

Never Pin Single Disc Air Drill

Specifications

Three Frame Models

NEVER PIN Specifications and Options				
Base Size		3 Frame Models		
		28' (8.53 m)	34' (10.36 m)	40' (12.19 m)
Weight (Single Shoot)	7 1/2" (19.0 cm) Spacing		24,620 lbs. (11,191 kg)	29,500 lbs. (13,409 kg)
	10" (25.4 cm) Spacing		21,776 lbs. (9,898 kg)	25,652 lbs. (11,660 kg)
Working Width	7 1/2" (19.0 cm) Spacing	27.5' (8.38 m)	32.5' (9.91 m)	40' (12.19 m)
	10" (25.4 cm) Spacing	26.7' (8.14 m)	33.3' (10.16 m)	40' (12.19 m)
Number of Openers	7 1/2" (19.0 cm) Spacing	44	52	64
	10" (25.4 cm) Spacing	32	40	48
Frame Width	Main	13' (3.96 m)	13' (3.96 m)	13' (3.96 m)
	Inner Wing	8' (2.44 m)	10.5' (3.20 m)	10.5' (3.20 m)
	Outer Wing	N/A	N/A	3.5' (1.07 m)
Overall Length Working Position (clevis to back of rear tire)		31' (9.45 m)	31' (9.45 m)	31' (9.45 m)
Transport Position	Width	19.2' (5.85 m)	19.2' (5.85 m)	19.2' (5.85 m)
	Height	16' (4.88 m)	16' (4.88 m)	16' (4.88 m)
Tires	Main Frame Castor Wheels	(4) 11L x 15 FI Load Range D 8 Bolt Hub	(4) 11L x 15 FI Load Range F 8 Bolt Hub	(4) 12.5L x 15 FI Load Range F 8 Bolt Hub
	Main Frame Transport Wheels	(4) 11L x 15 FI Load Range D 8 Bolt Hub	(4) 11L x 15 FI Load Range F 8 Bolt Hub	(4) 12.5L x 15 FI Load Range F 8 Bolt Hub
	Wing Frame Castor Wheels (per wing)	1) 11L x 15 SL 6 Ply Rating	2) 11L x 15 SL 6 Ply Rating	2) 12.5L x 15 SL 8 Ply Rating
	Wing Frame Transport Wheels (per wing)	1) 11L x 15 SL 6 Ply Rating	2) 11L x 15 SL 6 Ply Rating	2) 12.5L x 15 SL 8 Ply Rating
Road Clearance		10" (25.4 cm)		
Frame Depth		84" (2.13 m) (2 ranks)		
Planting Configurations		7 1/2" spacing - Single Shoot, Double Shoot (Mid Row Band) 10" spacing - Single Shoot, Double Shoot (Side Band and Mid Row Band)		
Seed Opener	Disk Size	20" (50.8 cm) with a 6 Degree Angle		
	Pincher Wheels	8" (20.3 cm) diameter - Solid Rubber		
	Packing Pressure	Adjustable from 30 - 60 lbs. (14 to 27 kg)		
	Opener Down Force	Adjustable from 260 - 375 lbs. - (118 to 170 kg) at optimum position		
	Seeding Depth	Adjustable from 0.25" - 3.5" (0.64 - 8.9 cm), in increments of 0.25" (0.64 cm)		
Fertilizer Opener	Disk Size	20" (50.8 cm) with a 5 Degree Angle		
	Opener Down Force	350 lbs. (159 kg)		
	Fertilizer Depth	Adjustable from 0" - 3.5" (8.9 cm), in increments of 0.5" (0.64 cm)		
Wheel Markers		Optional		
Safety Lights		Standard		
Safety Chain		Standard		

Operation

CAUTION



BE ALERT

SAFETY FIRST

**REFER TO SECTION 1 AND REVIEW
ALL SAFETY RECOMMENDATIONS.**

Application

The NeverPin Disc Drill utilizes independent parallel link seed disc openers. This system ensures the most accurate in depth control and seed placement within the row.

The heavy duty disc opener allows the unit to be used in all zero till applications.

Tractor

Tires

- Proper ballast and tire pressure are required when pulling heavy implements.
- Consult your tractor operator's manual and follow all recommended procedures.

Hydraulics

- Wipe all hydraulic fittings and couplers with a clean cloth to avoid contaminating the system.
- Check that hydraulic reservoir is filled to the proper level.

Drawbar

- Centre and pin in a fixed position for easier hitching and greater stability.



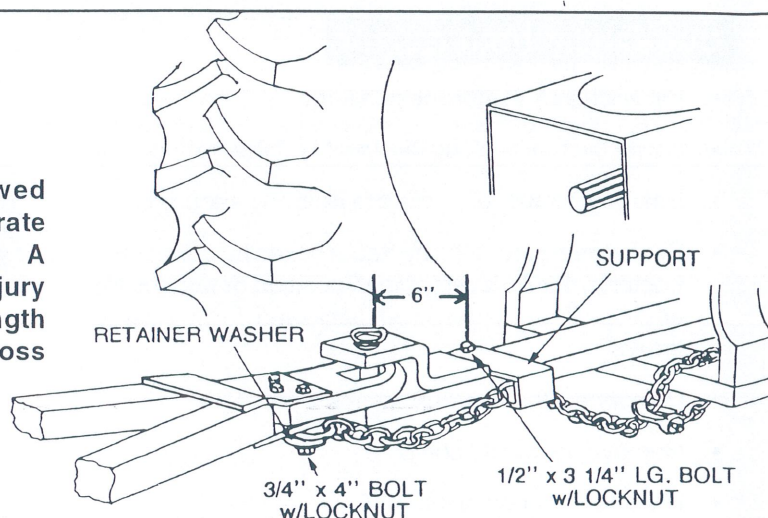
Do not permit smoking, sparks or an open flame where combustible fuels are being used. Keep the work area well ventilated.



Do not search for high pressure hydraulic leaks without a hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.

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.



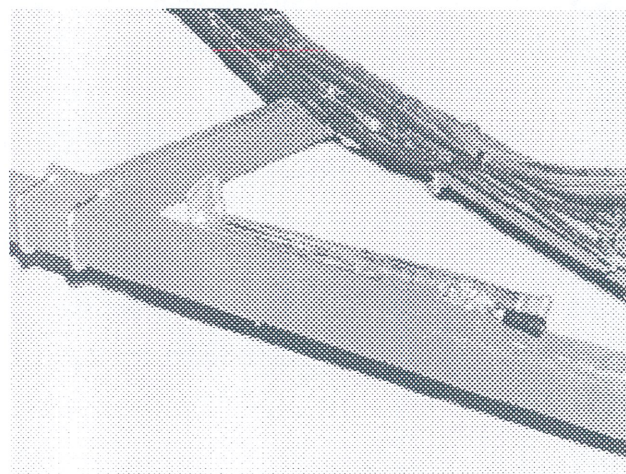
Attach safety chain to the tractor drawbar support or other specified anchor location with the appropriate parts.

Hitching to Tractor

- Ensure swinging drawbar is locked in the centre position.
- Ensure hitch pin is in good condition.
- Level clevis with tractor drawbar using hitch jack.
- 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 jack.
- Place hitch jack 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 Jack Raised

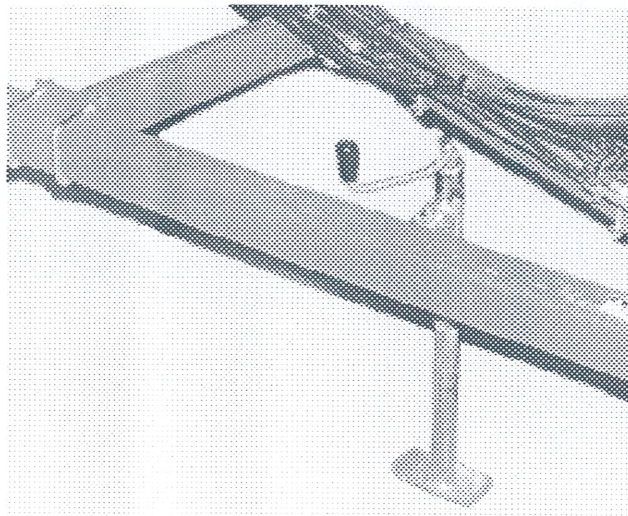


Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Operation

Unhitching from Tractor

- Pin hitch jack in storage position.
- Lower hitch jack taking the weight off the hitch 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 cultivator.



Hitch Jack Lowered

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 seed cart.
- Inspect tires for any serious cuts or abrasions. If such has occurred, tire should be replaced.
- Raise and lower wings on **level ground**.
- Never raise or lower wings when moving.

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

Speed

- Only tow at safe speeds.
- The weight of the implement being towed *must not exceed 1.5 times* the weight of towing vehicle.
- Do Not Exceed 20 M.P.H.

Lights

- Ensure proper reflectors are in place, refer to Safety Section 1.
- Be familiar with and adhere to local laws.



Caution

Raise and lower wings on level ground.
Never raise or lower wings when moving.

Transport - continued

Transport to Field Position

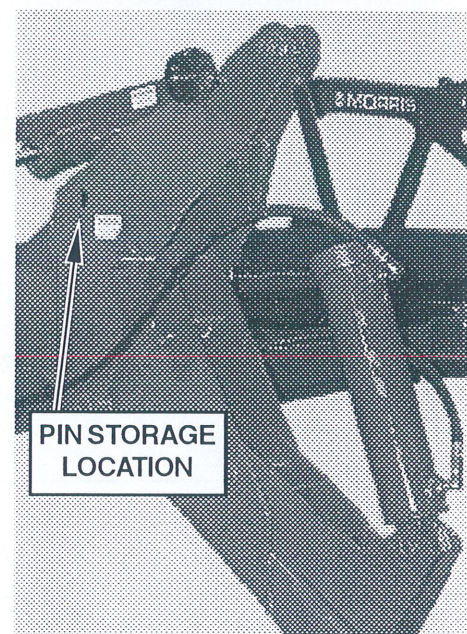
- Position machine on **level ground**.
- Stop tractor, and engage park brake.
- As a precaution, check surrounding area to be sure it is safe to lower wings.
- Raise machine completely by fully extending **depth** hydraulic cylinders.
- Remove transport pins from the **wing lift** transport locks and **store in holes** provided in the wing lift plates. **Do not** store in slotted holes in the wing lift plates.
- Remove transport lock pins from both **rear** and **front** mainframe transport wheels. **Store** pins in positions provided.

Important

Keep tire air pressure at the listed specifications to achieve and maintain proper level.



Wing lift Locks



Rear Main Frame Locks



Front Main Frame Locks

Operation

Transport - continued

Transport to Field Position

- Move wing lift **hydraulic-lock** lever located at the front of the hitch to the **open** position.

Never raise or lower wings when moving.

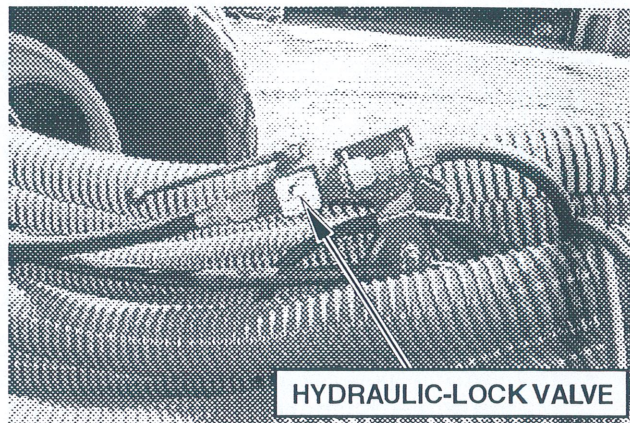
- Operate the wing lift hydraulics **lowering** the wings fully. Outer wings on the 40 ft model will unfold and lock automatically.
- **Lower** machine retracting depth cylinders fully. Cylinders **must be fully closed** for the correct operation of the Never Pin Opener.



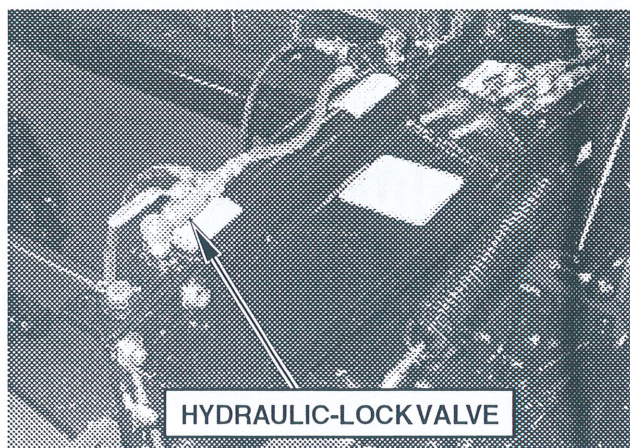
Danger

Always stay clear of wings being raised, lowered or in elevated position. Ensure **cylinders are completely filled with hydraulic fluid** - Wings may fall rapidly causing injury or death.

- Move wheel marker **hydraulic-lock** lever located on each wheel marker to the **open** position.



Wing Lift Lock Valve



Wheel Markers

Transport - continued

Field to Transport Position

- Position machine on **level ground**.
- Stop tractor, and engage park brake.
- Ensure wing lift cylinders are fully extended.

Note: On five-section models the wing lift cylinders must be fully extended to ensure proper operation of the FCV manifold.

- Raise Drill to highest position by **extending** the **depth control** hydraulic cylinders.
- Install **transport** lock pins for the mainframe **front** depth wheels. Install the transport lock pins for the **rear** mainframe depth wheels.
- Move wheel marker **hydraulic-lock** lever to the lock position - lever handle at **right angles** to the valve.

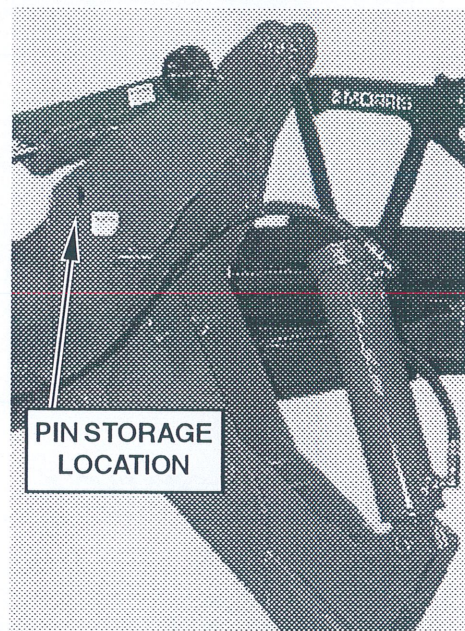
Important

Keep tire air pressure at the listed specifications.



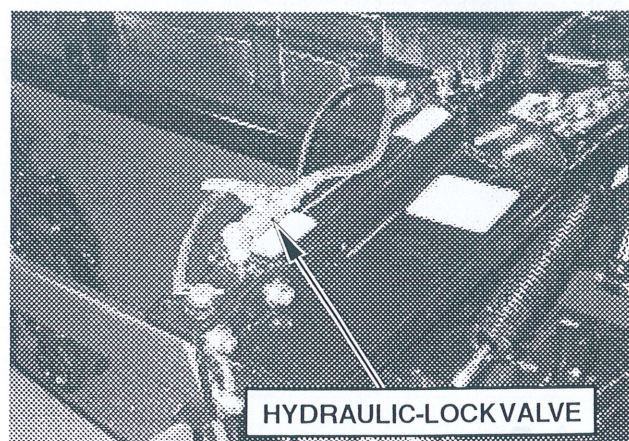
PIN STORAGE
LOCATION

Front Main Frame Locks



PIN STORAGE
LOCATION

Rear Main Frame Locks



HYDRAULIC-LOCK VALVE

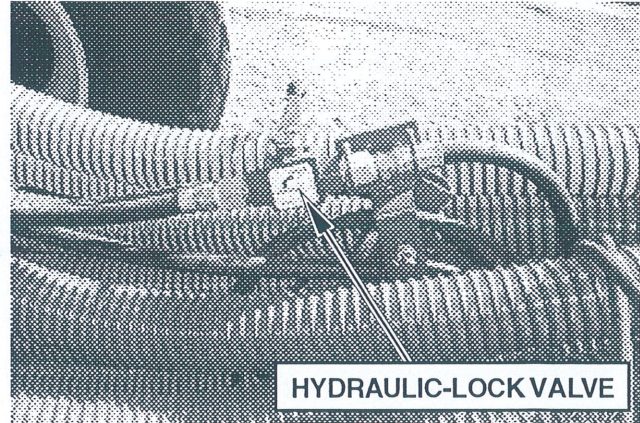
Wheel Markers

Operation

Transport - continued

Field to Transport Position

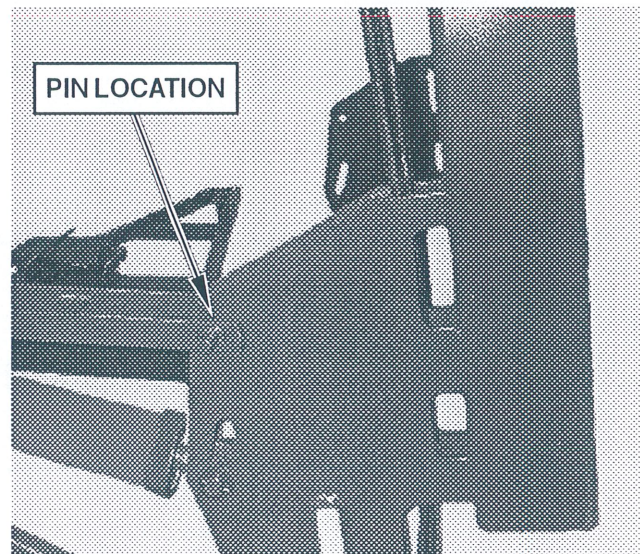
- Ensure the **hydraulic-lock** lever located at the front of the hitch is in the open position (lever aligned with hydraulic hose). **Operate** the **wing** lift hydraulics and raise wings fully.
- Move **hydraulic-lock** lever to the lock position - lever handle at **right angles** to the hydraulic hoses on the hitch.
- **Do not walk** under raised wings. Secure wing transport lock strap pins in the holes provided.
- Ensure **safety** chain is properly installed, see page two of Operation Section.



Wing Lift Lock Valve

Danger

Always stay clear of wings being raised, lowered or in elevated position. Ensure cylinders are completely filled with hydraulic fluid - Wings may fall rapidly causing injury or death.



Wing lift Locks

Never Pin Opener Settings

Introduction

- This type of opener is strictly a zero -till, stubble, or firm ground opener.
- **Important!** The opener assembly **must always be run with the frame depth hydraulic cylinders completely closed.** This places the parallel links of each opener assembly at the correct angle to ensure correct operation over a wide variation of settings.
- Initially setup two or three openers first. Note each opener is independent of each other so ensure that the settings are the same for all unless uneven disc wear is evident.
- Use this general guideline when setting up. Each **Pincher wheel** supports 1/3 of the load and the **Soil-retaining wheel** takes the remaining 1/3. You should be able to rotate the **Soil-retaining wheel** with some resistance while not being able to rotate the **Pincher wheels.**
- Adjustments are made with the Special Tool provided with each machine. A ½" Johnson bar or long handled ratchet can be substituted for the special tool.
- If soil type is wet or firm the Soil-retaining wheel can be tight to disc for better cleaning. However, you will experience higher power requirements. If the soil type is sandy or dry, little draft is being applied to turn the disc blade, so less pressure on blade would be required (Factory setting).

Step 1

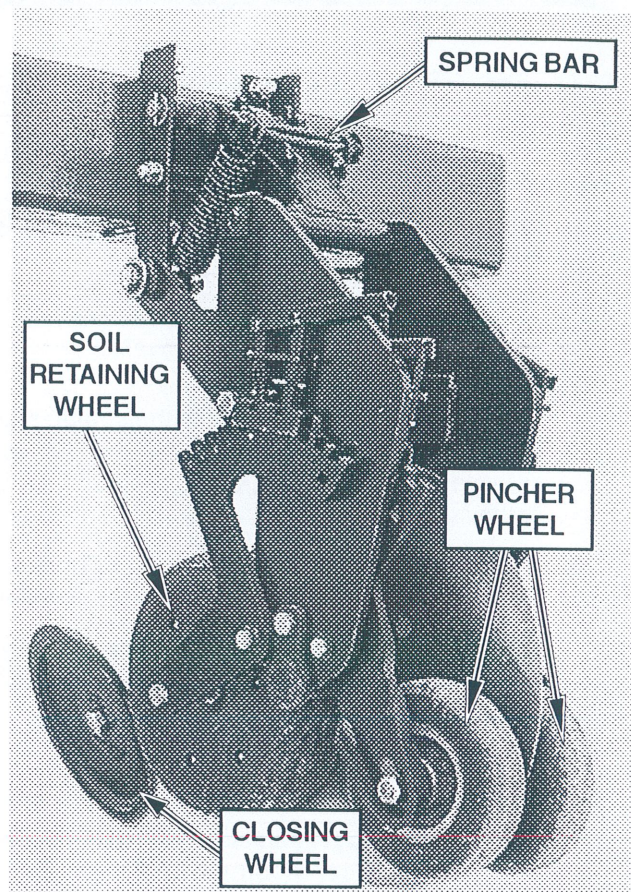
- Raise machine fully so that openers are completely off the ground.

Step 2

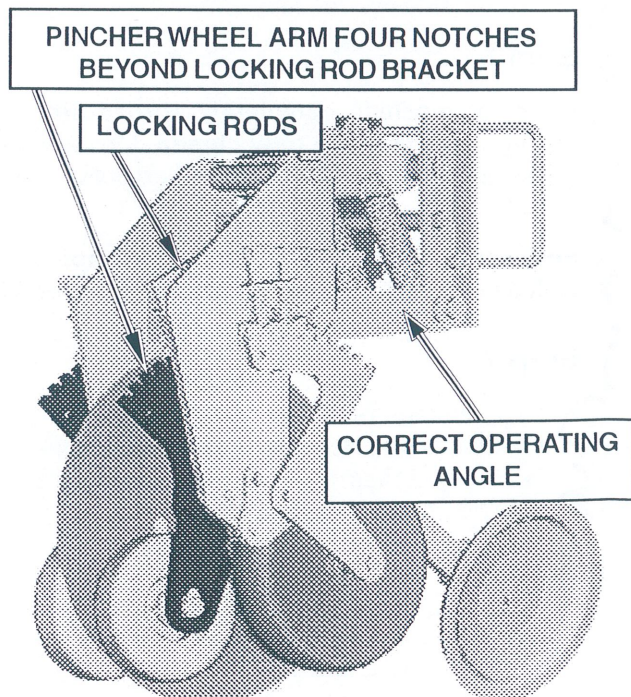
- Select three openers, 1LH and 1RH assembly from the front row and 1 RH assembly from the rear row.

Step 3

- Set both **Pincher wheels** to the Initial setting shown, **four notches** showing to the front of the machine. The ratcheting system functions with one rod locked in the notch and one rod out. Using the Special Tool provided assists setting the Pincher Wheels.



Never Pin Opener



Pincher Wheel Settings

Operation

Never Pin Opener Settings - continued

Important

Ensure that the locking rod is completely inserted into the notch.

Step 4

- Set the **Soil-retaining wheel** to the setting shown, flush with the Locking rod bracket welded to the side plate. Use the Special Tool provided to assist in the setting.

- If necessary adjust the clearance between the **Soil-retaining wheel** and the Coulter as follows:-

Measure gap between the **Soil-retaining wheel** and coulter at the closest point. See "Soil-retaining wheel" for detailed instructions.

Step 5

- The **Closing wheel** is factory set at its maximum of 60 pounds force. **Closing wheel** pressures can be reduced if required. This varies from 40 to 60 pounds force.

Step 6

- Lower machine completely. **Hydraulic depth cylinders must be fully closed**. Move ahead at the operating speed with the Air Cart delivering seed to the openers. Check seed depth.

Settings may vary due to soil type, compaction as well as normal wear on the individual assemblies.

Step 7

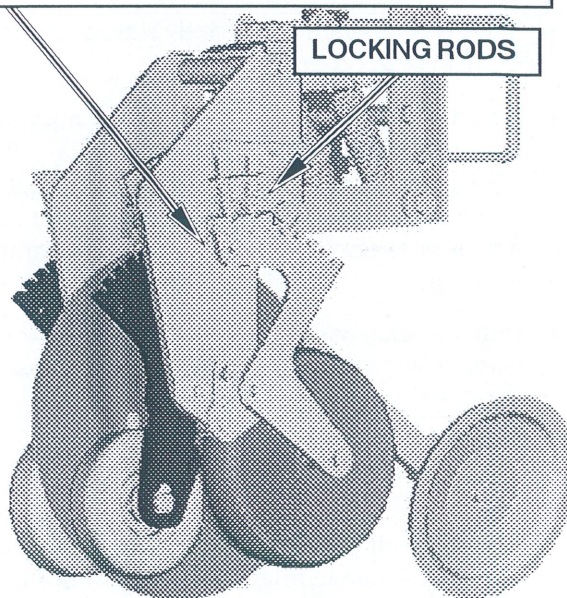
- Repeat Steps 1-6 if necessary to obtain the correct seeding depth. Note: if the **Pincher wheel** setting is changed then the **Soil retaining wheel** must also be adjusted the same amount.

Step 8

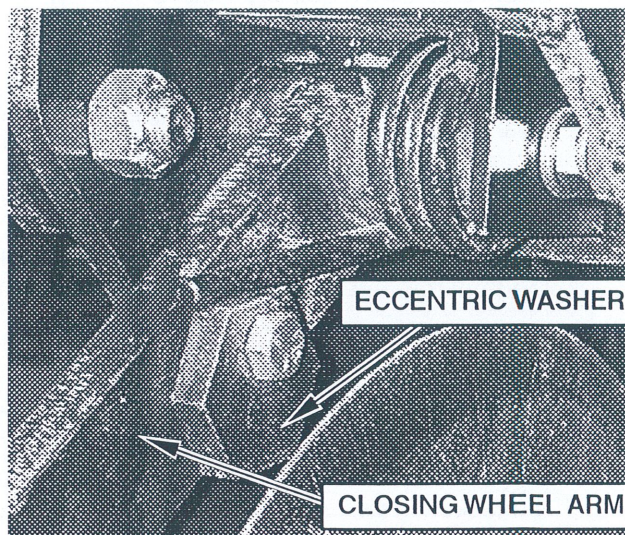
- Set all openers using the same adjustment as the initial three openers checked.

SOIL RETAINING WHEEL ARM FLUSH WITH
LOCKING ROD BRACKET

LOCKING RODS



Soil Retaining Wheel Setting



Closing Wheel Setting

Never Pin Opener Settings - continued

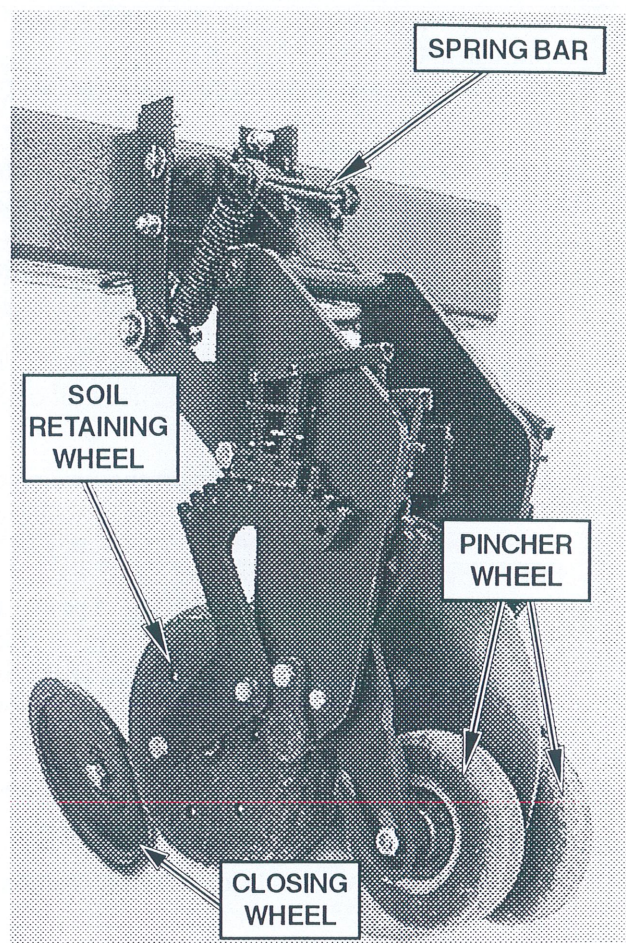
Step 9 - NeverPin Opener Operation

Units without Coulter Option

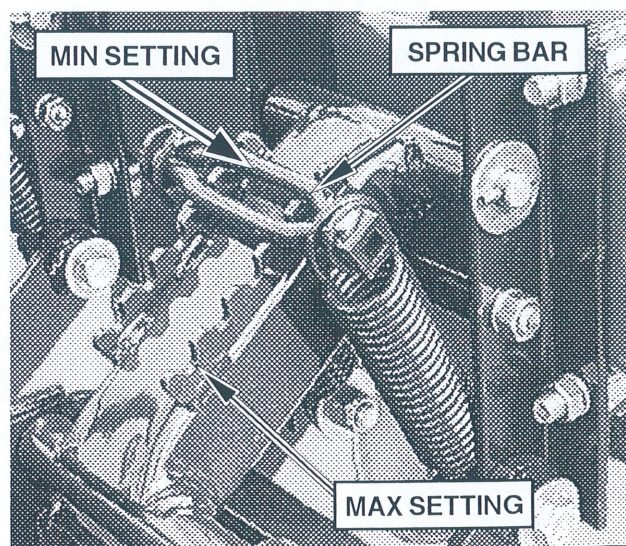
- Once all settings for the **Pincher wheels** and **Soil-retaining wheel** are made, run machine in the field and check to see the running position of the toolbar's rear wheels. Lower the tool bar until all cylinders **fully** retract.
- The ideal position is when the **rear** wheels see no load and are just clearing the soil surface. This ensures that the openers' **Parallel Links** are running at the correct angle. If the links are allowed to run at a steeper angle excessive wear and poor functionality will result.
- If the **rear** wheels are running **off** the ground then the **Parallel Link** down force needs to be **reduced**. The factory setting for the **Parallel Link** is the second lowest setting. Rotate the **Spring bar** to the **back** of the machine so that it sits over the lugs on the side plates. Raise the machine fully so that openers clear the ground, this allows easy movement of the **Spring bar**.
- If the **rear** wheels are running **on** the ground and the **NeverPin Pincher Wheels** are pushing soil with the parallel links running significantly below the horizontal then the **Parallel Link** down force needs to be **reduced**. Rotate the **Spring bar** towards the **back** one setting and run the machine in the field at operating speed. (see Decal On Hitch). Raise the machine fully so that openers clear the ground, this allows easy movement of the **Spring bar**.
- If the **Pincher wheels** still push soil with the above adjustments then the Pincher wheels need to be readjusted to **reduce** the load on the Pincher Wheels and increase the load on the **Soil Retaining Wheel**.

Units with Coulter Option

- Once all settings for the **Pincher wheels** and **Soil-retaining wheel** are made run machine in the field and check to see the running position of the toolbar's rear wheels. Lower the tool bar until all cylinders **fully** retract.
- The ideal position is when the **rear** wheels see no load and are just clearing the soil surface. This



Never Pin Opener



Spring bar Assembly

Operation

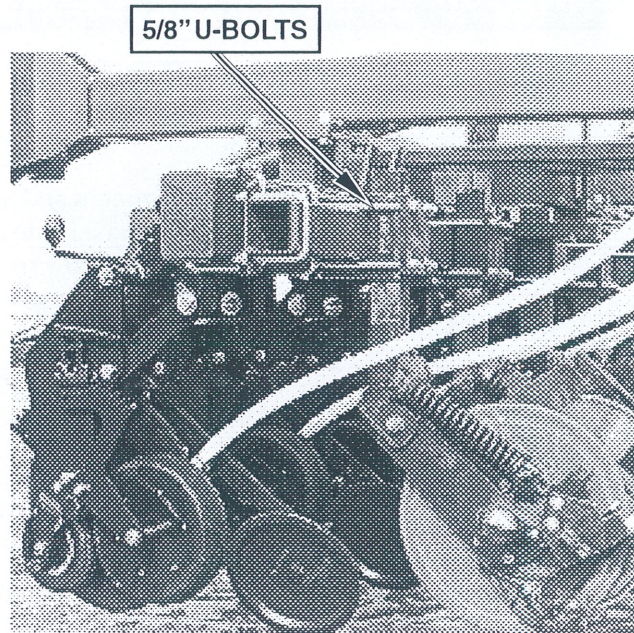
Never Pin Opener Settings - continued

ensures that the openers' **Parallel Links** are running at the correct angle. If the links are allowed to run at a steeper angle excessive wear and poor functionality will result.

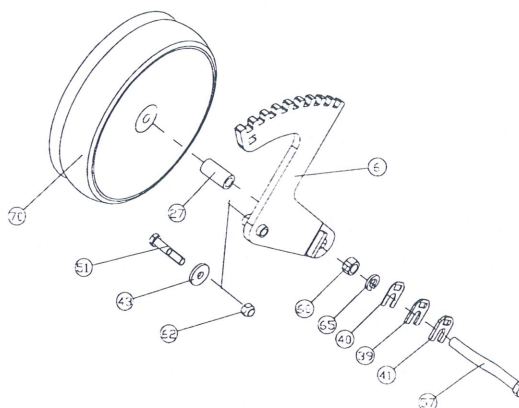
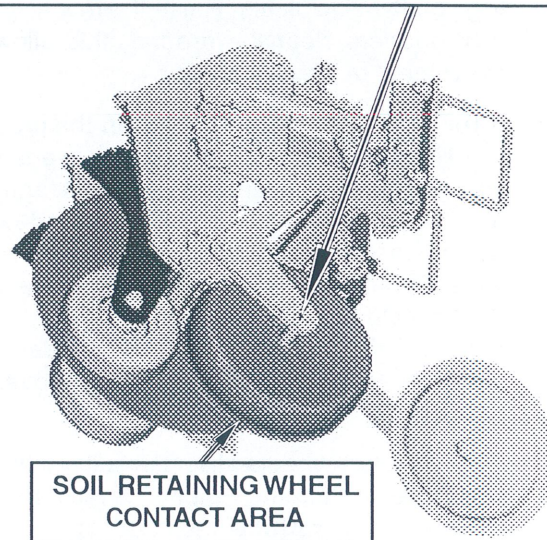
- If the rear wheels are running off the ground then the **Fertilizer Coulter** assembly needs to be **raised** by one inch. Raise each individual coulter by loosening the **5/8" U-Bolts** and raising the whole assembly **one inch**. Use the decal on the Fertilizer Coulter Mount (See Coulter Initial Adjustments on Page 5-12) as a guide for setting. Run the machine at working depth and speed and check for correct operation of the NeverPin Openers.
- If the rear wheels are running **on** the ground and the **NeverPin Pincher Wheels** are pushing soil with the parallel links running significantly **below** the horizontal then the **Parallel Link** down force needs to be **reduced**. Rotate the **Spring bar** towards the **Back** one setting and run the machine in the field at operating speed. Raise the machine fully so that openers clear the ground, this allows easy movement of the **Spring bar**.
- If the **Pincher wheels** still push soil with the above adjustments then the Pincher wheels need to be readjusted to **reduce** the load on the Pincher Wheels and increase the load on the **Soil Retaining Wheel**.

Soil Retaining Wheel

- The **Soil-retaining wheel** is factory set with clearance between the wheel and the coulter. If the soil is wet and/or sticky the soil-retaining wheel must contact the disc with minimal force. This ensures proper cleaning of the disc and minimal soil disturbance, however increased horsepower requirements will be experienced at this setting.
- The **Soil-retaining wheel** should turn with some resistance. Adjusting the amount of pressure exerted by the **Soil-retaining wheel** onto the disc is accomplished by moving the shims to the inside of the arm. There is no need to disassemble the unit. Loosen the **Soil-retaining wheel** mounting bolt and move the appropriate sized shim, 1/16", 1/8" or 3/16" to the inside of the mounting bracket. Retighten the mounting bolt.

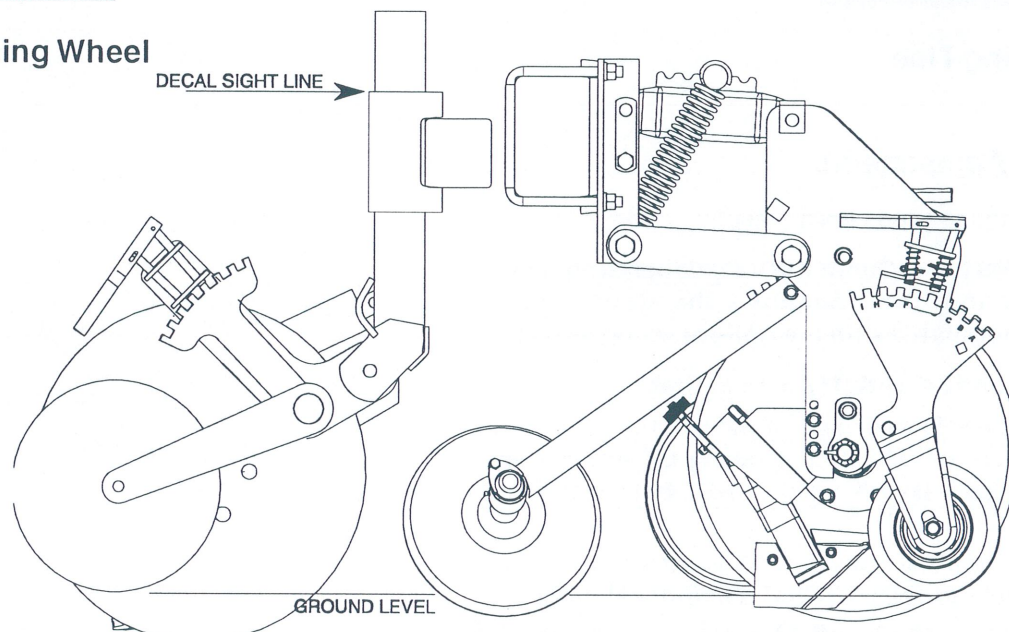


MOVE SHIMS TO OTHER SIDE OF ARM TO OBTAIN CORRECT SETTING.



Fertilizer Coulter

Soil Retaining Wheel



Initial Adjustments

- Determine seed planting depth:

For 28' and 34' with 11L x 15 FI tires.

- For seed planting depth of 1/2" to 1 1/2" set fertilizer coulters to read 27 3/4" along decal sight line .
- For seed planting depth of 1 3/4" to 2 3/4" set fertilizer coulters to read 28 3/4" along decal sight line .

For 40' with 12.5L x 15 FI tires.

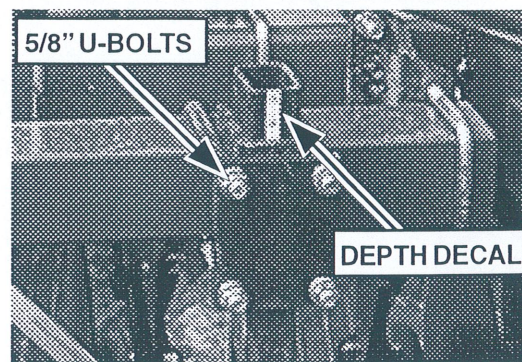
- For seed planting depth of 1/2" to 1 1/2" set fertilizer coulters to read 28 3/4" along decal sight line .
- For seed planting depth of 1 3/4" to 2 3/4" set fertilizer coulters to read 29 3/4" along decal sight line .

Final Adjustments

- Now that the correct mounting position and pre-load has been set, adjust the soil retaining wheel by using the ratchet lever to set the fertilizer placement depth. Initial Setting is with two (2) notches exposed to the rear of the assembly. Check for fertilizer depth and adjust if necessary.
- The soil retaining wheel must be in slight contact with the disc to ensure that the disc will remain clean when operating in wet conditions.

Note: Binding should not occur when rotating disc by hand. CAUTION must be used when performing this procedure.

Note: Each Coulter has to have a preload for correct operation. So when the machine is raised out of the ground the Fertilizer Coulter will appear to be set much lower than necessary.



Coulter Initial Setting

Operation

Fertilizer Coulter

Cleaning Time

Initial Adjustments

- Determine seed planting depth:

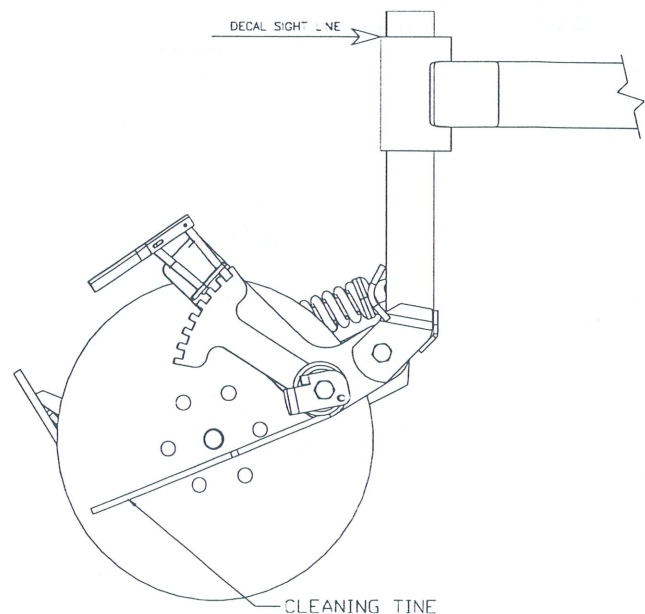
Note: Fertilizer Depth will vary depending on soil conditions because the depth is not regulated with the Soil-retaining wheel.

For 28' and 34' with 11L x 15 FI tires.

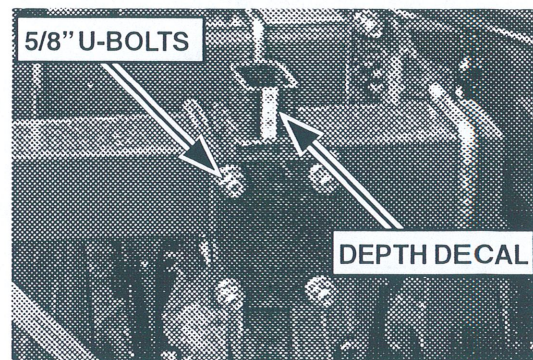
- For seed planting depth of 1/2" to 1 1/2" set fertilizer coulters to read 27 3/4" along decal sight line. **Fertilizer Depth upto 3 1/2" below the soil Surface**
- For seed planting depth of 1 3/4" to 2 3/4" set fertilizer coulters to read 28 1/4" along decal sight line. **Fertilizer Depth up to 4 1/2" below the soil Surface**

For 40' with 12.5L x 15 FI tires.

- For seed planting depth of 1/2" to 1 1/2" set fertilizer coulters to read 28 1/4" along decal sight line. **Fertilizer Depth upto 3 1/2" below the soil Surface**
- For seed planting depth of 1 3/4" to 2 3/4" set fertilizer coulters to read 29 3/4" along decal sight line. **Fertilizer Depth upto 4 1/2" below the soil Surface**
- Adjust cleaning time to clear soil surface without having straw bunching. If bunching of straw occurs raise tine one notch at a time until bunching is eliminated.



Note: Each Coulter has to have a preload for correct operation. So when the machine is raised out of the ground the Fertilizer Coulter will appear to be set much lower than necessary.



Coulter Initial Setting

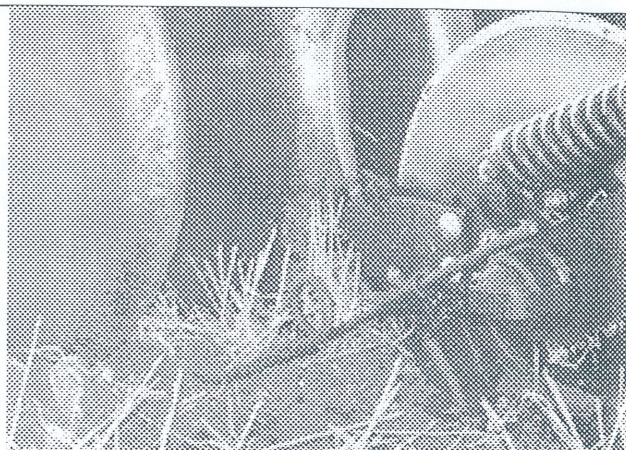
Fertilizer Coulter

Closing Tine

These tines can be placed on all coulters as an option if so desired.

Mount the tine as follows:

- There are left and right tines.
- The tine coil should face outward and be positioned to the top as shown.
- Secure tine with set screw and jam nut.
- Adjust tine for desired closing action.



Closing Tine

Important

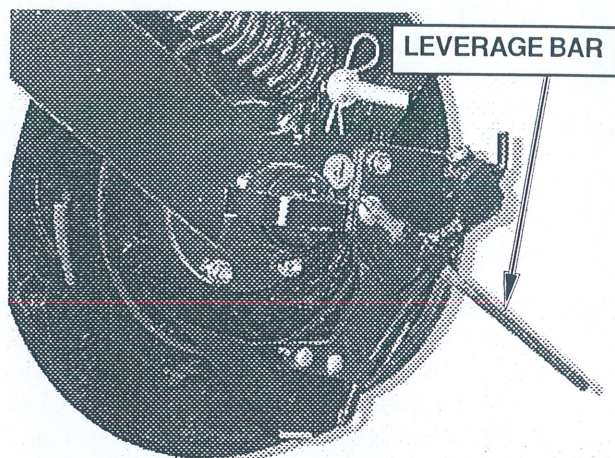
Re-tighten setscrew after the first 20 acres.

Coulter Positions

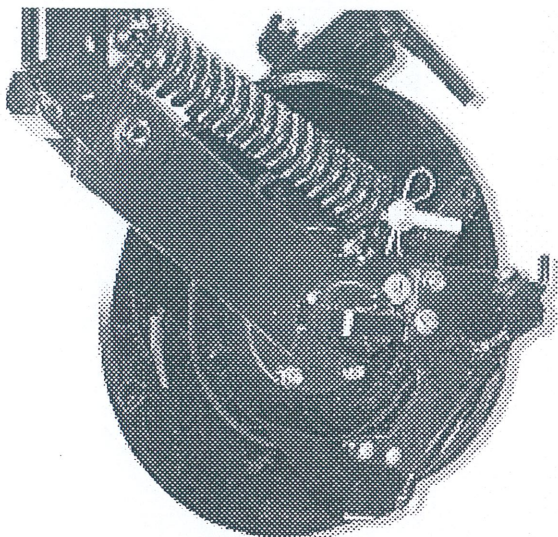
The coulter has two positions the working or field position and storage position. **See "Coulter Position"** for instructions to switch from one position to the other.

The storage position is used when the coulter is not being used during field operation, this prevents unnecessary wear on the coulter unit.

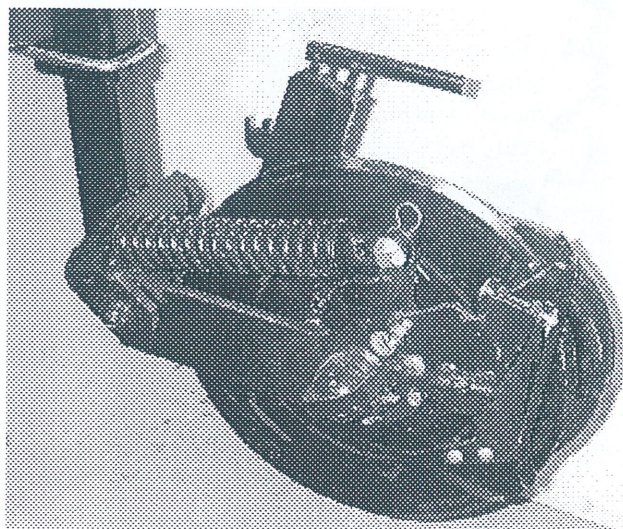
The working position is used when the coulter is being used during field operations.



Leverage Bar



Working Position



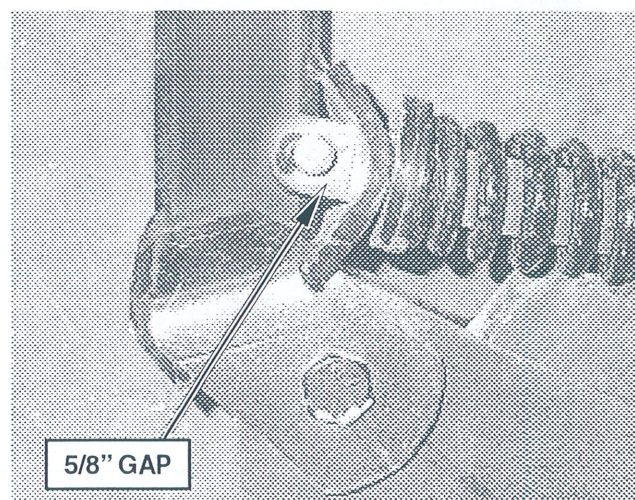
Storage Position

Operation

Fertilizer Coulter

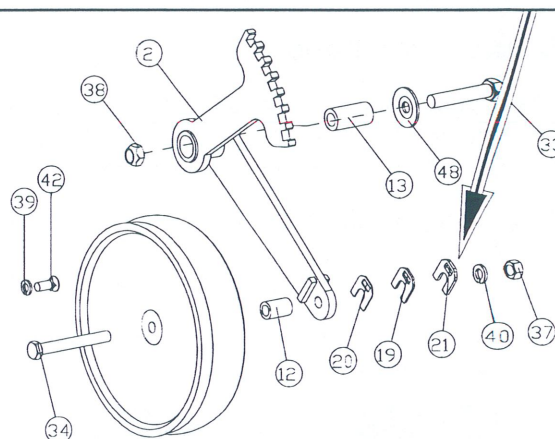
Operation Hints

1. With the machine raised out of ground, the coulter will always sit 2" lower than the desired relative distance from the seed. This is because of the 2" floatation designed into the assembly.
2. With the machine in the ground the coulter spring rod should extend with a gap of 5/8" between the stop rod and the seat. This ensures that there is adequate down pressure and that the scraper is running at the correct angle.
3. If hint one is set correctly hint two can be achieved by adjusting the soil retaining wheel. This wheel does three things, it controls the depth of the fertilizer, cleans the disc and retains the soil from peeling up or blowing out. Note that the **Soil-retaining wheel** runs **parallel** with the coulter disc.
4. If the soil type is wet or firm the **Soil-retaining wheel** can be tight to disc for better cleaning. If the soil type is sandy or dry, little draft is being applied to turn the disc blade, so less pressure on the blade is required.
5. The **Soil-retaining wheel** should turn with some resistance. Adjust the amount of pressure exerted by the **Soil-retaining wheel** onto the disc by moving the shims to the inside of the arm. There is no need to dissassemble the unit. Loosen the **Soil-retaining wheel** mounting bolt and move the appropriate sized shim, 1/16", 1/8" or 3/16" to the inside of the mounting bracket. Retighten the mounting bolt.
6. The Soil Retaining Wheel may build up with mud behind the tractor tires and gauge wheels. This is possible in some conditions where sub soil moisture is high. This situation can be resolved by using the Coulter Blade Tine in these areas.

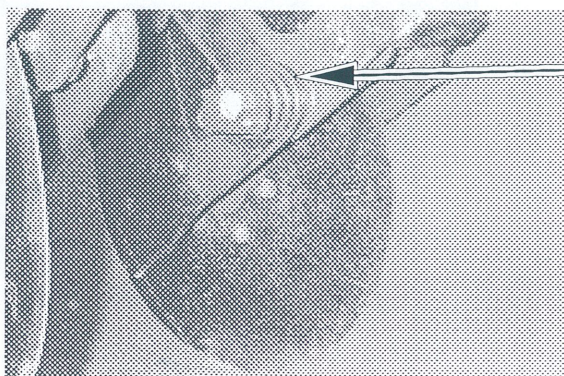


Coulter Spring Rod

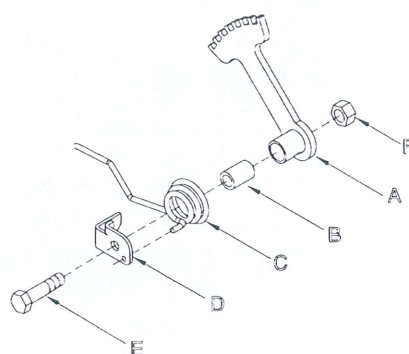
MOVE SPACER SHIMS TO CHANGE PRESSURE ON BLADE.



Soil Retaining Wheel Assembly



Coulter Blade Tine Assembly

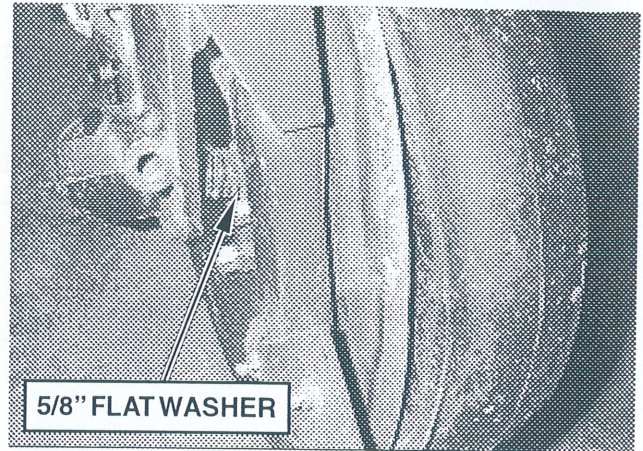


Coulter Blade Tine Assembly

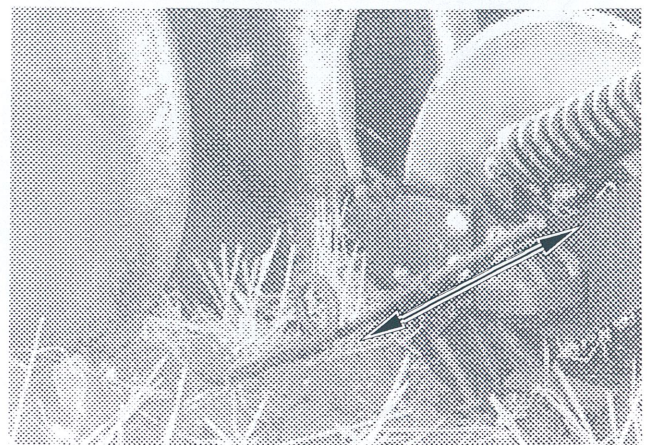
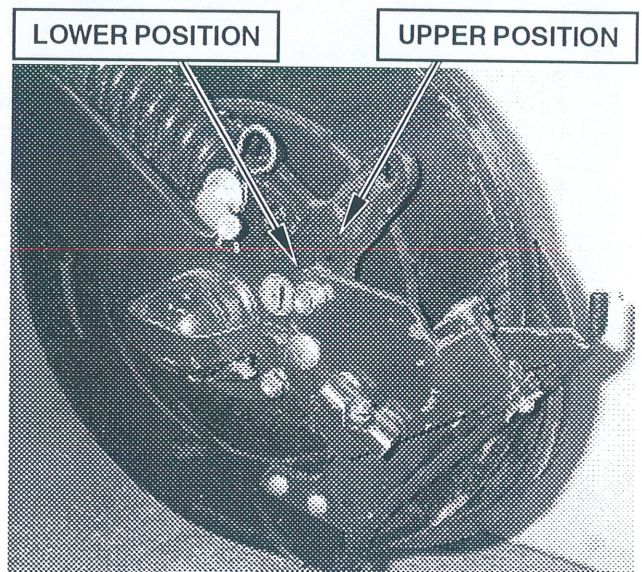
Fertilizer Coulter

Operation Hints

6. When using the coulter tine it is beneficial if the tines do not build up with trash. If buildup is happening raise tine until it starts to run clean.
7. When using coulter tine versus soil retaining wheel, increased gassing off may occur with NH_3 . A closing tine could be used to assist in closing the furrow, refer to item 11.
8. Some straw may get under the scraper, but should clean itself without building up. If building up of trash occurs, ensure that the scraper is running flush with the blade and then increase spring pressure by adding a 5/8" flat washer under spring.
9. When the dry fertilizer tube/scraper is being used they should always be mounted in the highest position. The fertilizer will drop to the bottom of the furrow made by the blade and the wear on the scraper will be minimized.
10. When the NH_3 Fertilizer tube/scraper is used, soil moisture is the deciding factor in where to set the scraper position. In high moisture conditions the scraper can be raised to the highest position, and in dry conditions the scraper will need to be mounted on the bottom, although increased wear will occur.
11. The Closing Tine should be adjusted so that the tine is not keeping the Soil Retaining Wheel from controlling the depth, yet still creating enough agitation to close the furrow.
12. Always **raise machine fully** before backing up.



Scraper Spring



Closing Tine

Operation

Fertilizer Coulter

Coulter Positions

The coulter has two positions the working or field position and the storage position.

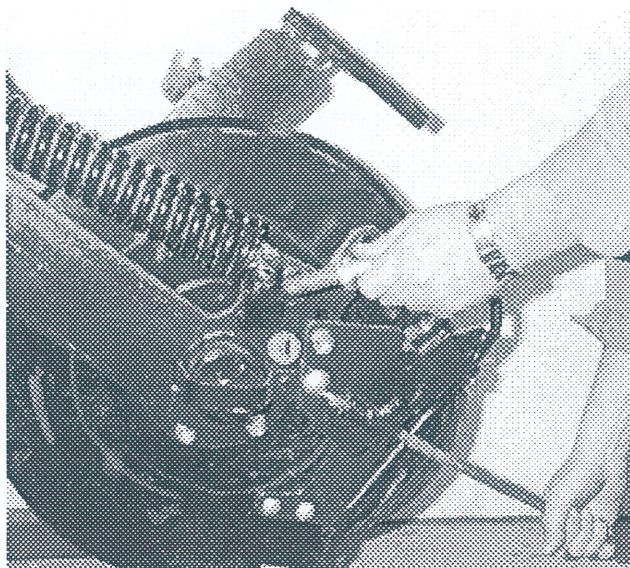
The storage position is used when the coulter is not required during field operation, this prevents unnecessary wear on the coulter unit.

The working position is used when the coulter is being required during field operations.

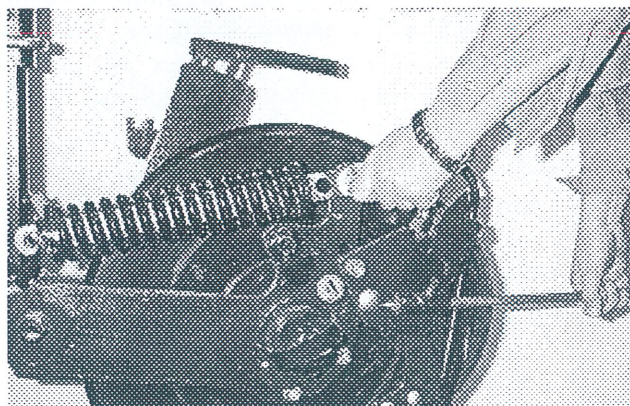
To change the position of the coulter follow the procedure below:

Storage Position

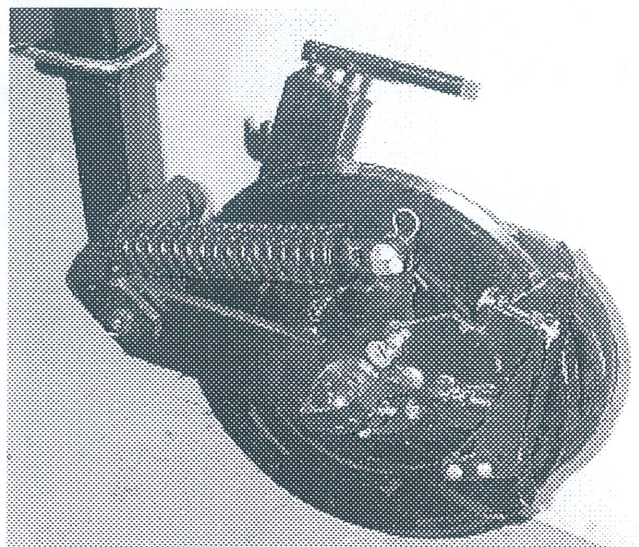
- Insert leverage bar or use closing tine if equipped, to relieve pressure on the spring retaining pin.
- Remove retaining pin.
- Release pressure on leverage bar and lift up on spring assembly
- Lift coulter with leverage bar and pin spring assembly in upper retaining hole.
- Remove leverage bar.



Remove Pin



Pin in Upper Hole



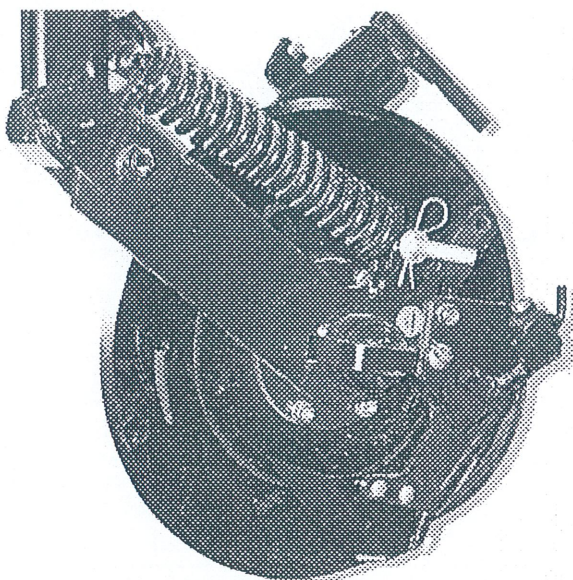
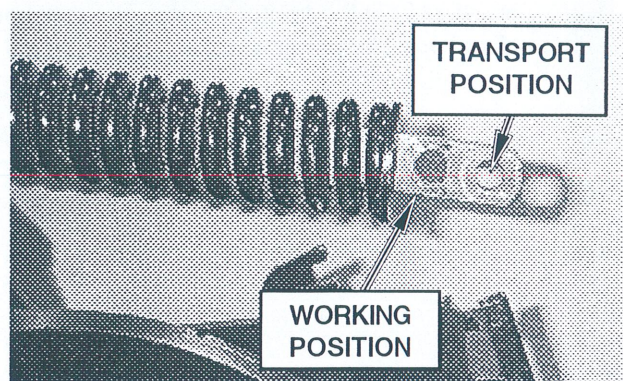
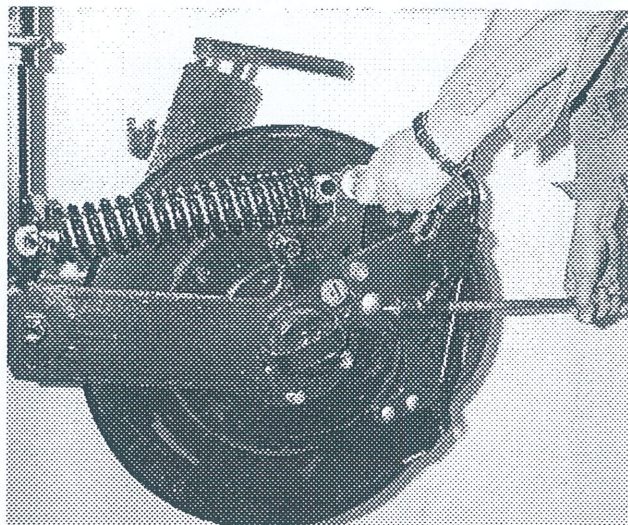
Storage Position

Fertilizer Coulter

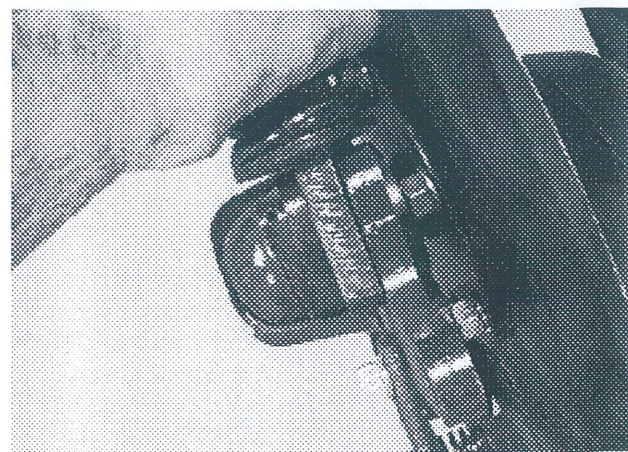
Coulter Positions - continued

Working Position

- Insert leverage bar or use closing tine to relieve pressure on the spring retaining pin.
- Remove retaining pin.
- Release pressure on leverage bar and lift up on spring assembly.
- Lower coulter completely with leverage bar.
- Press spring assembly into position.
- With leverage bar raise coulter slightly to align spring rod hole with lower retaining hole. Use indicator marks to aid in hole alignment.
- Install retaining pin.
- Remove leverage bar.



Working Position



Press Spring into Place

Operation

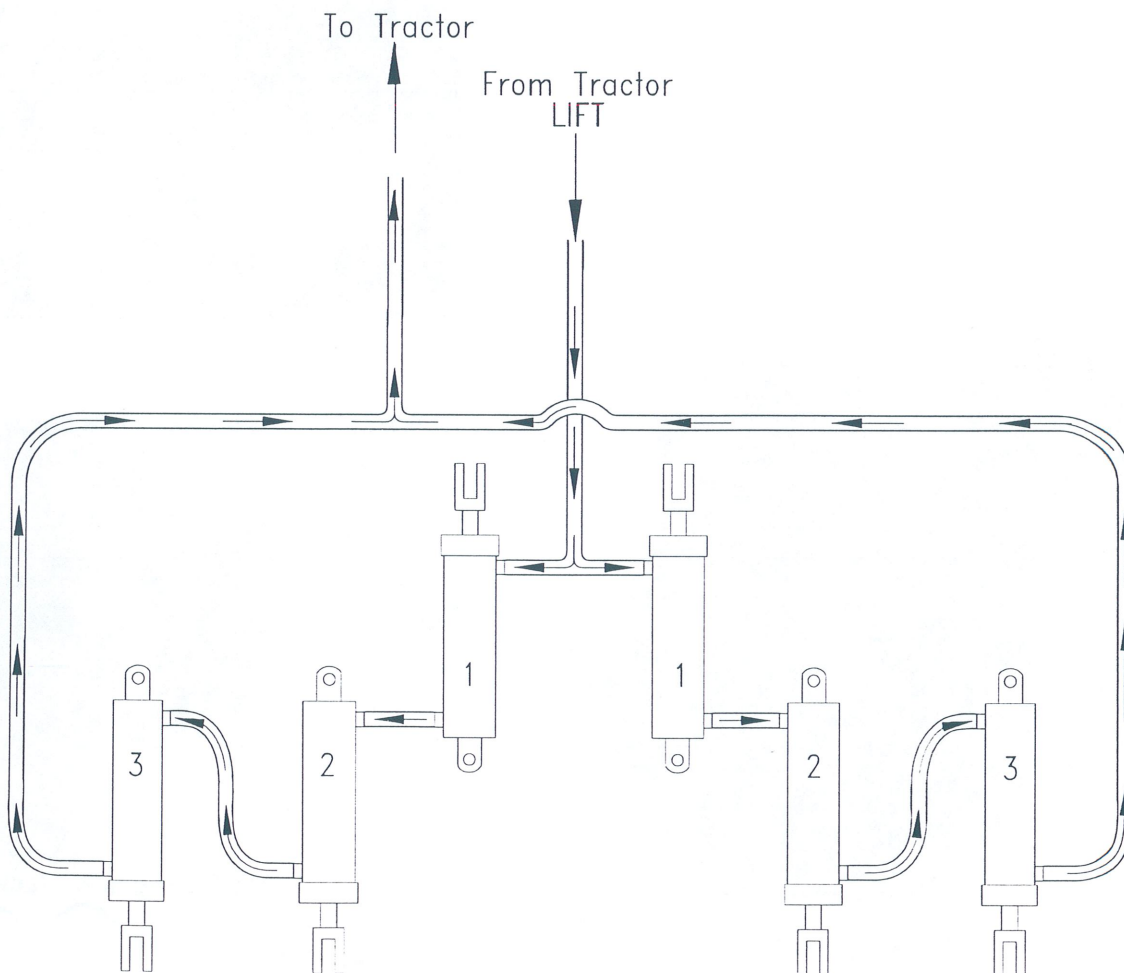
Hydraulic Depth Control System

All Models

The hydraulic depth control system is a series system.

To lift the Never Pin Disc Drill, hydraulic fluid is forced into the clevis end of flow divider cylinders 1. This causes the piston rods to contract and oil move from the butt side of the cylinder into the butt end of the main frame transport wheel cylinders. The wing transport wheel cylinders also extend at the same time due to the flow of oil from the shaft end of the main frame cylinders. Finally the fluid exits the shaft end of the wing cylinders and returns to the tractor hydraulic reservoir.

To lower the Never Pin Disc Drill, hydraulic fluid flows through the cylinders in the reverse direction to that described above, until the cylinder shafts attached to the depth control are fully retracted. This causes the flow of oil from the tractor to stop. The tool bar is set at fixed operating height so the height can not be varied.



Wing Lift Hydraulics

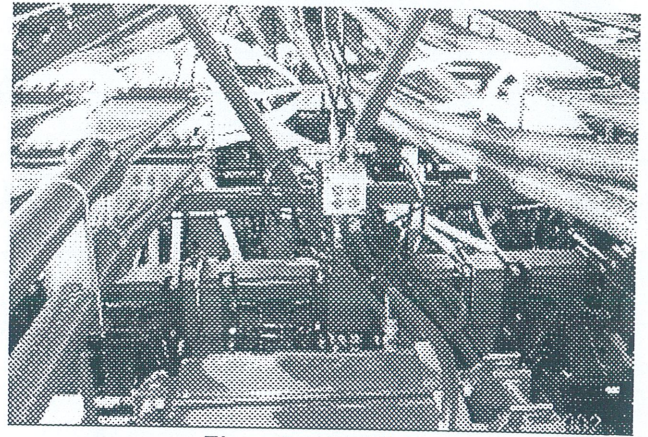
The wing lift hydraulic system is controlled by a parallel hydraulic system. A pressure compensated Flow Control Valve is used to control the flow of oil to the cylinders allowing both wings to fold and unfold simultaneously. While a hydraulic circuit Shut Off valve is used to lock the hydraulic circuit and prevent any leak back. Thus ensures the wings remain in transport and while also preventing any damage to the wing lock mechanism if the hydraulic circuit is inadvertently engaged.

The Flow Control Valve is located on the main frame and there are no adjustments associated with the valve.

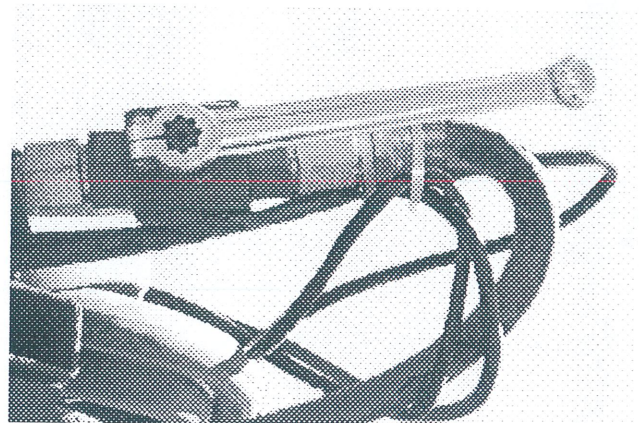
The Shut Off valve is located at the front of the hitch for easy access

To unfold the Never Pin Disc Drill, the oil flows to the Flow Control Valve, from there to the butt end of all the wing lift cylinders extending the shafts and lowering the wings. All cylinders must be fully extended to ensure correct operation of the machine.

Placing the unit into transport is the reverse of unfolding the unit. Oil is fed to the shaft end of the cylinders and so retracting the cylinders and lifting the wings into transport position.



Flow Control Valve

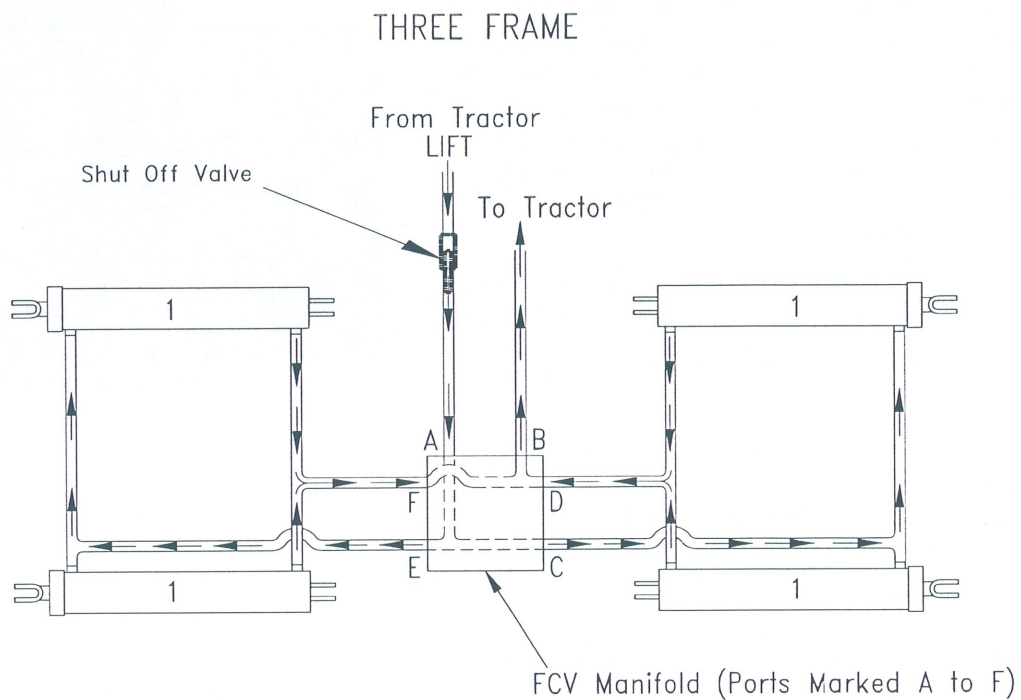


Shut Off Valve - Open Position

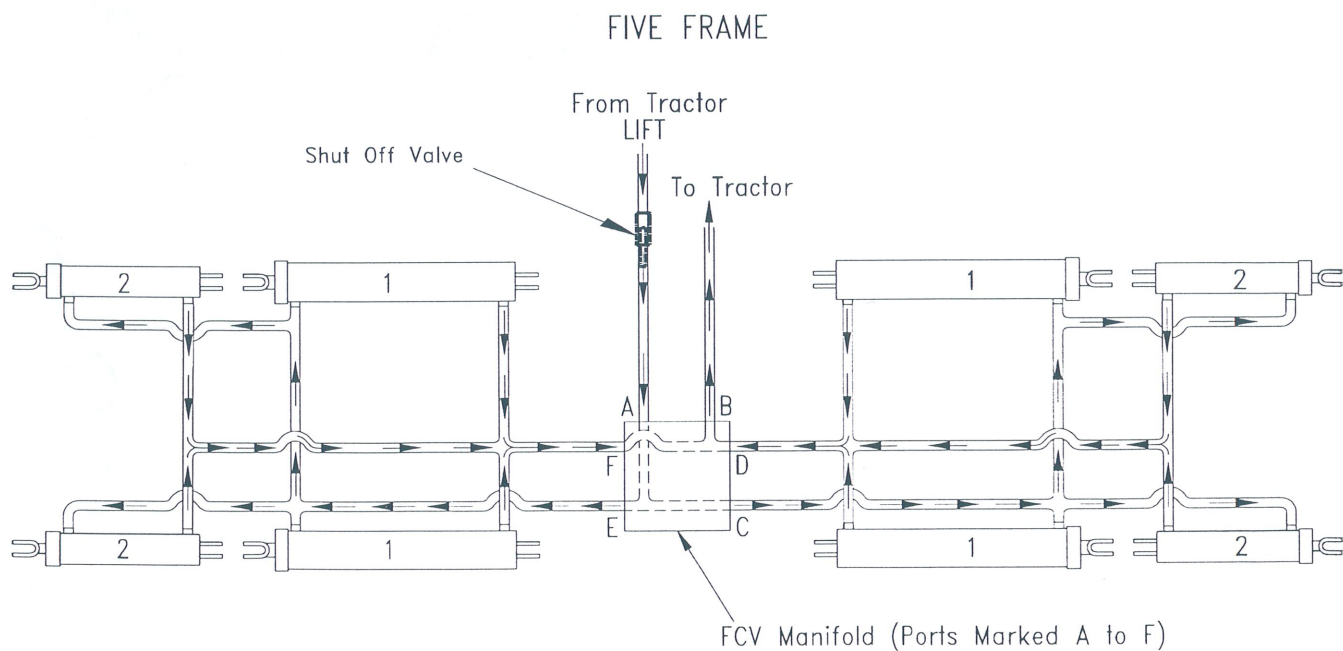
Operation

Wing Lift Hydraulics

34 ft Model



40 ft Model



General Guidelines

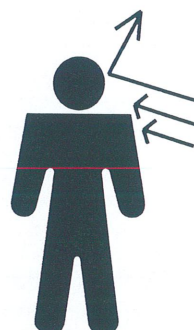
The results obtained from the Never Pin Disc Drill are directly related to the depth uniformity of the unit. Poor opener settings, excessively worn discs, and excessively worn seed boots must be avoided to obtain optimum field results.

- Operating depth should be uniform at all disc locations, when spot checking the implement in the field. See Opener Setting and Rephasing Procedure.
- Seed Boots should be adjusted according to wear and replaced as necessary. See Maintenance Section.
- Replace worn discs. Worn discs can compromise penetration and seed depth.
- Keep tire pressure at the listed specifications to maintain proper disc penetration. See maintenance Section.
- Avoid sharp turns. Turns sharp enough to cause the inside disc openers of the Drill to reverse direction are not recommended. This may cause the seed openers to plug and prevent adequate packing of



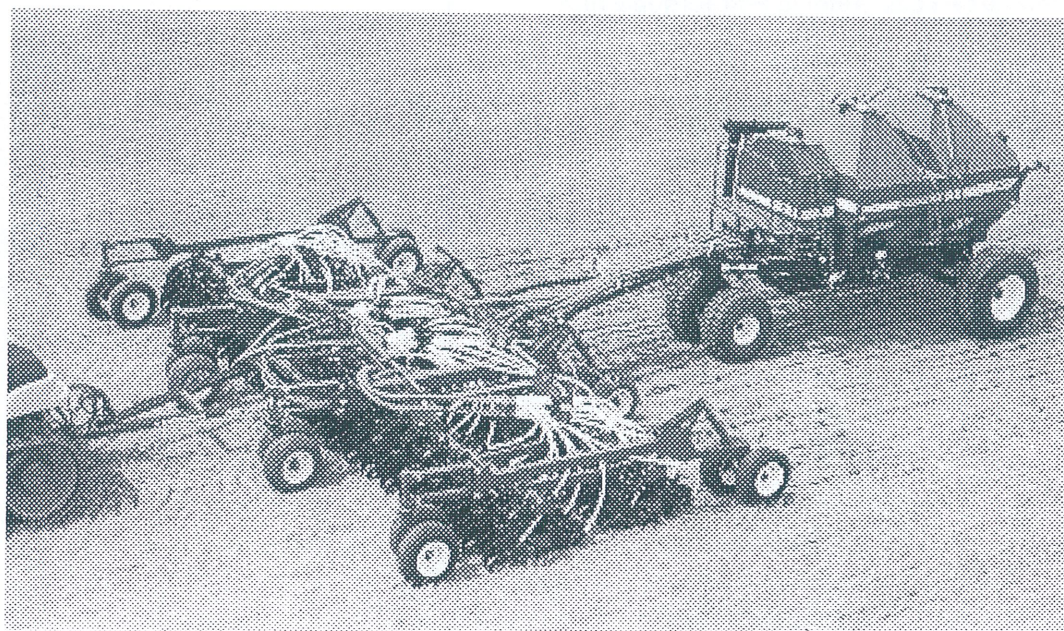
TAKE SAFETY SERIOUSLY.

Do Not Take Needless Chances!



Caution

Care should be taken when working near the Air Cart while the fan is running. Product blowing out of the system could cause personal injury.





Maintenance

Tighten Bolts

- Before operating the unit
- After the first two hours of operation.
- Check tightness periodically thereafter.
- Use Bolt Torque Chart for correct values on various bolts.
- Note dashes on hex heads to determine correct grade.

Note: DO NOT use the values in the Bolt Torque Chart if a different torque value or tightening procedure is given for a specific application.

- Fasteners should be replaced with the same or higher grade. If higher grade is used, only tighten to the strength of the original.

Bolt Torque Chart				
Grade 5 Bolt Marking 		Bolt Size	Grade 8 Bolt Marking 	
Nm	lb. ft.		lb. ft.	Nm
11	8	1/4	12	16
23	17	5/16	24	33
41	30	3/8	45	61
68	50	7/16	70	95
102	75	1/2	105	142
149	110	9/16	155	210
203	150	5/8	210	285
366	270	3/4	375	508
536	395	7/8	610	827
800	590	1	910	1234
1150	850	1-1/8	1350	1850
1650	1200	1-1/4	1950	2600
2150	1550	1-3/8	2550	3400
2850	2100	1-1/2	3350	4550

Tires

- Inspect tires and wheels daily for tread wear, side wall abrasions, damaged rims or missing lug bolts and nuts. Replace if necessary.
- Tighten wheel bolts - refer to Bolt Torque Chart.
- Check tire pressure daily, when tires are cold.
- Correct tire pressure is important.
- Do not inflate tire above the recommended pressure.

Tire Specifications		
SIZE	LOAD RANGE	PRESSURE
11L x 15SL	6 ply rating	28 P.S.I.
11L x 15FI	D	60 P.S.I.
11L x 15FI	F	85 P.S.I.
12.5L x 15FI	F	90 P.S.I.

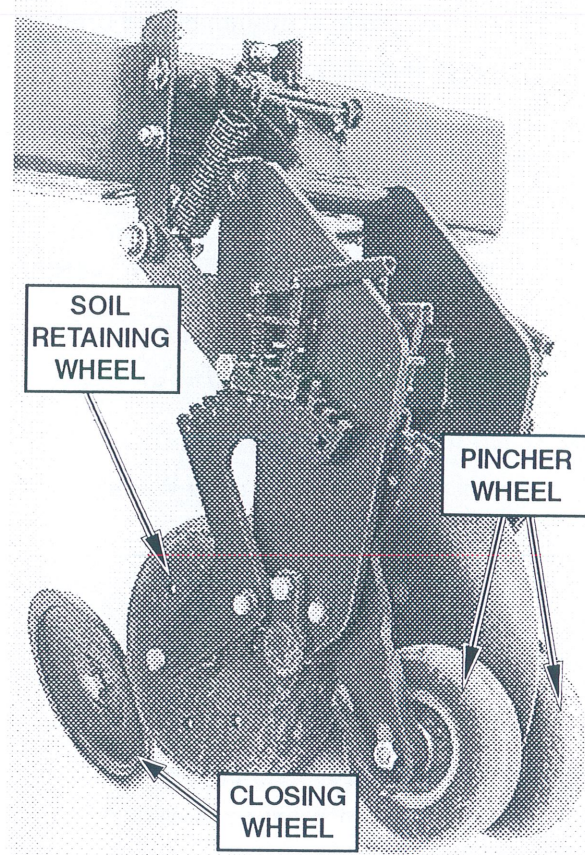
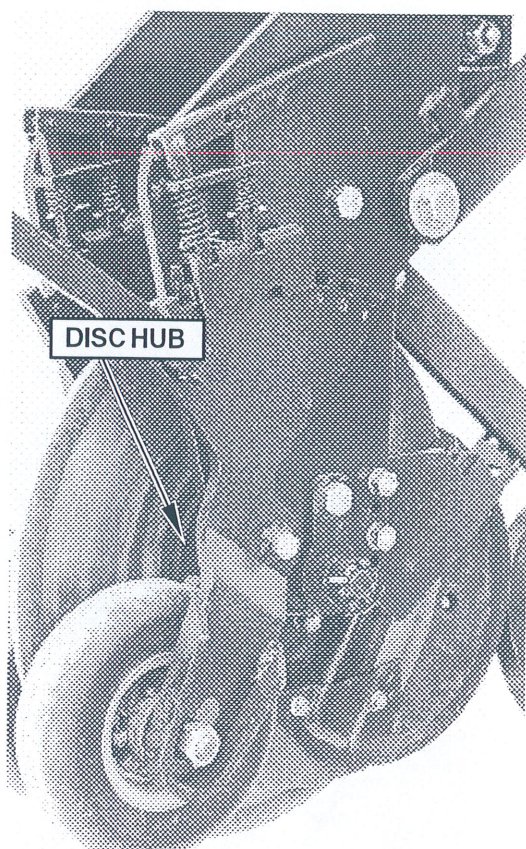


Tire replacement requires trained personnel and proper equipment.

Daily Maintenance

Rotating Parts

- Clear any straw and or trash that has wrapped around any of the rotating parts this ensures the integrity of the seals and promotes longer bearing service life:
 - Never Pin Pincher wheels
 - Never Pin Disc Hub
 - Never Pin Soil Retaining Wheel
 - Never Pin Closing Wheel
 - Optional Fertilizer Coulter Hub
 - Optional Fertilizer Coulter Soil Retaining Wheel



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.

1. Tool Bar Wheel Hubs

- Grease every 500 hours. (Once a season)

2. Tool Bar Gauge Wheel Castor Pivot

- Grease every 100 hours. (Bi-Weekly)

3. Never Pin Pincher Wheels

- Grease every 100 hours. (Bi-Weekly)

4. Never Pin Closing Wheel

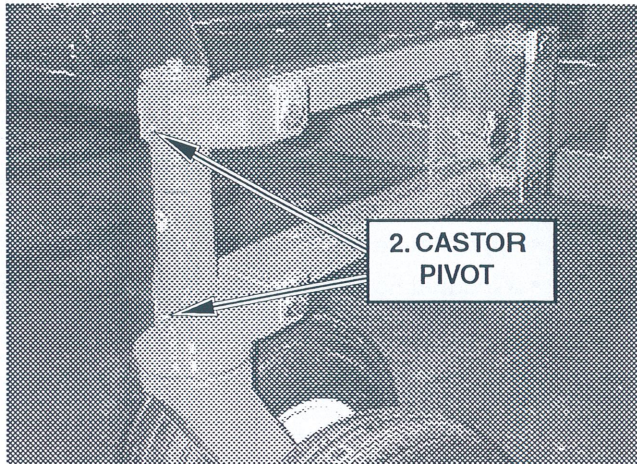
- Grease every 100 hours. (Bi-Weekly)

5. Never Pin Disc Hub

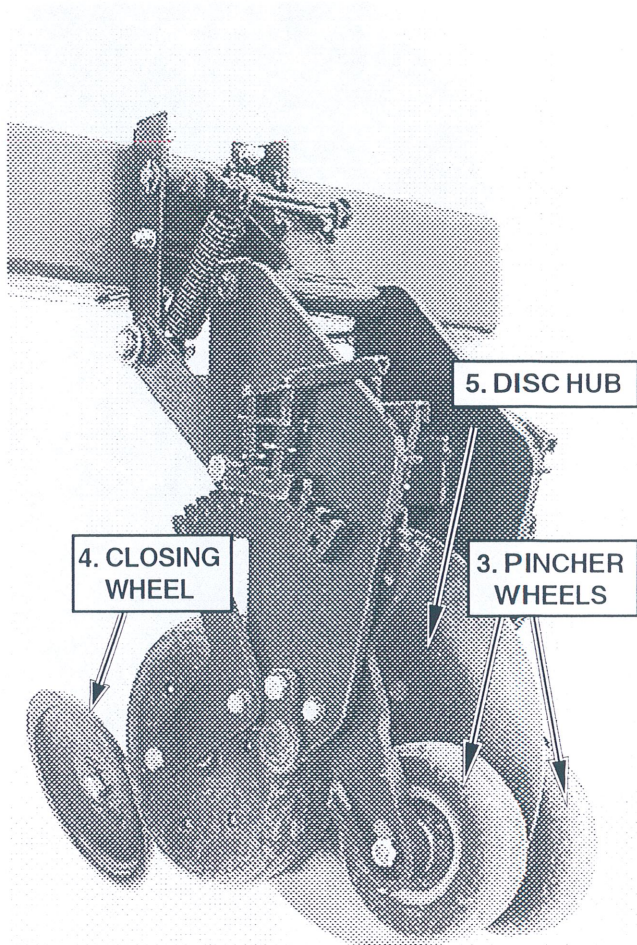
- Grease every 100 hours. (Bi-Weekly)

6. Optional Fertilizer Coulter Disc Hub

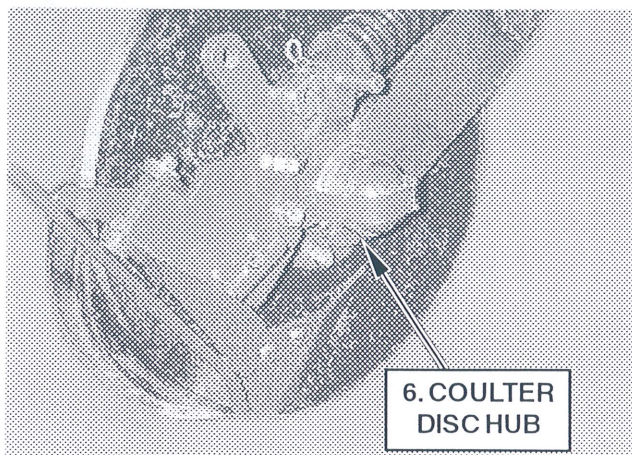
- Grease every 100 hours. (Bi-Weekly)



Tool Bar Gauge Wheel Castor



Never Pin Disc Opener



Optional Fertilizer Coulter

Hydraulics

Refer to Section 1 regarding hydraulic safety.

- Inspect hydraulic system for leaks, damaged hoses and loose fittings.
- Damaged Hoses and hydraulic tubing can only be repaired by replacement. **DO NOT ATTEMPT REPAIRS WITH TAPE OR CEMENTS.** High pressure will burst such repairs and cause system failure and possible injury.
- Leaking cylinders - install a new seal kit.
- Fittings - use liquid Teflon on all NPT hydraulic joints. **Do not use liquid Teflon or Teflon tape on JIC ends.**
- Hydraulic Hose Connections - when connecting the hoses to the cylinders, tubing, etc. always use one wrench to keep the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life.
- Keep fittings and couplers clean.
- Check the Tractor Manual for proper filter replacement schedule.

Refer to the Trouble Shooting Section.

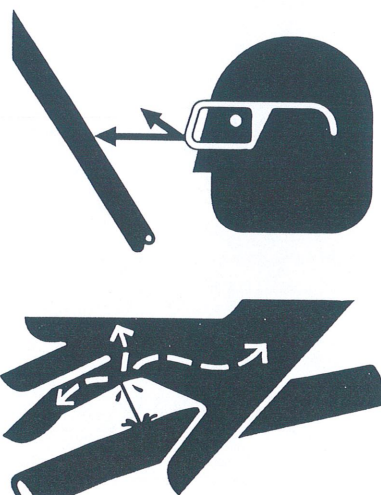


Contact your nearest Dealer for genuine repair parts. Dealers carry ample stocks and are backed by the manufacture and regional associations.



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

Note: Extreme care must be taken to maintain a clean hydraulic system. Use only new hydraulic fluid when filling reservoir.



Warning

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

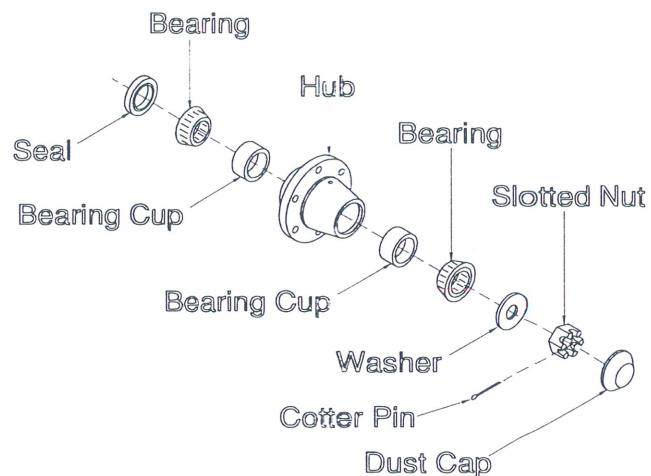
- Relieve pressure on hydraulic system before servicing or disconnecting hoses.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

Maintenance

Toolbar

Wheel Bearings

- Shut tractor off and remove key.
- Block wheel on tractor.
- Raise the unit's wheels enough to clear the surface.
- Securely block the frame.
- Remove wheel from hub.
- Remove the dust cap, cotter pin, and the slotted nut and washer.
- Be careful when pulling the hub off as not to drop the outer bearing.
- Clean spindle and bearing components with solvent.
- Inspect for wear on bearings, spindle and cups, replace parts as required.
- Do not reuse old seals. Use only new seals when assembling.
- Pack inner hub with bearing grease.
- Be sure bearing and cup are dry and clean.
- Work grease into the bearing rollers, until each part of the bearing is completely full of grease.
- Install inner bearing and cup first, then press new seals in place.
- Place hub on spindle.
- Install outer bearing, washer and slotted nut.
- Tighten nut while turning the wheel until a slight drag is felt.
- Back nut off one slot and install a cotter pin. Bend cotter pin up around nut.
- Pack grease inside the dust cap and tap into position.



Fertilizer Coulter

Scraper Positions

The scraper has two positions to extend the life of the coulter disc.

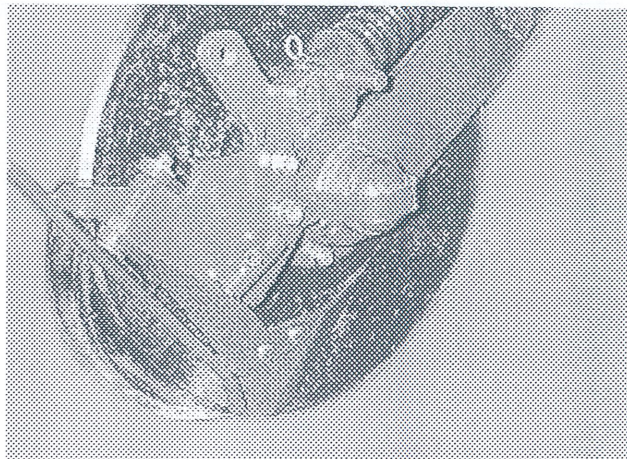
NH₃ applications only

Initially the opener is set in the lower position.

Once the coulter disc has worn approximately 1 inch the scraper is moved to the upper position.

Granular or liquid applications

Initially the scraper is set in the upper position.



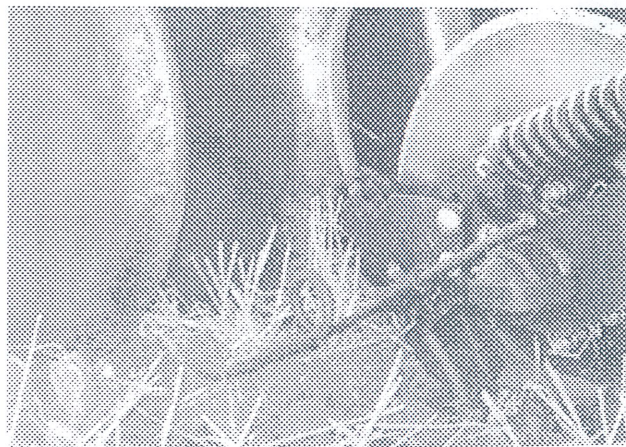
Working Position

Closing Tine

The closing tine can be adjusted outward as it wears and can be reversed to use the other half of the tine.

Mount the tine as follows:

- There are left and right tines.
- The tine coil should face outward and be positioned to the top as shown.
- Secure tine with set screw and jam nut.



Closing Tine

Important

Re-tighten setscrew after the first 20 acres.

Maintenance

Axle Pivot Bushings

Inspect seasonally the axle pivots for wear. Replace bushings if excessive movement is found.

In the event the Axle Pivot Bushings need replacing, use the following procedure.

- Lower machine taking weight off axles.
- Shut tractor off and remove key.
- Block wheel on tractor.
- Remove roll pin (E) from pivot pin (D).
- Remove pivot pin (D).
- Remove seals. **Note Seal Lips Facing Out.**
- Remove pivot bushings.
- Thoroughly clean all parts.
- Inspect pivot pin for abrasions, replace if necessary.

Note: Any abrasions on the pin will severely limit the life of the bushings.

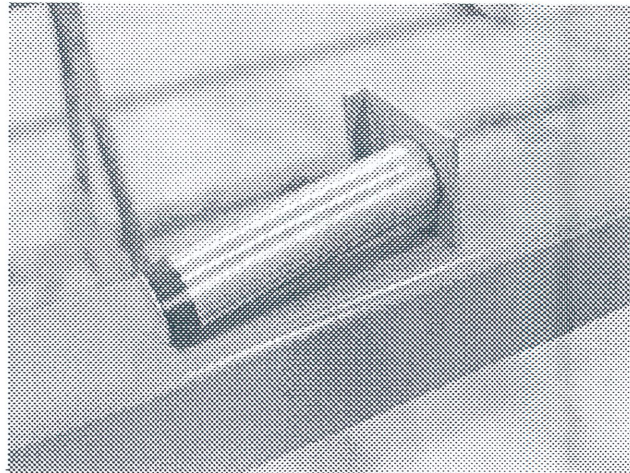
- Carefully press bushings in place, ensuring the inner lining of the bushings are not damaged.
- Install the seals with the **seal lips facing out.**

Note: Seal lips *must* face outward to prevent dust from entering bushings.

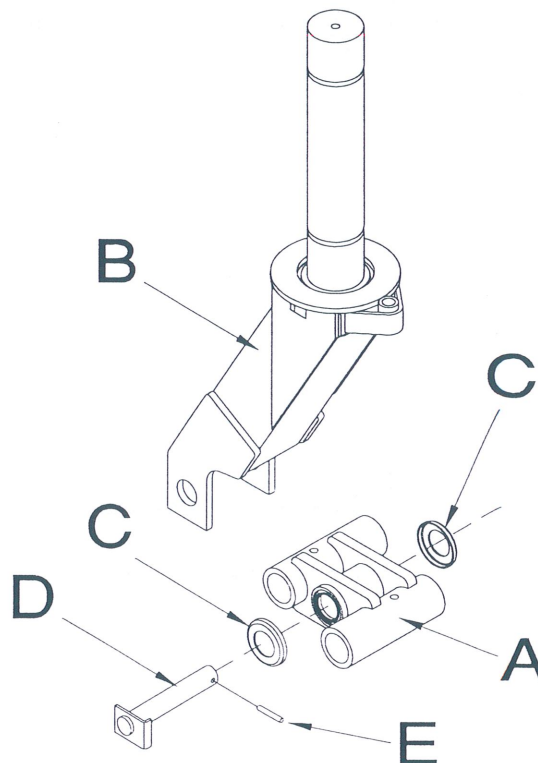
- Apply a thin layer of oil onto seal lips to ease in the installation of pivot pin.
- Place cupped washers (C) over seals.
- Align axle walking beam (A) with castor (B).
- Wrap a single layer of electrical tape over hole. This will ensure the edge of the hole will not damage the seal lips.

Note: Do not use grease on any components.

- Carefully install pivot pin, ensuring the seal lips and inner lining of the bushings are not damaged. **Do not force pin through the bushings.**



Tap Pivot Pin Hole



Troubleshooting

Problem	Cause	Correction
NeverPin Opener		
Parallel link bolts loosening.	Improper torque value.	Torque nuts to 275 ft. lbs
	Faulty locknut	Replace locknut and torque to 275 ft. lbs
Plugging with trash continually in same area.	Tighten Pincher Wheel Assembly	Check Wheel assemblies and bearings. Replace if necessary.
	Bearing failure	Replace and adjust correctly.
	Improper positioning of Pincher Wheels	Adjust assembly
Side of disc building up with mud	Incorrect setting of Soil-retaining wheel	Move Soil retaining wheel closer to disc. See operation section for correct adjustment.
Soil being thrown by disc	Position or setting of Soil-retaining wheel	Adjust so that Soil-retaining wheel carries only 25% of the load. The remaining 75% carried by the Pincher wheels
Trash building up under scraper	Worn scraper	Replace scraper.
	Insufficient spring pressure	Clean out trash in pivot areas of scraper
Pincher wheels wearing on sides	Dry mud and trash build up on Pincher wheel arms	Clean out mud and trash
Radical movement of parallel links and hammering of assemblies	Frame depth hydraulics not fully retracted	Lower frames completely
Poor disc penetration	Inadequate down pressure	Increase down pressure by adjusting Spring bar - see Operation section for adjustments.
	Disc worn excessively	Replace disc blade
Excessive hair-pinning of trash	Pincher wheel adjustment incorrect	Adjust Pincher wheels with 75% of load in the Pincher wheels. You should be able to rotate the soil-retaining wheel but not rotate the Pincher wheels when the unit is set at the operating depth.
	Worn disc	Reposition Pincher wheel assembly by moving 1/2 moon shim in the Pincher wheel assembly.
		Excessive straw conditions.

Troubleshooting

Problem	Cause	Correction
Soil-retaining wheel hard to turn	Incorrect adjustment	Adjust Soil-retaining wheel. See Operation section for adjustments
	Possible bearing failure	Remove Soil-retaining wheel and check bearing. Replace if necessary
No seed or fertilizer coming out of seed tube/scraper	Plugged scraper assembly	Check and clean out scraper assembly
	Plugged seed hose	Check and clean out seed hose
	Plugged divider head	Check and clean out divider head

Fertilizer Coulter

Refer to Operation section under Fertilizer Coulter Operation Hints

Tool Bar

Machine not operating straight.	Openers set incorrectly	Refer to Operation Section on levelling.
	Cylinders out of phase	Rephase cylinders.
	Tire pressure incorrect	Check tire pressure.
Lack of penetration.	Not levelled.	Refer to Operation Section on levelling.
	Discs Worn	Replace Discs
Wing lifting too slowly.	Tractor hydraulic pressure.	Repair pump. Pressure relief valve needs resetting.
	Hydraulic breakaways.	Foreign material or sticking. Check compatibility.
	Hose restriction.	Cylinder linkage binding.
Wings not lowering.	Transport pins installed.	Remove pins.
	Shut off valve not open	Open Shut off valve

Troubleshooting

Problem	Cause	Correction
Tool Bar		
Oil accumulation.	Damaged seal.	Replace seals.
	Loose fittings.	Tighten hose and pipe connections.
	Scored cylinder shaft will damage shaft seal.	Replace.
	Normal.	Slight seepage from seal is normal.
One wing will lift, other will not.	Assembly.	Hoses reversed at cylinder.
	Restriction in line.	Clean.
	Internal cylinder leak.	Repair cylinder.
Depth control not working.	Cylinders not phased.	Refer to Operation Section on rephasing.
	Leaks.	Use hand and eye protection - Check for external leaks.
	Low oil level.	Fill tractor reservoir.
	Plugged Hydraulicfilter	Replace tractor hydraulic filter.
Depth control slow lifting	Insufficient oil to cylinders	Connect hydraulic lines to the priority valve on the tractor
One wing or one whole side will drop when machine is fully raised.	Internal cylinder leak.	Repair cylinder.

