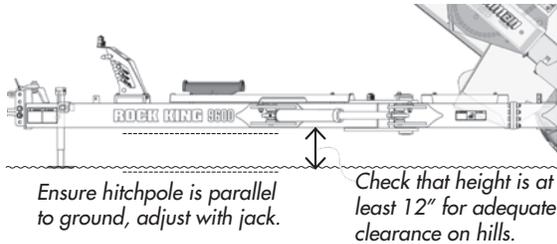
Always park on a level surface clear of debris and obstacles.



Preparation

HITCH CLEVIS ADJUSTMENTS

The hitch pole should always be adjusted to be parallel to the ground when attached to the tractor. To adjust the hitch pole angle, follow this procedure:



1. Clear the area of bystanders, especially small children.
2. Install the drawbar pin to attach the hitch to the tractor.
3. Use the hitch jack to lower the hitch and transfer the weight off the drawbar.
4. Step back and check to see if the pole is parallel to the ground.
5. If it is not parallel, use the jack to raise the hitch pole and centre the hitch to the drawbar.
6. Remove the hitch mounting hardware.
7. Move the hitch up or down as required.
8. Re-install the hitch mounting hardware.
9. Lower the hitch and check the pole angle again.

⚠ IMPORTANT: *The machine operates at maximum efficiency when the hitch pole is parallel to the ground.*

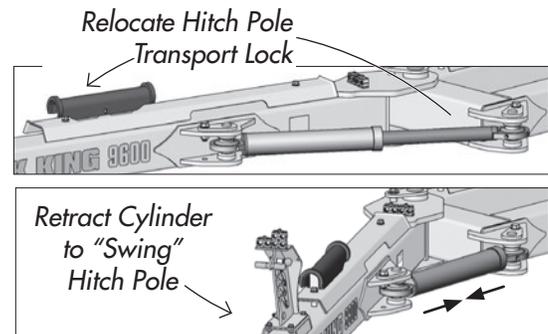
ROCK PICKER PREPARATION

1. Hitch Pole "Field/Transport" configuration:

The hitch pole has a "Transport" position that is normally used when the machine is new or when it will be transported for long distances to bring the body of the machine as close behind the tractor as possible.

The hitch pole must be changed to "Field" position before starting to work. "Field" position will swing the body of the machine over to the right side to help clear the tires of the tractor.

To switch to the "Field" position, simply remove the transport lock on the swing pole cylinder (place in its storage position) then retract the hitch pole cylinder to its closed position.

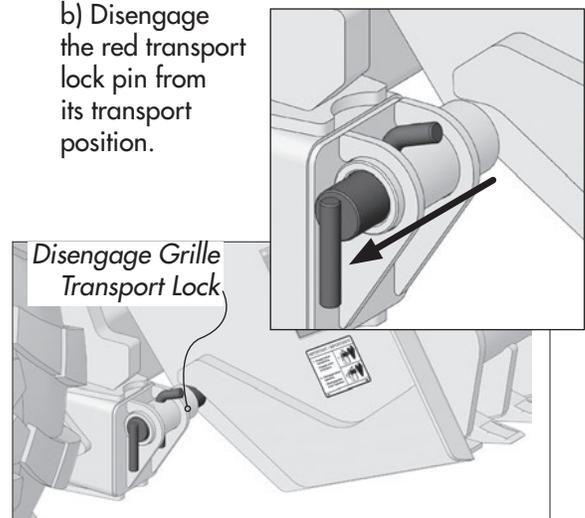


To switch back to the "Transport" position, simply reverse this procedure.

2. Grille Preparation:

a) Fully retract the dump cylinders to take the weight of the grille off the red transport pin.

b) Disengage the red transport lock pin from its transport position.



Operation

OPERATING

Refer to these operational hints before starting:

1. Material size:

The machine was designed to pick and unload rock and debris ranging in size from 2-3/4 to 28 inches (70 to 710mm) in diameter. Smaller pieces will fall through the spacing in the grille and larger rocks will stall the paddle drive.



2. Operator's Responsibility:

Every operator should read this manual and be instructed in safe operating procedures. An untrained operator is not qualified to operate this machine and could place themselves or bystanders in danger.

3. Grille Height:

The grille should be lowered to allow the front of the teeth to skim the ground surface. This will provide the best gathering angle and allow a minimum amount of dirt being carried into the hopper box.

All rocks should be laying on top of the ground for best results when picking.

Rocks that are partially submerged or have been run over by the tractor tire are difficult to pick. In these conditions, the grille can be set to momentarily run below the ground surface in an attempt to pick the rock. However, raise the grille back to skimming the surface to reduce the amount of dirt going into the hopper.

⚠ IMPORTANT: Do not use the Rock Picker grille to pry out deeply buried rock or debris. Grill teeth striking a buried rock will shock the machine and damage it.

4. Ground Speed:

Operating speed will vary according to:

- rock size and density
- whether spot picking or windrow picking

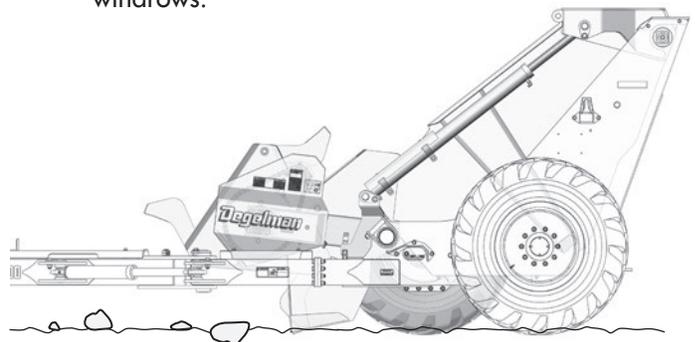


Experience will teach you the correct combination of forward travel speed and reel RPM to suit field conditions:

Normal Operating Speed:

As a rule **4 to 6 MPH** (6 to 10 km/h) is a normal operating speed.

Slow the travel speed when picking heavy rock windrows.



5. Buried Rocks:

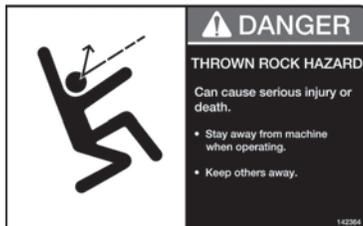
The machine is only designed to pick up material that is loose and on top of the ground. Lodged or solid objects will shock load the frame of the machine when trying to pick them up and cause failures. They should be dug out by hand and placed on top of the ground.

Operation

6. Reel Speed:

The purpose of the reel is to sweep the rocks from the front of the grille over the grille framework and into the hopper box. The spring loaded paddles should keep the grille framework clear of rocks by moving them into the hopper.

⚠ DANGER: There is a danger that the paddle will catch the rocks and throw them forward if the reel speed is too fast.



Spot Picking: Best results are obtained when the reel is running 5% to 40% faster than ground speed. (Approximately 30-36 rpm)

Windrow Picking: The reel must be allowed to sweep the rocks from the grille even when there are large numbers as in windrows. To control the number of rocks entering the machine, reduce the forward speed.

The reel and paddle speeds are determined by the flow rates through the hydraulic system. Increase or decrease the reel speed by adjusting the control valve on the tractor.

⚠ IMPORTANT: When stopping reel always place the tractor hydraulic lever into float position or for tractors not equipped with float position be sure to idle tractor speed down before placing the hydraulics into neutral.

Never reverse reel direction without first completely stopping reel. Failure to do this will result in costly hydraulic motor damage.

7. Loading/Dumping:

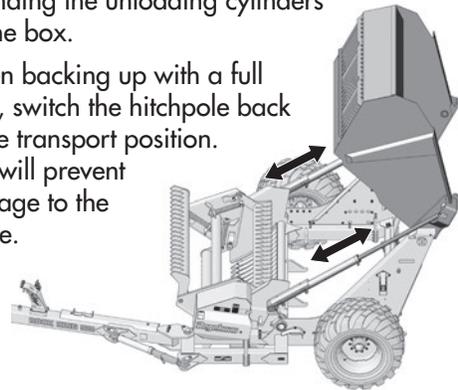
a. **Loading:** The machine can be loaded until the hopper box is filled and rocks stay on the back edge of the grille. Do not overfill the box as to overflow onto the grill. It is possible that the paddles will carry the rocks over the top of the paddle and throw them out.

When hopper box is full, stop the reel to prevent throwing rocks.

⚠ DANGER: Rocks can be thrown from machine. Stand well clear of machine when operating. Keep others away.

b. **Dumping:** The hopper box is unloaded by extending the unloading cylinders on the box.

- When backing up with a full load, switch the hitchpole back to the transport position. This will prevent damage to the frame.



- Be sure the machine is on level ground when raising the hopper box to unload. Uneven ground conditions can cause the box to tilt and could be dangerous or result in damage to the machine.

- **Ensure there are no obstructions** below the grille/grate area or the side cylinder lift bracket area when dumping. Obstructions in these areas can cause extreme loading on pins and brackets due to over-extension of the cylinders and result in damage to the machine.

⚠ WARNING: Stay clear of the machine and surrounding area when unloading. Keep others away.

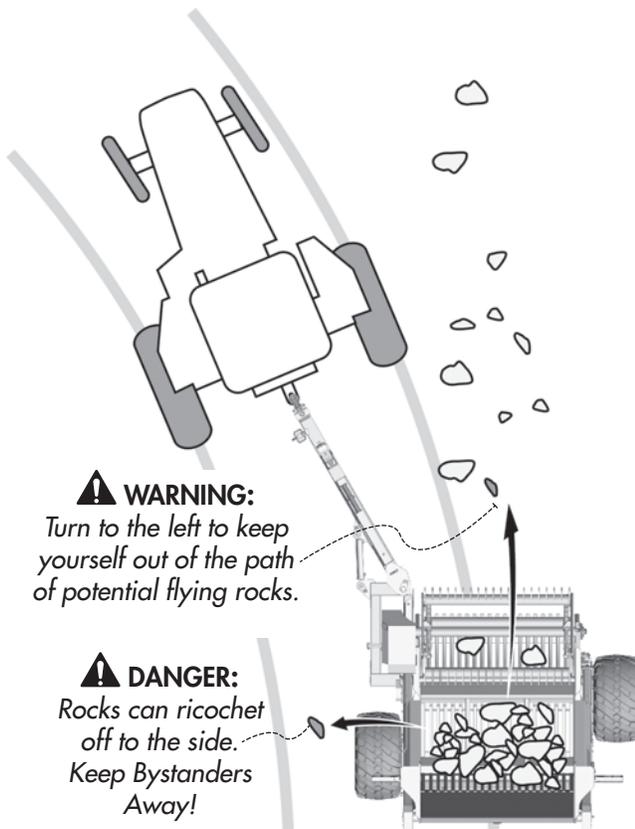
⚠ WARNING: Ensure there are no obstructions below the grille/grate area or the side cylinder lift bracket areas when dumping.

Operation

8. Safety Area:

Always treat the machine with the utmost respect when it is operating. Since the paddles are all loaded with strong springs, they can catch and throw rocks a considerable distance as they move around the reel. Although the most common direction is in the plane of reel motion, they can also hit the frame and bounce off to the sides.

It is recommended that the tractor be turned to the left as much as possible when picking to keep it out of the path of flying rocks. This has the added benefit of eliminating the right hand tractor tire from running over rocks and pushing them into the ground.



⚠ WARNING:
Turn to the left to keep yourself out of the path of potential flying rocks.

⚠ DANGER:
Rocks can ricochet off to the side. Keep Bystanders Away!



9. Jamming/Unplugging:

⚠ WARNING: *Never use hands. Never get your head or arms into the machine. Stay clear of the paddle when removing any lodged material. The paddles could kick back from hydraulic pressure or spring tension. Always use a long bar to remove object.*

Small rocks or debris can get jammed between the grille, paddle or frame jamming the reel and stopping it from turning. To unplug, follow these procedures:

Step A

⚠ IMPORTANT: *Never reverse reel direction without first completely stopping reel. Failure to do this will result in costly hydraulic motor damage.*

When stopping reel always place the tractor hydraulic lever into float position.

For tractors not equipped with float position be sure to idle tractor speed down before placing the hydraulics into neutral.

- After reel has completely stopped as described above, move the hydraulic control lever the other direction to reverse the hydraulic motor. Reversing the reel will in most cases dislodge the jammed rock.
- If it does not unplug the machine, proceed to Step B.

Step B

- Lower grille to ground
- Stop tractor engine
- Place all controls in neutral,
- Relieve the pressure in hydraulic system
- Set park brake
- Remove ignition key.
- Use a long pry bar (not hands) to dislodge the material.



Transporting

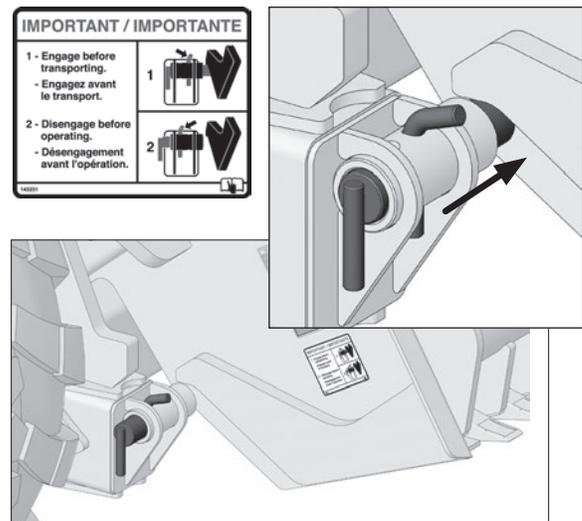
⚠ TRANSPORT SAFETY

- Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Rock Picker in the field/yard or on the road.
- Check with local authorities regarding machine transport on public roads. Obey all applicable laws and regulations.
- Always travel at a safe speed. Use caution when making corners or meeting traffic. 
- Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
- Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.
- Always use hazard warning flashers on tractor when transporting unless prohibited by law.
- Always use a pin with provisions for a mechanical retainer and a safety chain when attaching to a tractor or towing vehicle.
- Ensure the red transport pin on the grille is engaged into transport position, the swing hitch pole is fully inward and the swing pole cylinder transport bar is secured before moving on a public road.

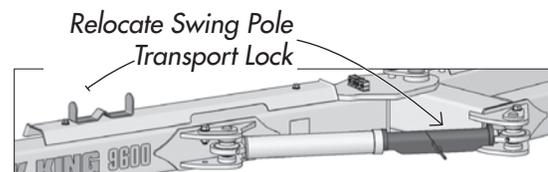
TRANSPORTING

Follow this procedure when preparing to transport:

1. Clear the area of bystanders, especially small children, before converting into transport configuration.
2. Raise the grille to its highest position by retracting the hopper box cylinders.
3. Engage the red transport pin into transport position and secure pin.



4. Lower the grille to rest on the red pin.
5. Relocate the hitchpole Jack onto the bushing on top of the hitchpole and secure with pin. *(Alternate storage location on rear LH strut.)*
6. Swing the hitchpole fully inward and install the Red Transport Bar onto the cylinder rod.



7. Clean the SMV, lights and reflectors.
8. Maintain a safe speed. Slow down when cornering and on rough roads.
9. Slow down and pull off to the side of the road when meeting other traffic.
10. Use hazard flashers on tractor unless prohibited by law.

Troubleshooting

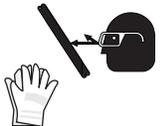
TROUBLESHOOTING

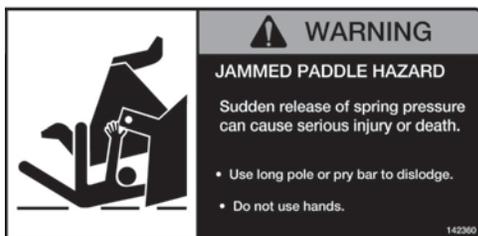
In the following section, we have listed some of the problems, causes and solutions that you may encounter. If you encounter a problem that is difficult to solve, even after having read through this troubleshooting section, please call your local dealer or distributor. Before you call, have this manual and the serial number from your unit ready.

PROBLEM	CAUSE	SOLUTION
Grille creeps down during operation.	Tractor hydraulic leak.	To verify, raise grille, disconnect at tractor and observe if grille creeps down. If not, repair tractor hydraulics.
	Damaged hose or loose fittings.	Search for leaks with a piece of paper (not by hand). Repair as necessary.
	Hydraulic cylinder leak.	Replace seals or damaged components.
Grille raises too slowly.	Hydraulic pressure from tractor too low.	Check pressure, should be 1500-2500 psi.
Loaded box will not lift for dumping.	Restriction in hose.	Disconnect & blow out lines with compressed air.
	External hydraulic leak.	Repair as needed.
Oil accumulation on cylinder shaft.	Hydraulic cylinder leak.	Replace seals or damaged components.
	Oil bypassing seals.	Seal manufacturer advises that small amounts of oil getting past seals is desirable. If problem becomes excessive, replace seals.
Excessive picking of dirt.	Grille set to low.	Maintain grille just skimming ground.
Excessive rock pile-up at bottom of grille.	Reel speed too slow in relation to forward travel.	Change tractor gear range and/or tractor hydraulic flow control valve setting.
	Worn reel springs or inadequate spring tension.	Replace springs.
Paddle teeth contact grille teeth.	Reel misaligned.	Realign reel.
	Bent teeth.	Straighten teeth.

Service & Maintenance

⚠ MAINTENANCE SAFETY

- Review the Operator's Manual and all safety items before working with, maintaining or operating the Rock Picker.
- Lower grille and hopper box, stop the tractor engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
- Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making adjustments.
- Place safety stands or large blocks under the frame before removing tires or working beneath the machine.
- Be careful when working around or maintaining a high-pressure hydraulic system. Wear proper eye and hand protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or a fitting. 
- Always relieve pressure before disconnecting or working on hydraulic system.
- Use a long pole or bar to dislodge material from paddles or grille. Pressure in hydraulic system and paddle spring tension can cause paddles to kick back if they are jammed.



- When a guard is opened or removed for servicing, be sure to install or close it before starting.

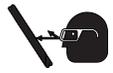
GREASING

The 9600 Rock King is primarily a greaseless machine with the exception of the hitch swing-pole cylinder (*swivel-ball ends*) and the ball hitch assembly.

1. Grease: Use an SAE multi-purpose grease with extreme pressure (EP)  performance. Also acceptable is an SAE multi-purpose lithium base grease.
2. Use only a hand-held grease gun for all greasing.
3. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt.
4. Replace and repair broken fittings immediately.
5. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.
6. Inject grease until you see grease being expelled from the bearing or bushing areas.

SERVICE INTERVALS

8 Hrs.

-  oil the roller chain - 1 location
-  check/adjust chain tension - 1 location (approx. 1/4" chain slack)
-  check for hyd. fluid leaks - general
-  check for damaged hoses - general
- check tire pressure (41 PSI) - general

40 Hrs.

-  ball hitch assembly - 2 locations
-  swing pole cylinder (ball ends) - 2 locations

Annually

-  check hardware/bolt tightness - general
-  grease wheel hub nipple - 2 locations

Service & Maintenance

HARDWARE SPECIFICATIONS

Note: Unless stated otherwise, hardware is typically:
Hex, Plated GR5 UNC or P8.8 (metric)

TORQUE SPECIFICATIONS

Checking Bolt Torque

The tables below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check the tightness of bolts periodically, using these bolt torque charts as a guide. Replace hardware with the same strength (Grade/Class) bolt.

IMPERIAL TORQUE SPECIFICATIONS

(Coarse Thread - based on "Zinc Plated" values)



Size	Grade 5 lb.ft (N.m)	Grade 8 lb.ft (N.m)
1/4"	7 (10)	10 (14)
5/16"	15 (20)	20 (28)
3/8"	25 (35)	35 (50)
7/16"	40 (55)	60 (80)
1/2"	65 (90)	90 (120)
9/16"	90 (125)	130 (175)
5/8"	130 (175)	180 (245)
3/4"	230 (310)	320 (435)
7/8"	365 (495)	515 (700)
1"	550 (745)	770 (1050)
1-1/8"	675 (915)	1095 (1485)
1-1/4"	950 (1290)	1545 (2095)
1-3/8"	1250 (1695)	2025 (2745)
1-1/2"	1650 (2245)	2690 (3645)

METRIC TORQUE SPECIFICATIONS

(Coarse Thread - based on "Zinc Plated" values)



Size	Class 8.8 lb.ft (N.m)	Class 10.9 lb.ft (N.m)
M6	7 (10)	10 (14)
M8	16 (22)	23 (31)
M10	30 (42)	45 (60)
M12	55 (75)	80 (108)
M14	90 (120)	125 (170)
M16	135 (185)	195 (265)
M18	190 (255)	270 (365)
M20	265 (360)	380 (515)
M22	365 (495)	520 (705)
M24	460 (625)	660 (895)
M27	675 (915)	970 (1315)
M30	915 (1240)	1310 (1780)
M33	1250 (1695)	1785 (2420)
M36	1600 (2175)	2290 (3110)

HYDRAULIC SAFETY

- Make sure that all components in the hydraulic system are kept in good condition and are clean.
- Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak. 
- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.

HYDRAULIC HOSE SPECIFICATIONS

Note: Unless otherwise stated, Hydraulic Hoses are either 1/2 or 5/8 with 3/4 JIC female swivel ends.

HYDRAULIC HOSE INSTALLATION TIPS

The following tips are to help you identify some possible problem areas in the installation of hydraulic hoses.

1. Installation should be completed in a clean environment clear of dust and contaminants. Hoses and fittings should be capped if not installed.
2. Ensure hoses are not twisted during installation as this may weaken the hose. Also, the pressure in a twisted hose may loosen fittings or connections.
3. Allow sufficient bend radius in hoses when installing to prevent lines from collapsing and flow becoming restricted.
4. When installing hoses in an area of movement or flexing, allow enough free length for motion and to ensure fitting connections are not stressed.
5. Ensure hoses are properly clamped and secured in position after routing is complete to provide a cleaner installation and prevent possible damage or hazards.

Service & Maintenance

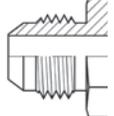
HYDRAULIC FITTING INSTALLATION



The following info is to help you identify and properly install some of our standard hydraulic fittings.

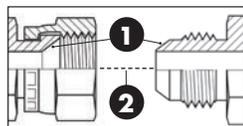
SAE (JIC) 37° Flare

JIC fittings - Metal-to-metal sealing type fittings featuring a 37° flare (angle of sealing surface) and straight UNF (Unified National Fine) Threads.

(Lubricated Values)	Dash	Thread Size	Torque - lb.ft (N.m)
	-4	7/16 - 20	9-12 (12-16)
	-6	9/16 - 18	14-20 (19-27)
	-8	3/4 - 16	27-39 (37-53)
	-10	7/8 - 14	36-63 (50-85)
	-12	1-1/16 - 12	65-88 (90-119)

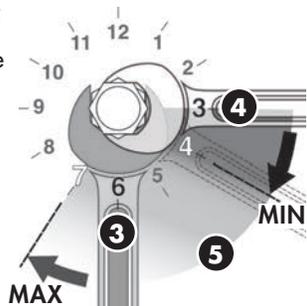
Tightening JIC 37° Flare Type Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align fittings before tightening. Lubricate connections & hand tighten swivel nut until snug.
3. Using two wrenches, torque to values shown in table.



Alternate Installation Method

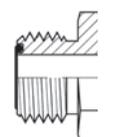
3. Using two wrenches. Place one wrench on the fixed connector body at a clock position of 6 o'clock.
4. Place the second wrench on the second connection as close to the 3 o'clock position as possible.
5. Tighten by rotating the second connection firmly to at least the 4 o'clock position, but no more than the 7 o'clock position. Typically, the larger the fitting size the less rotation required.



ORFS (O-Ring Face Seal)

ORFS fittings use an O-ring compression method to seal. This method offers a high level of sealing along with good vibration resistance. Male fittings include an O-ring located in a groove on the flat face. Female fittings feature a flat face and UNF straight threaded swivel nut.

The **Torque** method is recommended for ORFS installation.

	Dash	Thread Size	Torque - lb.ft (N.m)
	-4	9/16 - 18	18 (25)
	-6	11/16 - 16	30 (40)
	-8	13/16 - 16	40 (55)
	-10	1 - 14	60 (80)
	-12	1-3/16 - 12	85 (115)

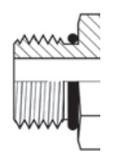
Tightening ORFS (O-Ring Face Seal) Fittings

1. Inspect components and ensure the O-Ring seal is undamaged and properly installed in the groove of the face seal. Replacing the O-Ring may be necessary.
2. Align, thread into place and hand tighten.
3. Tighten to proper torque from the table shown above.

Note: A **DASH** size refers to a diameter of a hose (*inside*) or of a tube (*outside*) measured in 1/16" increments. For example, a **Hose** specified as **dash 8** or **-8** would have an **inside** diameter of **8/16"** or **1/2"**. Alternatively, a **Tube** specified as **dash 8** or **-8** would have an **outside** diameter of **8/16"** or **1/2"**.

ORB (O-Ring Boss)

Male ORB fittings have straight UNF threads, a sealing face and an O-ring. The female fittings are generally found in the ports of machines and feature straight threads, a machined surface, and a chamfer to accept the O-ring. Sealing is achieved through the compression of the male O-ring against the chamfered sealing face of the female fitting.

(Lubricated Values)	Dash	Thread Size	Torque	
			Non-Adjustable	Adjustable
			lb.ft (N.m)	lb.ft (N.m)
	-4	7/16 - 20	30 (40)	15 (20)
	-6	9/16 - 18	35 (46)	35 (46)
	-8	3/4 - 16	60 (80)	60 (80)
	-10	7/8 - 14	100 (135)	100 (135)
	-12	1-1/16 - 12	135 (185)	135 (185)

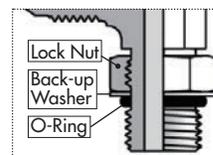
Tightening ORB (O-Ring Boss) Fittings

Non-adjustable Port End Assembly

1. Inspect the components to ensure that male and female threads and sealing surfaces are free of nicks, burrs, scratches, or any foreign material.
2. Ensure O-Ring seal is properly installed and undamaged.
3. Lubricate threads and O-ring to help the O-ring slide past the port entrance corner and avoid damaging it.
4. Screw the fitting into position tighten to proper torque value from the table shown above.

Adjustable Port End Assembly

1. Inspect the components to ensure male & female threads and sealing surfaces are free of nicks, burrs, scratches, or any foreign material.
2. Ensure O-Ring seal is properly installed and undamaged.
3. Lubricate threads and O-ring to help the O-ring slide smoothly into the port and avoid damage.
4. Loosen back the lock nut as far as possible. Make sure back-up washer is not loose and is pushed up as far as possible.
5. Screw the fitting into port until the back-up washer or the retaining ring contacts face of the port. Light wrenching may be necessary. Over tightening may damage washer.
6. To align the end of the fitting to accept incoming tube or hose assembly, unscrew the fitting by the required amount, but not more than one full turn.
7. Using two wrenches, hold the fitting in desired position and tighten the locknut to the proper torque value from the table located above.
8. Inspect to ensure that O-ring is not pinched and that washer is seated flat on the face of the port.



Service & Maintenance

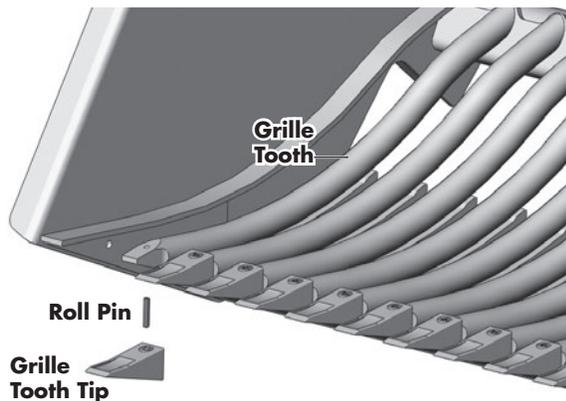
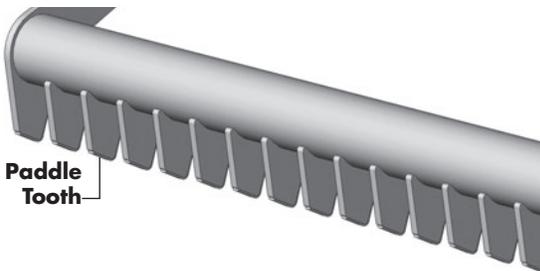
PADDLE & GRILLE TEETH REPAIR/REPLACEMENT

- ⚠ *Securely block up grille before attempting any work on grille teeth.*
- ⚠ *When performing arc welding operations on this machine, the current between the rod and the ground must not pass through any bearing unit to eliminate the possibility of "pitting" due to current arcing across ball bearings and bearing race.*

Restoring Paddle Teeth: Build up and resurface paddle teeth as required using hard surface welding rods. A hardness of RC45-50 is desirable.



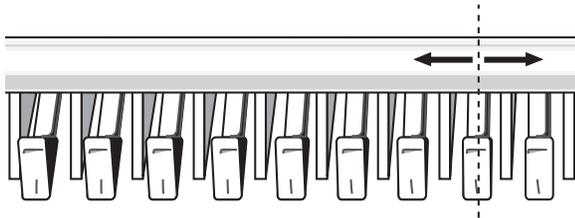
Replacing Teeth: Paddle teeth and Grille teeth can also be replaced with new ones as required. It will be necessary to cut off and grind away the welding that held the old tooth. Then evenly space, tack up and weld each new tooth into position.



Grille Tooth Tip Replacement: Replace broken cast tips immediately to prevent wearing down of mating stub. Replace tips by driving out roll pin, wedging new tip into position and reinstalling roll pin.

Service & Maintenance

PADDLE TEETH ALIGNMENT



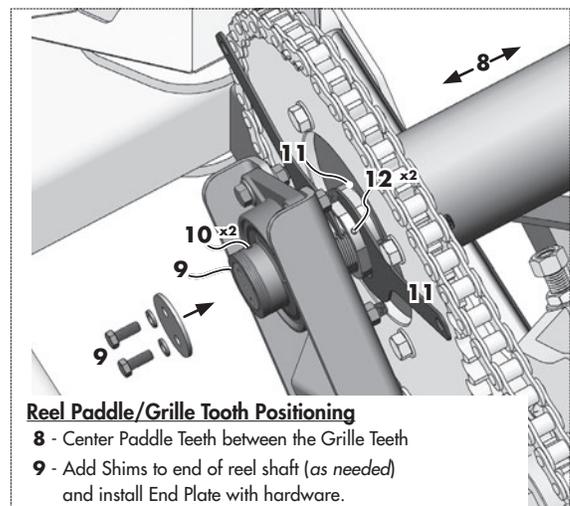
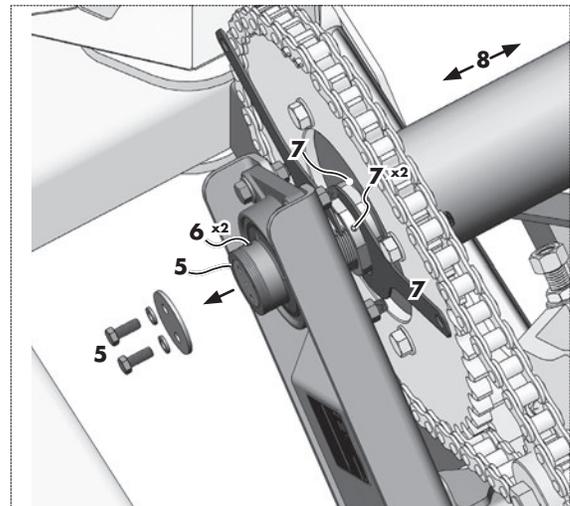
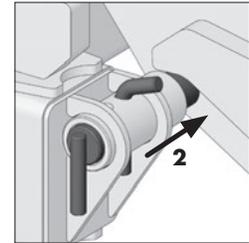
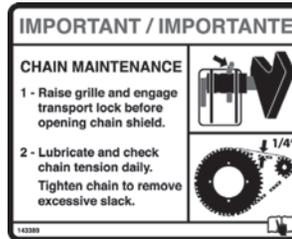
Occasionally it may become necessary to shift the reel assembly over to realign the paddle teeth to ensure that they pass through the grille teeth evenly.

To realign, proceed as follows:

1. Clear the area of bystanders, especially small children.
2. Raise grille and engage the grille transport lock.
3. Stop engine, place all controls in neutral, relieve hydraulic pressure, set park brake and remove ignition key before dismounting.
4. Open the chain shield to expose the reel bearing.
5. Remove the shaft endplates and shims (both sides).
6. Loosen the two set screws on the bearing. Repeat on the opposite side.
7. Loosen set screws on the Threaded Spacer. Then using the Threaded Spacer Wrenches, loosen spacer collar enough to allow shaft movement. Repeat on the opposite side.
8. Slide reel over until each of the paddles turn evenly through grille teeth.
9. To secure this setting, start by adding shims until they are flush with the end of the reel shaft. Reinstall the endcap. (Repeat on the opposite side).
10. Tighten the two bearing set screws (both sides).
11. Now tighten the Threaded Spacers using the Threaded Spacer Wrenches and adjust until the spacer makes slight contact. (Both sides)
12. Tighten the two setscrews on each threaded spacer.
13. Reposition and secure the chain shield.

NOTE: After adjusting the paddle positioning, you may need to adjust the position of the chain tightener assembly to ensure the sprockets are still aligned. Refer to "Adjusting Chain Sprocket Alignment" section.

WARNING: DO NOT operate machine without shield secured in position.



Reel Paddle/Grille Tooth Positioning

- 8 - Center Paddle Teeth between the Grille Teeth
- 9 - Add Shims to end of reel shaft (as needed) and install End Plate with hardware.
- 10 - Tighten the two bearing set screws (both sides).
- 11 - Using the Threaded Spacer Wrenches, adjust Threaded Spacer until it makes slight contact.
- 12 - Tighten the two setscrews on threaded spacer.



Service & Maintenance

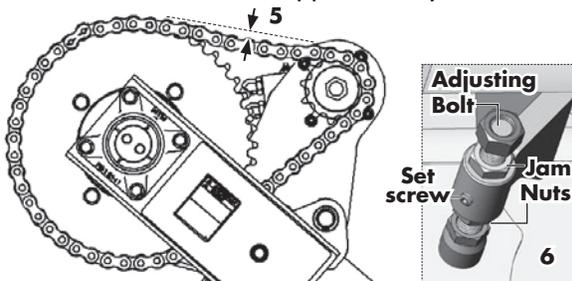
REEL DRIVE CHAIN TENSION

A roller chain transmits power from the hydraulic motor to the reel. Check tension daily and tighten to remove excessive slack. To adjust the tension, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Raise grille and engage the grille transport lock.

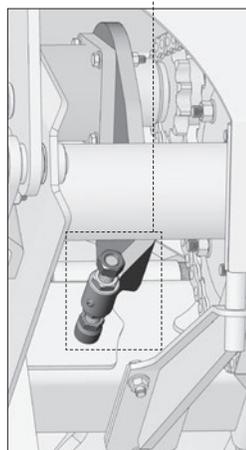


3. Stop engine, place all controls in neutral, relieve hydraulic pressure, set park brake and remove ignition key before dismounting.
4. Open chain drive shield.
5. Check the chain tightness. The amount of chain slack should measure approximately $1/4''$.



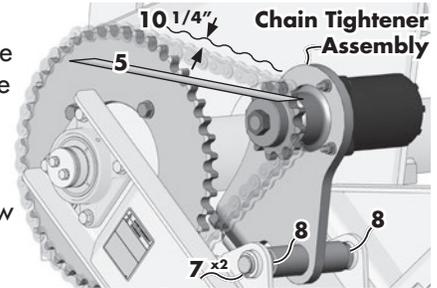
6. To adjust, back off the chain tightener hardware (*Jam nuts & Setscrew*). Turn adjusting bolt to remove excessive slack.
7. Re-tighten hardware.
8. Lubricate chain.
9. Close and secure the chain shield.

CAUTION:
Close and secure guards before using.



ADJUSTING CHAIN SPROCKET ALIGNMENT

If changes have been made to the grille and paddle positioning, or if the sprockets appear to be misaligned follow this procedure:

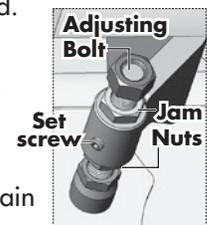


1. Clear the area of bystanders, especially small children.
2. Raise grille and engage the grille transport lock.



3. Stop engine, place all controls in neutral, relieve hydraulic pressure, set park brake and remove ignition key before dismounting.
4. Open chain drive shield.
5. Check the alignment of the sprocket faces. The faces of the sprockets should be level. If they are misaligned, the spacers of the chain tightener assembly will need to be adjusted.

6. Back off the chain tightener hardware (*Jam nuts & Setscrew*). Turn adjusting bolt to loosen the chain.



7. Remove the retainers from the chain tightener assembly pin.
8. Determine how many spacers will need to be repositioned. Carefully support assembly and remove pin. Re-arrange spacers as needed, then reinstall pin.
9. Re-check the sprocket alignment and re-adjust again if necessary. Re-install pin retainer clips when completed.
10. Re-tighten the chain using the adjusting bolt. Check the chain tightness. The amount of chain slack should measure approximately $1/4''$.
11. Re-secure the adjusting bolt with Jam nuts and Setscrew.
12. Lubricate chain.
13. Close and secure the chain shield.

Service & Maintenance

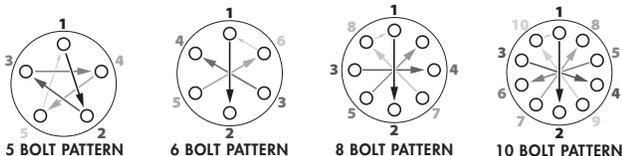
⚠ TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce a blow out which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair serviceman perform required tire maintenance.

WHEEL NUT & WHEEL BOLT TORQUE



BOLT PATTERNS



Wheel Nut/Bolt Torque

Size	lb.ft (N.m)
9/16	120-130 (165-175)
5/8	185-190 (250-260)
3/4	280-300 (380-405)

Wheel Tightening Procedure

1. Install and **hand tighten** nuts/bolts.
2. Tighten to approx. **20% Torque** value using the Bolt **Star or CrissCross** patterns shown above.
3. Tighten to **Full Torque** value using the **Star or CrissCross** pattern.
4. If applicable, install **Rear Locknuts** using **Wheel Torque Values**.

WHEEL HUB REPAIR

DISASSEMBLY

1. Remove dust cap.
2. Remove cotter pin from nut.
3. Remove nut and washer.
4. Pull hub off spindle.
5. Dislodge the inner cone bearing and dust seal.
6. Inspect cups that are press fitted into hub for pits or corrosion and remove if necessary.
7. Inspect and replace defective parts with new ones.

⚠ IMPORTANT: *Be sure to block up unit securely before removing tires.*

ASSEMBLY

1. If cups need replacing, be careful to install them gently and evenly into hub until they are fully seated.
2. Apply a thick wall of grease inside hub. Pack grease in cones.
3. Install inner cone and dust seal as illustrated.
4. Position hub onto spindle and fill surrounding cavity with grease.
5. Assemble outer cone, washer and nut.
6. Tighten nut while rotating hub until there is a slight drag.
7. Turn nut back approximately 1/2 turn to align cotter pin hole with notches on nut.
8. Install cotter pin and bend legs sideways over nut.
9. Fill dust cap half full of grease and gently tap into position.
10. Pump grease into hub through grease fitting until lubricant can be seen from dust seal.

COMMON HUB & SPINDLE COMPONENTS



Service & Maintenance

HYDRAULIC CYLINDER REPAIR

PREPARATION

When cylinder repair is required, clean off unit, disconnect hoses and plug ports before removing cylinder.

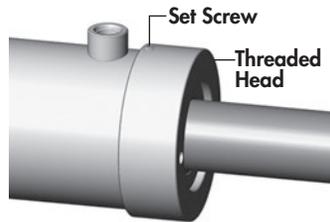
When removed, open the cylinder ports and drain the cylinder's hydraulic fluid.

Examine the type of cylinder. Make sure you have the correct tools for the job.

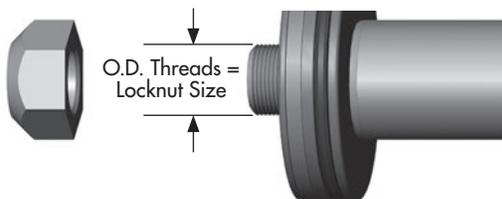
You may require the following tools:

- Proper **Seal Kit**
- Allen Key Set
- Emery cloth
- Torque Wrench

Threaded Head Cylinder (Monarch)



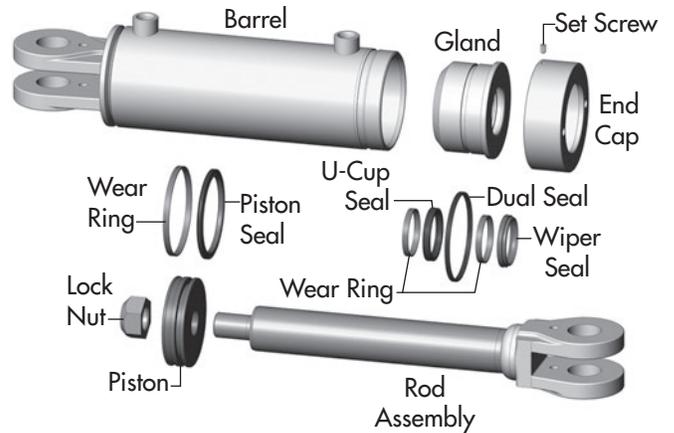
CYLINDER ROD LOCKNUT TORQUE VALUES



LOCKNUT SIZE (PISTON)	TORQUE VALUE
3/8 - 24 UNF	25-30 lb.ft (35-42 N.m)
1/2 - 20 UNF	40-60 lb.ft (55-80 N.m)
5/8 - 18 UNF	95-105 lb.ft (130-140 N.m)
3/4 - 16 UNF	175-225 lb.ft (240-305 N.m)
7/8 - 14 UNF	200-275 lb.ft (270-370 N.m)
1 - 14 UNF	300-380 lb.ft (405-515 N.m)
1 1/8 - 12 UNF	400-500 lb.ft (540-675 N.m)
1 1/4 - 12 UNF	500-600 lb.ft (675-810 N.m)
1 1/2 - 12 UNF	700-800 lb.ft (950-1085 N.m)
1 3/4 - 12 UNF	800-900 lb.ft (1085-1220 N.m)

REPAIRING A THREADED HEAD CYLINDER

Set Screw Style



DISASSEMBLY

1. Loosen Set Screw and turn off end cap.
2. Carefully remove piston/rod/gland assemblies.
3. Disassemble the piston from the rod assembly by removing lock nut.

NOTE: DO NOT clamp rod by chrome surface.

4. Slide off gland assembly & end cap.
5. Remove seals and inspect all parts for damage.
6. Install new seals and replace damaged parts with new components.
7. Inspect the inside of the cylinder barrel, piston, rod and other polished parts for burrs and scratches. Smooth areas as needed with an emery cloth.

REASSEMBLY

1. Reinstall rod through end cap & gland assembly.
2. Secure piston to rod with lock nut. Torque lock nut to proper value (refer to chart for proper torque value).
3. Lube inside of barrel, piston seals, and gland seals with hydraulic oil.
4. With cylinder body held gently in a vise, insert piston, gland, end cap and rod combination using a slight rocking motion.
5. Apply Loctite anti-seize before installing cylinder end cap.
6. Torque cylinder end cap to 440 lb.ft (600 N.m).
7. Tighten Set Screw on end cap to 6 lb.ft (8 N.m).

Service & Maintenance

REPLACING A PRESSED BUSHING

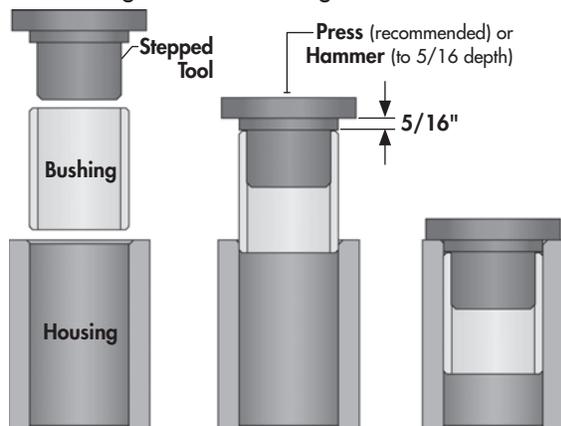
NOTE: You may need the following tools:
Press, hammer, punch, pry-bar, "Step-Tool"

Use the following as a guideline for repair:

1. Ensure the area and frame are properly secured, supported, and safe to work on. Safely remove the pin(s), cylinder, and/or components necessary in order to access and work on the damaged bushing.
2. Remove the existing bushing using required tools. In some instances, you may need to cut the damaged bushing in order for easier removal (use proper safety precautions and try not to damage other components if using this method).
3. With the bushing removed, clean and prepare the location for the new bushing insert. **Note:** A mixture of "Dish Soap and Water" is recommended to use as a lubricant on the outside of the composite bushing.

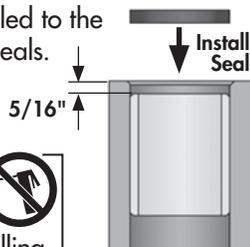
IMPORTANT: DO NOT use oil or grease on outside or inside of composite bushings.

4. Use a stepped tool to ensure the edge of the bushing is not damaged when inserting.



5. Ensuring the bushing is properly aligned, press into hole (preferred method) or hammer into position by striking the stepped tool.
6. Continue to install until the bushing edge is recessed in to a distance of 5/16" to allow for the outer seal to be properly installed. Do not exceed this depth.
7. Repeat steps 4-6 for opposite bushing (if applicable).
8. When both bushings are installed to the proper depth, install the new seals.
9. Re-assemble all other necessary components.

IMPORTANT: DO NOT use oil or grease on pins or bushing surfaces when re-installing.



STORAGE SAFETY

- Store unit in an area away from human activity.
- Store Rock Picker only with grille and hopper box lowered.
- Do not permit children to play around the stored unit.

STORAGE

After the season's use, completely inspect all major systems of the machine. Repair or replace any worn or damaged components to prevent unnecessary down time at the beginning of next season.

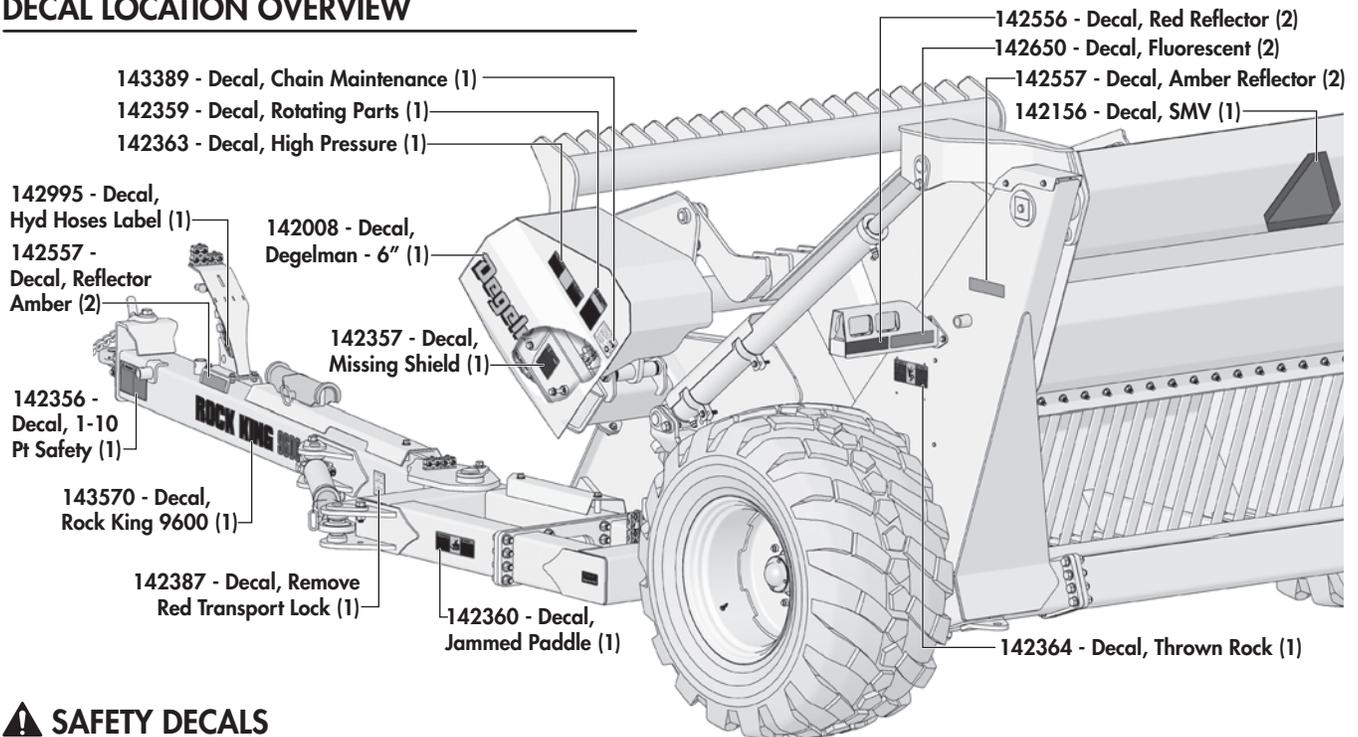
Since the unit can be used in extremely adverse conditions during the season, the machine should be carefully prepared for storage to ensure that all dirt, mud, debris and moisture has been removed.

Follow this procedure when preparing to store:

1. Wash the entire machine thoroughly using a water hose or pressure washer to remove all dirt, mud, debris or residue.
2. Inspect all moving or rotating parts to see if anything has become entangled in them. Remove the entangled material.
3. Lubricate all grease fittings to remove any moisture in the bearings.
4. Apply a light coat of oil to the roller chains to prevent rusting.
5. Run the machine slowly for 1 minute to distribute lubricant to all surfaces.
6. Inspect all hydraulic hoses, fittings, lines, couplers and valves. Tighten any loose fittings. Replace any hose that is badly cut, nicked or abraded or is separating from the crimped end of the fitting.
7. Touch up all paint nicks and scratches to prevent rusting.
8. Oil the exposed rams on the hydraulic cylinders to prevent rusting.
9. Select an area that is dry, level and free of debris.
10. Follow the procedure given in the *Preparation* section of the manual for unhooking.

Service & Maintenance

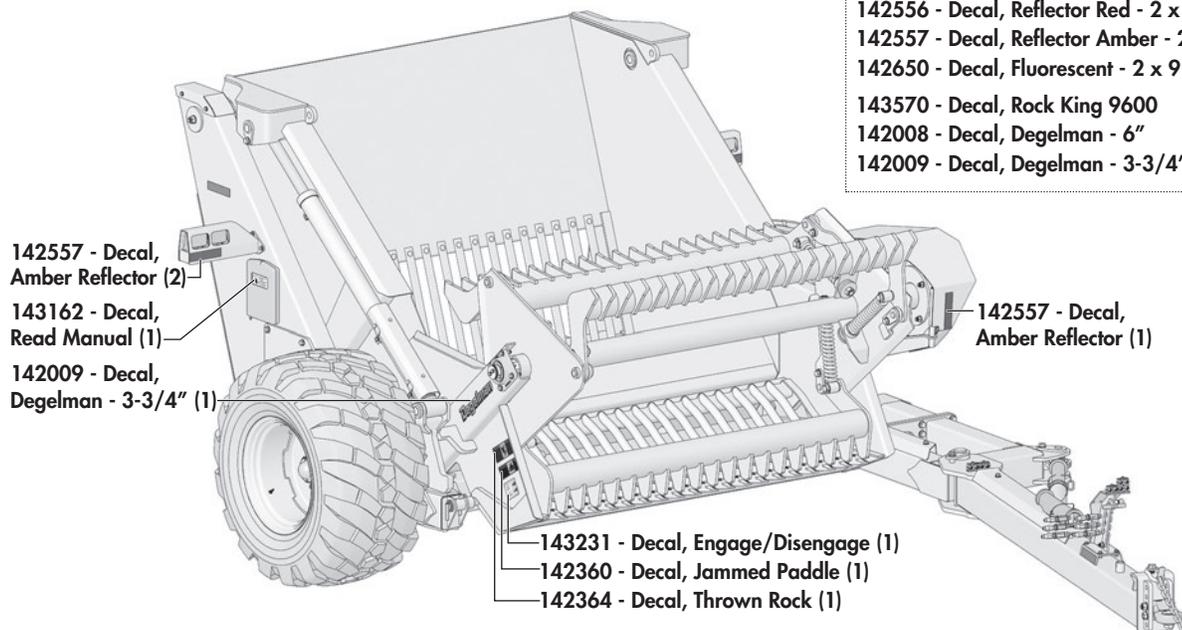
DECAL LOCATION OVERVIEW



SAFETY DECALS

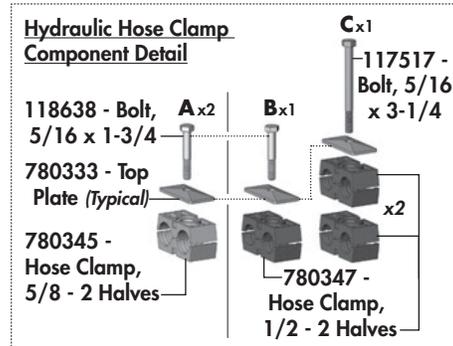
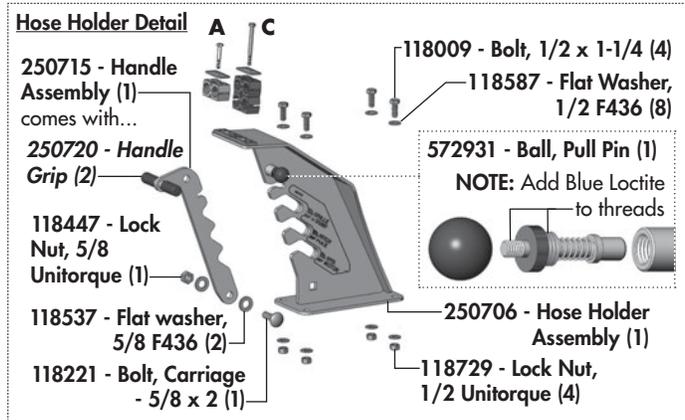
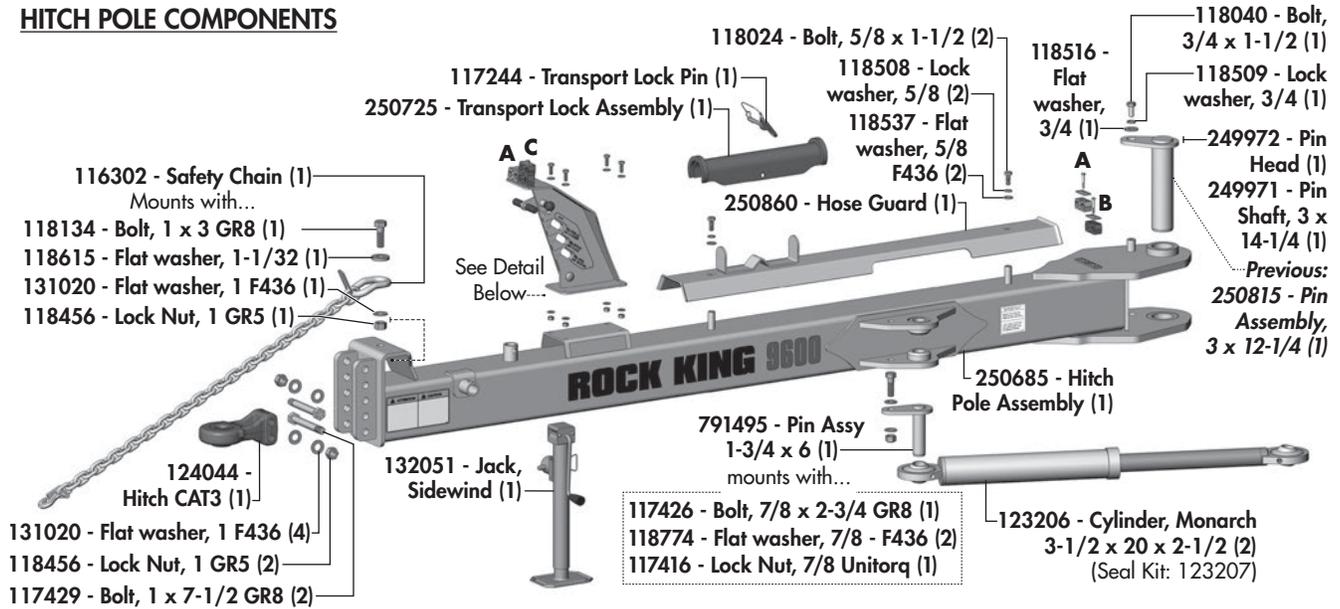
- Keep safety decals and signs clean and legible at all times.
- Replace safety decals and signs that are missing or have become illegible.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety decals or signs are available from your Dealer Parts Department. Safety decals will be available upon request.

143162 - Decal, Read Manual	(1)
142364 - Decal, Danger - Thrown Rock	(2)
142356 - Decal, Caution - 1-10 Point Safety	(1)
142360 - Decal, Warning - Jammed Paddle	(2)
142363 - Decal, Warning - High Pressure	(1)
142359 - Decal, Warning - Rotating Parts-Chain	(1)
142357 - Decal, Warning - Missing Shield	(1)
142387 - Decal, Important - Remove Red Lock	(1)
143231 - Decal, Important - Engage/Disengage	(1)
143389 - Decal, Important - Chain Maintenance	(1)
142995 - Decal, Hydraulic Hose Label	(1)
142156 - Decal, Slow Moving Vehicle	(1)
142556 - Decal, Reflector Red - 2 x 9	(2)
142557 - Decal, Reflector Amber - 2 x 9	(7)
142650 - Decal, Fluorescent - 2 x 9	(2)
143570 - Decal, Rock King 9600	(1)
142008 - Decal, Degelman - 6"	(1)
142009 - Decal, Degelman - 3-3/4"	(1)



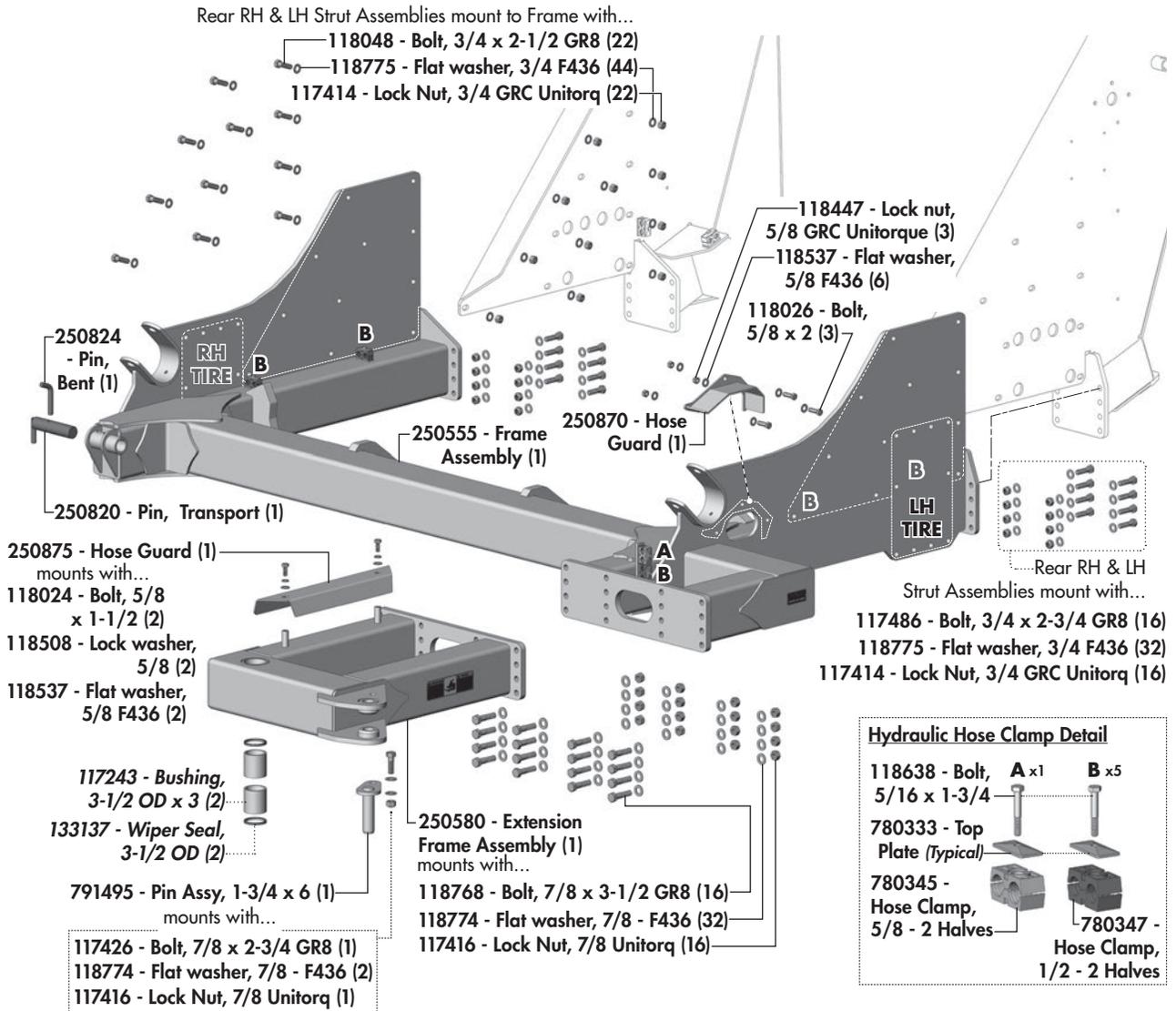
Hitch Pole Components

HITCH POLE COMPONENTS



Front Frame Components

FRONT FRAME COMPONENTS



Axle & Wheel Components

TIRE MOUNTING COMPONENTS RH/LH

250620 - Axle Holder Assembly (2)
mounts with...

- 117486 - Bolt, 3/4 x 2-3/4 GR8 (20)
- 118775 - Flat washer, 3/4 F436 (40)
- 117414 - Lock Nut, 3/4 GRC Uunitorq (20)

117414 - Lock Nut, 3/4 GRC Uunitorq (2)

118062 - Bolt, 3/4 x 5-1/2 (2)

131880 - Hub/Spindle Assembly (2)
comes with...

- 118712 - Nut, Wide Base - 3/4 UNF GR8 (20)

131420 - Wheel Assembly (2)
comes with...

- 131421 - Tire (1)
- 131422 - Rim (1)
- 127015 - Valve (1)

Tire Pressure	
	41 PSI (283 kPa)

Wheel Nut/Bolt Torque	
Size	lb.ft (N.m)
3/4	280-300 (380-405)

HUB/SPINDLE COMPONENTS

131883 - Bearing, Cone - #33275 (1)

131885 - Dust Seal - CTD #SE67 (1)

131882 - Spindle (1)
comes with Slotted Nut

131884 - Bearing, Cup - #33462 (1)

131880 - Hub/Spindle Assembly

118723 - Bolt, Stud (Replacement Part)

118712 - Nut, Wide Base - 3/4 UNF GR8 (10)

131835 - Bearing, Cup - #453-A (1)

131837 - Bearing, Cone - #460 (1)

118641 - Bolt, 5/16 x 1/2 (4)

118963 - Flat Washer, 1-1/4 GR8 (1)

118443 - Slotted Nut, 1-1/4 UNF (1)

131839 - Pin, Spindle Nut Retainer (1)

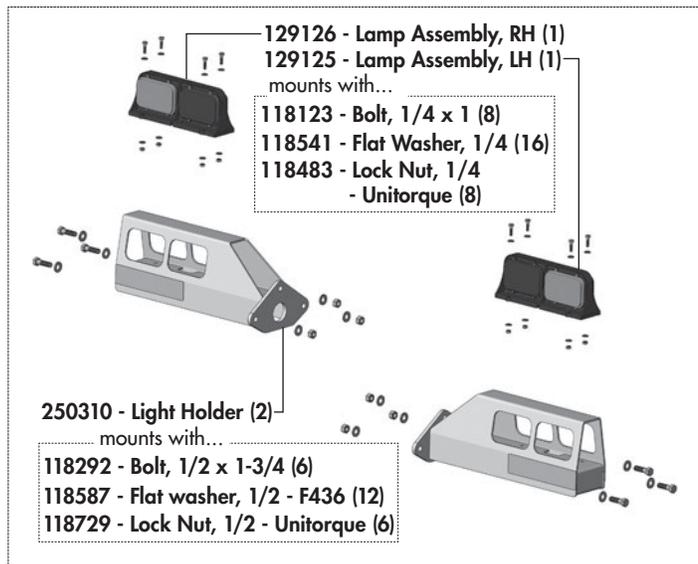
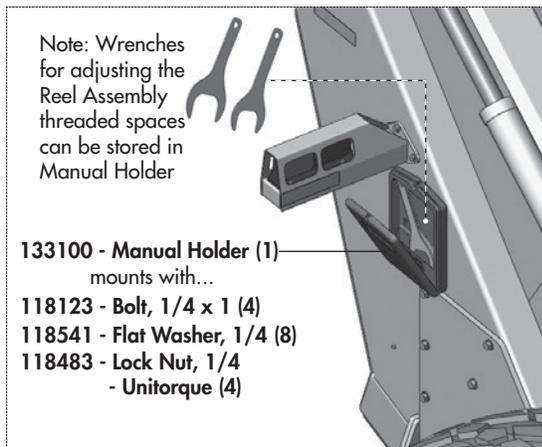
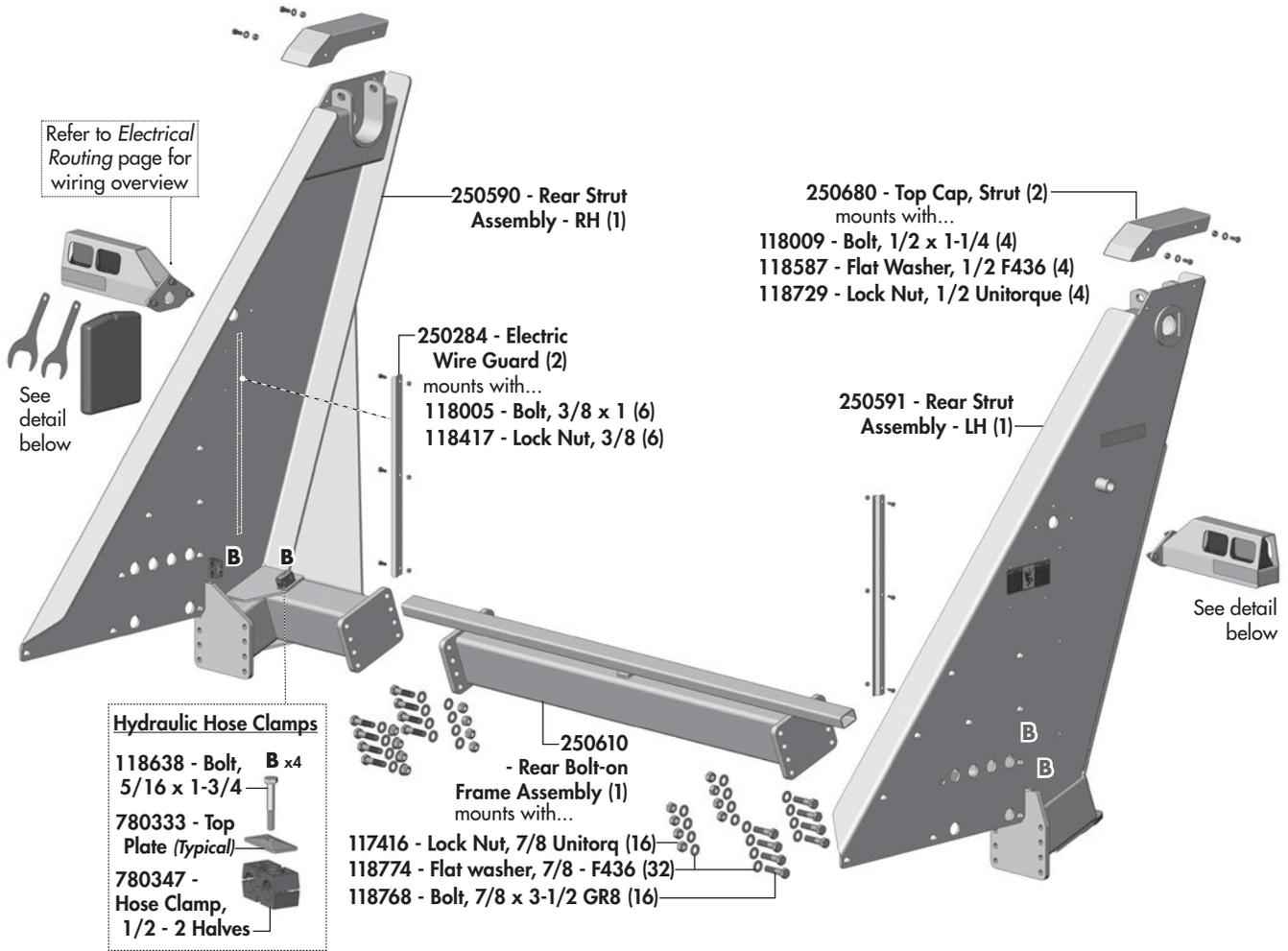
131838 - Dust Cap - #DC27 (1)

131841 - Gasket, 4 Hole - #SE49 (1)

131881 - Hub Assembly, 15,000 lbs - c/w Cups & Studs (1)

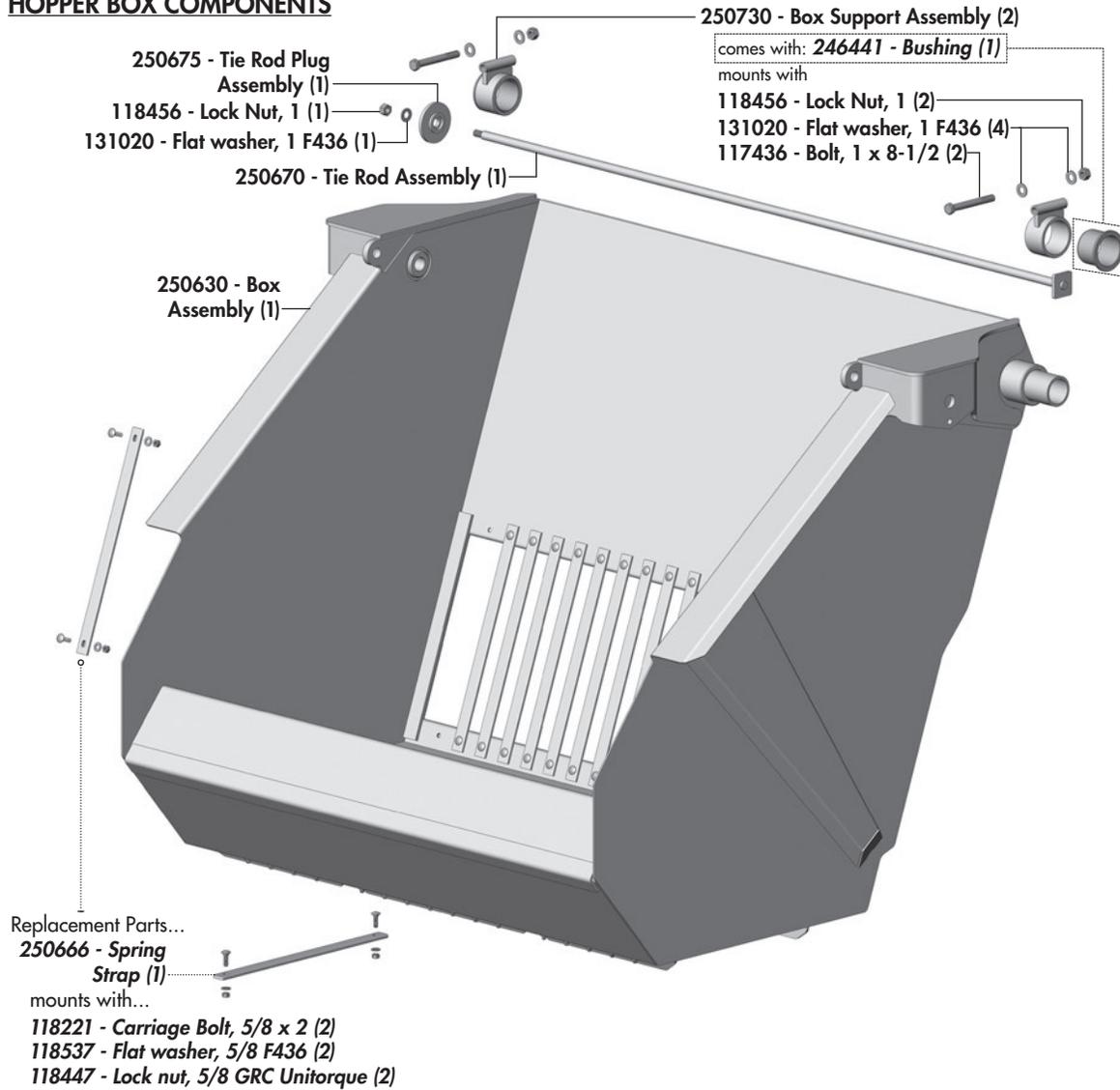
Rear Strut & Rear Frame Components

REAR FRAME COMPONENTS

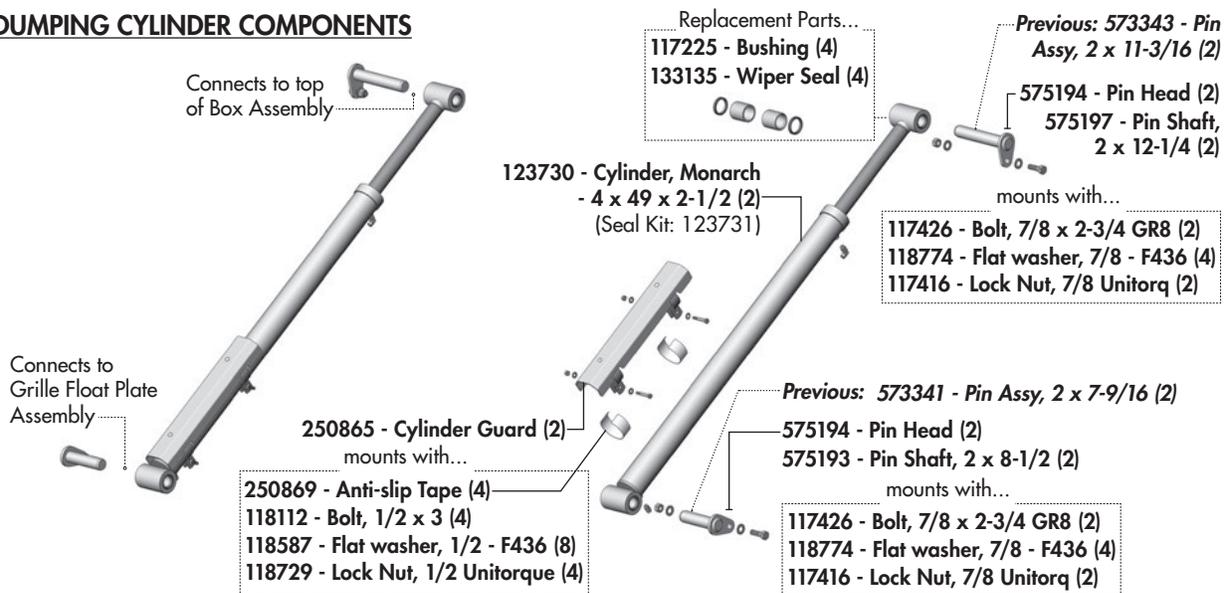


Hopper Box Components

HOPPER BOX COMPONENTS



DUMPING CYLINDER COMPONENTS



Reel Components

REEL ASSEMBLY COMPONENTS

250805 - Reel & Paddle Assembly (1)

Note: Wrenches can be stored in Manual Holder

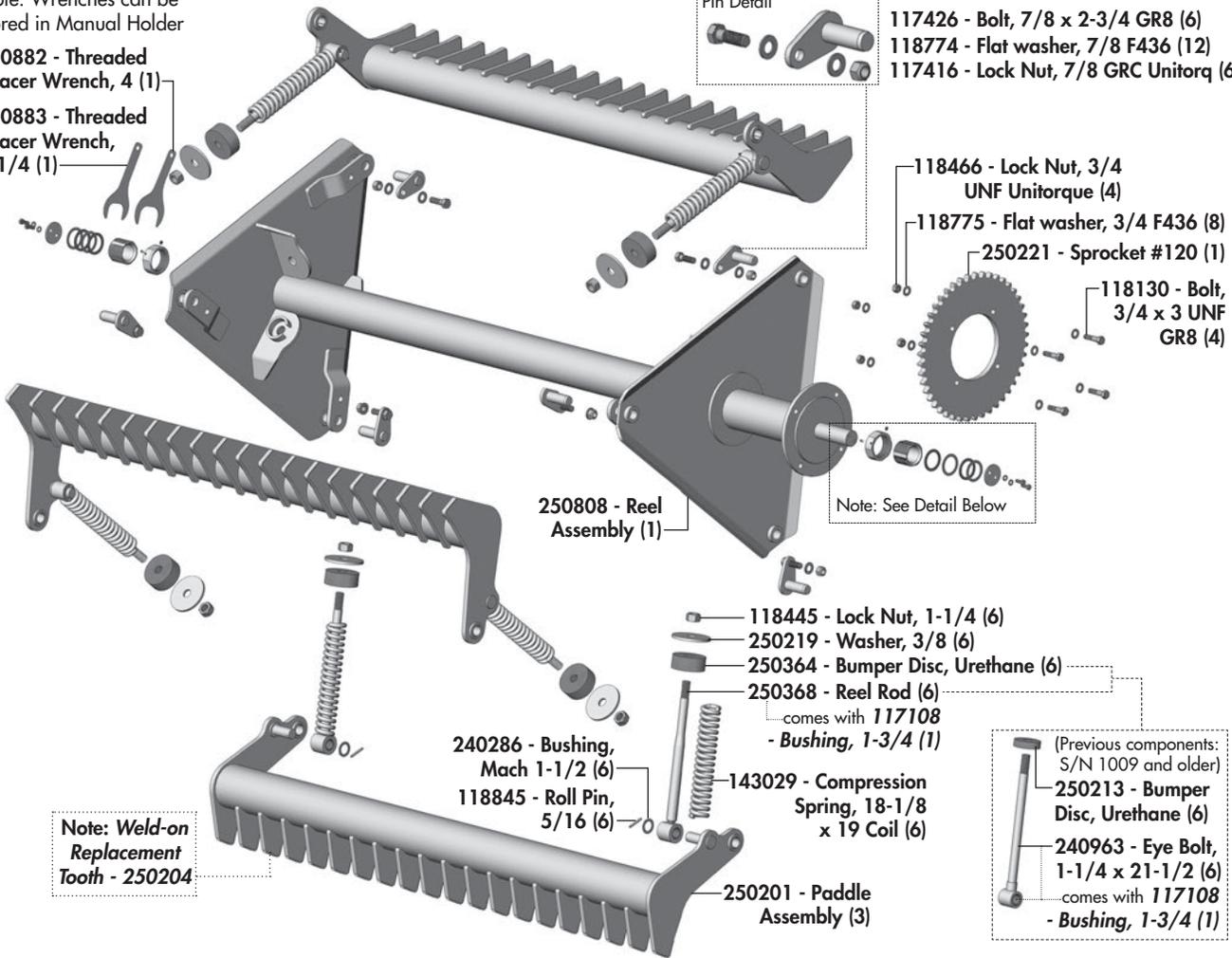
250882 - Threaded Spacer Wrench, 4 (1)
250883 - Threaded Spacer Wrench, 3-1/4 (1)

250366 - Pin Assy, 1-1/2 x 4 (6)

Pin Detail

mounts with

117426 - Bolt, 7/8 x 2-3/4 GR8 (6)
118774 - Flat washer, 7/8 F436 (12)
117416 - Lock Nut, 7/8 GRC Unitorq (6)



118466 - Lock Nut, 3/4 UNF Unitorque (4)

118775 - Flat washer, 3/4 F436 (8)

250221 - Sprocket #120 (1)

118130 - Bolt, 3/4 x 3 UNF GR8 (4)

Note: See Detail Below

250808 - Reel Assembly (1)

118445 - Lock Nut, 1-1/4 (6)

250219 - Washer, 3/8 (6)

250364 - Bumper Disc, Urethane (6)

250368 - Reel Rod (6)
comes with 117108 - Bushing, 1-3/4 (1)

240286 - Bushing, Mach 1-1/2 (6)

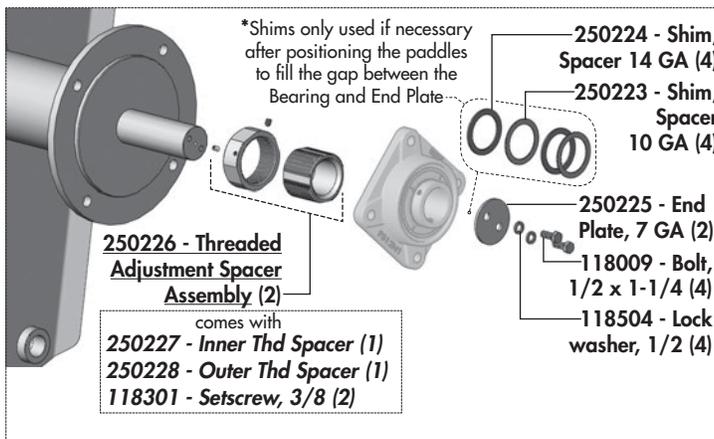
118845 - Roll Pin, 5/16 (6)

143029 - Compression Spring, 18-1/8 x 19 Coil (6)

Note: Weld-on Replacement Tooth - 250204

250201 - Paddle Assembly (3)

(Previous components: S/N 1009 and older)
250213 - Bumper Disc, Urethane (6)
240963 - Eye Bolt, 1-1/4 x 21-1/2 (6)
comes with 117108 - Bushing, 1-3/4 (1)



*Shims only used if necessary after positioning the paddles to fill the gap between the Bearing and End Plate...

250224 - Shim, Spacer 14 GA (4)

250223 - Shim, Spacer 10 GA (4)

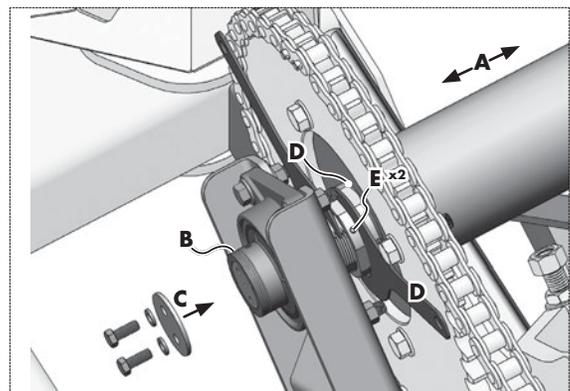
250225 - End Plate, 7 GA (2)

118009 - Bolt, 1/2 x 1-1/4 (4)

118504 - Lock washer, 1/2 (4)

250226 - Threaded Adjustment Spacer Assembly (2)

comes with
250227 - Inner Thd Spacer (1)
250228 - Outer Thd Spacer (1)
118301 - Setscrew, 3/8 (2)



Reel Paddle/Grille Tooth Positioning

A - Center Paddle Teeth between the Grille Teeth

B - Add Shims to end of reel shaft (as needed)

C - Install End Plate with Hardware

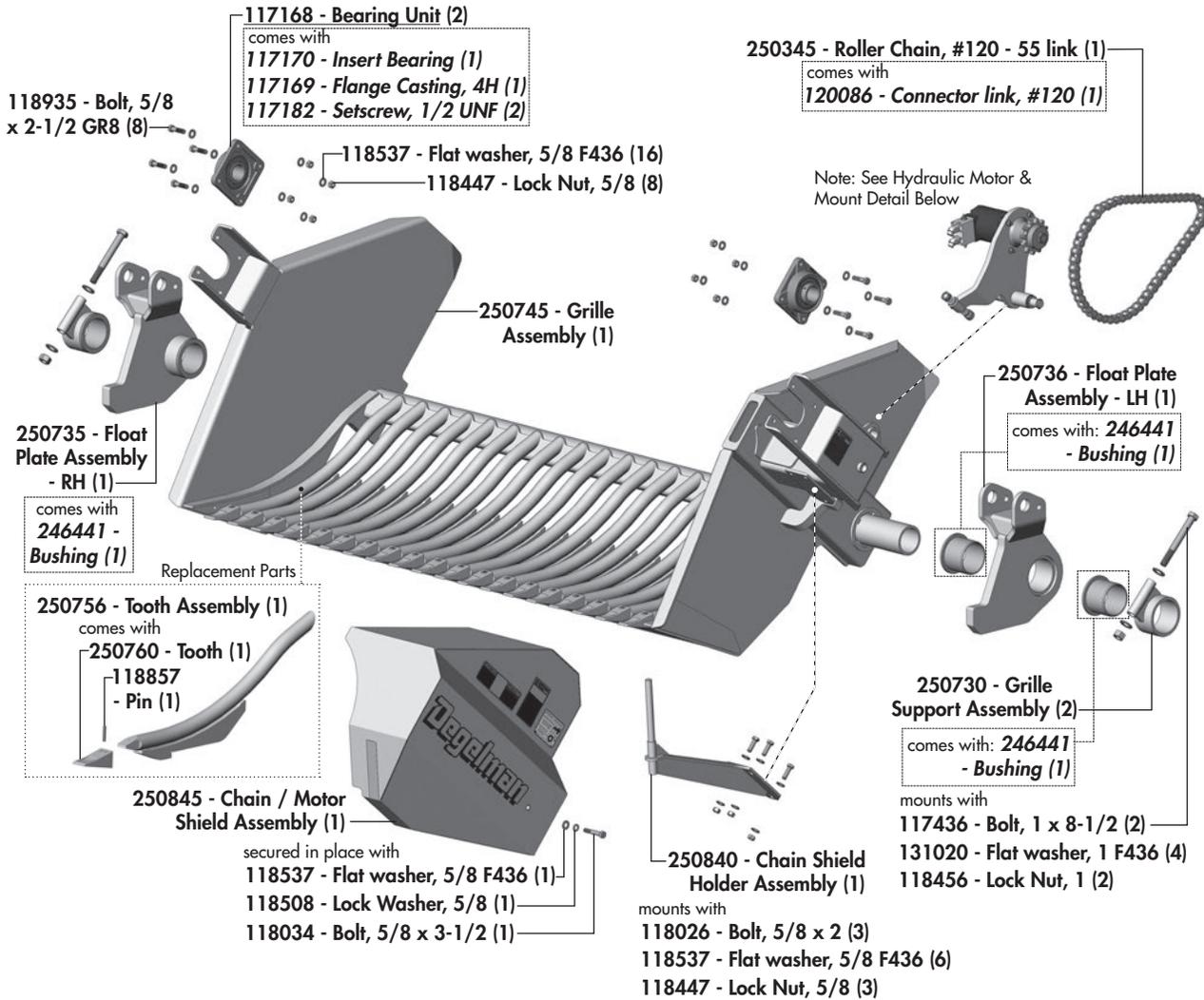
D - Using the Threaded Spacer Wrenches, adjust Threaded Spacer until it makes slight contact.

E - Tighten the two setscrews on threaded spacer.

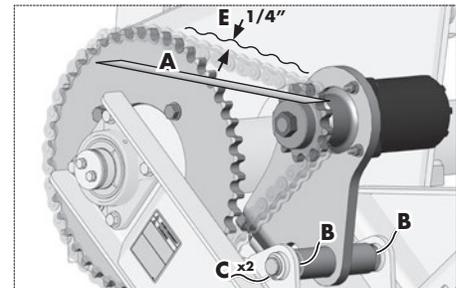
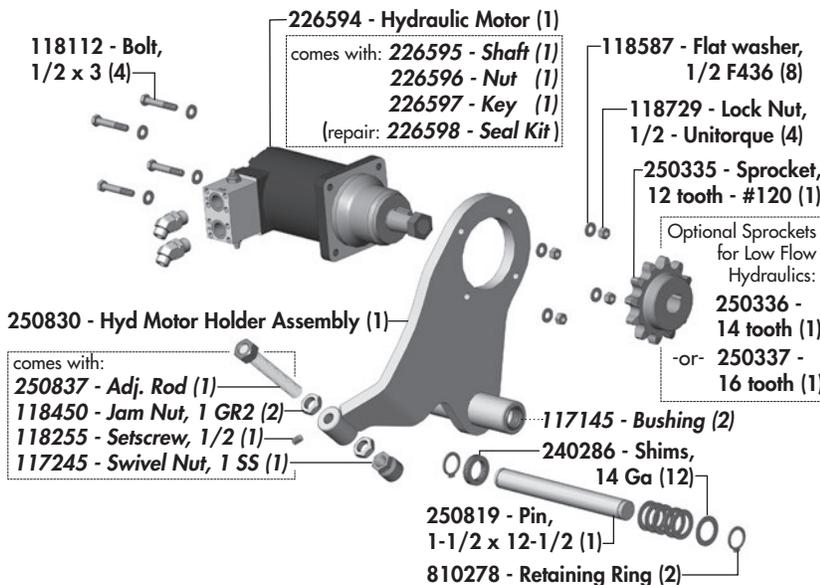


Grille Components

GRILLE ASSEMBLY COMPONENTS

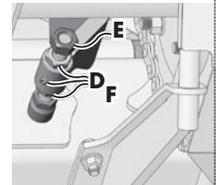


HYDRAULIC MOTOR MOUNT COMPONENTS DETAIL

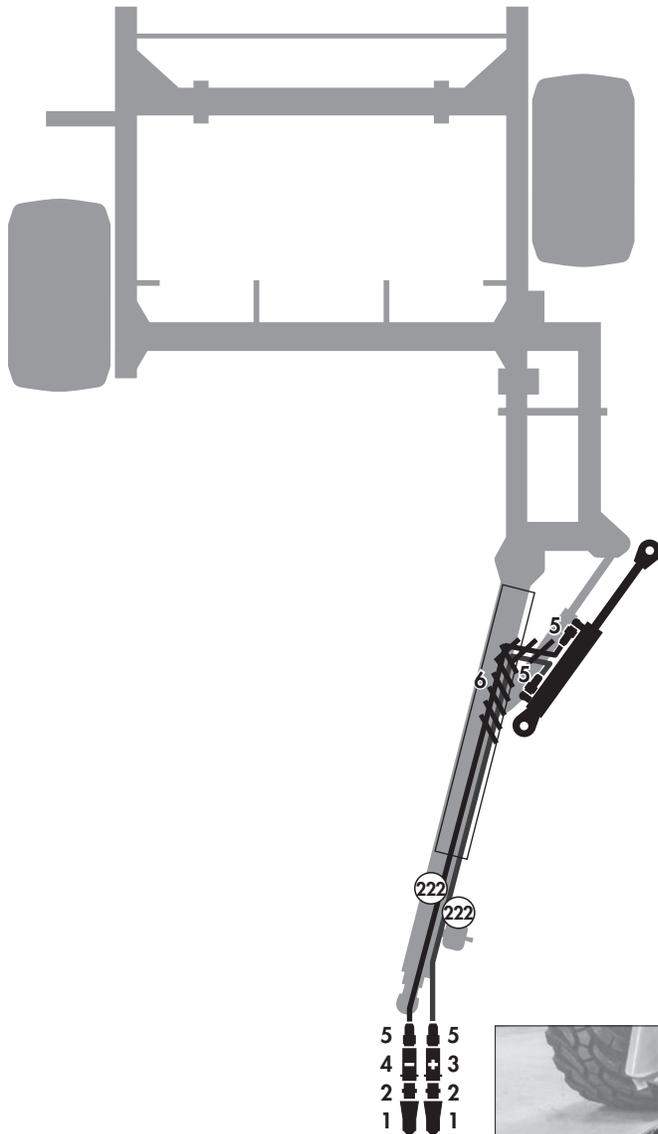


Chain Tightener Installation

- A** - Align sprocket faces with straight edge.
- B** - Install Shims (as needed) to maintain alignment.
- C** - Install retaining clips on pin ends.
- D** - Loosen Jam Nuts and Setscrew on chain tightener.
- E** - Adjust Threaded Rod and Swivel Nut to bring Chain Slack to approximately 1/4".
- F** - Retighten Jam Nuts and Setscrew.



Hydraulic Routing - Swing Pole Cylinder

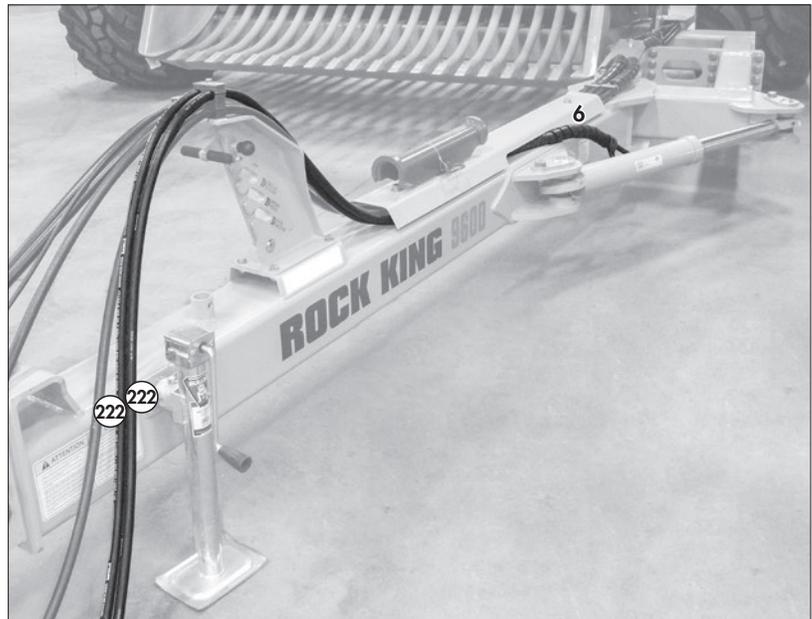


Hydraulic Fittings Required

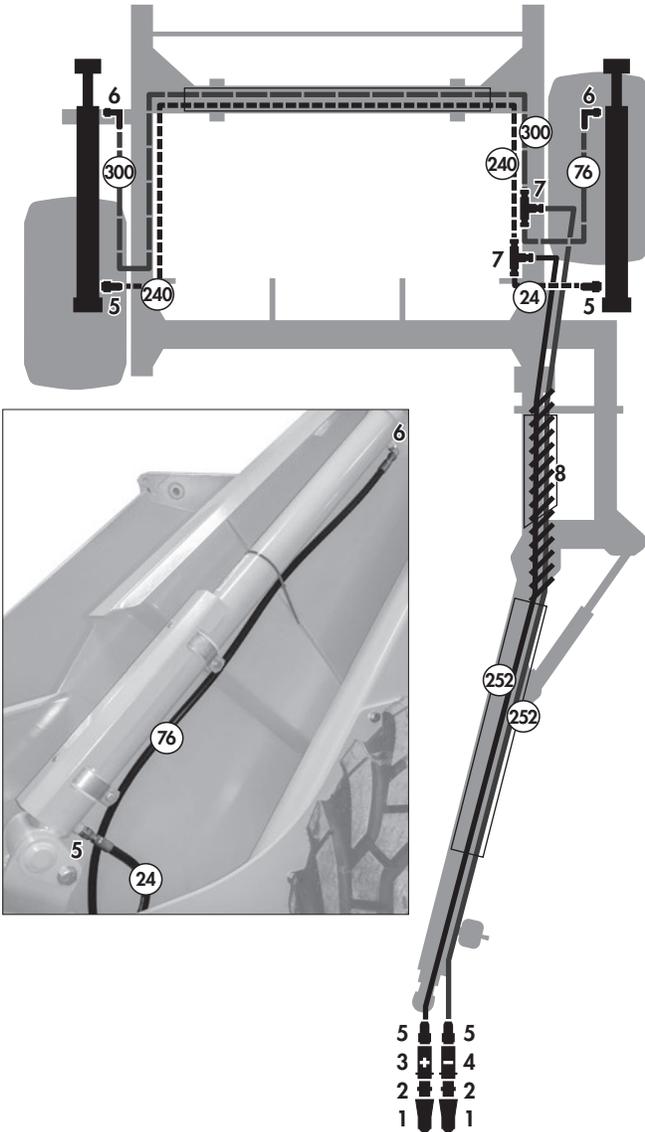
- | | | | |
|---|---|--------------------------------------|-----|
| 1 |  | 141581 - Coupler Tip, 3/4 ORB F | (2) |
| 2 |  | 141676 - Connector, 3/4 ORB M x M | (2) |
| 3 |  | 141682 - Coupler, Blue (+) | (1) |
| 4 |  | 141683 - Coupler, Blue (-) | (1) |
| 5 |  | 141703 - Adaptor, 1/2 ORB M x ORFS M | (4) |
| 6 |  | 250546 - Wrap, Hose Protection - 24" | (1) |

Required Hoses for Swing Pole Cylinder

- | | | |
|---|--------------------------|-----|
|  | 126782 - Hose, 1/2 x 222 | (2) |
|---|--------------------------|-----|



Hydraulic Routing - Dumping Cylinders

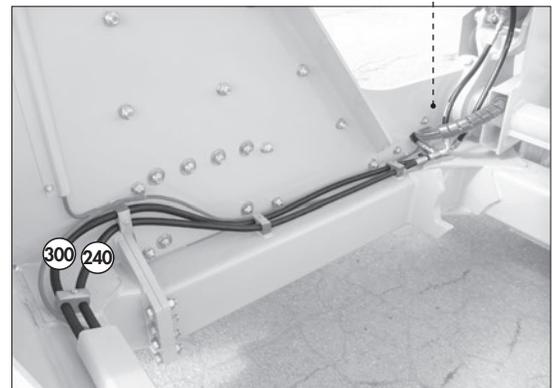
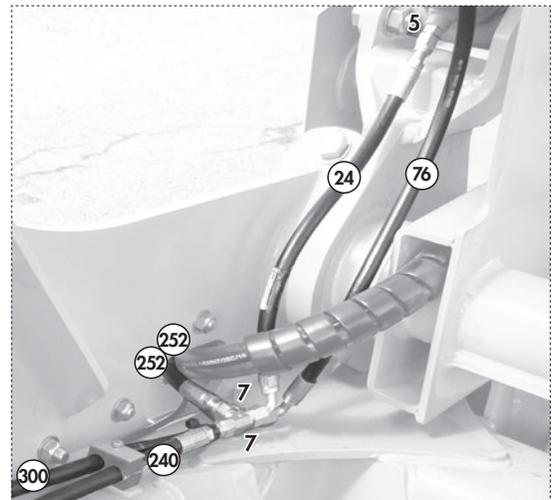


Hydraulic Fittings Required

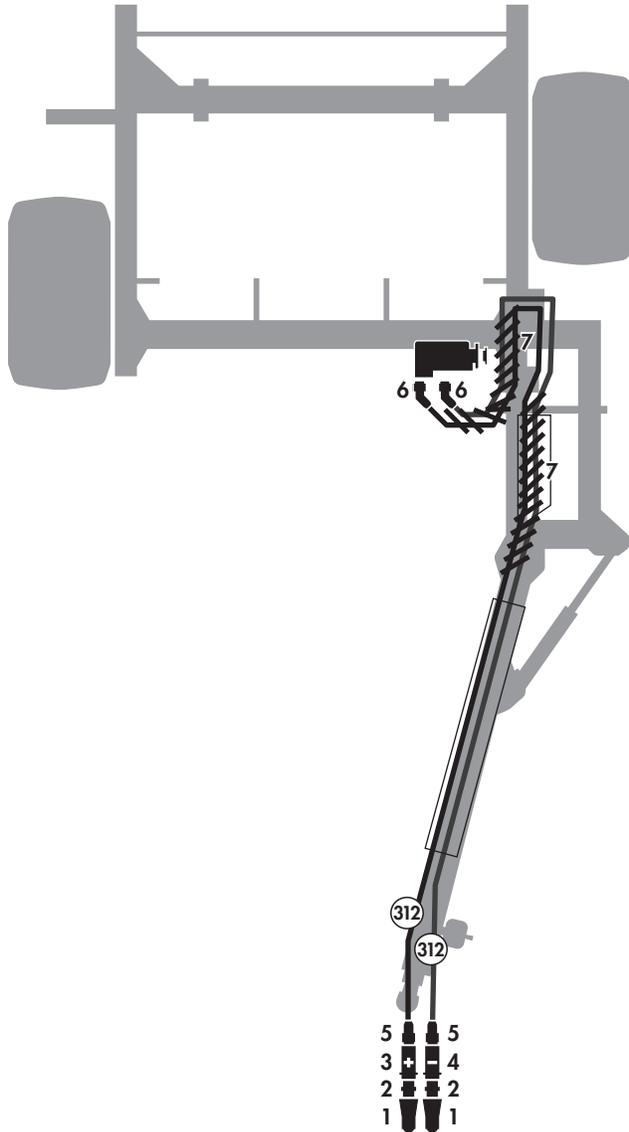
- | | | | |
|---|--|--|-----|
| 1 | | 141581 - Coupler Tip, 3/4 ORB F | (2) |
| 2 | | 141676 - Connector, 3/4 ORB M x M | (2) |
| 3 | | 141684 - Coupler, Green (+) | (1) |
| 4 | | 141685 - Coupler, Green (-) | (1) |
| 5 | | 141703 - Adaptor, 1/2 ORB M x ORFS M | (4) |
| 6 | | 141704 - Elbow, 90° 1/2 ORB M x ORFS M | (2) |
| 7 | | 141706 - Tee, 1/2 ORFS M x M x M | (2) |
| 8 | | 250547 - Wrap, Hose Protection - 45" | (1) |

Required Hoses for Dumping Cylinders

- | | | |
|-----|---------------------------------|-----|
| 24 | 126786 - Hose, 1/2 x 24 - F-90D | (1) |
| 76 | 126787 - Hose, 1/2 x 76 - F-90D | (1) |
| 240 | 126788 - Hose, 1/2 x 240 | (1) |
| 252 | 126784 - Hose, 1/2 x 252 | (2) |
| 300 | 126785 - Hose, 1/2 x 300 | (1) |



Hydraulic Routing - Hydraulic Motor

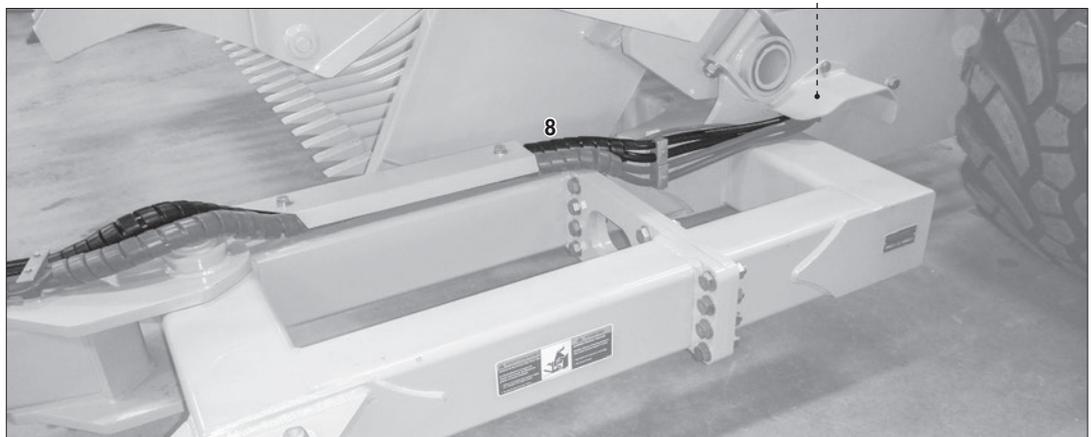
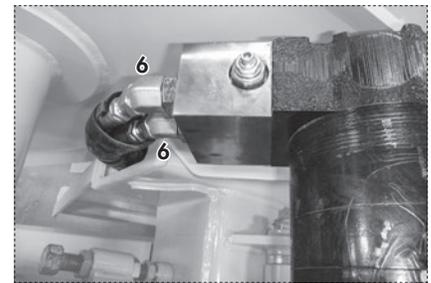


Hydraulic Fittings Required

- | | | | |
|---|--|---|-----|
| 1 | | 141581 - Coupler Tip, 3/4 ORB F | (2) |
| 2 | | 141676 - Connector, 3/4 ORB M x M | (2) |
| 3 | | 141686 - Coupler, Brown (+) | (1) |
| 4 | | 141687 - Coupler, Brown (-) | (1) |
| 5 | | 141723 - Adaptor, 3/4 ORB M x 5/8 ORFS M | (2) |
| 6 | | 141729 - Elbow, 45° 1-1/16 ORB M x 5/8 ORFS M | (2) |
| 7 | | 250547 - Wrap, Hose Protection - 45" | (2) |

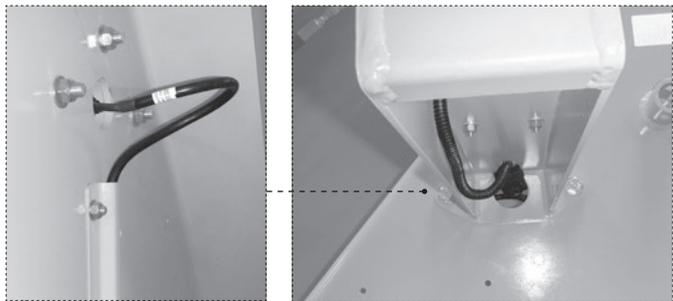
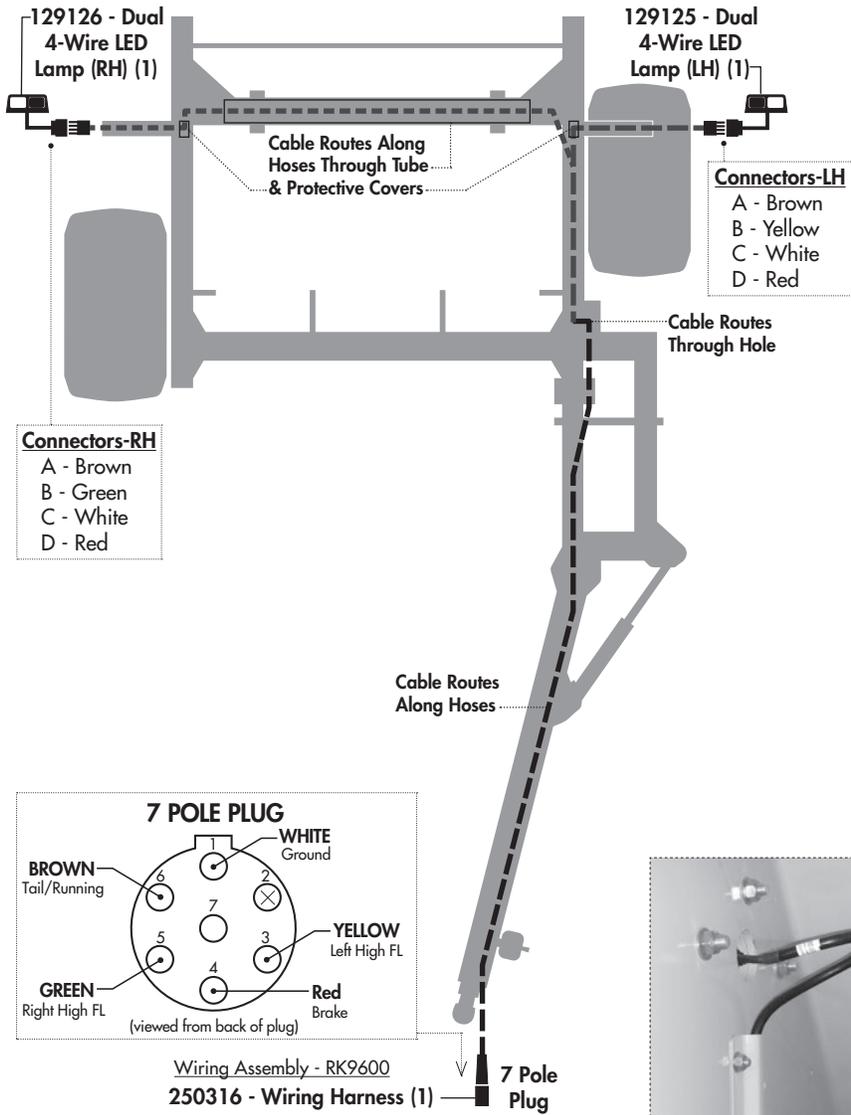
Required Hoses for Hydraulic Motor

- | | | | |
|-----|--|--------------------------|-----|
| 312 | | 126780 - Hose, 5/8 x 312 | (2) |
|-----|--|--------------------------|-----|



Electrical Routing & Components

CLEARANCE LIGHT WIRE ROUTING



Warranty

2 Year **Limited Warranty - Agricultural Products**

Degelman Industries LP ("Degelman") warrants to the original purchaser of any new Degelman equipment, purchased from an authorized Degelman dealer, that the equipment will be free from defects in material and workmanship for a period of two (2) years from the date of delivery, for non-commercial use (including farm, institutional, government, and municipality) and (1) year from the date of delivery for commercial use. The obligation of Degelman to the purchaser under this warranty is limited to the repair or replacement of defective parts in the first year and to the provision, but not the installation of replacement parts in the second year. Degelman reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This warranty limits its replacement or repair coverage to what is consistent with the warranty of Degelman's suppliers of purchased components.

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of delivery of such part or the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Degelman dealer during regular working hours. Warranted replacement parts will either be replaced or rebuilt at Degelman's discretion.

Disclaimer of implied warranties & consequential damages

This warranty shall not be interpreted to render Degelman Industries LP liable for injury, death, property damage or damages of any kind, whether direct, consequential, or contingent to property. Without limiting the generality of the foregoing, Degelman shall not be liable for damages resulting from any cause beyond its reasonable control, including, without limitation, loss of crops, any expense or loss of labour, supplies, rental machinery or loss of use.

No other warranty of any kind whatsoever, express or implied is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale. This exclusion shall not apply in any jurisdiction where it is not permitted by law.

This limited warranty shall not apply:

1. If, in the sole opinion of Degelman, the unit has been subjected to misapplication, abuse, misuse, negligence accident or incorrect off-site machine set-up.
2. To any goods that have sustained damage or deterioration attributable to a lack of routine maintenance (eg. Check and Re-torque of fastening hardware, Hydraulic fluid purities, drive train alignments, and clutch operation)
3. If parts not made or supplied by Degelman have been used in the connection with the unit, if, in the sole judgement of Degelman such use affects its performance, safety, stability or reliability.
4. If the unit has been altered or repaired outside of an authorized Degelman dealership in a manner which, in the sole judgement of Degelman, affects its performance, safety, stability or reliability.
5. To expendable or wear items such as (eg. Harrow tines, Rock Picker and Rock Rake wear teeth and replaceable bushings and pins.) and any other items that in the company's sole judgement are a wear item.

No employee or representative of Degelman Industries LP is authorized to change this limited warranty in any way or grant any other warranty unless such change is made in writing and signed by the Degelman Service Manager.

This limited warranty is subject to any future availability of supply, which may directly affect Degelman's ability to obtain materials or manufacture replacement parts.

Degelman reserves the right to make improvements in design or changes in specifications at any time, without incurring obligations to owners of equipment previously delivered.

This limited warranty is subject to compliance by the customer to the enclosed *Retail Customer's Responsibility Under Degelman Warranty*.

Warranty

Retail Customer's Responsibility Under Degelman Warranty.

It is the retail customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain and store the equipment in accordance with all instructions and safety procedures. Failure of the operator to read the operators manual is a misuse of this equipment.

It is the retail customer and/or operators responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause safety hazard.

It is the retail customer's responsibility to deliver the product to the authorized Degelman dealer, from whom he purchased it, for service or replacement of defective parts, which are covered by warranty. Repairs to be submitted for warranty consideration must be made within forty-five days of failure.

It is the Retail Customer's responsibility for any cost incurred by the dealer for hauling of the product for the purpose of performing a warranty obligation or inspection.

WARRANTY INFORMATION

Make certain the warranty registration card has been forwarded to:

**Degelman Industries LP
Box 830 -272 Industrial Dr.
Regina, SK, Canada
S4P 3B1**

Always give your dealer the serial number of your Degelman product when ordering parts or requesting service or other information.

The serial number is located on the machine as shown in the diagram below. In the space provided record the model number, the serial number and the date of purchase to assist your dealer in providing you with prompt and efficient service.

SERIAL NUMBER: _____

MODEL NUMBER: _____

DATE OF PURCHASE: _____

