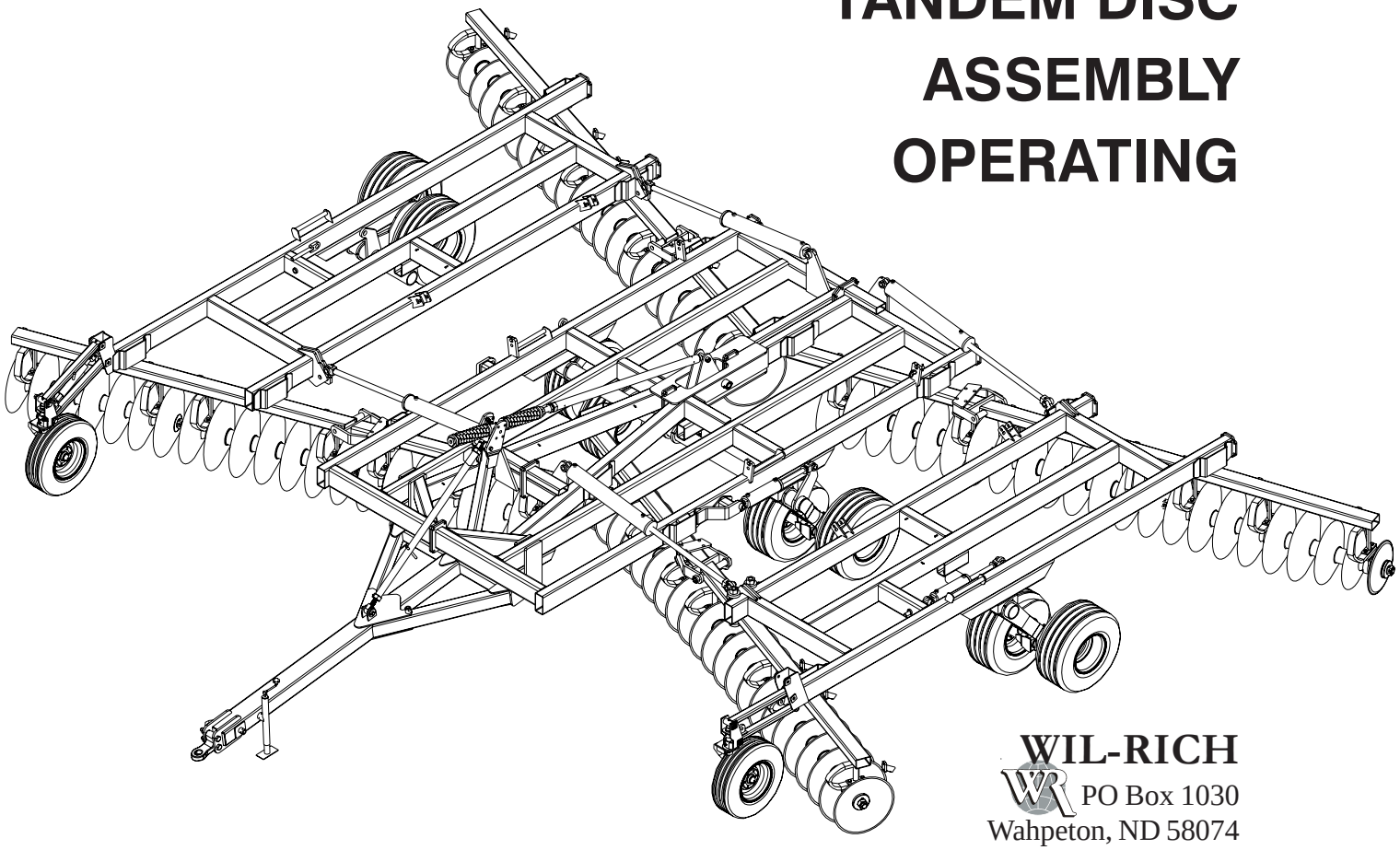
614NT

TANDEM DISC
ASSEMBLY
OPERATING



WIL-RICH
PO Box 1030
Wahpeton, ND 58074
PH (701) 642-2621
Fax (701) 642-3372
www.wil-rich.com

Printed in USA (74296) WR - 6/12

WIL-RICH, LLC

WARRANTY

Wil-Rich's products are warranted to the original non-commercial purchaser to be free from defects in material and workmanship for a minimum period of twelve (12) months from the original date of purchase.

Additional Field Cultivator Warranty: Wil-Rich warrants to the original purchaser of each new Wil-Rich Field Cultivator unit (Excel and QuadX), and Disk Field Cultivators that the product be free from defects in material and workmanship for the period of three (3) years on the main frames and shank assemblies. All other components are covered by the twelve (12) month warranty period.

Commercial Use: Warranty for commercial, rental or custom use of any Wil-Rich product is limited to 90 days, parts and labor.

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.*** 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 hydraulic hoses, hydraulic 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.

This warranty shall not be interpreted to render Wil-Rich liable for injury or damages of any kind or nature to person or property. This warranty does not include claims for, or extend to the loss or damage of crops, loss because of delay in seeding/planting or harvesting, or any expense or loss incurred for labor, substitute machinery, rental, and transportation expense or for any other reason.

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 thirty (30) 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.

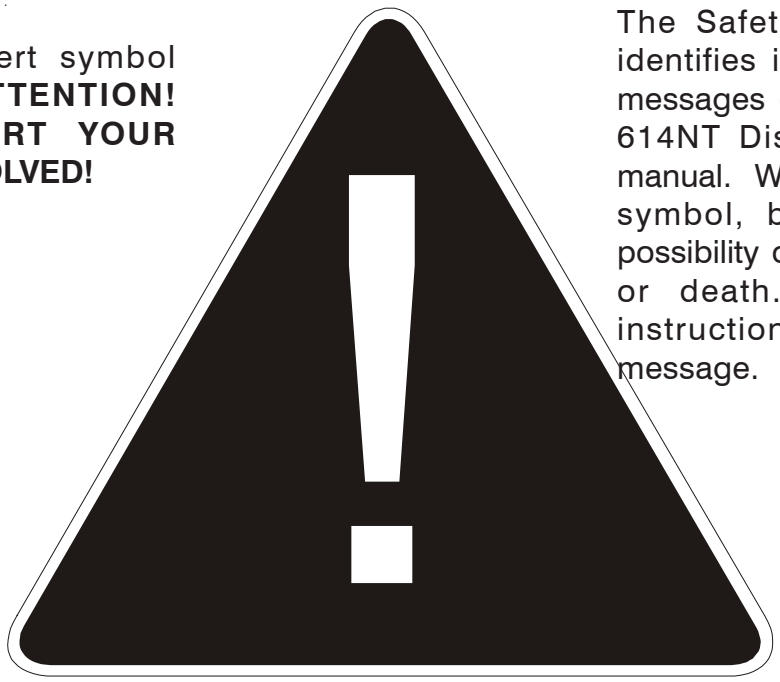
3. Parts that will be scrapped at the dealership will be inspected by a Wil-Rich Sales Representative, District Sales Manager or Service Representative within the ninety (90) day retaining period.

CONTENTS

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 614NT Disc 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:
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 front face 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.

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

PREPARATION

Before operating the **WIL-RICH** 614NT Offset Disc, a careful inspection must become routine. A check must be made to ensure that all hardware and fasteners are securely tightened and moving parts properly lubricated.

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.

GENERAL INFORMATION

FASTENERS

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.

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.

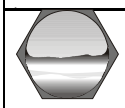
All U-bolts are grade 5.

TIRE INFLATION

The use of proper air pressure is the most important factor in satisfactory performance and maintenance of implement tire. Underinflation will damage the cord body of the tire and cause a series of diagonal breaks in the fabric sidewall area.

If the tire buckles or wrinkles, the air pressure must be increased to the point where the sidwall remains smooth while operating.

Check the air pressure every two or three weeks and do not allow the pressure to drop to a point where buckling or wrinkling of the tire may be possible.

GRADE 2	GRADE 5	GRADE 8
		

TORQUE IN FOOT POUNDS						
BOLT DIA	3/8	1/2	5/8	3/4	7/8	1
HEX HEAD	9/16	3/4	15/16	1-1/8	1-5/16	1-1/2
UNC GR2	18	45	89	160	252	320
UNC GR5	30	68	140	240	360	544
UNC GR8	40	100	196	340	528	792
UNF GR2	21	51	102	178	272	368
UNF GR5	32	70	168	264	392	572
UNF GR8	48	112	216	368	792	840

Note: Do not inflate tires beyond the specified tire pressure.

WHEEL BOLTS

It is recommended that all wheel bolts be checked for tightness before using and again after one day of use. Check periodically to be sure the wheel bolts are tight.

LUBRICATION

Make sure the Disc is properly lubricated. See pages 29-31.

HYDRAULICS

Check wing lift and depth control cylinders for proper alignment and operation. On any machine, check that the hydraulic system has been properly charged and purged.

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 6)

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.**

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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 614NT Tandem Disc 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

TRACTOR REQUIREMENTS

The **WIL-RICH** Tandem Disc requires approximately 11-15 horsepower per foot. Two remote cylinder outlets and controls are required.

WHEELS AND TIRES

Dual tractor rear wheels are recommended for use with the disk. See your tractors operator's manual for tire inflation and instructions for wheel ballast where required.

METERING VALVES

The metering valve may be set to provide varying amounts of hydraulic oil flow to the cylinders (see your tractor operator's manual.)

It is recommended the wing lift cylinders run as slow as possible to prevent damage to the implement, persons and property. Turn wing lift hydraulics metering values to slow position.

FRONT BALLAST

Tractor front end stability is necessary for safe and efficient operation. Therefore, it is important that the proper amount of weight be installed on the front of the tractor as recommended in your tractor operator's manual.

Note: Ballast recommendations provide for adequate transport stability at recommended speeds. Additional front ballast may be required for satisfactory field operation due to sudden or extreme forces on the tandem disc. These forces may occur when removing the chisel plow from the ground and turning at rows end, or during field transport over very rough ground.

TRANSPORTING

A SMV (Slow Moving Vehicle) emblem **must** be used at all times while traveling on public roads.

The implement must always be placed in transport position and the cylinder channel locks used when traveling on public roads. Never depend on your tractor's hydraulic system to carry the weight while transporting.

Note: Use extreme caution when working around overhead power transmission lines.

Note: Always install lock channels in the center frame lift cylinders for road transport.

Reduce speed when cornering and when traveling over rough and/or uneven ground. Drive at a reasonable speed to maintain complete control of the machine at all times.

Comply with your state and local laws governing highway safety when moving machinery on a highway.

BEARING ASSEMBLIES

IMPORTANT: **The spindle nuts on the wheel assemblies are preset at the factory.**

Road transport and field working will seat the bearings and will require additional adjustment. After 20 hours of machine operation remove the grease cap and check the bearing tightness.

Remove the cotter pin and rotate the tire while tightening the spindle nut. Tighten until the drag on the tire stops the rotation. Locate the cotter pin hole in the spindle and loosen the spindle nut just enough to allow insertion of the cotter pin. Replace cotter pin and grease cap.

SAFETY

YOU are responsible for SAFE operation and maintenance of your Wil-Rich Tandem Disc. YOU must ensure that anyone who is going to operate, maintain or work around the Disc be familiar with the operating and maintenance procedures and related safety information contained in this manual. This manual will take you step by step through your working day, alerts you to all good safety practices that should be adhered to while operating this equipment.

Remember, YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE operating this equipment is familiar with the recommended operating and maintenance procedures and follows all safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

Disc owners must give operating instructions to operators and employees before allowing them to operate the field cultivator, and at least annually thereafter per OSHA regulation 1928.57.

The most important safety device on this equipment is a safe operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.

A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes themselves and bystanders to possible serious injury or death.

Do not modify the equipment in any way. Unauthorized modifications may impair the function and/or safety and could affect the life of the equipment.

Think SAFETY! Work SAFELY!

GENERAL SAFETY BEFORE OPERATING

Read and understand the operator's manual and all safety signs before operating, maintaining or adjusting the Disc.

Review safety related items with all operators annually.

Use extreme care when making adjustments.

When working under or around the machine, always lower the Disc to the ground.

After sevicing, install and properly secure all shields and guards before operating. Remove all tools, parts, and sevice equipment from the machine.

Have a first-aid kit available for use should the need arise and know how to use it.

Have a fire extinguisher available for use should the need arise and know how to use it.

Clear the area of people and remove foreign objects from the machine before starting and operating.

Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, and head. Wear suitable ear protection for prolonged exposure to excessive noise.

Stop tractor engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging. Do not attempt to remove any obstruction while machine is in motion.

HYDRAULIC SAFETY

Always place all tractor hydraulic controls in neutral before dismounting.

Make sure that all components in the hydraulic system are kept in good condition and are clean.

Relieve pressure before working on hydraulic system.

Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.

Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.

Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.

Wear proper hand and eye protection when searching for high pressure leaks. Use a piece of cardboard as a backstop instead of hands to isolate and identify a leak.

If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.

STORAGE SAFETY

Store unit in an area away from human activity.

Do not permit children to play around the stored unit.

Store in a dry, level area. Support the base with planks if required.

TIRE SAFETY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

Have a qualified tire dealer or repair service perform required tire maintenance.

TRANSPORT SAFETY

Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when moving the Disc in the field, yard or on the road.

Check with local authorities regarding transportation on public roads. Obey all applicable laws and regulations.

Always travel at a safe speed. Reduce speed and use caution when making corners or meeting traffic.

Make sure SMV (Slow Moving Vehicle) emblem and all lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic

Use a drawbar pin with provisions for a mechanical retainer.

Attach a safety chain before moving (see safety chain information.)

Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.

Always use hazard warning flashers on tractor when transporting unless prohibited by law.

Do not allow riders.

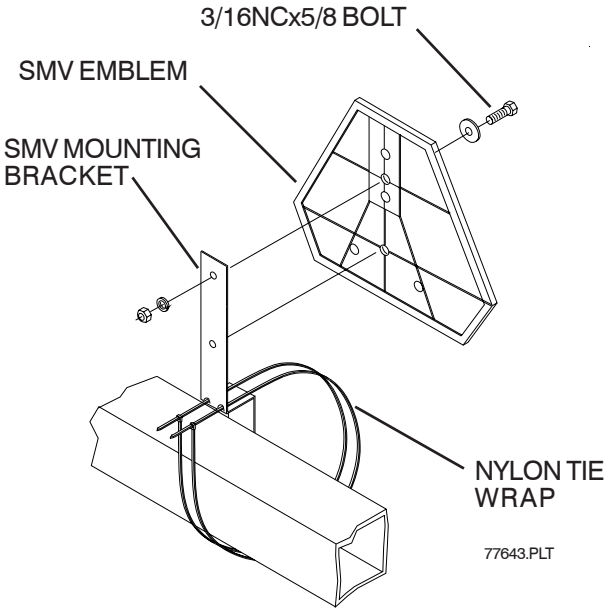
Do not exceed 20 m.p.h. duringtransport.

SMV

The SMV emblem is to be secured as near to the rear and centered, or as near to the left center of the implement as possible.

The bracket provided is designed to mount to numerous frame sizes and can be orientated in numerous positions to avoid interference with implement componenets.

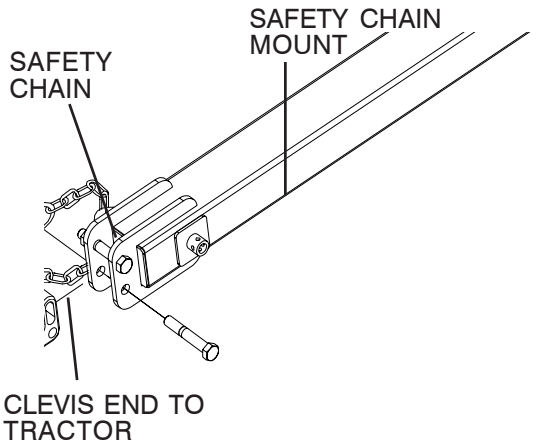
Emblem is to be 2 to 6 feet above the ground measured from the bottom edge of the emblem.



Keep safety decals clean. Replace any safety decals that are damaged, destroyed, missing, painted over or can no longer be read. Replacement safety decals are available through your dealer.

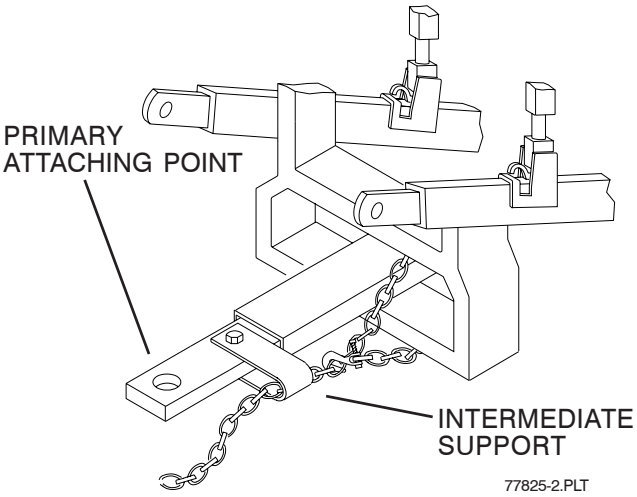
SAFETY CHAINS

The purpose of the safety chain is to provide an auxiliary attaching system to retain the connection between towing and towed machine in the event of separation of the primary attaching system.



The safety chain should be hooked long enough to permit full turns. Unnecessary slack should be taken up.

The intermediate support is to be used if there is more than 6" of unsupported chain on either side of the primary attaching point.



The intermediate support must not be mounted more than 6" from the primary attaching point (see illustration above.)

Safety decals appear at various locations on your machine. These decals are provided for your safety, your family's safety and your employee's safety. Replace any decal that becomes worn, damaged, painted over or difficult to rear.

Keep safety decals and signs clean and legible at all times.

Replace safety decals and signs that are missing or have become illegible.

Replaced parts that displayed a safety sign should also display the current sign.

Safety decals or signs are available from your Dealer Parts Department.

How to install Safety Decals:

Be sure that the installation area is clean and dry.

Decide on the exact position before you remove the backing paper.

Remove the smallest portion of the split backing paper.

Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.

Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.

Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.

SPECIFICATIONS

STANDARD EQUIPMENT

26x5/16” gauge blade, smooth.

10” Blade spacing - welded spools

Tapered leveling blades (3)

1-15/16” Square gang bolt

Spring shank bearing stand

Hitch Jack

(2) - 4-1/2"x12" Transport cylinders

(2) - 4"x12" Transport cylinders

(2 or 4) - 5”x36” Wing lift cylinders

Hydraulic hose carrier

Transport channel lock

Hydraulic system with hoses to the tractor.

Adjustable solid scrapers

(4) - 385/56R 22.5 tires - centerframe

(4) - 385/56R 22.5 tires - wings

2-1/2” Spindles on center wing axles

Constant level spring loaded leveling

Main and Wing Frames: 4”x8” tube

Gang beams: 4”x6”x3/8”wall

Triple seal regreaseable 214 gang bearings

Gang shaft wrench

Walking Tandem Axles on center frame and wings

OPTIONAL EQUIPMENT

- Mounted harrows
- spool & blade scrapers
- Rear hitch
- Rear hydraulic extension kit

GENERAL FEATURES

Your 614NT is a flexible wing-type disc. It is available in 14’rigid to 36’ working widths. The constant-level spring loaded leveling adjustment keeps the disc at a level position at all soil depths and when in the trasport position.

GENERAL FEATURES

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 wing 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 disc 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 disc 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 O-ring 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 (2) 4-1/2”x12" & (2) 4"x12" bypass type cylinder. The wing folding system uses two/four 5” bore x 36” stroke cylinders.

Operation of the hydraulic system axle unit requires a tractor with hydraulic pressure capability of 3000 psi.

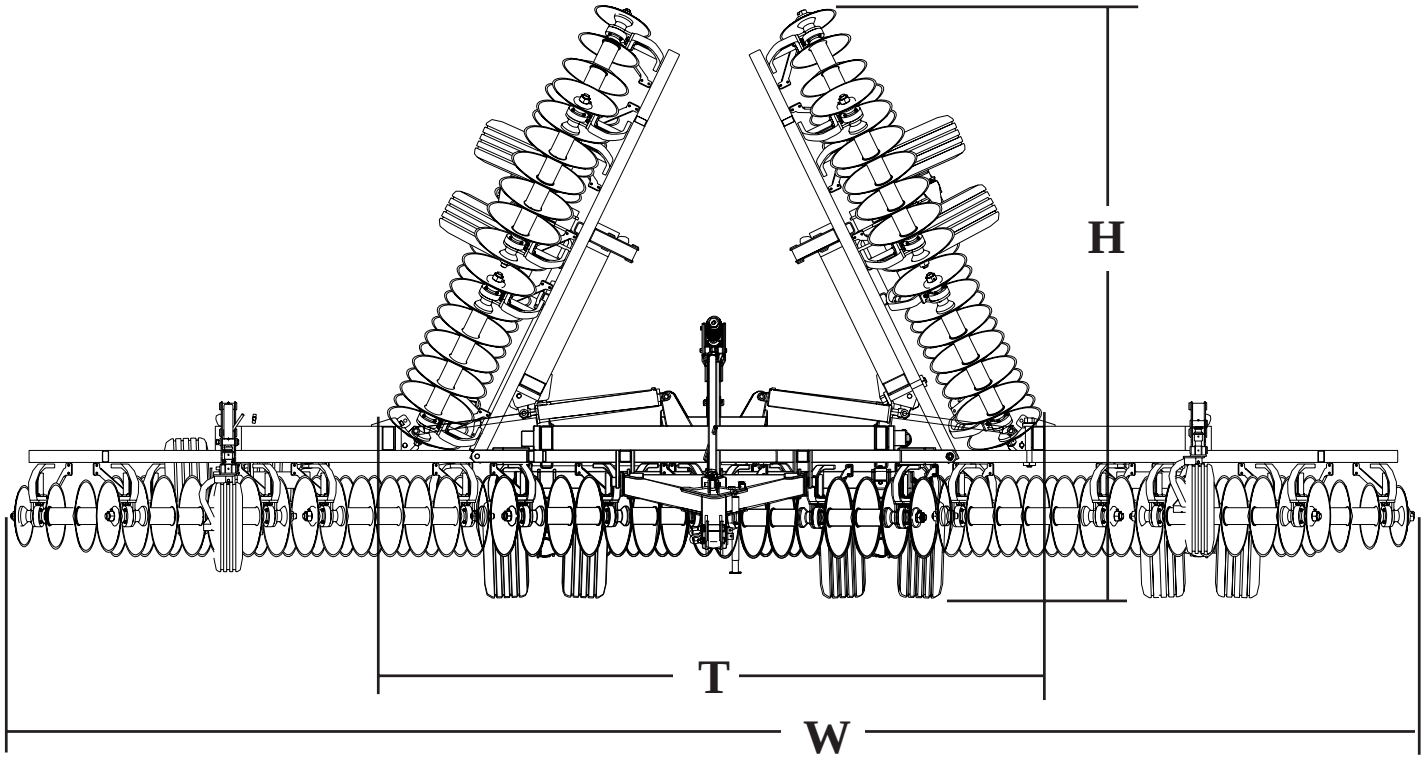


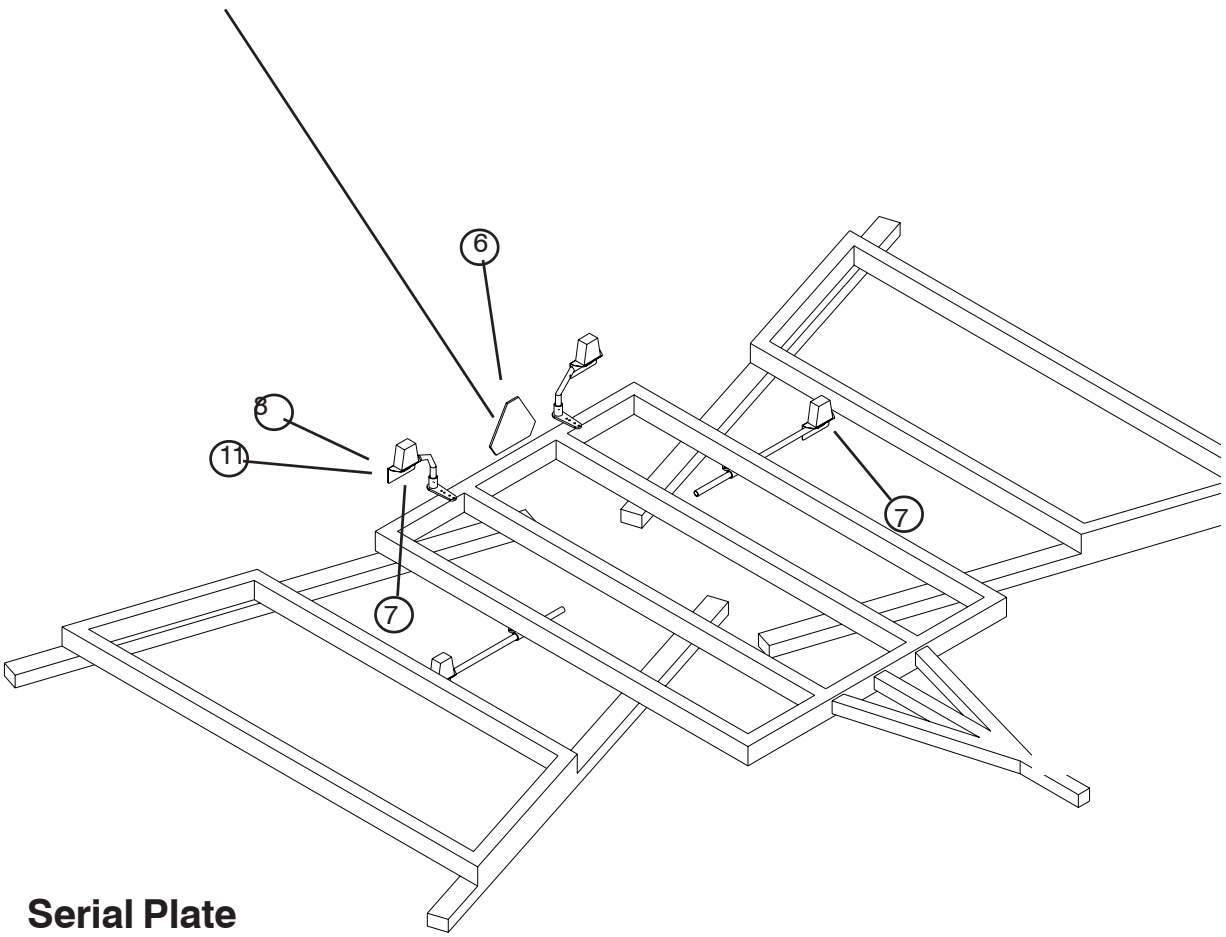
Figure 1:

MODEL NUMBER	CUT WIDTH	BLADE DIA	QTY BRGS	QTY BLADES	WEIGHT LB'S	TRANSPORT HEIGHT (H)	TRANSPORT WIDTH (T)	OVERALL WIDTH (W)
614NT14RIGID	14'4"	26x5/16	12	34	11,831	8'0"	16'5"	16'4"
614NT15RIGID	15'10"	26x5/16	12	38	12,443	8'0"	18'1 '	18'2"
614NT17RIGID	17'4"	26x5/16	12	42	13,460	8'0"	19'8"	19'6"
614NT20WING	19'8"	26x5/16	16	50	15,969	8'0"	22'9"	21'8"
614NT24WING	23'8"	26x5/16	20	58	18,991	11'3"	15'0"	25'10"
614NT27WING	26'10"	26x5/16	22	66	20,556	12'10"	15'0"	29'0"
614NT30WING	30'2"	26x5/16	24	74	24,626	12'10"	17'6"	32'4"
614NT33WING	33'0"	26x5/16	26	82	27,501	14'5"	17'6"	35'2"
614NT36WING	36'4"	26x5/16	28	90	29,555	16'0"	17'6"	38'6"

SAFETY DECALS PLACEMENT

The SMV (Slow Moving Vehicle) Emblem is a recommended attachment that should be added to the rear of the Disc. When transporting the 614NT over public roads, the SMV Emblem must be used, for protection of tractor and motor vehicle operators.

SEE PAGE 60 FOR HAZARD LIGHTING ASSEMBLY



Serial Plate

To insure efficient and prompt service please furnish us with your 614NT model and serial number in all correspondence. The serial plate is located on the front face of the center frame.

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

CAUTION: When trailing the disc 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.

Assy Hdwr
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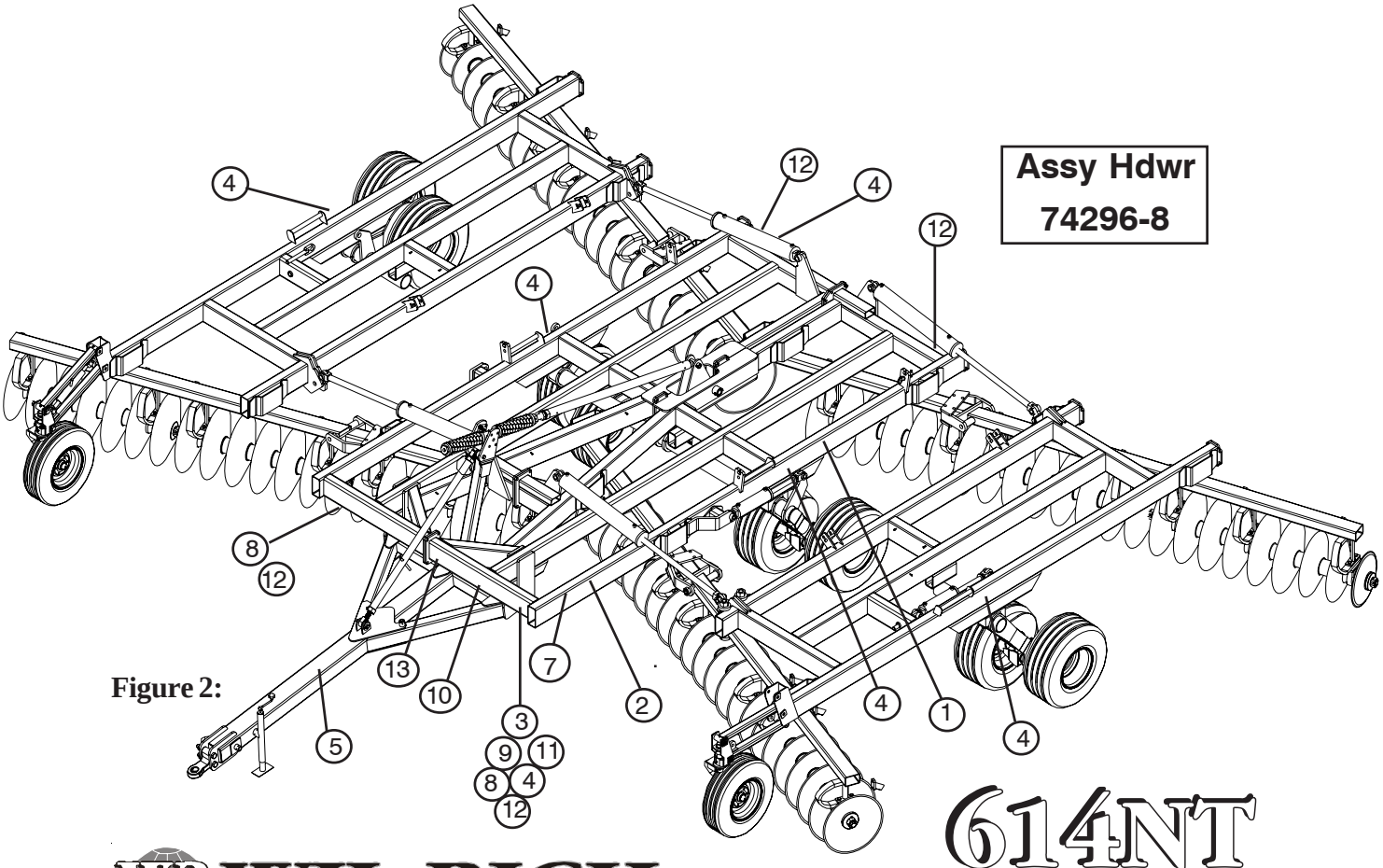


Figure 2:

614NT

WIL-RICH

1 - 243479 - 4X37 Wil-Rich Decal

3 - 997263 - Decal Promotes

5 - 9971163 - Decal Safety Set

7 - 22372 - Amber Reflector

9 -997860 - Decal Read Manual

11 - 997862 - Decal Voltage

13 - 9971018 - Decal Speed

2 - 243347 - 614NT Decal

4 - 997864 -Decal Lockout Warning

6 - 41345 - SMV Kit

8 - 997994 - Decal Lock Pins

10 - Serial Number Plate Location

12 - 997854 - Decal Folding

GENERAL OPERATING INSTRUCTIONS

WARNING

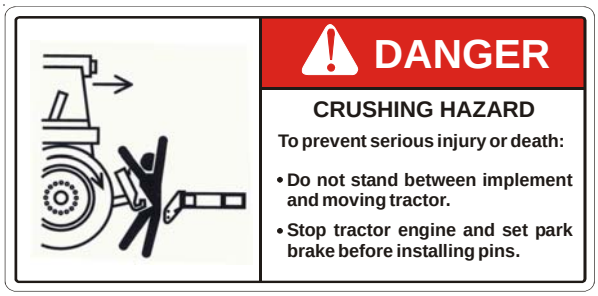
1. BEFORE OPERATING - STUDY OPERATORS MANUAL, SAFETY MESSAGES AND SAFE OPERATING PROCEDURES, READ SAFETY SIGNS ON THIS MACHINE.

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



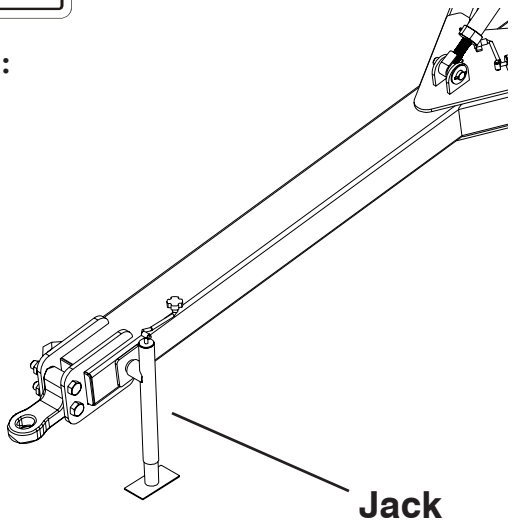
JACK

The 614NT Tandem Disc 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:



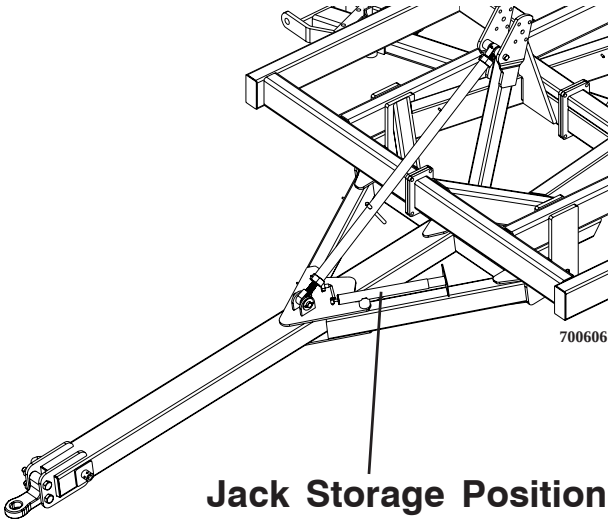


Figure 4:

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

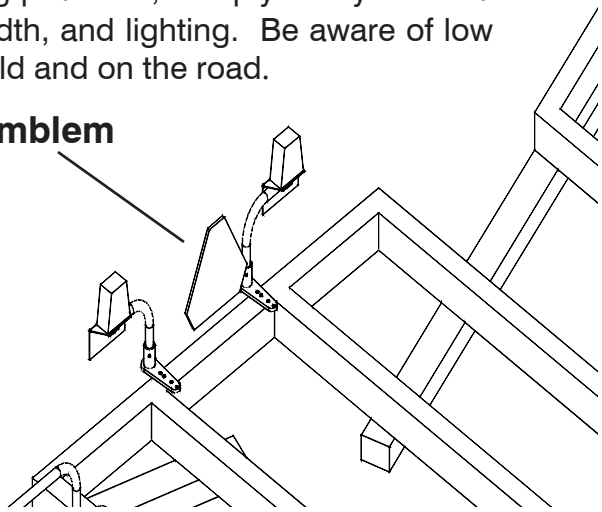
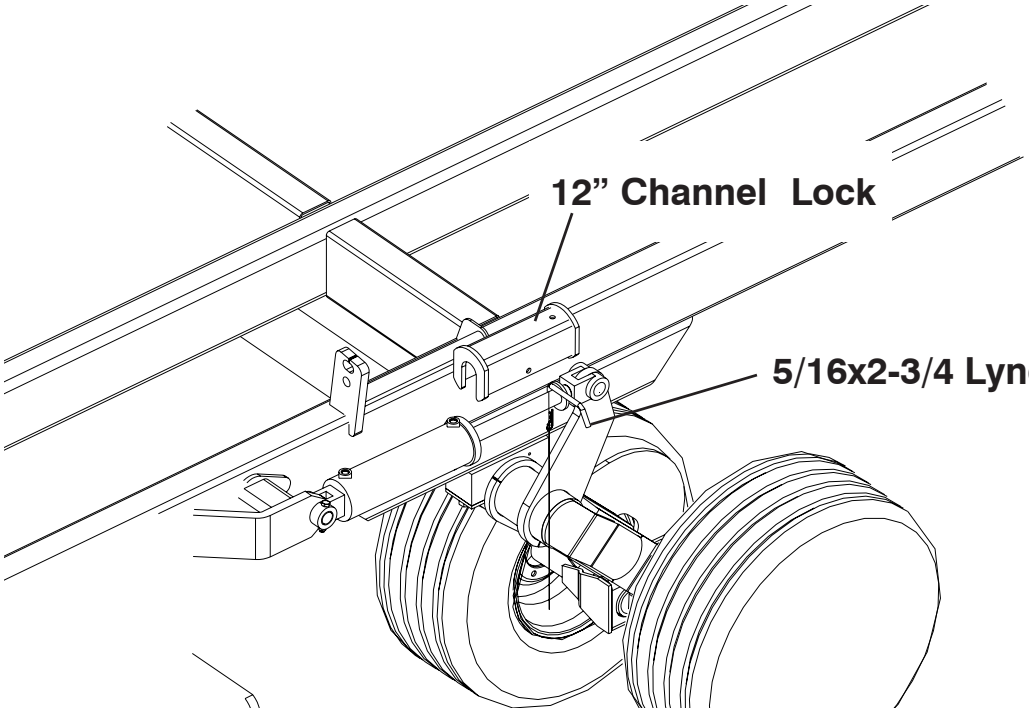


Figure 5:

TRANSPORT LOCKOUT

When transporting or working on the machine in the raised position, the 12" channel lock must be used to prevent the machine from falling in case of a hydraulic component failure. The lockout is secured with a lynch pin. (See Figure 6)

Figure 6:
700607



CAUTION: Secure transport lockout when transporting.

Wil-Rich 614NT Discs are equipped with folding wings have hydraulic wing lift cylinders to fold the implement for road transport.

Fig. 7 shows a simple two (2)or four (4) cylinder circuit used to fold a pair of wings. This system is used on Wil-Rich Discs with a single pair of folding cylinders.

When lowering the wings, hold the tractor control lever until both cylinders are completely extended. Fully extending the cylinders allows the wings to flex properly in the field.

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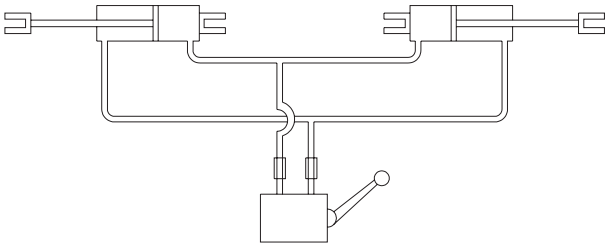


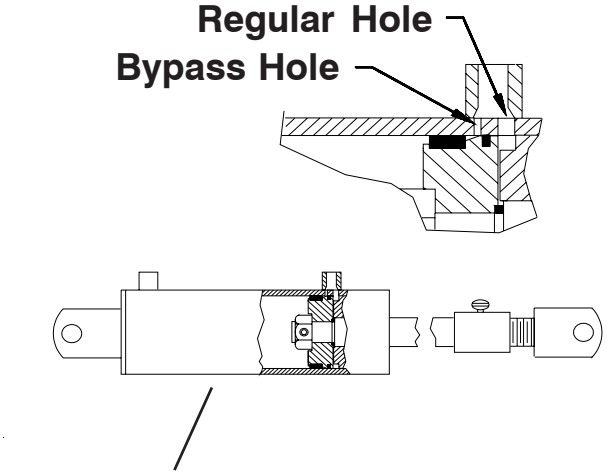
Figure 7:

When raising the wings be sure the wing rest is properly positioned to allow the wings to fold. Fold the main wings until they contact the wing rest.

DETPH CONTROL CIRCUITRY

This unit is equipped with a lift system that utilizes sequencing cylinders. In a sequencing system the cylinders are sized to operate in series and provide a level lift to the unit. The WIL-RICH sequencing system utilizes 12 inch stroke cylinders with varying bore sizes. On this unit the center frame has a 4-1/2" bore with a 4" bore wing cylinder. See Fig. 8 .

The cylinders are connected in series with the rod end of the center frame (MASTER) cylinders connected to the base end of the wing cylinders. Because of the rod in the center frame cylinder there is less volume in the rod end versus the base end. The next cylinder in the series (SLAVE) needs to be smaller because of the less volume, hence the 4" bore.



Top Bypass Cylinder

As hydraulic oil is pumped into the base end of the master cylinders, oil is forced out of the rod ends of these cylinders to the base ends of the first slave cylinder. The oil forced out of the rod ends of the first slave cylinder goes to back to the tractor.

As the machine is raised and the cylinders are completely extended, the slave cylinders will become sequenced with the master cylinder.

Synchronization is accomplished by allowing oil to pass from the base end of the cylinder to the rod end through a small orifice at the rod end of each cylinder. When the piston seal passes by the orifice (cylinder fully extended) oil passes from the base of the rod end of the master cylinder to the base end of the slave cylinders. When the slave cylinder rods are fully extended, oil passes from the rod end of the slave cylinders back to the tractor.

For synchronization to be accomplished, depth control must be held for a few seconds with the cylinders fully extended, to allow passage of oil through the system.

After oil has "rephased" the system, leave depth control in neutral position at least three seconds to allow cylinders far enough to close the rephase passages and completely synchronize the system.

Note: This system requires periodic raising of the unit and holding of the tractor valve to expel air or contaminants

Note: To synchronize or re-synchronize the bypass system, the tractor control valve must be held in the raised position until the entire implement is raised and any air that may be in the lines has been expelled.

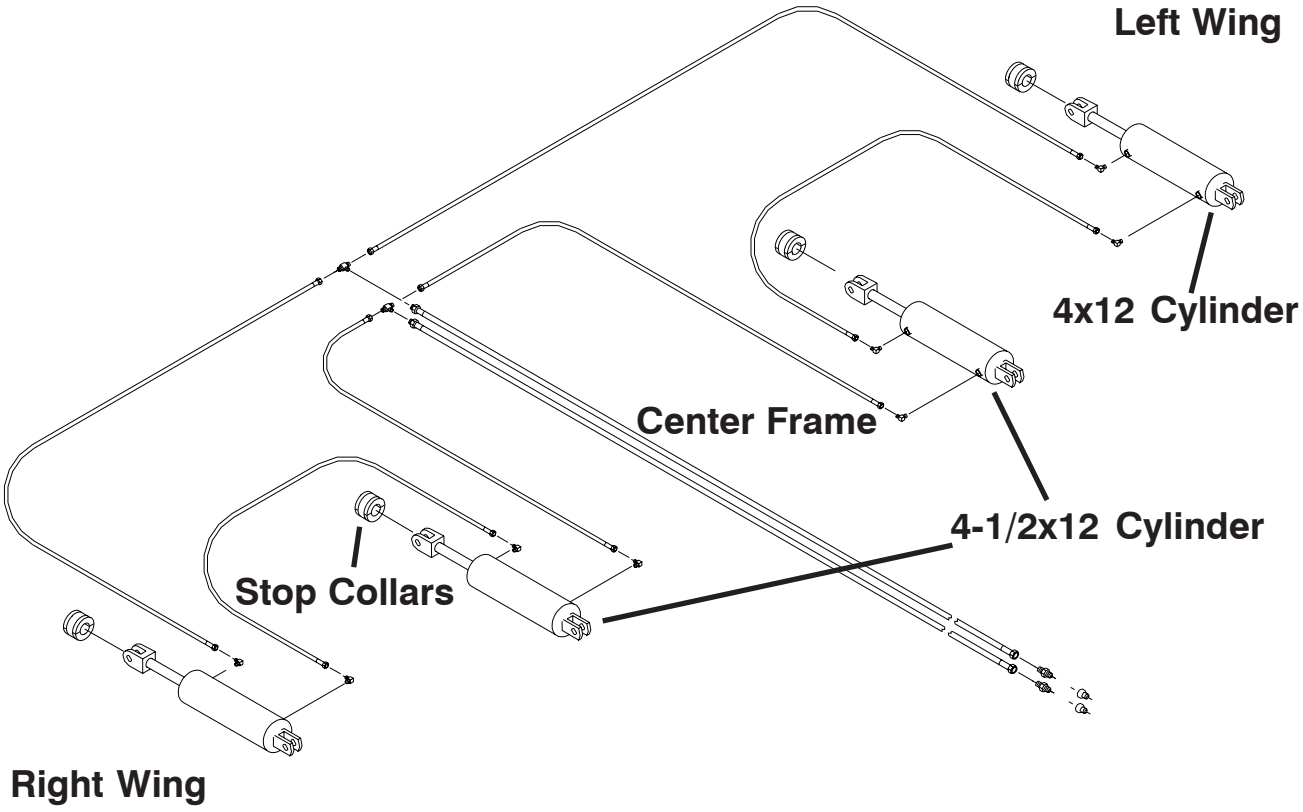


Figure 8:

DEPTH SETTING

NOTE: The depth of the unit is controlled by the screw stops on the center frame lift cylinders.

Depth control is set with any add-on stop collars contacting the cylinder end plate. The center frame and wing cylinders should always have the same combination of depth control bands.

Do not use the wing cylinder stop collars to control the overall depth of the unit. For example – if a wing is low, you cannot adda stop collar to only that cylinder to hold the wing; you will need to adjust the wing cylinder eye bolt to raise the wing. See page 41.

With a sequencing lift system, the first cylinder to be stopped will stop the movement of all cylinders in the system. If a wing needs to be adjusted side to side to be level with the main frame, the adjustment must be made at the eye bolt on the wing, not at the wing cylinder screw stops.

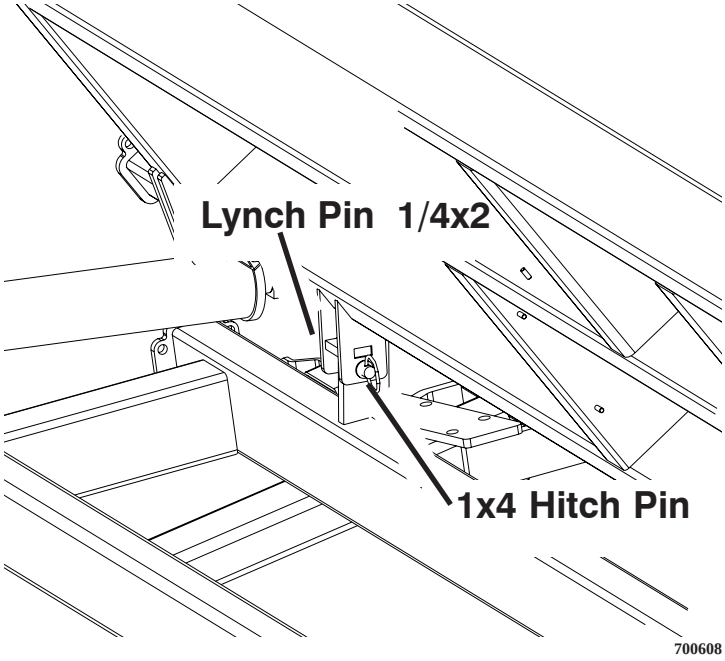
FRONT WING LOCKOUT

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

To lock wings, place hitch pin through ears of main frame and the slot on the wing lifting plate (see figure 9) and place lynch pin through pin. It is important that the lynch pin be placed securely on hitch 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 disc wings unless wing lockout pins are installed. Accidental operation of hydraulic lever or failure of any hydraulic components could cause disc wing to drop.

Figure 9:



ADJUSTMENT FOR LEVELLING

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 leveling screw is preset at the factory to allow the disc to flex when going over dead furrows or other uneven land.

(See Figure 11)

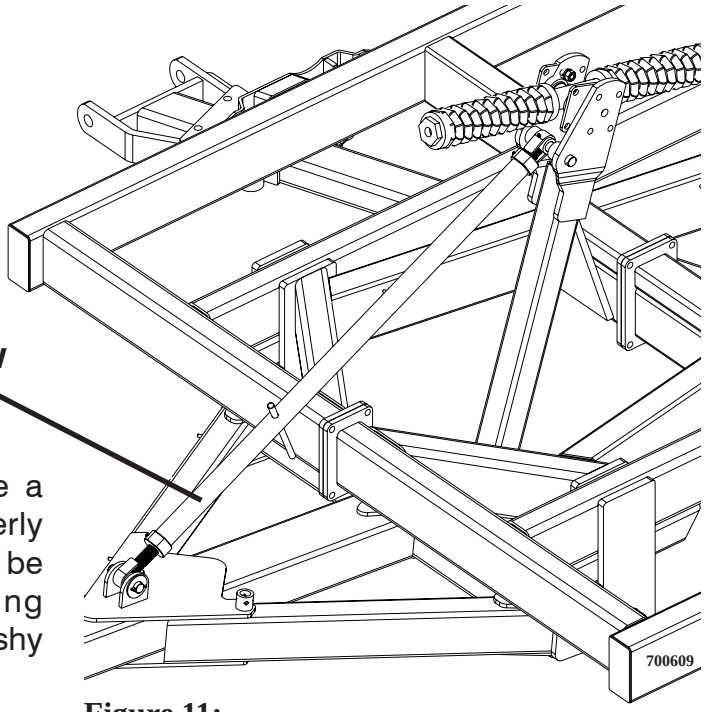


Figure 11:

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 against the disc blades. Each scraper may be adjusted by loosening the U-bolts and sliding the assembly along the scraper bar. (See Figure 12)

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 discing 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 disc 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.

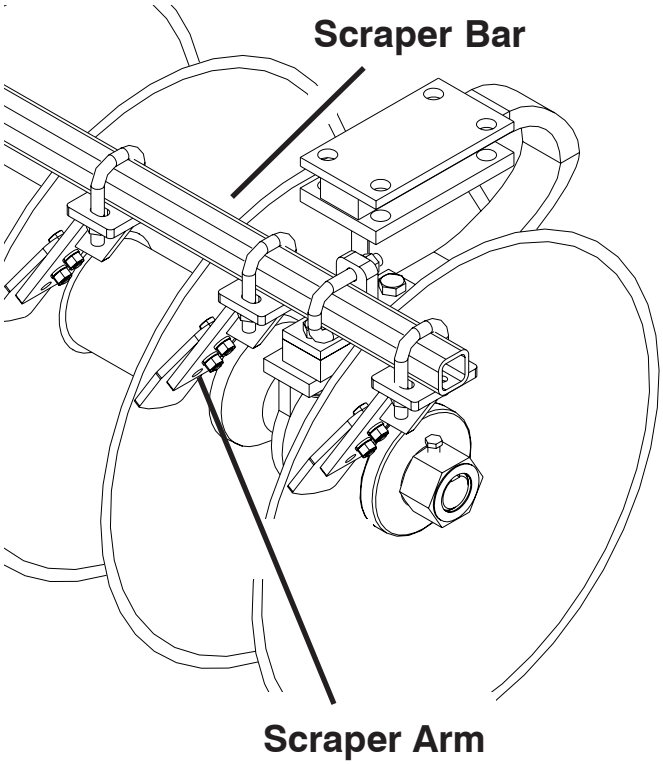


Figure 12:

ROCKY SOIL

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

FIELD SETTING

Even if the unit has been leveled in the yard, it should never be assumed that the unit would operate level in the field without checking or adjustments. Changing field conditions, loading of the blade and attachments will impact the functional level and working in the field.

Move to the field and stop the unit in a level area. Unfold the wings; making certain that there is adequate room, with no person or obstruction in the wing fold area. Remove and store the wing lock pins. Activate the main lift hydraulics and remove the transport channel locks from the main lift cylinders.

Make a visual inspection of the unit to ensure that all hardware is properly tightened, hoses are clear and that the unit is ready for field operation.

Stop collars should have been removed for yard adjustment and all screw collars should be turned to the clevis end. Cycle the main lift hydraulics a few times to purge any air from the system.

Move forward in the field at a moderate speed and lower the unit into the ground. Stop and measure the frame height at the rear of the main frame. The working depth is equal to the overall height minus the frame height. By use of the screw stop and stop collars on the center frame lift cylinders, set the desired working depth.

You may need to set a depth, pull forward through the field, stop, check the depth and adjust the depth a number of times. Once the rear blades are at the desired depth, measure the frame height at the front of the main frame. By turning the levelling screw the front blades can be raised or lowered to adjust the depth of the front blades.

Once the main frame has been levelled by adjusting the levelling screw, move into the field at operational depth and stop the unit. Measure the frame height of the wing at the rear of the wing and compare to the frame height at the main frame. Adjust the wing eye bolt screw(See page 41) to level the wing to the main frame.

Most units are equipped with rigid or pivoting gaugewheels, mounted to the front of the main wings. These gaugewheels are critical to the operation of the unit by maintaining the front to rear level of the wings, counteracting the front dip of the wings due to blade loading.

Once the unit has been levelled front to rear and side to side, move into the field at operational depth. With the unit, not moving forward, adjust the gaugewheels so that the wheel cannot be turned by hand or the pivoting gaugewheel will not pivot freely.

Once you began to move forward the blade loading will increase the loading on these wheels and provide proper depth control. As you operate the unit the front gaugewheels should provide support, but not carry the front of the wings. Adjust as required.

OPERATING SPEED

Best results will be achieved when operating speed of 4 to 6 miles per hour is maintainted. Speed in excess of 6 miles per hour can cause uneven discing. 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 614NT 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 2000 foot pounds.

2 Tighten all bolts. Expecially 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 6)

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 against the disk blades.

6 Lubricate various components that require lubrication as outlined. (See Pages 28-31)

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 disc that is in motion.

GANG BOLT WRENCH

The wrenches, stored on the inside of the frame, are 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 nuts provided to hold gang wrench to the stud on the frame.

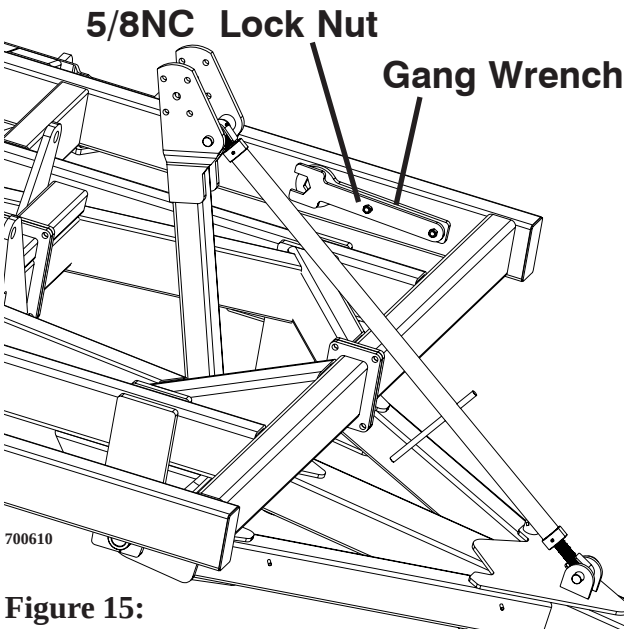


Figure 15:

LUBRICATION

For economical and efficient operation, the proper lubrication of the disc 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 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 center axle swivel connector 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 614NT 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 Triple lip seals allow 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 with 5 - 6 pumps with a hand grease gun every 60hrs of operation. 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. Wil-Rich 460ep grease is recommended (see dealer for grease).

IMPORTANT

LUBRICATE GANG BEARINGS WITH 5-6 PUMPS EVERY 60HRS WITH HAND GREASE GUN

WIL-RICH 460EP GREASE RECOMMENDED

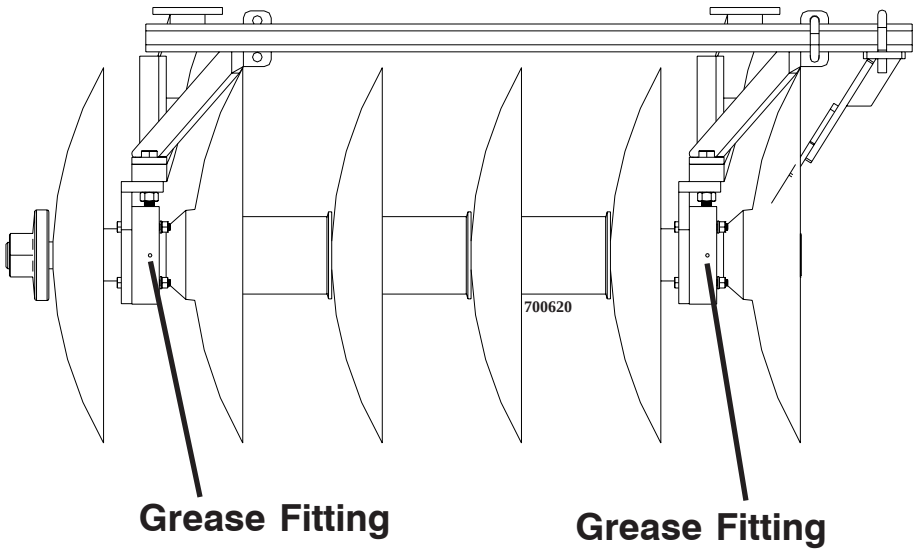
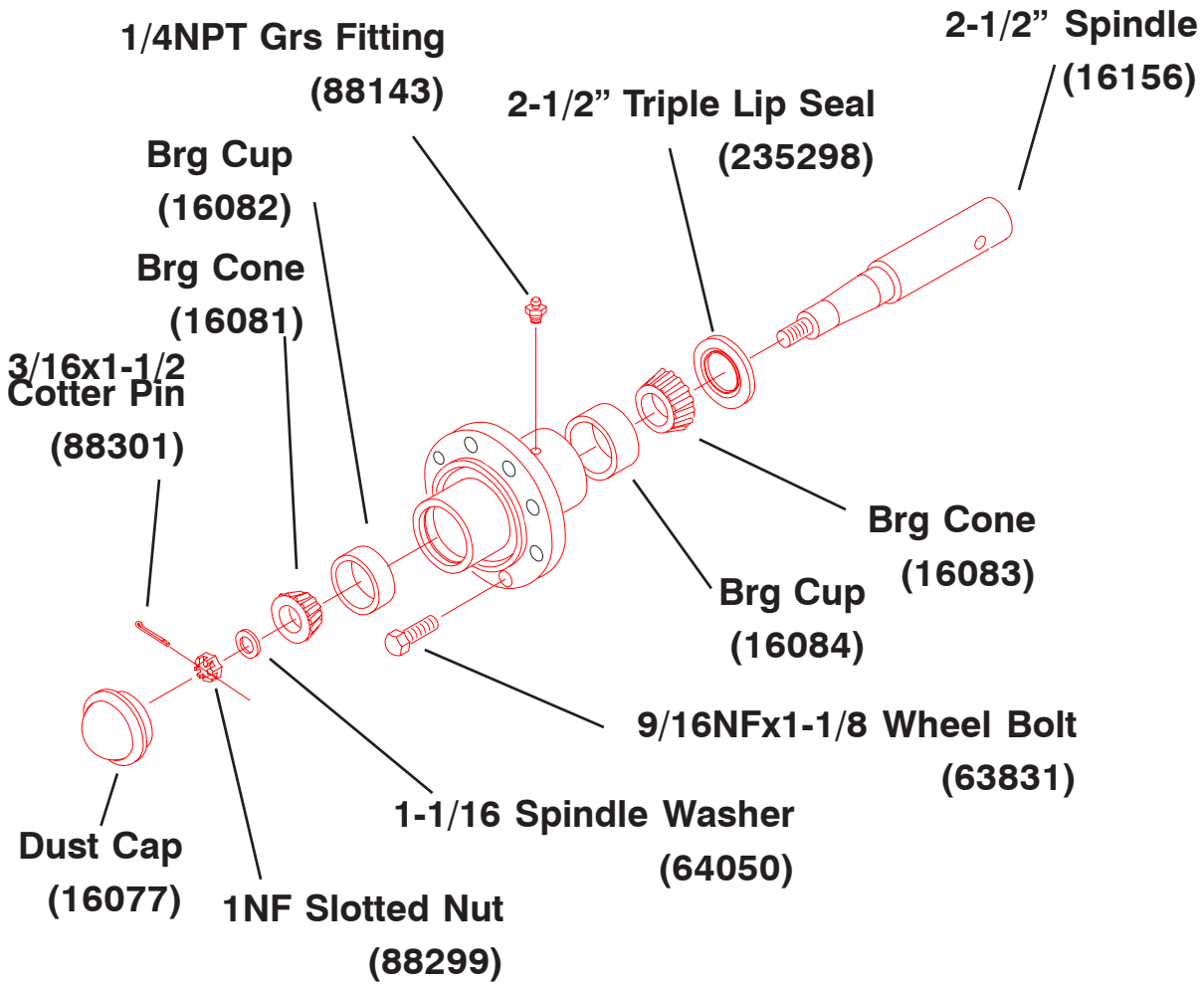


Figure 16:

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.



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 lightly binds as you rotate hub by hand. Back off the slotted nut to the next slot and place a new cotter pin in. Use a 3/16"x1-1/2" long cotter pin. Replace dust cap.

STORAGE

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

Clean off all foreign matter, and thoroughly lubricate disc.

Repaint the disc where the original paint has worn off.

Coat the disc 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 disc blades or bearings are replaced, the gang shaft nuts must be torqued to 2200 foot pounds.

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

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

DISC BLADE MAINTENANCE

Do **NOT** run machine with loose disc blades. Keep gang bolts tight! Tighten to 2200 foot pounds, which is approximately 220 pounds at the end of a ten-foot long wrench.

Rust and corrosion are the chief enemies of the disc. Spending a little time and effort protecting the disc 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 disc 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 pages 52-61will show the proper locations of the disc blades and bearings on the gang shaft. Remember the disc blades on the front gangs must be assembled to throw the soil out. The disc 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

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

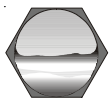
It is very important that a new disc be properly assembled, adjusted and lubricated before use. Follow the illustrations on these pages for proper assembly. Remove paint from grease fittings and replace any that are damaged or missing.

BOLT INFORMATION

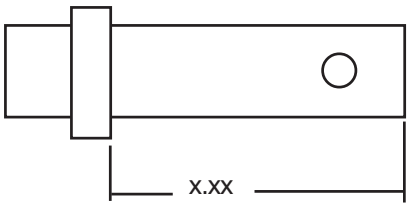
To insure alignment of assemblies, insert all bolts, leaving the nuts loose until completion of assembly. Use lockwashers or flat washers where called for. Spread all cotter pins.

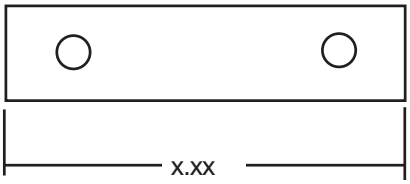
All bolts should be tightened to the torques recommended in the table below. When bolts are replaced, be sure they are replaced with bolts of equal strength. See bolt head markings in table below.

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

GRADE 2	GRADE 5			GRADE 8		
						
TORQUE IN FOOT POUNDS						
BOLT DIA	3/8	1/2	5/8	3/4	7/8	1
HEX HEAD	9/16	3/4	15/16	1-1/8	1-5/16	1-1/2
UNC GR2	18	45	89	160	252	320
UNC GR5	30	68	140	240	360	544
UNC GR8	40	100	196	340	528	792
UNF GR2	21	51	102	178	272	368
UNF GR5	32	70	168	264	392	572
UNF GR8	48	112	216	368	792	840

TORQUE.EPS





PINS

Pins are dimensioned to the lengths shown above.

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

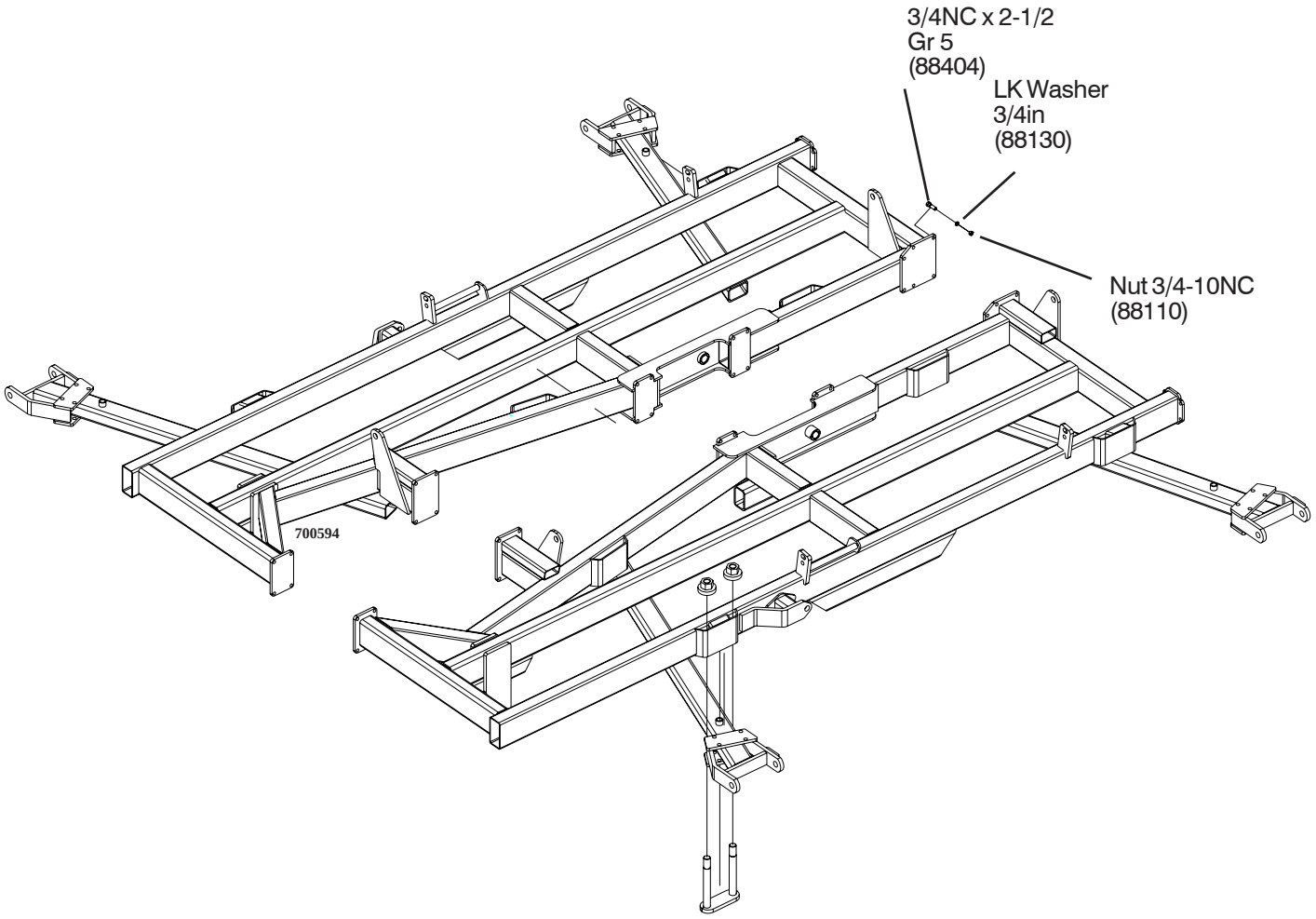
Step 1 - Center Frame Assembly

14ft, 16ft, 17ft, 30ft, 33ft, and 36ft. (Split Frame)

(Note: 24ft and 27ft are not split frames)

Assy Hdwr
74296-2

Assemble right and left center frames together with 3/4”x2-1/2” grade #5 bolts, lockwashers and nuts. Place frame on sturdy stands at least 30” high. Position a stand under each corner.



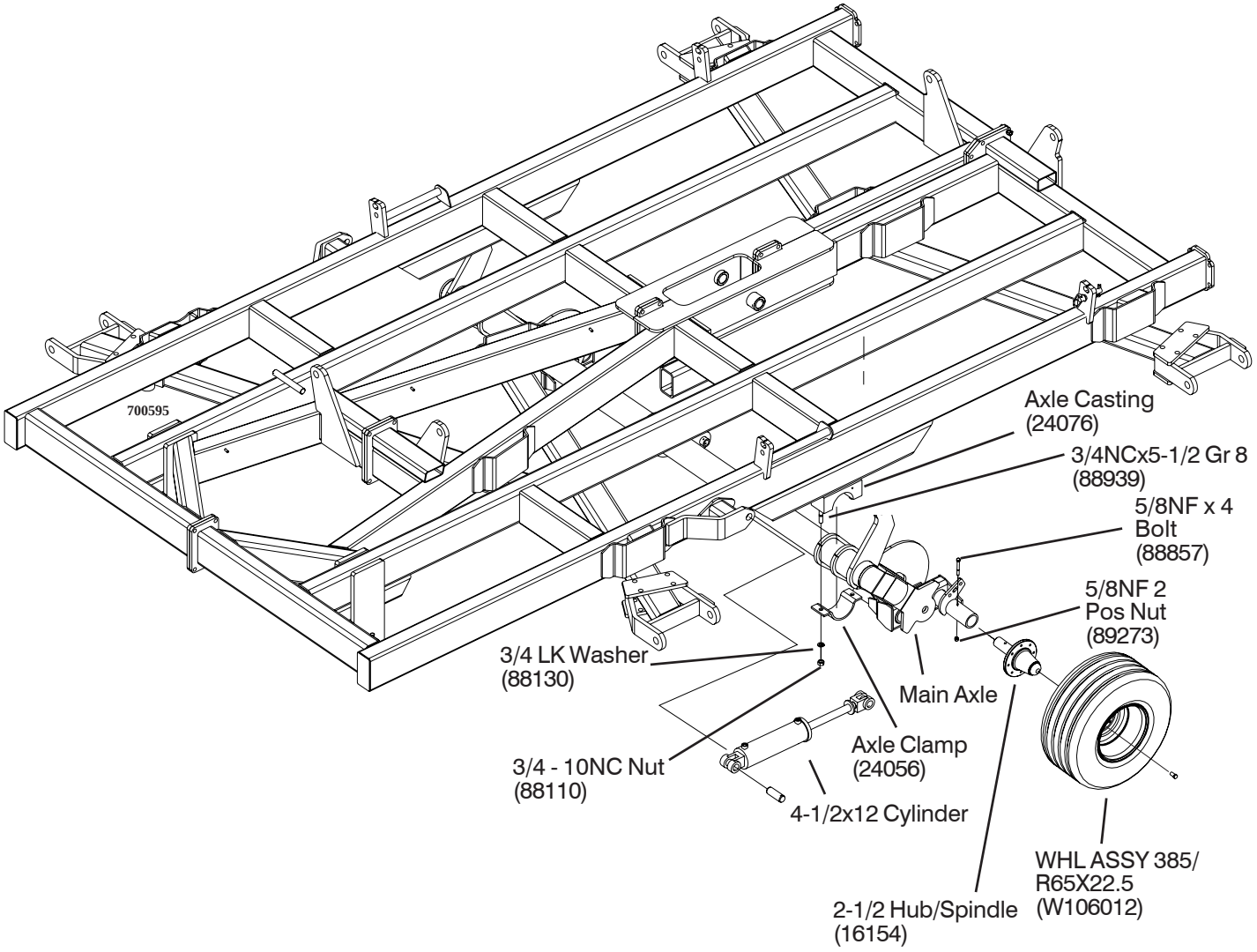
Step 2 - Center Axle Assembly

All Sizes

Assy Hdwr
74296-3

Attach axle assembly to frame and attach wheel to hubs. 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.



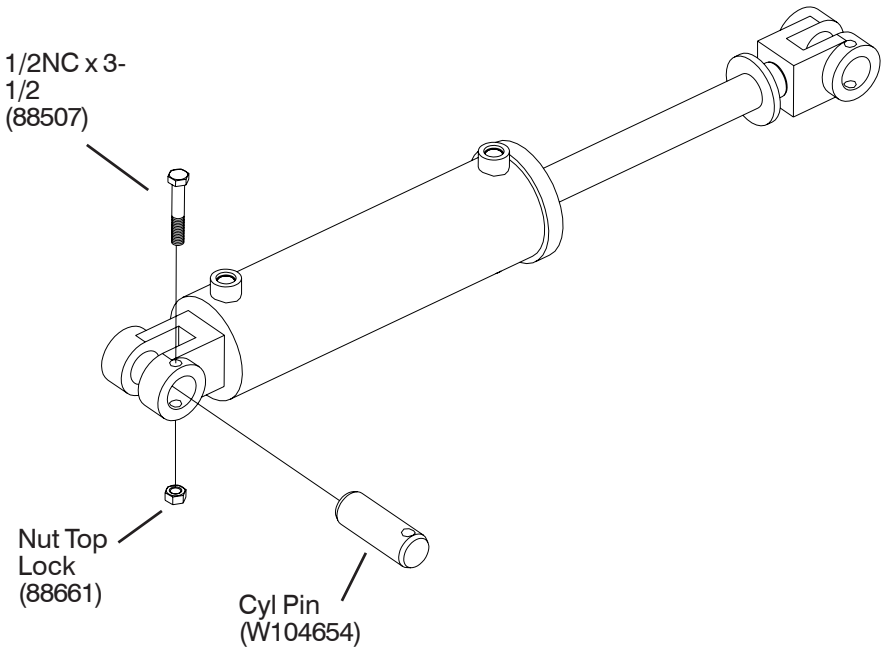
Step 2 - Cylinder Pins and Mounting Hardware

All Sizes

Assy Hdwr
74296-3

The same sylinder pin and hardware is used in all cylinder locations. Each cylinder pin has one hole that will line up with the hole locatedin the clevis of the cylinder.

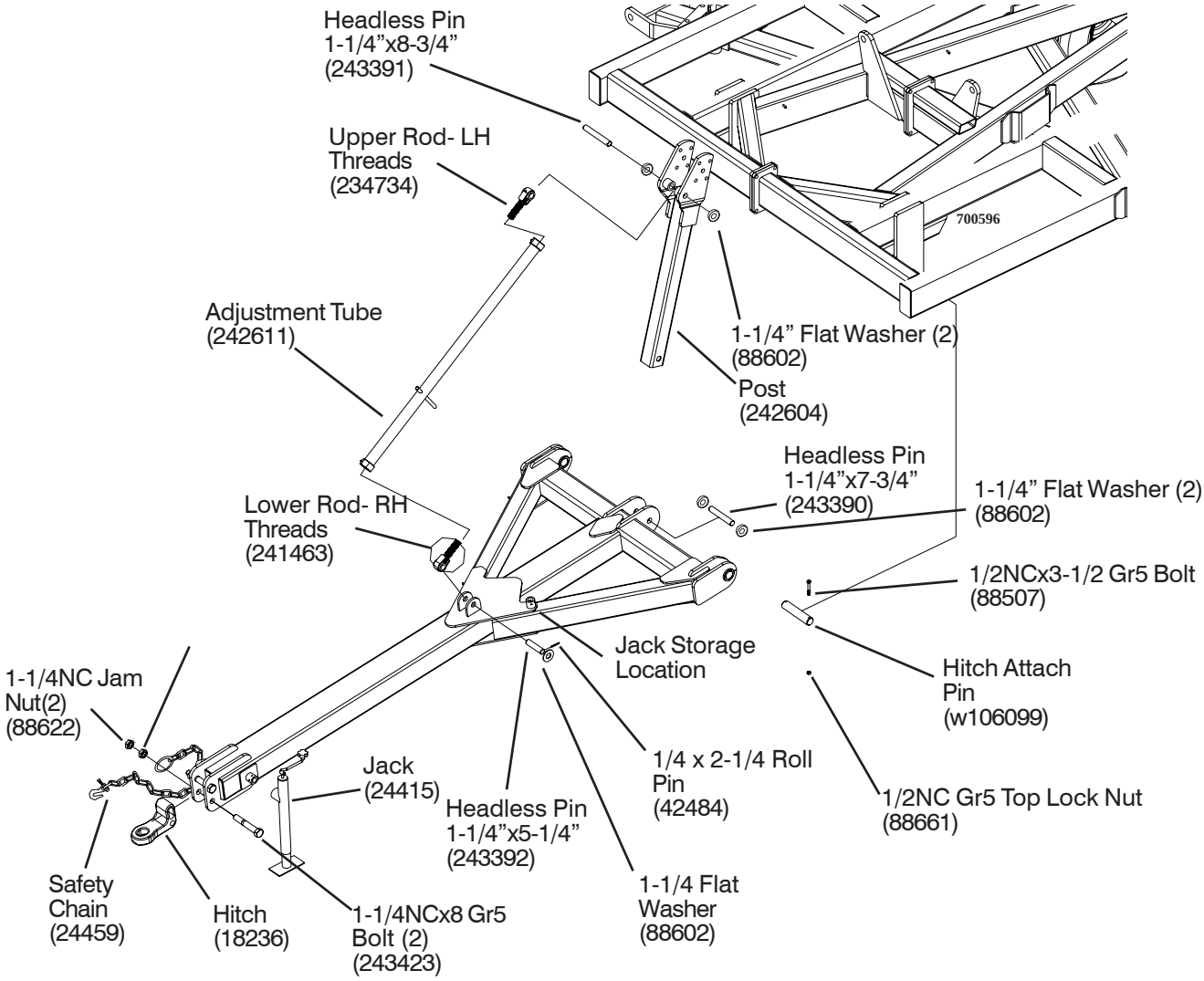
Ensure that all cylinder bolts are in place and properly tightened.



Step 3 - Hitch Assembly

All Sizes

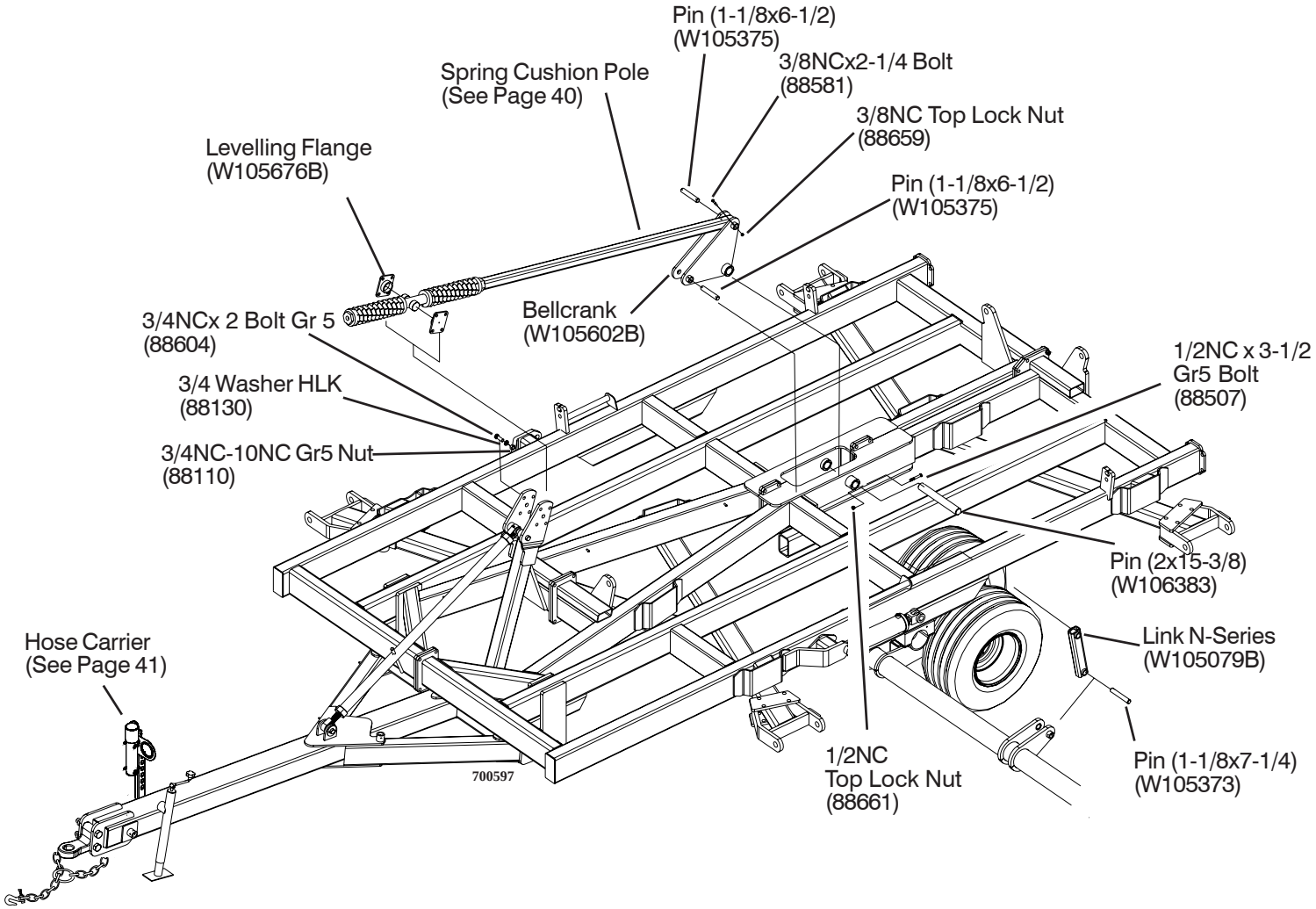
Assy Hdwr
74296-1



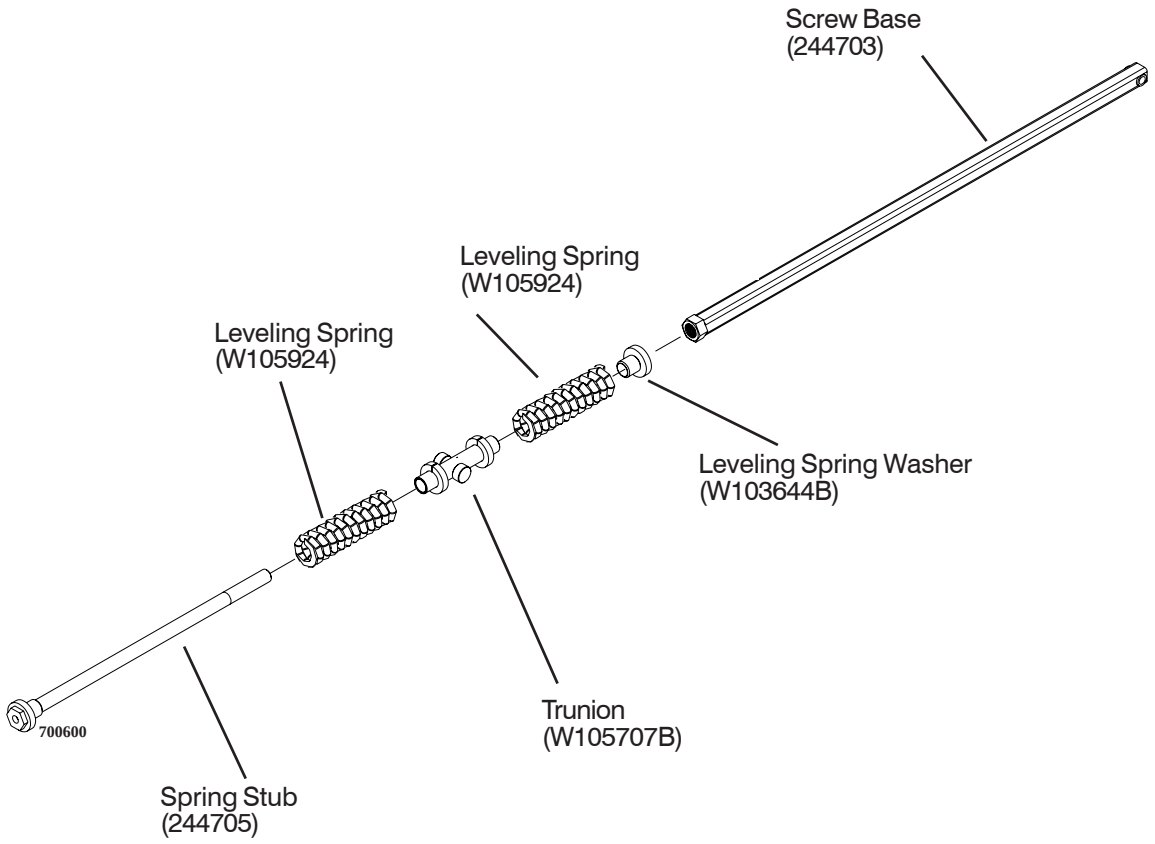
Step 4 - Levelling Screw Assembly

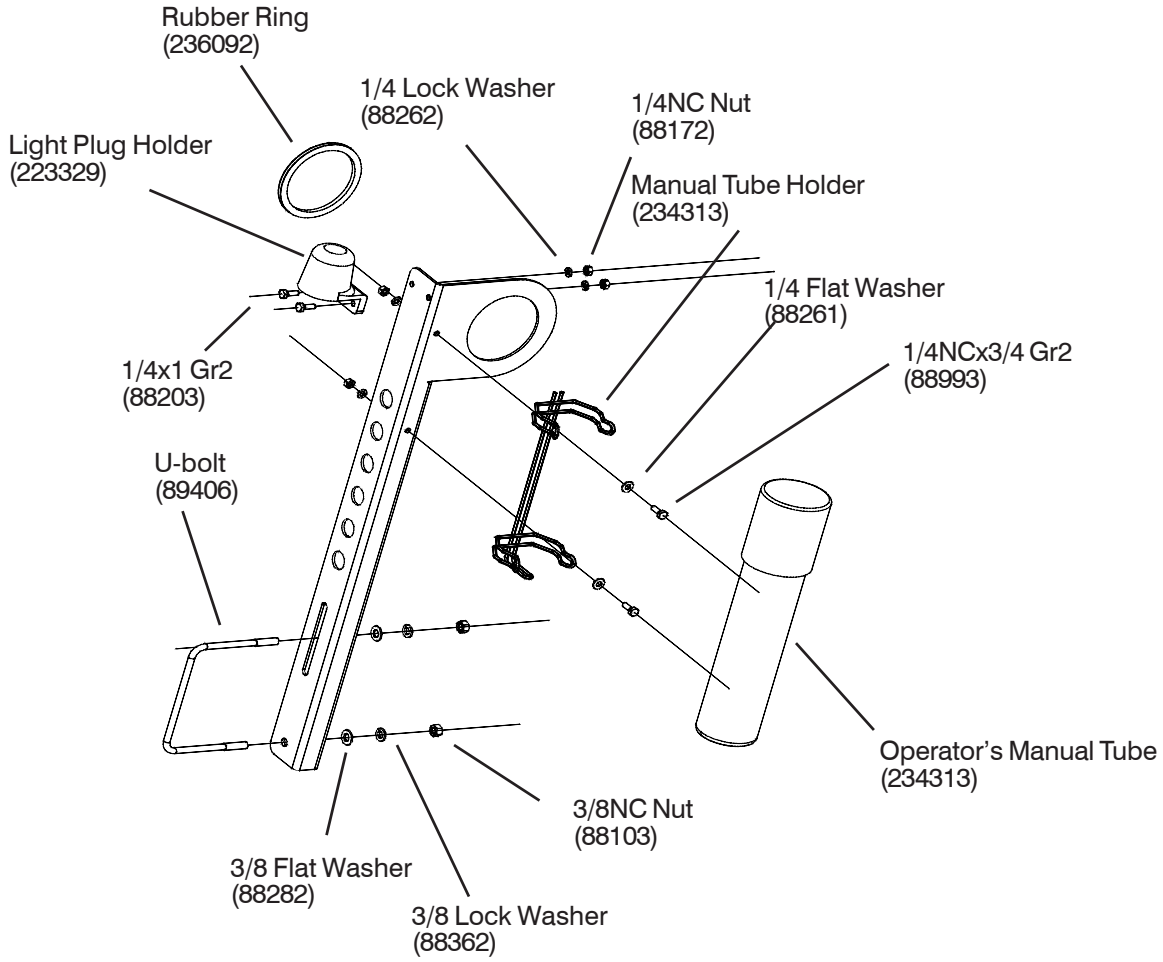
All Sizes

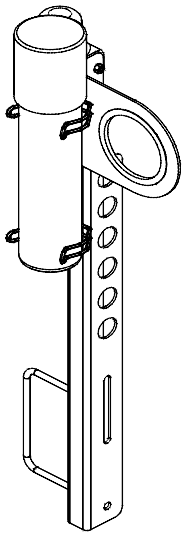
Assy Hdwr
74296-5



Spring Cushion Pole Assembly







Note:

Place the Utility Pole as close to the hitch point as possible without interferring with the tractor ot implement.

The rubber edging is to be placed around the inside of the large loop to protect the hoses from scuffing.

Step 6 - Wing Frame Assembly

24ft, 27ft, 30ft, 33ft, and 36ft

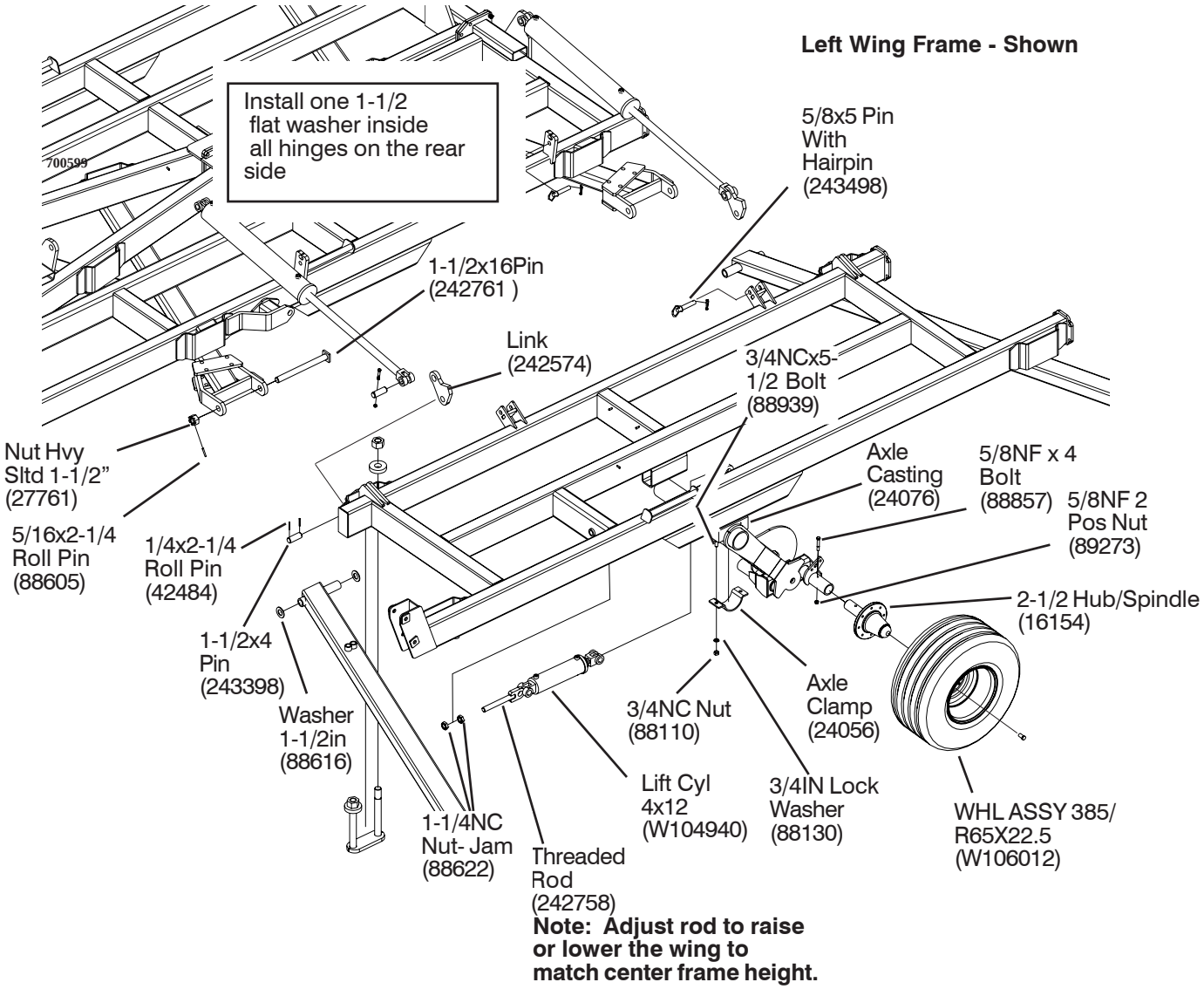
Assy Hdwr
74296-4

Mount wing frames to center frame.

NOTE: Following illustration shows left wing frame iand axle nstallation. Right wing frame and axle is attached in the same matter.

Attach the gauge wheel to wing as shown on Pg. 42

NOTE: Following illustration shows left wing axle installation. Right wing axle is attached in the same manner.



DANGER

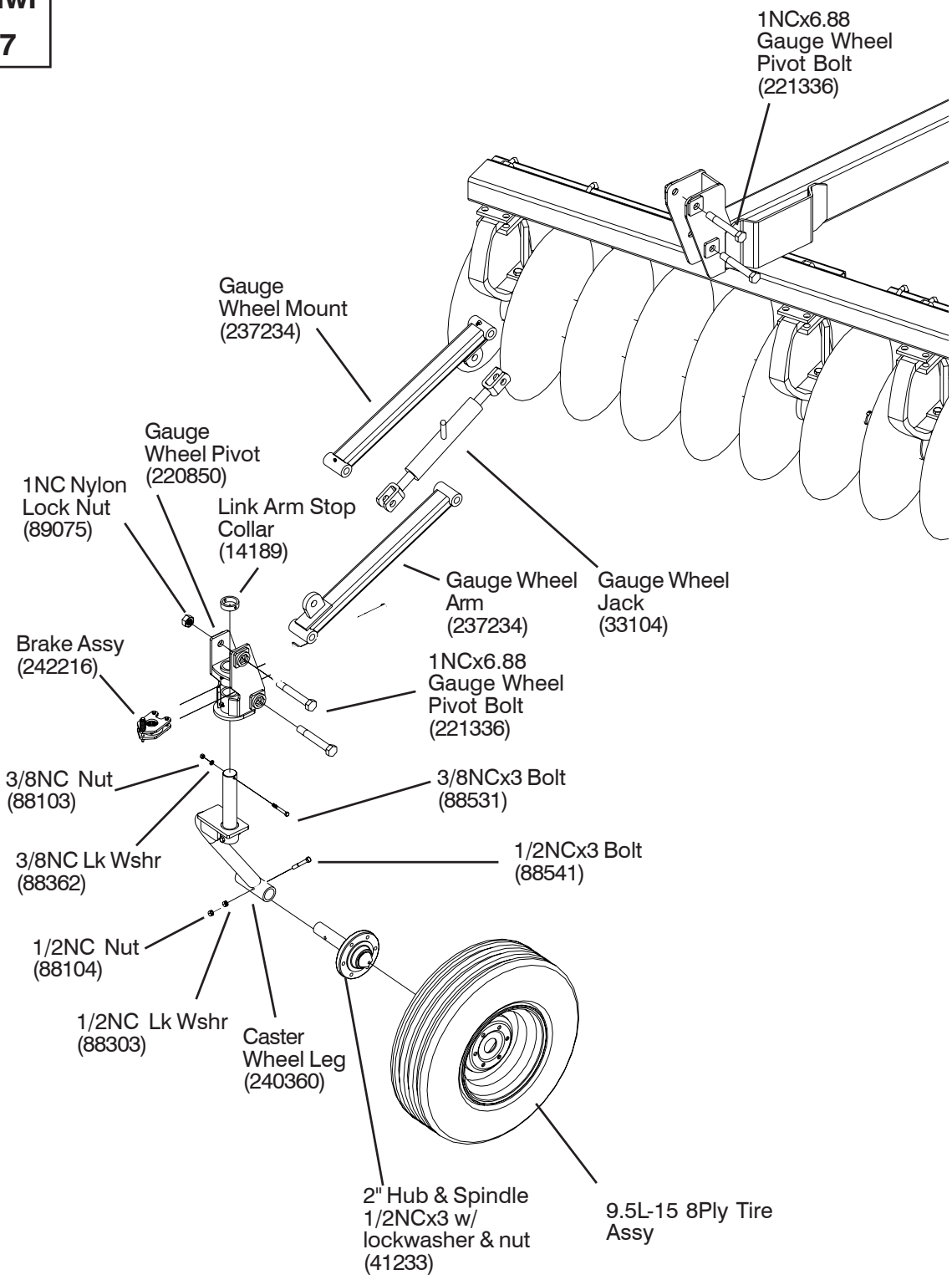
STAND CLEAR AT ALL TIMES

- **Never walk or stand in the path of the wings.**
- **Completely lower wings before performing service or adjustments.**
- **Failure to do so will result in serious injury or death.**

222800

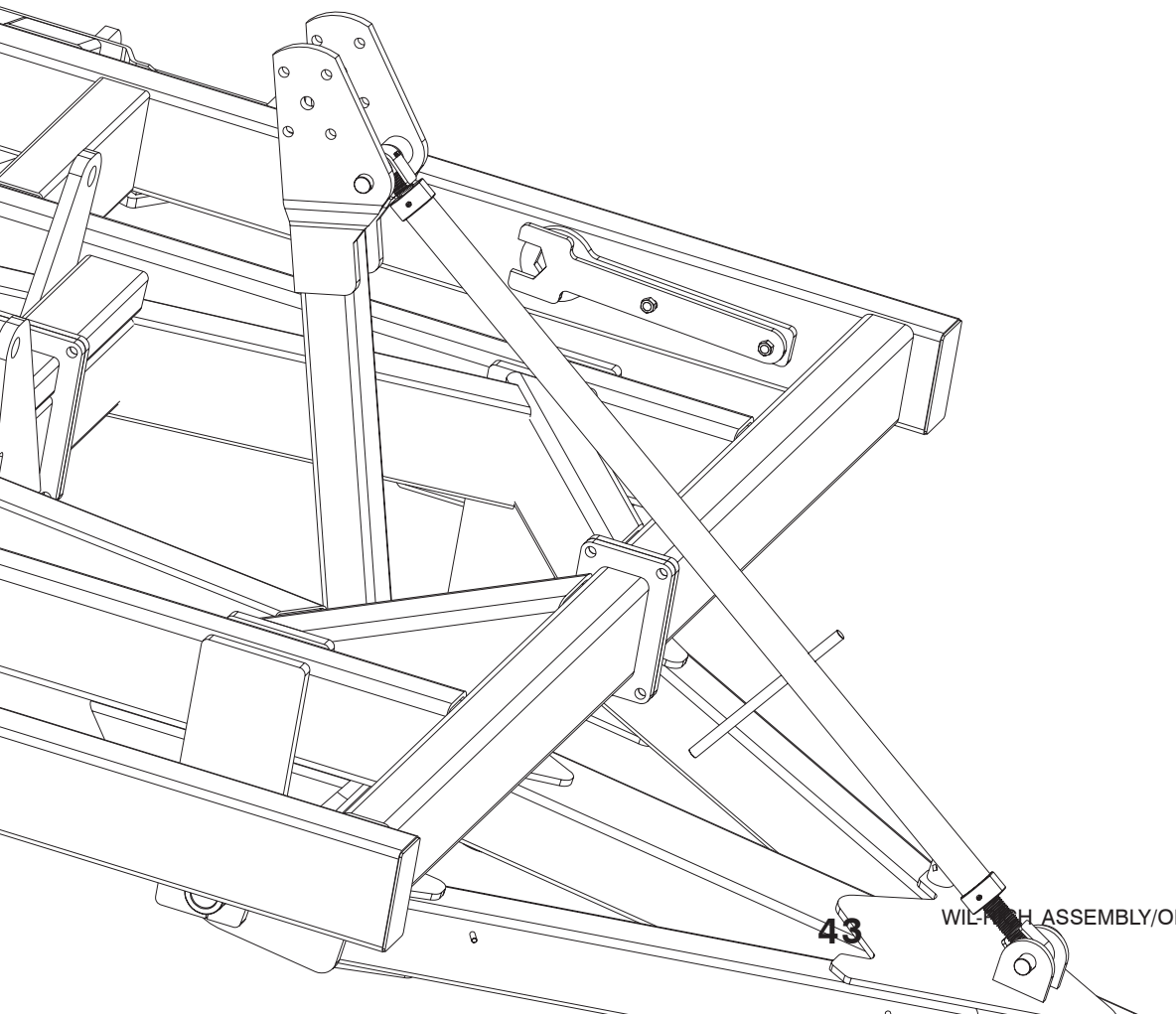
Step 10 - Gaugewheel Assembly

Assy Hdwr
74296-7



Step 7 - Wrench Attachment Assembly

Assy Hdwr
74296-11



Step 9 - Hydraulics

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. 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 3000 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.

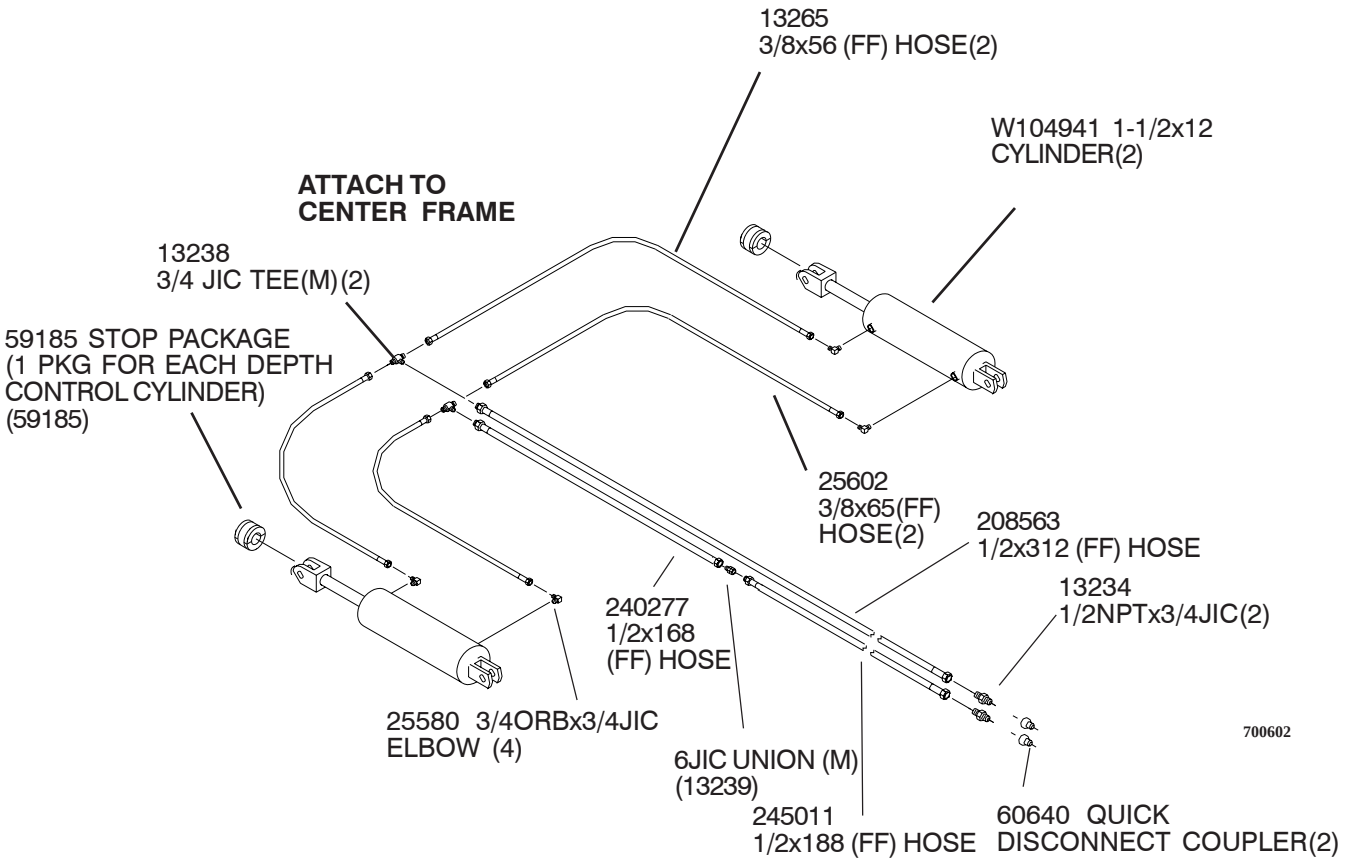
Assy Hdwr 74296-9

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 machine depth control.

CAUTION

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



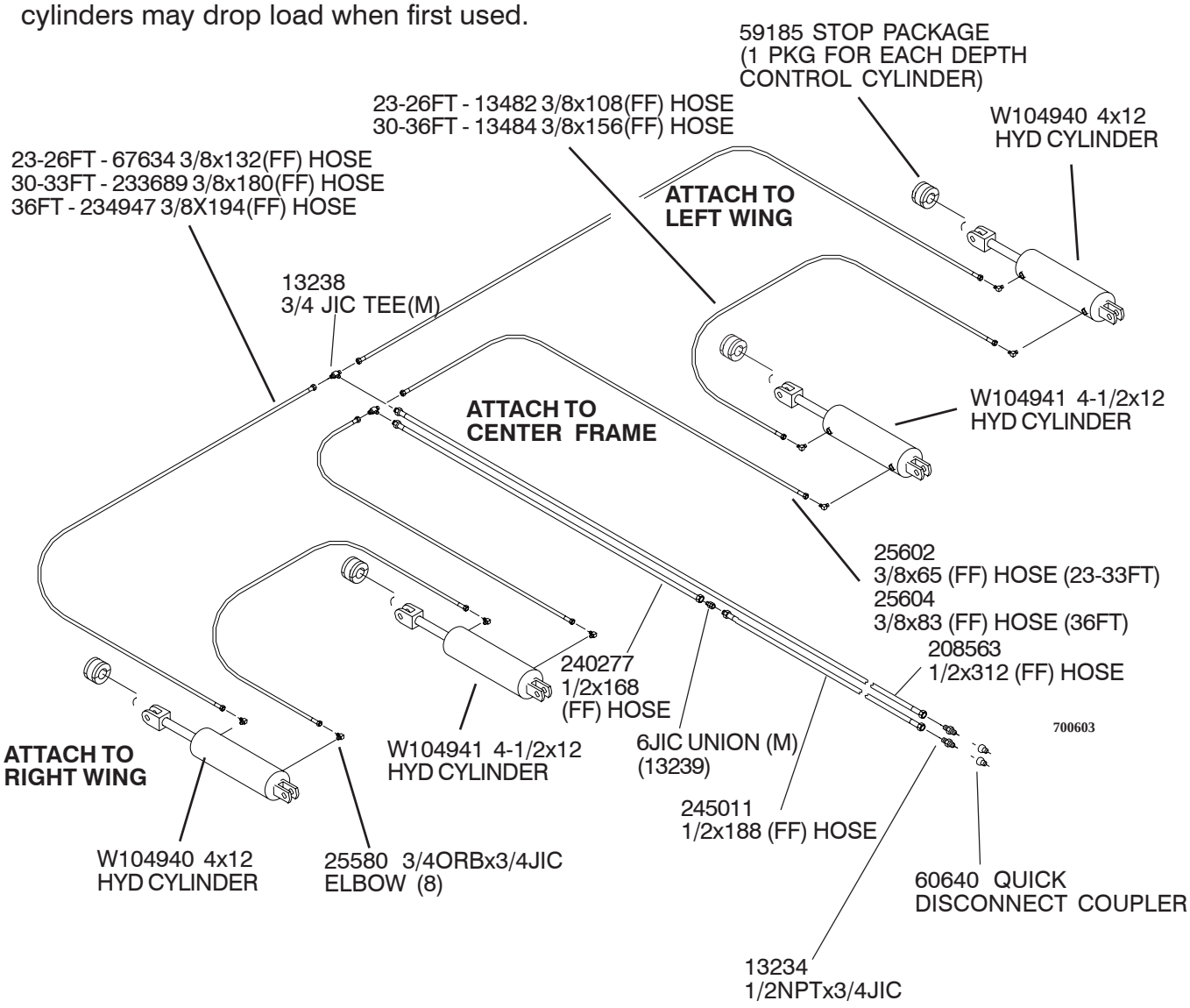
Step 9 - Depth Control Hydraulics
24ft, 27ft, 30ft, 33ft, and 36ft

Assy Hdwr
74296-9

Hydraulic hose layout for machine depth control.

CAUTION

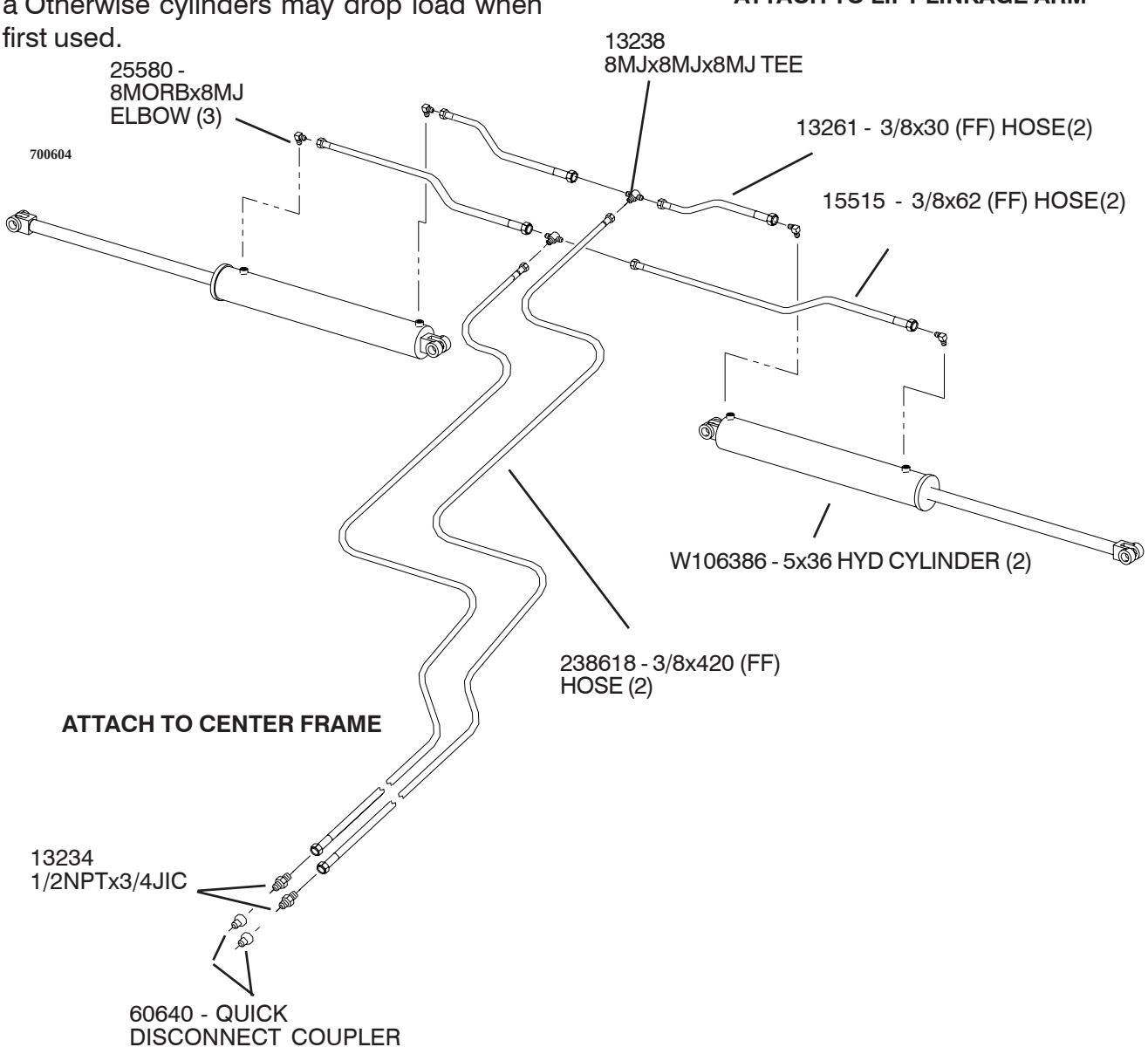
Before attaching cylinders to disc stroke cylinders to full length several times to allow oil to fill both cylinders and hoses. Otherwise cylinders may drop load when first used.



CAUTION

Assy Hdwr 74296-10

Before attaching cylinders to disc stroke cylinders to full length several times to a Otherwise cylinders may drop load when first used.

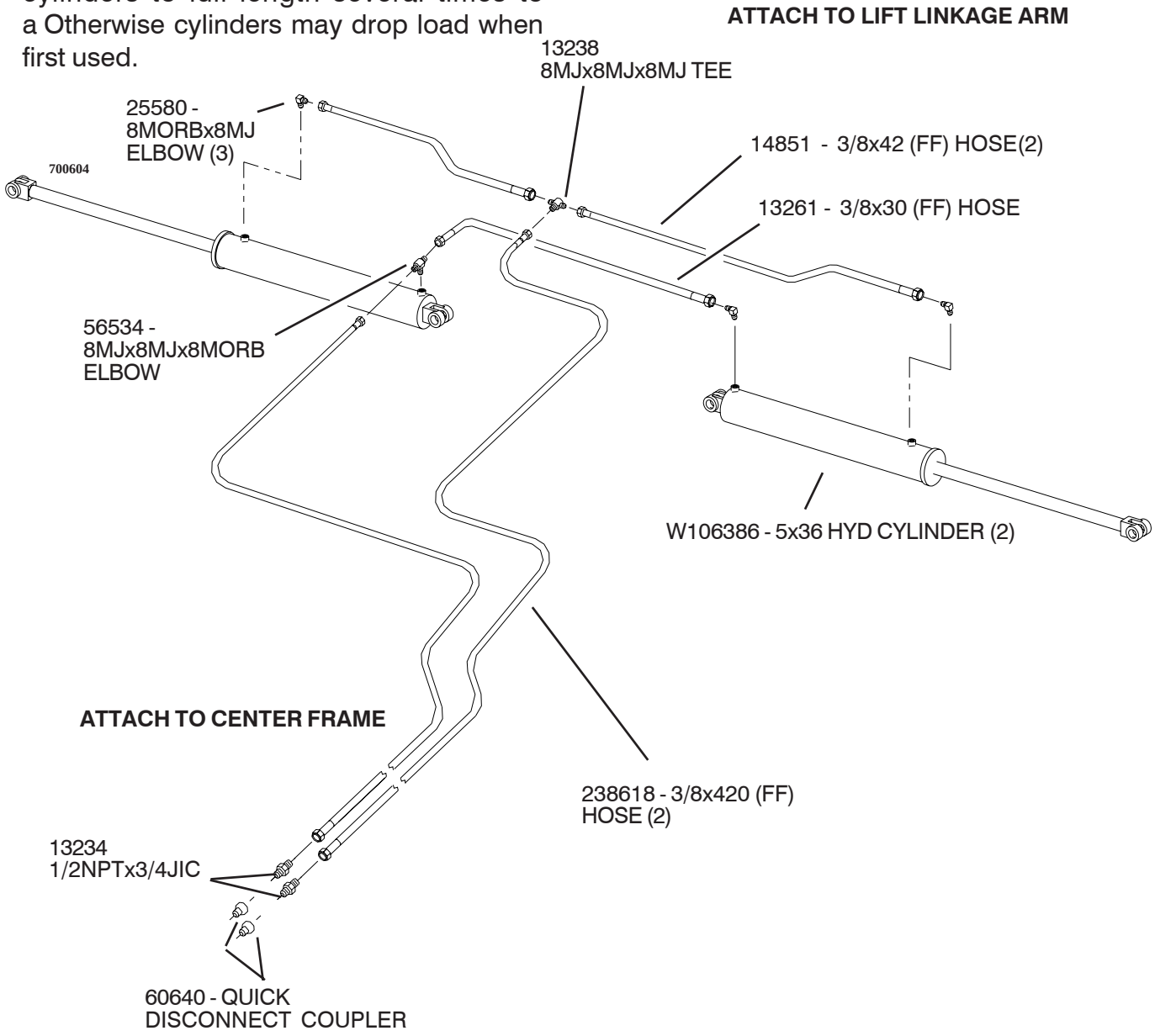


CAUTION: Do not connect or disconnect hydraulic components when there is pressure within the system. Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause serious injury. Use a piece of wood or cardboard when looking for 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.

Assy Hdwr 74296-10

CAUTION

Before attaching cylinders to disc stroke cylinders to full length several times to a Otherwise cylinders may drop load when first used.



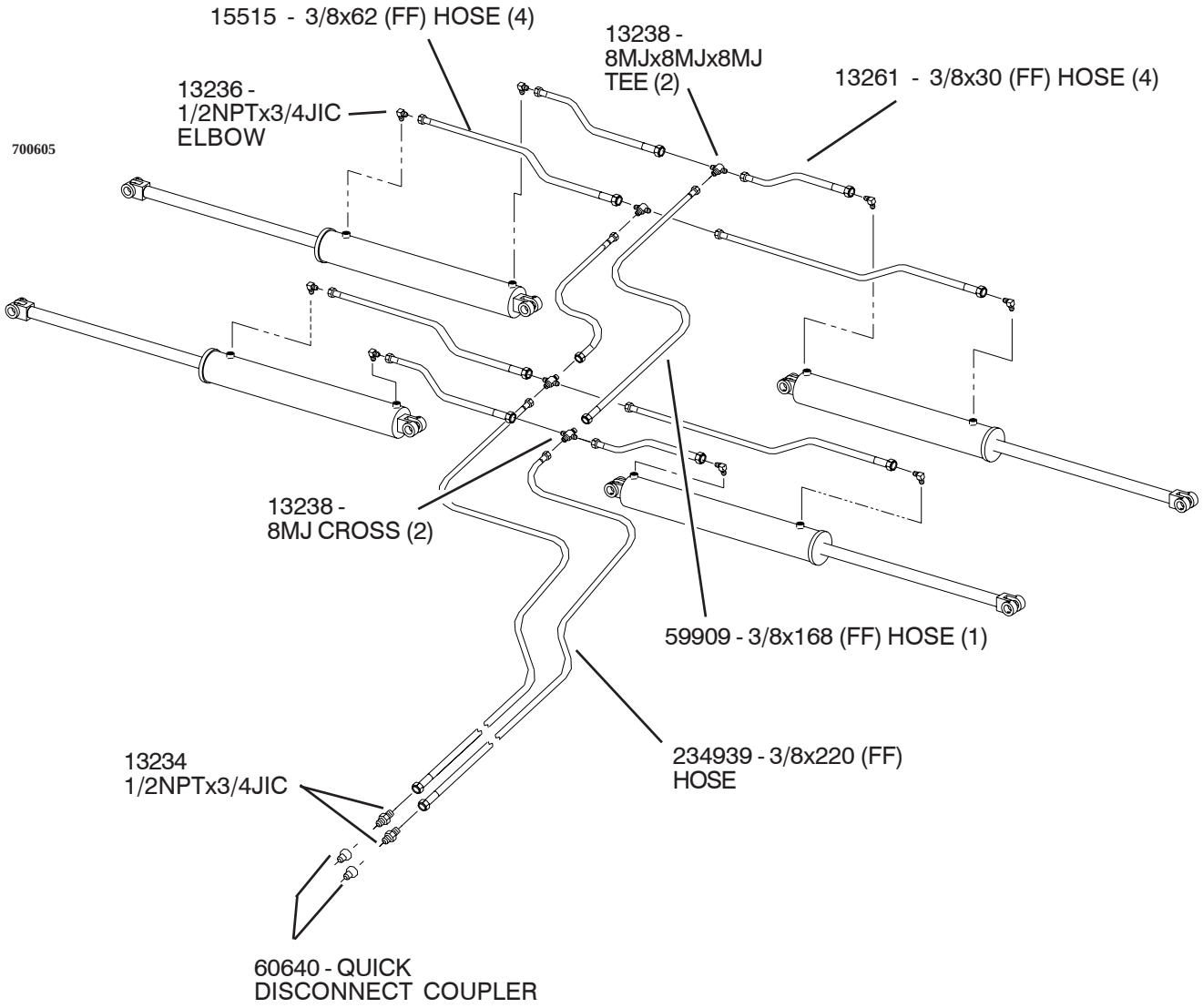
CAUTION: Do not connect or disconnect hydraulic components when there is pressure within the system. Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues and cause serious injury. Use a piece of wood or cardboard when looking for 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.

Assy Hdwr
74296-10

CAUTION

Before attaching cylinders to disc stroke cylinders to full length several times to a Otherwise cylinders may drop load when first used.

ATTACH TO LIFT LINKAGE ARM



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.

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 pages 51-61.

2. Fasten one bearing stand by using two 7/8" diameter U-bolts, lockwashers and nuts.

   Tighten to gang beam.

3. Loosen the 5/8” 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 11 - Gang Assembly

Install front gangs from the center and out. Use two 7/8 U-bolts with lockwashers and nuts per bearing stand.

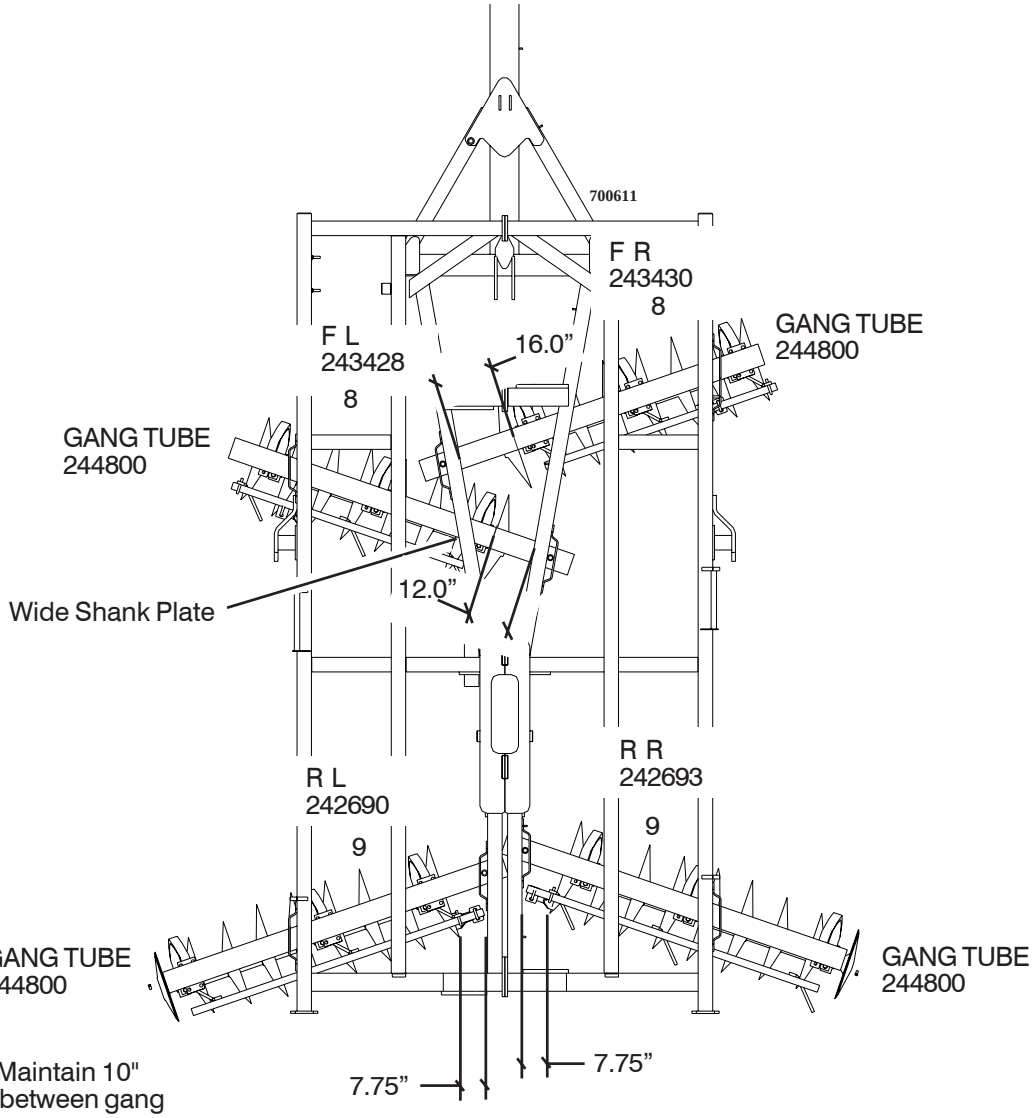
To assemble gang units to the machine see letters printed on each gang section to determine exact gang section location.

Following illustration shows 14' model. Gangs for all other models are installed in the same manner.

CAUTION: Do **NOT** install rear gangs on a section before all front gangs are mounted. 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.

14' GANG LAYOUT

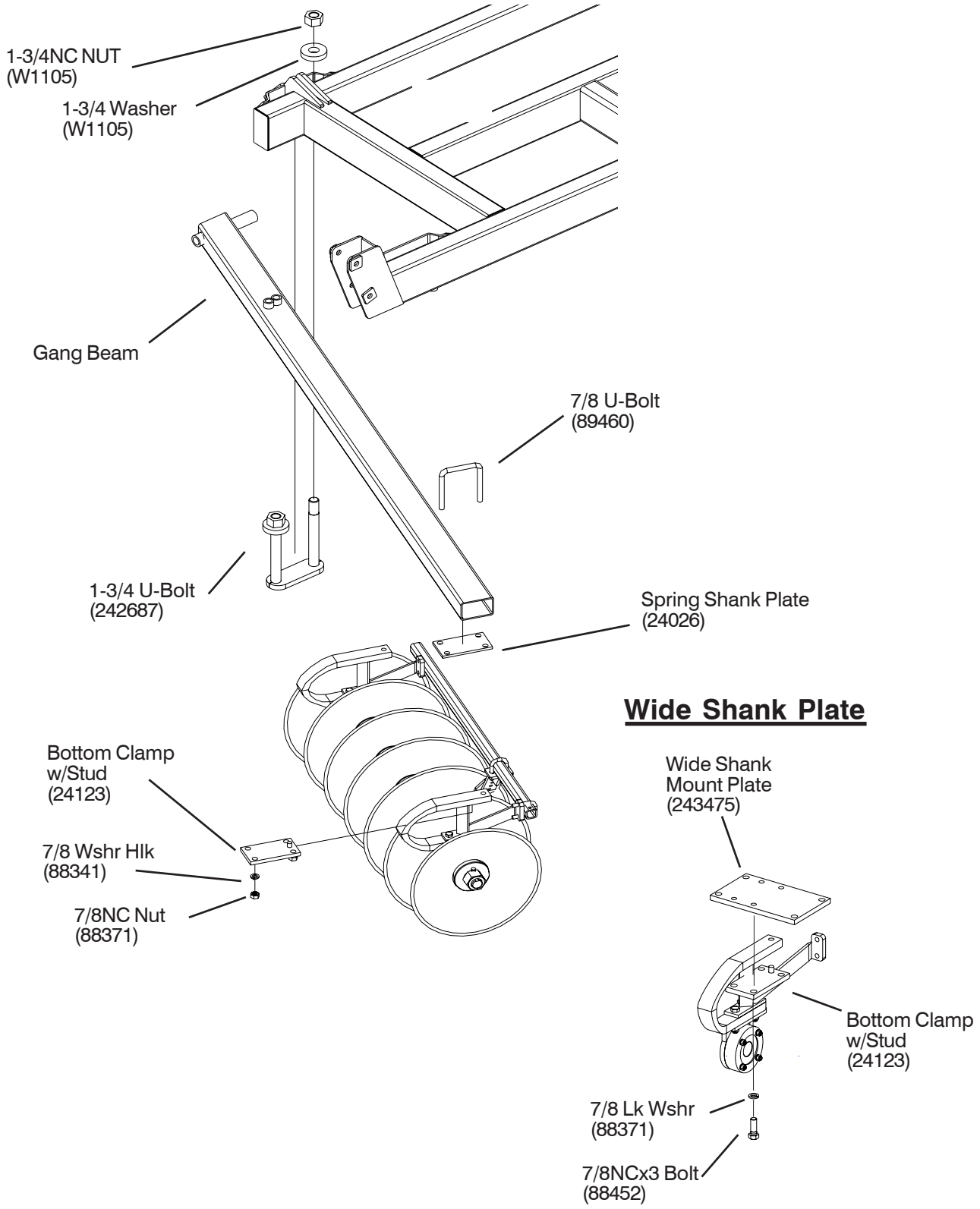


NOTE: Maintain 10" spacing between gang sections

Step 11 - 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.

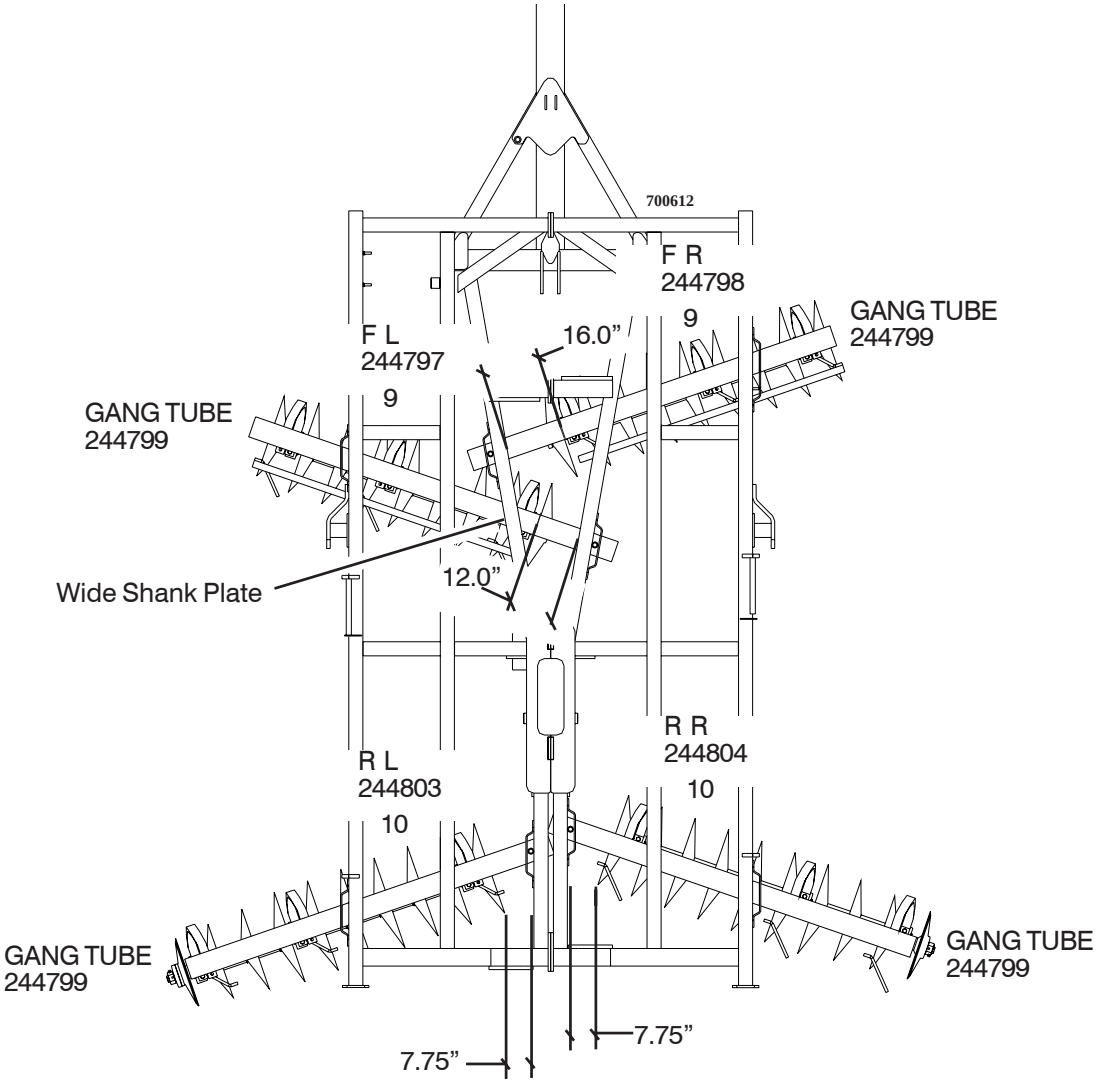
Assy Hdwr
74296-6



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

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

16' GANG LAYOUT



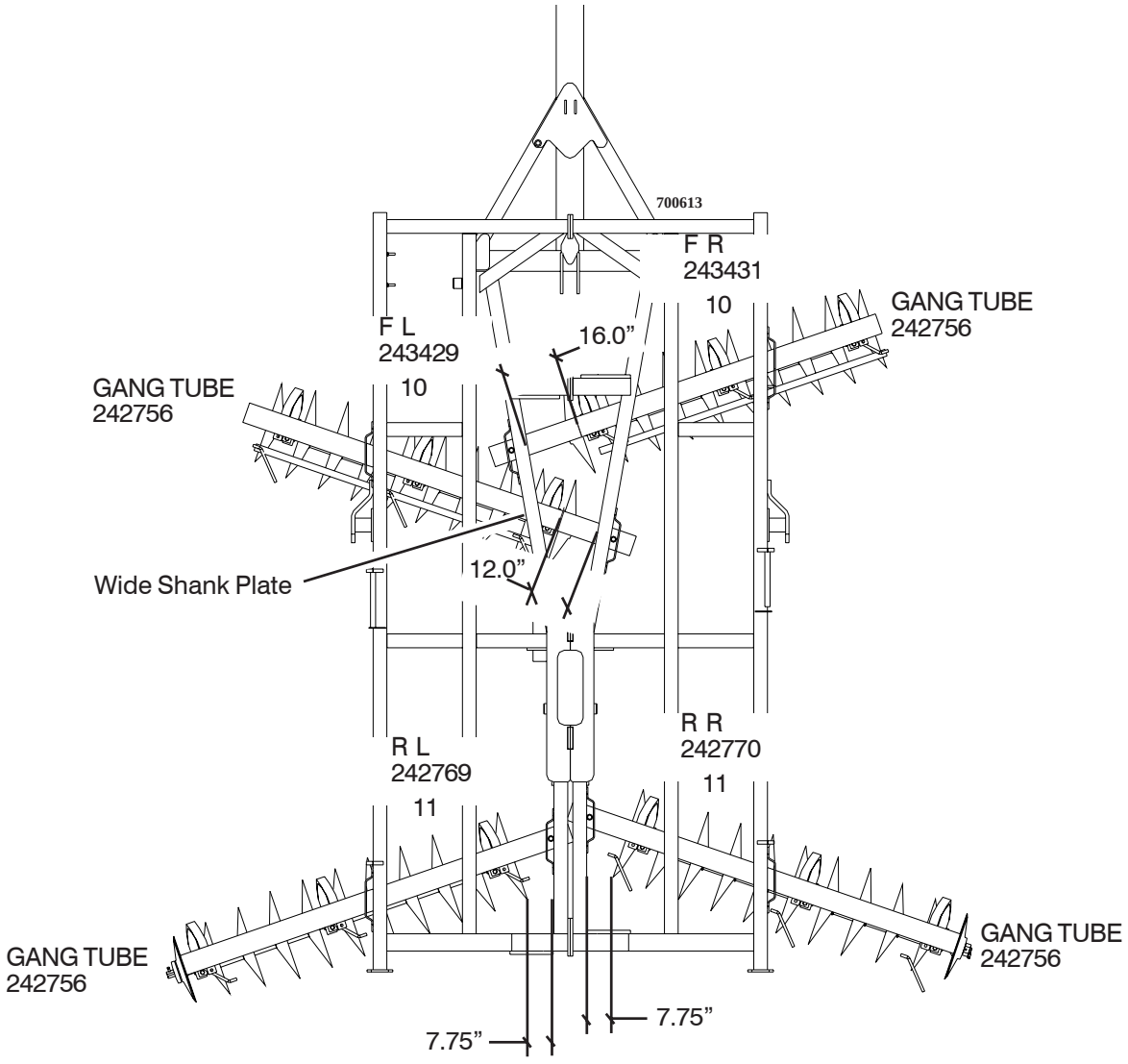
NOTE: Maintain 10" spacing between gang sections

Step 11 - Gang Assembly

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

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

17' GANG LAYOUT

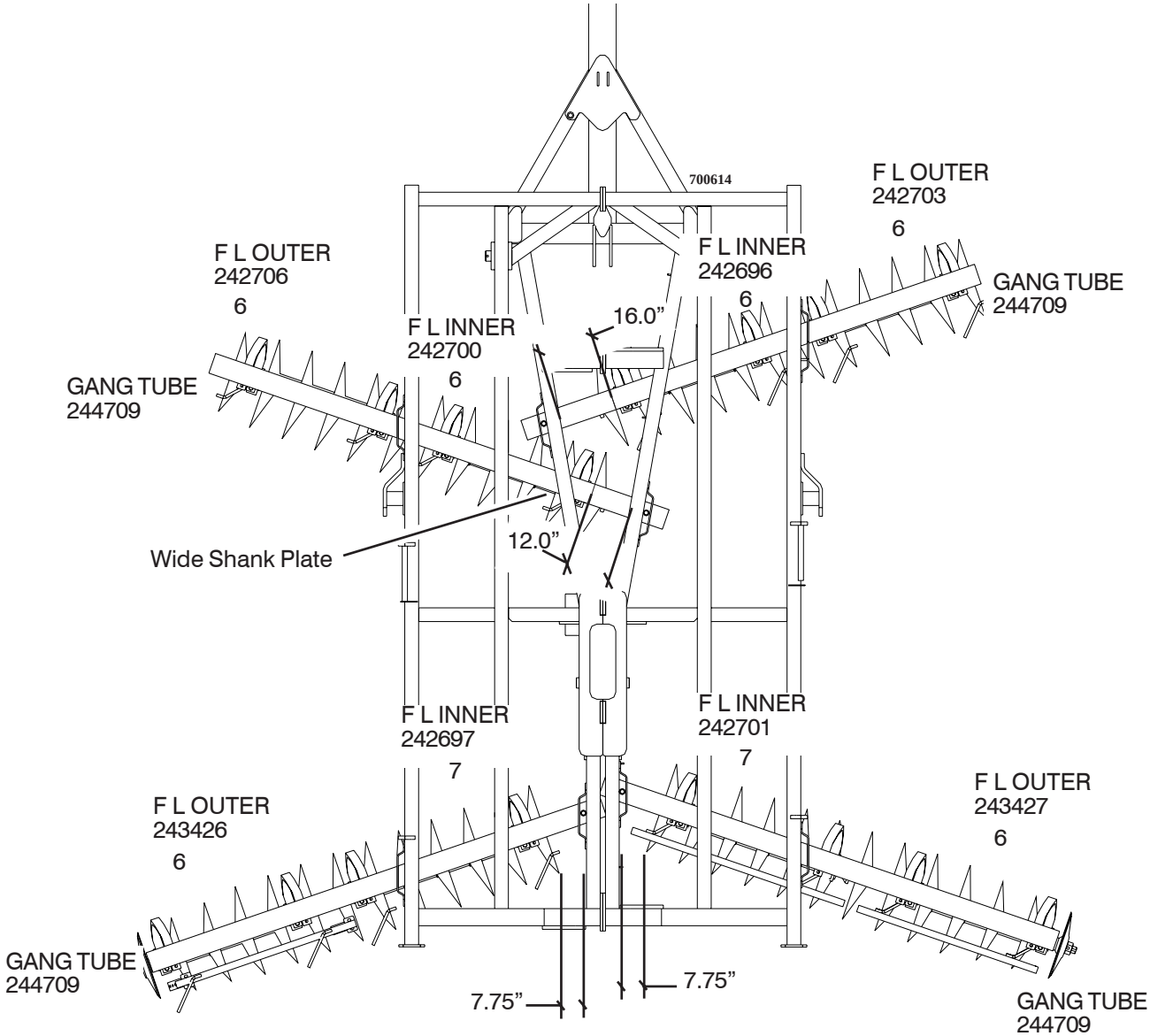


NOTE: Maintain 10" spacing between gang sections

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

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

20' GANG LAYOUT



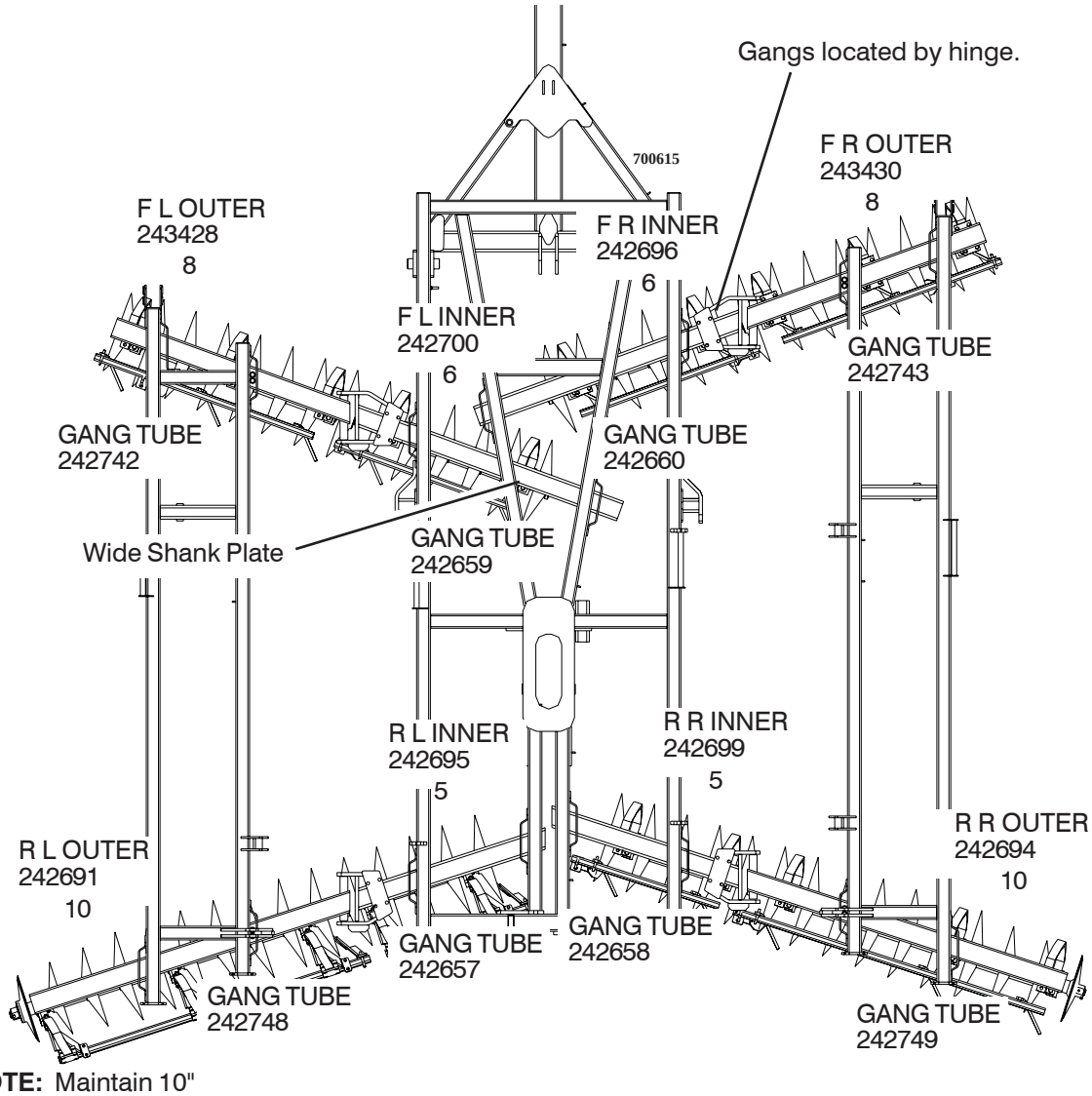
NOTE: Maintain 10" spacing between gang sections

Step 11 - Gang Assembly

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

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

24' GANG LAYOUT

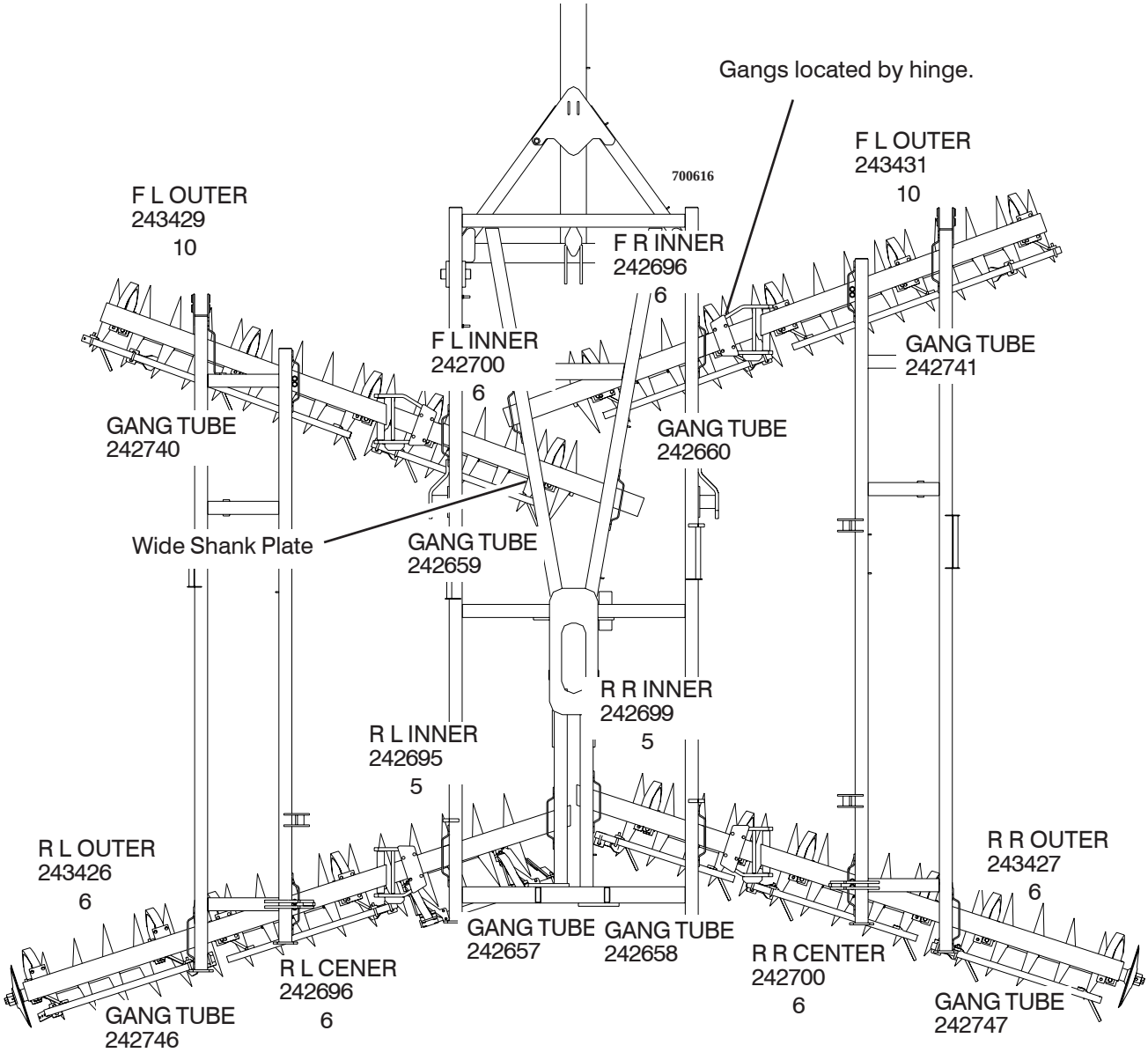


NOTE: Maintain 10" spacing between gang sections

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

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

27' GANG LAYOUT

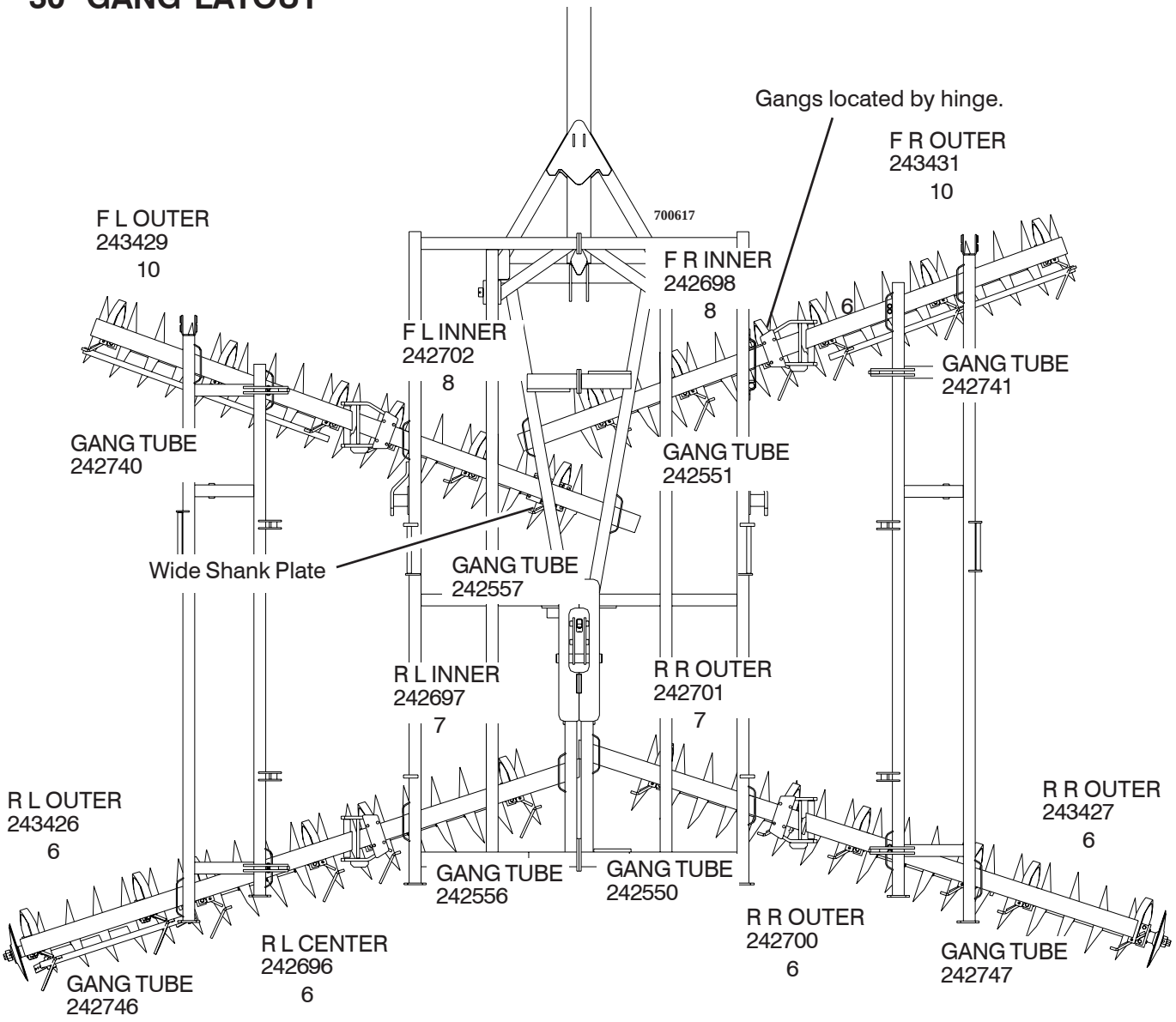


NOTE: Maintain 10" spacing between gang sections

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

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

30' GANG LAYOUT

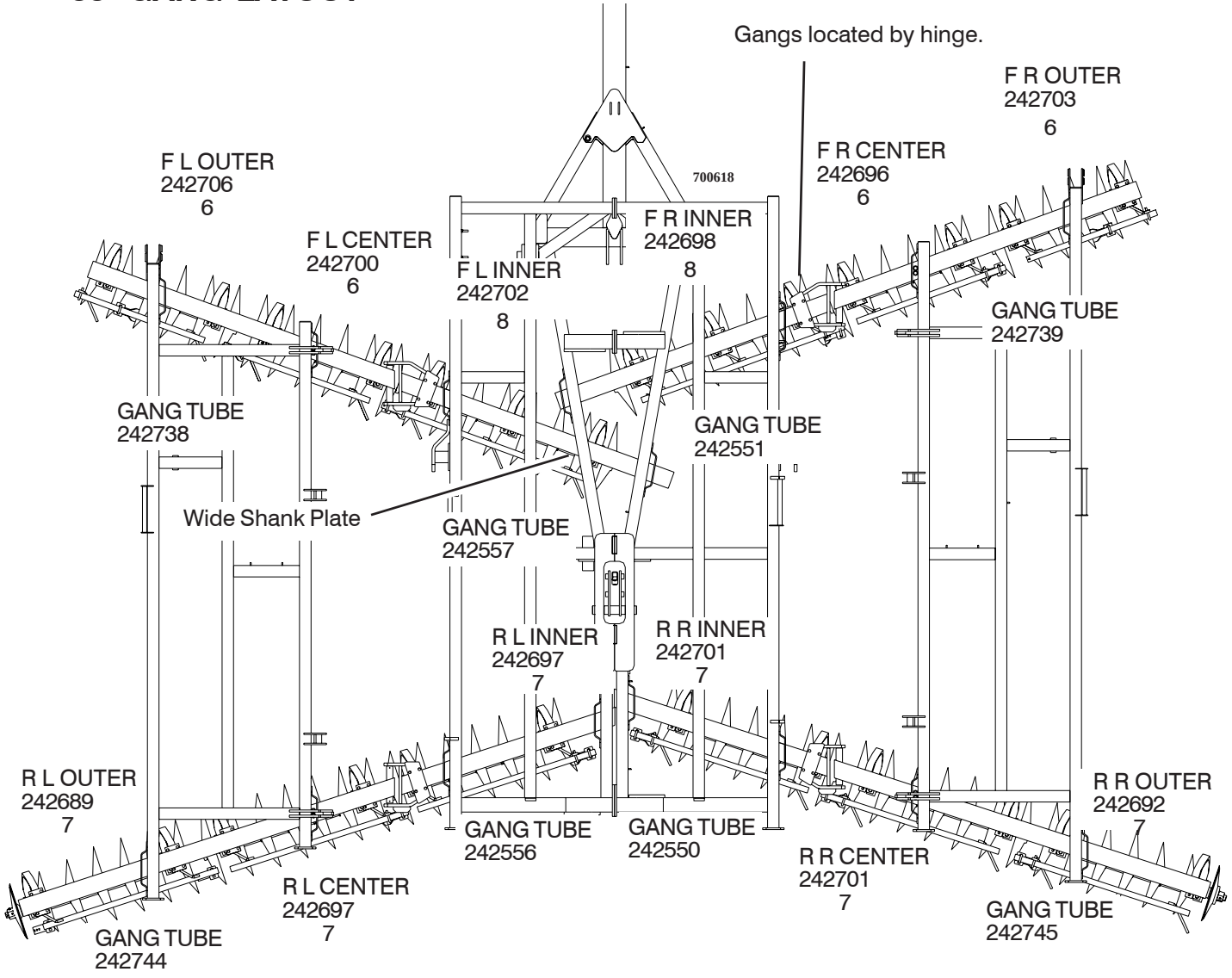


NOTE: Maintain 10" spacing between gang sections

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

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

33' GANG LAYOUT

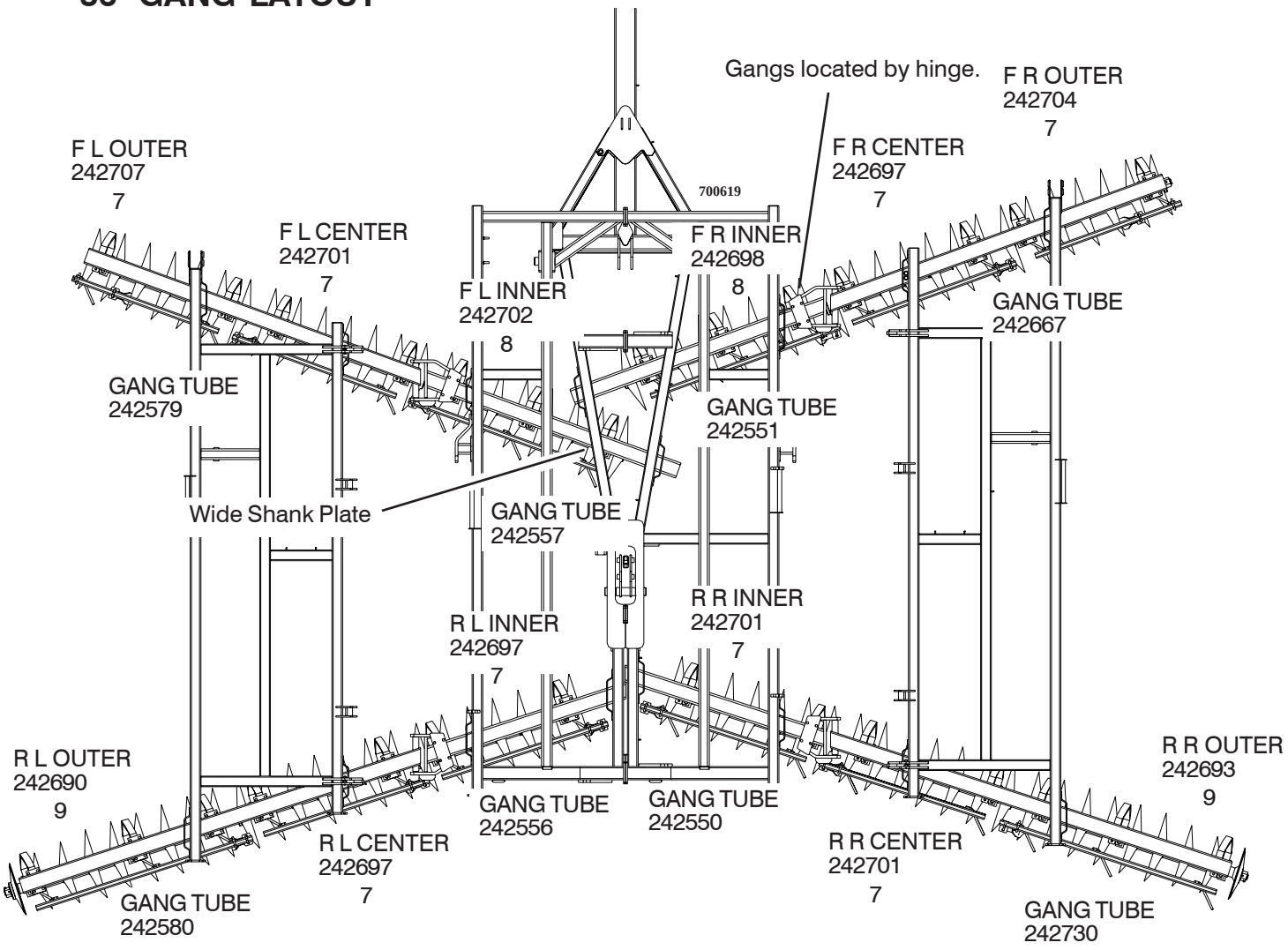


NOTE: Maintain 10" spacing between gang sections

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

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

36' GANG LAYOUT

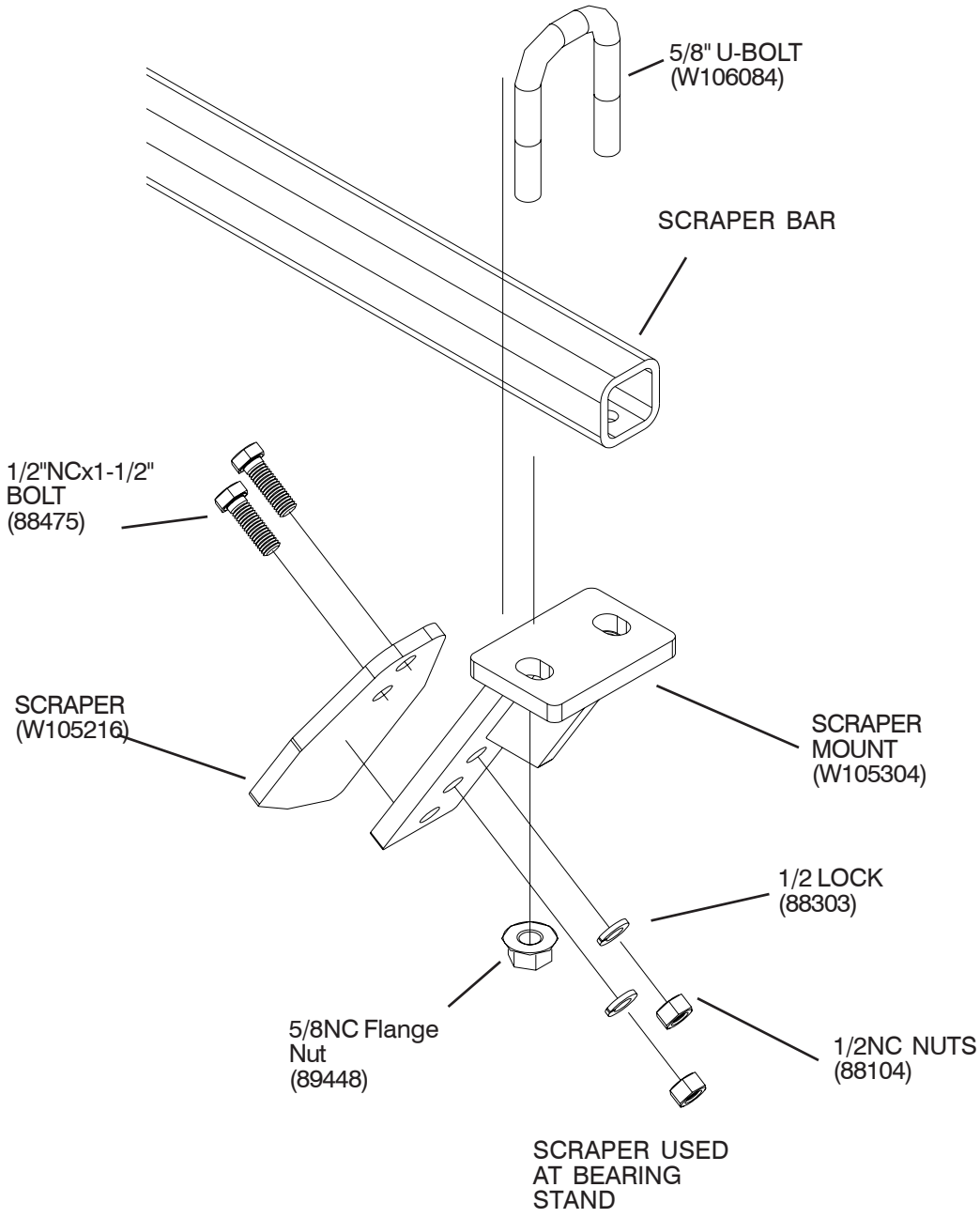


NOTE: Maintain 10" spacing between gang sections

Step 11 - Scraper Blade Setting

Adjust the scrapers to the proper setting. The scrapers should be adjusted to set up against 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.

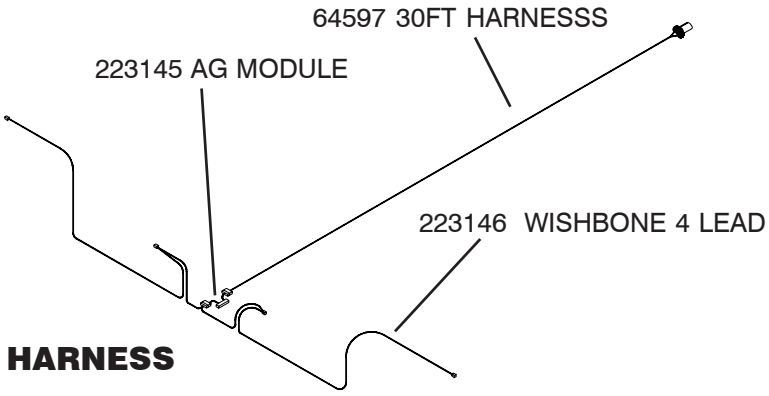
When disking in trashy conditions, trash will occasionally build up on the scraper blades. Sometimes this condition can be reduced by moving the scrapers away from the disk blades.



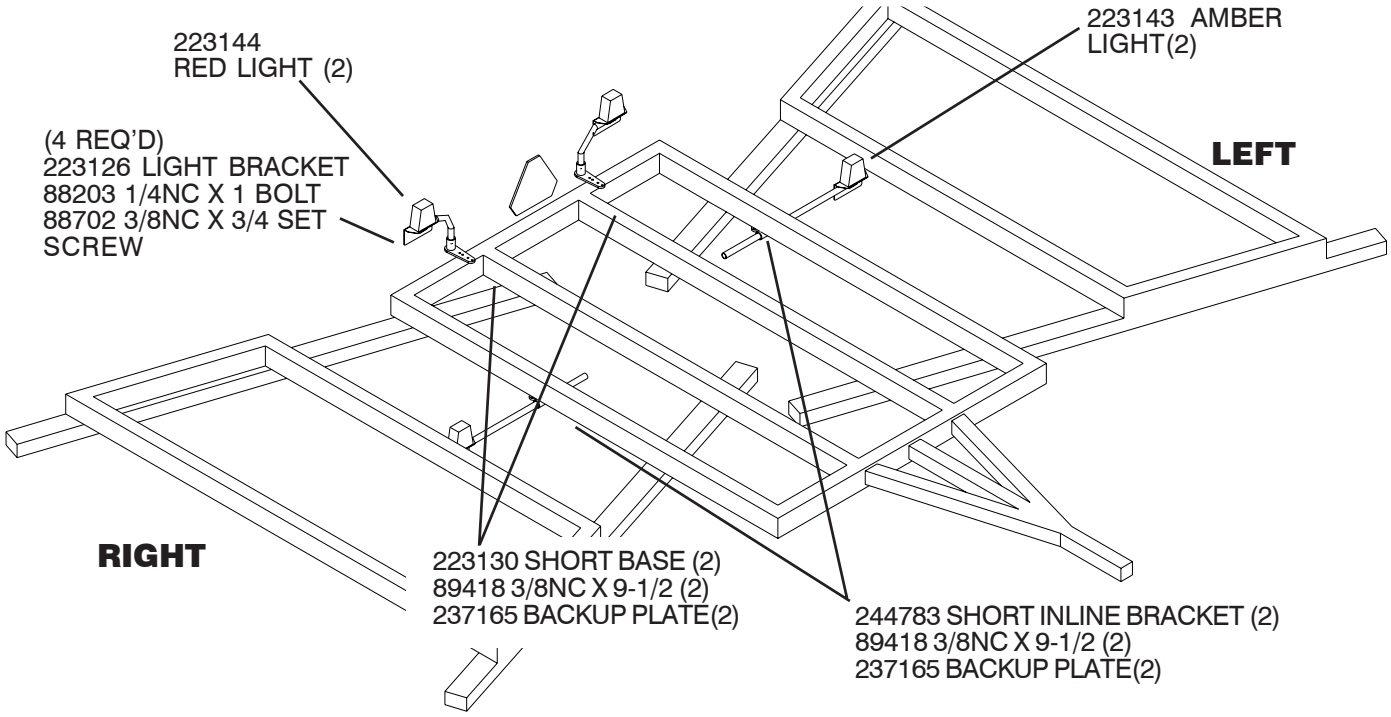
CAUTION: When working on disc, care should be exercised in handling or tightening bolts near disc blades to avoid injury.

Step 12 - Hazard Lighting Placement

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



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.