

Rangler II Packer Harrow

Specifications

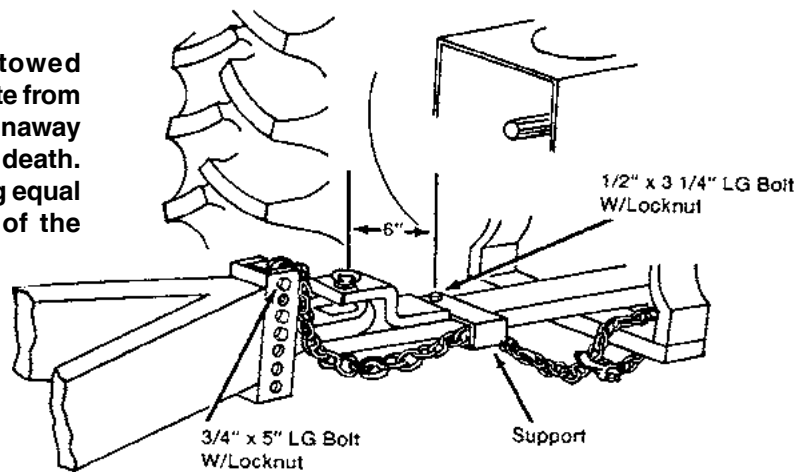
RANGLER II Specifications and Options

| Model | 50 feet | | 60 feet | | 70 feet | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------|-----------------------------------------------|------|-----------------------------------------------|------|
| | STD. | OPT. | STD. | OPT. | STD. | OPT. |
| 1 1/2" (3.81 cm) Square Coil Packer, 100 lb./ft. (1.49 kg/cm) 18" (46 cm) Dia. 5 3/4" (14.6 cm) pitch with 2 Tapered Roller Bearing Sets. | | X | | X | | X |
| 1 3/4" (4.45 cm) Square Coil Packer, 130 lb./ft. (1.94 kg/cm) 19 3/4" (50 cm) Dia. 5 3/4" (14.6 cm) pitch with 2 Tapered Roller Bearing Sets. | | X | | X | | X |
| 4-Bar Harrows with Bent or Straight Tine. 65" (165 cm) Deep x 60" (152 cm) Wide 3/8" (0.95 cm) x 15" (38 cm) Long Tines. | | X | | X | | X |
| 5-Bar Harrows with Bent or Straight Tine. 65" (165 cm) Deep x 60" (152 cm) Wide 3/8" (0.95 cm) x 15" (38 cm) Long Tines. | | X | | X | | X |
| Single Axle - Main Frame - Tire Size - | (2) 9.5L x 15SL 8 ply rating | | (2) 11L x 15FI Load Range D | | N/A | |
| Dual Axle - Main Frame Tire Size - 9.5L x 15SL -8 ply rating | | 4 | | 4 | 4 | |
| Wing Axle - (1 per wing) Tire Size - 9.5L x 15 -6 ply rating | 2 | | 2 | | 2 | |
| Wing Transport Axle - (1 per wing) Tire Size - | (2) 9.5L x 15SL 8 ply rating | | (2) 11L x 15FI Load Range D | | (2) 11L x 15FI Load Range D | |
| Lift Cylinders | | | | | | |
| - 3 1/2" (9 cm) Dia. x 24" (61 cm) Stroke | 2 | | 2 | | | |
| - 4" (10 cm) Dia. x 24" (61 cm) Stroke | | N/A | | N/A | 2 | |
| Cart Frames - 2" (5 cm) x 8" (20.3 cm) Structural Tubing | X | | X | | X | |
| Wing Frames - 6" (15 cm) x 8" (20.3 cm) Structural Tubing | X | | X | | X | |
| Harrow Arms - 2 1/2" (6.4 cm) Square Structural Tubing | X | | X | | X | |
| Hydraulic Wing Fold | | X | | X | | X |
| Safety Lights | X | | X | | X | |
| Safety Chain | X | | X | | X | |
| Weight - with 1 1/2" (3.81 cm) Packer & 5 bar harrows | 11,395 lbs. (5,180 kg) | | 13,150 lbs. (5,977 kg) | | 15,185 lbs. (6,902 kg) | |
| Overall working Length with Harrows | 28' (8.53 m) | | 28' (8.53 m) | | 28' (8.53 m) | |
| Transport Height | 11' (3.35 m) | | 11' (3.35 m) | | 11' (3.35 m) | |
| Transport Width | 14' 7" (4.45 m) at a Height of 9' (2.74 m) | | 14' 7" (4.45 m) at a Height of 9' (2.74 m) | | 14' 7" (4.45 m) at a Height of 9' (2.74 m) | |
| 60" (152 cm) Wide Harrows | 10 | | 12 | | 14 | |
| 43.75" (111 cm) Long Packer Coil | 2 | | 2 | | 2 | |
| 54" (137 cm) Long Packer Coil | 8 | | 10 | | 12 | |

*NOTE: Minimum Hydraulic Pressure 1,950 P.S.I. (13,435 kPa)

Caution

A safety chain will help control towed machines should it accidentally separate from the drawbar while transporting. A runaway machine could cause severe injury or death. Use a safety chain with a strength rating equal to or greater than the gross weight of the towed machines.



Attach safety chain to the tractor drawbar support or other specified anchor location with the appropriate parts.

Hitching to Tractor

- Ensure swinging drawbar is locked in the centre position.
- Insure hitch pin is in good condition.
- Level clevis with tractor drawbar using hitch jacks.
- Back tractor into position and attach hitch clevis to drawbar, using an adequate hitch pin.
- Lock hitch pin in place with a hairpin or other proper locking device.
- After tractor to implement connection is made, relieve pressure off the hitch jacks.
- Place hitch jacks in raised position.
- Route Safety Chain through chain support and drawbar support.
- Lock safety hook onto chain.

Note: Provide only enough slack in chain to permit turning.

- Ensure hydraulic hose quick couplers are dirt free.
- Inspect all fittings and hoses for leaks and kinks. Repair as necessary
- Connect the hydraulic hoses to the tractor quick couplers.



HITCH JACKS RAISED

Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Operation

Unhitching from Tractor

Transport Position

- Pin hitch jacks in storage position located on both wings.
- Lower hitch jacks taking the weight off the harrow cart clevis.
- Ensure all transport locks are properly secured.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Disconnect the hydraulic hoses.
- Remove the safety chain.
- Remove the drawbar pin.
- Slowly move tractor away from unit.



Transport Position

Field Position

- Pin hitch jacks on the main frame.
- Follow above procedures.



Field Position

Unit equipped with Applicator Tank

- Pin one hitch jack on the hitch of the Rangler II. (Transport or Field Position)

Note: For added Safety it is recommended to unload any material that may be in the Applicator tank.

- Pin the other hitch jack in its normal position. (Transport Position only)
- Follow above procedures.



Applicator Tank position

Transport

Observe all applicable safety precautions under transport heading in Safety, Section 1.

- Refer to Specifications, Section 2 for weight, transport height and width.
- Transport with tractor only!
- Always connect safety chain provided to the towing vehicle and the hitch of the implement.
- Inspect tires for any serious cuts or abrasions. If such has occurred, tire should be replaced.

MORRIS INDUSTRIES LTD. WILL NOT BE RESPONSIBLE FOR ANY DAMAGES OR OPERATOR INJURY RESULTING FROM NON-USE OR IMPROPER USE OF TRANSPORT LOCKS.

Speed

- Always travel at a safe speed. Do Not Exceed 20 M.P.H. (32 kph).
- The weight of the implement being towed *must not exceed 1.5 times* the weight of towing vehicle.

Lights

- Ensure proper reflectors are in place, refer to Safety Section 1.
- Use flashing amber warning lights, turn signals and SMV emblems when on public roads.
- Be familiar with and adhere to local laws.

Transport Wheels Adjustment

- Check to see if machine wings track straight.
- Adjust rear bolt as required to get proper wing track.
- Adjust front bolt as required to get proper wing action to allow for satisfactory wing swing out.
- Ensure jam nuts are tight.



TRANSPORT WHEEL ADJUSTMENT

Operation

Transport - Continued

Transport to Field Position

- Position tractor and Harrow Bar in a straight line.
- Back machine up to unfold wings evenly into field position.
- Unfold wings evenly until the cable arms sit firmly in saddle with pull cables slack.
- Remove **both** transport pins.
- Lower machine until cable arm lock is fully engaged.

Note: Ensure cable arms are completely seated in the saddle and cable arm lock is fully engaged as illustrated.

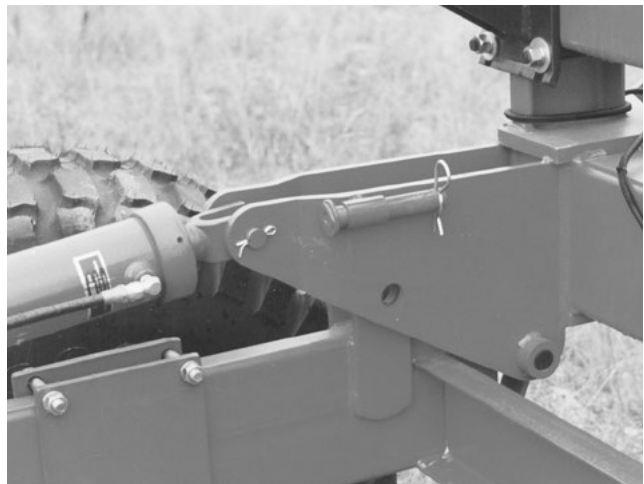
- Continue lowering harrows while moving forward allowing the harrow tines to swing into position.



TRANSPORT LOCKS INSTALLED

Field to Transport Position

- Stop tractor.
- Raise Harrow Bar into transport position using hydraulic cylinders.
- Secure **both** transport lock pins.
- Move tractor forward swinging wings in behind main frame.
- Secure slow moving vehicle sign to left rear harrow arm.

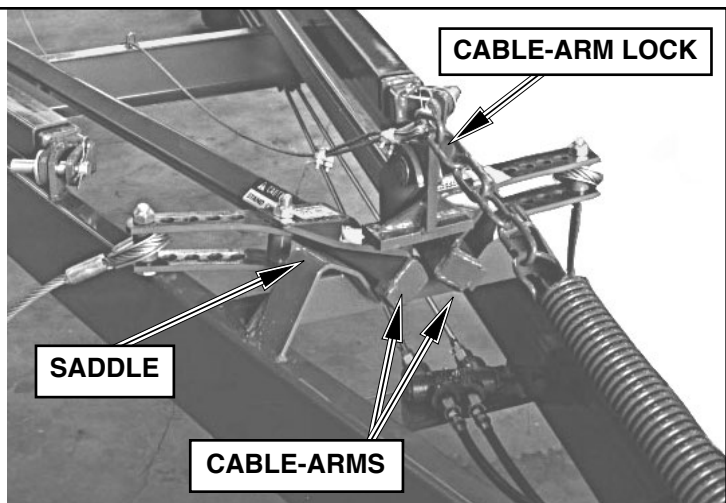


TRANSPORT LOCKS REMOVED



Caution

Ensure cable arms are completely seated in the saddle and cable arm lock is engaged as illustrated.



Hydraulic Fold Kit

If Rangler II is equipped with the optional Hydraulic Fold Kit the following procedure must be used in order to fold and unfold unit.

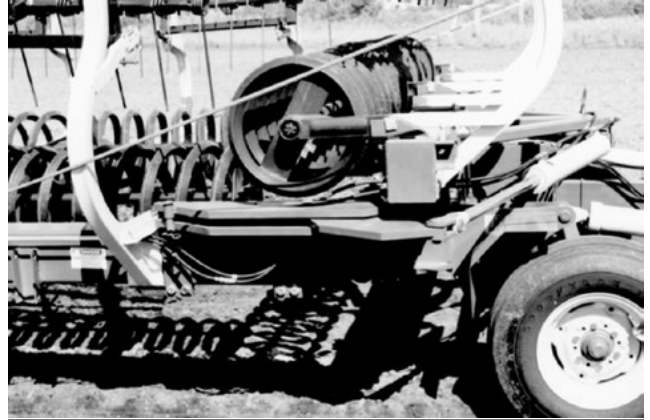
Transport to Field Position

- Position tractor and Harrow Bar in a straight line on level land.
- Remove “swing” pins from storage position at the rear of the swing bracket.
- Put the swing pins into the working position holes at the front of the bracket.

Note: Pins must only be inserted from the bottom.

- Operate hydraulic cylinders to lower the end wheels and unfold the Rangler II wings.

Note: A selector valve is located in the wing lift hydraulics of a five frame cultivator in order to activate only the Rangler II hydraulics or the wing lift hydraulics of the cultivator.



Remove Swing Pins



Working Position of Swing pins



Hydraulically unfolded

Operation

Hydraulic Fold Kit - Continued

Transport to Field Position - Continued

- Retract the end wheels.
- Back-Up until cable arms rest fully in saddles.
- Operate hydraulic cylinders to lower the end wheels and retract wing cylinders.
- Place swing pins back into storage position.
- Remove the transport lock pins and place them in storage position.



Retract End Wheels



Lower End Wheels



Swing Pins Storage Position

Hydraulic Fold Kit - Continued

Transport to Field Position - Continued

- Lower the unit to field position, fully extending the wing cylinders and the end wheels are pulled back into the field position cradle.

Note: Ensure cable arms are completely seated in the saddle and cable arm lock is fully engaged as illustrated.

- Remove transport lock pins from cultivator. Operate hydraulics until cultivator wings are lowered completely.

Note: On five frame cultivators the selector valve must be switched to the cultivator hydraulic system.

The unit is now ready for field use.



Remove Transport Locks



Lower Unit



Retract end wheels

Operation

Hydraulic Fold Kit - Continued

Field to Transport Position

- Stop tractor.
- Hydraulically raise cultivator wings.
- Secure transport lock pins on cultivator.
- Hydraulically raise Rangler II wings.

Note: On five frame cultivators the selector valve must be switched to the Rangler II hydraulic system.

- Secure both transport lock pins on Rangler II.
- Extend wing cylinders until the end wheels are pulled back into the field position cradle.
- Move tractor forward swinging wings in behind main frame.
- Secure slow moving vehicle sign to left rear harrow arm.

The unit is now ready for field use.



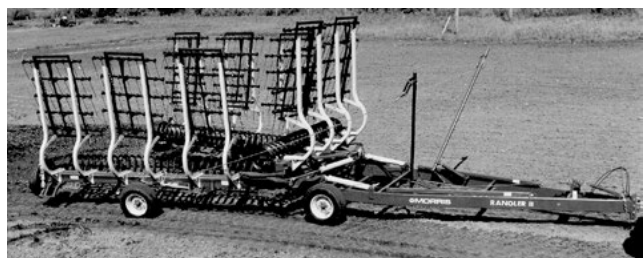
Raise Unit fully



Install Transport Pins



Retract End Wheels



Transport Position

Packers

Removal

- Lower machine in field position.
- Remove all the pins holding packers on frame.
- Raise machine enough so harrows clear packers as illustrated.
- Carefully drive ahead leaving packers behind.
- Reinstall pins into packer hangers on the frame.

Installation

- Connect backup arms to wings in field position. See Back-Up Arm operation.
- Raise machine enough so harrows clear packers.
- Back machine up to packers as illustrated.
- Lower harrows completely.
- Connect packers using walking action to assist in alignment of packer arms and hangers as illustrated.

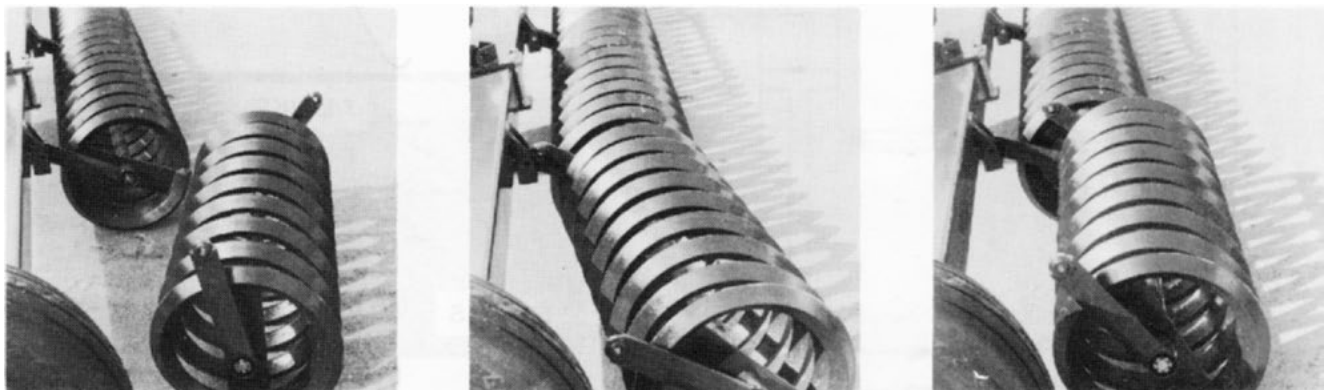


Warning

Install transport lock pins before working under raised wings.

Caution

Use extreme care to avoid personal injury.



Harrow arms removed for clarity

Operation

Harrows

Tine Adjustment

- Adjust tine angle to desired position using the harrow adjusting lever, located at front of cart.
- Place adjusting lever over the rear harrow tube and the strap bolt.
- Remove hair pin from the adjusting link.
- Pull on lever to free adjusting link.
- Adjust tine angle to desired position using the harrow adjusting lever.
- Secure adjusting link with hair pin.
- Move pull chain to maintain even pull on harrow.
- Repeat the above procedure for all harrow sections.

Harrow Removal

- Lower machine in field position.
- Remove button head pins from harrow carrier arms.
- Drive forward carefully.
- Reinstall button head pins in carrier arms.

Harrow Installation

- Connect backup arms to wings in field position. See Back-Up Arm operation.
- Back machine up to harrows.
- Connect harrows to carrier arms.



Adjust harrows



Back-Up Arms

The Back-Up arms are used for the following:

- To mount packers or harrows to bar.
- To prevent wings from moving ahead of main frame in turns.
- To back machine up in field position (raise harrows off ground before backing up)

Note: Use Back-Up arms in field position only.

- Connect Back-Up arms to pin on wings in field position.
- Retain arms with hair pin.
- Return Back-Up arms to storage position before placing harrow bar into transport position.

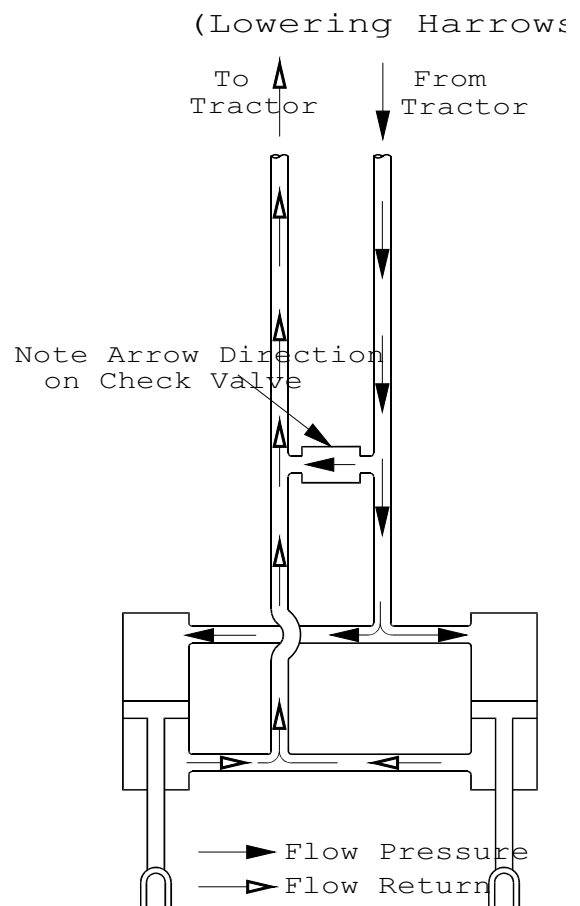


Back up arm in field position

Hydraulic System

The Rangler II is controlled by a parallel hydraulic system.

- To lower the packers and harrows fluid is forced from the tractor through a common line which feeds the butt end of both cylinders simultaneously, forcing both cylinders to extend.
- While the packers and harrows are being lowered, hydraulic fluid displaced from the gland end of the cylinder returns through a common line to the tractor.
- To raise the packers and harrows fluid is allowed to flow into the gland end of both cylinders, causing fluid from the butt ends of the cylinders to return to the tractor.
- A check valve is installed to prevent damage to the machine if the lock up pins were not removed prior to lowering the packers and harrows. If this occurs, the oil bypasses back to the tractor.



Maintenance

Lubrication

Greasing pivot points prevents wear and helps restrict dirt from entering. However, once dirt does enter a bearing, it combines with the lubricant and becomes an abrasive grinding paste, more destructive than grit alone.

- Apply new lubricant frequently during operation to flush out old contaminated lubricant.
- Use a good grade of **lithium based grease**.
- Use a good grade of machine oil.
- Clean grease fittings and lubricator gun before applying lubricant.

Refer to the photos for grease fitting locations.

1. Hubs

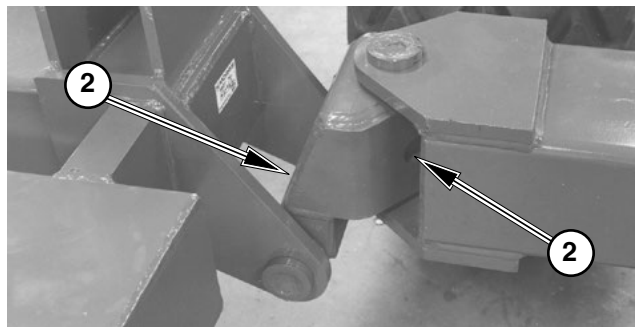
- Repack every 500 hours.

2. Knuckle Joints

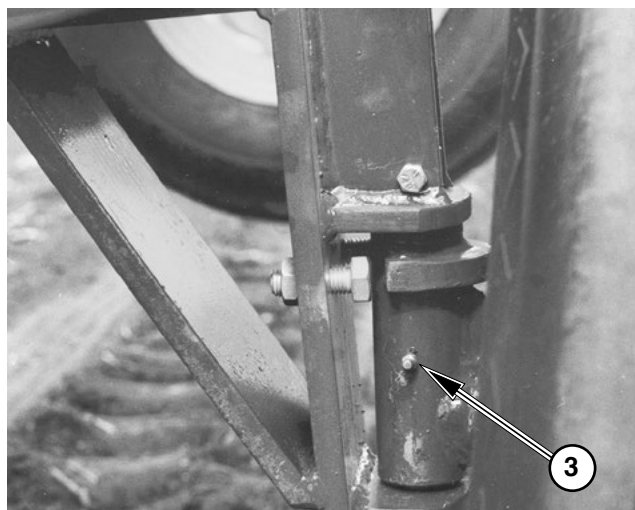
- Grease every 50 hours.

3. Transport Axle Pivot

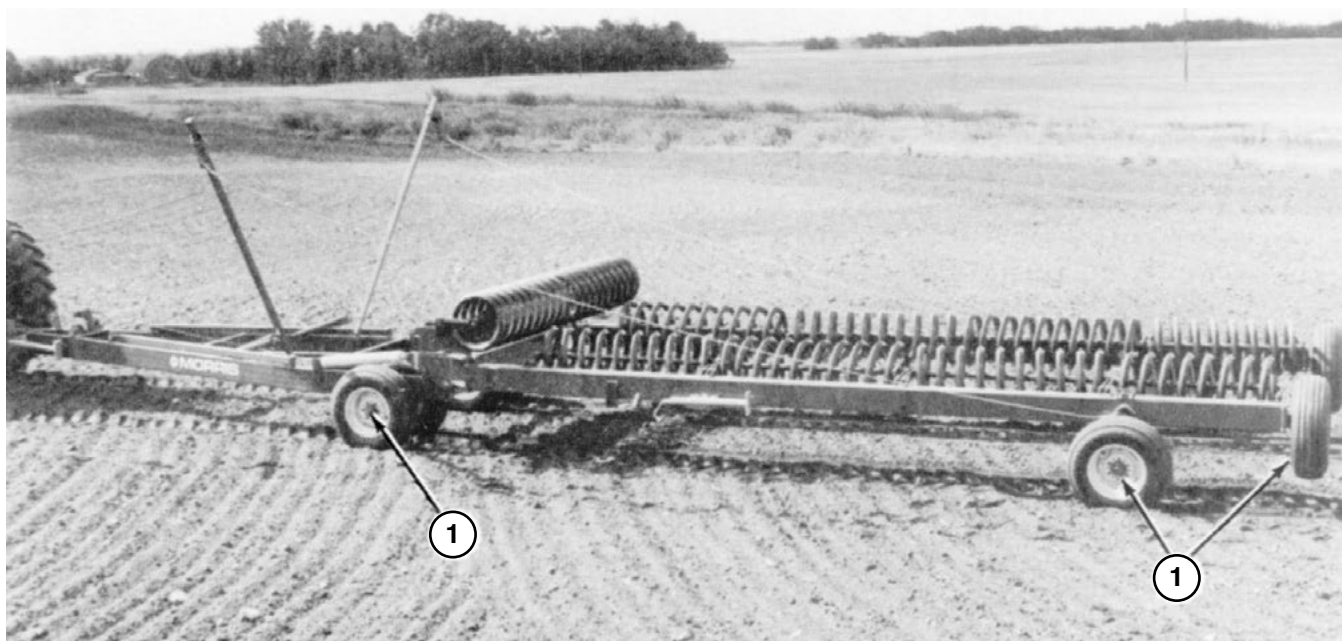
- Grease every 100 hours.



Knuckle Joint



Transport Axle Pivot



Lubrication - Continued

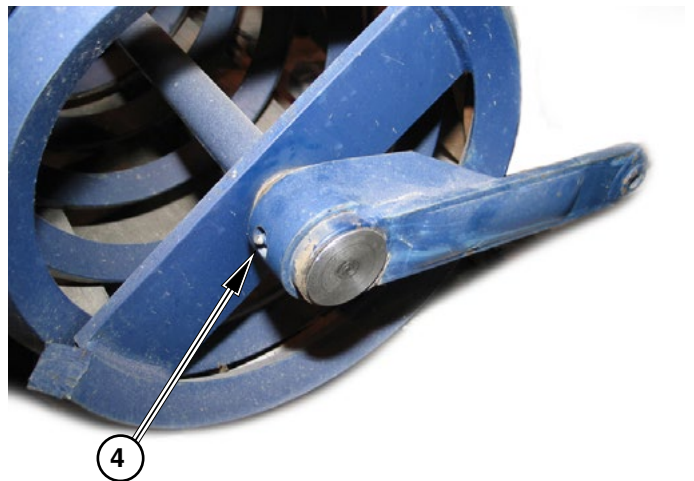
4. Packer Bearing

Grease bearings with the main frame tires locked in transport position.

- **All areas**, except the Pacific Northwest of the USA. Apply 4 pumps of grease every 25 hours.
- **Pacific Northwest** of the USA only, Apply 4 pumps of grease every 10 hours.
- When lubricating apply grease to the cone and seal assembly with **slow, gradual pressure** while **rotating packer**.
- If grease can be seen purging from the seal, **immediately stop applying lubricant**.

Important

The packers must be rotated while the grease is slowly applied to the bearings.



Maintenance

Packer Bearings

Adjustment Procedure

The bearing must have a certain preload to ensure correct operation and should be adjusted accordingly. The adjustment procedure is outlined below.

All bearings should be checked after initial 50 hours and once a season thereafter.

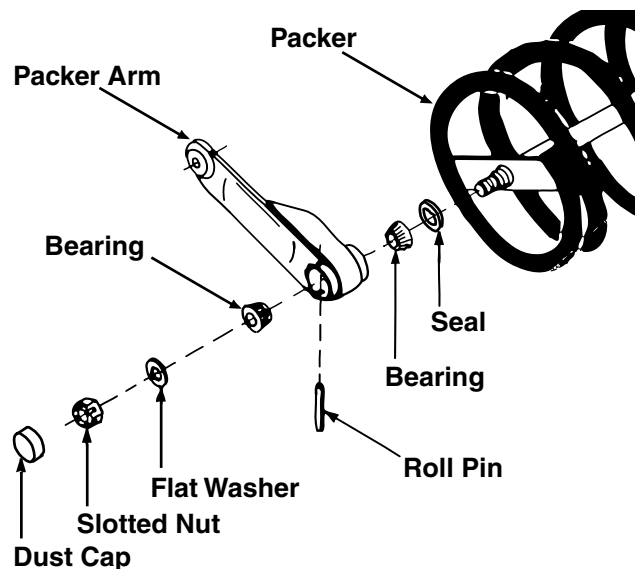
Note: Bearings do not require repacking.

- Check for excessive play in the bearings.

Note: There should not be any play in the bearings.

- If adjustment is required remove the packer.
- Remove the dust cap and roll pin from the packer arm.
- Tighten nut while turning the packer arm until a medium drag is felt. (25 in-lbs torque) (282 Ncm)
- Install roll pin, if necessary slacken nut to align slots in the nut and hole in the shaft.
- Install dust cap into packer arm.

Note: Packer arm must have a preload applied to the bearings.



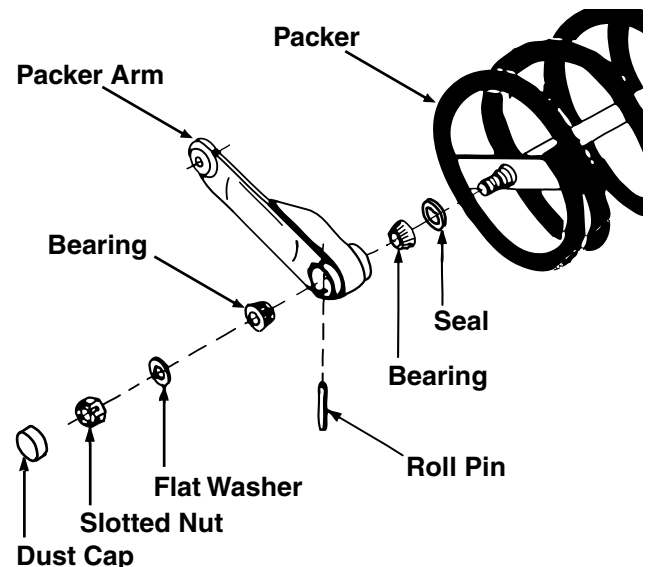
Packer Bearings - Continued

Replacement Procedure

Normally bearing replacement will not be necessary, if it is, the following procedure must be followed for correct installation of the new bearing:

- Remove the packer.
- Remove the dust cap from the packer arm.
- Remove the roll pin through the holes in the packer arm and slotted nut from the shaft.
- Use a puller to remove the packer arm and outer bearing.
- Remove the inner bearing with a puller.
- Remove the seal from the shaft.
- Press out cups from the packer arm.
- Press new cups into the packer arm.
- Place grease in the palm of your clean hand and work grease into the bearing rollers, rotating the bearing as you progress.
- Install inner bearing and seal into packer arm.
- Slide packer arm onto shaft carefully to avoid damaging seal.
- Press inner bearing onto the shaft using a sleeve to press on the inner race of the bearing.
- Press the outer bearing onto the shaft.
- Tighten nut while turning the packer arm until a medium drag is felt. (25 in-lbs torque) (282 Ncm)
- Install roll pin. If necessary slacken nut to align slots in the nut and hole in the shaft.
- Install dust cap into the packer arm.

Note: Packer arm must have a preload applied to the bearings.



FILL BEARING CAVITY WITH GREASE

Once packer arm is correctly preloaded the bearing cavity must be filled with grease.

This is done with the unit in transport position. The packer must be rotated while grease is slowly applied to the packer bearing. The bearing cavity will be full when there is a slight increase in force required to pump the grease gun. At this point greasing should be **stopped immediately**.

Up to a maximum of 10 pumps of grease should be applied to each bearing.

Once all the packer bearing cavities have been filled the unit will be ready for field use.

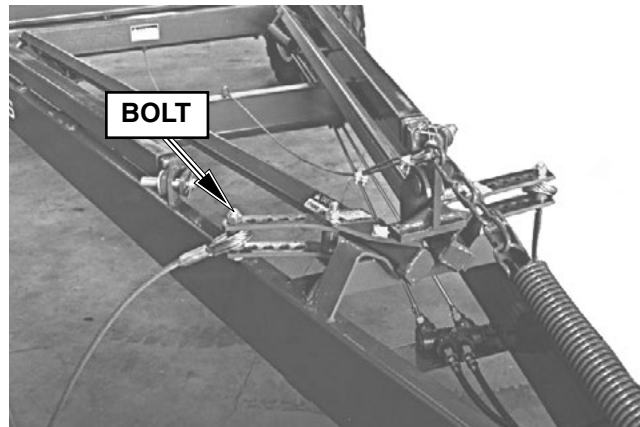
It is important to have the bearing cavity full of grease so that during operation the grease will work its way past the seals simultaneously lubricating and flushing out any contaminants.

Maintenance

Pull Cables Adjustment

Adjust pull cables so the wings pull even with the main frame.

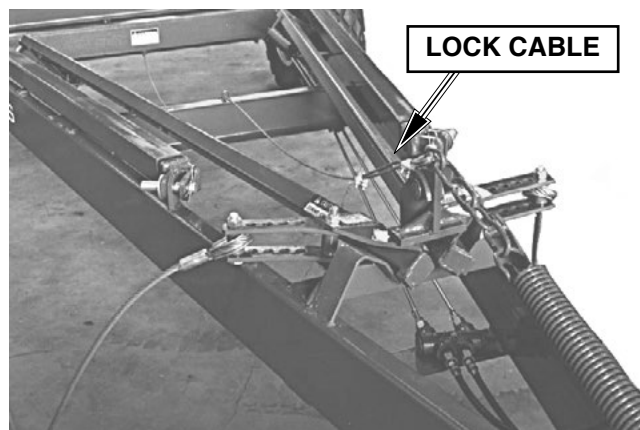
- Make sure cable is slack.
- Remove bolt holding cable.
- Take up slack by relocating to next hole.
- Reinstall bolt and tighten.



Cable Lock Adjustment

- With harrow bar in field position make sure lock cable allows the cable lock to fully engage. Cable should be loose in field position.
- With harrow bar in transport position make sure cable releases lock enough to allow cable arms to swing freely in and out of saddle.

Note: Initial set up of lock cable should be done when machine is in transport position.



Troubleshooting

| Problem | Cause | Correction |
|-----------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wings do not track properly in transport. | Transport wheels. | Adjust transport wheels. Refer to operation section. |
| Wings open slowly from transport to field position. | Transport wheels. | Adjust transport wheels. Refer to operation section. |
| | | Adjust cables accordingly. |
| Wings not parallel to main frame in field position. | Cables stretched. | Level machine by adjusting hitch clevis, cylinders fully extended. |
| Excessive harrow bounce. | Machine not level. | Adjust chains position to get straight pull. |
| | Pull chains not adjusted. | Reduce speed. |
| | Excessive speed for conditions. | Make sure cable arms are fully seated. |
| Cable arm lock not engaging. | Arms not fully seating in saddle. | Adjust lock cable length. |
| | Lock cable. | Remove transport pins. |
| Hydraulics will not lower. | Transport pins. | Replace seals. |
| Oil accumulation. | Damaged seal. | Tighten hose and pipe connections. |
| | Loose fittings. | Replace. |
| | Scored cylinder shaft will damage shaft seal. | Slight seepage from seal is normal. |
| | Normal. | Check for adequate hydraulic pressure. |
| Will not raise | Tractor hydraulics | Installed incorrectly. Clean or replace check valve. |
| | Check valve | Packer coils should be installed in sequence of left hand coil, right hand coil, left hand coil, right hand coil etc. across the entire width of machine. |
| Machine not tracking straight. | Packers not installed correctly | |

Maintenance

Notes