

ATHENS

OPERATOR'S MANUAL

**MODEL 107
OFFSET
DISK HARROW**



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Safety Rules

Section 1

All farm machines are potentially hazardous. There is no substitute for a cautious, safety-minded operator. The manufacturer has designed this implement to be used with all safety equipment properly installed to minimize hazards during operation and transport.

BEFORE YOU START - Read the Decals on your implement (and shown in this Manual) and observe the rules of safety.....



WARNING

Observe all CAUTION, WARNING, &/or DANGER instructions and other reasonable safety practices concerning the operation of this machine. ATHENS Inc. accepts no responsibility for damages to this machine, any other property damage, &/or bodily injury due to careless or improper operation. Read and understand your Operator's Manual!

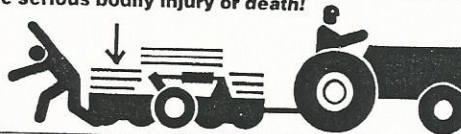
1. Stop tractor, disengage PTO, lock brakes, wait until all movement has stopped and support raised, implement safely before starting to service, unclog, or adjust this implement.
2. Do not allow anyone to ride on the implement. Do not allow anyone on tractor except operator.
3. Make certain that everyone is clear before moving implement or activating any controls that may cause movement of implement, hydraulics, or any components.
4. Operate with increased caution when on slopes where there is a possibility that the tractor could drop into a hole or ditch and overturn.
5. Before operating or moving on highways, clean off reflectors, make certain SMV emblem is clearly visible, install mechanical transport devices, and install safety chain if required by state law. The towing vehicle *must weight more* than the implement!
6. Maximum transport speed 20 MPH.

(1984) 999205



WARNING

Failure of hydraulic components or accidental operation of hydraulic controls can allow implement to fall and cause serious bodily injury or death!



1. Keep everyone clear when implement is being raised or lowered. Raise or lower slowly and cautiously.
2. Install Mechanical Transport devices when working on implement in the raised position or transporting.

999201 (ALL WHEELED UNITS)

WARNING: Never work on or under any raised component(s) unless unit is securely blocked into position.



TO INSTALL WHEEL CARRIAGE (Figure 1)

Place Wheel Carriage underneath Mainframe with Cylinder Pivot upward and aligned with Cylinder Anchor on the left side of Mainframe. Attach Wheel Carriage to Wheel Carriage Pivots with Pivot Pins and fasten Pins in place with 1/2 x 3-1/4 Bolts, Nuts, and Lock Washers.

Attach Transport Rod through Transport Anchor and to Cylinder Pivot with Pin. Install 1" Nut only to full threads.

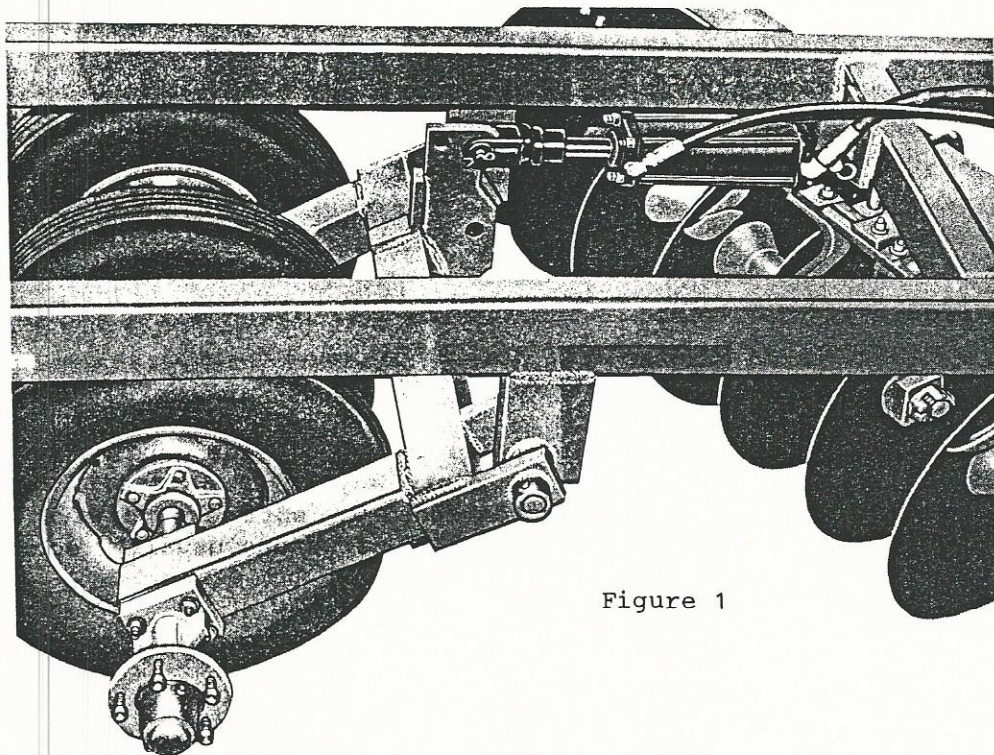


Figure 1

TO INSTALL WHEEL HUBS AND WHEELS (Figure 2)

SINGLE WHEELS (Standard Equipment)

Attach one Wheel Axle Plate (with Hub and Axle assembled) to the outside of each Wheel Carriage Leg with four Studs, Nuts, and Lock Washers and with Spacer Plate on inside of Carriage Leg. Tighten in diagonal sequence to keep Axle perpendicular to Wheel Carriage Leg.

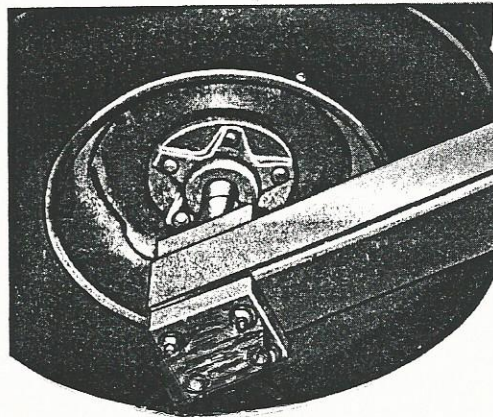


Figure 2

WHEELS AND TIRES

NOTE: Tires not furnished.

Use tires of proper capacity to handle loads and to provide gauging as needed. Two 9.5L x 15 six-ply tires are recommended

Attach Wheels to Hubs with Lug Nuts and tighten until snug. Then tighten diagonally and in rotation to 100 ft. lbs.

Check Bearings for adjustment. Fill Hubs with clean, #2 Lithium-based Bearing Grease until grease shows out of Flinger. There is no danger of over-lubrication.

CAUTION: Buy clean grease. Keep it clean.

TO ATTACH SPREADER BAR AND LEVELING PARTS

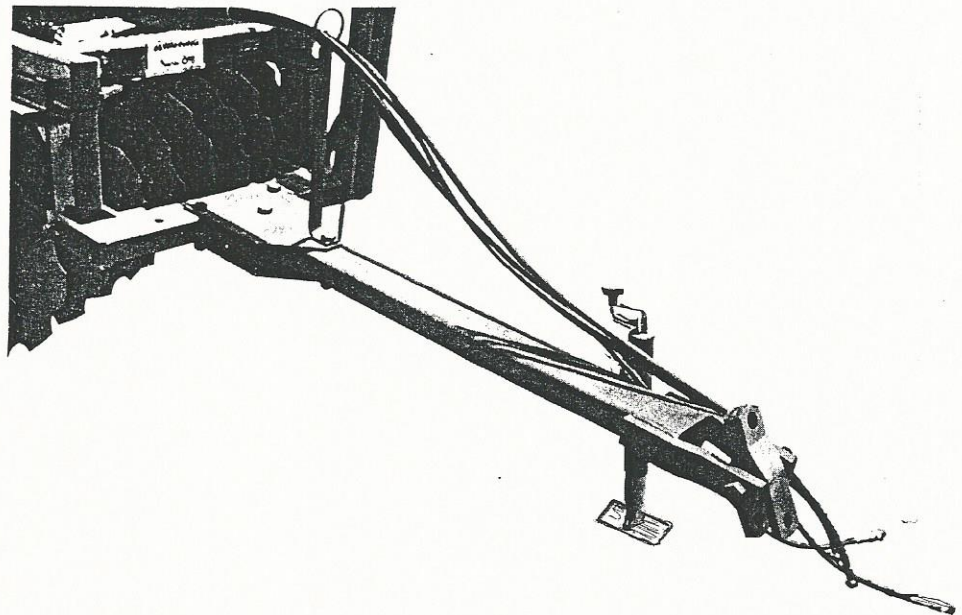
Attach Spreader Bar to Mainframe with two Spreader Bar Pins so that leveling upright is vertical and to the left. Insert and spread all cotters securely.

CAUTION: The components of these machines are quite heavy. Block all components up securely before working under or putting extremities under such parts.

TO ATTACH TONGUE AND CLEVIS (Figure 4)

Place Tongue over the Spreader Bar and bolt in place at approximately the center of the Spreader Bar or offset as required for proper positioning of tractor. Install Hose Stand on front Bolt as shown and tighten all Bolts securely.

Figure 4



TO ASSEMBLE LEVELING PARTS. (Figure 5)

- 1) Attach Leveling Bracket Assembly with Springs and Rod to the mounting plates on the left side of the Main Frame with 5/8 x 2" Hex Bolts, Nuts, and Lockwashers with the Turnbuckle Anchor forward. The Spring should be compressed just enough to prevent excessive bounce when the machine is in transport.
- 2) Install one end of the Turnbuckle to the upright on the Spreader Bar and the other end to the Leveling Rod Assembly.

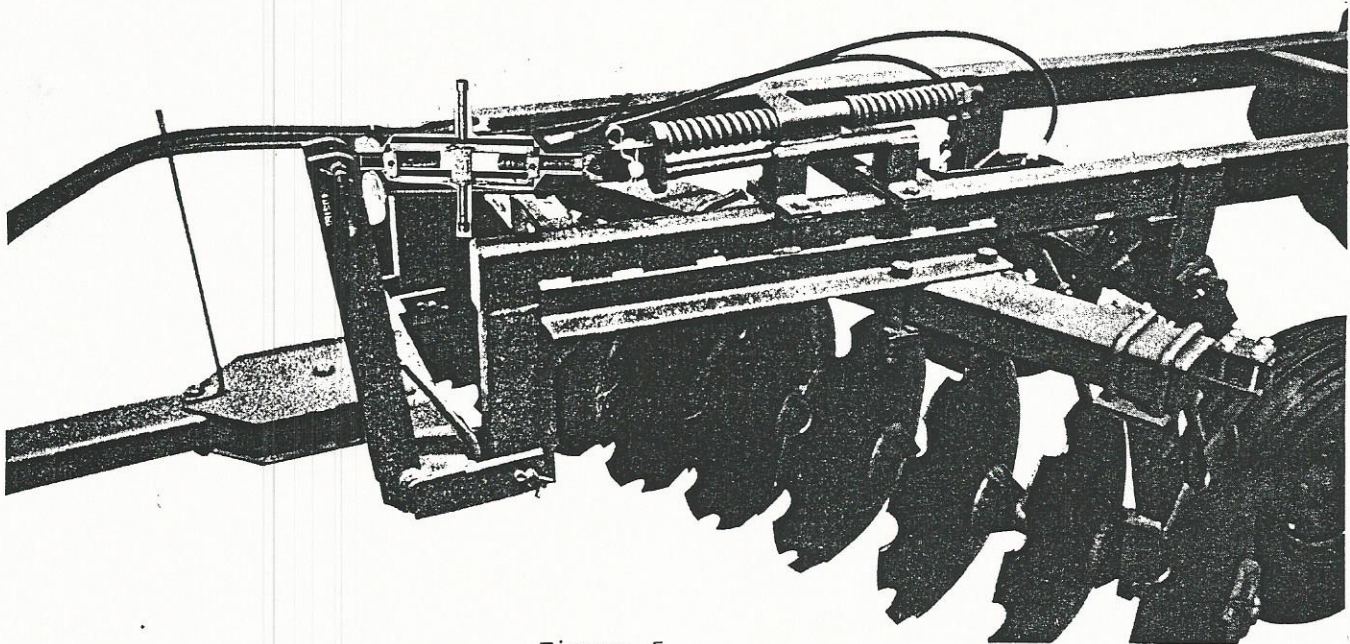


Figure 5

TO ATTACH HYDRAULICS (Figure 7)

Attach Butt End of a 3 x 8" Hydraulic Cylinder to the Anchor Plate on Mainframe and the Rod End to the Cylinder Pivot.

Attach 90° Swivel Elbows to both ends of the Hydraulic Cylinder.

CAUTION: Use thread lube on the fittings. DO NOT USE PIPE TAPE AS IT CAN GET INTO THE SYSTEM AND HARM CYLINDERS.

Install a 144" and a 156" Hydraulic Hose to the Cylinder and thread it through hose stand. Group Hoses and secure with plastic ties.

Obtain necessary fittings for the hoses on the Tractor end that are compatible with your Tractor. These fittings are not furnished.

Cycle Cylinders through several times to purge all the air from them.. Check for leaks and retighten if necessary.

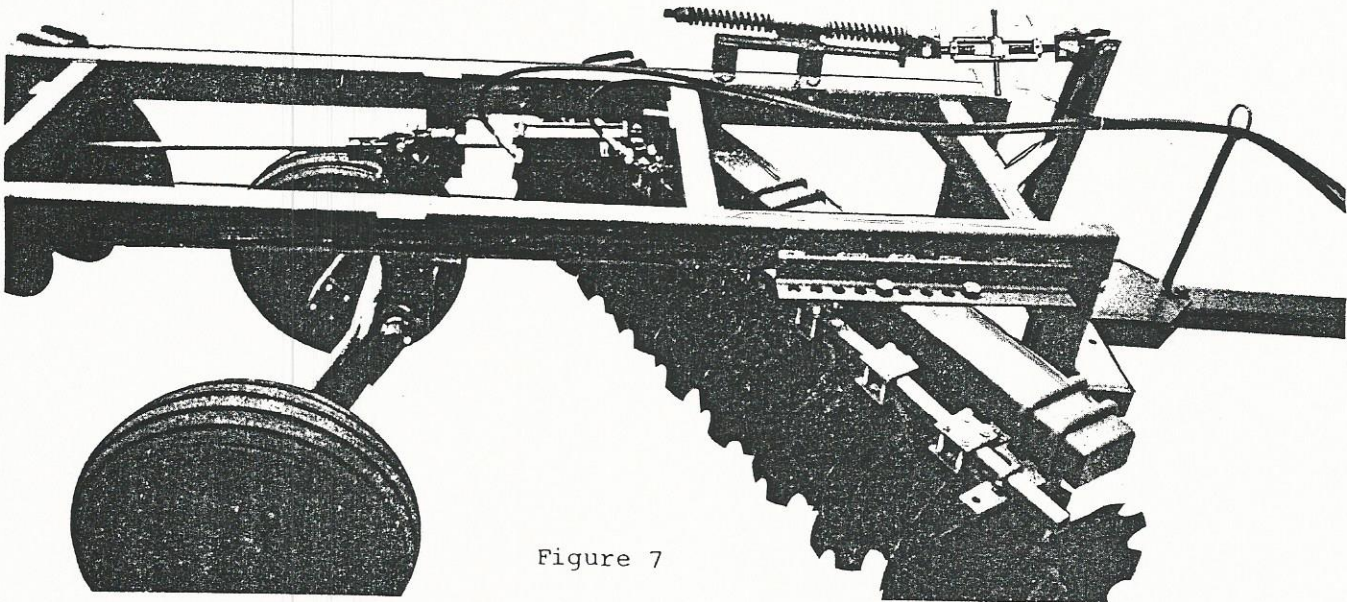


Figure 7

TO ATTACH GANG FRAMES:

FRONT:

Attach angling anchors in medium angle loosely. Slide one end of gang frame through the angling anchor and then on through the opposite end. Center the gang frame in the main frame so you have equal distance protruding from each side.

REAR

Set Angling Anchors loosely at medium angle, and slide gang frame through in the same manner as the front gang. After the gang is centered, move gang frame to the right approximately 2" to 4". (The rear gang should be equal to or less than the front gang)

EXAMPLE: If the measurement of the front gang on the left side of the frame is 17", then the rear gang should be set in the range of 13" to 17" on the left side.

Tighten up anchor bolts.

Angling Plate

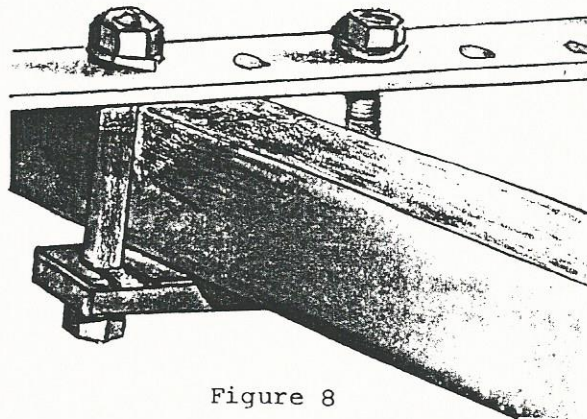


Figure 8

FIELD ASSEMBLY OF DISK GANGS:

Disk Gangs are shipped assembled from the factory except for export shipments.

The following is for re-assembly in the field. First of all, when breaking down a Disk Gang, lay the parts down exactly the order they are removed from the Axle. This will simplify re-assembly.

To assemble, put the first Disk Blade on the Axle, then a convex Half Spacer, now the Bearing Hanger and Bearing, next, concave Half Spacer, then another Disk Blade. Follow with a Full Spacer, Disk Blade, Full Spacer, Disk Blade, etc. until you get to the next Bearing Hanger. Follow the same pattern as you started with until you get to the last Bearing Hanger. Put on the Half Spacers and Blade as before and then finish up with an End Spacer, Washer, Nut and Cotter.

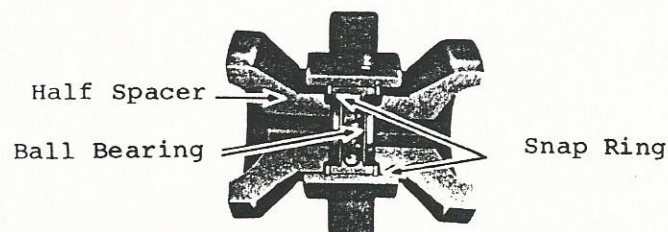
Tighten Disk Gangs to 1200 to 1500 ft. lbs. (A 200 lb. man on a 7 ft. handle equals 1400 ft. lbs.) Bearing Housing Bolts Should be tightened to 250 ft. lbs each.

TO ASSEMBLE BALL BEARINGS

Install a snap ring, a Ball Bearing, and a second snap ring. Make certain that the lube hole in the Bearing aligns with the grease grove in the Housing.

IMPORTANT ! When installing Ball Bearings, press or drive against the OUTER ring of the Bearing only. Pressing or driving against inner ring causes damage and greatly shortens Bearing life.

Figure 10



ATTACHING DISK GANGS

Roll front Disk Gang under Gang Frame and center. Tilt up each Bearing Hanger and attach with U Bolts loosely. The two outside Bearing Hangers should be equally spaced from the ends of the Gang Frames. Align Bearing Hangers vertically and tighten securely.

Rotate Disk Gang to make sure that it turns freely. If the Disk Gang binds or is hard to turn, loosen U Bolts and realign Bearing Hangers.

Mount the rear Disk Gangs in the same manner as the front.

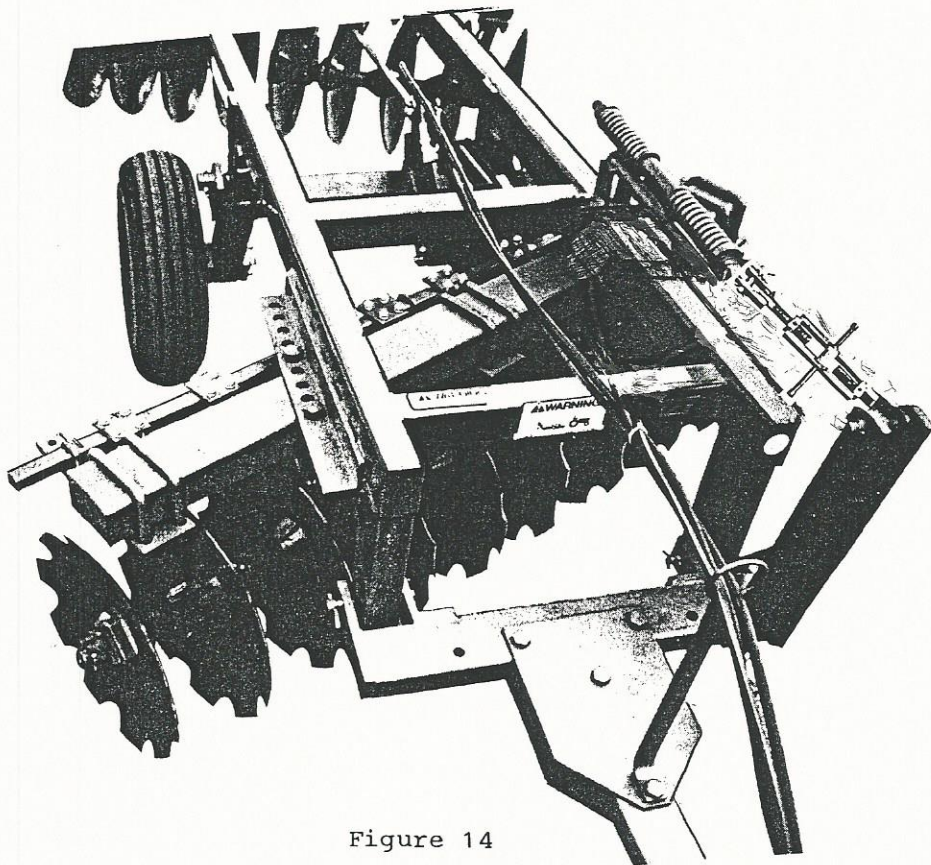


Figure 14

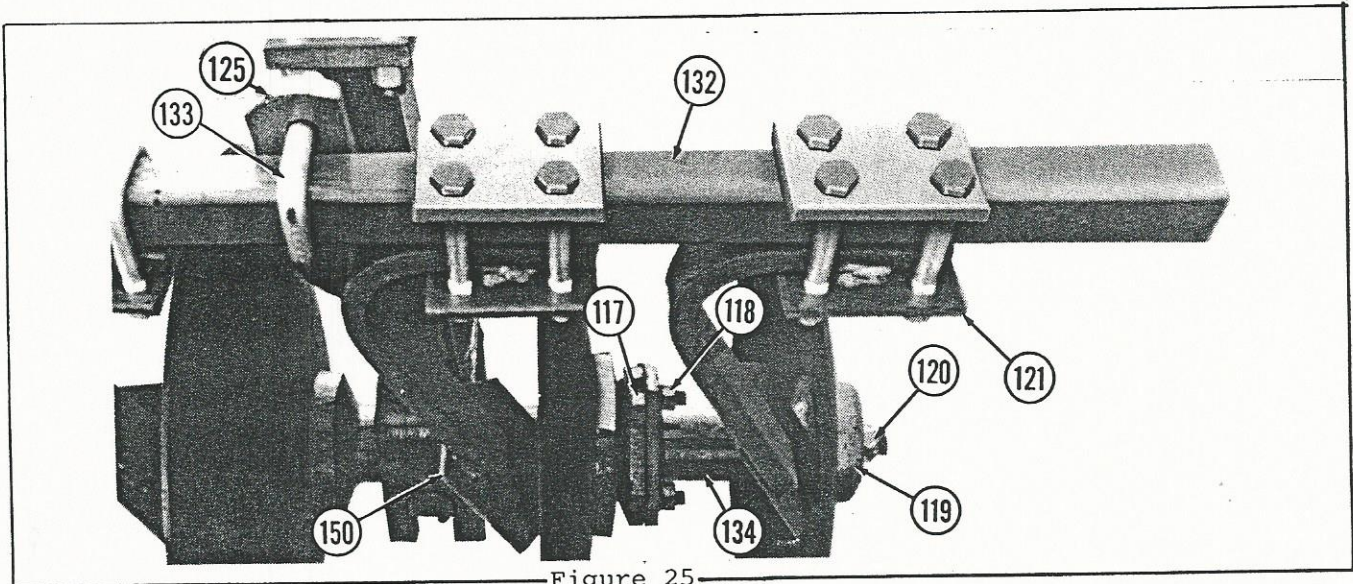


Figure 25

To Attach Scraper Bars (Refer to Figure 25).

- 1) Attach Scraper Bars (132) to Scraper Bar Hangers (126) with the Scraper Bar "U" Bolt (133) loosely. Make sure there is sufficient length of the bar extending outward on the outside rear to accommodate Cover Disk Scraper. Adjust the Scraper bar assembly until one scraper almost touches a Disk Blade and tighten securely. Adjust remaining Scrapers close to but not touching Disks and tighten.
- 2) NOTE: There are no Scrapers for the outside front or the inside rear Disk Blades.

TO ATTACH COVER DISKS AND COVER DISK SCRAPERS (Refer to Figure 25).

Attach the Cover Disk Mounting Assembly (134) to the Cover Disk Mounting Plate (117) (it is welded to the outside rear Axles) with four 1/2 x 1-3/4 Carriage Bolts, Nuts, and Lock Washers (118). Attach the Cover Disk Blade with the Cover Disk End Washer (119) and the Cover Disk Nut (120). Tighten securely. Bolt Cover Disk Scraper (121) to the Scraper Bar and adjust close to but not touching the Cover Disk.

NOTE: The Cover Disk Scraper is welded so that the outside rear edge is flush with the Scraper Arm so that the point of this Scraper is closer to the center than on other Scrapers.

Use care to install the Cover Disk Scrapers only on the Cover Disk since the point of a cover disk scraper could hang on the spacer and be destroyed.



Operation

Section 3

BEFORE OPERATING THE HARROW BE CERTAIN THAT:

All Bolts are tight and Cotters spread.
Disk Gang Axles are tight and Gangs turn freely.
Wheel Bearings are adjusted and lubricated.
Disk Gang Bearings are lubricated (#2 Lithium-base grease).
That NO Hose or Fitting is leaking.
That front Hoses are neither dragging nor too short to turn.
That Tires are inflated to 28-32 p.s.i., as desired.
Wheel Pivot Tubes are lubricated.
Threaded Adjusting Rods are coated with oil or grease.

HITCH TO TRACTOR

Attach Hydraulic Hoses to tractor and lift to full transport height. Adjust Tongue Jack as needed and attach Clevis to tractor Draw Bar.

TO ADJUST ANGLE

With the unit sitting on the ground, remove Angling Anchor Bolts from Front and/or Rear Angling Plate. To increase angle in the front section, back unit up until desired angle is reached and vice versa.

CAUTION: Do not lift Harrow on Wheels while changing angle.

CAUTION: Do not loosen Bolts in Angling Anchor on left side when changing angle to prevent entire Gang Frame to move sideways.

Pull unit forward to decrease angle in front section. Use the opposite procedure to change angle in the rear section.

NOTICE: Never use more angle than necessary - excessive angle wastes fuel.

TO SHIFT GANGS Laterally

Loosen Bolts on both Angling Anchors on the Disk Gang Frame to be shifted.

NOTICE: Do not lift Harrow on Wheels WHEN Bolts are loosened.

Drive forward to shift front section to the left and back up to shift to the right. Tighten Nuts on Angling Anchors securely.

Use opposite procedure to shift rear section.



Operation

Section 3

OFFSETTING THE TONGUE

This unit is designed to trail straight behind the tractor. Minimum side draft will be obtained when the Tongue is straight behind tractor and slightly to the right of the center of the Harrow. However, a large number of offsetting positions are provided. These offsetting positions are provided for the operator who may desire to run the left rear tractor Wheel either in the furrow or at some given distance from the furrow.

NOTE: To move Harrow to the left, move the Tongue to the right.

There are three positions on the Spreader Bar in which the Angling Plates may be bolted. These provide coarse adjustments of Offset. For coarse adjustment, remove Bolts from Spreader Bar and loosen Bolts in Tongue. Move entire Tongue to new position and replace Bolts and tighten all Bolts securely. Each hole in the Angling Plate gives about 5" of offset.

NOTICE: Tighten the Tongue Bolts to about 450 ft. lbs. torque (three foot wrench for average man). Loose Tongue Bolts will result in extensive damage to the Tongue and Spreader Bar very rapidly.

TO LEVEL FRONT TO REAR

Attach unit to tractor and raise to full transport height. Shorten Turnbuckle to raise front of unit until the Mainframe is level front to rear or slightly low in the front in full transport.

Lengthing Turnbuckle will compress Springs which increases penetration of rear Disks and will cause rear Gangs to move to the right when disking.

Shortening will decrease penetration of rear gangs and cause the rear Gangs to move to the left.

When disking, the Leveling Spring should be tight, but no tighter than necessary to get proper penetration on rear Disk Gangs.



Operating Instructions

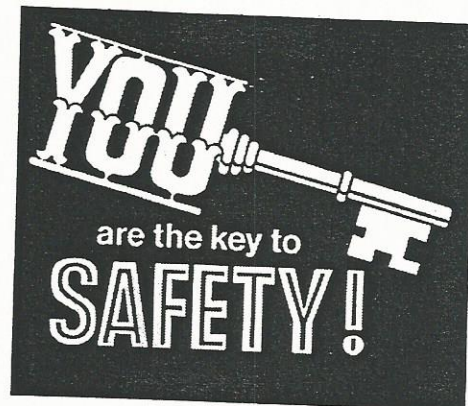
Section 3

GAUGEING:

Lengthen stroke control to reduce maximum depth when gaugeing on wheels.

Normally it is better to reduce angle of cut rather than gaugeing on wheels. If wheels are carrying a very heavy load while plowing (Due to excessive angle of cut), the finished job will show wheel marks along with wasting fuel.

Gaugeing on wheels should be necessary only to set maximum depth of cut desired in the field with soft places that require gaugeing to prevent excessive penetration.





Operating Instructions

Section 3

TRANSPORTING

Never transport unit on Wheels for a long distance without attaching Transport Rod. Lift on Wheels completely, place Rod through Anchor on Frame, and attach Transport Rod to Wheel Carriage with Drilled Rivet and Quick Hitch Pin. Thread 1" Nut on Rod until Rod extends 1/4" through Nut.

CAUTION: Never attempt to lower unit when Rod is in transport position.

CAUTION: Although the Transport Rod is in place, a Hydraulic Cylinder must be installed to prevent the Wheel Carriage from going over center.

AFTER FIRST DAY OF OPERATION

Tighten Disk Gang Axle Nuts to 1,000 ft. lbs. with Wrench provided and six foot Pipe.

CAUTION: Loose Disks will cause failure of Disks, Axles, Bearings, Spacers, and associated parts.

Check all Bolts for tightness.
Check Wheel Bearing adjustment.

EVERY DAY:

Lubricate Wheel Pivot Tube.
Inspect for loose Bolts and broken or worn parts.
Replace broken or worn parts at once to prevent more serious damage.
Inspect for hydraulic leaks and broken or worn base.

EVERY 100 HOURS:

Inspect entire unit carefully.
Lubricate Disk Gang Bearings with #2 Lithium-based grease.

NOTICE: Wipe Fittings and Grease Gun clean before lubricating.

NOTICE: Buy clean grease and keep it clean.

Lubricate and adjust Wheel Bearings.
Oil or grease threaded Adjusting Rods.

NOTE: Over-lubrication will not cause damage. Pump grease in until dirty grease is pushed out of Seals. In very wet conditions, Disk Gang Bearings should be lubricated every 40 hours for maximum life.

AT THE THE BEGINNING AND END OF EACH SEASON:

Inspect and lubricate entire machine.



Lubrication & Maintenance

Section 4

DISK GANG BEARINGS

Lubricate Disk Gang Bearings before operation for first time, every 40 hours of operation in wet or alkaline soils, every 100 hours of operation in average conditions and at the beginning and end of each season with clean, Lithium-based #2 Bearing Grease such as Shell Alvania #2, Gulfcrown #2, Kendall #L-412 and others.

CAUTION: Lubricate Disk Gang Bearings until grease shows between Bearing Washers and Bearing Housing before operating. Buy clean, Lithium-based #2 Grease and keep it clean.

CAUTION: Clean Fitting and Gun before lubrication begins.

NOTE: Overlubrication will not damage Seals.

NOTE: If difficulty is encountered in lubricating Bearings, make certain that Nipple fits properly by bending Grease Gun Tube or using flexible Hose.

WHEEL BEARINGS

Lubricate with a #2 Bearing Grease or the equivalent every 100 hours. There is no danger of overlubrication, so make certain grease comes out around Seals to flush out dirt and dirty grease.

THREADED PARTS

For long life, rust prevention, and ease of adjustment, coat all threaded Rods with grease every 40 hours and at the beginning and end of each season. If Harrow is stored outside, oil these threaded Rods each time the Harrow is to be parked for several days.

WHEEL CARRIAGE PIVOTS

For long life and ease of lifting, lubricate each Wheel Pivot and Cylinder Pivot Pin with #2 or #3 general purpose grease daily.







Lubrication & Maintenance

Section 4

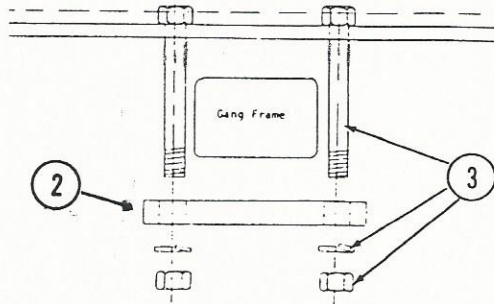
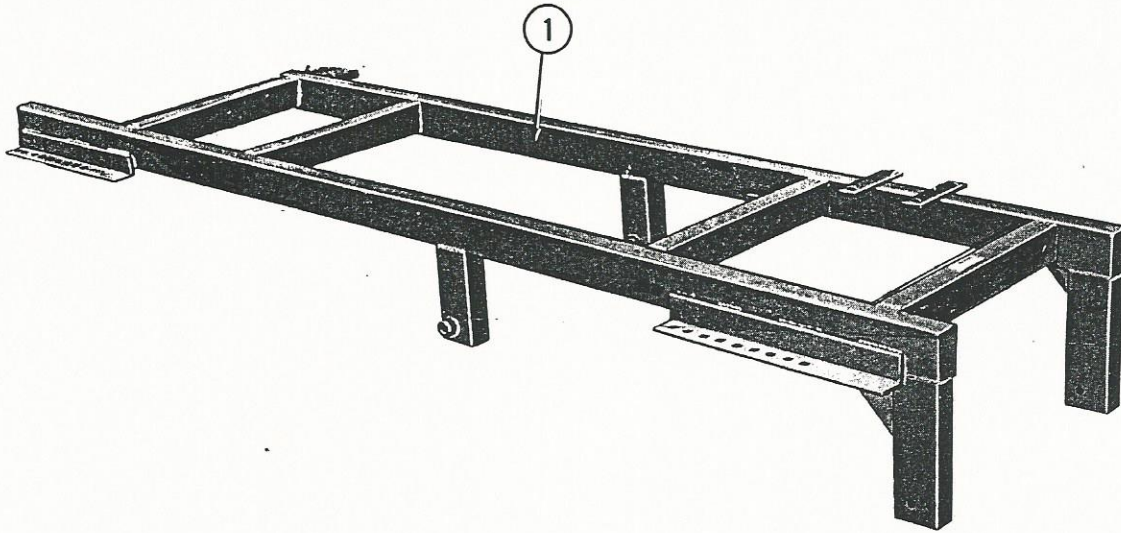
BOLTS AND COTTERS

Tighten all Bolts securely before going to the field. Check Bolts tightness at intervals. Replace any damaged Bolt or Cotter at once to prevent loss or damage to other parts. Tighten fasteners as recommended in chart below, normally. However, Bolts with Locknuts that are not intended to be tightened to the point of binding should be "snugged" only (Clevis Bolt, for example).

RECOMMENDED TORQUE IN FT-LBS (Nm) COARSE AND FINE THREADS			
2 (B)  5 (D)  8 (F) 			
Bolt Diameter	Plain Head	Three Dashes	Six Dashes
1/4	Not used	10 (14)	14 (19)
5/16	Not used	20 (27)	30 (41)
3/8	Not used	35 (47)	50 (68)
7/16	35 (47)	55 (75)	80 (108)
1/2	55 (75)	85 (115)	120 (163)
9/16	75 (102)	130 (178)	175 (237)
5/8	105 (142)	170 (230)	240 (325)
3/4	185 (251)	300 (407)	425 (576)
7/8	160 (217)	445 (603)	685 (929)
1	250 (339)	670 (908)	1030 (1396)
1-1/8	330 (447)	910 (1234)	1460 (1979)
1-1/4	480 (651)	1250 (1695)	2060 (2793)

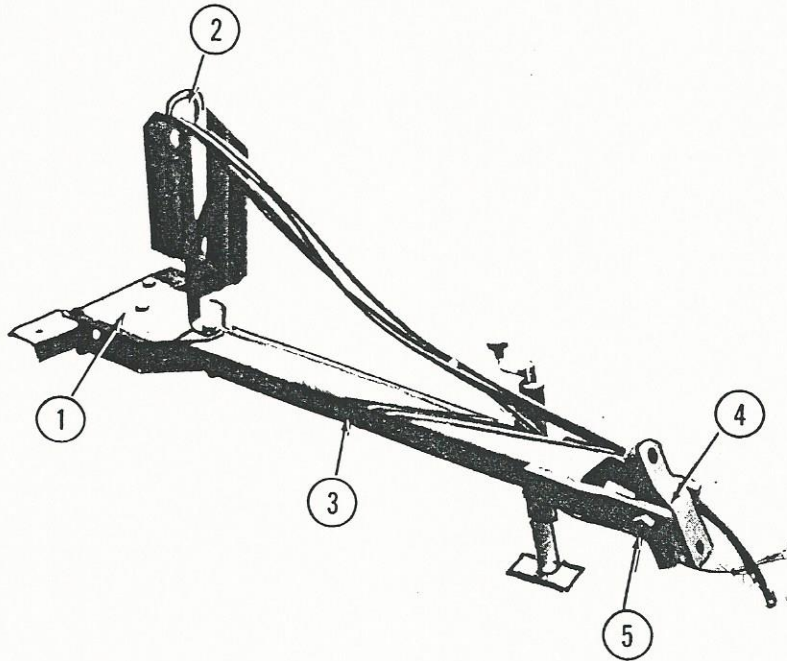
WHENEVER YOU SEE THIS SYMBOL 
 ATTENTION! BECOME ALERT!
 YOUR SAFETY IS INVOLVED!

 WEAR SAFETY GLASSES...
 SEE TOMORROW!



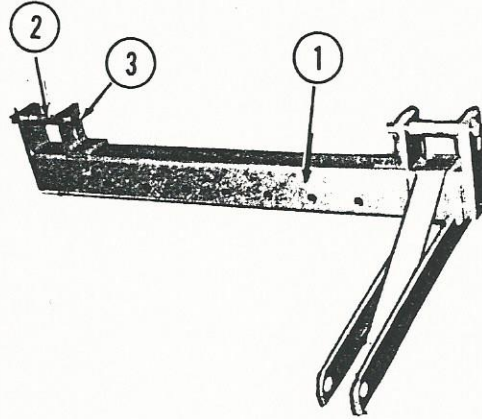
MAINFRAME, AND GANG ANCHORS

REF.	PART NO.	QUANTITY	DESCRIPTION
1	23139	1	Mainframe
2	21072	4	Gang Clamp
3	80181	8	Bolt, 3/4" x 5-1/2"
	80625	8	Nut, 3/4"
	81025	8	Lockwasher, 3/4"



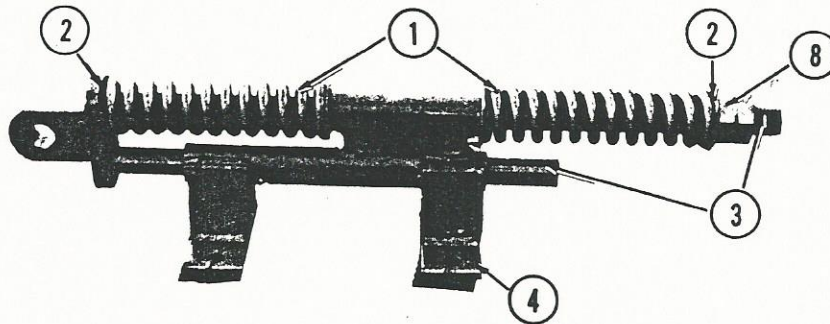
TONGUE WITH CLEVIS AND ATTACHING PLATES

REF.	PART NO.	QUANTITY	DESCRIPTION
1	16242	2	Offsetting Plate
	80196	3	Bolt, 7/8" x 5"
	80199	1	Bolt, 7/8" x 5-1/2" G5
	80645	4	Nut, 7/8"
	81035	4	Lockwasher, 7/8"
2	16834	1	Hose Stand
3	20431	1	Tongue Assembly
4	21034	1	Clevis Assembly
5	21333	1	Bolt Assembly, 1 x 7-1/2"
	80880	1	Locknut, 1"



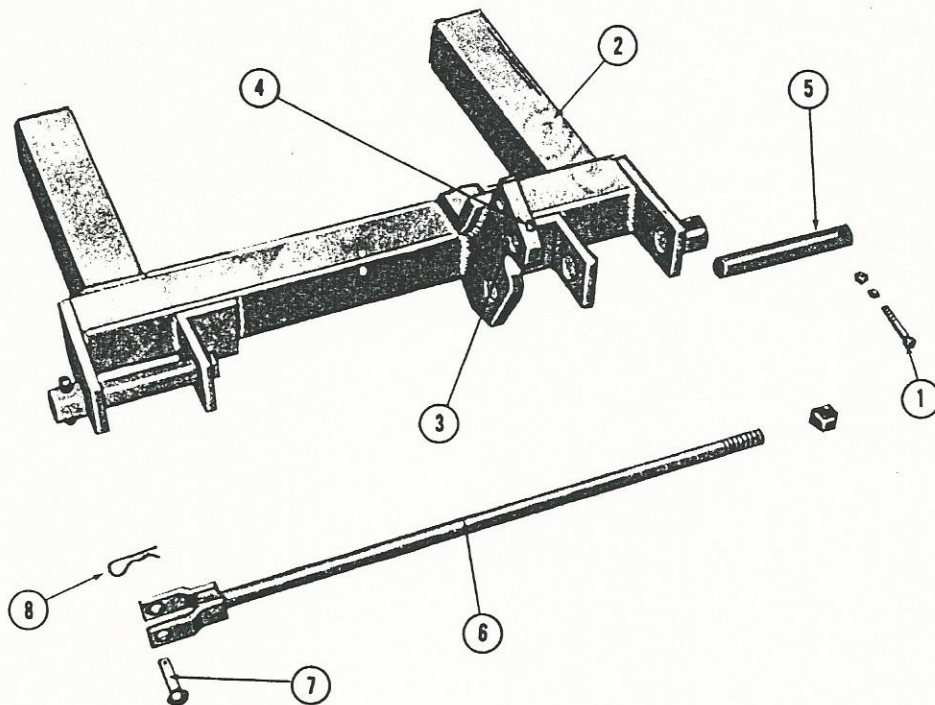
SPREADER BAR

REF.	PART NO.	QUANTITY	DESCRIPTION
1	21505	1	Spreader Bar, Narrow Frm.
2	19637	2	Spreader Bar Pin, Narrow Frm.
3	81415	4	Cotter Pin, 3/8" x 2"



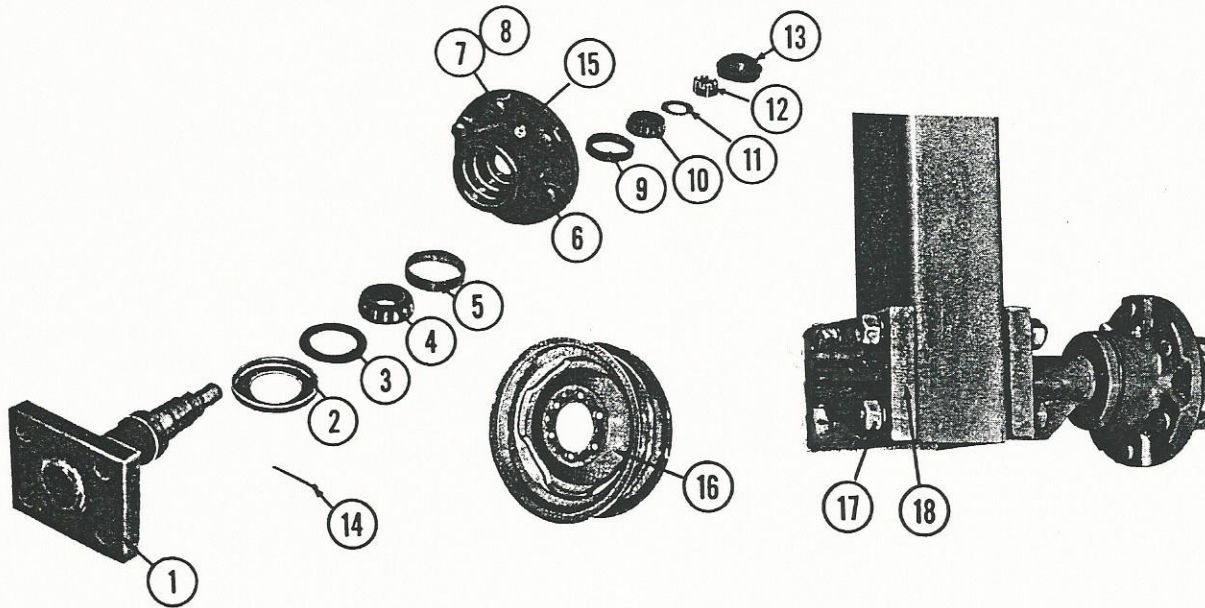
LEVELING SPRING ASSEMBLY

REF.	PART NO.	QUANTITY	DESCRIPTION
1	15729	2	Spring, 1-1/4" Round
2	81245	3	Flat Washer, 1-1/4" SAE
3	22044	1	Spring Rod Assembly
4	22045	1	Support Bracket
5	80133	4	Bolt, 5/8" x 2-1/4" G5
6	80610	4	Nut, 5/8"
7	81010	4	Lockwasher, 5/8"
8	80755	2	Jam Nut, 1-1/4"



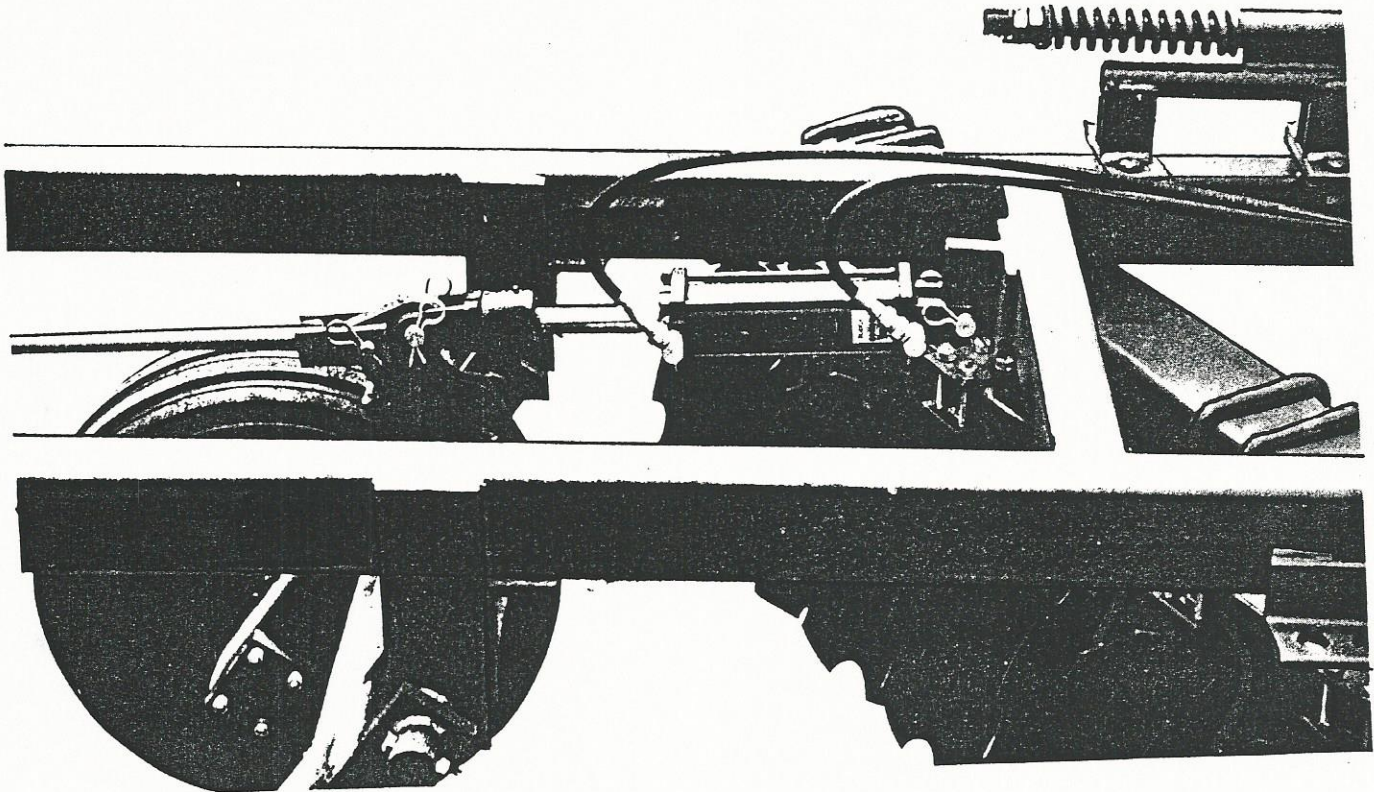
WHEEL CARRIAGE AND TRANSPORT PARTS

REF.	PART NO.	QUANTITY	DESCRIPTION
1	80128	2	Bolt, 1/2 x 3"
	80864	2	Nut, 1/2"
	81000	2	Lockwasher, 1/2"
2	19633	1	Wheel Carriage Assy., NRW.
3	21953	1	Bushing
4	11610	1	Grease Fitting, 1/8" NPT
5	19629	2	Pivot Pin, 1-1/2" x 10-1/4"
6	19642	1	Transport Rod
	80685	1	Nut, 1"
7	16462	1	Drilled Rivet, 3/4" x 2-1/2"
8	12057	1	Quick Hitch Pin, 3/16"



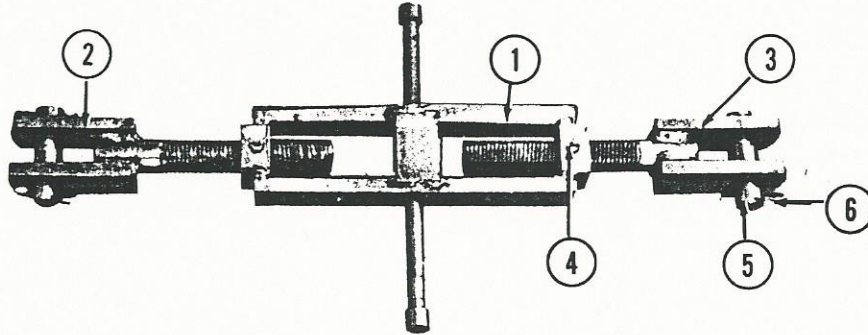
WHEEL, WHEEL AXLE, AND WHEEL HUB PARTS

REF.	PART NO.	QUANTITY	DESCRIPTION
1	19384	2	Wheel Axle
2	19076	2	Flinger
3	19153	2	Triple Lip Seal
4	70045	2	Bearing Cone, (LM48548)
5	70044	2	Bearing Cup, (LM48510)
6	900079	2	Wheel Hub w/ Cups, Bolts. (5 Lug)
7	13198	10	Wheel Bolt
8	15793	10	Wheel Bolt Nut
9	70048	2	Bearing Cup (LM67010)
10	70049	2	Bearing Cone (LM67048)
11	81230	2	Washer, 1"
12	80715	2	Slotted Nut, 1" NPT
13	19075	2	Hub Cap
14	81360	2	Cotter Pin, 3/16" x 1-1/2"
15	11610	2	Grease Fitting, 1/8" NPT
16	15792	2	Wheel, 5 Lug 15 x 6
17	19759	8	Wheel Axle Stud, 1/2" x 7-3/8"
	80590	16	Nut, 1/2"
	81000	16	Lockwasher, 1/2"
18	19056	2	Wheel Axle Stub Plate



HYDRAULICS FOR LIFTING

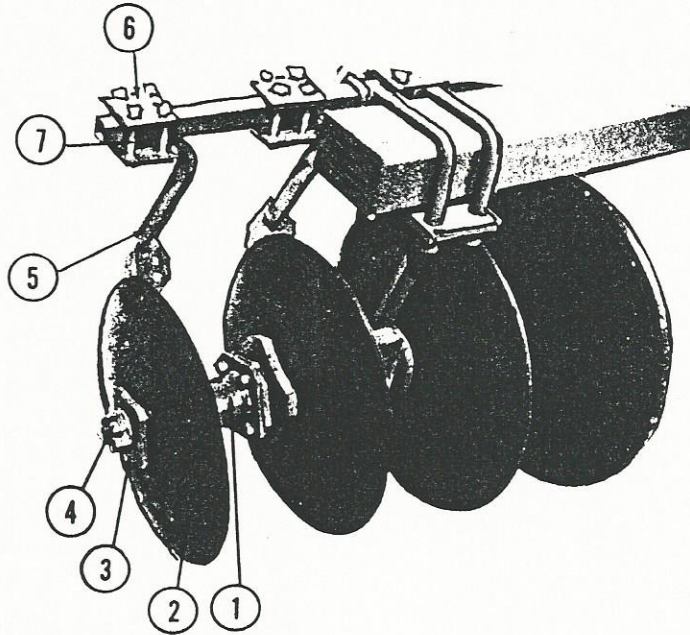
REF.	PART NO.	QUANTITY	DESCRIPTION
1	94112	1	Hose Assembly, 3/8" x 156"
2	94110	1	Hose Assembly, 3/8" x 144"
3	94514	2	Swivel Elbow, 1/2"
4	90005	1	Hydraulic Cylinder w/ SC 3 x 8"
5	95018	2	Clevis Pin w/ Clip



MANUAL LEVELING TURNBUCKLE

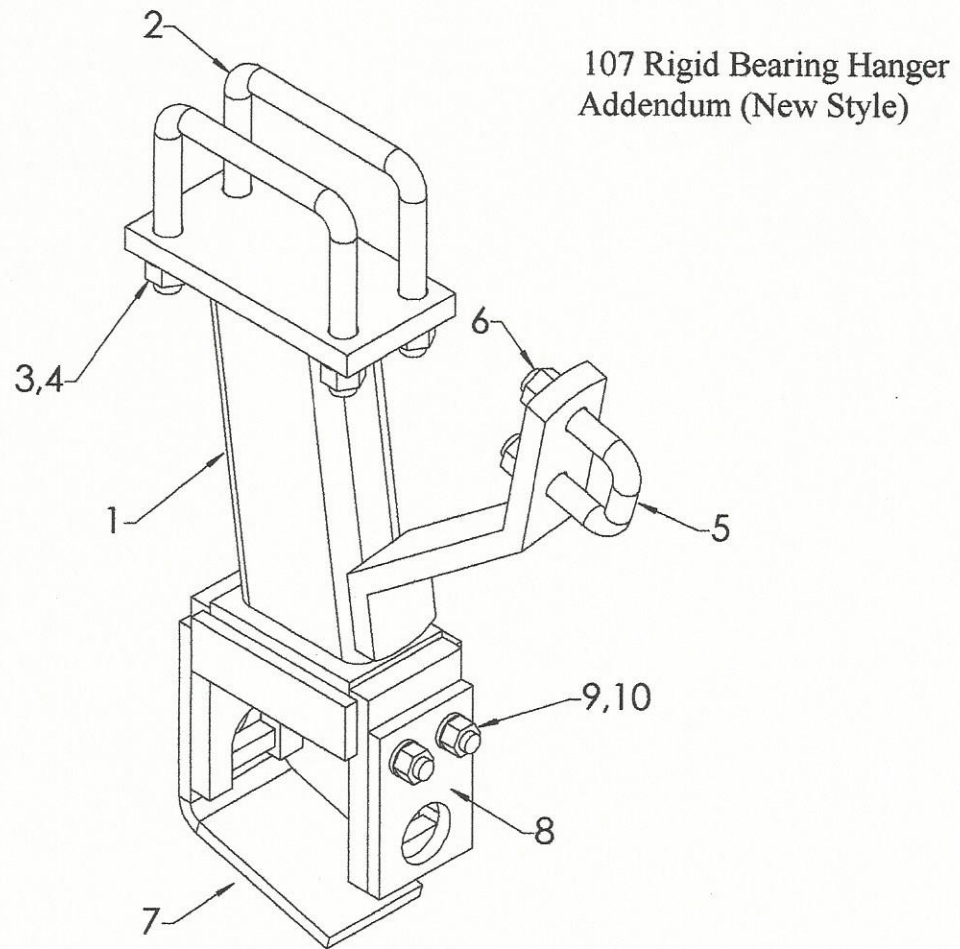
REF.	PART NO.	QUANTITY	DESCRIPTION
1	21884	1	Turnbuckle Body, 12"
2	21889	1	Turnbuckle End, Left Hand Thread
3	21890	1	Turnbuckle End, Right Hand Thread
4	11610	2	Grease Fitting, 1/8" N.P.T.
5	21690	2	Clevis Pin
6	81385	4	Cotter Pin, 1/4" x 1-1/2"





COVER DISK PARTS

REF.	PART NO.	QUANTITY	DESCRIPTION
1	17126	1	Cover Disk Mounting Assembly
	80322	4	Carriage Bolt, 1/2" x 1-1/2"
	80590	4	Nut, 1/2"
	81005	4	Lock Washer, 1/2"
2	15985	1	Cover Disk Blade, 18" Smooth
3	17117	1	Cover Disk End Washer
4	80870	1	Disk Assembly Nut
	81205	1	Washer, 3/4" SAE Flat
5	20700	1	Scraper, Right Rear Cover Disk
6	21844	1	Attaching Plate
7	80335	4	Carriage Bolt, 1/2" x 3-1/2"
	80864	4	Locknut, 1/2"
	81005	4	Lock Washer, 1/2"



Rigid Bearing Hanger

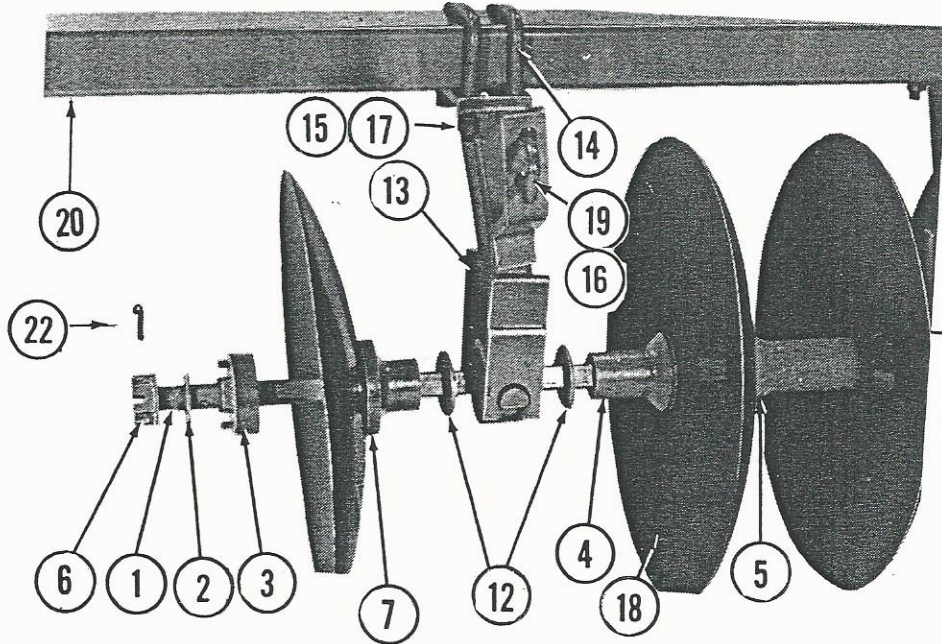
Reference	Part No.	Description
1	23213	Rigid Bearing Hanger, Left (Shown)
	23214	Rigid Bearing Hanger, Right
2	21115	Bearing Hanger U-Bolt
3	81015	5/8" Lockwasher
4	80610	5/8" Hex Nut
5	20676	Scraper Bar Hanger U-Bolt
6	81015	5/8" Lockwasher
	80865	5/8" Lock Nut
7	23216	Wear Plate
8	23217	Rear Plate
9	80321	Carriage Bolt, 1/2 x 1 3/4"
	81005	1/2" Lockwasher
	80590	1/2" Hex Nut



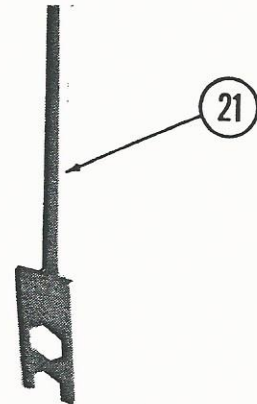
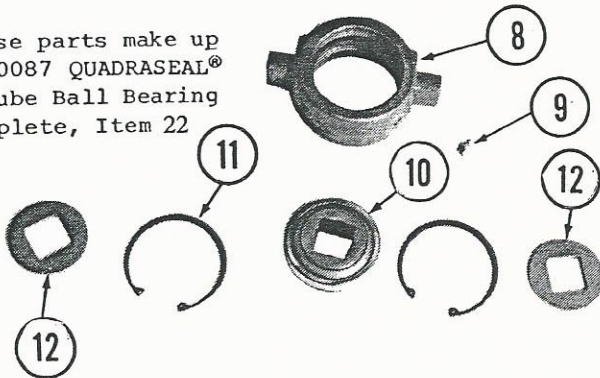
Parts Listing

Section 5

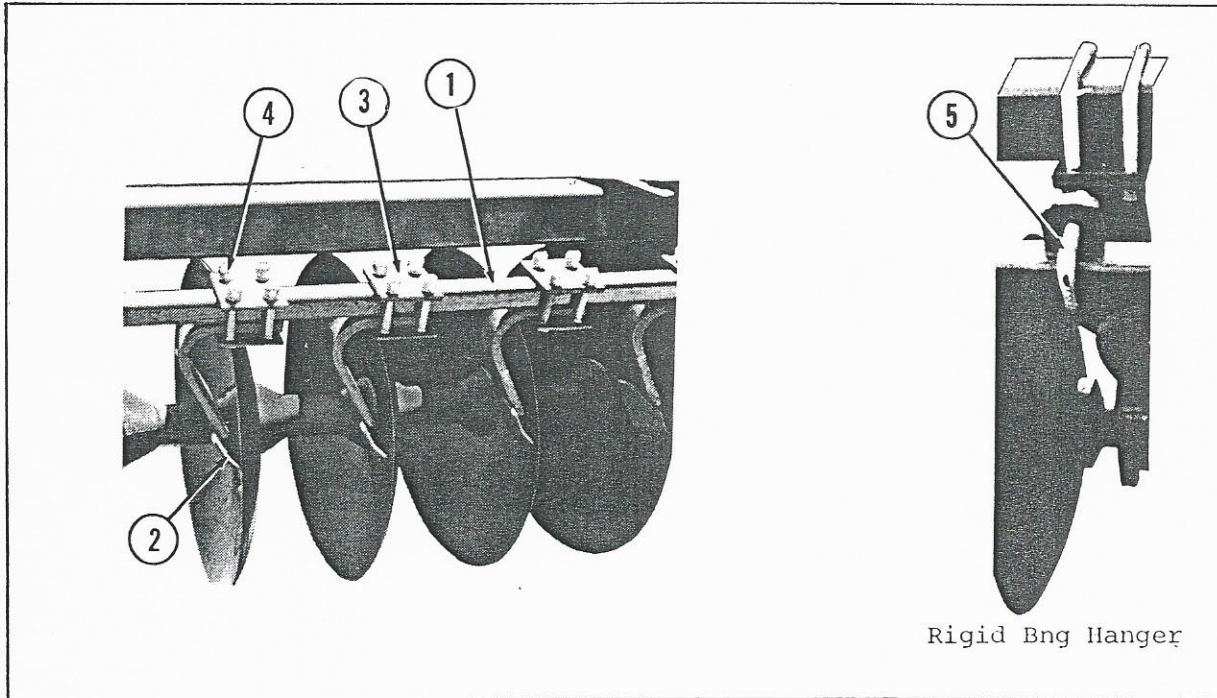
Ref.	Part No.	Number of Discs on Unit				Description
		17	19	21	23	
1	19962				1	5 x 9" Axle Assembly
	19963				2	6 x 9" Axle Assembly
	19968	1				8 x 9" Axle Assembly
	19969		1			9 x 9" Axle Assembly
	21109			1		10 x 9" Axle Assembly
	19974				1	6 x 9" CD Axle Assembly
	19977	1				9 x 9" CD Axle Assembly
	21112		1			10 x 9" CD Axle Assembly
	21113			1		11 x 9" CD Axle Assembly
2	16437	2	2	2	4	Spacer, End Washer
3	19933	2	2	2	4	End Washer
4	19931	6	6	6	8	Convex Half Spacer
5	19934	9	11	13	11	Full Spacer
6	19948	2	2	2	4	Disk Assembly Nut
7	21093	6	6	6	8	Concave Half Spacer
8	20674	6	6	6	8	Bearing Housing
9	11610	6	6	6	8	Grease Fitting
10	70513	6	6	6	8	Relube Ball Bearing, 1 1/4"
11	21104	12	12	12	16	Snap Ring
12	21025	12	12	12	16	Bearing Washer
13	21280	3	3	3	4	Bearing Hanger, Left
	21281	3	3	3	4	Bearing Hanger, Right
14	21115	12	12	12	16	Bearing Hanger U-Bolt
15	80610	24	24	24	32	Hex Nut, 5/8"
16	80865	24	24	24	32	Lock Nut, 5/8"
17	81015	24	24	24	32	Lockwasher, 5/8"
18	21158	As Required				Disc, 24" C/O x 1.25" Sq
	19917					Disc, 22" C/O x 1.25" Sq
	19919					Disc, 20" C/O x 1.25" Sq
	21159					Disc, 24" SM x 1.25" Sq
	19916					Disc, 22" SM x 1.25" Sq
	19918					Disc, 20" SM x 1.25" Sq
19	20676	6	6	6	8	Scraper Bar Hanger U-Bolt
20	21302	1				Gang Frame, 61"
	21307	1	1			Gang Frame, 70"
	21306		1	1		Gang Frame, 81"
	21305			1	1	Gang Frame, 90"
	21304				1	Gang Frame, 99"
21	21310	1	1	1	1	Disk Assembly Wrench
	12058	1	1	1	1	Lock Clip
22	900087	6	6	6	8	Bearing Package Complete



These parts make up
#900087 QUADRASEAL®
Relube Ball Bearing
complete, Item 22

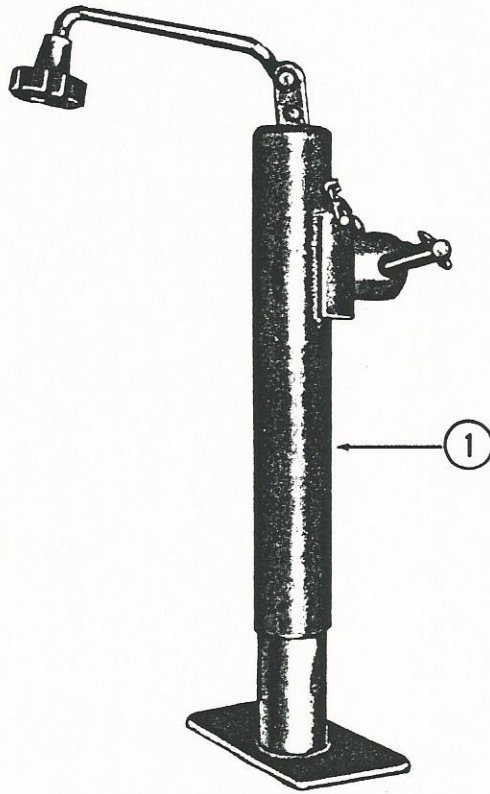


*Make every day a
Holiday from Accidents*



SCRAPERS AND SCRAPER BARS

Reference	Part No.	No. of Discs on Unit				Description
		17	19	21	23	
1	20686				1	Scraper Bar, 1.50 x 43.00"
	20729				1	Scraper Bar, 1.50 x 47.00"
	20730				1	Scraper Bar, 1.50 x 54.50"
	20731				1	Scraper Bar, 1.50 x 61.00"
	20732	1	1			Scraper Bar, 1.50 x 69.50"
	20735	1		1		Scraper Bar, 1.50 x 83.00"
	20736		1			Scraper Bar, 1.50 x 88.00"
	20738			1		Scraper Bar, 1.50 x 100.00"
	2	20689	7	8	9	10
20690		8	9	10	11	Left Scraper
3	21844	15	17	19	21	Top Plate
4	80335	60	68	76	84	Carriage Bolt, 1/2 x 3 1/2"
	81005	60	68	76	84	Lockwasher, 1/2"
	80590	60	68	76	84	Hex Nut, 1/2"
5	20676	6	6	6	6	U-Bolt, 5/8"
	80865	12	12	12	12	Lock Nut, 5/8"



JACK PARTS

REF	PART NO	REQ'D	DESCRIPTION
1	19753	1	2000 lb. Tongue Jack



To the Owner/Operator/Dealer

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START!! Read the safety messages on the implement and shown in your manual. Observe the rules of safety and common sense!

! CAUTION

Failure to follow safe operating practices can cause tractors to rear up which can cause equipment damage and bodily injury.

! WARNING

Failure of hydraulic components or accidental operation of hydraulic controls can allow implement to fall and cause serious bodily injury or death!

! WARNING

Failure of components, accidental operation of controls, overturning, or contacting a power line or other obstruction can cause property damage, serious bodily injury, or even death!

! CAUTION

Failure to follow safe operating practices can cause wings to fall suddenly with great force causing serious property damage, bodily injury, or even death.

