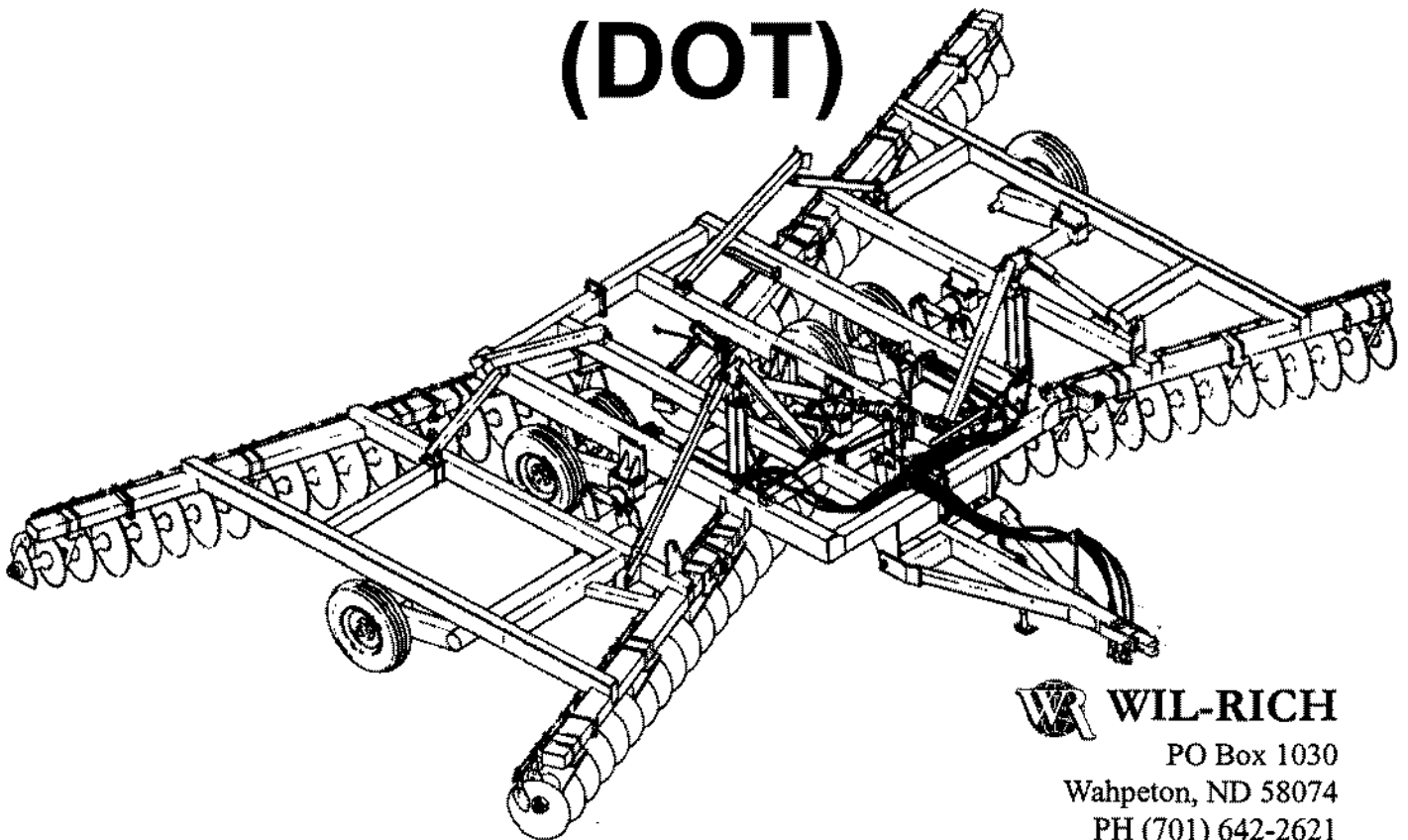




7620 OPERATOR'S MANUAL DOUBLE OFFSET TANDEM DISK (DOT)



Printed in USA (74250) WR - 10 - 9/04

 **WIL-RICH**

PO Box 1030
Wahpeton, ND 58074
PH (701) 642-2621
Fax (701) 642-3372

WARRANTY

The only warranty Wil-Rich gives and the only warranty the dealer is authorized to give is as follows:

We warrant products sold by us to be in accordance with our published specifications or those specifications agreed to by us in writing at time of sale. Our obligation and liability under this warranty is expressly limited to repairing, or replacing, at our option, within 12 months after date of retail delivery, any product not meeting the specifications. ***We make no other warranty, express or implied and make no warranty of merchantability or of fitness for any particular purpose.*** Our obligation under the warranty shall not include any transportation charges or costs or installation or any liability for direct, indirect or consequential damage or delay. If requested by us, products or parts for which a warranty claim is made are to be returned transportation prepaid to our factory. Any improper use, operation beyond rated capacity, substitution of parts not approved by us, or any alteration or repair by others in such manner as in our judgment affects the product materially and adversely shall void this warranty. ***No employee or representative is authorized to change this warranty in any way or grant any other warranty.***

Wil-Rich reserves the right to make improvement changes on any of our products without notice.

When warranty limited or not applicable: Warranty on hoses, cylinders, hubs, spindles, engines, valves, pumps or other trade accessories are limited to the warranties made by the respective manufactures of these components. Rubber tires and tubes are warranted directly by the respective tire manufacturer only, and not by Wil-Rich.

Warranty does not apply to any machine or part which has been repaired or altered in any way so as in the our judgment to affect its reliability, or which has been subject to misuse, negligence or accident.

A Warranty Validation and Delivery Report Form must be filled out and received by Wil-Rich to initiate the warranty coverage.

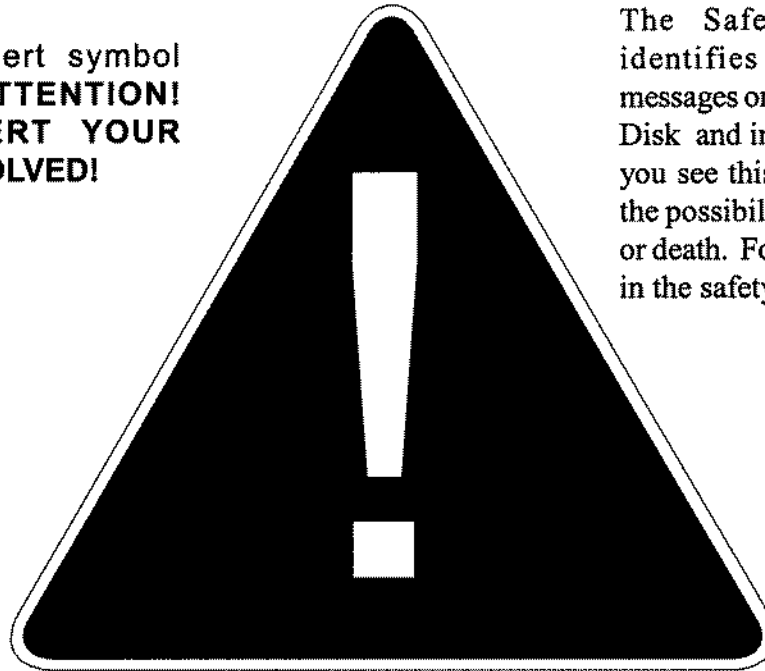
WARRANTY CLAIMS PROCEDURE

1. The warranty form must be returned to Wil-Rich within fifteen (15) working days from the repair date.
2. Parts returned to Wil-Rich without authorization will be refused. The parts must be retained at the dealership for ninety (90) days after the claim has been filed. If the Service Department would like to inspect the parts, a packing slip will be mailed to the dealer. The packing slip must be returned with the parts. The parts must be returned prepaid within thirty (30) days of receiving authorization. After the parts are inspected and warranty is verified, credit for the return freight will be issued to the dealer.
3. Parts that will be scrapped at the dealership will be inspected by a Wil-Rich Sales Representative, District Sales Manager or Service Representative within the ninety (90) day retaining period.

PERSONAL SAFETY IS IMPORTANT!

ALL PERSONNEL INVOLVED WITH THE ASSEMBLY AND/OR OPERATION OF THIS EQUIPMENT MUST BE INFORMED OF PROPER SAFETY PROCEDURES. OPERATOR'S/ASSEMBLY MANUALS PROVIDE THE NECESSARY INFORMATION. IF THE MANUAL IS LOST FOR A PARTICULAR IMPLEMENT, ORDER A REPLACEMENT AT ONCE. OPERATOR'S AND ASSEMBLY MANUALS ARE AVAILABLE AT NO CHARGE UPON REQUEST.

This Safety Alert symbol means **ATTENTION!**
BECOME ALERT YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on your Wil-Rich DOT Disk and in this manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

WHY IS SAFETY IMPORTANT TO YOU?

3 BIG REASONS

ACCIDENTS DISABLE AND KILL
ACCIDENTS COST
ACCIDENTS CAN BE AVOIDED

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guidelines:

DANGER

An immediate and specific hazard which **WILL** result in severe personal injury or death if the proper precautions are not taken.

WARNING

A specific hazard or unsafe practice which **COULD** result in severe personal injury or death if the proper precautions are not taken

CAUTION

Unsafe practices which **COULD** result in personal injury if proper practices are not taken, or as a reminder of good safety practices.


ADDRESS INQUIRIES TO: WIL-RICH PO BOX 1030
WAHPETON, ND 58074
PH (701) 642-2621 FAX (701) 642-3372

TO THE OWNER

It is the responsibility of the user to read the Operator's Manual and comply with the safe and correct operating procedures as pertains to the operation, lubrication and maintenance of the product according to the information outlined in the Operator's Manual.

If this machine is used by an employee or is loaned or rented, make certain that the operator(s), prior to operating, is instructed in safe and proper use and reviews and understands the Operator's Manual.

The user is responsible for inspecting his/her machine and for having parts repaired or replaced when continued use of this product would cause damage or excessive wear to the other parts. The word NOTE is used to convey information that is out of context with the manual text; special information such as specifications, techniques, reference information of supplementary nature.

WIL-RICH LLC	
Wahpeton, ND	
Serial Number:	<input type="text"/>
	
Made in USA	

When in need of parts, always specify the model and serial number. Write this number in the space provided. The serial number plate is located on the main frame in the front left corner.

MODIFICATIONS

It is the policy of Wil-Rich to improve its products whenever possible and practical to do so. We reserve the right to make changes, improvements and modifications at any time without incurring obligation to make such changes, improvements on any equipment sold previously.

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GENERAL INFORMATION

Remove all wires and/or banding material. The parts have been conveniently arranged on the pallet for ease of assembly.

NOTE: Always wear safety glasses or goggles and be careful when cutting wires and steel bands as they are under tension and will spring back when cut.

Wherever the terms "left" and "right" are used, it must be understood to mean from a position behind and facing the machine.

Lubricate all bearings and moving parts as you proceed and make sure they work freely.

Loosely install all bolts connecting mating parts before final tightening.

When tightening bolts, they must be torqued to the proper number of foot-pounds as indicated in the table unless specified. It is important that all bolts be kept tight. (See Page 24)

On new machines, all nuts and bolts must be rechecked after a few hours of operation.

When replacing a bolt, use only a bolt of the same grade or higher. Except in shear bolt applications, where you must use the same grade bolt.

Bolts with no markings are grade 2

Grade 5 bolts furnished with the machine are identified by three radial lines on the head.

Grade 8 bolts furnished with the machine are identified by six radial lines on the head.

All U-bolts are grade 5.



**THIS SYMBOL USED TO CALL
YOUR ATTENTION TO INSTRUCTIONS
CONCERNING YOUR PERSONAL
SAFETY.
BE SURE TO OBSERVE AND FOLLOW
THESE INSTRUCTIONS**



CAUTION

**FAILURE TO FOLLOW THESE
INSTRUCTIONS MAY RESULT
IN PERSONAL INJURY AND/OR
EQUIPMENT DAMAGE.**

- Just before and during operation be sure no one is on or around the implement.
- Before activating the hydraulic system, check hoses for proper connections.
- Before lowering the wings for the first time, make sure the entire system has been charged with oil.
- With wings down always install hydraulic cylinder channel lock(s) for transporting.

SIGN-OFF FORM

WIL-RICH follows the general standard specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Double Offset Tandem Disk must read and understand ALL Safety, Operation, and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information is reviewed. Annually review this information before the season start-up.

Make periodic reviews of SAFETY and OPERATION a standard practice for all your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for all personnel who will be working with equipment have read and understood the information in the operators manual and have been instructed in the operation of the equipment.

DATE	EMPLOYEE'S SIGNATURE	EMPLOYER'S SIGNATURE

SPECIFICATIONS

STANDARD EQUIPMENT

24x1/4" gauge blade, smooth or notched.
9" Blade spacing - cast iron spool
Tapered leveling blades (2)
1-1/2" Square gang bolt (heat treated)
Hitch Jack
(2) - 4"x16" Transport cylinders
(2) - 4"x24" Wing lift cylinders
Hydraulic hose carrier
Transport lockout device
Hydraulic system with manifold hoses to the tractor.
Adjustable moldboard scraper
(4) - 15x10 rims - centerframe
(4) - 15x8 rims - wings
2" Spindles on center axles and wing axles
Constant level spring loaded leveling adjustment
Main Frame: 4"x8"x1/4" and 4"x6"x1/4"
Wing frames and Gang beams: 4"x6"x1/4"
1-1/2" Square I.D. Triple seal regreaseable gang bearings in cast housing
Rotating hitch clevis
Gang shaft wrench
Walking Tandem Axles on center frame and wings
Rigid Bearing Stand

OPTIONAL EQUIPMENT

- 1-1/2" Square gang shaft with spring shank bearing stand
- Hi-flotation tires, 11Lx15(12ply) Center frame
11x15(8ply) Wing Frame
- Dual axles on center frame and wings

GENERAL FEATURES

Your DOT is a flexible wing-type disk. It is available in 25', 28', and 31' working widths. The constant-level spring loaded leveling adjustment keeps the disk at a level position at all soil depths and when in the transport position. The constant-level adjustment can be manipulated by hand without the need for tools.

The front gangs are offset and overlapped to make a complete cut. The rear gangs are spaced to leave a level field. Wings are supported by wide-spaced flotation tires which allow maximum response to uneven ground. Wings will flex 5° up or down. They can be individually adjusted for overall uniform depth penetration. Both the wings and the transport cylinders are closed when in the working position so rods are not exposed to field elements.

HYDRAULIC CYLINDERS

The hydraulic components received with your DOT were selected to deliver the most efficient and economical use. Any parts for replacement should be replaced with parts of the same type and size. Replace any hoses or fittings which develop leaks

Standard equipment for your DOT includes all hydraulic cylinders, fittings, and hoses from the cylinders to the tractor. The fittings include restrictors that limit the speed of operation of the wing fold hydraulic cylinders. The main lift cylinders are provided with O-ring ports. The wing fold cylinders have 1/2NPT ports. Hoses and fittings are provided that attach to these cylinders. The remaining fittings and hose ends are "JIC" fittings (**not pipe thread**) except the 1/2" male pipe fitting at the end of the hose leading to the tractor.

The lifting system uses two 4" bore x 16" stroke "tie rod" type cylinder. The wing folding system uses two 4" bore x 24" stroke cylinders.

Operation of the hydraulic system axle unit requires a tractor with hydraulic pressure capability of 2500 psi.

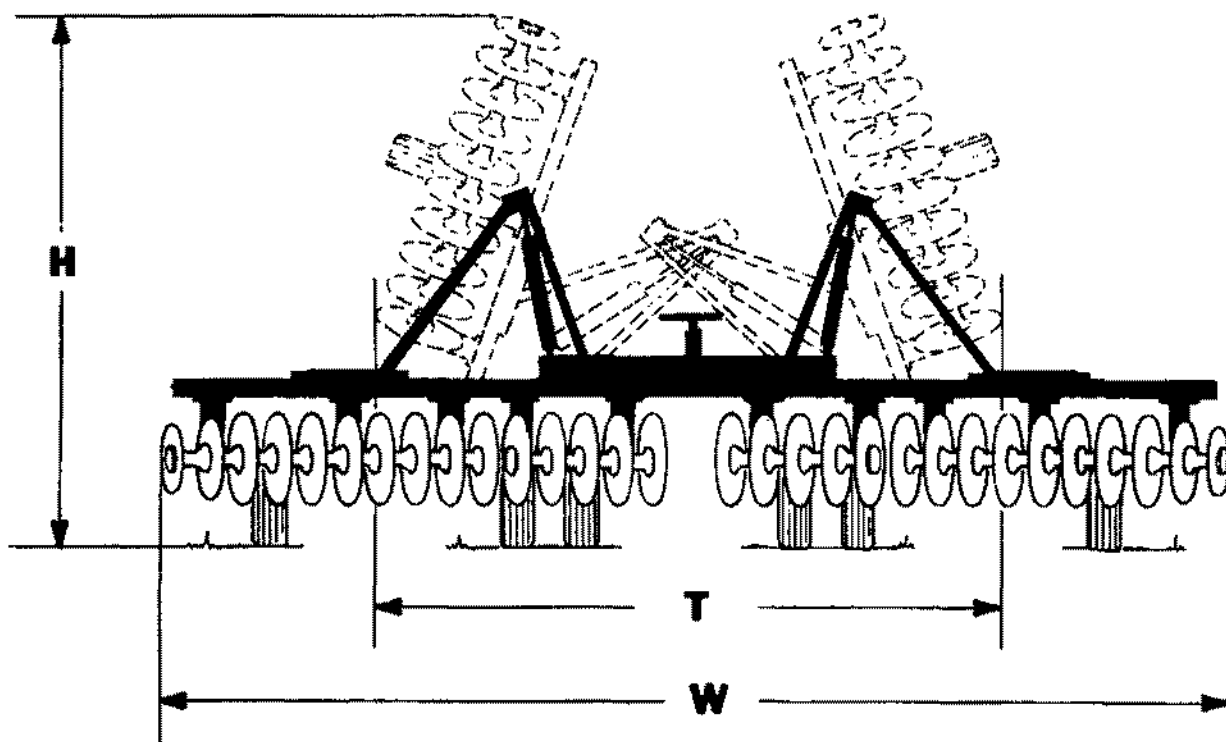


Figure 1:

Model No.	Width of Cut	Blade DIA.	No. of BRGS	No. of DISKS	Weight	Transport Height (H)	Transport Width (T)	Overall Width (W)
T25-2499R-H22	25'0"	24"x1/4"	26	70	13,260 lbs	11'9"	15'0"	27'4"
T25-2499F-HSS	25'0"	24"x1/4"	26	70	14,283 lbs	11'9"	15'0"	27'4"
T28-2499R-HSS	28'0"	24"x1/4"	26	78	13,700 lbs	13'0"	15'0"	30'2"
T28-2499F-HSS	28'0"	24"x1/4"	26	78	14,847 lbs	13'0"	15'0"	30'2"
T31-2499R-6SS	31'0"	24"x1/4"	28	86	14,540 lbs	14'3"	15'0"	33'3"
T31-2499F-6SS	31'0"	24"x1/4"	28	86	15,806 lbs	14'3"	15'0"	33'3"

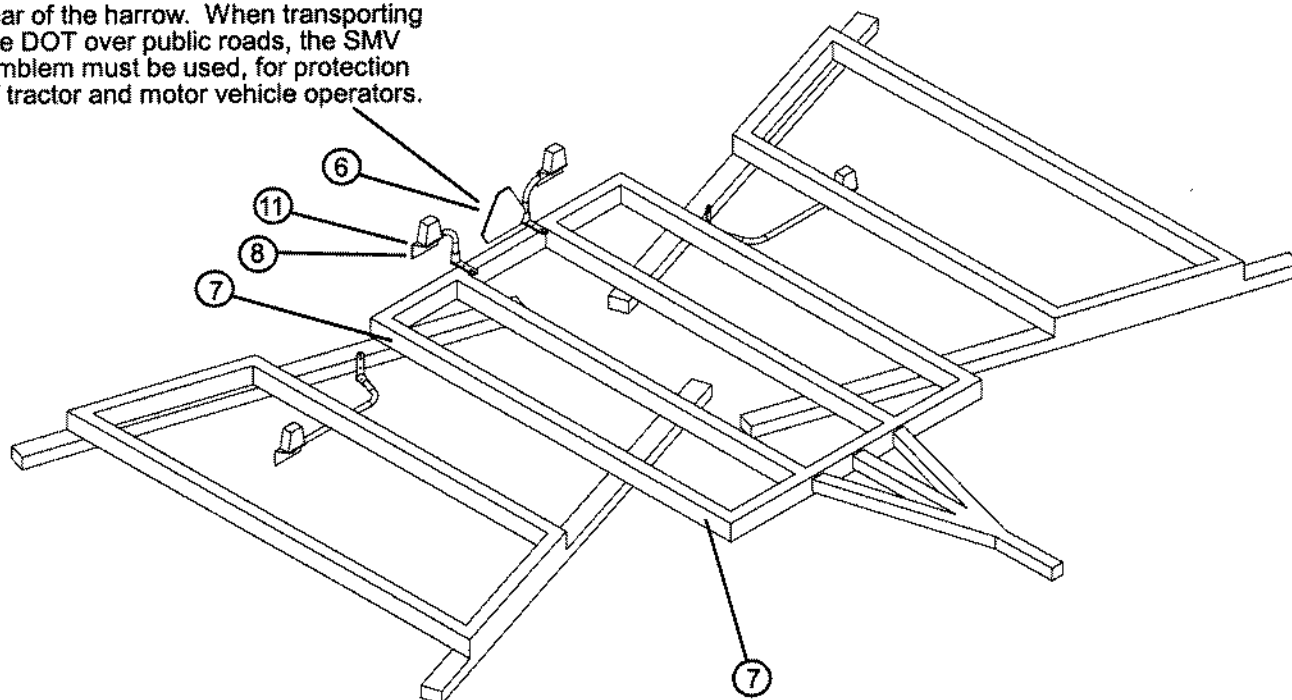
Serial Plate

To insure efficient and prompt service please furnish us with the model and serial number of your Double Offset Tandem in all correspondence or other contacts.

DECALS

SEE PAGE 48 FOR
HAZARD LIGHTING
ASSEMBLY

The SMV (Slow Moving Vehicle) Emblem is a recommended attachment that should be added to the rear of the harrow. When transporting the DOT over public roads, the SMV Emblem must be used, for protection of tractor and motor vehicle operators.



NOTE: Replace any safety decals that become worn or difficult to read; replace all safety decals when repainting.



CAUTION: When trailing the disk on public roads the SMV Emblem must be used, for protection of tractor and motor vehicle operators.



CAUTION: When transporting machinery over public roads, comply with your local and state laws regarding length, width, and lighting.

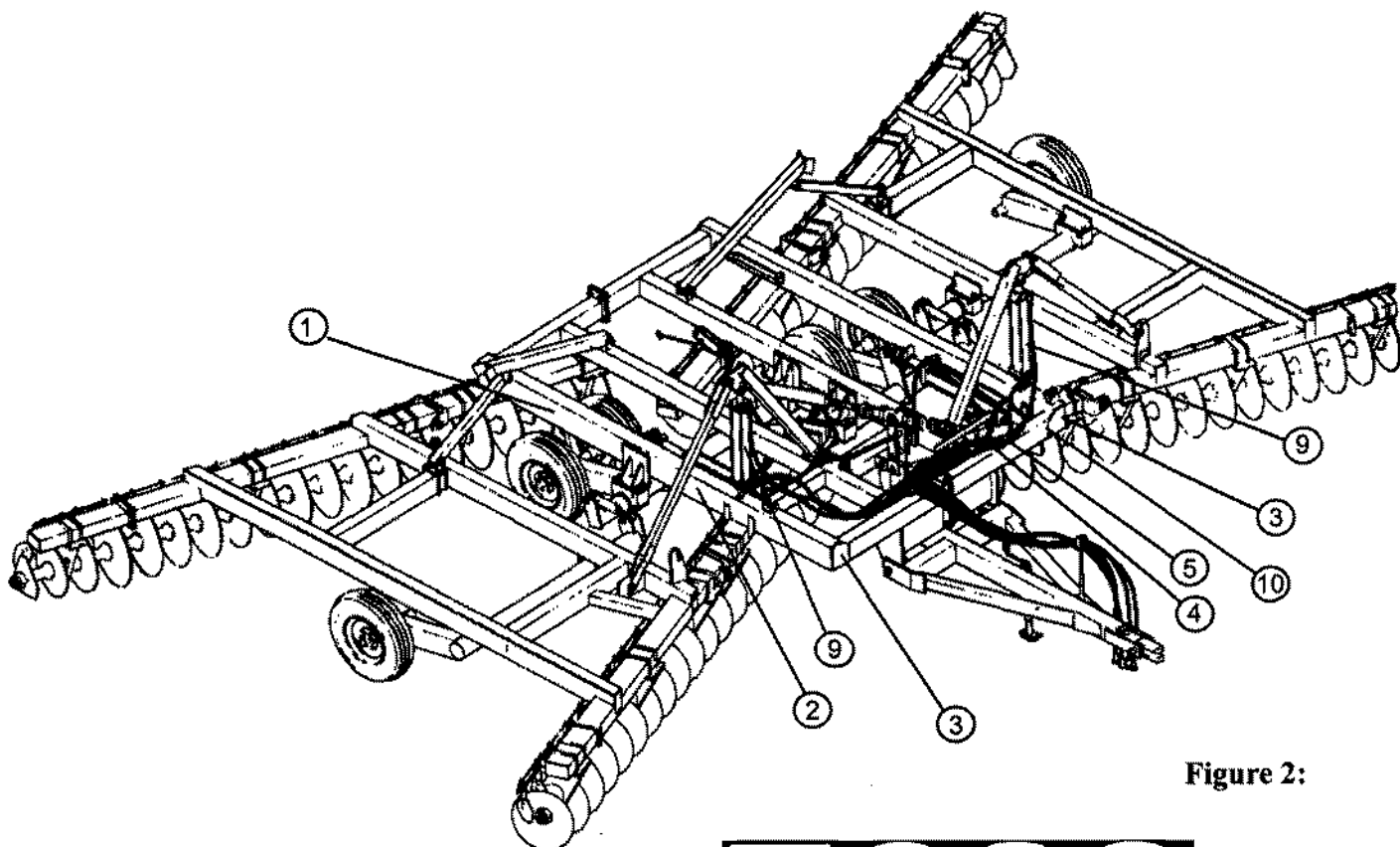


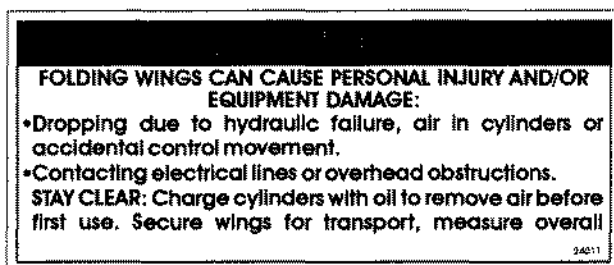
Figure 2:



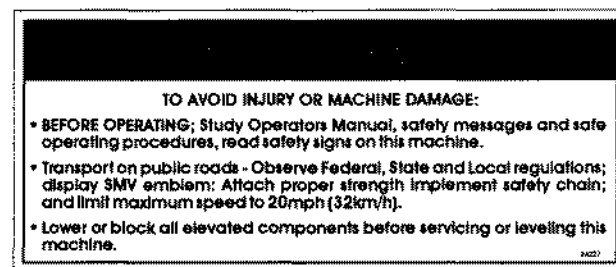
1 - 65342 - Wil-Rich Decal

7620

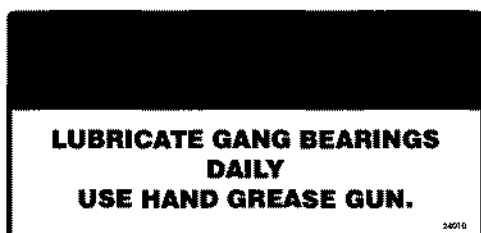
2 - 25882 - 7620 Decal



3 - 24011 - Warning Decal

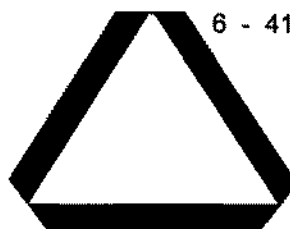


4 - 24227 - Warning Decal



5 - 24011 - Lubrication Decal

11 - 223118 -
Fluorescent Orange
Reflector



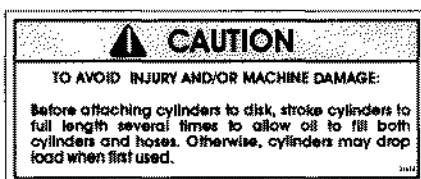
6 - 41345 - SMV Kit



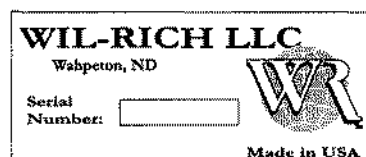
7 - 22372 - Amber Reflector



8 - 22371 - Red Reflector



9 - 24218 - Caution Decal



10 - Serial Number Plate
Location



11 - 223118 -
Fluorescent Orange
Reflector

GENERAL OPERATING INSTRUCTIONS



WARNING

1. BEFORE OPERATING - STUDY OPERATORS MANUAL, SAFETY MESSAGES AND SAFE OPERATING PROCEDURES, READ SAFETY SIGNS ON THIS MACHINE.
2. TRANSPORT ON PUBLIC ROADS - OBSERVE FEDERAL, STATE AND LOCAL REGULATIONS; DISPLAY SMV EMBLEM; ATTACH PROPER STRENGTH IMPLEMENT SAFETY CHAIN; AND LIMIT MAXIMUM SPEED TO 20MPH (32 km/h)
3. LOWER OR BLOCK ALL ELEVATED COMPONENTS BEFORE SERVICING OR LEAVING THIS MACHINE.

For economical and efficient operating, the operator must be aware of all the adjustments which should be considered for the best results. The operator should know what adjustments must be made for different conditions.

HITCHING INSTRUCTIONS



CAUTION NEVER STAND BETWEEN TRACTOR AND DISK WHEN HITCHING OR UNHITCHING UNLESS ALL CONTROLS ARE IN NEUTRAL AND THE BRAKES LOCKED.

JACK

The Double Offset Tandem Disk is equipped with a telescoping screw type jack. The jack has a pin that holds the jack either in a vertical or horizontal position. To change the position of the jack, pull the pin and rotate the jack until the pin can be inserted again. (See Figure 3)

To operate the jack, turn handle clockwise to extend and counter-clockwise to retract.

Refer to next page for jack shown in operating position.

Figure 3:





Figure 4:

The jack is shown here in the transport position.
(See Figure 4)



CAUTION: Before placing the jack into transport position, the hitch clevis should be secured to the drawbar to prevent the hitch from falling to the ground.

IMPORTANT: When working the disk, jack should be in transport position.

HITCH PIN

The recommended hitch pin size is at least 1-1/2" in diameter and should be securely attached so that the pin can not inadvertently come out.



CAUTION: Park or block the disk so it will not roll when disconnected from the tractor drawbar.

HYDRAULIC FITTINGS

All fittings for the hydraulic hoses are provided including Pioneer Quick Couplers to the tractor. The operator will need to furnish the hydraulic couplers, if Pioneer Quick Couplers provided aren't a match.



CAUTION: Do not connect or disconnect hydraulic components when there is pressure within the system. Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause serious injury. Use a piece of wood or cardboard when looking for leaks. Never use the hands or other parts of the body. When reassembling, make absolutely certain that all connections are tight. If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction may occur if medical attention is not received at once.

TOWING INSTRUCTIONS



CAUTION: Observe safe driving practices; comply with your local and state laws regarding length, width, and lighting. Be aware of low and narrow passages both in the field and on the road.

SMV EMBLEM

When trailing the disk on public roads, the SMV emblem must be used, for protection of tractor and motor vehicle operators. (See Figure 5)

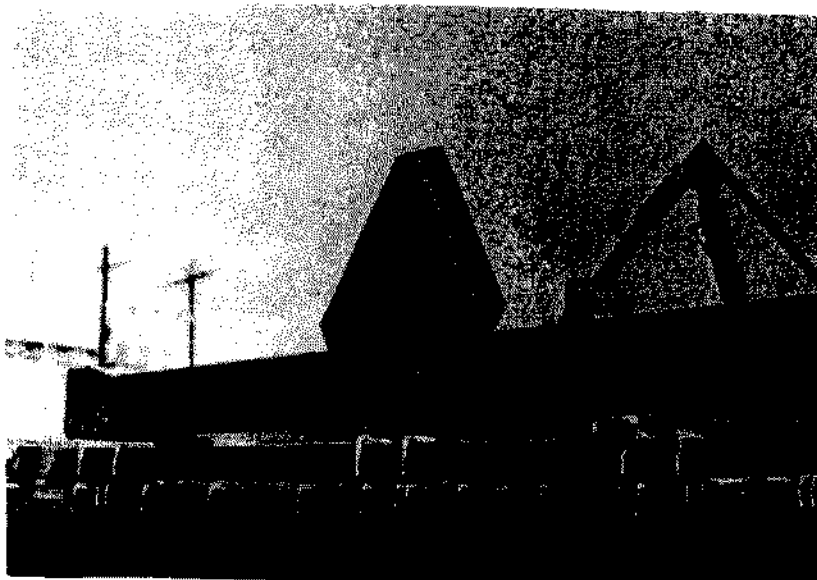


Figure 5:

LOCKOUT

LIFT LOCKOUT

When transporting or working on the machine in a raised position, the transport lockout should be used to prevent machine from falling in case of a hydraulic component failure. The lockout is engaged by swinging it down over the axle post. (See Figure 6)

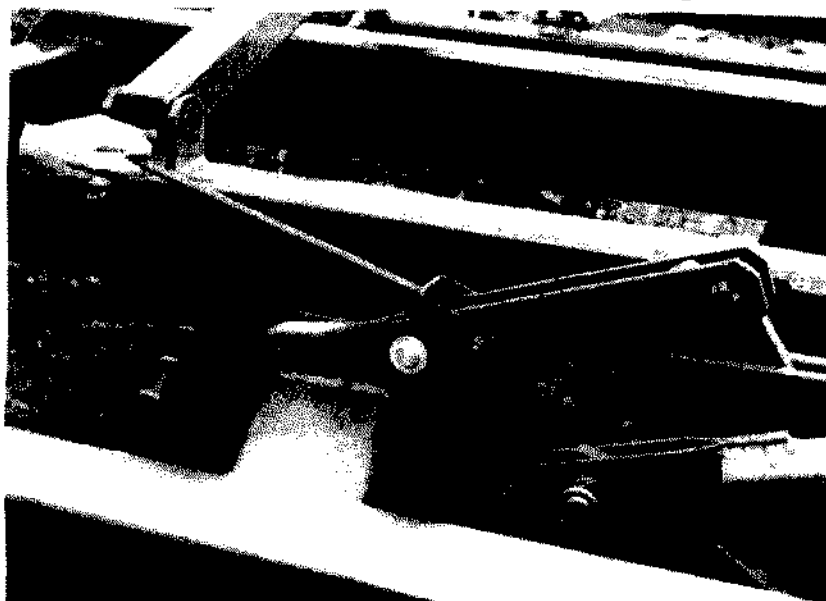
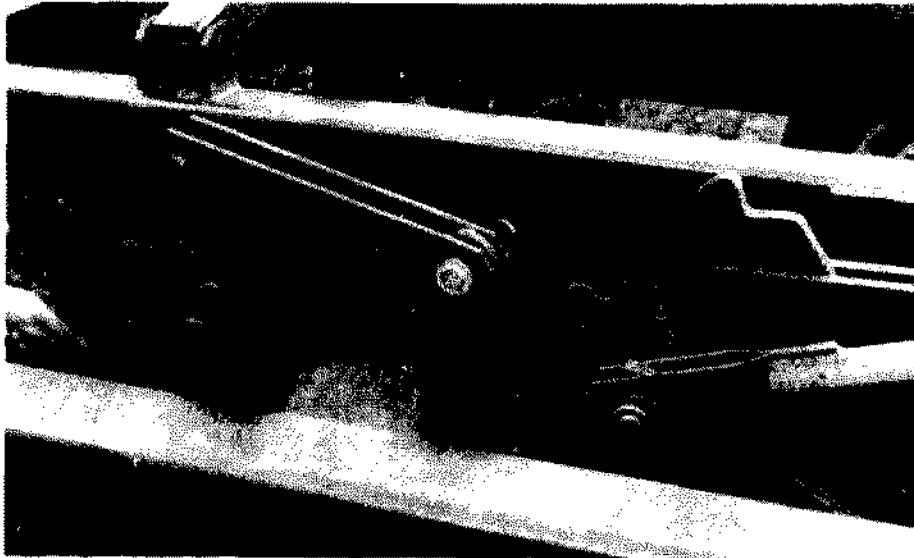


Figure 6:

Lockout shown engaged



Lockout shown disengaged

Figure 7:



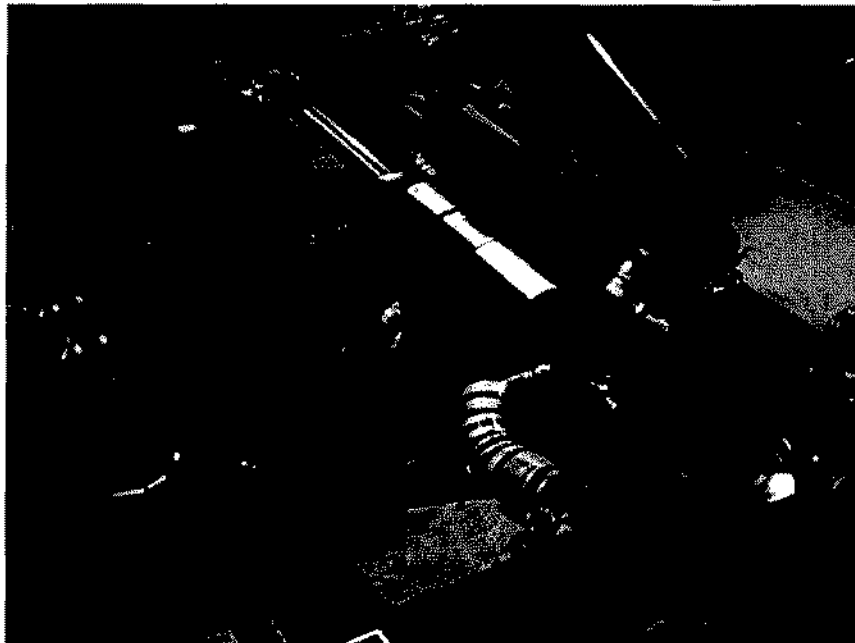
CAUTION:
Secure transport
lockout when
transporting.

FIELD OPERATION INSTRUCTIONS

To achieve the best performance from your 7620 Series DOT, there are a number of adjustments which can be made. These include controlling the depth and level of your machine. When making these adjustments use the following procedures.

DEPTH CONTROL

Figure 8:



The depth control cylinders are connected in parallel and are adjusted by adding or removing stop collars. Adding collars will decrease operating depth. Removing collars will increase operating depth. (See Figure 8)

FRONT WING LOCKOUT

The front wing lockouts should be used whenever the wings are in a folded position.

To lock wings place pin through ears of main frame and the slot on the wing lifting plate (see figure 9) and place spring clip through pin. It is important that the spring clip be placed securely on pin to prevent pin from falling out. When wing is unfolded the pin can be stored in its holder to prevent loss. The holder is located on the inside of the main frame.



CAUTION: Do not stand or work under disk wings unless wing lockout pins are installed.

Accidental operation of hydraulic lever or failure of any hydraulic components could cause disk wing to drop.

FOLDING WINGS CAN CAUSE PERSONAL INJURY AND/OR EQUIPMENT DAMAGE:

- Dropping due to hydraulic failure, air in cylinders or accidental control movement.
- Contacting electrical lines or overhead obstructions.

STAY CLEAR: Charge cylinders with oil to remove air before first use. Secure wings for transport, measure overall

24011

REAR WING SUPPORT ARM (28' & 31' ONLY)

The wing support arm is designed to provide additional support to the wing frame in folded position for 28' and 31' models. (See Figure 10)

Be sure the wing support arm does not prevent the rear support and front lockout from resting on the center frame.

To adjust, slide the mounting bracket up or down along frame crossmember until the weight of the wing frame is resting on both the rear support arm and the lockout support.



Figure 9: Front lockout is shown engaged with pin secured.

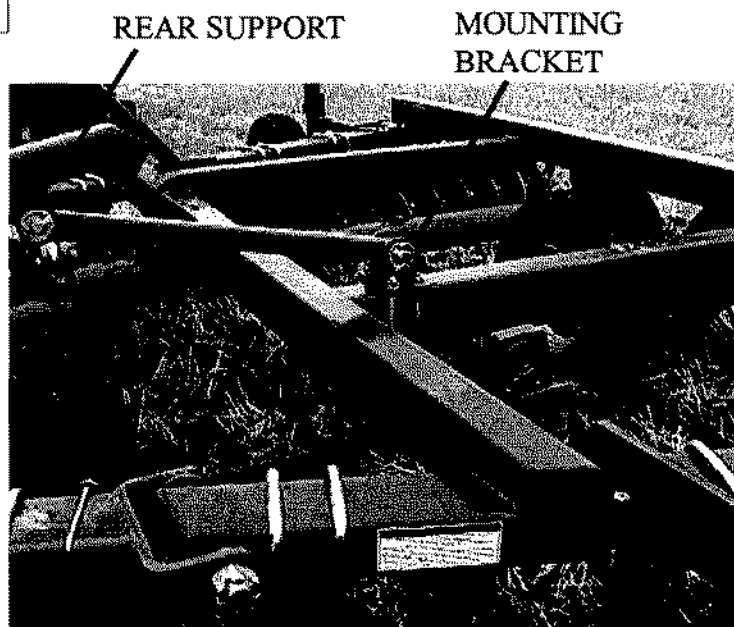


Figure 10:

SIDE TO SIDE LEVELING - AXLE ADJUSTMENT

1. After assembly and before first use, move the unit to a flat level surface.
2. Lower all gangs slowly. The main blades and wing blades should all contact the surface at the same time. If they do, proceed to the section entitled "Adjustment for leveling disk". If they do not, proceed to the next step.



Figure 11:

Remove lynch pin and pin with handle.
(wing axle swivel connector shown)

Adjust the center axle swivel connector to allow the main wheels to touch the surface at the same time. Refer to the assembly drawing on page 26 for center swivel axle connector operation.

Adjust both wing axle swivel connectors to allow the wing wheels to touch the surface at the same time. Remove the lynch pin and the pin with handle in wing axle swivel connectors to adjust. (See figures 11 & 12) For the right hand side of the disk turn the swivel connector clockwise to raise the end of the wing; counter-clockwise to lower it. Reverse this procedure for the left wing axle swivel connector.



Figure 12:

Turn swivel connector to adjust.
(wing axle swivel connector shown)

FRONT TO REAR LEVELING - SCREW ADJUSTMENT

To maintain a uniform penetration of the soil by both the front and rear blades, the frame of the disk must be level. To level the frame before operating, turn the leveling screw handle which is located in the center of the machine. (See Figure 13)

Turn handle to the right (clockwise) to lower the rear gangs, or turn the handle to the left (counter-clockwise) to lower the front gangs.

ADJUSTMENT FOR LEVELING DISK (CONT'D)

Different depth settings for front and rear gangs can be used to achieve the desired results. This adjustment will vary depending on soil conditions. The tension on the cushion springs is preset at the factory to allow the disk to flex when going over dead furrows or other uneven land. To lock the leveling screw, use the jam nut. (See Figure 13)

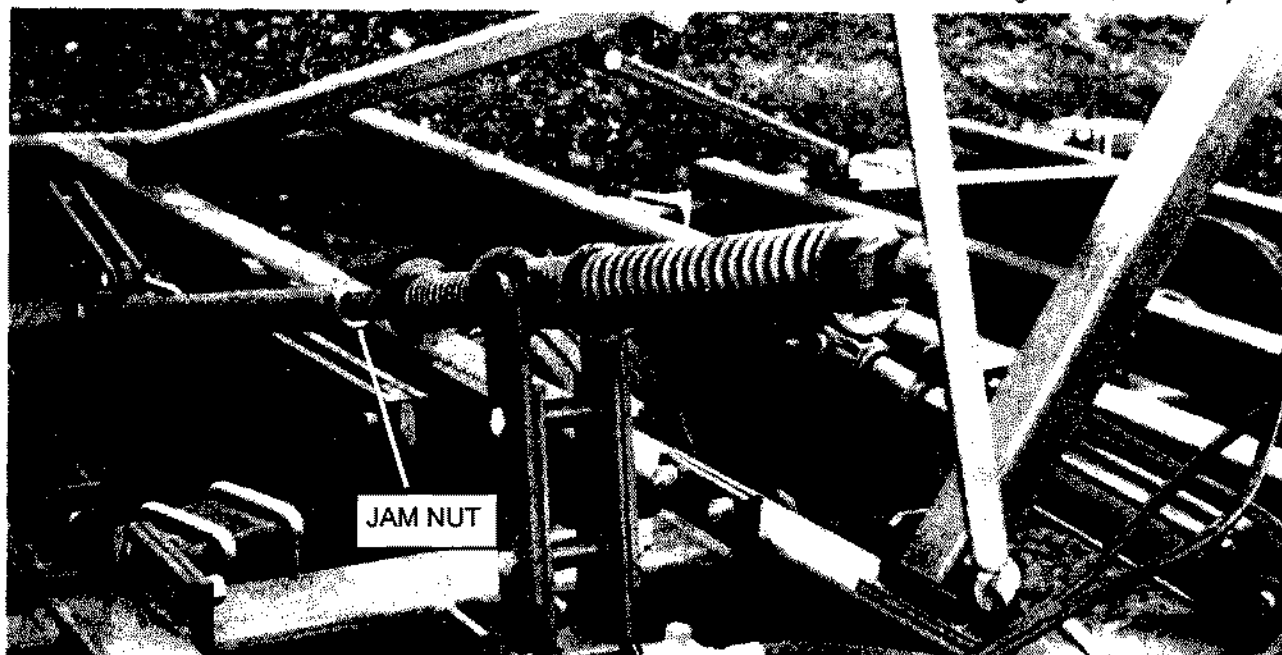


Figure 13:

SCRAPER ADJUSTMENT

The hardened steel scrapers provide a continuous cleaning action when properly adjusted. It is important that the clearance be checked daily under normal soil tilling conditions and more often in extremely trashy disking.

Adjust the scrapers to the proper setting. The scrapers should be adjusted to run approximately 1/16 to 1/8 inch maximum from the disk blades. Each scraper may be adjusted by loosening the U-bolts and sliding the assembly along the scraper bar. (See Figure 14)

Figure 14:

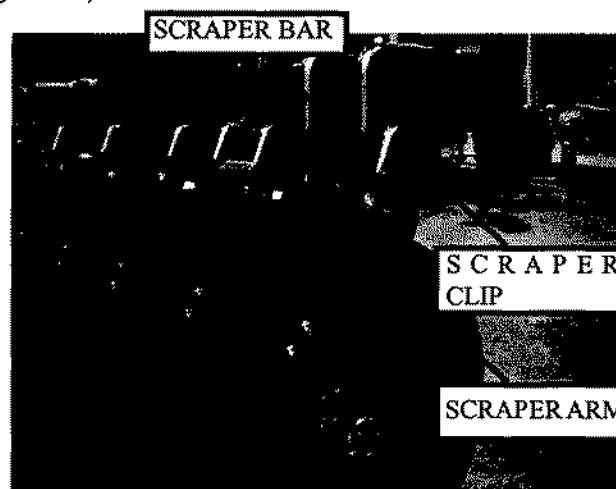
The pitch of the scraper blade can also be adjusted by loosening the blade bolts and moving the blades in the slotted holes in the scraper arm.

When disking in trashy conditions, trash will occasionally build up on the scraper blades. This condition can sometimes be reduced by moving the scraper away from the disk blades.

All scrapers should be checked for proper function. Plugging between two blades can work as a wheel and not allow a gang to penetrate and cause multiple problems in leveling.

ROCKY SOIL

Soil containing rocks, tree stumps or other foreign objects may cause mechanical damage to the unit which is not covered by warranty.



OPERATING SPEED

Best results will be achieved when operating speed of 4 to 6 miles per hour is maintained. Speed in excess of 6 miles per hour can cause uneven diskings. High speed will increase the chance of damage to the machine, when striking foreign objects such as rocks or stumps.

Lift machine out of the ground when making turns. This avoids serious ridging and high stresses on the machine.

MAINTENANCE/LUBRICATION

REMEMBER: Accidents don't always happen to the other guy so take great care when performing maintenance.

Periodic preventative maintenance such as tightening bolts, replacing worn pins, and proper lubrication will do much to extend the useful trouble-free of the Double Offset Tandem and provide the owner with the maximum operational performance.

After two hours and again after the first eight hours of operation the following checks and adjustments should be made.

- 1 Check and tighten, if necessary, all gang shaft nuts. Tighten to 1200 foot pounds, which is approximately 200 pounds on the end of a 6ft long wrench.
- 2 Tighten all bolts. Especially the bearing stand bolts. Tighten all bolts to torques specified. When bolts are replaced, be sure they are replaced with bolts of equal strength. See bolt head markings on bolt chart. (See Chart on Page 24)
- 3 Check wheel bearings and tighten if necessary. Check and tighten wheel lug bolts.
- 4 Check all keys and pins to see they are securely fastened.
- 5 Check and adjust scrapers. Scrapers should be adjusted to run approximately 1/16" to 1/8" from disk blades.
- 6 Lubricate various components that require lubrication as outlined. (See Pages 19-21)
- 7 Check all hydraulic components and connections for leaks. Replace any hoses or fittings that develop leaks.

Use the above list as a general guide for later checks and adjustments.



CAUTION: Never clean, adjust, or lubricate a disk that is in motion.

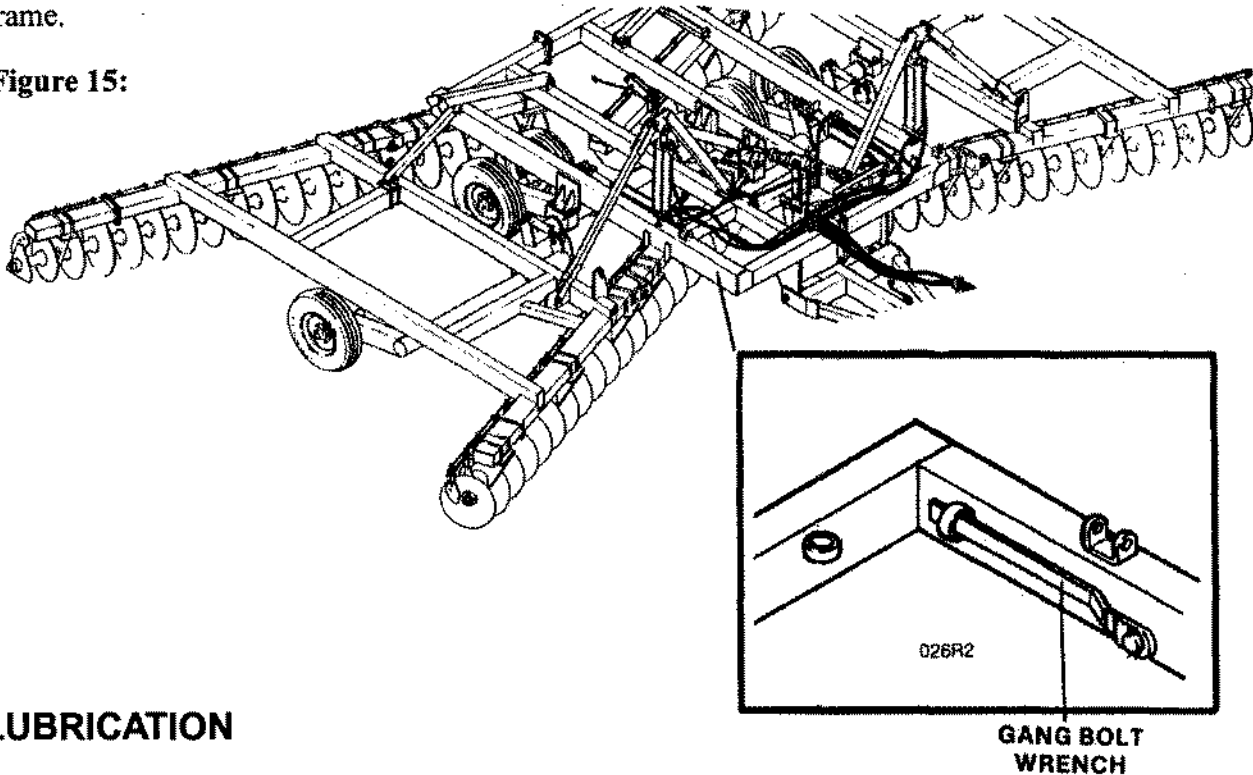
GANG BOLT WRENCH

The wrench, stored on the inside of the frame, is a useful tool for tightening or loosening gang shaft nuts.

NOTE: Use a pipe on the wrench to obtain the necessary foot pounds torque, when tightening shaft nuts.

When storing gang wrench on frame use spring clip provided to hold gang wrench to the stud on the frame.

Figure 15:



LUBRICATION

For economical and efficient operation, the proper lubrication of the disk is important. The following will detail the parts needing lubrication and the various conditions which determines the time span.

There are eight axle bearing castings which are in need of lubrication daily during regular use.

The leveling screw has two places which should be lubricated. The trunion is one and leveling screw tube is the other. These should be lubricated daily or as necessary. The threads on the leveling screw should be coated with oil occasionally to prevent rust and for a smoother operation.

The leveling pivot (teardrop) is the part that connects the leveling screw to the frame. There is a grease fitting located on the leveling pivot to allow the pin that fastens to the frame to be greased. This should be lubricated daily during regular use.

The swivel connectors should be greased occasionally and at start and end of each season for smooth operation. The grease fitting at all four wing hinges should be greased occasionally and at start and end of each season for smooth operation.

NOTE: Be sure grease fittings are free of dust and paint before using grease gun. Replace any damaged or missing fittings.

GANG BEARINGS

On the Double Offset Tandem the gangs are supported by alignable, triple lip sealed ball bearings with lubrication fittings. (See Figure 16) The gang bearings have been lubricated at the factory, but the operator should lubricate all bearings until a little grease appears from the seals before operating the machine for the first time. Triple lip seals allow frequent lubrication without fear of damaging seal.

There are no bearing adjustments to be made other than to make sure the brackets are firmly fastened. During use the gang bearings should be lubricated daily. They should also be lubricated at the start of each season and especially at the end of the season to protect against corrosion during storage.

Only use a hand grease gun. Wipe dirt from all grease fittings before lubricating. If a grease fitting is missing, replace it immediately.

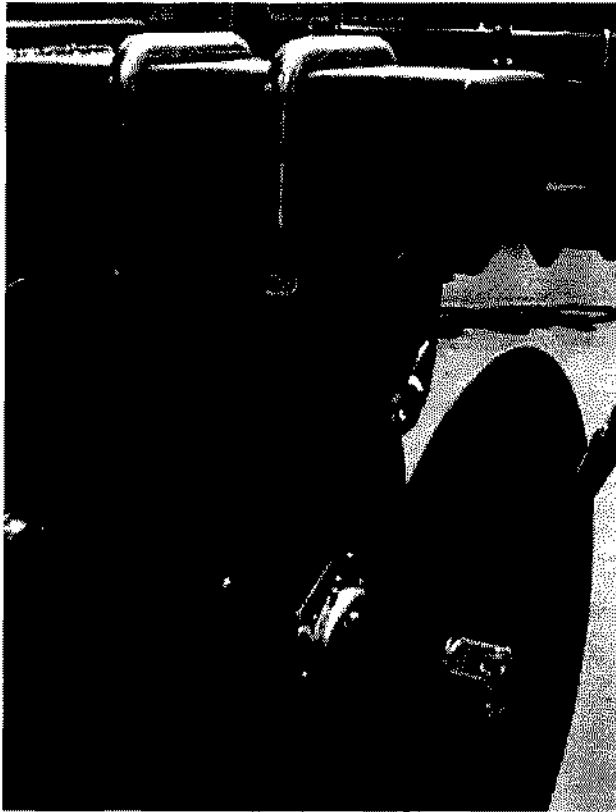
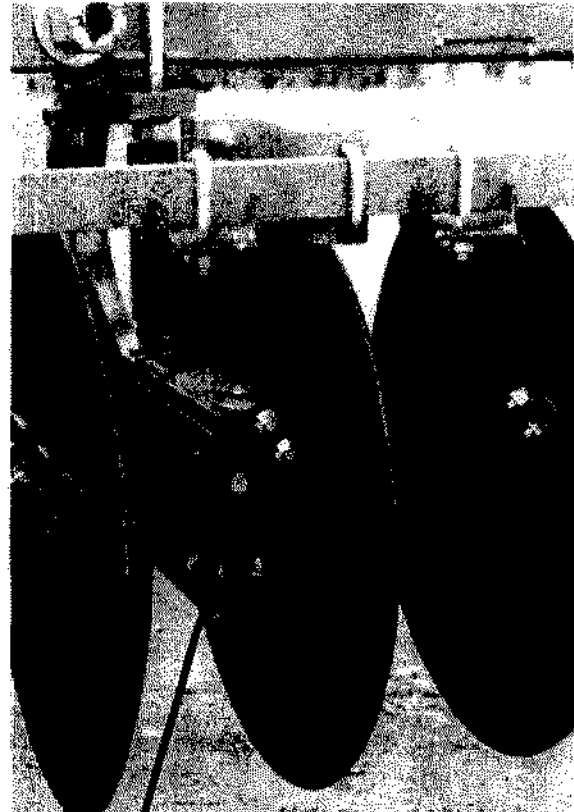


Figure 16:

GREASE FITTING

RIGID BEARING STAND



GREASE FITTING

FLEX BEARING STAND

IMPORTANT
LUBRICATE GANG BEARINGS
DAILY
USE HAND GREASE GUN

WHEEL BEARING

It is important that wheel bearings be repacked with grease and adjusted annually. Under hard working conditions, wheel bearings should be inspected more frequently - with occasional checks for excessive end play.

Care must be used in dismantling wheel bearing assembly. (See Figure 17) First remove the dust cap by prying around the edges. Remove the cotter pin, slotted nut, and flat washer. Carefully remove the hub and bearings from the spindle. Inspect all parts for wear or damage and replace with new parts if necessary.

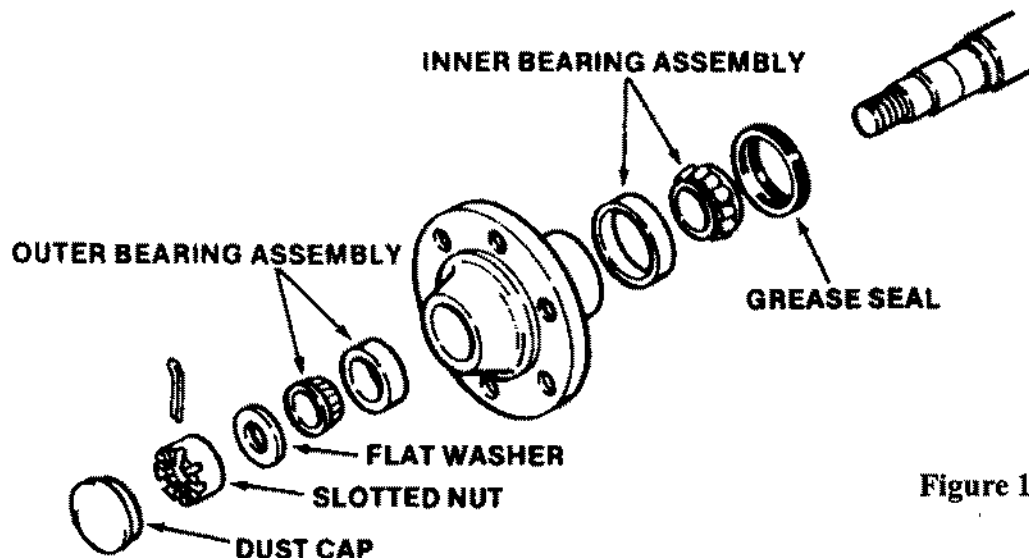


Figure 17:

When reassembling the hub, repack both bearing cones with grease and fill the hub cavity 1/3 full. Place inner bearing assemblies into the hub, and then press grease seal into hub and carefully reinstall the hub on the spindle. When placing hub on spindle be careful not to damage the lip of the grease seal. Install outer bearing assembly into the hub and place flat washer and slotted nut. Then tighten the slotted nut to seal the bearings until the hub binds as you rotate hub. Back off the slotted nut to the next slot and place a new cotter pin in. Use a 1/8"x1-1/2" long cotter pin. Replace dust cap.

Proper storage will add to the life of your disk and assure its being in good condition for the next season. The following procedure is recommended.

Clean off all foreign matter, and thoroughly lubricate disk.

Repaint the disk where the original paint has worn off.

Coat the disk blades and hydraulic cylinder rods with a good rust preventative. Tighten loose bolts and replace any damaged or missing parts

Carefully rotate each gang and check for worn or damaged blades, bent gang shafts, worn scrapers, damaged bearings and other parts which may need replacing.

Whenever disk blades or bearings are replaced, the gang shaft nuts must be torqued to 1200 foot pounds, which is approximately 200 pounds on the end of a six-foot wrench.

Store in a dry place, with the gangs resting on boards to protect the disk blades and remove weight from the tires. Keep direct sunlight off the tires.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.

DISK BLADES MAINTENANCE

Do **NOT** run machine with loose disk blades. Keep gang bolts tight! Tighten to 1200 foot pounds, which is approximately 200 pounds at the end of a six-foot long wrench. Use the gang bolt wrench provided with the machine with a “cheater bar”.

Rust and corrosion are the chief enemies of the disk. Spending a little time and effort protecting the disk blades will reward you with longer service, easier operation, and higher resale value. Dirt and trash will hold moisture, causing rust. Apply a good rust preventative to all land polished surfaces.

If the disk blades, bearings and spools must be replaced on the gang shaft, be sure to keep them in order when removing them so they can be replaced properly. The illustrations on page 41-45 will show the proper locations of the disk blades and bearings on the gang shaft. Remember the disk blades on the front gangs must be assembled to throw the soil out. The disk blades on the rear gangs are assembled to throw the soil in. Be careful to place each gang assembly in the same location on the frame from which it was removed.

TROUBLE SHOOTING

<u>PROBLEM</u>	<u>POSSIBLE CAUSES</u>	<u>POSSIBLE REMEDY</u>
Leaving center ridge.	Excessive speed Rear Gangs cutting too deep and throwing excess dirt to the center Improper gang spacing	Reduce speed Use leveling adjustment to reduce rear gang penetration Adjust spacing of gangs at center of machine
Uneven diskimg	Unlevel frame	Adjust center axle connector of frame so it is level right to left
Leaving center valley	Diskimg too slowly Rear gang cutting too shallow Improper gang spacing	Increase speed Use leveling adjustment to increase rear gang penetration Adjust spacing of gangs at center of machine
Gang plugging	Extremely wet field Scraper adjusted improperly or severely worn	Allow to dry if possible or disk shallow once to aid drying time Adjust, service and/or replace scrapers as required
Outside ridging	Wings too deep Front gang too deep and the outside blades digging out more than the rear gangs can bring back Excess speed will also cause outside ridging (throwing dirt out further than the rear gang can bring back)	Adjust swivel connector between wing & center axles to raise wing Use leveling adjustment to reduce front gang penetration Slow down tractor speed
Cylinder stalling	Hydraulic reservoir low Faulty plumbing Improper connections to tractor Lockout engaged	Add hydraulic oil to reservoir - see tractor manual for type and amount Check the routing of the hydraulic hoses - be sure there is no cross up in the lines Make sure circuits are not crossed at tractor Disengage lockouts

ASSEMBLY INSTRUCTION








It is very important that a new disk be properly assembled, adjusted and lubricated before use. Follow the illustrations on these pages for proper assembly. Remove paint from grease fittings and replace any that are damaged or missing.

BOLT INFORMATION

To insure alignment of assemblies, insert all bolts, leaving the nuts loose until completion of assembly. Use lockwashers or flat washers where called for. Spread all cotter pins.

All bolts should be tightened to the torques recommended in the table below. When bolts are replaced, be sure they are replaced with bolts of equal strength. See bolt head markings in table below.

NOTE: When hardware is plated, reduce torque values by 25%.

GENERAL TORQUE SPECIFICATION TABLE (Revised 2-74)													
USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN													
NOTE: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly-disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.													
SAE Grade No		2				5				8 *			
Bolt head identification marks as per grade NOTE: Manufacturing Marks Will Vary						  				  			
		Torque				Torque				Torque			
Bolt Size		Foot Pounds		Newton-Meters		Foot Pounds		Newton-Meters		Foot Pounds		Newton-Meters	
Inches	Millimeters	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1/4	6.35	5	6	6.8	8.13	9	11	12.2	14.9	12	15	16.3	20.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42	47.5	57.0	45	54	61.0	73.2
7/16	11.11	30	35	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	368.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	518.3	618.3
7/8	22.23	180	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.6
1-1/8	25.58					800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1-1/4	31.75					1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1-3/8	34.93					1460	1680	1979.8	2278.1	2380	2720	3227.3	3688.3
1-1/2	38.10					1940	2200	2630.6	2983.2	3160	3560	4285.0	4827.4
											* Thick nuts must be used with Grade 8 bolts		

* Thick nuts must be used with Grade 8 bolts

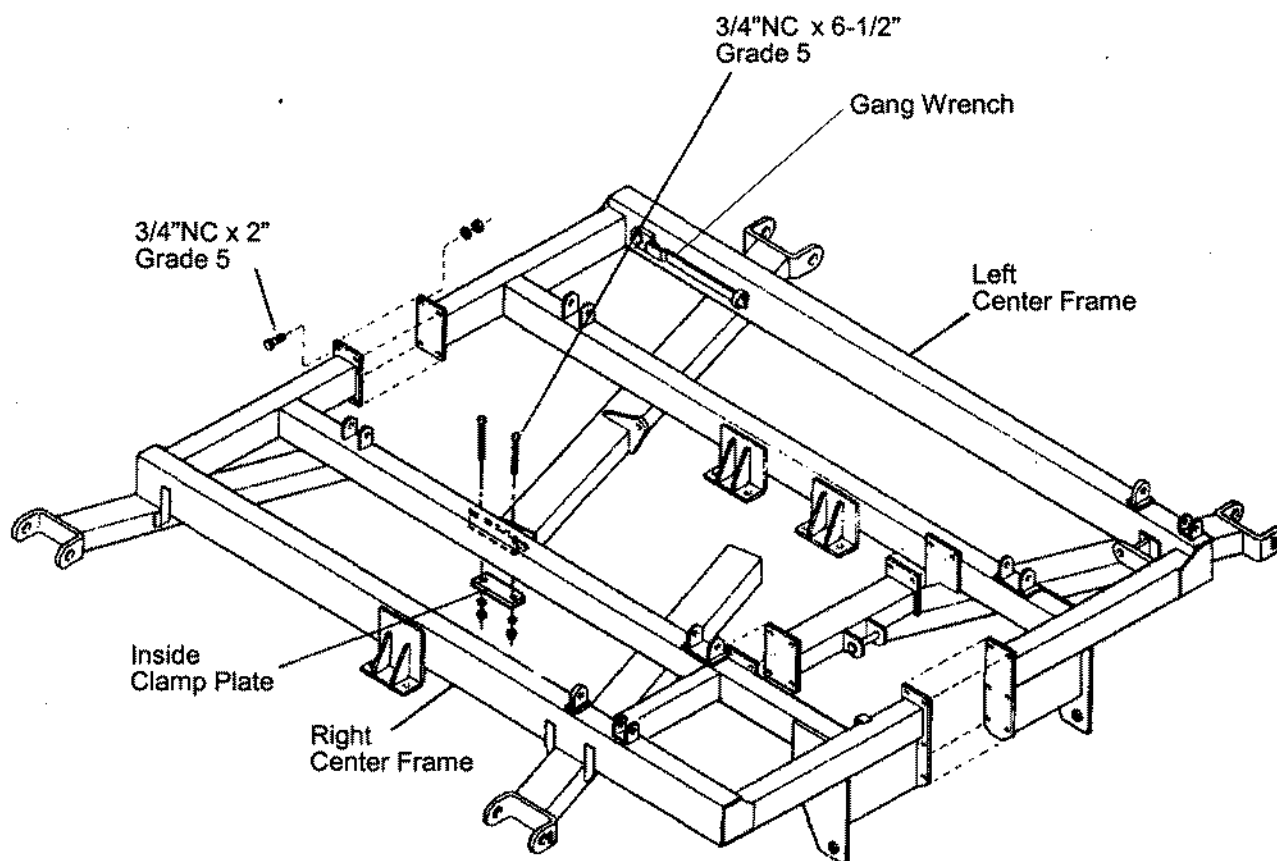
PINS

All pins are dimensioned to grip length.

Some pins are prelocated in the holes in which they are to be used.

Step 1

Assemble right and left center frames together with 3/4"x2" grade #5 bolts, lockwashers and nuts. Place frame on sturdy stands at least 30" high. Position a stand under each corner.

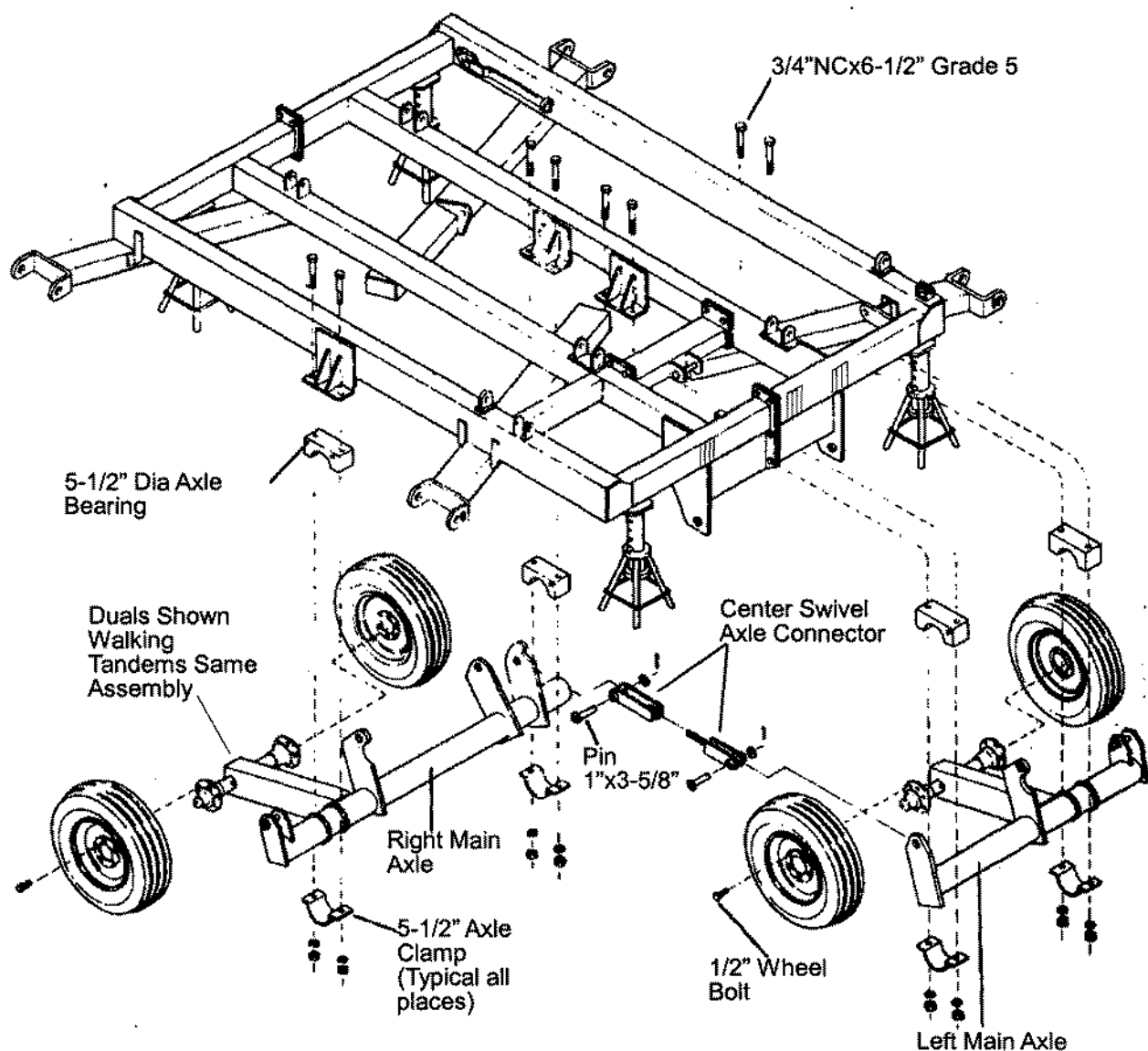


Step 2

Attach axle assembly to frame and attach wheel to hubs. Use (4) 11Lx15 (12 ply) implement rib tread tires. Mount tires on wheels and inflate to 40 psi. Bolt the wheels to the hubs and tighten wheel bolts evenly to assure proper alignment of wheels.

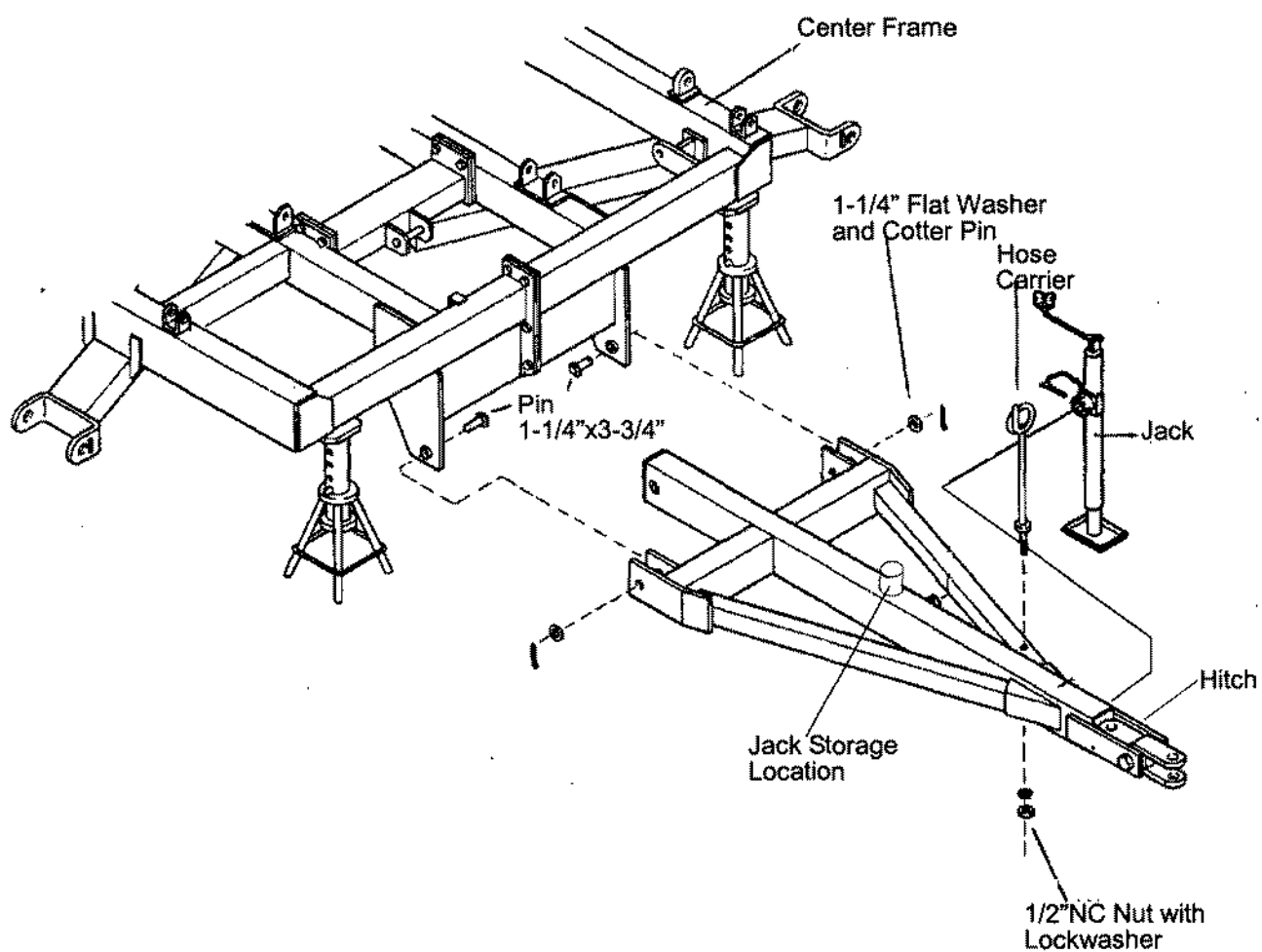
Be certain to position wheel with valve stem away from the spindle.

Adjust center axle connector, so frame will be level right to left.

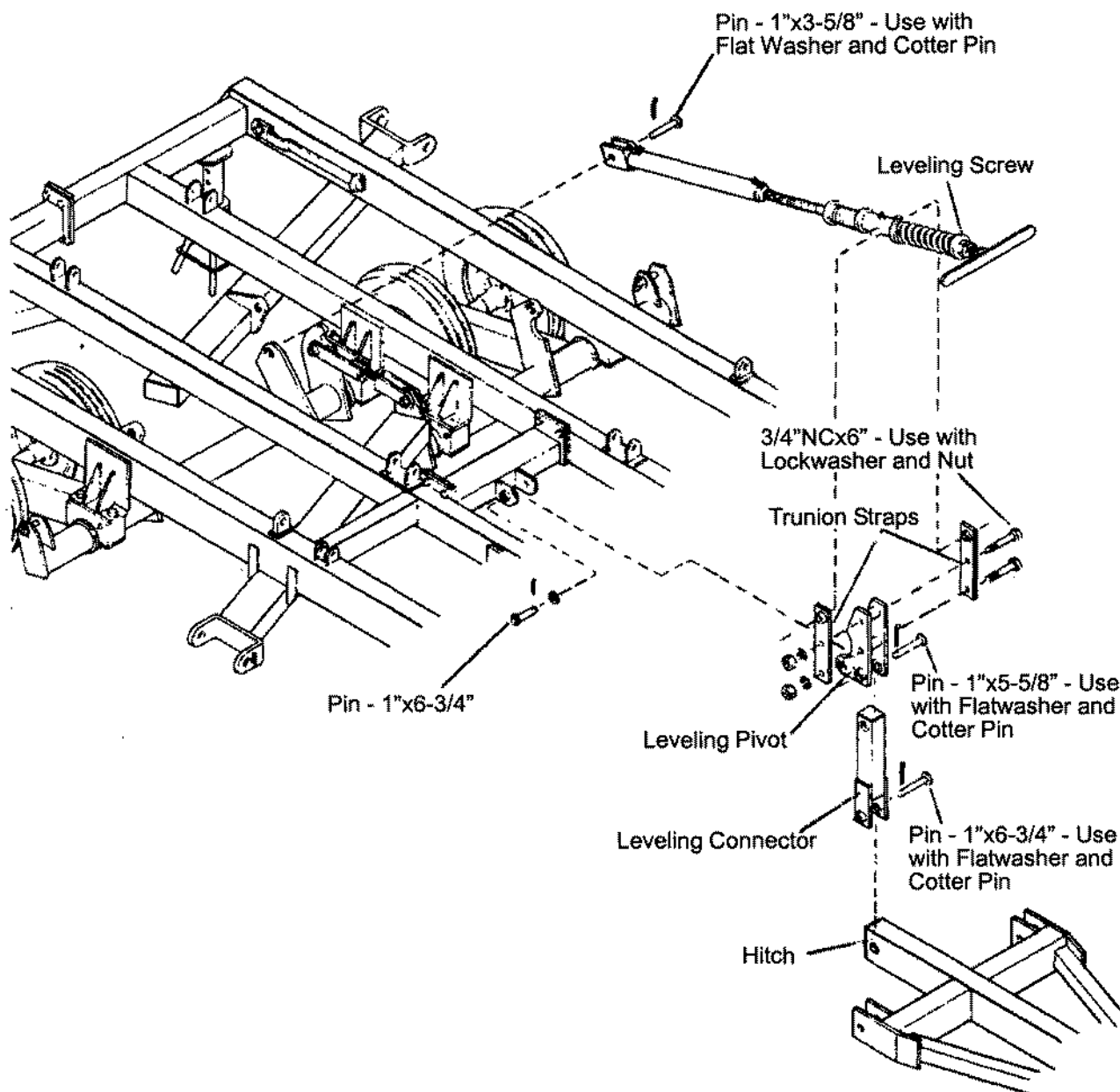


Step 3

Mount hitch to center frame, jack and hose carrier to hitch.

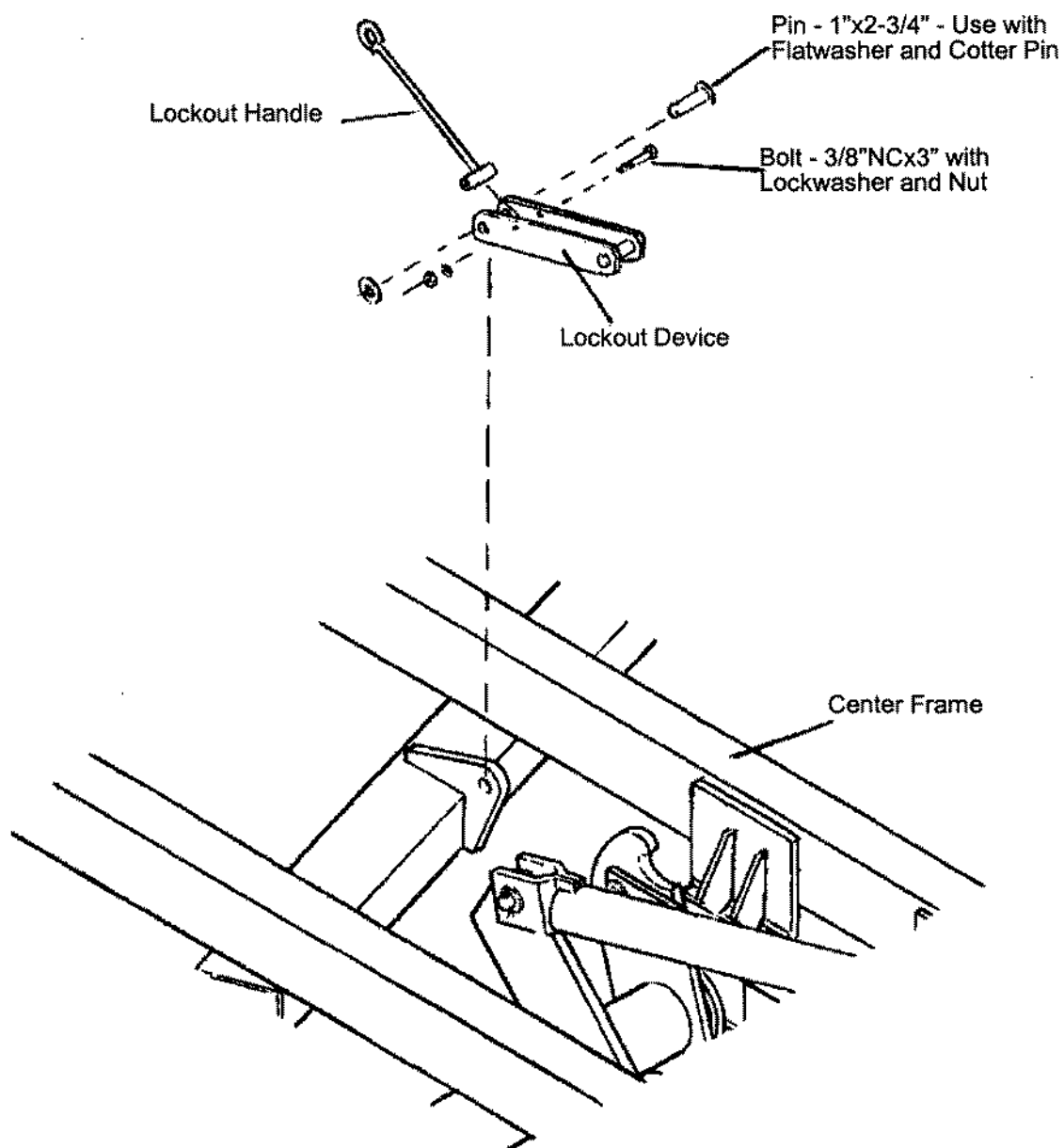


Install Leveling Assembly.



Step 5

Install lockout device and handle to center frame.



Install hydraulic cylinder, fittings, and hoses. Use the steps below as a guide to follow.

1. Attach hitch to tractor drawbar.
2. See illustration on next pages for correct placement of the hoses.
3. Fasten the remaining hydraulic hoses from the cylinders to the tee fittings and the hoses from the tee's to the tractor. There is a 1/2" male pipe fitting at the end of the hoses leading to the tractor. Pioneer Quick Coupler fittings, required to attach the hoses to the tractor, are furnished.
4. Stroke cylinders to full length several times to allow oil to fill both cylinders and hoses. Otherwise cylinders may drop load when first used. Operation of the hydraulic system requires a tractor with hydraulic pressure capability of 2500 psi.
5. Check all hydraulic components and connections for leaks. Replace any hoses or fittings that develop leaks.
6. Install hydraulic cylinders to the machine, with the base of the cylinder attaching to the center frame. Be sure the spring clips of the mounting pins are securely on the pin to prevent the pin from falling out.



CAUTION: Do not connect or disconnect hydraulic components when there is pressure within the system. Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause serious injury. Use a piece of wood or cardboard when looking for leaks. Never use the hands or other parts of the body. When reassembling, make absolutely certain that all connections are tight. If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction may occur if medical attention is not received at once.

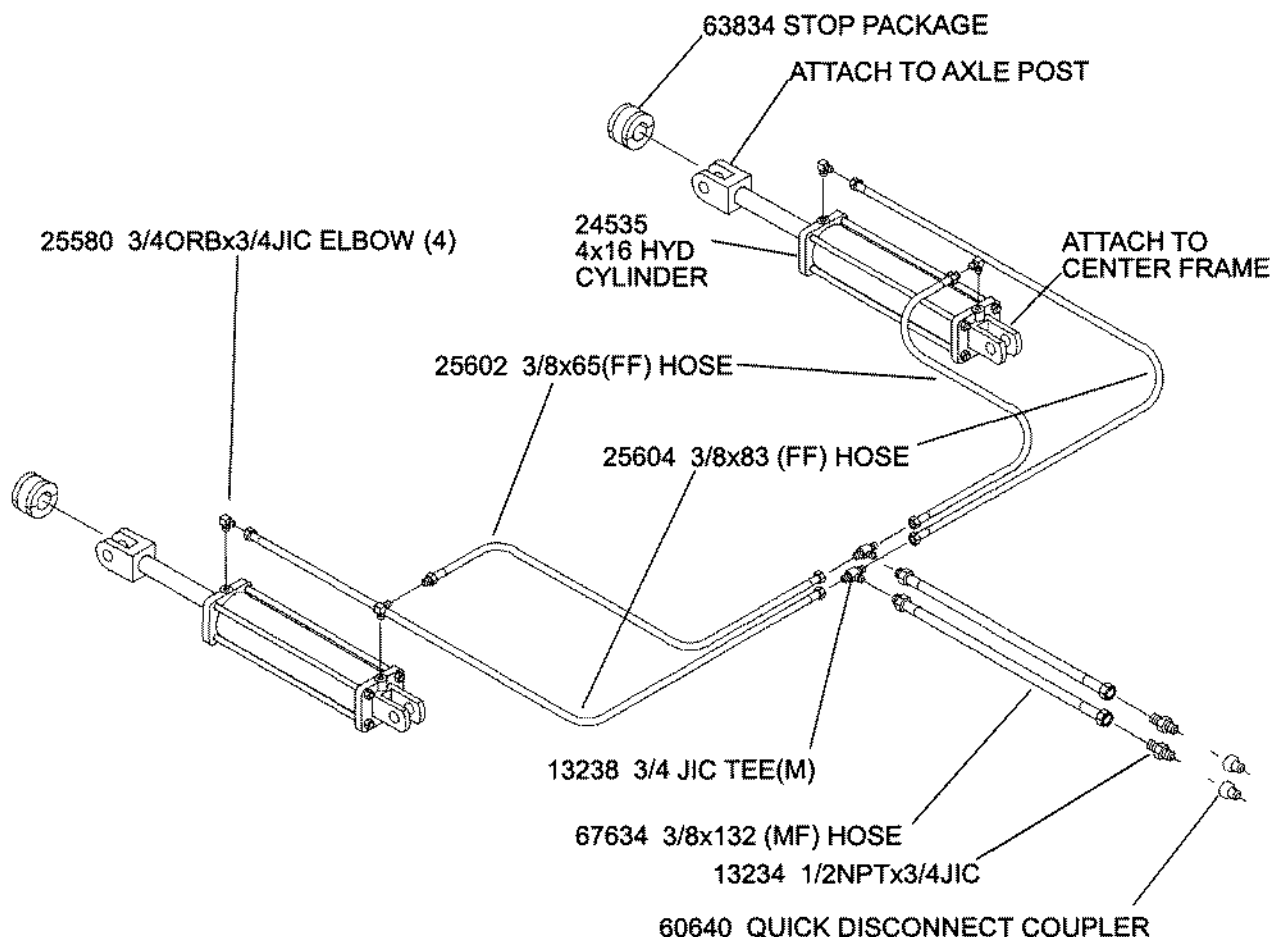
Step 6 Cont'd

Hydraulic hose layout for machine depth control.



CAUTION

Before attaching cylinders to disk stroke cylinders to full length several times to allow oil to fill both cylinders and hoses. Otherwise cylinders may drop load when first used.



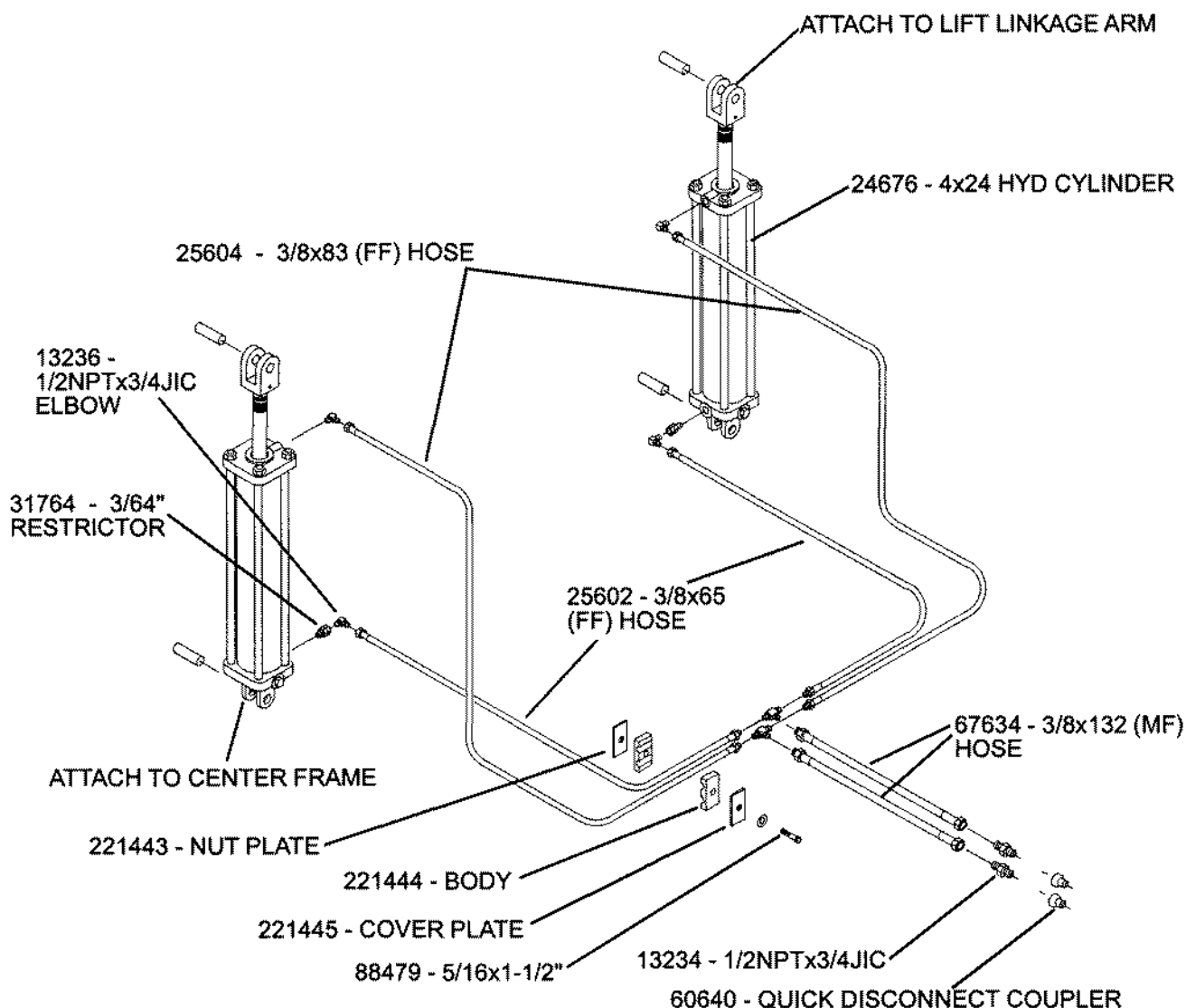
CAUTION: Do not connect or disconnect hydraulic components when there is pressure within the system. Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause serious injury. Use a piece of wood or cardboard when looking for leaks. Never use the hands or other parts of the body. When reassembling, make absolutely certain that all connections are tight. If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction may occur if medical attention is not received at once.

Hydraulic hose layout for wing fold cylinders.



CAUTION

Before attaching cylinders to disk stroke cylinders to full length several times to allow oil to fill both cylinders and hoses. Otherwise cylinders may drop load when first used.

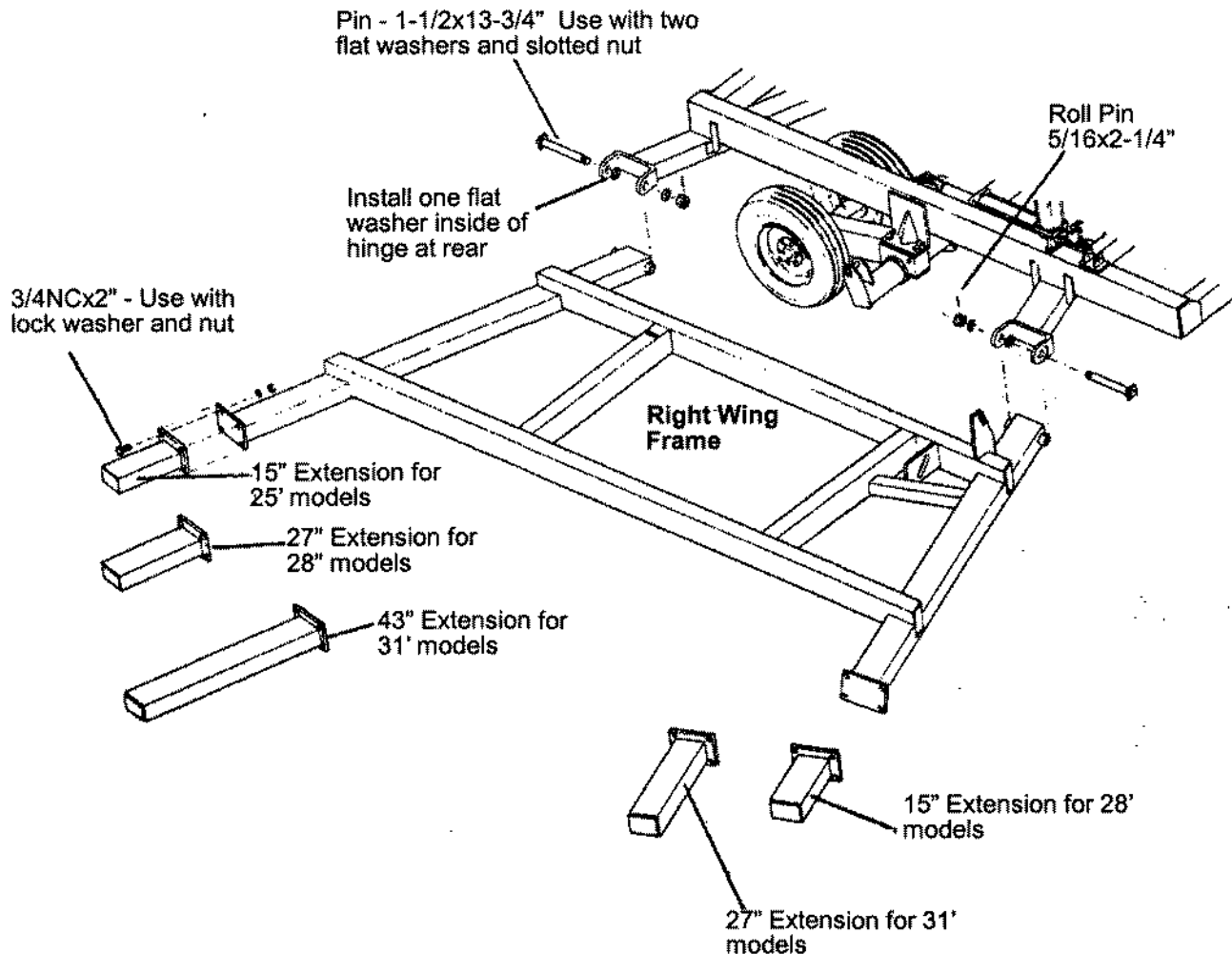


CAUTION: Do not connect or disconnect hydraulic components when there is pressure within the system. Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause serious injury. Use a piece of wood or cardboard when looking for leaks. Never use the hands or other parts of the body. When reassembling, make absolutely certain that all connections are tight. If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction may occur if medical attention is not received at once.

Step 8

Mount wing frames to center frame. Install wing extension on 25', 28', and 31'.

NOTE: Following illustration shows right wing frame installation. Left wing frame is attached in the same matter.



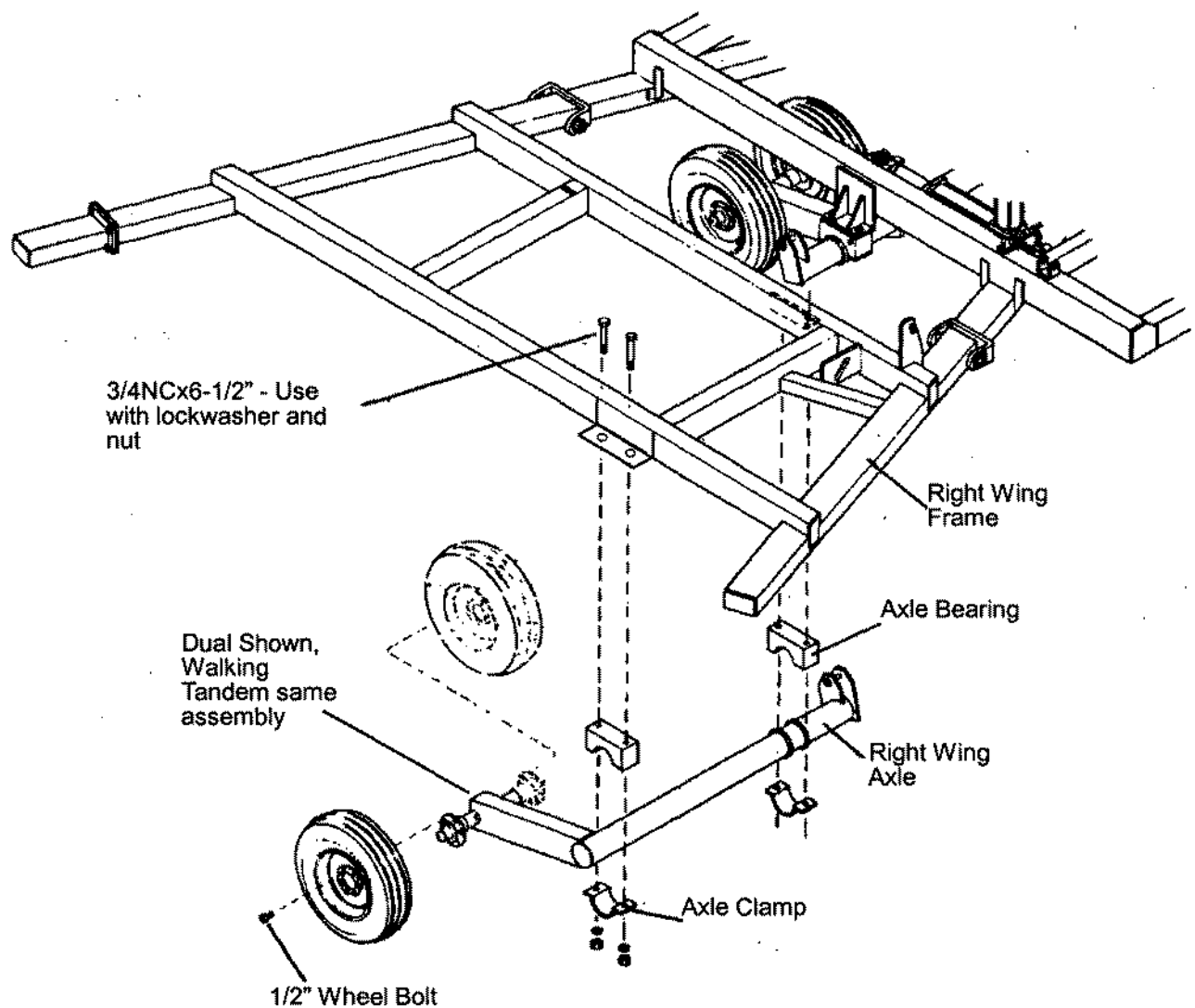
FOLDING WINGS CAN CAUSE PERSONAL INJURY AND/OR

- Dropping due to hydraulic failure, air in cylinders or accidental control movement.
 - Contacting electrical lines or overhead obstructions.
- STAY CLEAR:** Charge cylinders with oil to remove air before first use. Secure wings for transport, measure overall transport height and assure clearance.

Step 9

Attach wing axle assembly to wing. Use 11Lx15(8 PLY) implement rib tread tire, mount tire on wheels and inflate to 40 PSI. Bolt the wheel to the hubs and tighten wheel bolt evenly to assure proper alignment of wheel.

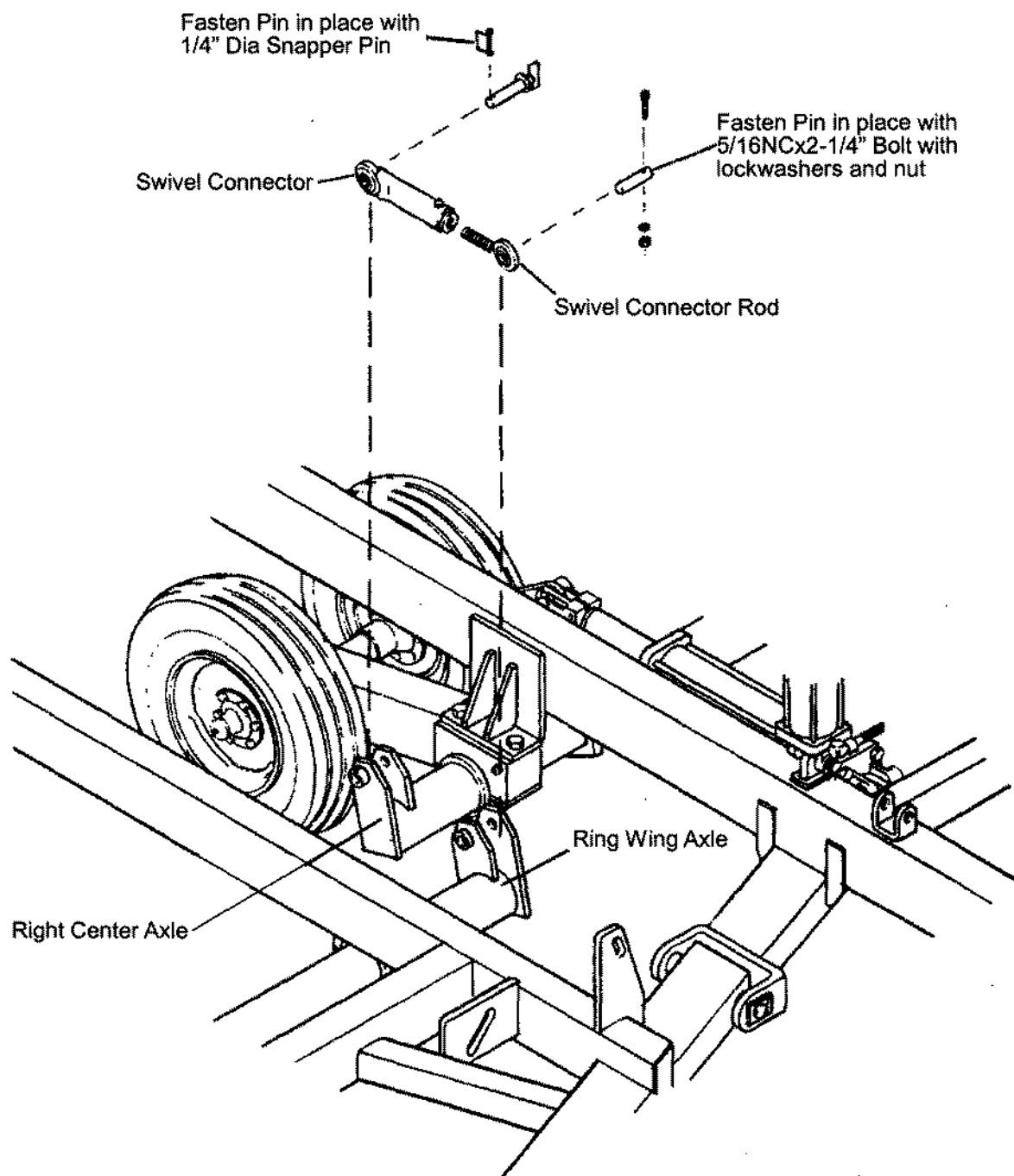
NOTE: Following illustration shows right wing axle installation. Left wing axle is attached in the same manner.



Step 10

Attach swivel connectors between main axles and wing axles. Adjust swivel connector after wing gangs are installed.

NOTE: Following illustration shows right swivel connector. Left swivel connector is attached in the same manner.



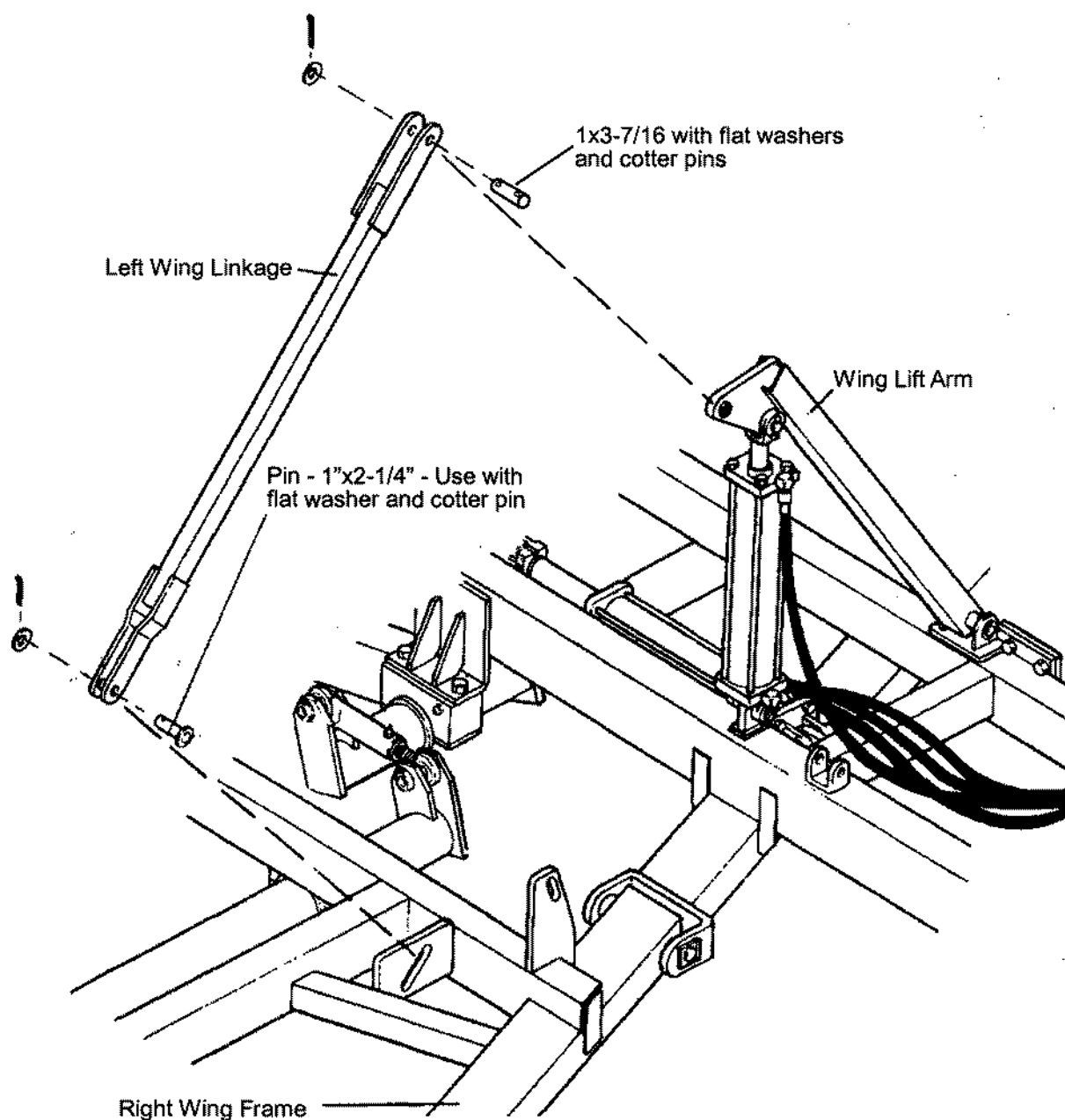
Step 11

Attach wing lift linkage to wing lift arm and wing frame.

NOTE: Following illustration shows wing lift linkage being installed on the right side of the machine. Left side is attached in same manner.

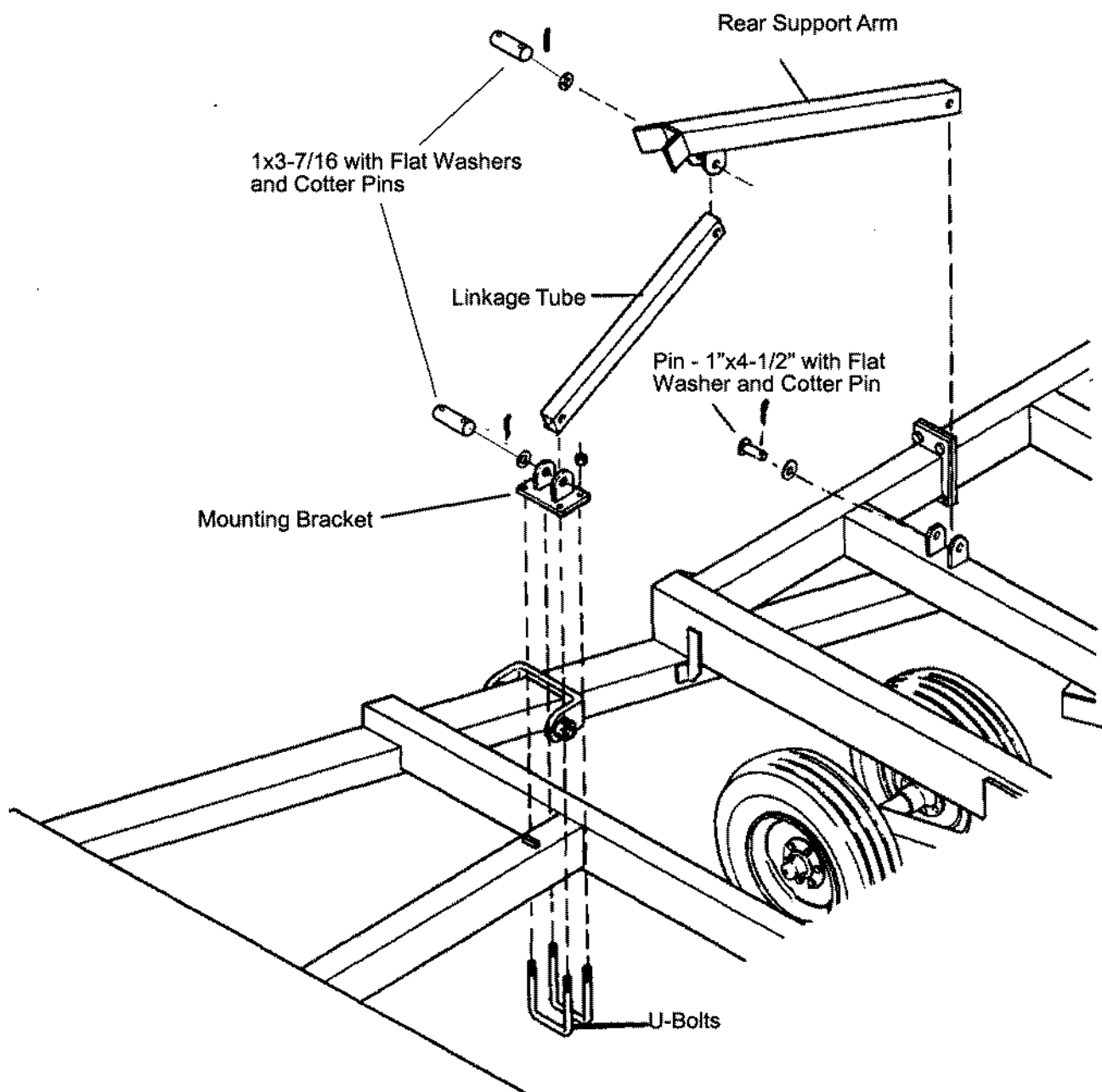


CAUTION: Do **NOT** fold the wings up by some other means, such as a forklift or crane. Subsequent unfolding, using cylinders that are not full of oil, will permit the load to drop causing injury or damage.



Step 12: Rear Support Arm (Used on 28' and 31' Models Only)

Attach rear support arm to both center frame and wing frame. Fasten mounting bracket to wing frame with U-bolt, lockwashers and nuts. Adjust mounting band after rear support arm is installed.



Step 13

Install front center gangs. Use two 7/8x6" U-bolts with lockwashers and nuts per bearing stand. To assemble gang units to the machine see letters printed on each gang section to determine exact location of a gang section. Assembly details on pages 39, 40, & 46.

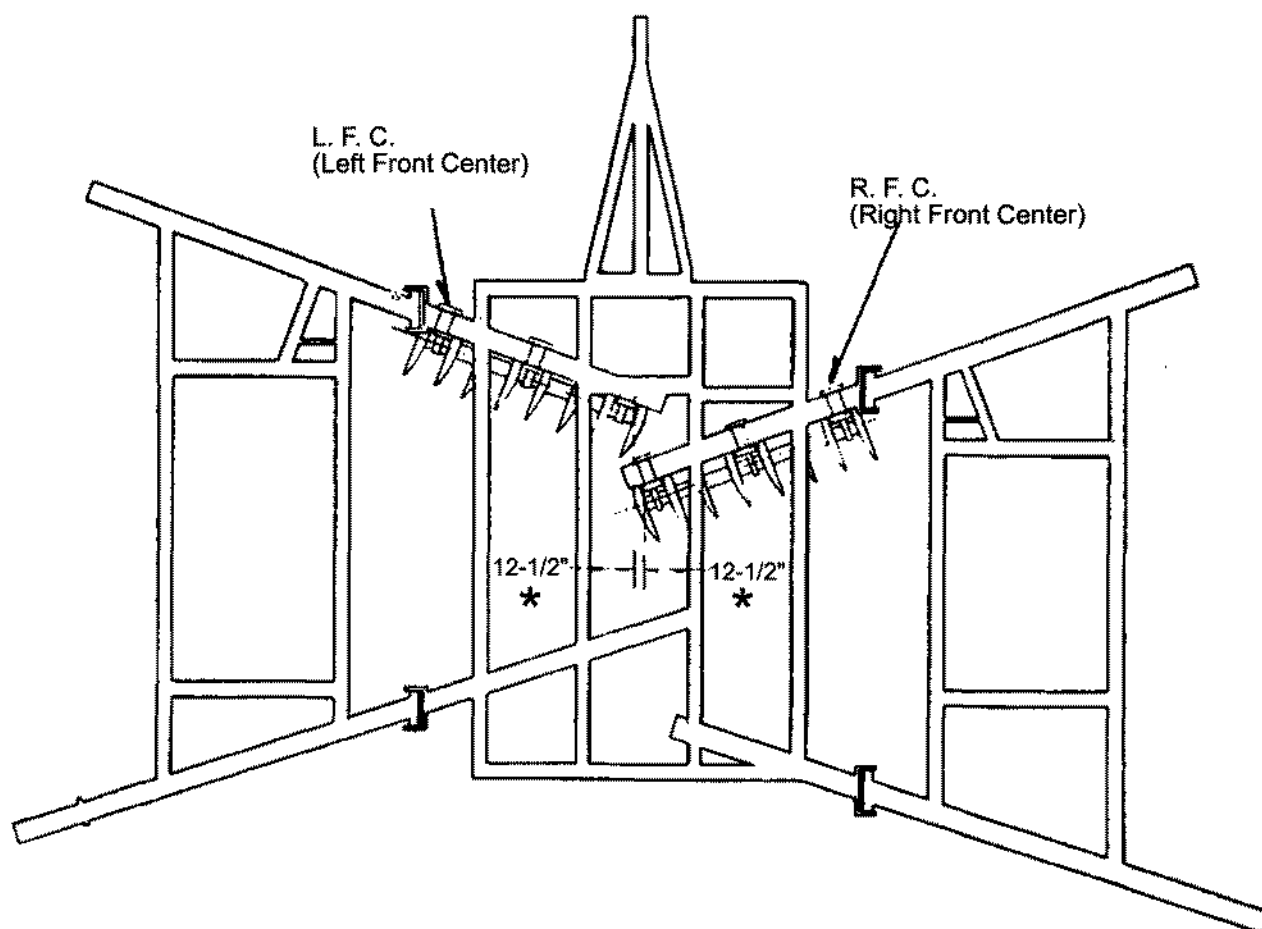
Following illustration shows 28' model. On 25' and 31' models, gangs are installed in the same manner.



CAUTION: Do NOT install rear gangs on a section before front gangs. A dangerous tipping situation could result.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.

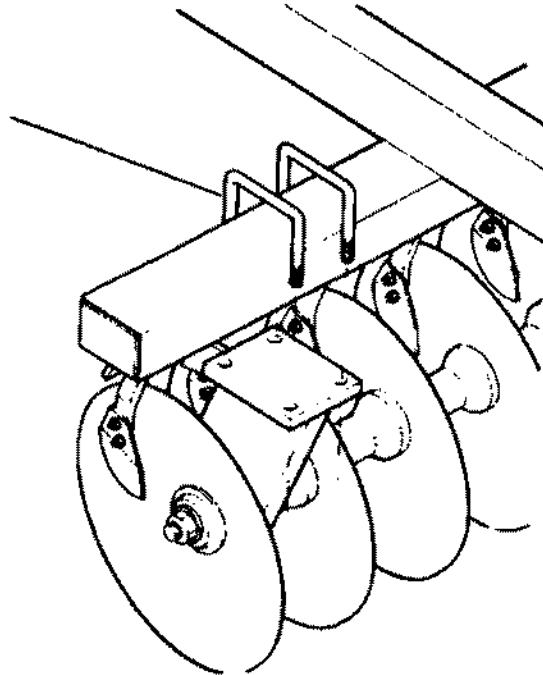


★ **NOTE:** When machine is equipped with optional spring shank bearing stands, use 11-1/2" dimension instead of 12-1/2" shown above.

Rigid Bearing Stand Assembly

When installing rigid type gang assemblies to the gang beams, use two 7/8"x6" U-bolts with lockwashers and nuts per bearing stand.

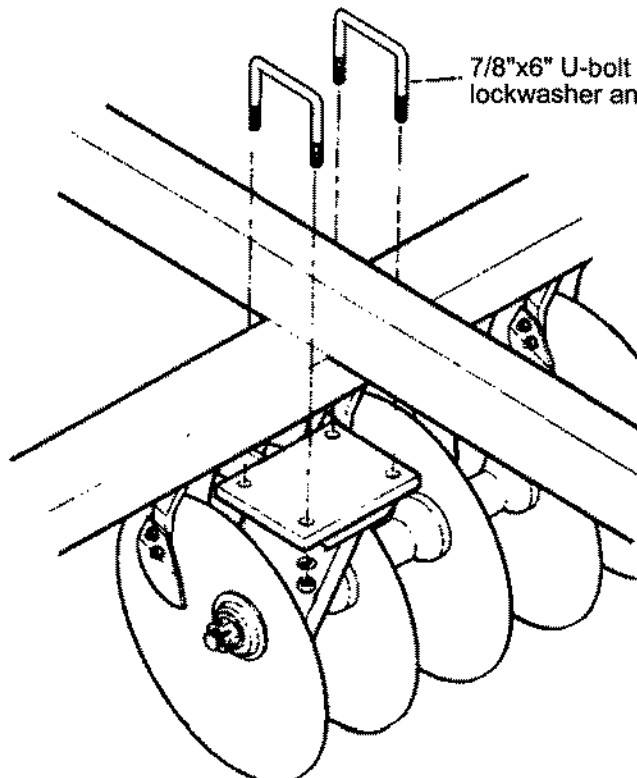
7/8"x6" U-bolt with
lockwasher and nut



Wide Rigid Bearing Stand Assembly for Rear Center & 25' Wings (4 Blade Gang)

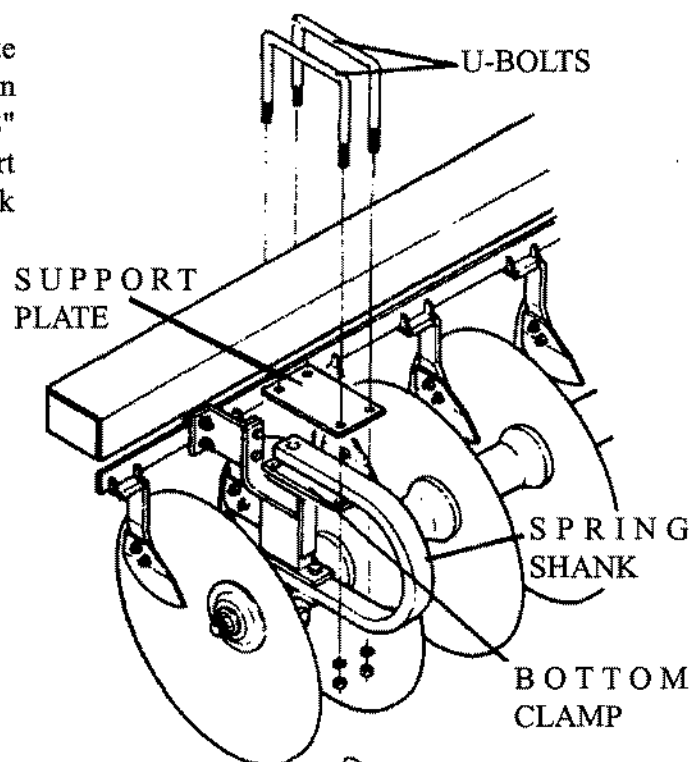
Install gang assemblies to the gang beams, use two 7/8"x6" U-bolts with lockwashers and nuts per bearing stand.

7/8"x6" U-bolt with
lockwasher and nut

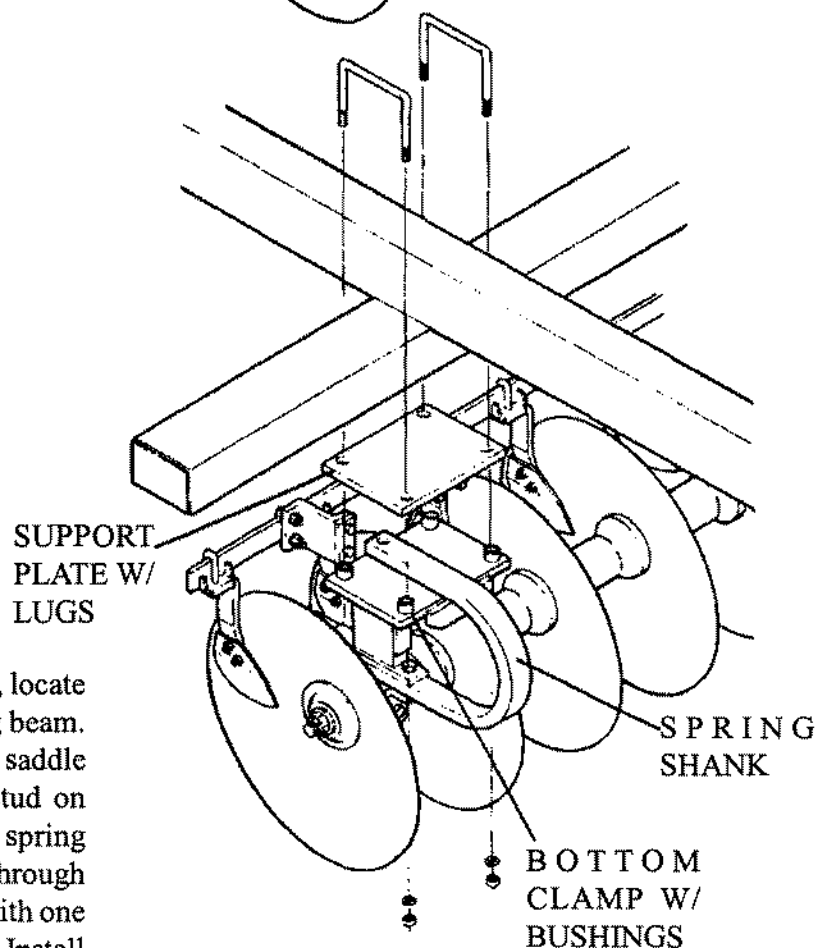


SPRING SHANK BEARING STAND ASSEMBLY

To install gang assemblies to gang beams, locate support plate under gang beam. Position stud on bottom clamp in hole in spring shank. Place 7/8" U-bolts over beam and through holes in support plate and bottom clamps. Tighten on 7/8" lock washers and nuts.



WIDE SPRING SHANK BEARING STAND ASSEMBLY FOR REAR CENTER & 25' WINGS (4 BLADE GANG)



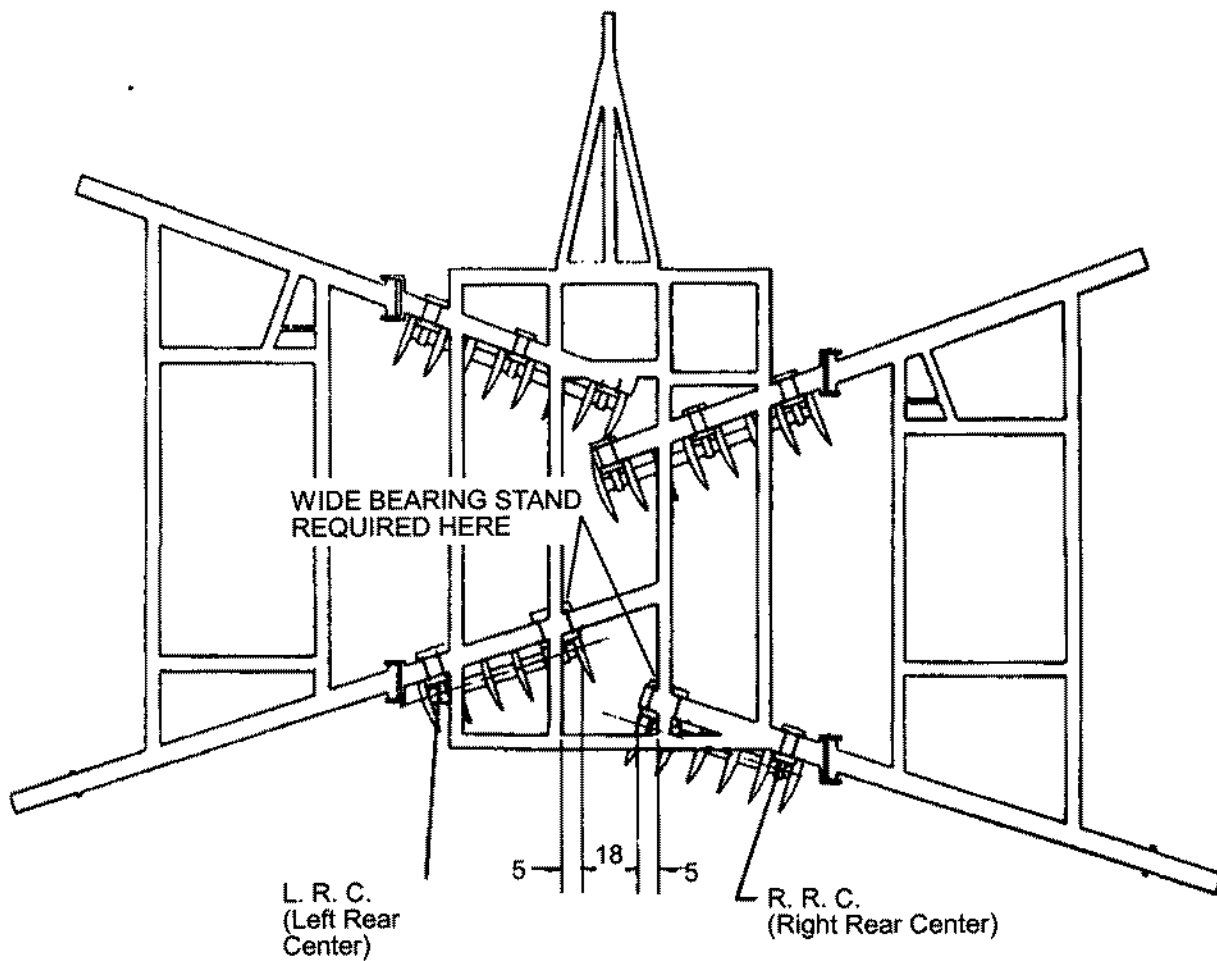
To secure the gang assembly at rear center, locate the support plate with lugs under the gang beam. The support plate lugs face forward and saddle down over the spring shank. Position stud on bottom clamp with bushings in hole in spring shank. Place 7/8" U-bolts over beam and through holes in support plate and bottom clamp with one U-bolt on each side of the frame member. Install and tighten 7/8" lock washers and nuts.

Step 14

Install rear center gang. Use two 7/8"x6" U-bolts with lockwashers and nuts per bearing stand. Following illustration shows 28' model. On 25' and 31' models, gangs are installed in the same manner.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.



Step 15

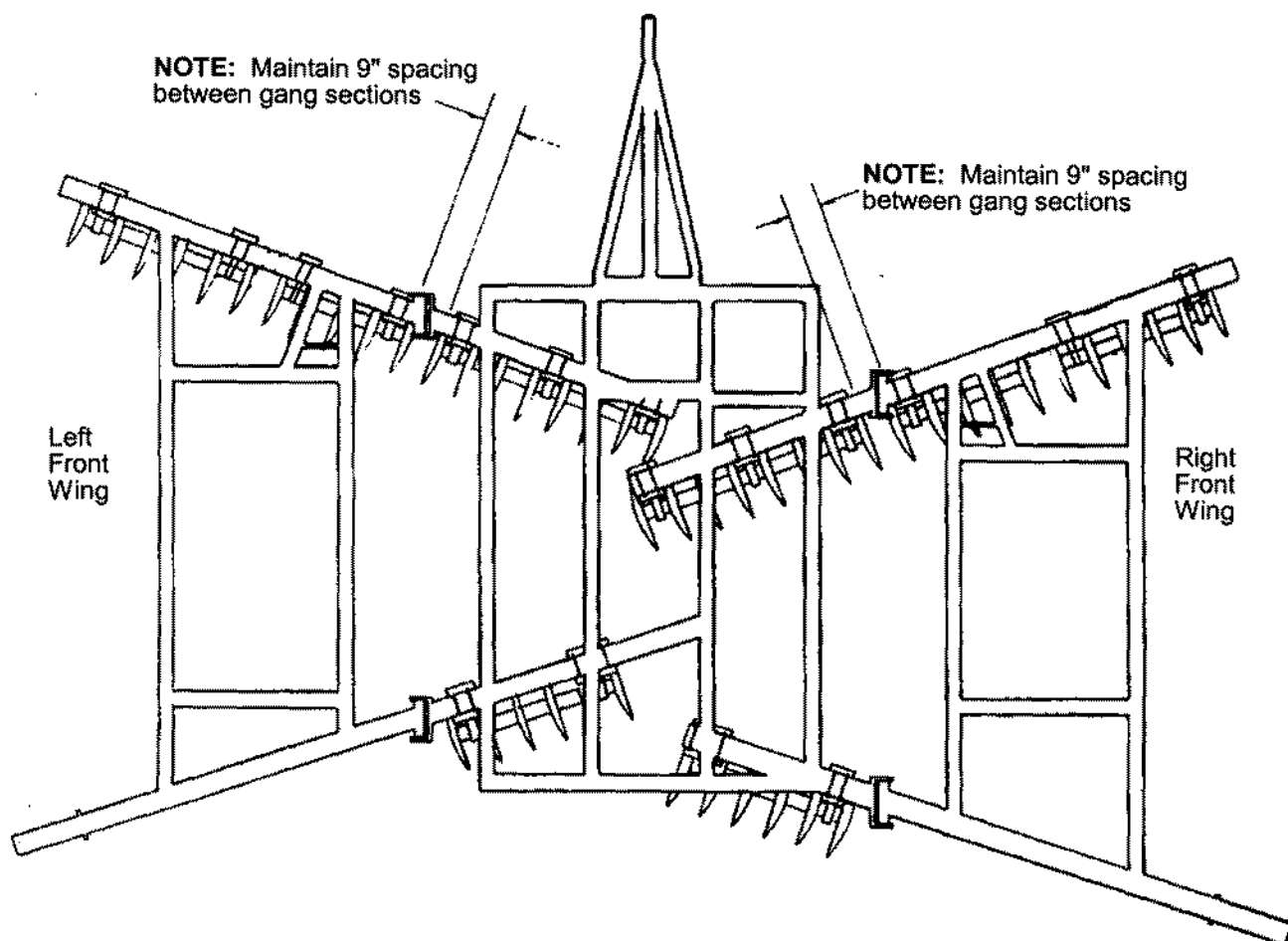
Install front wing gangs. Use two 7/8x6" U-bolts with lockwashers and nuts per bearing stand. Following illustration shows 28' model. On 25' and 31' models, gangs are installed in the same manner.



CAUTION: Do **NOT** install rear gangs on a section before front gangs. A dangerous tipping situation could result.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.

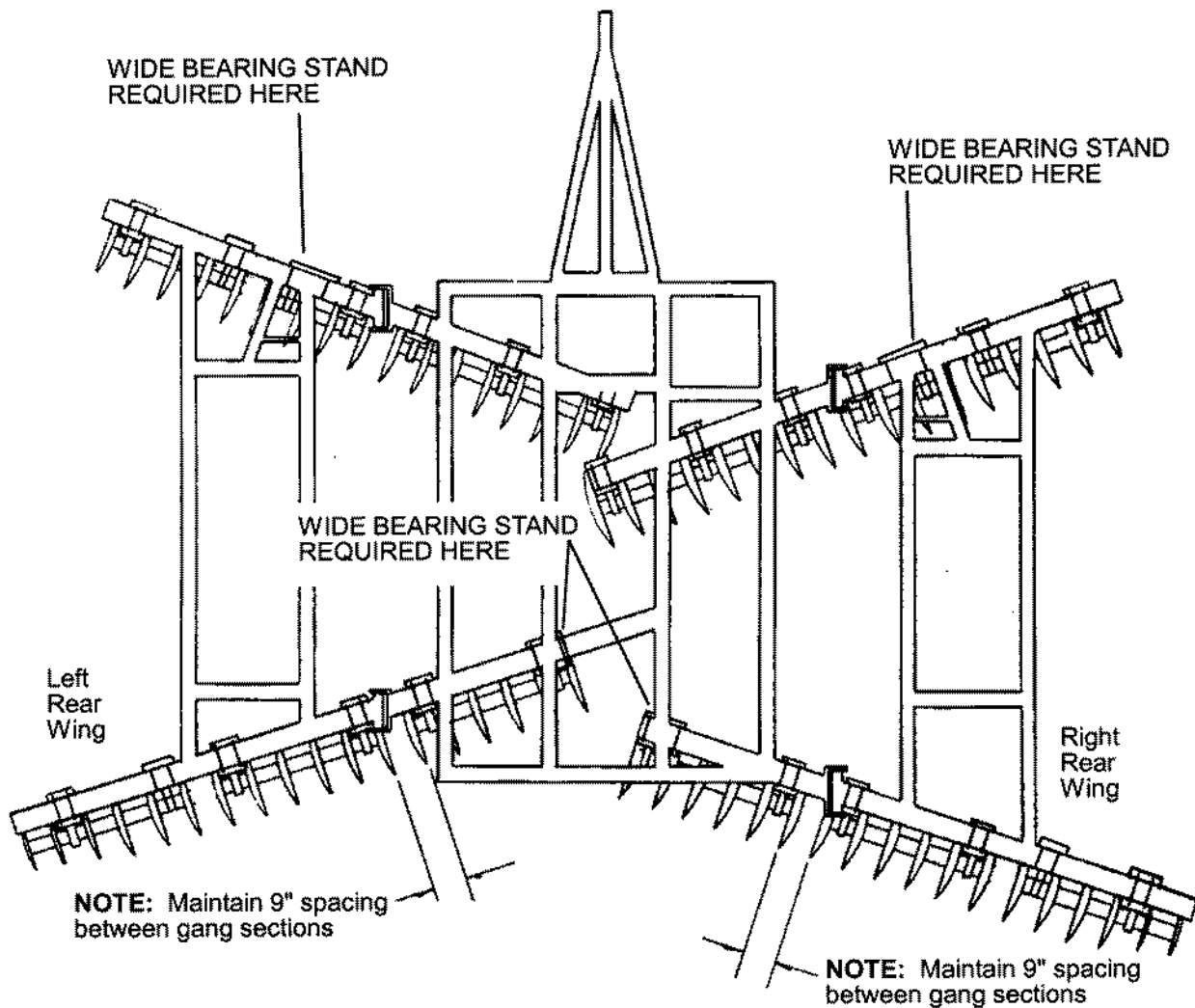


Step 16

Install rear wing gangs. 25' model shown in this view. Use two 7/8x6" U-bolts with lock washers and nuts per bearing stand.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.

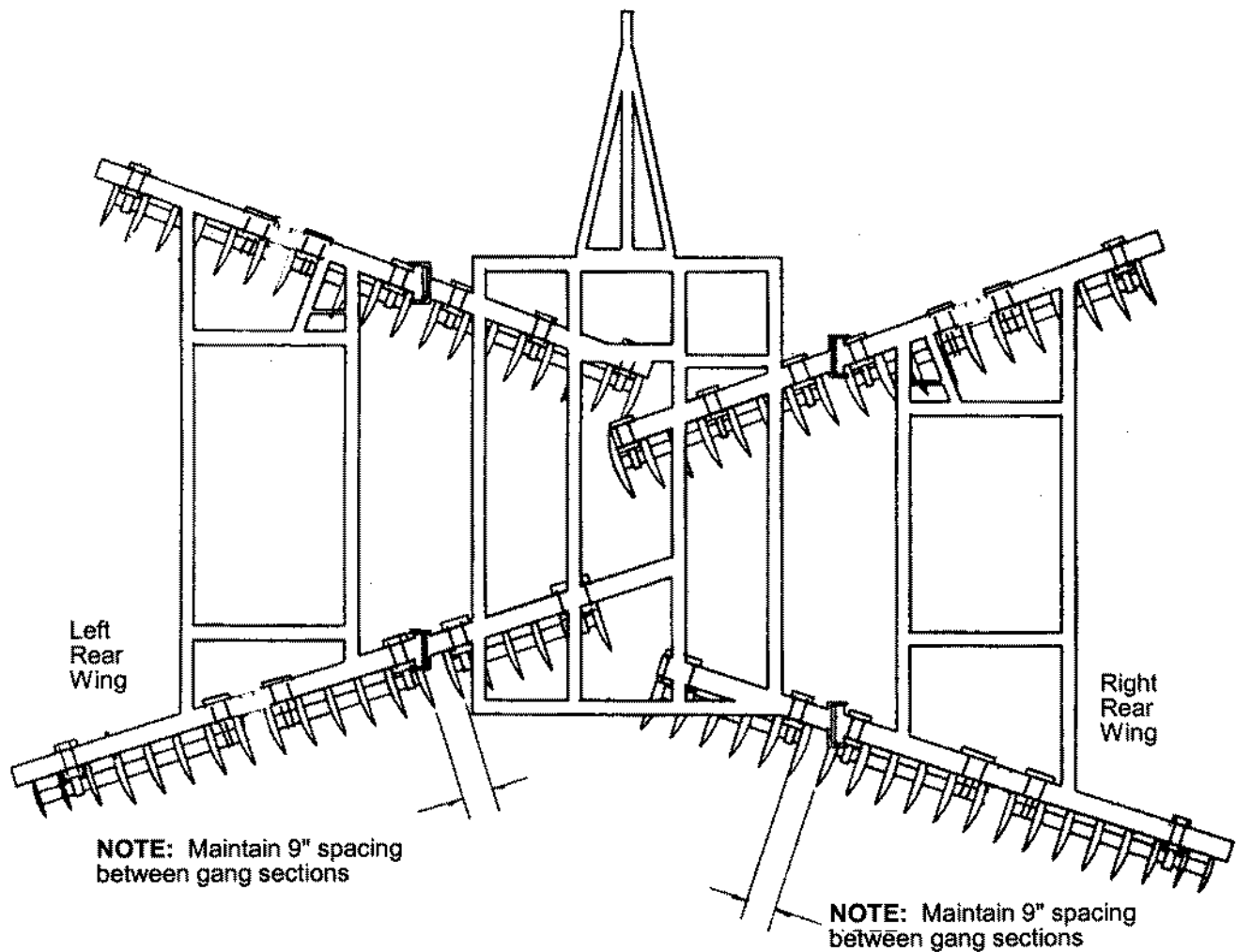


Step 16 (CONT'D)

Install rear wing gangs. 28' model shown in this view. Use two 7/8x6" U-bolts with lockwashers and nuts per bearing stand.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.

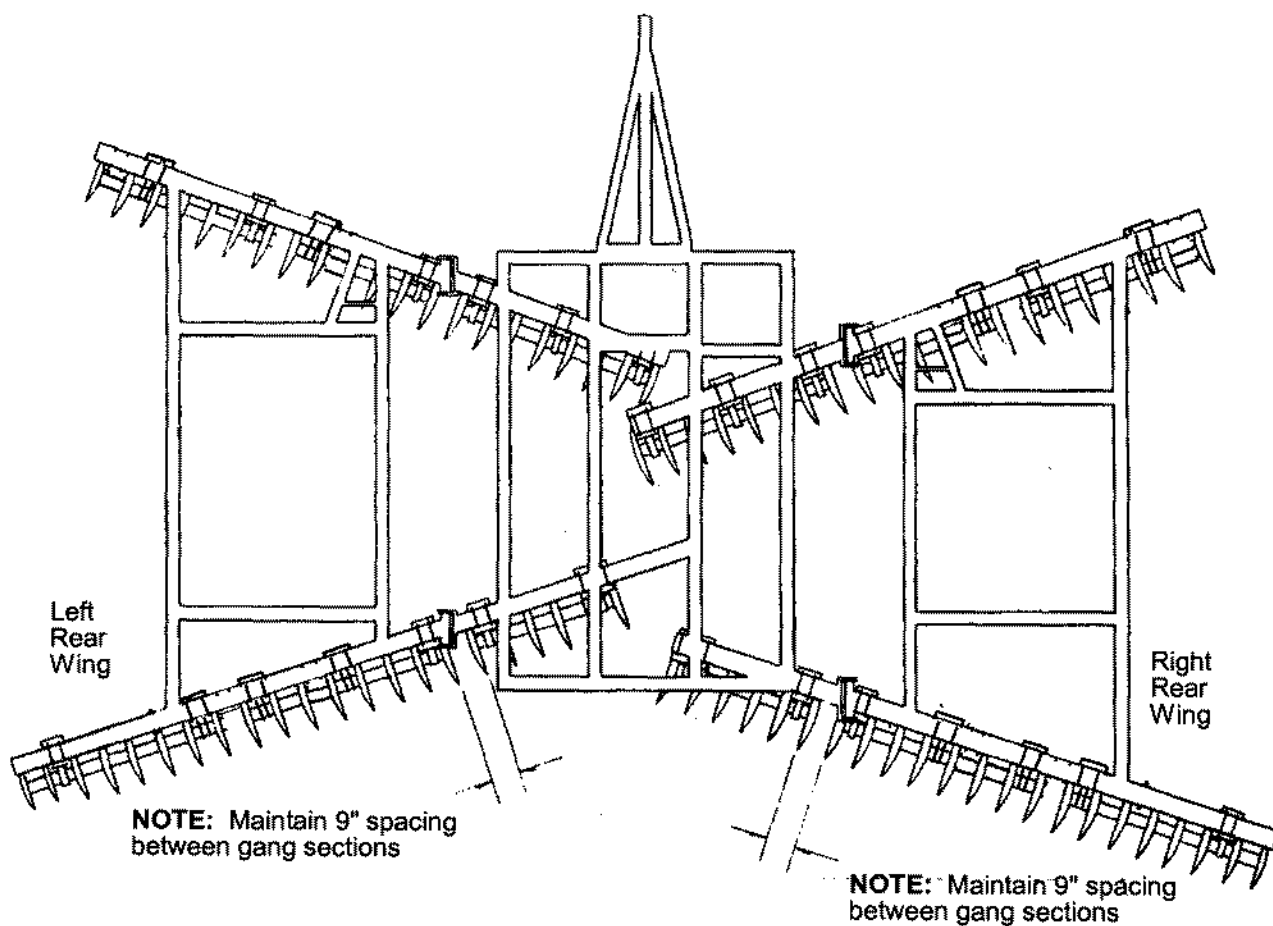


Step 16 (CONT'D)

Install rear wing gangs. 31' model shown in this view. Use two 7/8x6" U-bolts with lockwashers and nuts per bearing stand.



CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.



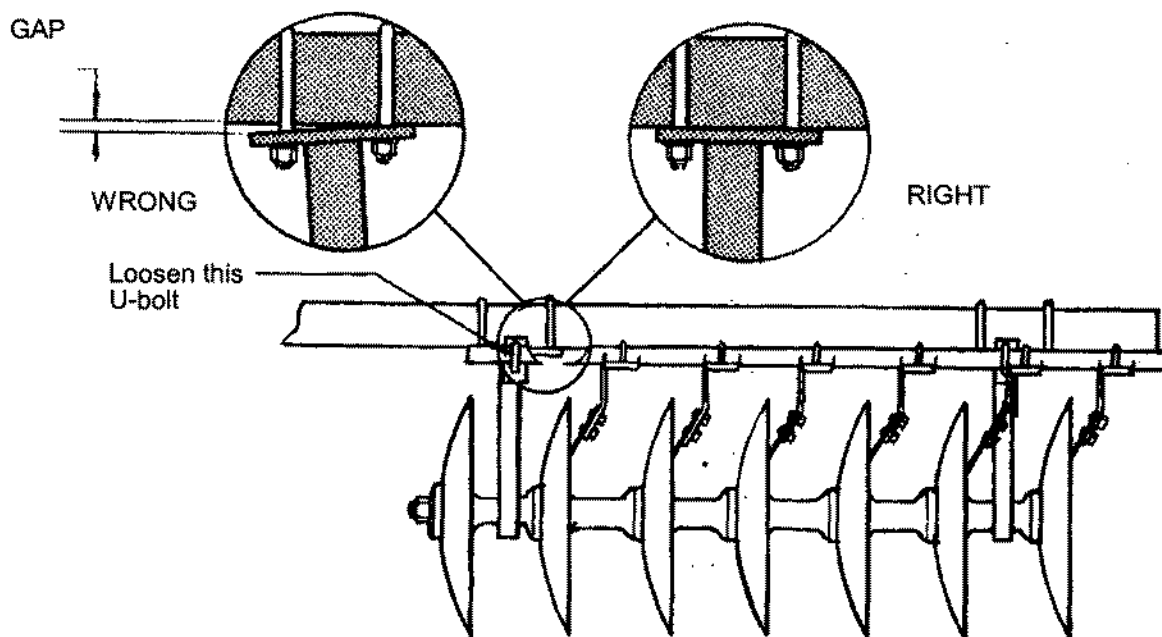
Bearing Stand Alignment

Step 17

- A. Check the following items while mounting the gangs to the machine. If the bearing stands are improperly installed, side loads will be created on the gang bearings which can cause the bearing to fail prematurely. Excessive stress is also created on other parts of the machine.

Follow these steps and illustrations in installing the gang assemblies for proper set-up

1. Place a gang assembly under frame in approximate location. For information on locations of the different gangs see steps 13-16.
2. Fasten one bearing stand by using two 7/8" diameter U-bolts, lockwashers and nuts. Tighten to gang beam.
3. Loosen the 1/2" diameter U-bolt which holds the scraper bar to the next bearing stand. Adjust that bearing stand so it is parallel to the previously installed bearing stand and is flat against the gang beam.

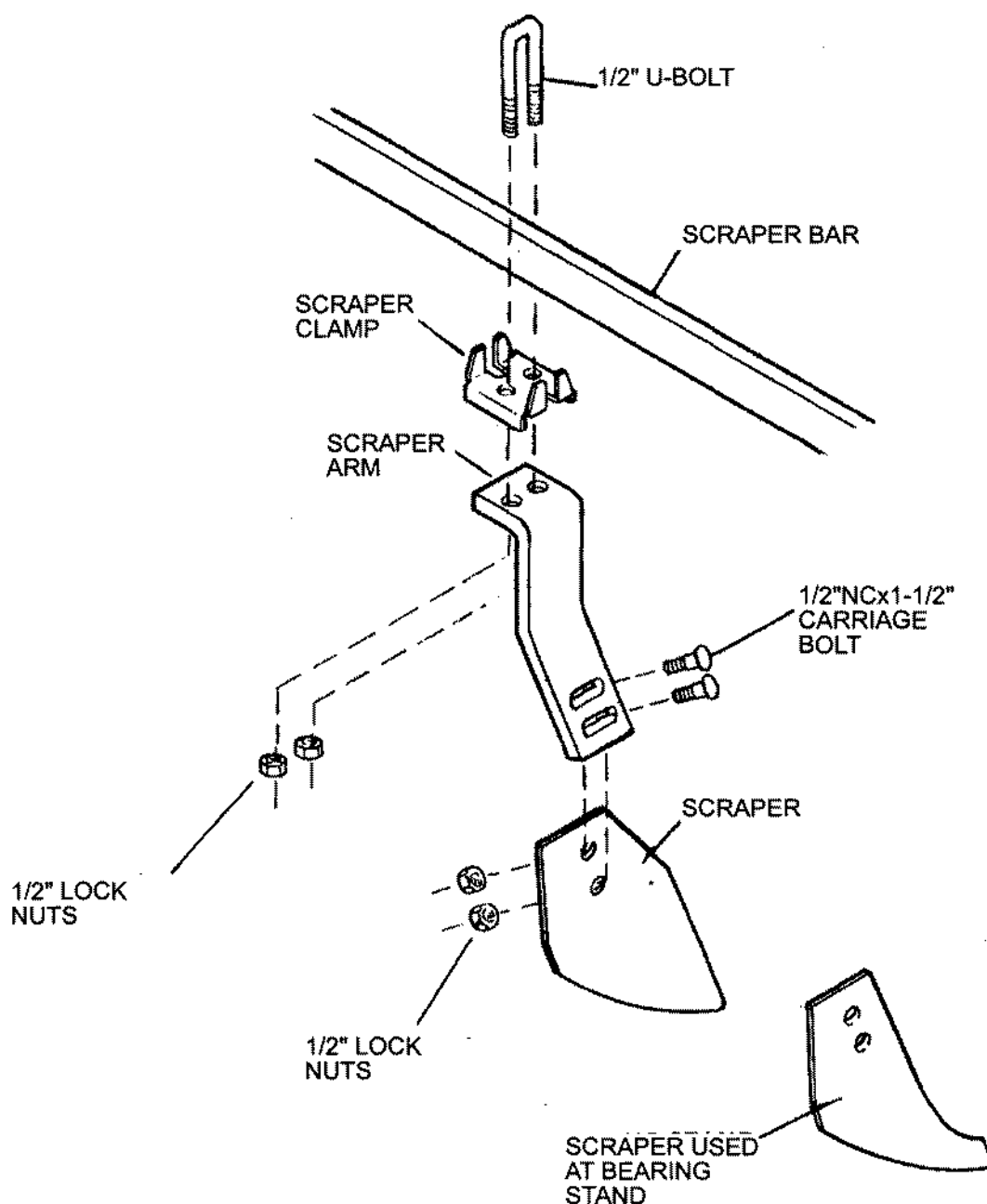


4. Fasten to gang beam by using two 7/8" diameter U-bolts, lockwashers and nuts. Tighten to gang beam.
5. Retighten scraper bar U-bolt.
6. If the gang assembly has three bearing stands, repeat steps 3, 4, and 5 for third stand.
7. Check the complete assembly to see that all bearing stands are installed properly and that all bolts are tight.

Step 18

- B. Adjust the scrapers to the proper setting. The scrapers should be adjusted to run approximately 1/16 to 1/8 inch maximum from the disk blades. Each scraper may be adjusted by loosening the scraper clamp U-bolt, and sliding the assembly along the scraper bar. The pitch of the scraper blade can also be adjusted by loosening the blade bolts and moving the blade in the slotted holes in the scraper arm.

When disking in trashy conditions, trash will occasionally build up on the scraper blades. Sometimes this condition can be reduced by moving the scrapers away from the disk blades.

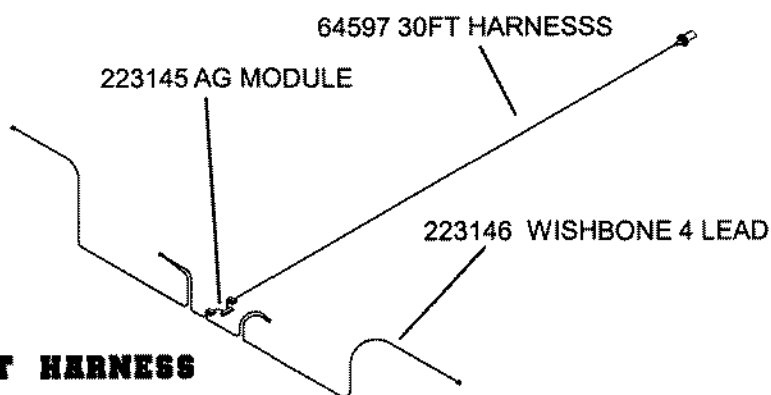


CAUTION: When working on disk, care should be exercised in handling or tightening bolts near disk blades to avoid injury.

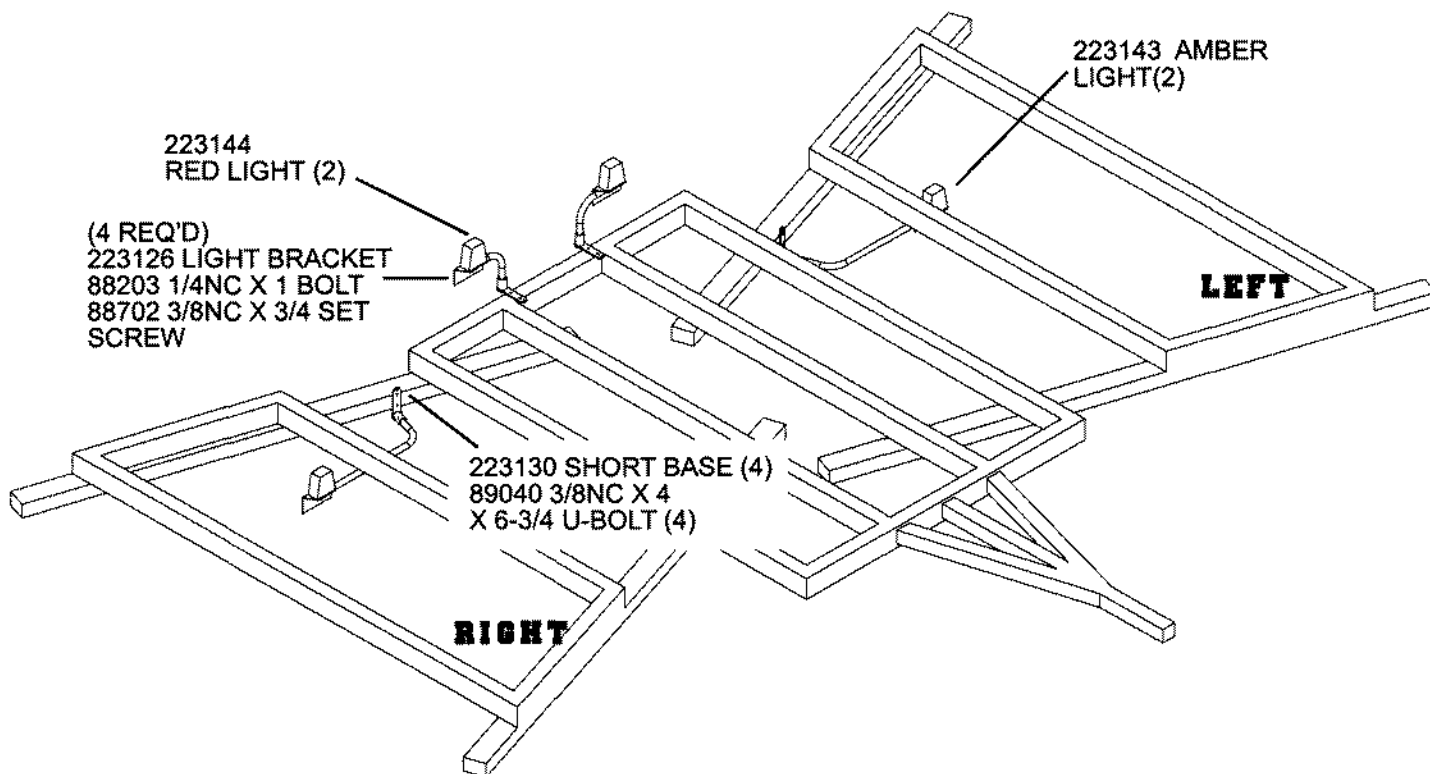
Step 19

NOTE: MOUNT THE RED LIGHTS AS REARWARD AS PRACTICAL ON THE CENTER FRAME. SPACE EVENLY, 2' TO 5' FROM THE MACHINE CENTER.

HAZARD LIGHT PLACEMENT



NOTE: ROUTE LIGHT HARNESS THRU LIGHT ARMS



NOTE: MOUNT AMBER LIGHTS AS WIDE AS POSSIBLE. THE AMBER LIGHTS MUST BE MOUNTED NO MORE THAN 16" FROM THE IMPLEMENT EXTREMITIES, WHEN WINGS ARE FOLDED.

