

ATHENS

OPERATOR'S MANUAL

MODEL 127/167
OFFSET
DISK HARROW

Table of Contents

SECTION	DESCRIPTION	PAGE NUMBER
Section 1	Safety Material	1 - 4
	General Information	1 - 3
	Safety Sign Locations	4
Section 2	Assembly	5 - 23
	Main Frame	5
	Wheel Carriage	6
	Wheel Hubs, Wheels, & Tires	6,7
	Spreader Bar & Tongue	8
	Hydraulic Leveling Parts	9,10
	Hydraulic Lifting Cylinder	11
	Hydraulic Lifting Hoses	11,12
	Mechanical Transport	12
	Gang Frames	13,14
	Disk Gangs, Rigid	15,16
	Disk Gangs, Spring	17,18
	Disk Gang Location, 127	19
	Disk Gang Location, 167	20
	Exported Units & Re-assembly	22
	Cover Disc	23
Section 3	Operation	24 - 25
	Operating	24
	Obtaining Best Performance	25
Section 4	Lubrication & Maintenance	26 - 31
	Bolts & Cotters	26
	Disk Gang & Gang Bearings	27
	Wheel Bearings, Turnbuckle, & Threaded Parts	28
	Self Leveling Bundle	29
	Ram Anchor & Wheel Carriage Pivot Bushings	30
	Hydraulics	31
Section 5	Parts Listing	32 - 48
	Table of Contents	32

All farm implements 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 installed and attached to minimize the chance of accidents during operation and transport.



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




THIS SYMBOL MEANS: ATTENTION! – BECOME ALERT! – YOUR SAFETY IS INVOLVED!



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 of implement before activating any controls that may cause movement of implement, hydraulics, or any components.
4. Operate with extreme 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/lights, make certain that SMV emblem is clearly visible, install mechanical transport devices, and install safety chain if required by state law. The towing vehicle *must weigh more* than the implement.
6. Maximum transport speed 20 MPH.

Read and understand your Operator's Manual !!!

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



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 and/or block securely in place when working on implement in the raised position or transporting.

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WARNING



HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

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

SW700 ATHENS PLOW CO., INC.

1. Relieve pressure on system before repairing or adjusting or disconnecting.
2. Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
3. Keep all components in good repair.

Read and understand your Operator's Manual !!!



WARNING: To Prevent Serious Injury or Death:

1. Avoid unsafe operation or maintenance.
2. Do not operate or work on this machine without reading and understanding the operator's manual.
3. If manual is lost, contact your nearest dealer or the dealer in which you purchased your "Athens" Disc Harrow from for a new manual.



WARNING: To Avoid Injury or Machine Damage:

1. When servicing machine use proper tools and equipment.
2. Refer to operations manual for instructions.

In addition to the design and configuration of this "Athens" Disc Harrow, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent on the awareness, concern, and proper training of the person or persons involved in the assembly/set-up, transport, operation, storage, and maintenance of this "Athens" Implement. Refer to and become knowledgeable with the Safety Signs/Messages and the operation instructions in each of the appropriate sections of this manual. Pay extra attention to the Safety Signs attached to the "Athens" Disc Harrow.

- **REMEMBER:** If any of these Safety Signs are unreadable or missing during any stage of ownership, contact your local dealer for replacements. The location of all Safety Signs/Decals is shown on page 4 in this manual.
- **Listed on the following page are the locations of the Safety Signs!**

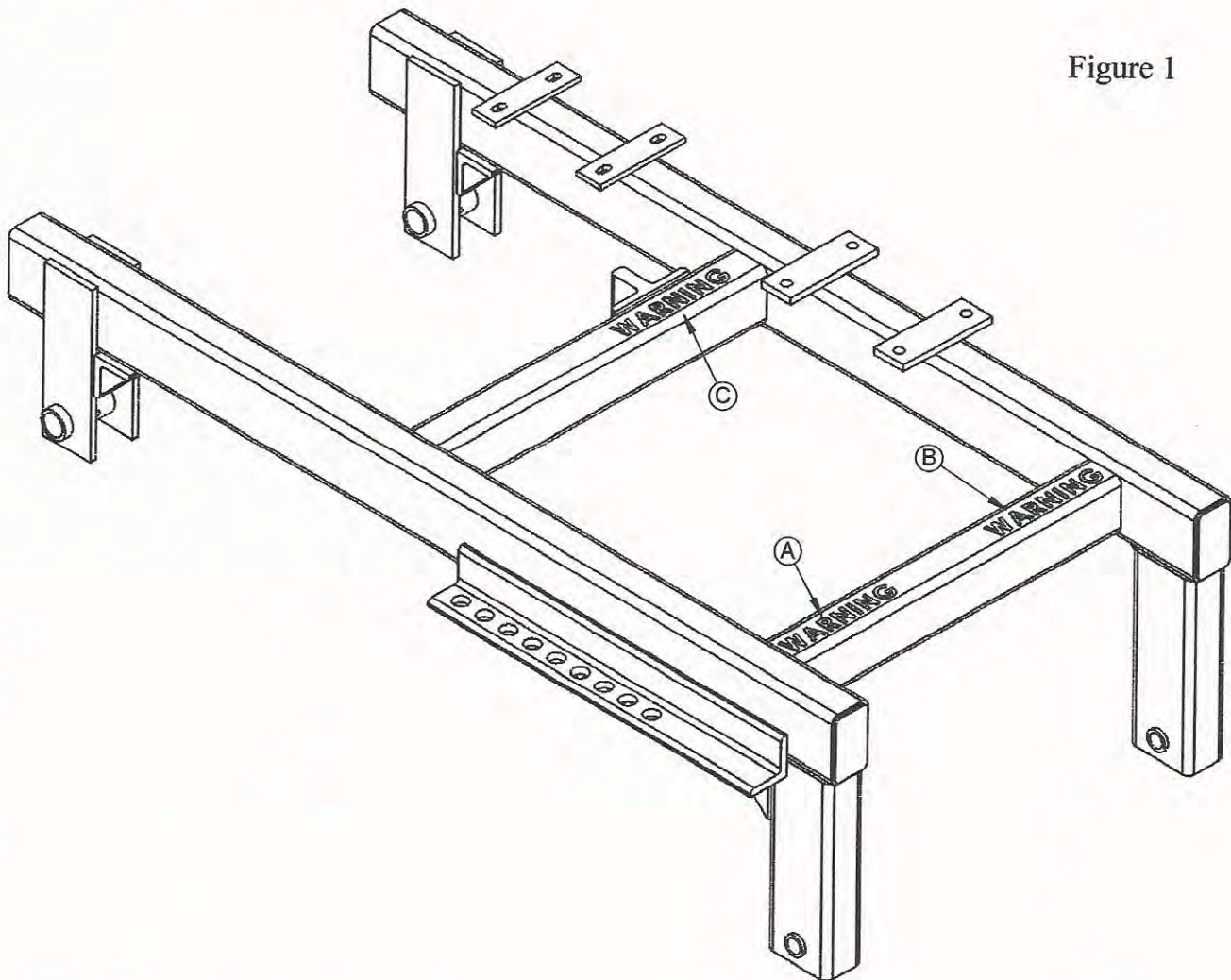
Read and understand your Operator's Manual !!!



SAFETY SIGN LOCATIONS

The types of Safety Signs and locations on the *ATHENS 127/167* are shown below in Figure 1. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

Figure 1



- A. Refer to Page 1 for details and the listing of rules referencing Safety Sign A.
- B. Refer to Page 2 for details and the listing of rules referencing Safety Sign B.
- C. Refer to Page 2 for details and the listing of rules referencing Safety Sign C.

For general information and identification, the *ATHENS 127* and *167* share the same features and all of the same parts except for Disc Gang Components. The Model *127* has 24-inch diameter discs and 9½ inch spacing. The Model *167* has 26-inch diameter discs and 10½ inch spacing.

Narrow Main Frame

The 17 – 23 blade *ATHENS 127* and the 17 – 21 blade *ATHENS 167* share the same narrow main frame, wheel carriage, five-lug wheel hubs, spreader bar, and tongue. The only differences are the diameter of the discs and the disc spacing as stated above.

Wide Main Frame

The 25 – 33 blade *ATHENS 127* and the 23 – 29 blade *ATHENS 167* share the same wide main frame, wheel carriage, six-lug wheel hubs, spreader bar, and tongue. The only differences are the diameter of the discs and the disc spacing as stated above.

A) Main Frame (Refer to Figure 2)

- 1) The Main Frame (1) for the *ATHENS 127/167* consists of one large welded assembly. The structure of the Main Frame is extremely heavy and such heavy parts can pinch, sever, mash the extremities, or even cause death in a serious accident.



WARNING: Be very careful when handling, working on or around, or adjusting this and other such machinery. **DO NOT USE FINGERS FOR ALIGNING HOLES!** Block the Frame and other parts securely and safely in place. Always have jacks or blocks underneath any raised component(s) and never use any type of hoist by itself.

B) To Attach the Wheel Carriage to the Main Frame (Refer to Figure 2)

- 1) Position the Wheel Carriage (1) with the Ram Anchor up and aligned with the Cylinder Anchor welded on the left side of the Main Frame. Attach the Wheel Carriage to the Wheel Carriage Pivots (2) on the Main Frame with two Wheel Carriage Pivot Pins (1½ x 10¼"). Insert the ½ x 3" Hex Bolts (3), ½" Lock Washers, and ½" Hex Nuts. Tighten all hex nuts securely.

C) To Attach Wheel Hubs, Wheels, and Tires (Refer to Figures 2 & 3)

- 1) Single Wheels (Standard Equipment)
Attach one Wheel Hub Assembly (4) to the outside of each Wheel Carriage Drop-Leg with four ½ x 7 ¾" stud bolts, ½" Lock Washers, ½" Hex Nuts, and one spacer plate (5) on the inside of each Wheel Carriage Drop-Leg.

C) To Attach Wheel Hubs, Wheels, and Tires continued...(Refer to Figures 2 & 3)

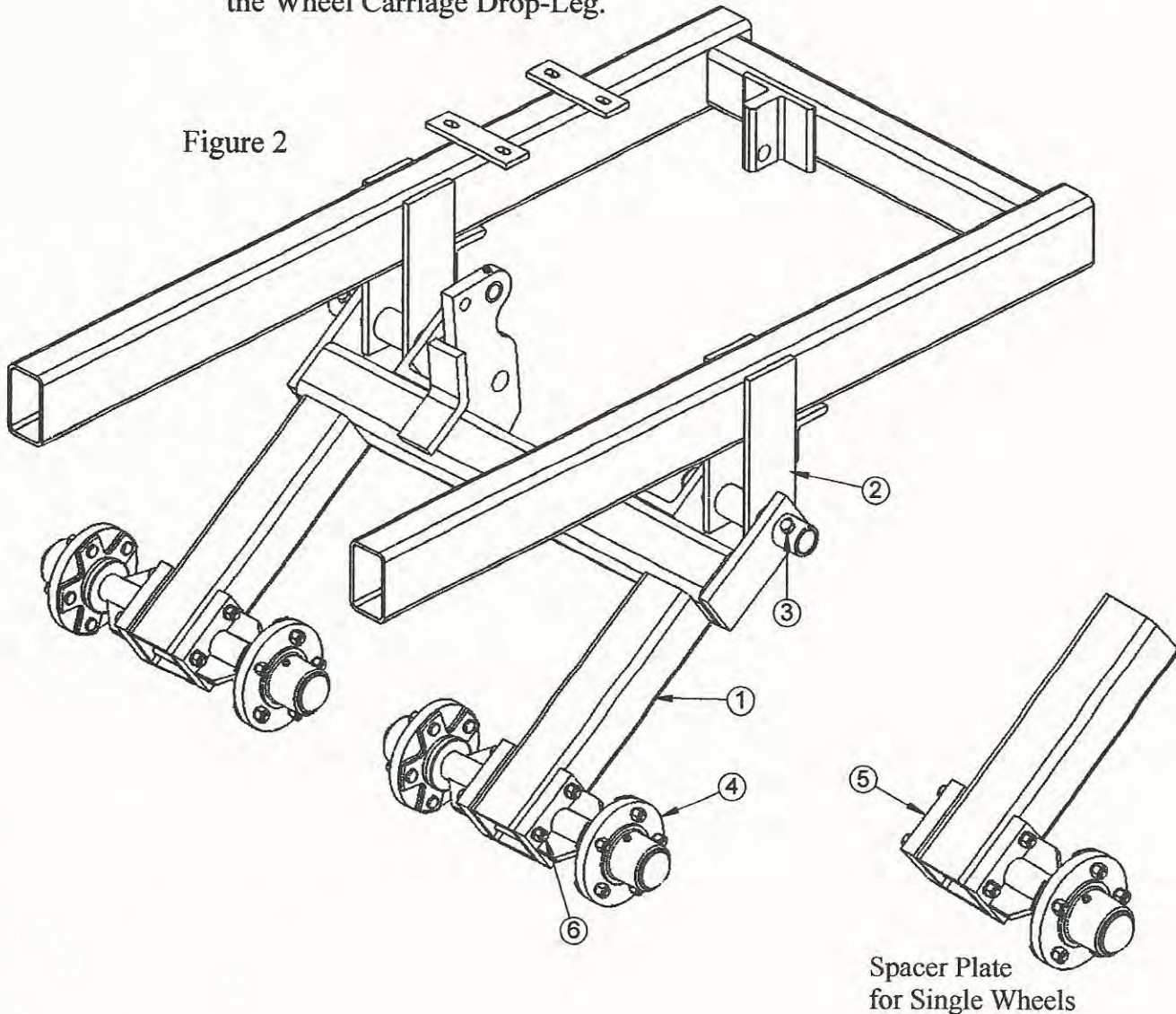
1) Single Wheels (Standard Equipment) continued...

Tighten hex nuts in a diagonal sequence to keep the wheel axle perpendicular to the Wheel Carriage Drop-Leg.

Dual Wheels (Extra Equipment)

Attach one Wheel Hub Assembly (4) to the outside of each Wheel Carriage Drop-Leg with four $\frac{1}{2} \times 7 \frac{3}{8}$ " stud bolts, $\frac{1}{2}$ " Lock Washers, $\frac{1}{2}$ " Hex Nuts and a second Wheel Hub Assembly on the inside of each Wheel Carriage Drop-Leg. Tighten hex nuts in a diagonal sequence to keep the wheel axle perpendicular to the Wheel Carriage Drop-Leg.

Figure 2



C) To Attach Wheel Hubs, Wheels, and Tires continued... (Refer to Figure 2 & 3)

Note: Tires are not furnished.

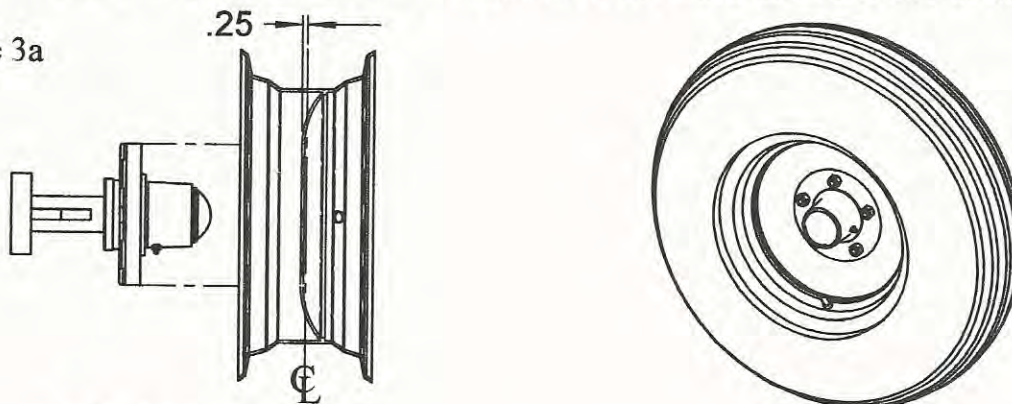
Use tires of proper capacity to handle loads and to provide gauging as needed. Two 9.5L x 15 six-ply tires are adequate to carry any 127 or 167. However, Dual Wheels are recommended in soft ground for floatation and with any 127 or 167 Wide Frame Unit. The 127 wide frame starts with the 25 blade unit and the 167 wide frame starts with the 23 blade unit.

2) Mounting Wheels and Tires to Wheel Carriage (Refer to Figure 3a & 3b)

Narrow Main Frame

Mount tires (9.5L x 15") on 5-Lug Wheels, and mount Wheels to the 5-Lug Wheel Hubs with Wheel Lug Bolts and Lug Nuts. When attaching the Hub, turn Rim as shown so that the Hub does not reach the centerline of the Rim.

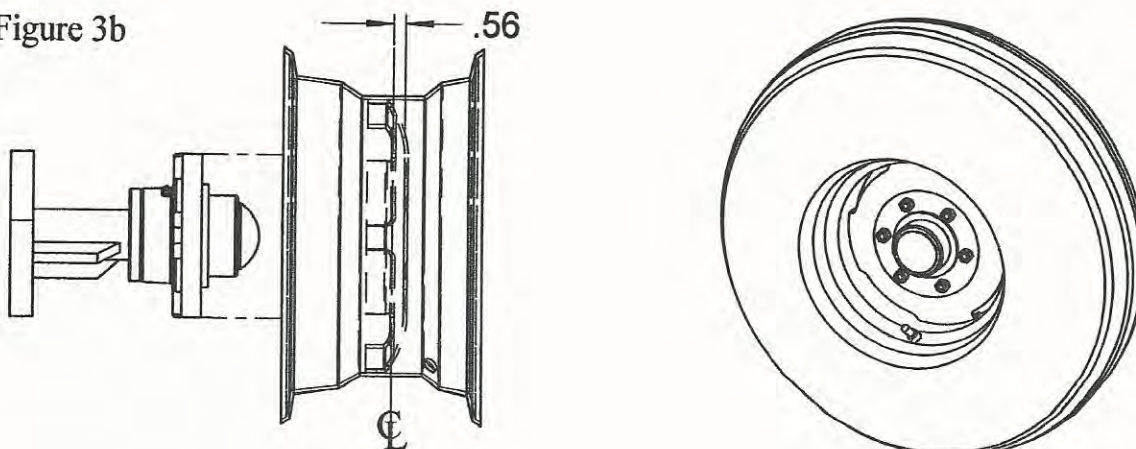
Figure 3a



Wide Main Frame

Mount tires (11L x 15") on 6-Lug Wheels, and mount Wheels to the 6-Lug Wheel Hubs with Wheel Lug Bolts and Lug Nuts. When attaching the Hub, turn Rim as shown so that the Hub is inset 0.56" past the centerline of the Rim.

Figure 3b



D) To Attach Spreader Bar (Refer to Figure 4)

- 1) Attach the Spreader Bar (1) to the Main Frame with two Spreader Bar Pins (2) in the position shown. Insert and spread all Cotter Pins (3) securely.

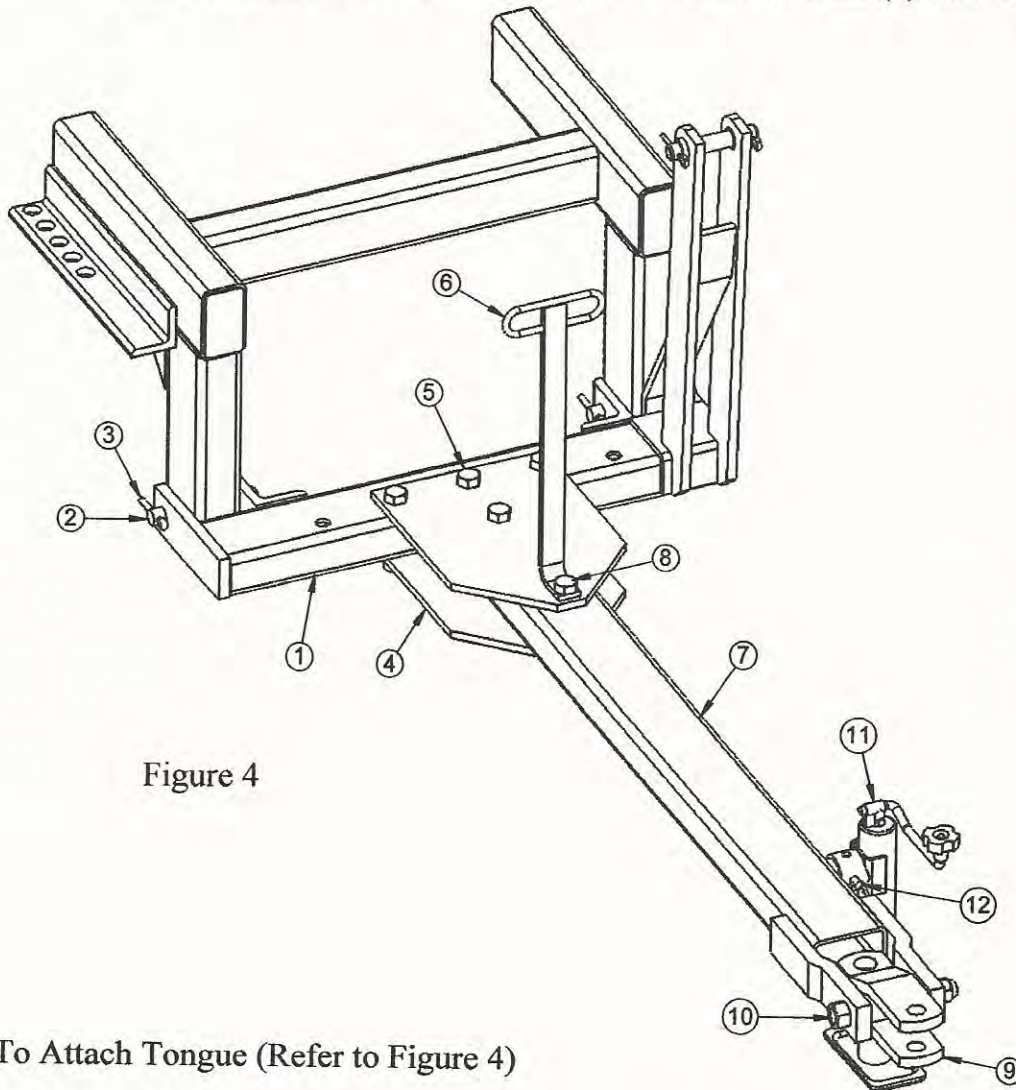


Figure 4

E) To Attach Tongue (Refer to Figure 4)

- 1) Place the Tongue Plates (4) over the Spreader Bar (1), aligning the Tongue in the center of the Spreader Bar, and insert four $\frac{7}{8}$ x 5" Hex Bolts (5), securing them with $\frac{7}{8}$ " Lock Washers and $\frac{7}{8}$ " Hex Nuts.

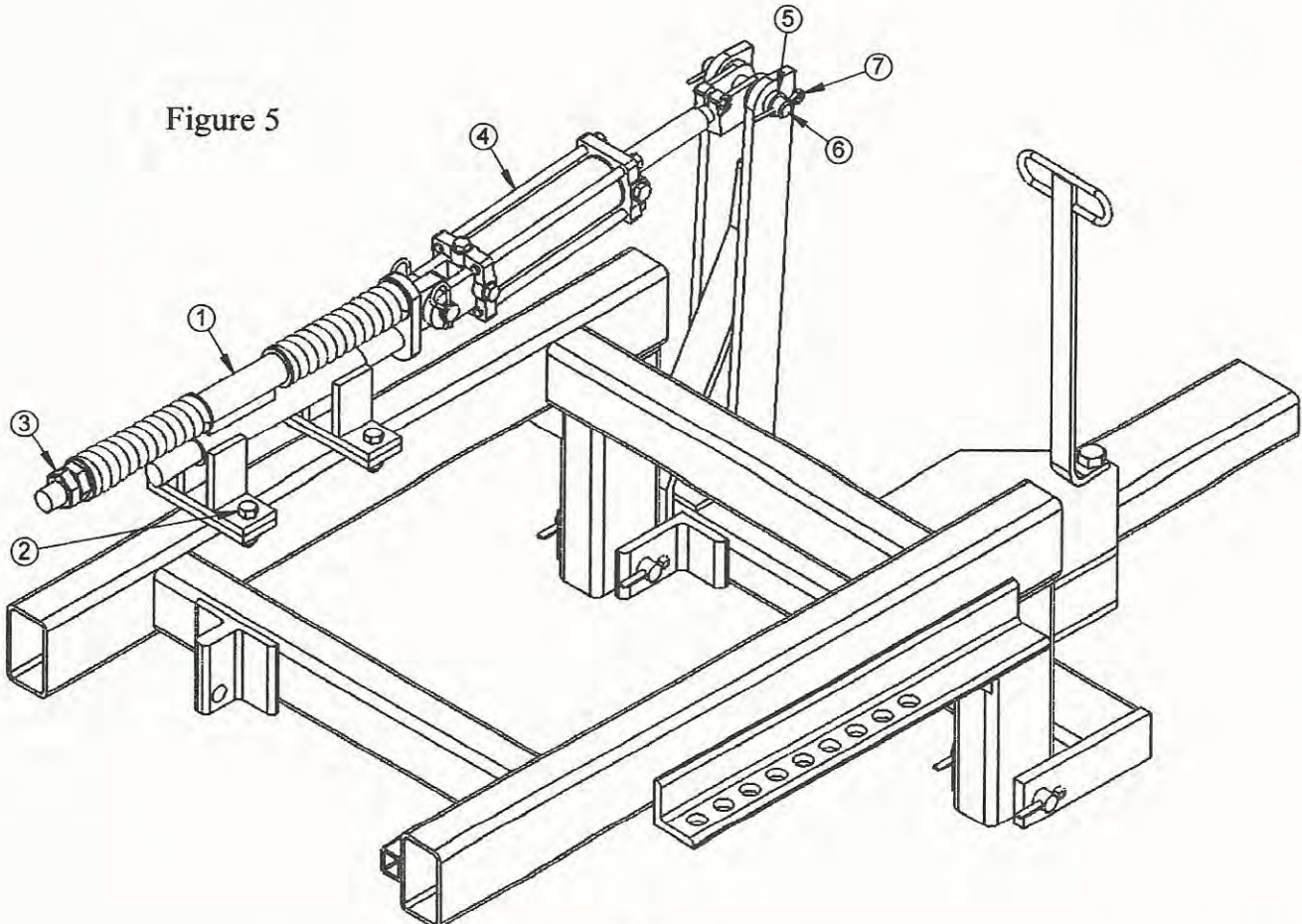
Attach the Hose Stand (6) to the Tongue (7) with the $\frac{7}{8}$ x 5 1/2" Hex Bolt (8), $\frac{7}{8}$ " Lockwasher, and a $\frac{7}{8}$ " Hex Nut. Secure the Clevis (9) to the Tongue with the 1 x 7 3/8" Clevis Bolt (10) and a 1" Lock Nut.

Insert the Tongue Jack (11) into the Jack Tube Bushing as shown. Secure with the Ball Spring Pin (12) supplied with the Jack.

F) To Attach Hydraulic Leveling Parts (Refer to Figure 5)

- 1) Attach Leveling Rod Assembly (1) to the Main Frame with four $\frac{5}{8}$ x 2" Hex Bolts (2), $\frac{5}{8}$ " Lock Washers, and $\frac{5}{8}$ " Hex Nuts. Tighten securely. Tighten the $1\frac{1}{4}$ " Jam Nuts (3) just enough to prevent excessive bounce when transporting.
 - 2) Connect the butt end of the 3 x 8" Hydraulic Leveling Cylinder (4) to the lug end on the Leveling Rod Assembly with a Cylinder Pin and two Hair Pin Clips. Next, insert the Connex Cylinder Pivot Bushings (5) in each pivot arm of the Spreader Bar, making sure to align them flush with the insides of the pivot arms. Install the rod end of the cylinder to the pivot arms on the Spreader Bar with the 1 x 6" Pin (6) provided. Insert and spread all cotters (7) to secure.
- **Note:** If a Manual Leveling Turnbuckle is ordered it will assemble in the same mounting holes as the Hydraulic Cylinder. See "Operation Section" for proper adjustment.

Figure 5



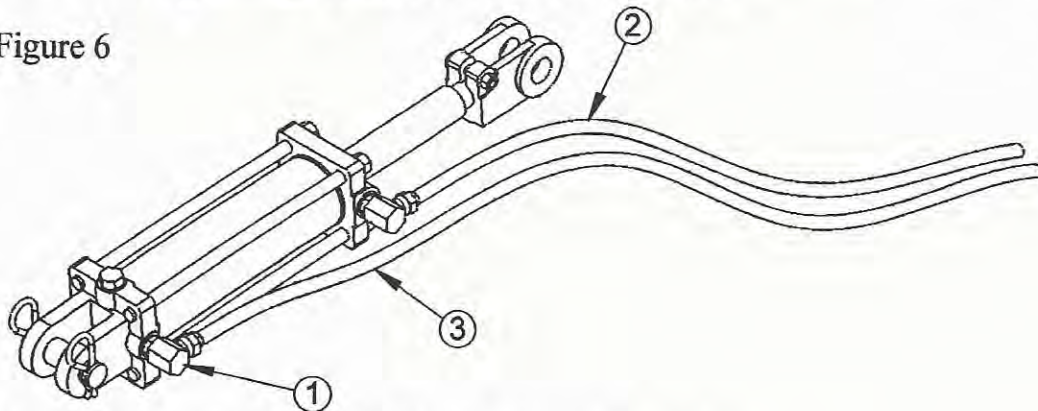
G) To Attach Hydraulic Leveling Hoses (Refer to Figure 6)

1) To Attach Fittings to Cylinder

Install a $\frac{3}{8}$ " NPT 90° Swivel Elbow (1) into each cylinder port positioning them toward the tractor as shown in Figure 6.

- **Note:** Do Not Use Thread Tape. Elbows are complete O-Rings. Thread Tape shreds causing damage to the hydraulic components.

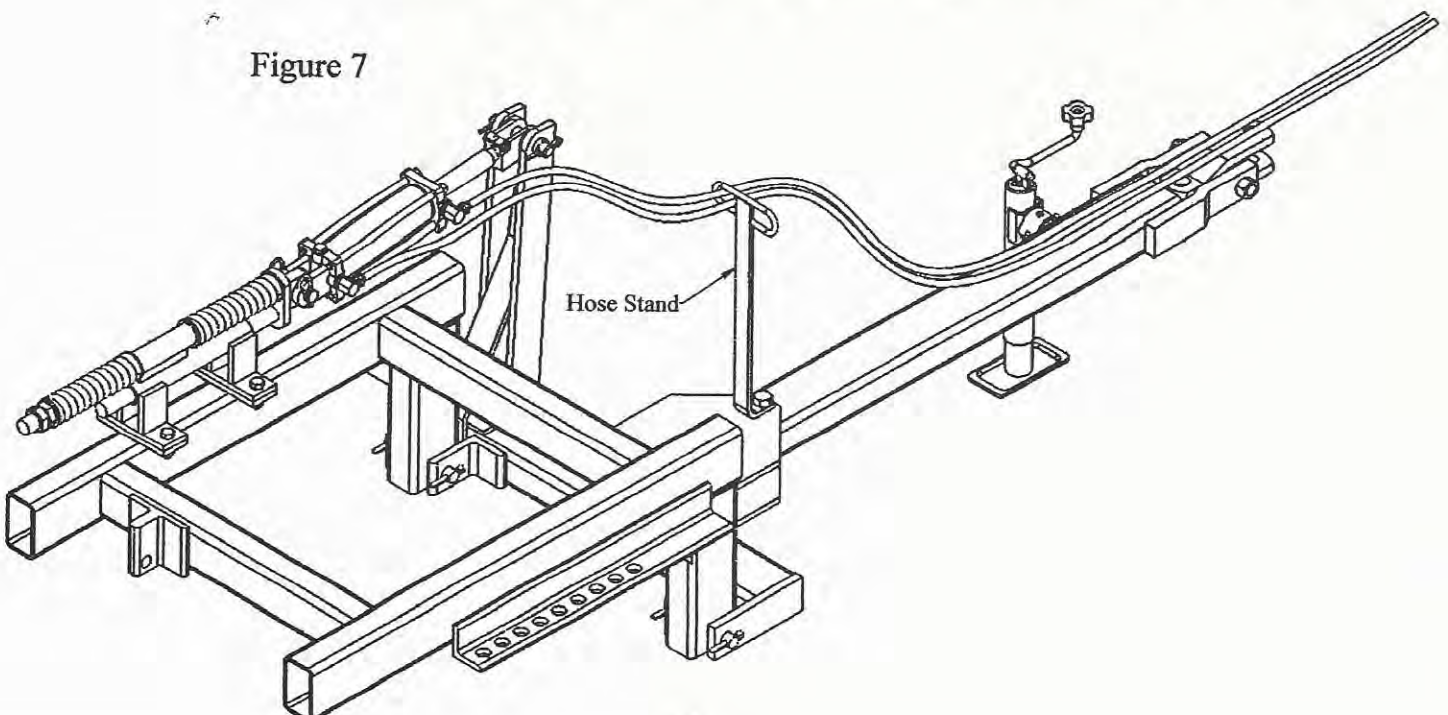
Figure 6



2) To Attach Leveling Hoses (Refer to Figures 6 & 7)

First, connect the 108" Hose (2) securely to the 90° Swivel Elbow on the clevis end of the cylinder. Next, attach the 120" Hose (3) to the 90° Swivel Elbow on the butt end of the cylinder. Finally, insert the hoses through the Hose Stand Guide Loop as shown in Figure 7 below. Attach two hydraulic couplers (not provided) to the $\frac{3}{8}$ " NPT threads on the hoses. Tighten all fittings securely.

Figure 7



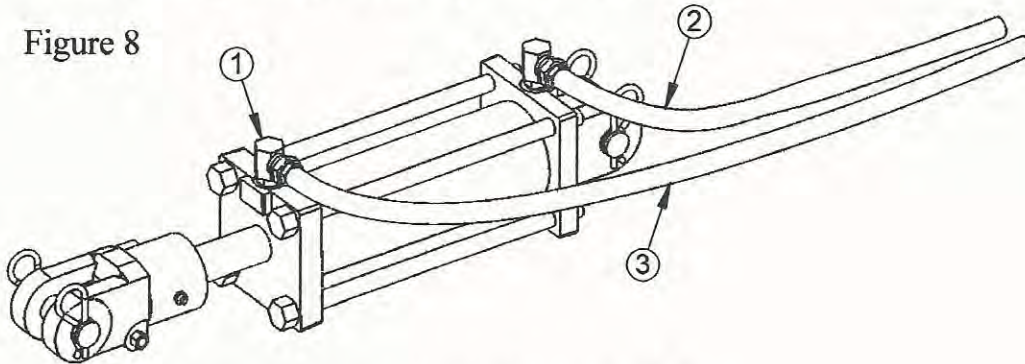
H) To Attach Hydraulic Lifting Hoses (Refer to Figure 8)

1) To Attach Fittings to Cylinder

Install a ½" NPT 90° Swivel Elbow (1) into each cylinder port.

- **Note:** Do Not Use Thread Tape. Elbows are complete O-Rings. Thread Tape shreds causing damage to the hydraulic components.

Figure 8



2) To Attach Lifting Hoses (Refer to Figures 8 & 9)

Narrow Main Frame: SHOWN

First, connect the 144" Hose (2) securely to the 90° Swivel Elbow to the butt end of the cylinder. Next, attach the 156" Hose (3) to the 90° Swivel Elbow to the clevis end of the cylinder. Finally, insert the hoses through the right side of the Hose Stand as shown in Figure 9. Attach two hydraulic couplers (not provided) to the ½" NPT threads on the hoses. Tighten all fittings securely.

Wide Main Frame

All connections are the same as above except hose lengths. A 156" Hose (2) connects to the butt end of the cylinder and a 168" Hose (3) connects to the clevis end of the cylinder.



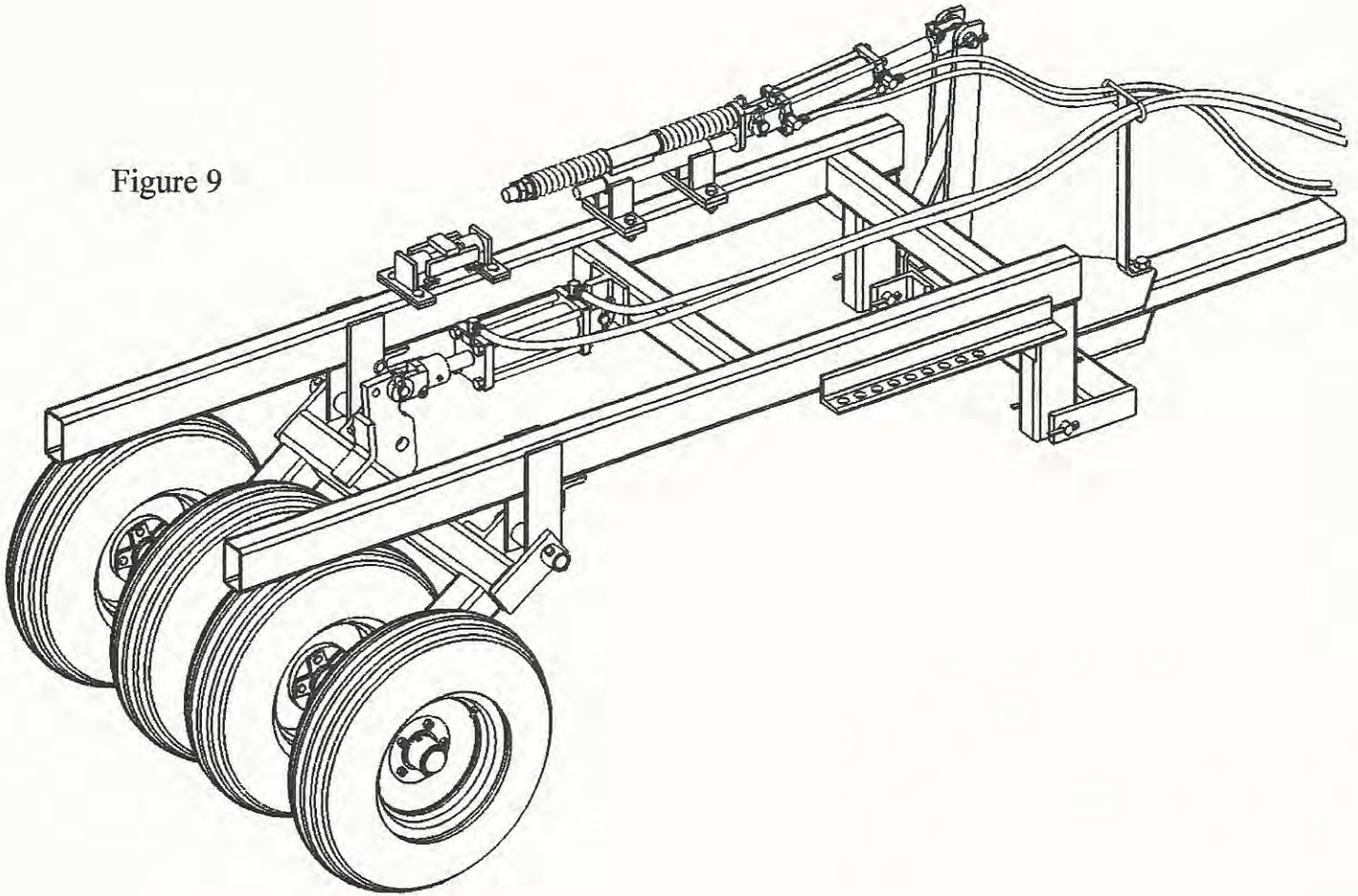
WARNING: Do not actuate hydraulics until everyone is cleared from the area and until all components assembled thus far are securely tightened and lubricated.

With the Tractor idling, lift and lower the unit slowly and carefully after making certain everyone is clear and that all parts turn freely. If any leaks occur tighten the fittings securely.



WARNING: Do not check for leaks with your hands. High pressure oil can penetrate skin and cause serious infection and/or death.

Figure 9



I) To Attach Mechanical Transport Parts
(Refer to Figure 10)

- 1) Attach the Transport Bracket (1) to the transport anchor plates welded on the Main Frame with $\frac{1}{2} \times 1 \frac{1}{2}$ " Carriage Bolts, $\frac{1}{2}$ " Lock Washers, and $\frac{1}{2}$ " Hex Nuts (2). Next, place the Mechanical Transport (3) on top of the Transport Bracket. Finally, insert the two Transport Pins (4) and Cotter Pins (5) to secure.

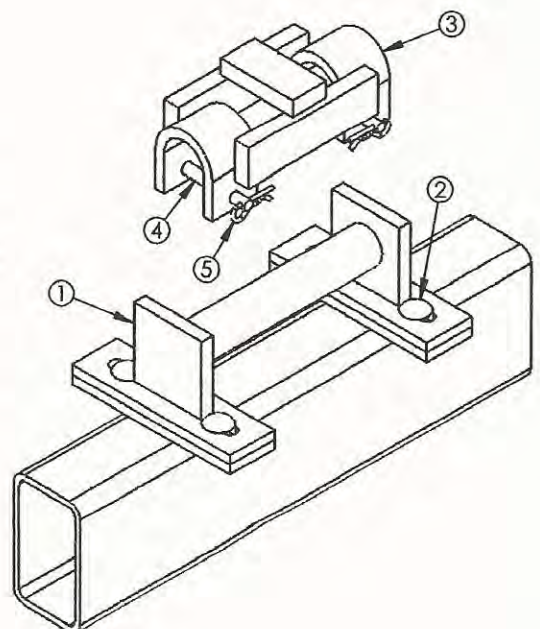
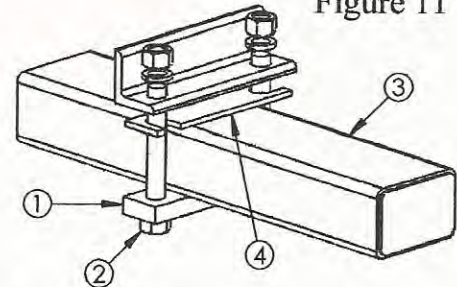


Figure 10

J) To Attach Gang Frames to Main Frame (Refer to Figures 11 & 12)

1) Front Gang Frame

Connect Gang Frame Attaching Plates (1) to the Main Frame with 1 x 7 3/8" Stud Bolt, 1" Lock Washers, and 1" Hex Nuts (2). Next, slide the Front Gang Frame (3) through the Gang Frame Attaching Plates and the Angling Anchors welded on the Main Frame. Place the Leveling Shims (4) on top of the Gang Frames and insert the slots around the bolts as shown. Finally, position Gang Frame in the center of the machine. **Front Gang may have to be moved to the left for proper alignment so delay tightening bolts.**



2) Rear Gang Frame

➤ **Note:** Rear Gang Frames are approximately 9 1/2" – 10 1/2" longer. All connections are made the same as above except for positioning. Standing behind the machine, place the Rear Gang Frame (5) just to the right of the Front Gang Frame.

3) *Model 127* Gang Frame Lengths

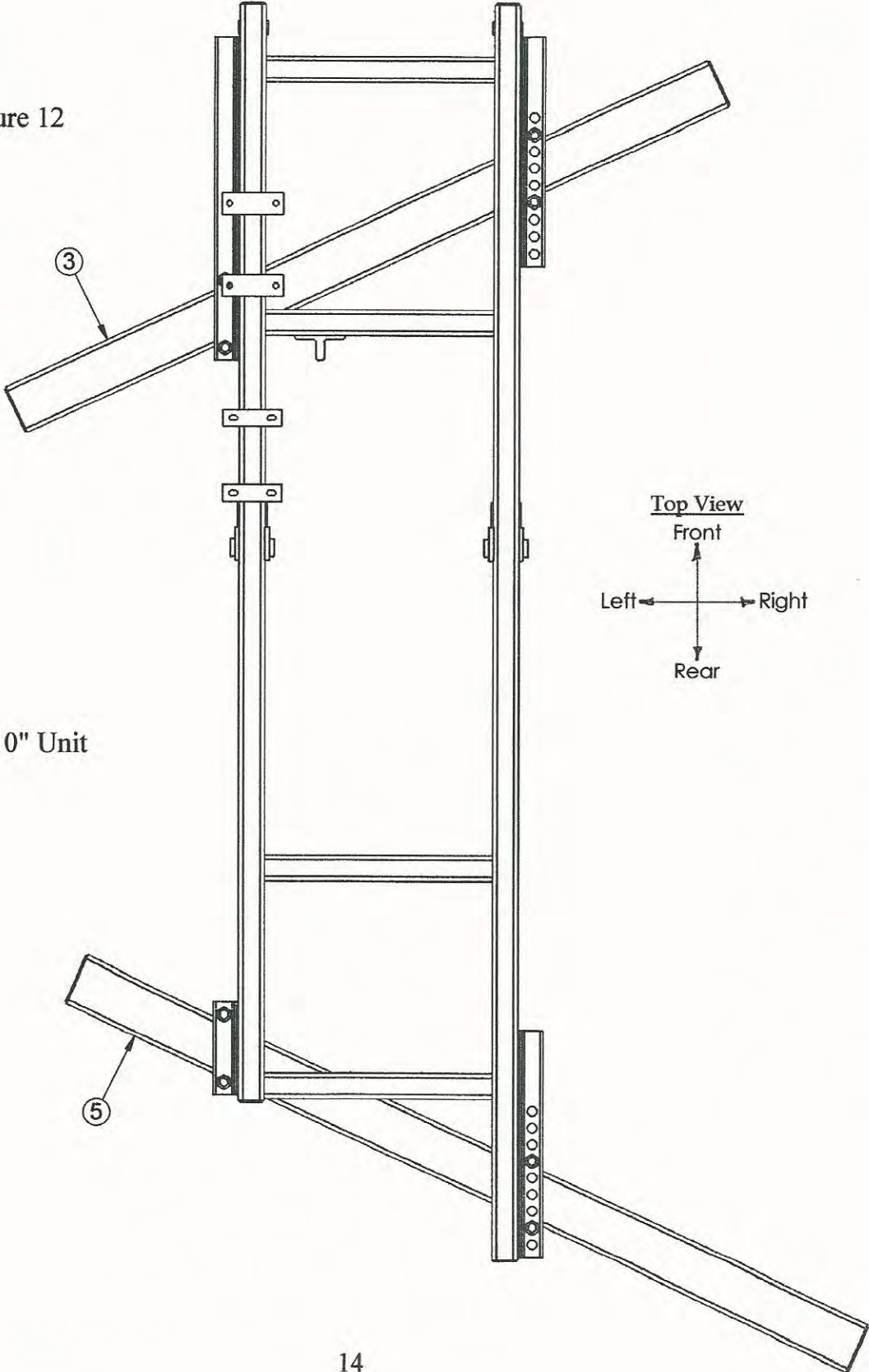
WIDTH OF CUT	NO. OF DISCS	GANG FRAMES	
		FRONT	REAR
6' 6"	17	64"	73 1/2"
7' 3"	19	73 1/2"	82"
8' 0"	21	82"	91 1/2"
8' 9"	23	91 1/2"	102"
9' 6"	25	102"	111 1/2"
11' 0"	29	121 1/2"	130 1/2"
12' 6"	33	142"	151 1/2"

4) *Model 167* Gang Frame Lengths

WIDTH OF CUT	NO. OF DISCS	GANG FRAMES	
		FRONT	REAR
7' 1"	17	70"	82"
8' 0"	19	82"	91 1/2"
8' 9"	21	91 1/2"	102"
9' 7"	23	102"	111 1/2"
10' 5"	25	111 1/2"	121 1/2"
12' 1"	29	136"	146 1/2"

J) To Attach Gang Frames to Main Frame continued...

Figure 12



SHOWN: 8' 0" Unit

K) To Attach Disk Gangs to Main Frame (Refer to Figures 13 - 17)

1) Rigid Bearing Hangers with Scrapers



WARNING: Use gloves when handling Disk Gangs. Disk Gangs are very heavy and sharp, HANDLE WITH CARE!

Disk Gangs are assembled from the factory. Attach Rigid Bearing Hangers (1) to Gang Frame (2) with $\frac{7}{8}$ " U-Bolts (3), and $\frac{7}{8}$ " Lockwashers and Hex Nuts. Make certain Bearing Hanger Top Plate sets flush with bottom side of the Gang Frame. Tighten each U-Bolt equally until both are securely fastened.

*Section View Shown: Front Disc Gang
w/ Rigid Hangers*

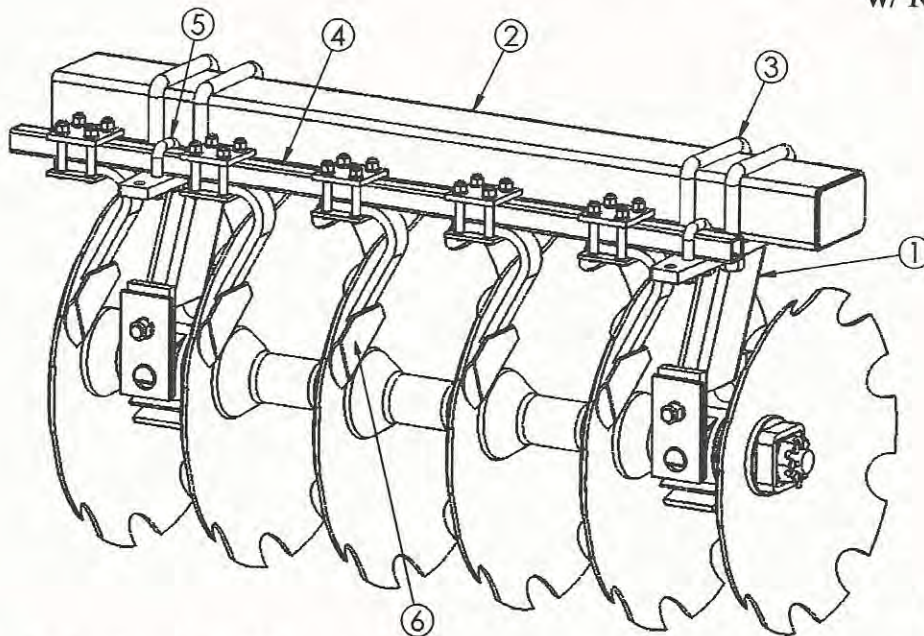


Figure 13

- Attention: Rigid Bearing Hangers must be positioned so that the Grease Fitting is toward the rear of the machine. The Right Bearing Hanger must go on the front and the Left Bearing Hanger goes on the rear gang.

Attach each Scraper Bar (4) to the Bearing Hangers with $\frac{5}{8}$ " U-Bolts (5). Secure loosely with $\frac{5}{8}$ " Lockwashers and $\frac{5}{8}$ " Hex Nuts. Slide the Scraper Bar until the Scrapers (6) are close to but not touching the Discs. Tighten the Scraper Bar Hanger U-Bolts securely.

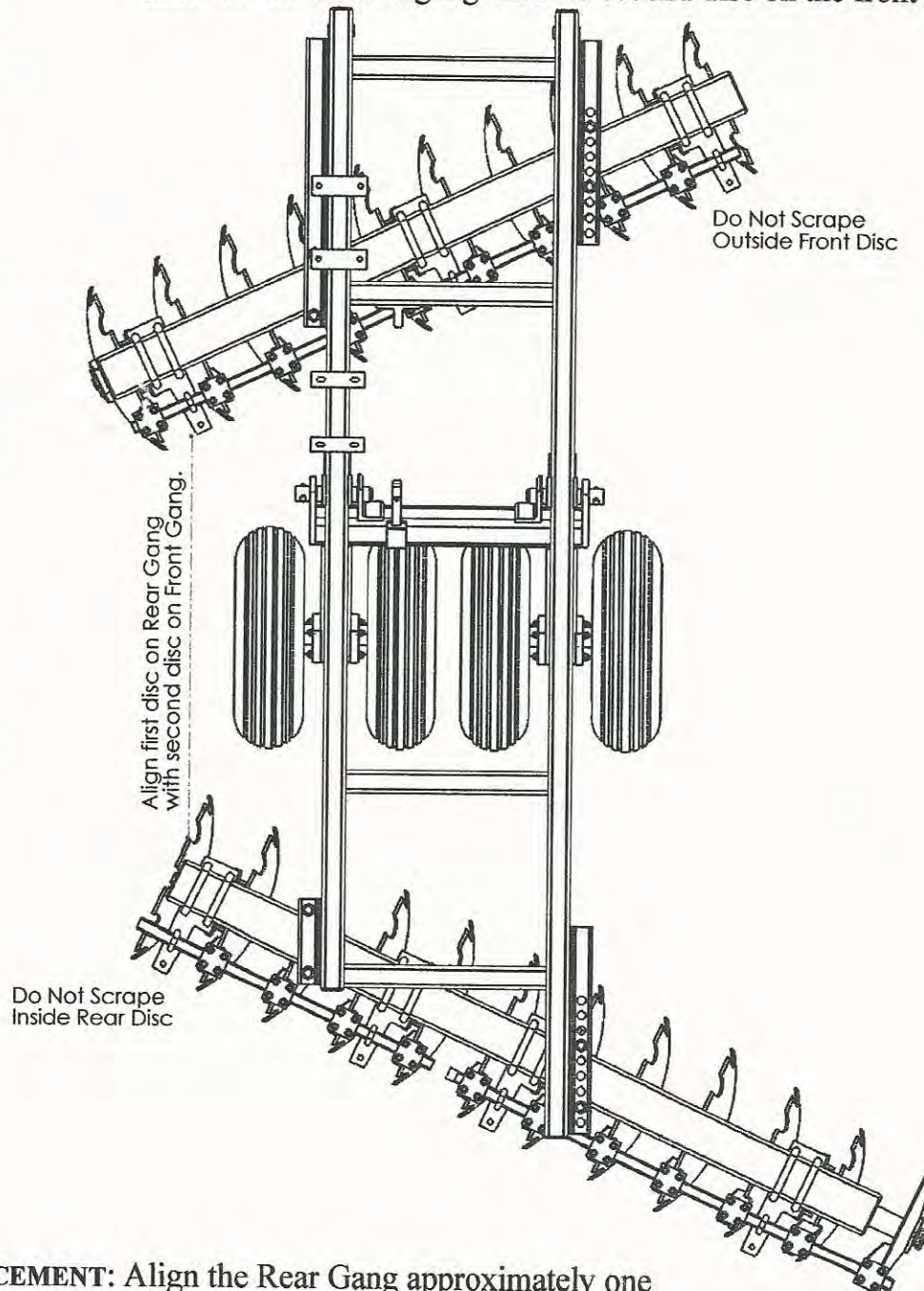
- Note: DO NOT SCRAPE THE INSIDE REAR DISC OR THE OUTSIDE FRONT DISC.

K) To Attach Disk Gangs to Main Frame continued... (Refer to Figure 14)

SHOWN: 21 Blade Rigid Bearing Hanger Disk Gang Location

PLACEMENT: Center Front Gang approximately in the center of the Main Frame.
Front Gang may have to be moved to the left in order to align the first disc on the rear gang with the second disc on the front gang.

Figure 14



PLACEMENT: Align the Rear Gang approximately one disc spacing to the right of the Front Gang.

K) To Attach Disk Gangs to Main Frame continued... (Refer to Figures 15-17)

2) Spring Bearing Hangers with Scrapers

For re-assembly purposes make sure $\frac{3}{4}$ x $2 \frac{1}{4}$ " Carriage Bolts are installed in the Bearing Hanger Cuff before installing Cuffs onto Bearing Housings. Use care to make certain that the Bearing Hangers are turned in the right direction and the grease fittings are positioned toward the rear of the machine.

Attach Spring Bearing Hanger to the Gang Frame (1) with Clamp Plate (2), Bottom Shank Support (3), and Bearing Hanger Top Plate (4). Make sure the Bearing Hanger Tine (5) lies between the Clamp Plate (2) and the Bottom Shank Support (3). Then position the Gang Frame between the Bottom Shank Support (3) and the Top Plate (4). Secure Bearing Hangers to Gang Frame with one $\frac{7}{8}$ x $7 \frac{1}{2}$ " Hex Bolt (6) and two $\frac{7}{8}$ x 9" Hex Bolts (7). Tighten Bolts with $\frac{7}{8}$ " Lockwashers and $\frac{7}{8}$ " Hex Nuts. **Place $\frac{5}{8}$ " Spacer Block (8)** on top of the Gang Frame (Figure 16) on Spring Bearing Hangers only.

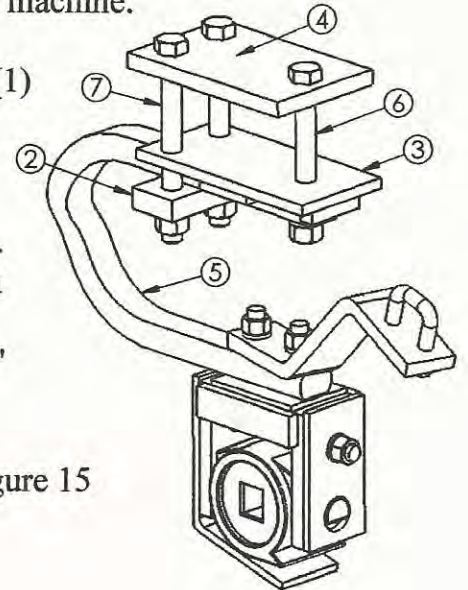


Figure 15

3) Attach Scraper Bar **On Top** of Scraper Bar Hanger as shown below with $\frac{5}{8}$ " U-Bolts, $\frac{5}{8}$ " Lock Washers, and $\frac{5}{8}$ " Lock Nuts. Tighten securely.

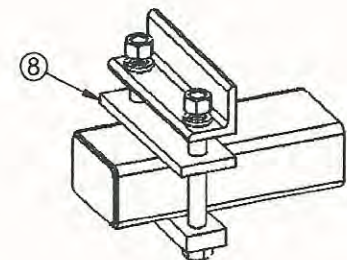
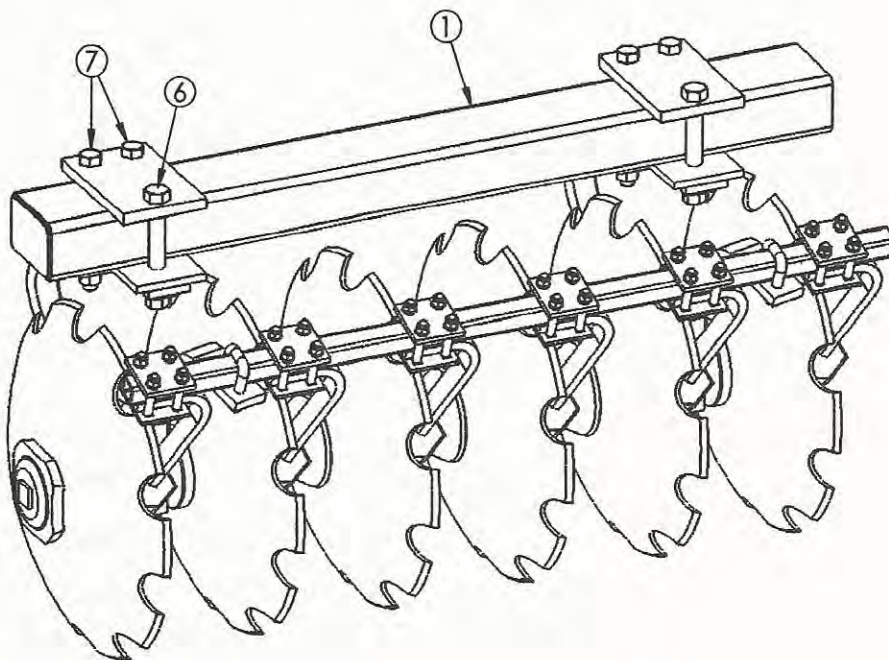


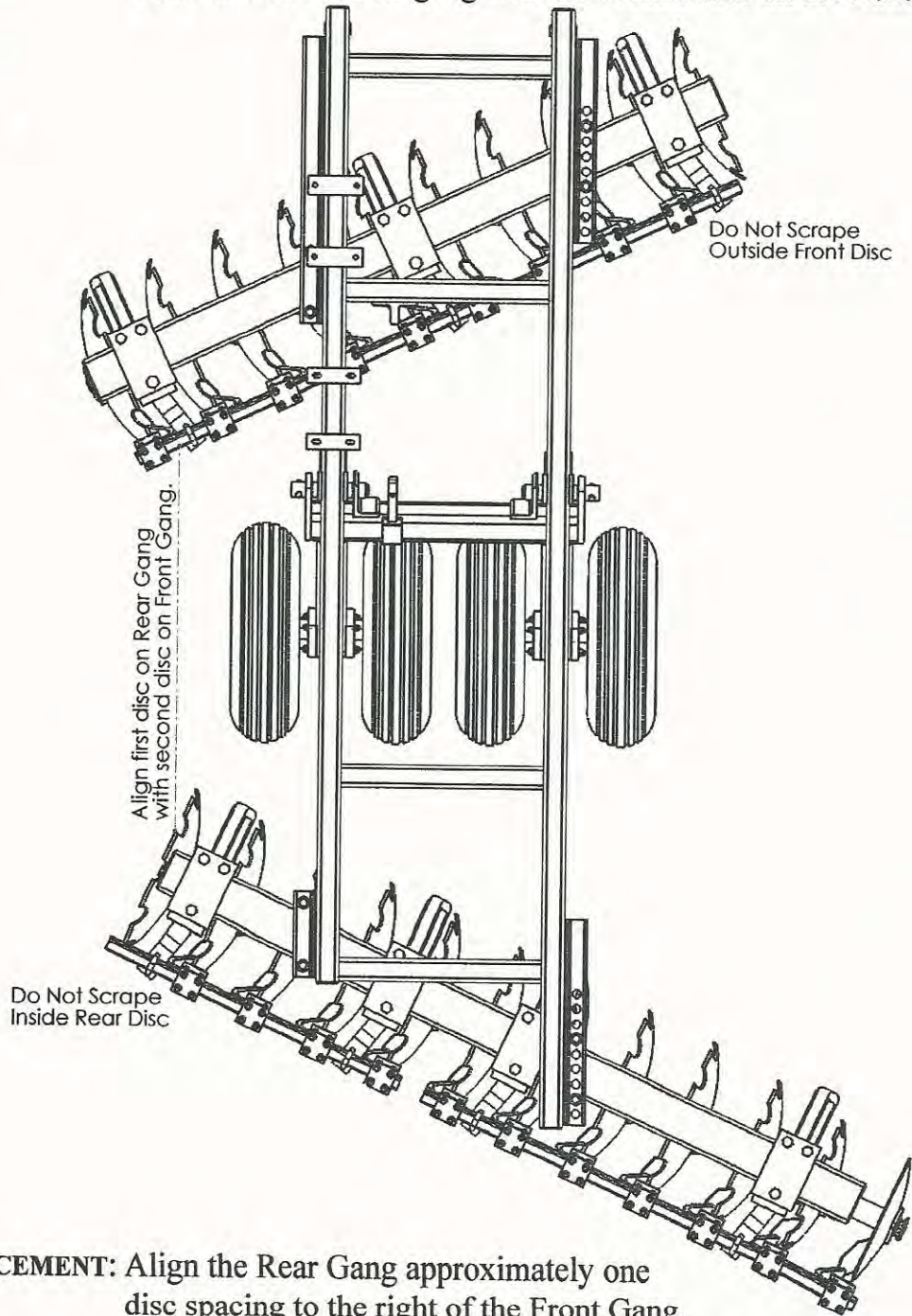
Figure 16

K) To Attach Disk Gangs to Main Frame continued... (Refer to Figure 17)

SHOWN: 21 Blade Spring Bearing Hanger Disk Gang Location

PLACEMENT: Center Front Gang approximately in the center of the Main Frame.
Front Gang may have to be moved to the left in order to align the first disc on the rear gang with the second disc on the front gang.

Figure 17



PLACEMENT: Align the Rear Gang approximately one disc spacing to the right of the Front Gang.

K) To Attach Disk Gangs to Main Frame continued...

4) Disk Gang locations for the **Model 127** are shown below in Table 1.

TABLE 1

SIZE	FRONT GANGS			REAR GANGS		
	LEFT	CENTER	RIGHT	LEFT	CENTER	RIGHT
17 Disc		8			9	
19 Disc		9			10	
21 Disc		10		5		6
23 Disc	5		6	6		6
25 Disc	6		6	6		7
29 Disc	7		7	7		8
33 Disc	8		8	8		9

5) Bearing locations for the **Model 127** are listed below.

A) **17 Disc (6' 6" Harrow)**

(x(((x(((x(Front
8 disc gang
)x)))x))))x) Rear
9 disc gang

B) **19 Disc (7' 3" Harrow)**

(x((((x(((x(Front
9 disc gang
)x))))x))))x) Rear
10 disc gang

C) **21 Disc (8' 0" Harrow)**

(x((((x((((x(Front
10 disc gang
)x)))x))x))))x) Rear
5 disc gang 6 disc gang

D) **23 Disc (8' 9" Harrow)**

(x(((x((x((((x(Front
5 disc gang 6 disc gang
)x))))x))x))))x) Rear
6 disc gang 6 disc gang

E) **25 Disc (9' 6" Harrow)**

(x((((x((x((((x(Front
6 disc gang 6 disc gang
)x))))x))x)))))x) Rear
6 disc gang 7 disc gang

F) **29 Disc (11' 0" Harrow)**

(x(((((x((x(((((x(Front
7 disc gang 7 disc gang
)x)))))x))x)))x)))x) Rear
7 disc gang 8 disc gang

G) **33 Disc (12' 6" Harrow)**

(x(((x(((x((x((((x(Front
8 disc gang 8 disc gang
)x)))x)))x))x))))x) Rear
8 disc gang 9 disc gang

K) To Attach Disk Gangs to Main Frame continued...

6) Disk Gang locations for the **Model 167** are shown below in Table 2.

TABLE 2

SIZE	FRONT GANGS			REAR GANGS		
	LEFT	CENTER	RIGHT	LEFT	CENTER	RIGHT
17 Disc	4		4	4		5
19 Disc	5		4	5		5
21 Disc	5		5	5		6
23 Disc	5		6	6		6
25 Disc	6		6	6		7
29 Disc	7		7	6		9

7) Bearing locations for the **Model 167** are listed below.

A) 17 Disc (7' 1" Harrow)

(x ((x ((x ((x (Front
 4 disc gang 4 disc gang
) x)) x)) x)) x) Rear
 4 disc gang 5 disc gang

B) 19 Disc (8' 0" Harrow)

(x (((x ((x ((x (Front
 5 disc gang 4 disc gang
) x)) x)) x)) x) Rear
 5 disc gang 5 disc gang

C) 21 Disc (8' 9" Harrow)

(x (((x ((x ((x (Front
 5 disc gang 5 disc gang
) x)) x)) x))) x) Rear
 5 disc gang 6 disc gang

D) 23 Disc (9' 7" Harrow)

(x (((x ((x (((x (Front
 5 disc gang 6 disc gang
) x))) x)) x))) x) Rear
 6 disc gang 6 disc gang

E) 25 Disc (10' 5" Harrow)

(x (((x ((x (((x (Front
 6 disc gang 6 disc gang
) x))) x)) x)))) x) Rear
 6 disc gang 7 disc gang

F) 29 Disc (12' 1" Harrow)

(x ((((x ((x ((((x (Front
 7 disc gang 7 disc gang
) x))) x)) x))) x))) x) Rear
 6 disc gang 9 disc gang

➤ **DISK GANG INFORMATION:**

Bearing Hanger alignment is vitally important for the functionality and life of the Bearings. When attaching **Rigid Bearing Hangers**, make certain that the Top Plate sets flush with the bottom-side of the Gang Frame. Tighten both U-Bolts equally until all four nuts are snug and Top Plate is flush with Gang Frame. When this is achieved tighten securely.

K) To Attach Disk Gangs to Main Frame continued...

➤ **DISK GANG INFORMATION CONTINUED...**

When attaching **Spring Bearing Hangers**, make certain that the Clamp Plate and Bottom Plate are flush with the Bearing Hanger Tine and the Gang Frame. Secure hanger to frame by tightening all three bolts equally. Rotate gangs to make certain that they turn freely. If the Disk Gang binds, loosen U-Bolts/Hex Bolts and realign Bearing Hangers.

The Right Front Disk Gang has a single tapered disc on the outside (nut end). For example: The *Model 127* has 24" diameter discs, therefore the outside front disc is 22" in diameter. Likewise, the *Model 167* comes with 26" diameter discs, therefore the outside front disc is 24" in diameter.

The Rear Gang is equipped with a double taper on the end (cover disc end). For example: The *Model 127* has 24" diameter discs, therefore the last two discs are 22" and 20" in diameter. Likewise, the *Model 167* comes with 26" diameter discs, therefore the last two discs are 24" and 22" in diameter.

Tighten the Disc Assembly Nut to 1250 foot/pounds (1695Nm) with the Gang Wrench and a 6 foot pipe if Axle Nut becomes loose. Note: A 200 lb. man with a 6 foot extension bar on a wrench equals approximately 1200 foot/pounds.

6) Scraper Bar lengths (inches) for the **Model 127** are shown below in Table 3.

TABLE 3

SIZE	FRONT GANGS			REAR GANGS		
	LEFT	CENTER	RIGHT	LEFT	CENTER	RIGHT
17 Disc		69.50			88.00	
19 Disc		79.00			100.00	
21 Disc		88.00		54.50		54.50
23 Disc	47.00		54.50	54.50		61.00
25 Disc	54.50		54.50	54.50		74.00
29 Disc	69.50		61.00	61.00		83.00
33 Disc	74.00		69.50	69.50		91.00

7) Scraper Bar lengths (inches) for the **Model 167** are shown below in Table 4.

TABLE 4

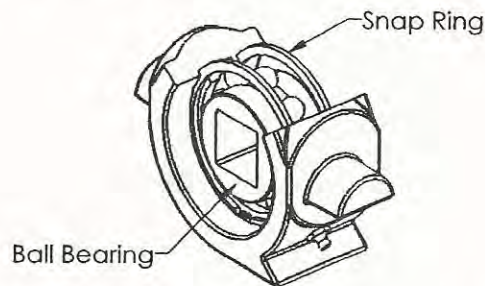
SIZE	FRONT GANGS			REAR GANGS		
	LEFT	CENTER	RIGHT	LEFT	CENTER	RIGHT
17 Disc	38.00		32.00	32.00		61.00
19 Disc	47.00		32.00	43.00		61.00
21 Disc	47.00		43.00	43.00		69.50
23 Disc	47.00		54.50	54.50		69.50
25 Disc	61.00		54.50	54.50		79.00
29 Disc	69.50		69.50	54.50		100.00

K) To Attach Disk Gangs to Main Frame continued...

- **ASSEMBLING EXPORTED UNITS AND REASSEMBLY IN THE FIELD:**
Remove all parts from the Axle and line up parts in the order of removal. First, put a Disc on the Axle, then a Convex Half Spacer, a Bearing Hanger (making certain the grease fitting is positioned toward the rear), a Concave Half Spacer, and a Disc. Next, put a Full Spacer on followed by another Disc. Repeat this process until the next Bearing Hanger location. Then, install another Convex Half Spacer, a Bearing Hanger, and a Concave Half Spacer followed by a Disc. When the last Disc is installed, follow it with an End Washer, End Washer Spacer(s), and the Axle Nut. Secure with a Cotter Pin. Tighten Gangs to 1250 ft. lbs.

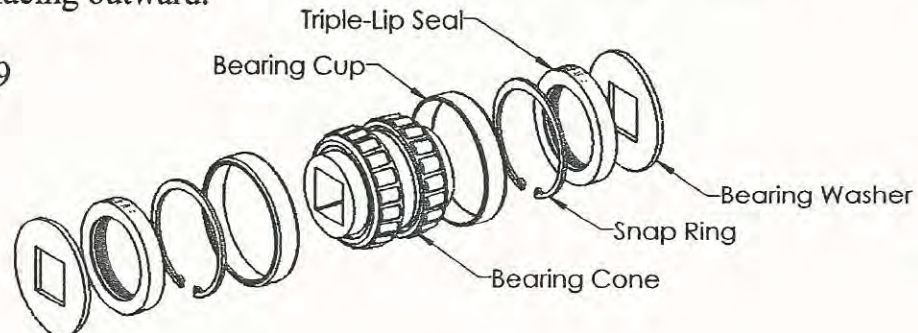
- **TO ASSEMBLE BALL BEARINGS (Refer To Figure 18)**
First, install a snap ring, then a ball bearing, and finally a second snap ring. Make certain that the grease fitting hole in the bearing aligns with the grease groove in the bearing housing. When installing Ball Bearings, press or drive against the outer ring of the bearing only. Pressing or driving against the inner ring causes damage and greatly shortens the life of the bearing.

Figure 18



- **TO ASSEMBLE TAPERED DOUBLE-ROW ROLLER BEARINGS (Refer to Figure 19)**
First, install a snap ring, then press a bearing cup into the bearing housing until it contacts the snap ring. Now, install the bearing cone along with another bearing cup. This cup should be pressed in only far enough to allow installation of the second snap ring. Press the triple-lip seal into the housing with the flared side of the seal facing outward.

Figure 19

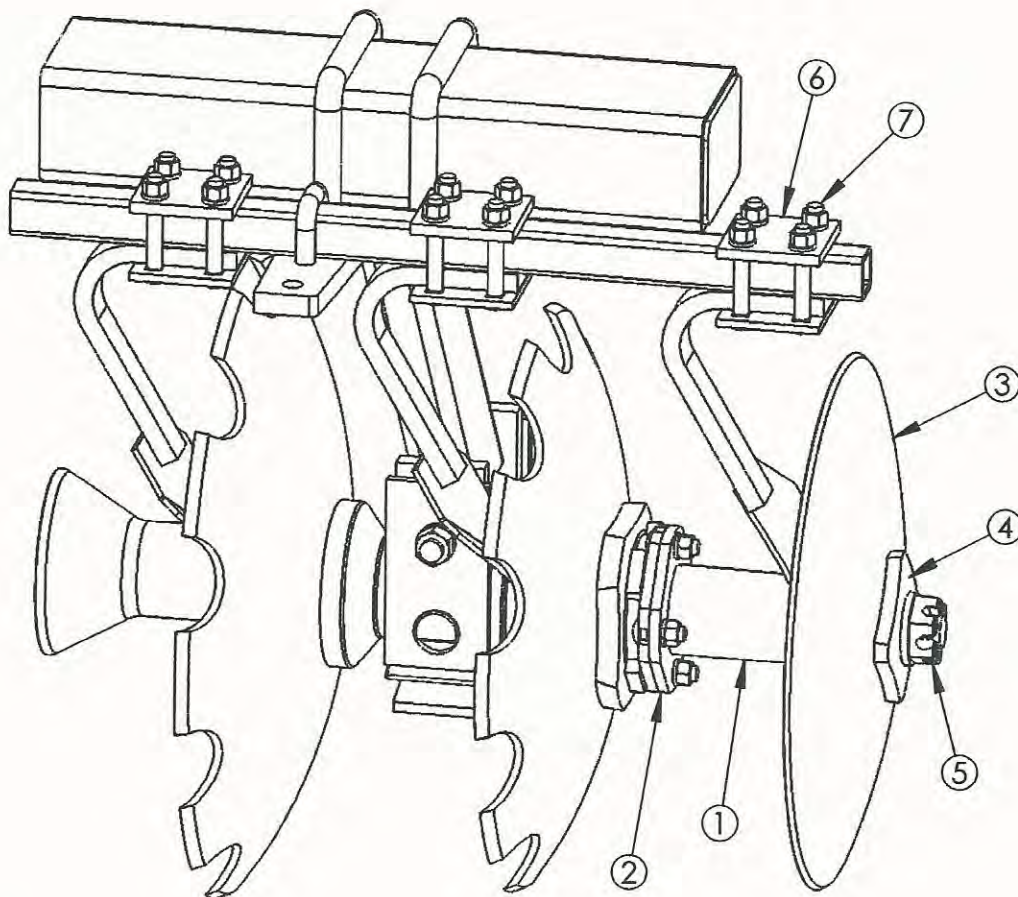


L) To Attach Cover Disc with Scraper (Refer to Figure 20)

- 1) Attach Cover Disc Mounting Assembly (1) to Cover Disc Mounting Plate (2) (which is welded to the axle butt plate) with four $\frac{1}{2}$ x $1\frac{3}{4}$ " Carriage Bolts, and $\frac{1}{2}$ " Hex Nuts and $\frac{1}{2}$ " Lockwashers. Tighten securely. Next, place the Cover Disc (3), Cover Disc End Washer (4), and Cover Disc Assembly Nut (5) on the Mounting Assembly. Tighten nut then insert and spread Cotter Pin to secure. Finally, bolt the Cover Disc Scraper to the Scraper Bar with a Scraper Top Plate (6) and four $\frac{1}{2}$ x $3\frac{1}{2}$ " Carriage Bolts (7), and secure with $\frac{1}{2}$ " Lockwashers and Hex Nuts.

- NOTE: The Cover Disc 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 the other scrapers.

Figure 20



BEFORE OPERATING THE HARROW BE CERTAIN THAT:

- All Bolts are tight, Cotters are spread, and all Klik Pins are inserted.
- Disk Gang Axles are tight and Gangs turn freely.
- Disk Gang Bearings are lubricated (use a good quality Lithium-base grease).
- Wheel Bearings are adjusted and lubricated.
- No Hose or Hydraulic Fitting is leaking.
- Threaded Adjusting Rods are coated and all other Grease Fittings are lubricated.

A) Hitching Implement to the Tractor

With blocks in front of and behind the tires, attach the Hydraulic Hoses and lift the implement to its full transport height. Adjust the Tongue Jack as needed and attach the Reversible Tongue Clevis to the drawbar of the tractor.

B) To Adjust the Angle of Cut

With the unit sitting on the ground, barely loosen the Angling Anchor Bolts on the left side of the unit and remove the Angling Anchor Bolts on the right side of the unit. To increase the angle in the front gangs swing the disc gang forward. The rear gangs have to be rotated to the rear to gain angle. Do the opposite to reduce the angle of cut.

C) To Level Disk Harrow Front-to-Rear (Refer to Figure 21)**Hydraulic Leveling (Standard)**

The **Athens 127/167** is leveled front-to-rear by the Hydraulic Leveling Cylinder (1) between the Spreader Bar and the Main Frame. With the unit raised on its wheels, shorten or lengthen the Hydraulic Cylinder until the frame is level. Lengthening the Hydraulic Cylinder and compressing the Leveling Springs (2) will add more weight to the rear of the harrow. This will increase the penetration of the rear disk gangs. Keep Jam Nuts tight to prevent thread wear. Shortening the cylinder will decrease the penetration of the rear disk gangs.

Manual Leveling (Optional)

An optional Turnbuckle is available in place of the hydraulic cylinder for leveling the unit from front to rear. The manual leveling adjustments are the same as above.

D) To Adjust the Depth of Disking (Refer to Figure 21)

Adjust the depth by screwing the Stroke Control Collar (3) in or out to stop the Main Frame Lifting Cylinder (4) at the position desired.

E) Adjusting Scrapers

Adjust Scrapers close to but not touching the Discs, with Scraper curvature aligned with the Disc Blade. Make certain all bolts are retightened.

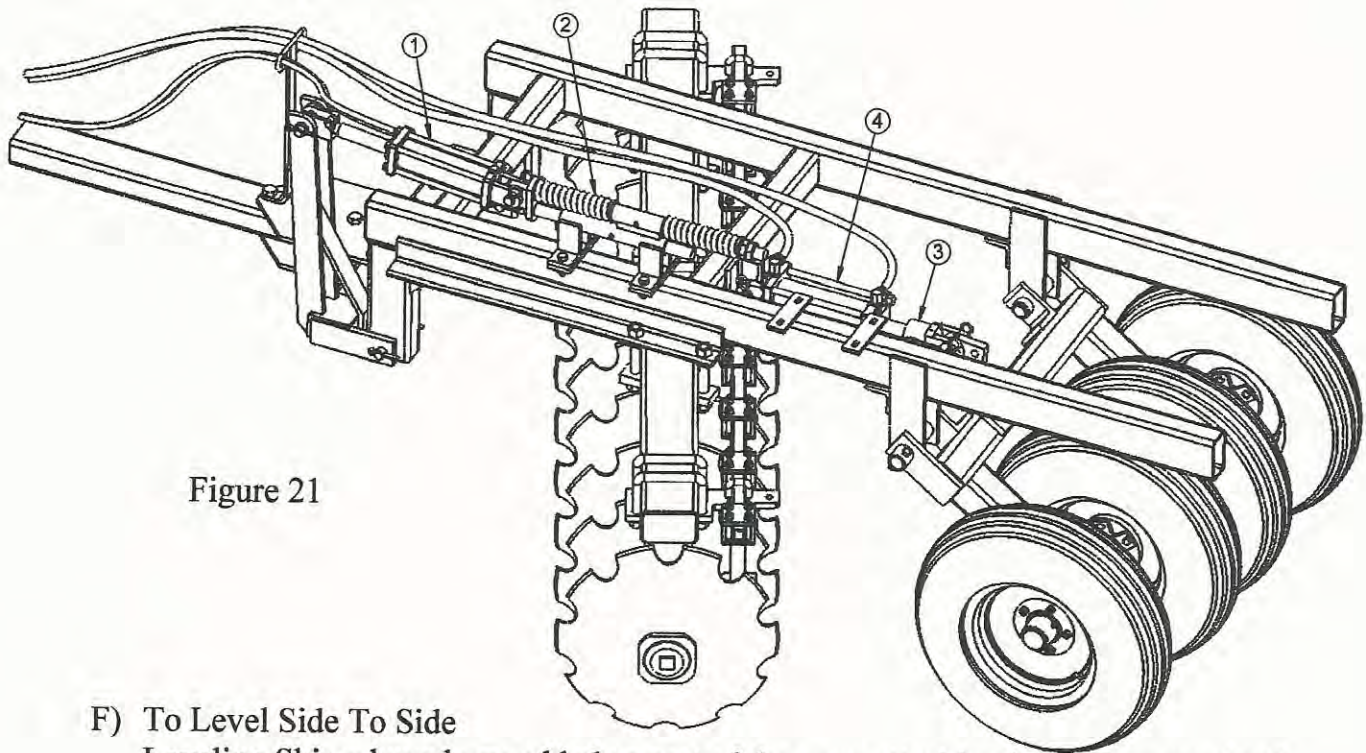


Figure 21

F) To Level Side To Side

Leveling Shims have been added as part of the gang attaching bundles as standard equipment. These shims will allow you to level the unit side-to-side when conditions indicate the need. Initially, the shims are placed between the Gang Attaching Angles and the Gang Frame Tubes. The shims may be moved to adjust the gang frames up or down. For instance, if the right front disc is "digging in" too much, place the shim on the right front underneath the gang frame. This tilts the gang uphill from left to right.

G) Transporting

Lift unit on its wheels completely, place Mechanical Transport Cuff on Hydraulic Cylinder Rod. Make certain that the Mechanical Transport Cuff Pins are replaced and Hair Pin Clips are inserted to secure transport cuff to the cylinder rod.

POINTS TO CHECK IN OBTAINING THE BEST PERFORMANCE

➤ Leaving a Ridge on the Right Side

1) Slide rear gang to the right. Review pages 16 & 18.

➤ Leaving a Ridge on the Left Side

1) Review H1 or slide front gang to the left. Review pages 16 & 18.

➤ Clogging between Discs

- 1) Adjust Scrapers close to but not touching the Discs.
- 2) Lower Wheels when crossing wet areas.
- 3) Disk at an angle to the rows.
- 4) Wait until the soil dries enough for proper operation.

A) Bolts and Cotters

- 1) Tighten all Bolts securely before entering the field. Check Bolt tightness at regular intervals. Replace any damaged Bolt or Cotter immediately to prevent loss or any further damage from occurring.
- **HARDWARE:** Check Hardware tightness regularly. Loose Hardware is easily lost or bent, causes excessive wear on parts, and increases the chance of failure. Use the Torque Chart (Table 5) below, to tighten Hardware. Failure to maintain is not covered by manufacturer's warranty.




RECOMMENDED TORQUE IN FT-LBS (Nm) COARSE AND FINE THREADS			
	2 	5 	8 
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 (176)	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)

Table 5

- **HARDWARE:** Do not use Table 5 for Bolts with Lock Nuts that are not intended to be tightened until the point of binding. These lock nuts just need to be tightened until they are snug. (For example: Clevis Bolt)

B) Disk Gang

- 1) Make certain that Disk Gang Assembly Nut is tightened securely.
- Before tightening Disk Gang, loosen Bearing Hangers slightly to allow Bearing Hangers to be re-positioned while tightening. After tightening, make certain that Disk Gang turns freely. Failure to loosen Bearing Hangers could cause premature failure of Bearings due to unnecessary pre-loading. Tighten with Gang Wrench provided (unless adequate Air Gun can be used) using a 6-foot extension, torque to approximately 1250 ft. lbs.



WARNING: A loose axle/Axle Nut can cause failure to the Axle and Spacers, and destroy or lead to complete Bearing failure.
STOP IMMEDIATELY AND TIGHTEN PROPERLY!

C) Disk Gang Bearings (Refer to Figure 22)

- 1) Lubricate Disk Gang Bearings before operating the unit for the first time. Lubricate everyday / 8 hours of operation and at the beginning and the end of every season with a #2 Lithium-based grease.
- Before operating, lubricate Disk Gang Bearings until grease shows between Bearing Washers and Bearing Housing. Clean Grease Gun Tip and Grease Fittings before lubricating.

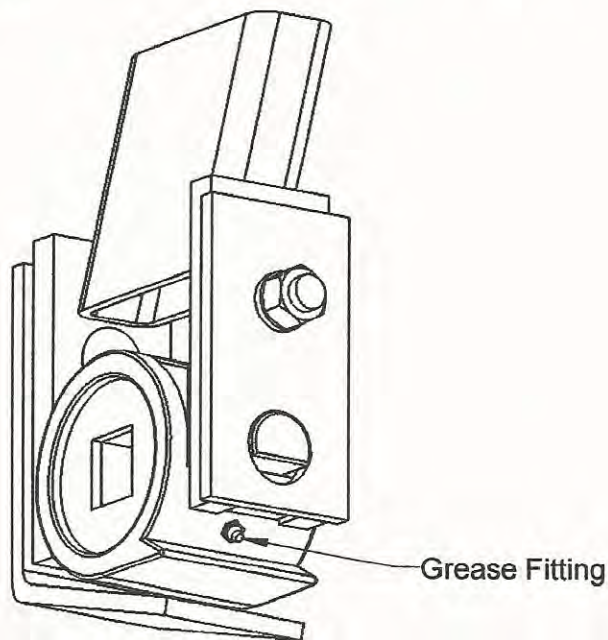


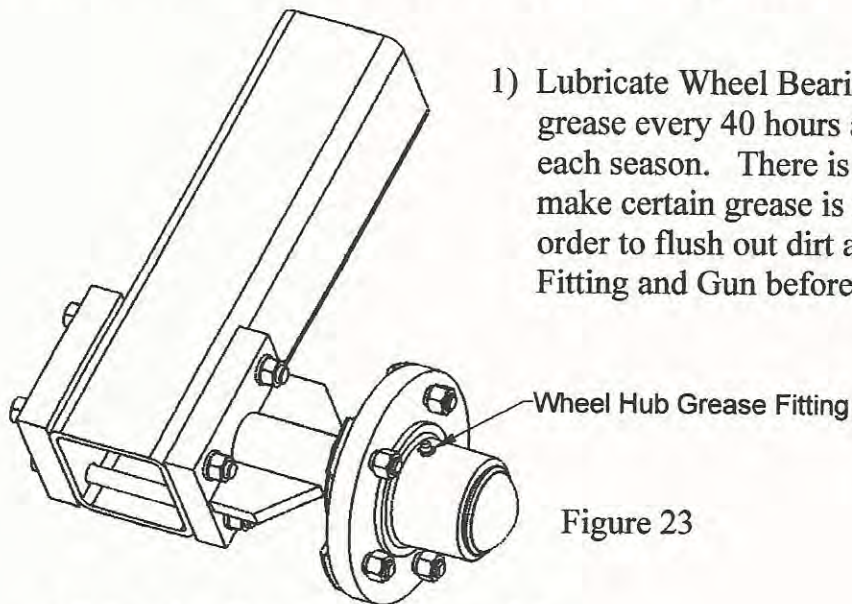
Figure 22

D) Wheel Bearing Adjustment

Adjust Wheel Bearings every 500 acres and at the beginning of every season as follows:

- 1) Make certain that Disk Gang Assembly Nut is tightened securely.
- 2) Tighten Wheel Bearing Adjustment Nut until Wheel "drags" slightly.
- 3) If needed, back off Nut to the first hole and insert Cotter.
- 4) Replace Hub Cap.
- 5) Refer to "Lubrication Of Wheel Bearings" below.

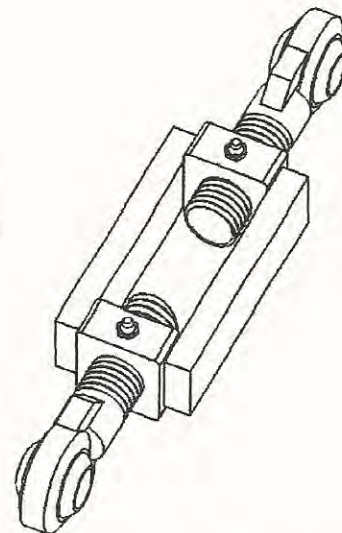
E) Lubrication of Wheel Bearings (Refer to Figure 23)



F) Turnbuckle (Refer to Figure 24)

- 1) Lubricate Leveling Turnbuckle Grease Fittings weekly and at the beginning and end of each season with a #2 Lithium-based grease.

Figure 24



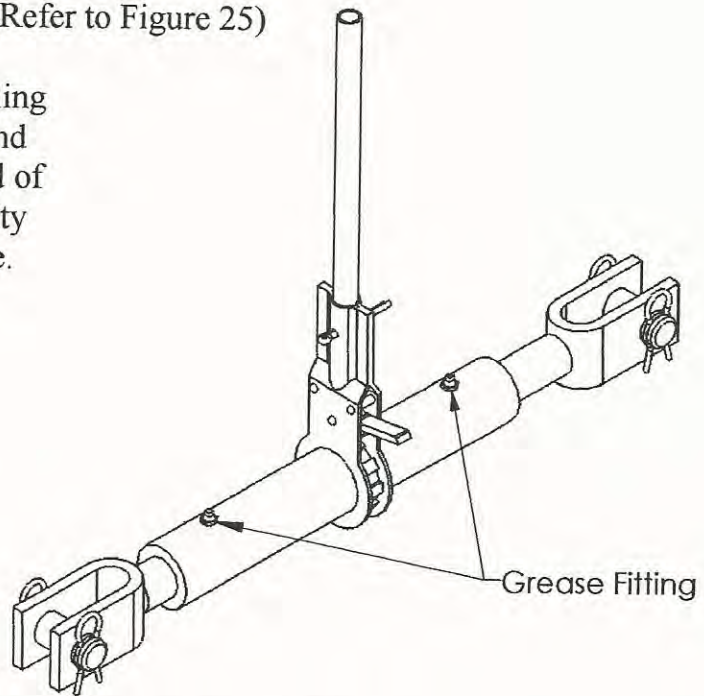
G) Threaded Parts

- 1) 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 the Disk Harrow is stored outside, grease all threaded Rods each time the Harrow is to be parked for several days.

H) Manual-Leveling Turnbuckle (Refer to Figure 25)

- 1) Lubricate Manual-Leveling grease fittings weekly and at the beginning and end of each season with a quality #2 Lithium-based grease.

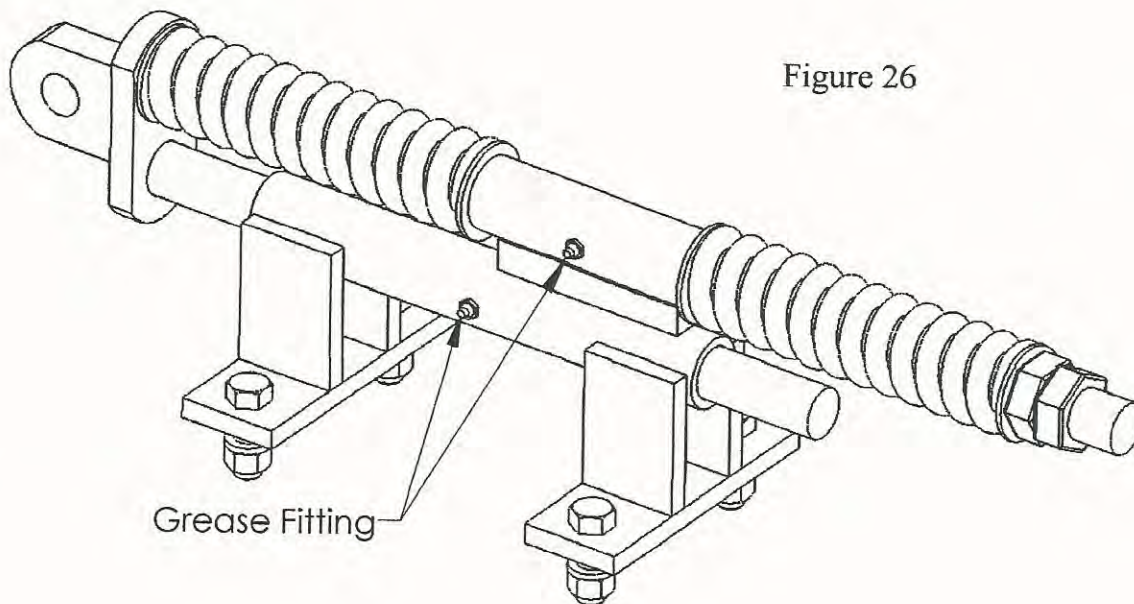
Figure 25



I) Lubrication of the Leveling Bundle (Refer to Figure 26)

- 1) Lubricate the grease fittings on the Leveling Bundle weekly and at the beginning and end of each season with a quality #2 Lithium-based grease.

Figure 26



J) Ram Anchor (Refer to Figure 27)

- 1) Lubricate the Ram Anchor grease fitting weekly and at the beginning and end of each season with a quality #2 Lithium-based grease.

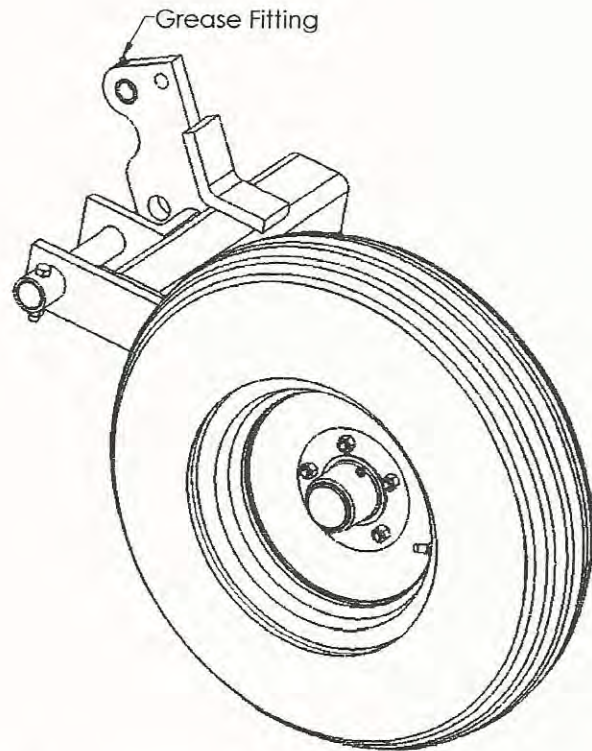


Figure 27

K) Lubrication of the Wheel Carriage Pivot Bushings (Refer to Figure 28)

- 1) Lubricate the grease fittings on the Wheel Carriage Pivots weekly and at the beginning and end of each season with a quality #2 Lithium-based grease.

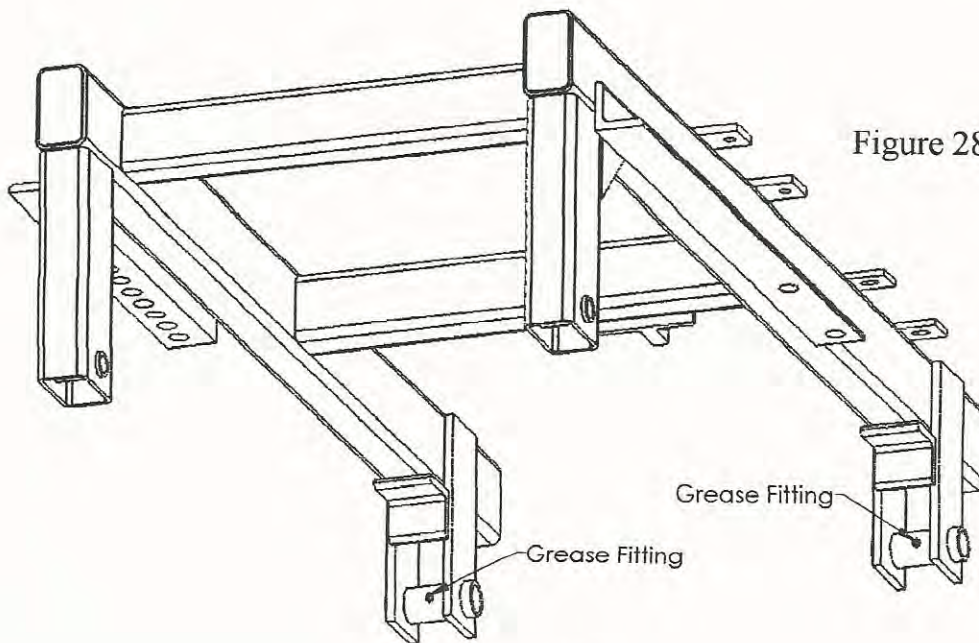


Figure 28

L) Hydraulics (Refer to Figure 29)

- 1) Keep all Hoses and Pipe Fittings tight to prevent lose of oil. Keep Hoses aligned carefully and install through the guides of the Hose Stand to prevent unnecessary bending and wear. Replace any leaking Seal in Hydraulic Cylinder promptly. Do not allow Hydraulic Hoses to be pinched or kinked.



WARNING: Leaking oil is expensive and potentially hazardous. Do not check for a leak with your fingers or any part of the body. High pressure oil can penetrate the skin causing serious cuts and infection.

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

- 2) Make certain that Hair Pin Clips (1) are in each end of the Clevis Pins. Re-check Cylinder Clevis Bolt (2) to insure tightness. Lubricate the Stroke Control grease fitting weekly with a quality #2 Lithium-based grease.

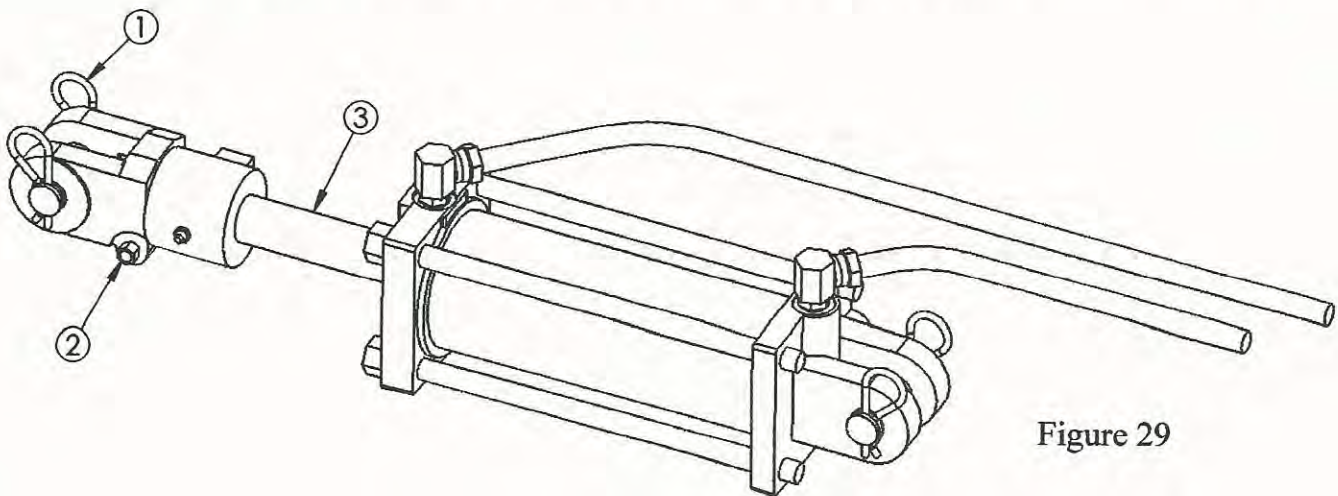
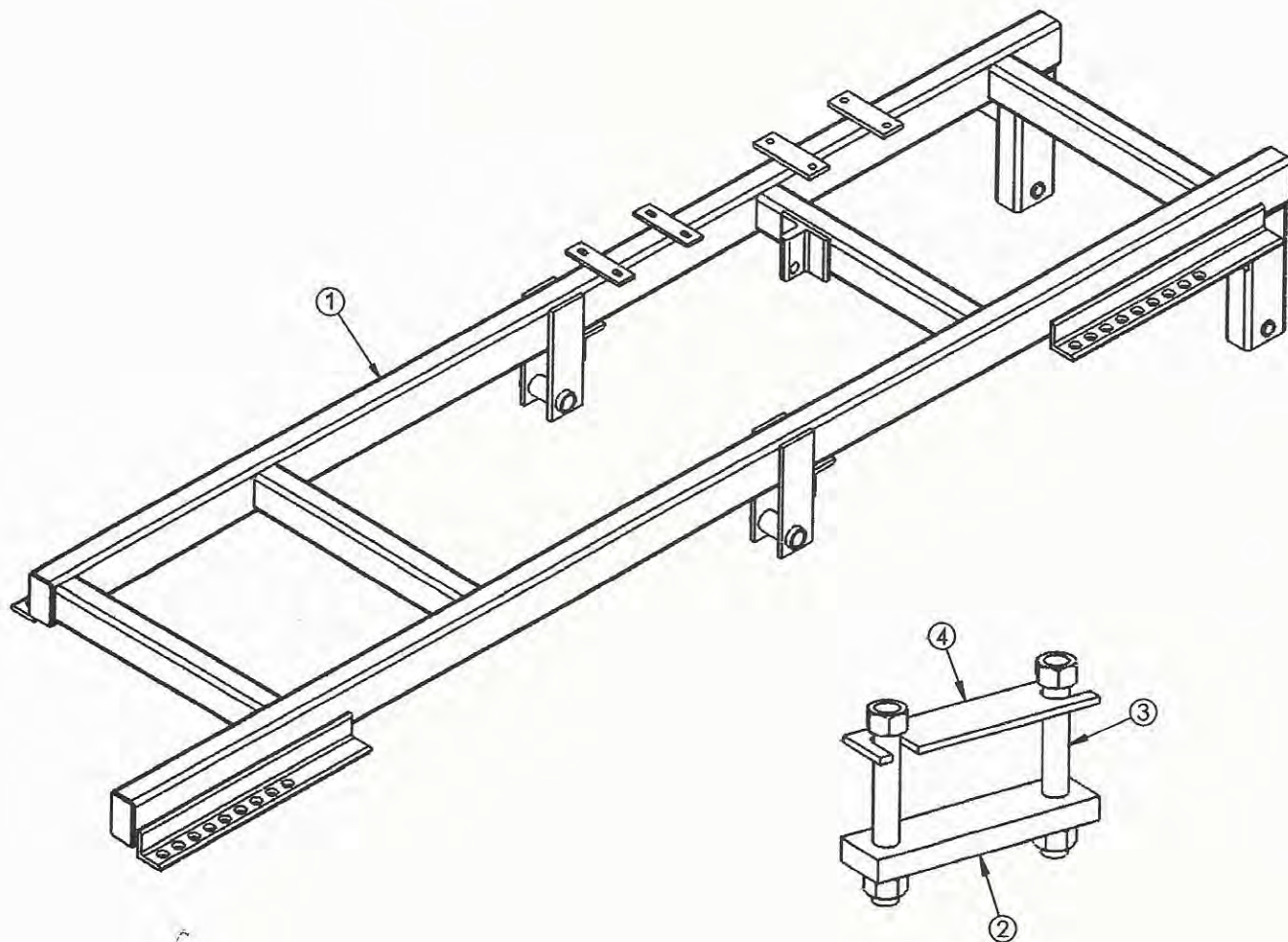


Figure 29

- 3) For storage for more than a weekend, retract the Lifting Cylinder Rod (3) completely. If this is not possible, coat the Cylinder Rod thoroughly with grease. For storage outside over the winter, rust on the Cylinder Rod can be prevented by coating the Rod with grease and then wrapping it with plastic wrap. Rust on the Cylinder Rod will rapidly ruin Rod Seal and Wiper.

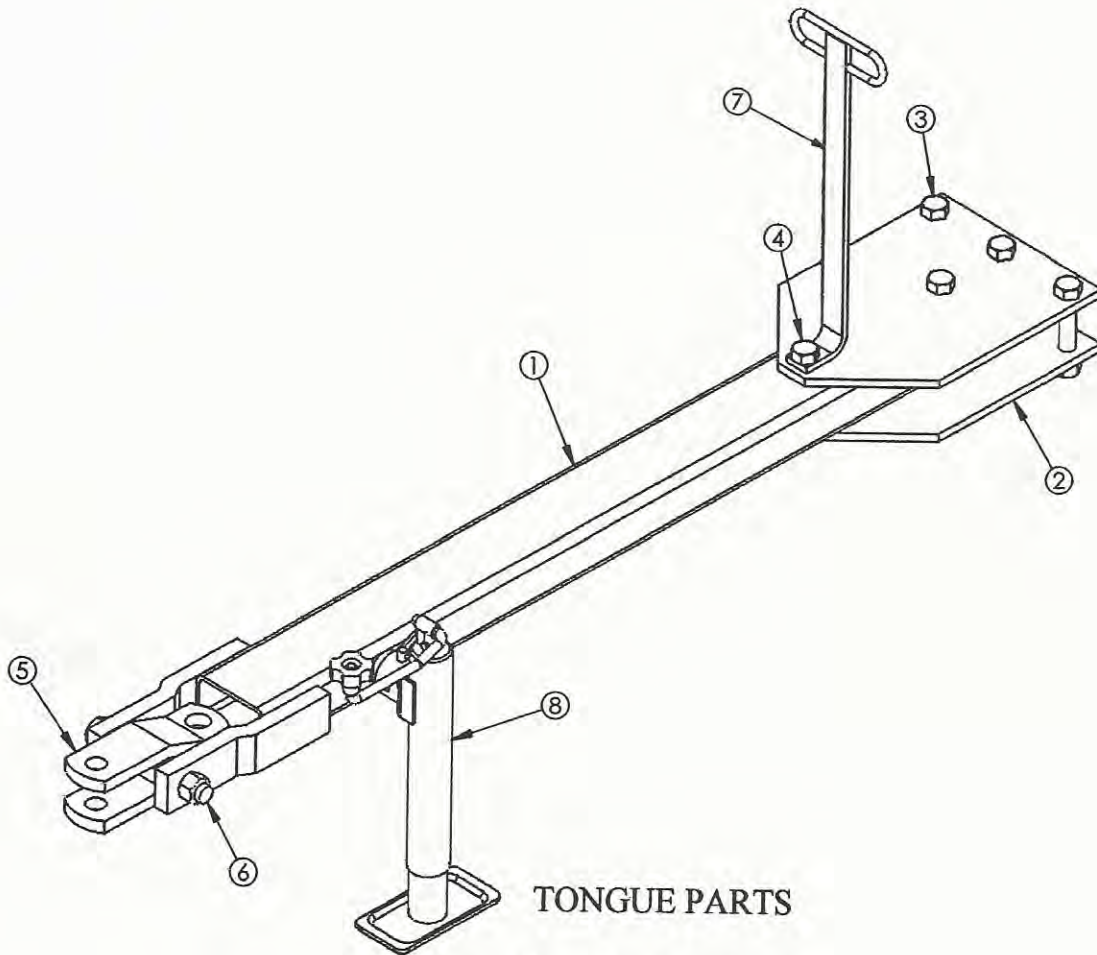
Table of Contents

DESCRIPTION	PAGE NUMBER
Main Frame	33
Tongue	34
Spreader Bar / Leveling Bundle Parts	35
Wheel Carriage / Mechanical Transport	36
Wheel & Wheel Hub Parts	37
Disk Gangs, 127	38,39
Bearing Hangers, 127	40
Disk Gangs, 167	41,42
Bearing Hangers, 167	43
Scrapers / Scraper Bars	44
Cover Disc Parts	45
Hydraulic Lifting Cylinder and Hoses	46
Hydraulic Leveling Cylinder and Hoses	47
Manual Leveling Turnbuckle	48



MAIN FRAME, LEVELING SHIMS, & ANGLING ANCHORS

Reference	Part No.	Quantity Required		Description
		17 - 23 Disc 127 17 - 21 Disc 167	25 - 33 Disc 127 23 - 29 Disc 167	
1	19623	1		Main Frame
	19693		1	Main Frame
2	18532	4	4	Angling Anchor
3	21333	8	8	Bolt Assembly, 1 x 7 1/2"
	80685	8	8	1" Hex Nut
	81040	8	8	1" Lockwasher
4	21828	4	4	Leveling Shim

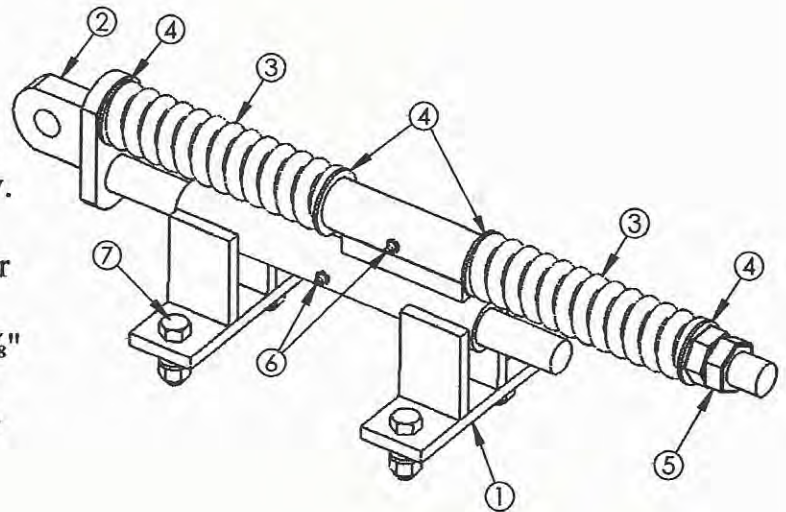


TONGUE PARTS

Reference	Part No.	Quantity Required		Description
		17 - 23 Disc 127 17 - 21 Disc 167	25 - 33 Disc 127 23 - 29 Disc 167	
1	20431	1		Tongue Assembly
	20430		1	Tongue Assembly
2	16242	2	2	Offsetting Plate
3	80196	4		$\frac{7}{8}$ x 5" Hex Bolt
	80229		4	$\frac{7}{8}$ x 6" Hex Bolt
4	80199	1		$\frac{7}{8}$ x 5 1/2" Hex Bolt
	80202		1	$\frac{7}{8}$ x 6 1/2" Hex Bolt
	81030	4	4	$\frac{7}{8}$ " Lock Washer
	80645	4	4	$\frac{7}{8}$ " Hex Nut
5	21034	1		Clevis Assembly
	20004		1	Clevis Assembly
6	21333	1	1	Bolt Assembly, 1 x 7 1/2"
	80880	1	1	1" Lock Nut
7	16834	1	1	Hose Stand
8	19753	1	1	Tongue Jack

LEVELING BUNDLE PARTS

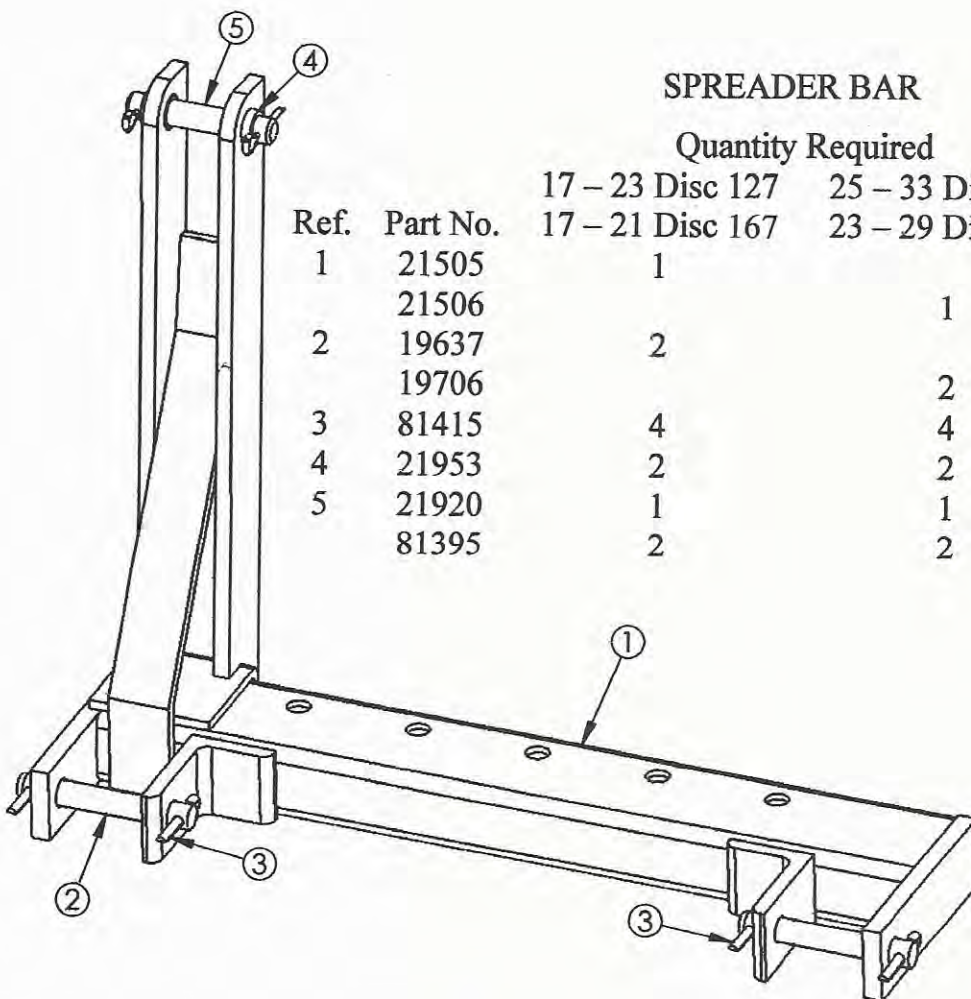
Ref.	Part No.	Qty.	Description
1	22045	1	Support Bracket
2	22044	1	Spring Rod Assy.
3	15729	2	Spring
4	81245	4	1 1/4" Flat Washer
5	80755	2	1 1/4" Jam Nut
6	11610	2	Grease Fitting, 1/8"
7	80130	4	5/8 x 2" Hex Bolt
	81015	4	5/8" Lock Washer
	80610	4	5/8" Hex Nut

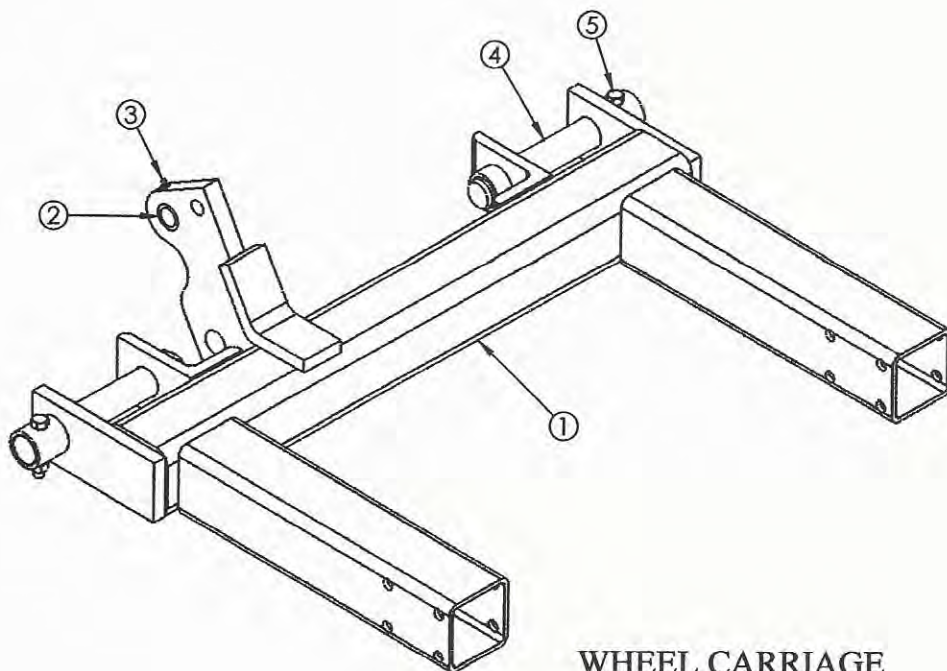


SPREADER BAR

Quantity Required

Ref.	Part No.	Quantity Required		Description
		17 - 23 Disc 127	25 - 33 Disc 127	
		17 - 21 Disc 167	23 - 29 Disc 167	
1	21505	1		Spreader Bar, Narrow
	21506		1	Spreader Bar, Wide
2	19637	2		Spreader Bar Pin
	19706		2	Spreader Bar Pin
3	81415	4	4	Cotter, 3/8 x 2"
4	21953	2	2	Connex Bushing
5	21920	1	1	Pin, 1 x 6"
	81395	2	2	Cotter, 1/4 x 2 1/2"



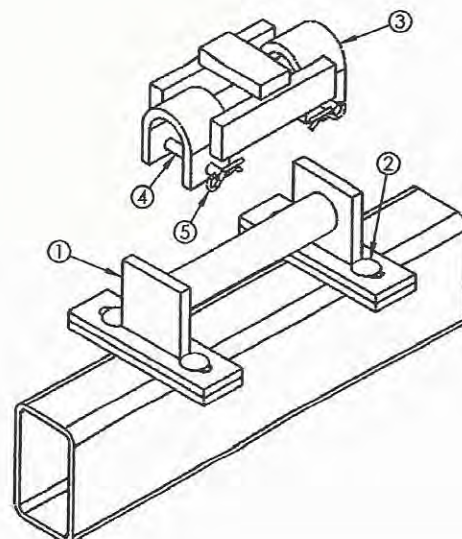


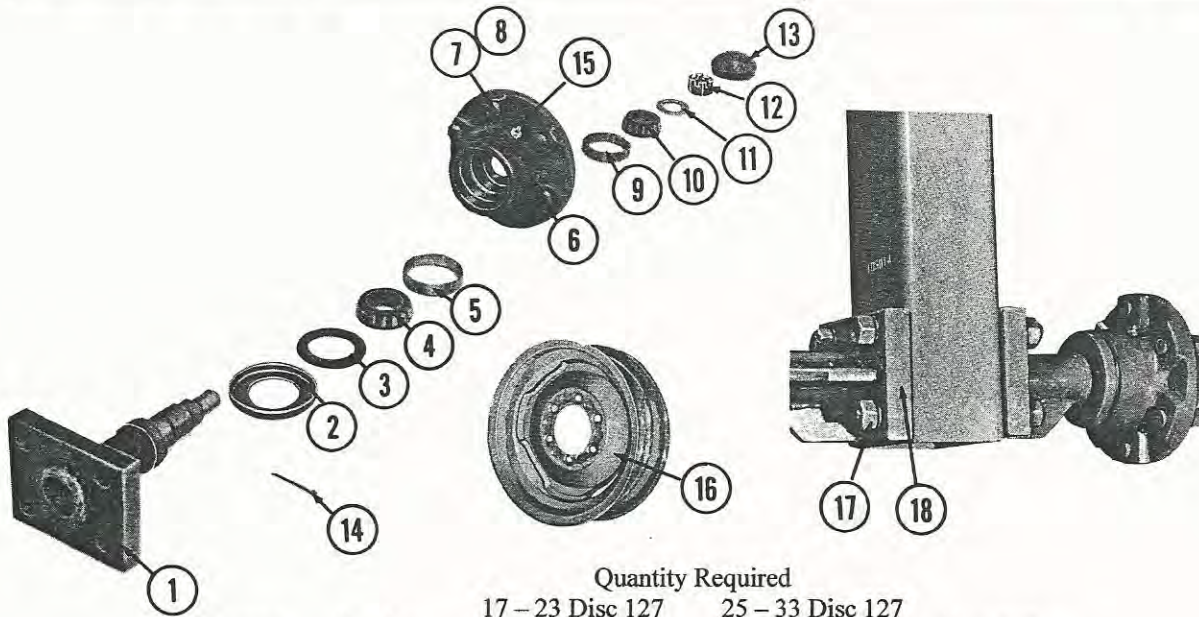
WHEEL CARRIAGE

Reference	Part No.	Quantity Required		Description
		17 - 23 Disc 127	25 - 33 Disc 127	
1	19633	1		Wheel Carriage, Narrow
	19702		1	Wheel Carriage, Wide
2	21953	1	1	Connex Bushing
3	11610	1	1	Grease Fitting, 1/8"
4	19629	2		Pivot Pin, 1 1/2 x 10 1/4"
	19286		2	Pivot Pin, 2 x 10 1/2"
5	80128	2	2	1/2 x 3" Hex Bolt
	81005	2	2	1/2" Lock Washer
	80590	2	2	1/2" Hex Nut

MECHANICAL TRANSPORT

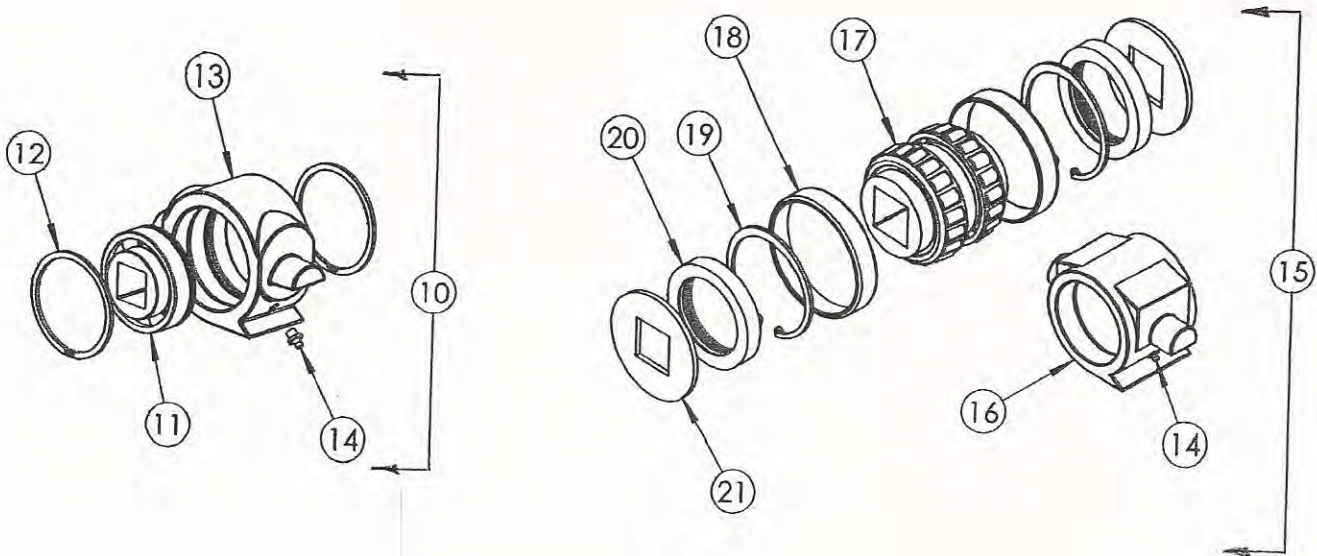
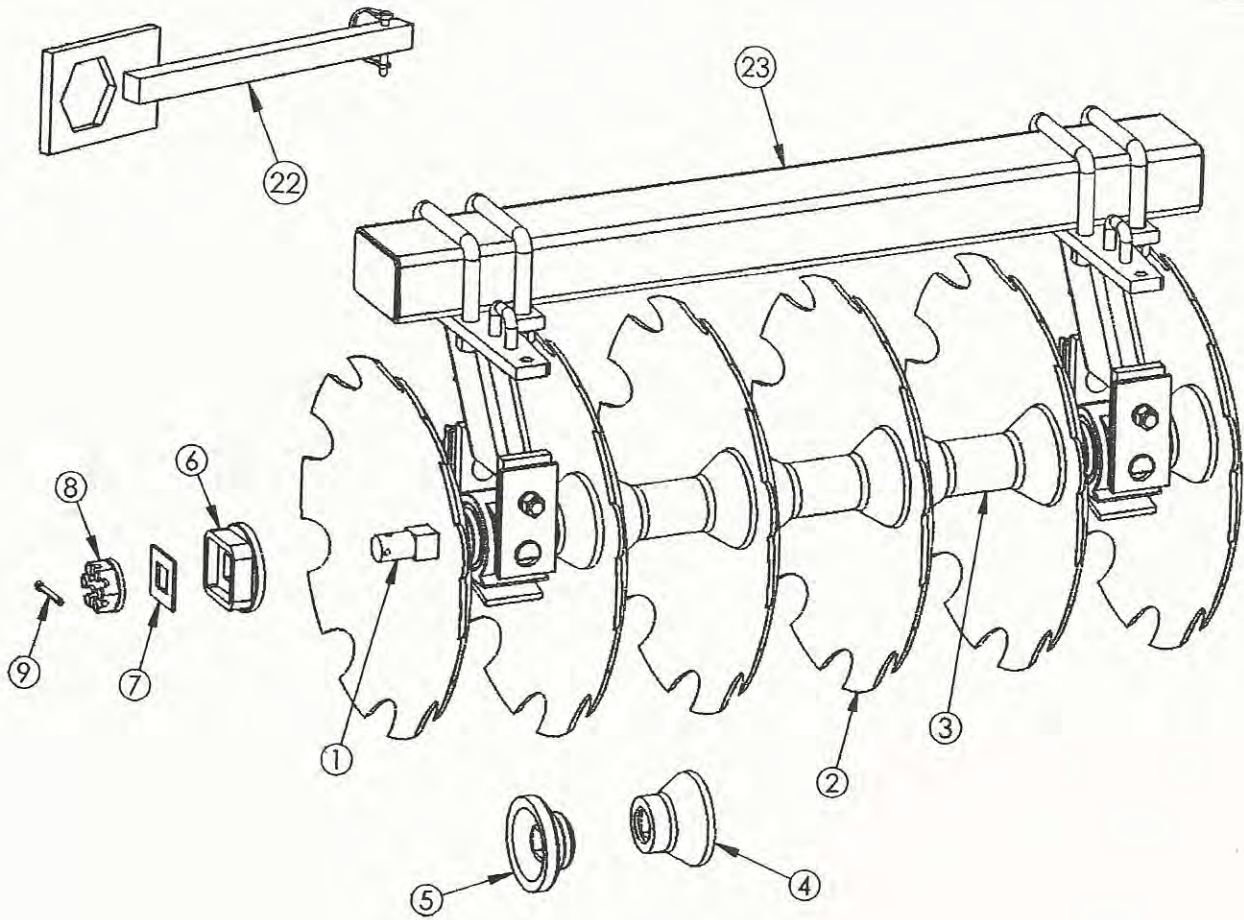
Ref.	Part No.	Qty.	Description
1	23574	1	Mechanical Transport Bracket
2	80322	4	Carriage Bolt, 1/2 x 1 1/2"
	81005	4	1/2" Lockwasher
	80590	4	1/2" Hex Nut
3	19788	1	Mechanical Transport
4	19778	2	Transport Pin
5	19791	2	Hair Pin Clip, 1/8"





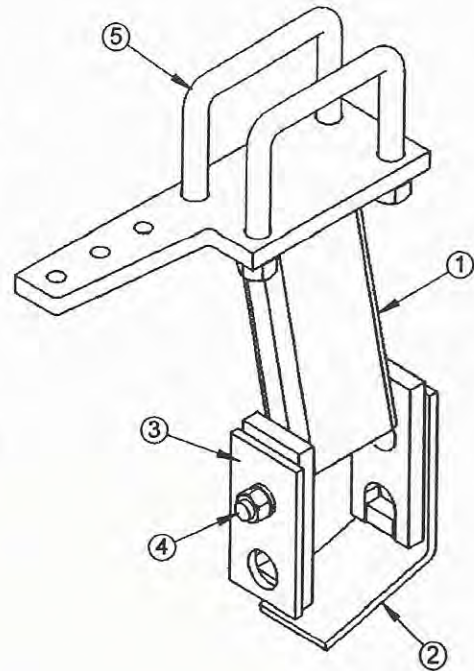
Reference	Part No.	Quantity Required		Description
		17 - 23 Disc 127 17 - 21 Disc 167	25 - 33 Disc 127 23 - 29 Disc 167	
1	19384	2		Wheel Axle
	19022		2	Wheel Axle
2	19076	2		Flinger, Press-on
	19019		2	Flinger, Press-on
3	19153	2		Triple-Lip Seal
	19021		2	Triple-Lip Seal
4	70045	2		Bearing Cone
	70002		2	Bearing Cone
5	70044	2		Bearing Cup
	70000		2	Bearing Cup
6	900079	2		Wheel Hub w/ Cups & Bolts, 5 Lug
	900076		2	Wheel Hub w/ Cups & Bolts, 6 Lug
7	13198	10	12	Bolt, Wheel
8	15793	10	12	Nut, Wheel Bolt
9	70048	2		Bearing Cup
	70025		2	Bearing Cup
10	70049	2		Bearing Cone
	70024		2	Bearing Cone
11	81230	2	2	Flat Washer, 1" SAE
12	80715	2	2	Nut, 1" NFT
13	19075	2		Hub Cap
	19020		2	Hub Cap
14	81360	2	2	Cotter, 3/16 x 1 1/2"
15	11610	2	2	Grease Fitting, 1/8"
16	15792	2		Wheel, 5 Lug, 15 x 6"
	18184		2	Wheel, 6 Lug, 15 x 8"
17	19759	8		Stud, Wheel Axle, 1/2 x 7 3/8"
	80590	16		1/2" Hex Nut
	81005	16		1/2" Lock Washer
	19016		8	Stud, Wheel Axle, 3/4 x 7 3/4"
	80625		16	3/4" Hex Nut
	81025		16	3/4" Lock Washer
18	19056	2		Plate, w/o Stub Axle
	19015		2	Plate, w/o Stub Axle

M O D E L	Reference	Part No.	Description	
1 2 7 D I S K G A N G P A R T S	1	15307	Axle, 1.50 x 42.62 x 41.12	
		15310	Axle, 1.50 x 52.12 x 50.62	
		16313	Axle, 1.50 x 61.62 x 60.12	
		16372	Axle, 1.50 x 71.25 x 69.75	
		16374	Axle, 1.50 x 81.25 x 79.25	
		16376	Axle, 1.50 x 90.75 x 89.25	
		18507	Axle, 1.50 x 42.62 x 41.12 CD	
		17630	Axle, 1.50 x 52.12 x 50.62 CD	
		17631	Axle, 1.50 x 61.62 x 60.12 CD	
		18450	Axle, 1.50 x 71.25 x 69.75 CD	
		18508	Axle, 1.50 x 81.25 x 79.25 CD	
		18509	Axle, 1.50 x 90.75 x 89.25 CD	
		2	16700	Disc, 24 x 1.50 CO
			15589	Disc, 22 x 1.50 CO
	18505N		Disc, 20 x 1.50 CO	
	17093		Disc, 24 x 1.50 SM	
	15590		Disc, 22 x 1.50 SM	
	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	18505	Disc, 20 x 1.50 SM	
		16307	Full Spacer, 9 ½"	
		19915	Convex Half Spacer (Tapered Roller Bearing)	
		21931	Convex Half Spacer (Ball Bearing)	
		16305	Concave Half Spacer (Tapered Roller Bearing)	
		21930	Concave Half Spacer (Ball Bearing)	
15004		End Washer		
16701		End Washer Spacer		
17067		Axle Nut		
81420		Cotter, ⅜ x 2 ½"		
900090		QUADRASEAL® Ball Bearing Package		
70508		Relube Ball Bearing		
19832		Snap Ring		
21687		Ball Bearing Housing		
11610		Grease Fitting, ⅛"		
920287		QUADRASEAL® Tapered Bearing Package		
19364		Tapered Roller Bearing Housing		
70051		Bearing Cone		
70052		Bearing Cup		
19832	Snap Ring			
19833	Triple-Lip Seal			
19831	Bearing Washer			
18266	Disk Gang Wrench			
19657	Gang Frame, 64.00"			
19659	Gang Frame, 73.50"			
19660	Gang Frame, 82.00"			
19662	Gang Frame, 91.50"			
19654	Gang Frame, 102.00"			
19655	Gang Frame, 111.50"			
19664	Gang Frame, 121.50"			
19666	Gang Frame, 130.50"			
19572	Gang Frame, 142.00"			
19573	Gang Frame, 151.50"			



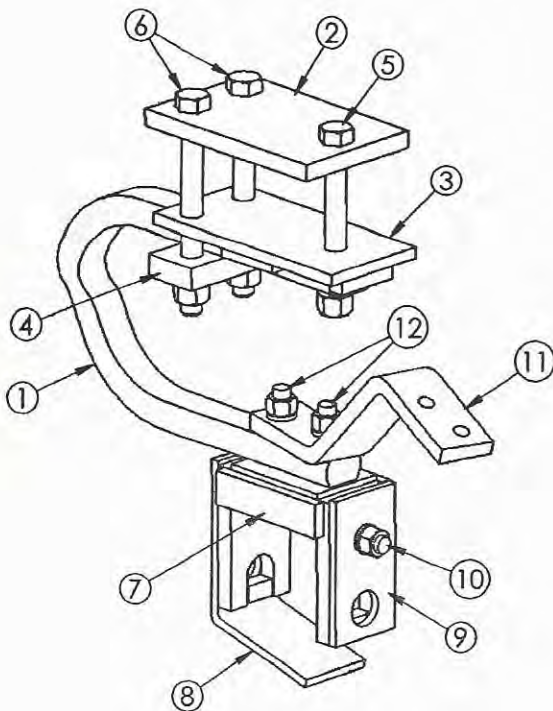
127 RIGID BEARING HANGER

Reference	Part No.	Description
1	23404	Rigid Bearing Hanger, Left (Shown)
	23403	Rigid Bearing Hanger, Right
2	23408	Wear Plate
3	23406	Rear Plate
4	80339	Carriage Bolt, 3/4 x 2 1/4"
	81025	3/4" Lockwasher
	80625	3/4" Hex Nut
1 - 4	900094	Right Rigid Bearing Hanger Bundle
1 - 4	900095	Left Rigid Bearing Hanger Bundle
5	19559	Bearing Hanger U-Bolt
	81030	7/8" Lockwasher
	80645	7/8" Hex Nut

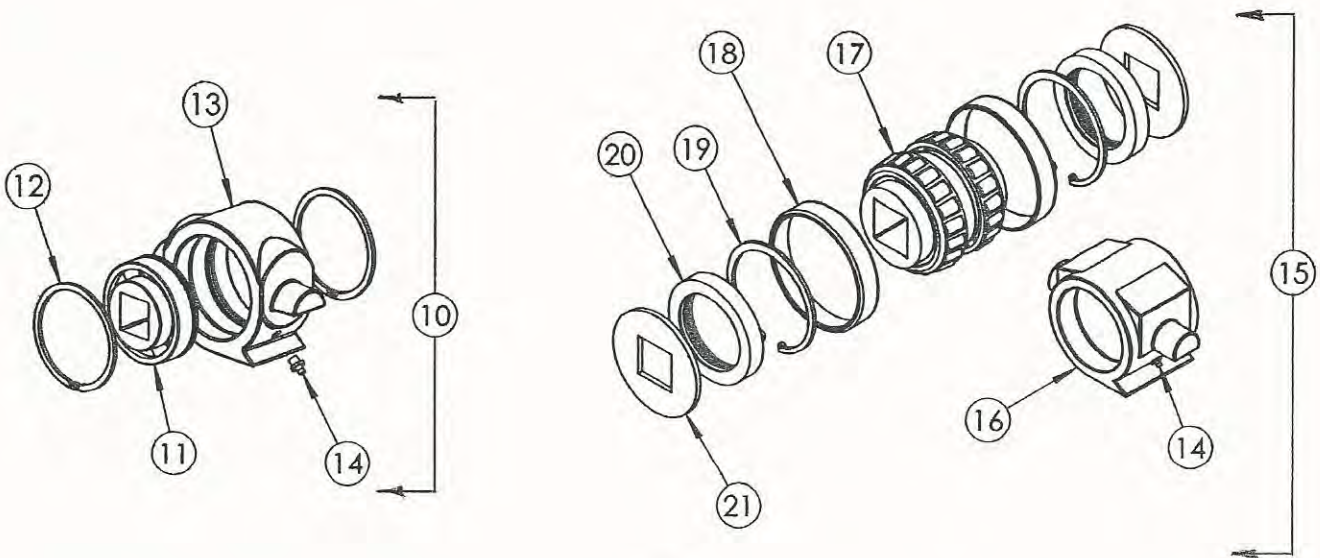
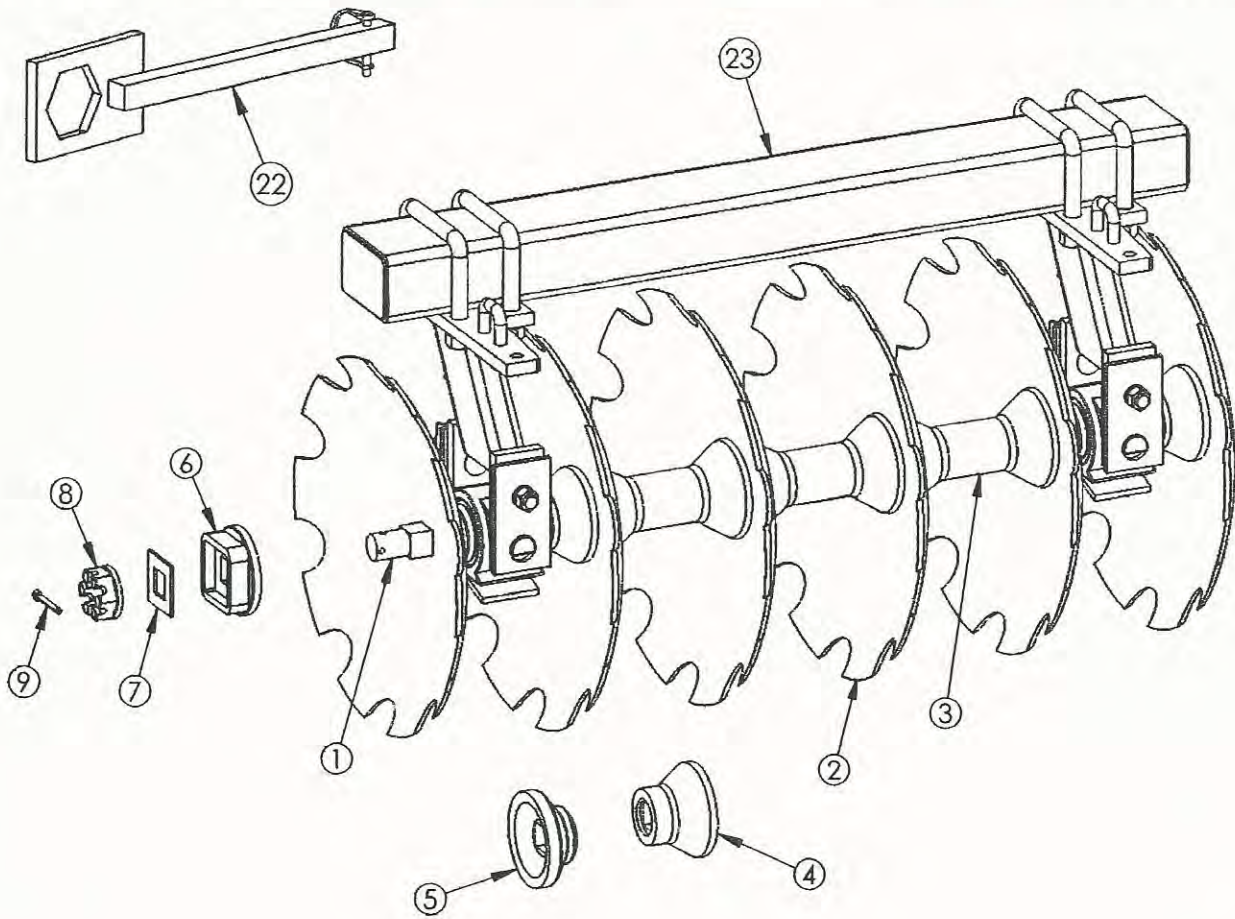


127 SPRING BEARING HANGER

Reference	Part No.	Description
1	20752	Spring Bearing Hanger, Left
	20753	Spring Bearing Hanger, Right
2	21337	Top Plate
3	20376	Bottom Plate
4	21338	Clamp Plate
5	20413	Bolt, 7/8 x 7 3/4"
6	18858	Bolt, 7/8 x 9"
	81030	7/8" Lockwasher
	80645	7/8" Hex Nut
7	23416	Spring Trunnion Cuff
8	23408	Wear Plate
9	23406	Rear Plate
10	80339	Carriage Bolt, 3/4 x 2 1/4"
	81025	3/4" Lockwasher
	80625	3/4" Hex Nut
7 - 10	900098	Spring Trunnion Cuff Bundle
11	20695	Scraper Bar Hanger, Right
	20696	Scraper Bar Hanger, Left
12	80340	Carriage Bolt, 3/4 x 4"
	81025	3/4" Lockwasher
	80625	3/4" Hex Nut

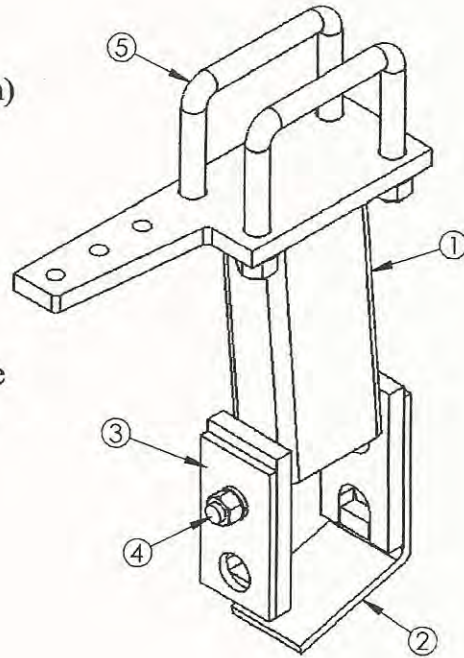


M O D E L	Reference	Part No.	Description	
1 6 7	1	15469	Axle, 1.50 x 36.00 x 34.50	
		15007	Axle, 1.50 x 46.50 x 45.00	
		16459	Axle, 1.50 x 57.12 x 55.62	
		18253	Axle, 1.50 x 67.62 x 66.12	
		17878	Axle, 1.50 x 36.00 x 34.50 CD	
		17879	Axle, 1.50 x 46.50 x 45.00 CD	
		18254	Axle, 1.50 x 57.12 x 55.62 CD	
D I S K	2	18255	Axle, 1.50 x 67.62 x 66.12 CD	
		08256	Disc, 26 x 1.50 CO	
		16700	Disc, 24 x 1.50 CO	
		15589	Disc, 22 x 1.50 CO	
		18119	Disc, 26 x 1.50 SM	
		17093	Disc, 24 x 1.50 SM	
		15590	Disc, 22 x 1.50 SM	
G A N G	3	16761	Full Spacer, 10 ½"	
		4	19939	Convex Half Spacer (Tapered Roller Bearing)
			21932	Convex Half Spacer (Ball Bearing)
		5	21442	Concave Half Spacer (Tapered Roller Bearing)
			21930	Concave Half Spacer (Ball Bearing)
P A R T S	6	15004	End Washer	
		7	16701	End Washer Spacer
		8	17067	Axle Nut
		9	81420	Cotter, ⅜ x 2 ½"
		10	900090	QUADRASEAL® Ball Bearing Package
		11	70508	Relube Ball Bearing
		12	19832	Snap Ring
		13	21687	Ball Bearing Housing
		14	11610	Grease Fitting, ⅛"
		15	920287	QUADRASEAL® Tapered Bearing Package
		16	19364	Tapered Roller Bearing Housing
		17	70051	Bearing Cone
		18	70052	Bearing Cup
		19	19832	Snap Ring
		20	19833	Triple-Lip Seal
21	19831	Bearing Washer		
22	18266	Disk Gang Wrench		
23		12058	Lock Pin	
		19658	Gang Frame, 70.00"	
		19660	Gang Frame, 82.00"	
		19663	Gang Frame, 91.50"	
		19654	Gang Frame, 102.00"	
		19655	Gang Frame, 111.50"	
		19664	Gang Frame, 121.50"	
		19666	Gang Frame, 130.50"	
		19574	Gang Frame, 136.00"	
		19572	Gang Frame, 142.00"	
		19575	Gang Frame, 146.50"	



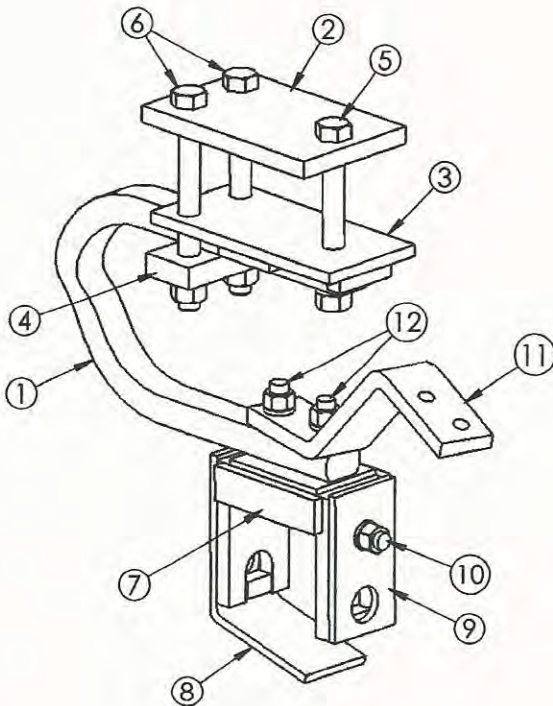
167 RIGID BEARING HANGER

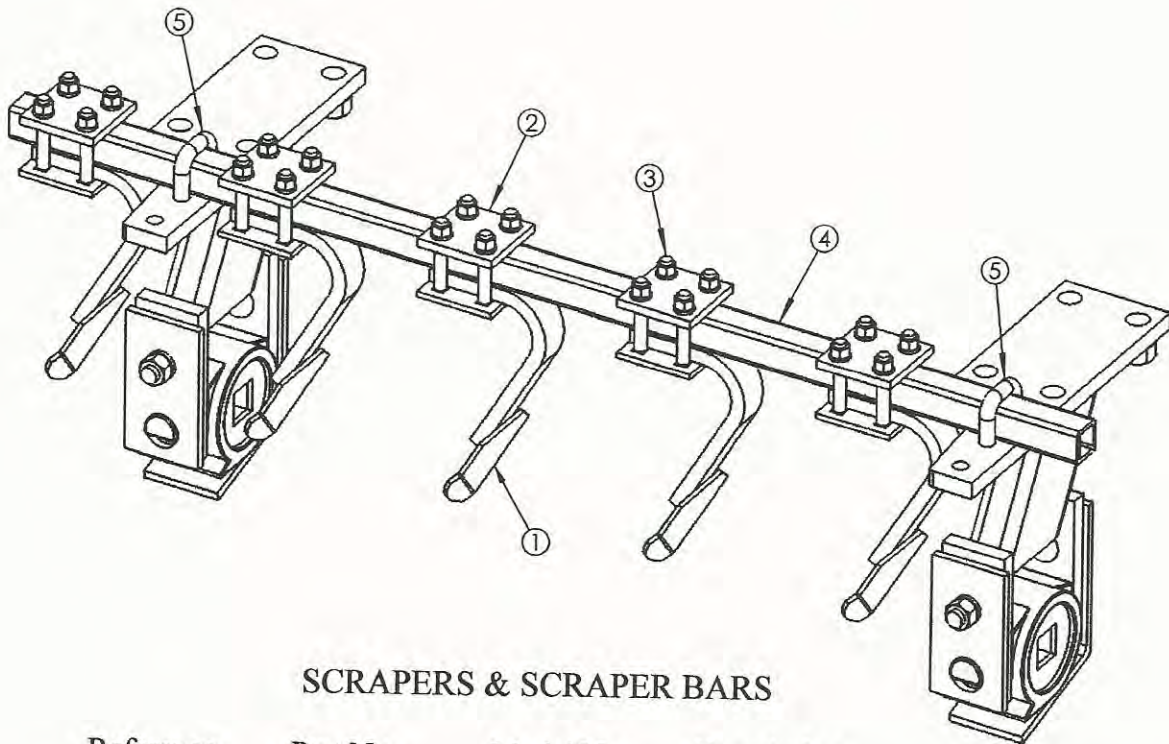
Reference	Part No.	Description
1	23412	Rigid Bearing Hanger, Left (Shown)
	23411	Rigid Bearing Hanger, Right
2	23408	Wear Plate
3	23406	Rear Plate
4	80339	Carriage Bolt, 3/4 x 2 1/4"
	81025	3/4" Lockwasher
	80625	3/4" Hex Nut
1 - 4	900096	Right Rigid Bearing Hanger Bundle
1 - 4	900097	Left Rigid Bearing Hanger Bundle
5	19559	Bearing Hanger U-Bolt
	81030	7/8" Lockwasher
	80645	7/8" Hex Nut



167 SPRING BEARING HANGER

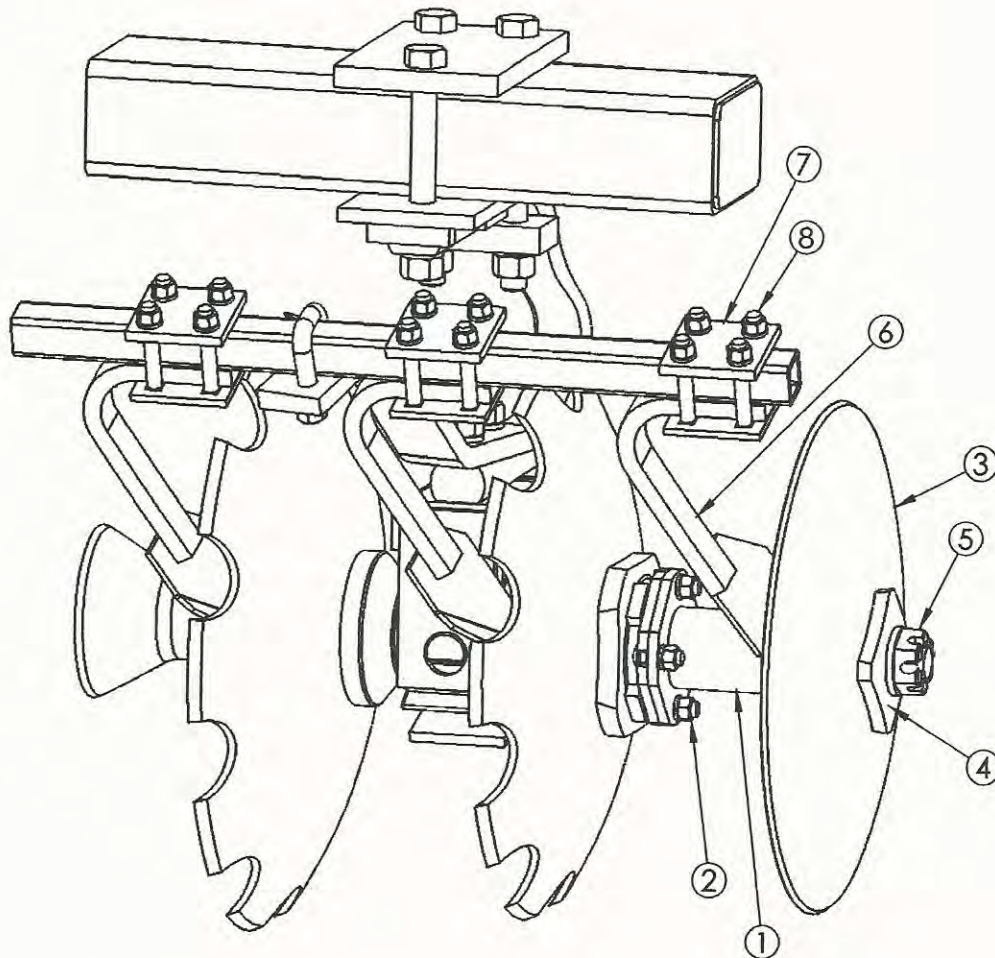
Reference	Part No.	Description	
1	20752	Spring Bearing Hanger, Left	
	20753	Spring Bearing Hanger, Right	
2	21337	Top Plate	
3	20376	Bottom Plate	
4	21338	Clamp Plate	
5	20413	Bolt, 7/8 x 7 3/4"	
	6	18858	Bolt, 7/8 x 9"
		81030	7/8" Lockwasher
7	80645	7/8" Hex Nut	
	23416	Spring Trunnion Cuff	
8	23408	Wear Plate	
9	23406	Rear Plate	
10	80339	Carriage Bolt, 3/4 x 2 1/4"	
	81025	3/4" Lockwasher	
	80625	3/4" Hex Nut	
7 - 10	900098	Spring Trunnion Cuff Bundle	
11	20695	Scraper Bar Hanger, Right	
	20696	Scraper Bar Hanger, Left	
12	80340	Carriage Bolt, 3/4 x 4"	
	81025	3/4" Lockwasher	
	80625	3/4" Hex Nut	





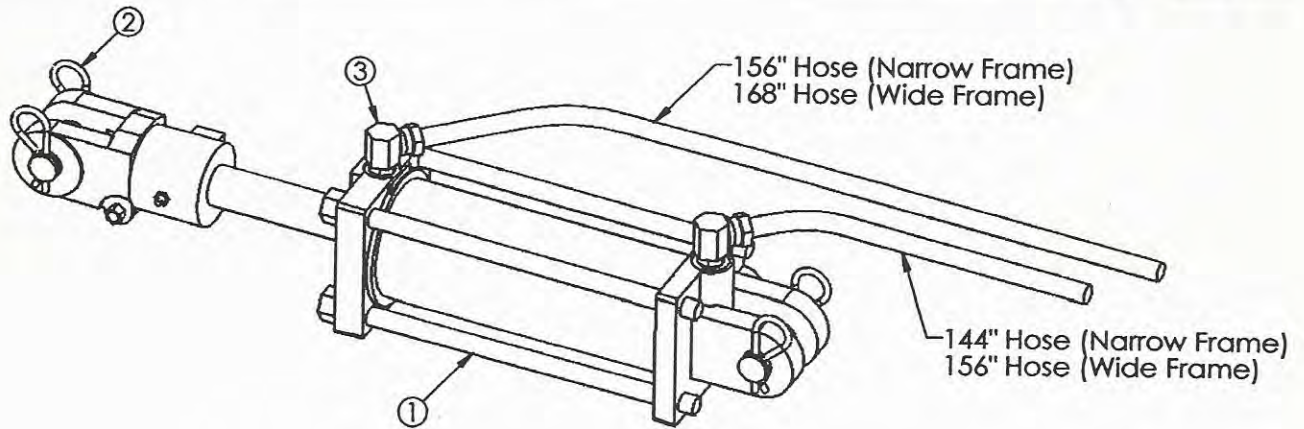
SCRAPERS & SCRAPER BARS

Reference	Part No.	Model No.	Description
1	20680	127/167	Right Front / Left Rear Scraper
	20682	127/167	Left Front / Right Rear Scraper
2	21844	127/167	Top Plate
3	80335	127/167	½ x 3 ½" Carriage Bolt
	81005	127/167	½" Lockwasher
	80590	127/167	½" Hex Nut
	20684	167	Scraper Bar - 32.00"
4	20685	167	Scraper Bar - 38.00"
	20686	127/167	Scraper Bar - 43.00"
	20729	127/167	Scraper Bar - 47.00"
	20730	127/167	Scraper Bar - 54.50"
	20731	127/167	Scraper Bar - 61.00"
	20732	127/167	Scraper Bar - 69.50"
	20733	127/167	Scraper Bar - 74.00"
	20734	127/167	Scraper Bar - 79.00"
	20735	127	Scraper Bar - 83.00"
	20736	127	Scraper Bar - 88.00"
	20737	127	Scraper Bar - 91.00"
	20738	127	Scraper Bar - 100.00"
	5	20676	127/167
81015		127/167	Lockwasher, ⅝"
80865		127/167	Lock Nut, ⅝"



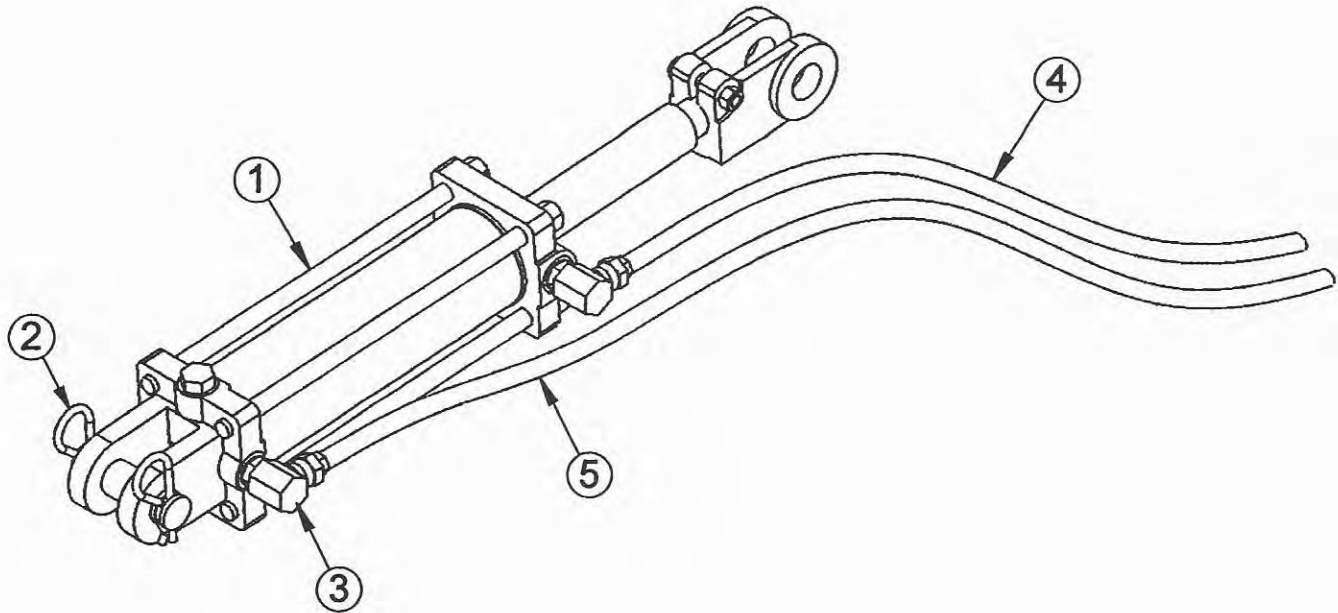
COVER DISC PARTS

Reference	Part No.	Description
1	17877	Cover Disc Mounting Assy.
2	80322	1/2 x 1 1/2" Carriage Bolt
	81005	1/2" Lockwasher
	80590	1/2" Hex Nut
3	15985	Cover Disc, 18 x .38 x 1.12 SM
4	17873	End Washer
5	17099	Disc Assembly Nut
	81375	Cotter, 3/16 x 2 1/2"
6	20698	Cover Disc Scraper, Right
7	21844	Top Plate
8	80335	1/2 x 3 1/2" Carriage Bolt
	81005	1/2" Lockwasher
	80590	1/2" Hex Nut



HYDRAULIC LIFTING CYLINDER & HOSES

		Part No.	Quantity Required		Description
			17-23 Disc 127	25-33 Disc 127	
Reference			17-21 Disc 167	23-29 Disc 167	
1		90005	1		Hydraulic Cylinder, 3.50 x 8.00
C Y L I N D E R	B R E A K D O W N	95142	1		Butt
		95141	1		Barrel
		95143	1		Gland
		95093	4		Tie Rod
		95144	1		Piston
		95140	1		Rod
		95206	1		Clevis 1.313-12
		95110	2		Clevis Pin
		95014	1		Stroke Control
		95145	1		Packing Kit
1		92023		1	Hydraulic Cylinder, 3.00 x 8.00
C Y L I N D E R	B R E A K D O W N	95193		1	Butt
		94203		1	Barrel
		95208		1	Gland
		95207		4	Tie Rod
		95197		1	Piston
		95205		1	Rod
		95199		1	Clevis 1.313-12
		95201		2	Clevis Pin
		95014		1	Stroke Control
		95209		1	Packing Kit
2		12057	4	4	Hair Pin Clip
3		94514	2	2	½ NPTF Swivel 90° St Elbow
4		94112	1	1	Hydraulic Hose, ⅜ x 156"
5		94114	1	1	Hydraulic Hose, ⅜ x 168"



HYDRAULIC LEVELING CYLINDER & HOSES

Reference	Part No.	Description	
1	90004	Hydraulic Cylinder, 3.00 x 8.00 x 1.38	
C Y L I N D E R	B R E A K D O W N	95142	Butt
		95141	Barrel
		95143	Gland
		95093	Tie Rod
		95144	Piston
		95140	Rod
		95206	Clevis 1.313-12
		95110	Clevis Pin
		95145	Packing Kit
2	12057	Hair Pin Clip	
3	94517	1/2 x 3/8 NPTF Swivel 90° St Elbow	
4	94217	Hydraulic Hose, 1/4 x 120"	
5	94218	Hydraulic Hose, 1/4 x 132"	

MANUAL LEVELING TURNBUCKLE

Reference	Part No.	Description
1	105316	Leveling Turnbuckle Bundle

