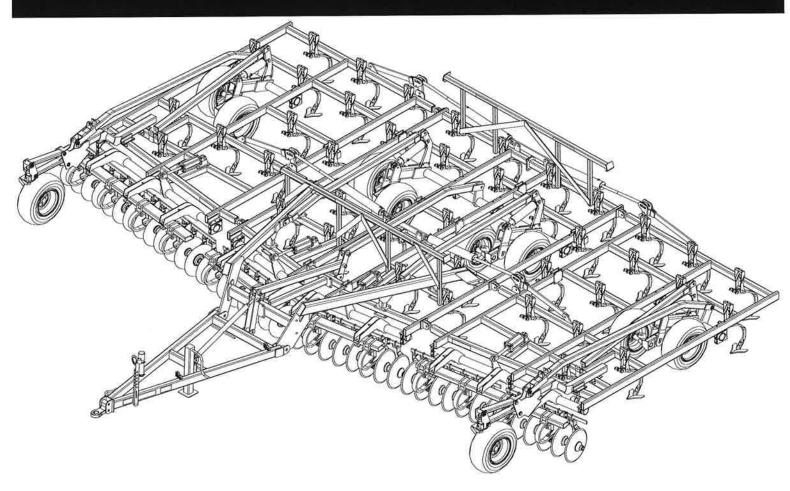


ASSEMBLY MANUAL



SOIL FINISHER 19 THRU 31FT

SERIAL # 460690 & UP



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

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.

<u>Commercial Use:</u> 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.

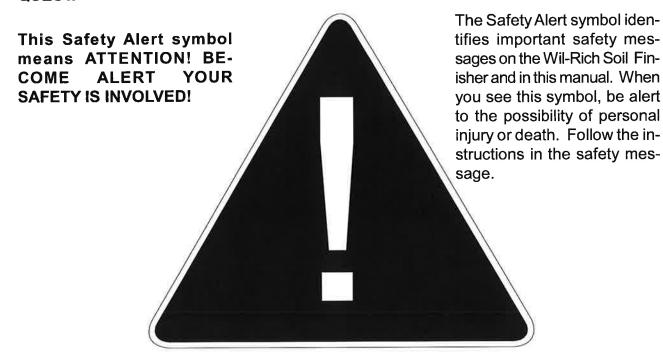
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PERSONAL SAFETY IS IMPORTANT!

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.



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

GENERAL INFORMATION

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				
					I I			
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

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 Soil Finisher is properly lubricated.

HYDRAULICS

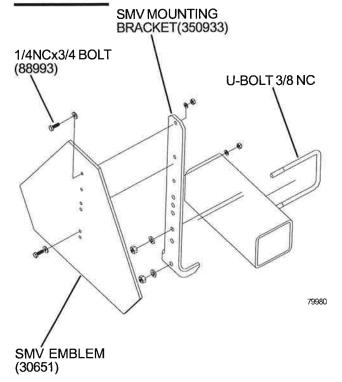
Check wing lift and depth control cylinders for proper alignment and operation. On any machine, check that the hydraulic system has been properly charged and purged.

A WARNING

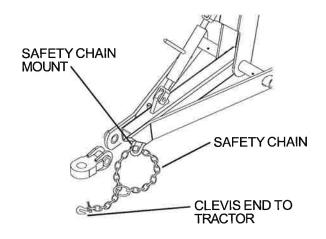
TO AVOID INJURY OR MACHINE DAMAGE:

- BEFORE OPERATING; Study Operators Manual, safety messages and safe operating procedures, read safety signs on this machine.
- 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 (32km/h).
- Lower or block all elevated components before servicing or leveling this machine.

SAFETY



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



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

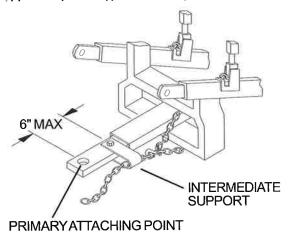
The SMV emblem is to be secured as near to the rear and centered, or as near to the left of center of implement as practical.

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

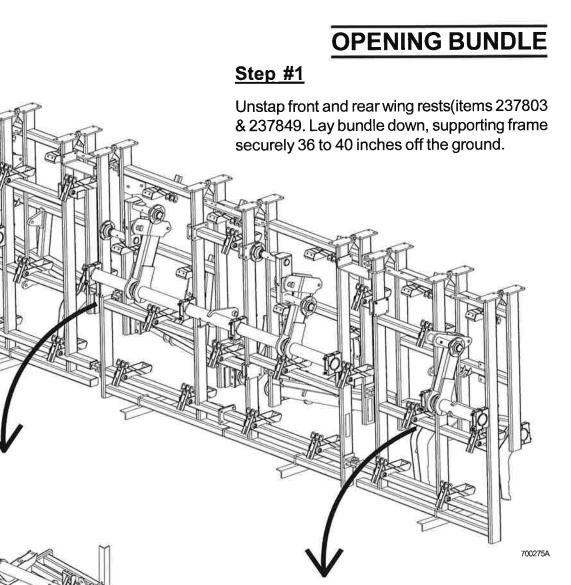
Keep safety decals clean. Replace any safety decals that are damaged, destroyed, missing, painted over or can no longer be read. Replacement safety decals are available through your dealer.

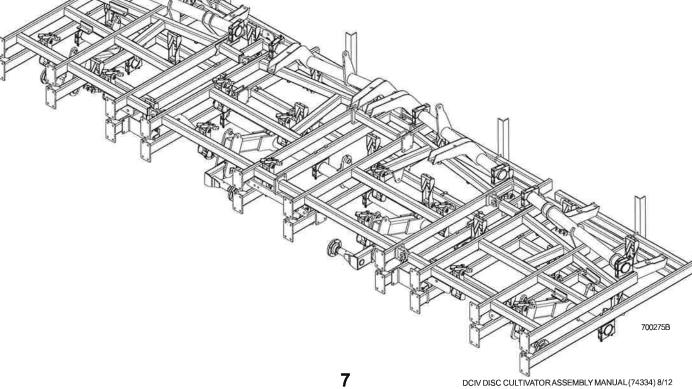
The purpose of the safety chain is to provide an auxiliary attaching system to retain the connection between towing and towed machine in the event of separation of the primary attaching system. Intermediate support is to be used if there is more than 6" of unsupported chain on either side of the primary attaching point.

The intermediate support should not be mounted more than 6" from the primary attaching point. (See figure below)

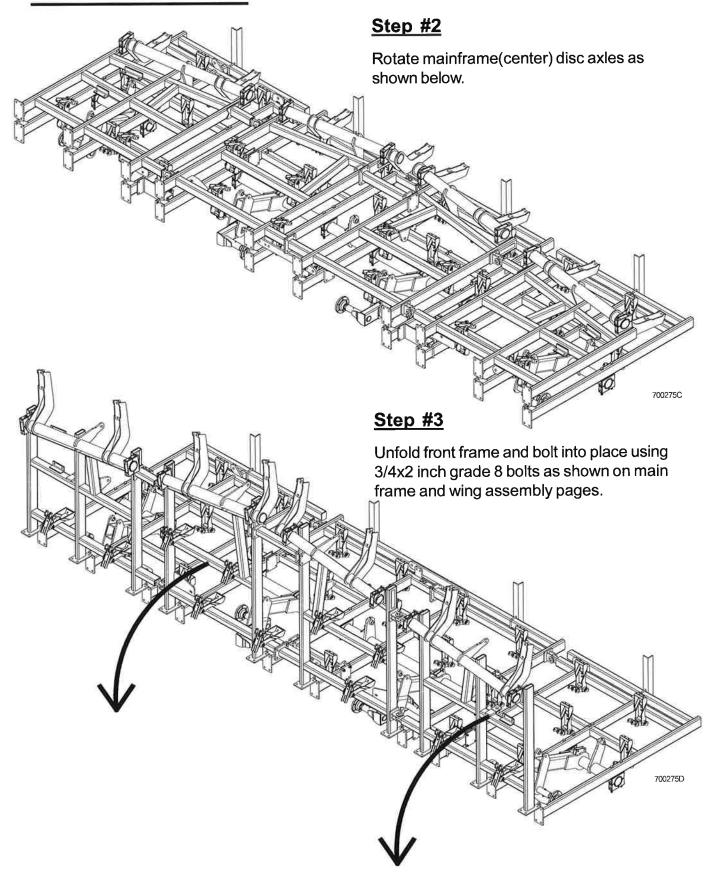


CI-77825





OPENING BUNDLE

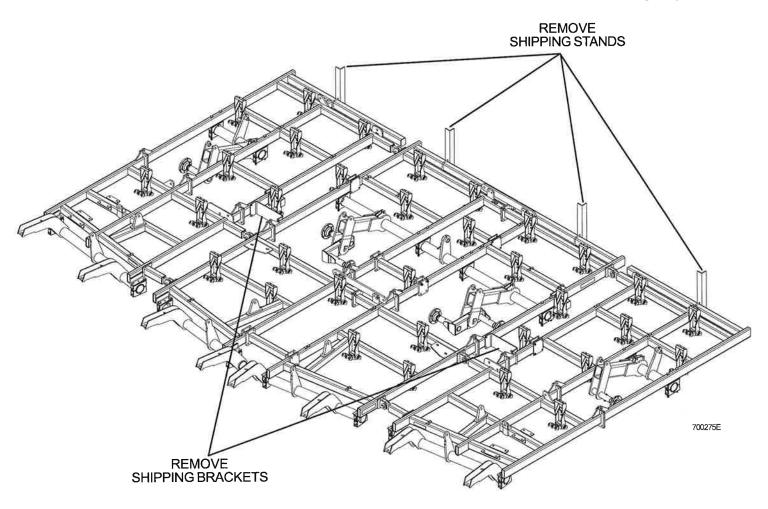


OPENING BUNDLE

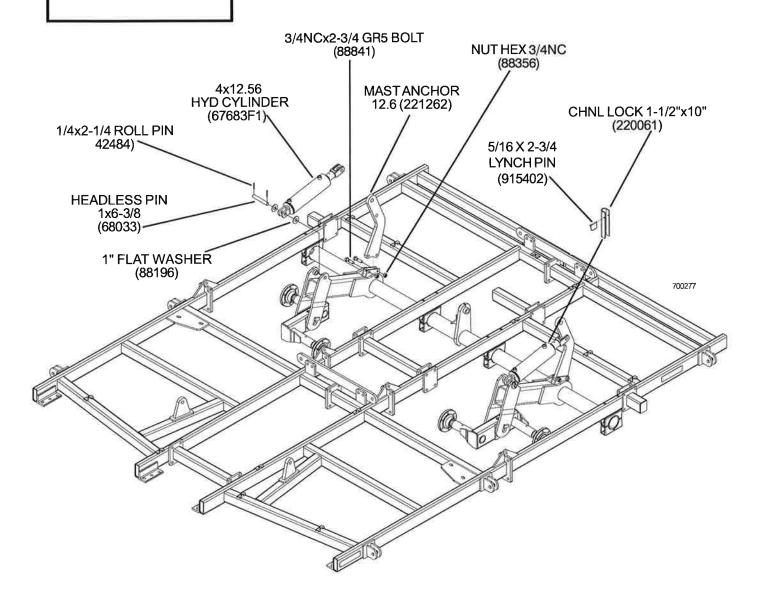
Step #4

After bundle is unfolded and the two frame halves(front & rear) are bolted together remove shipping stands and brackets.

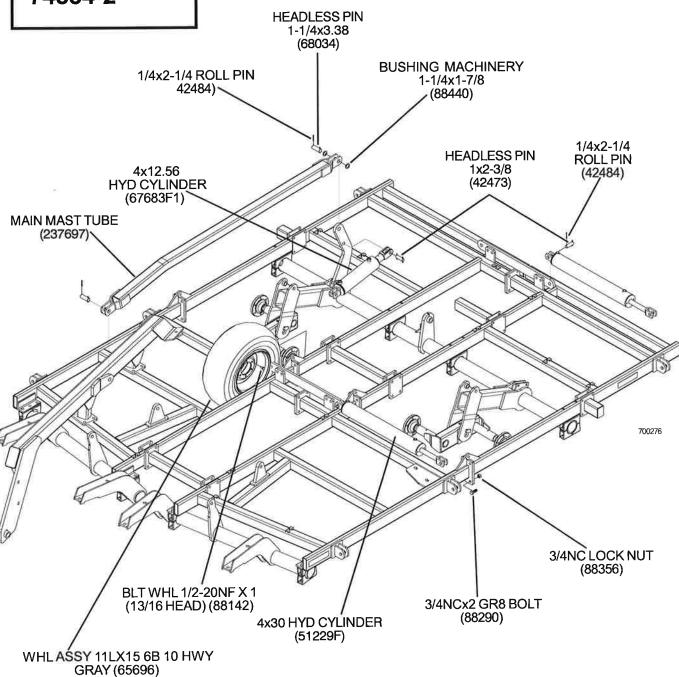
After the shipping stands and brackets are removed the rest of the cultivator may be assembled as shown on the following pages.



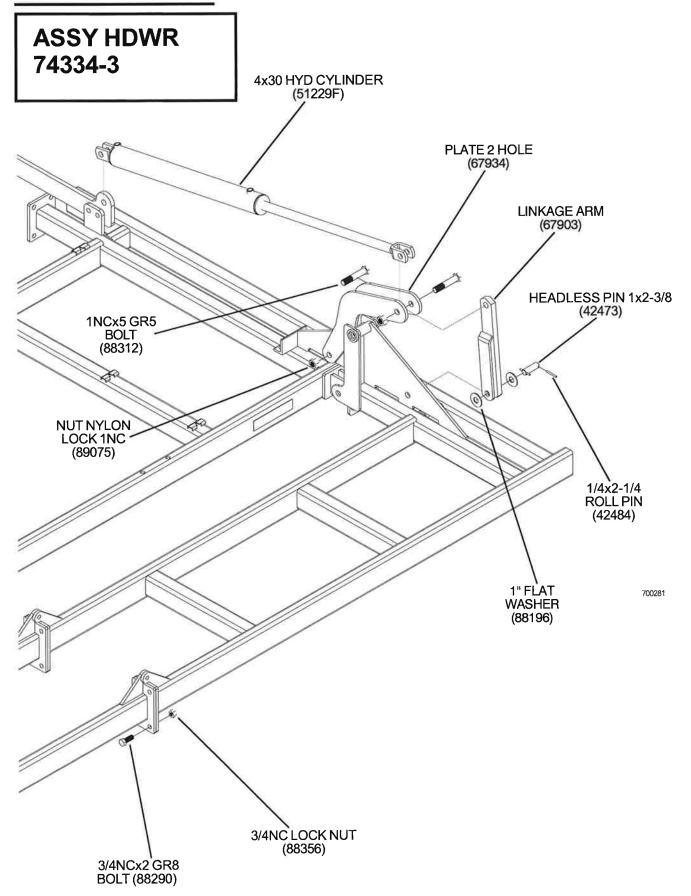
MAIN AXLE



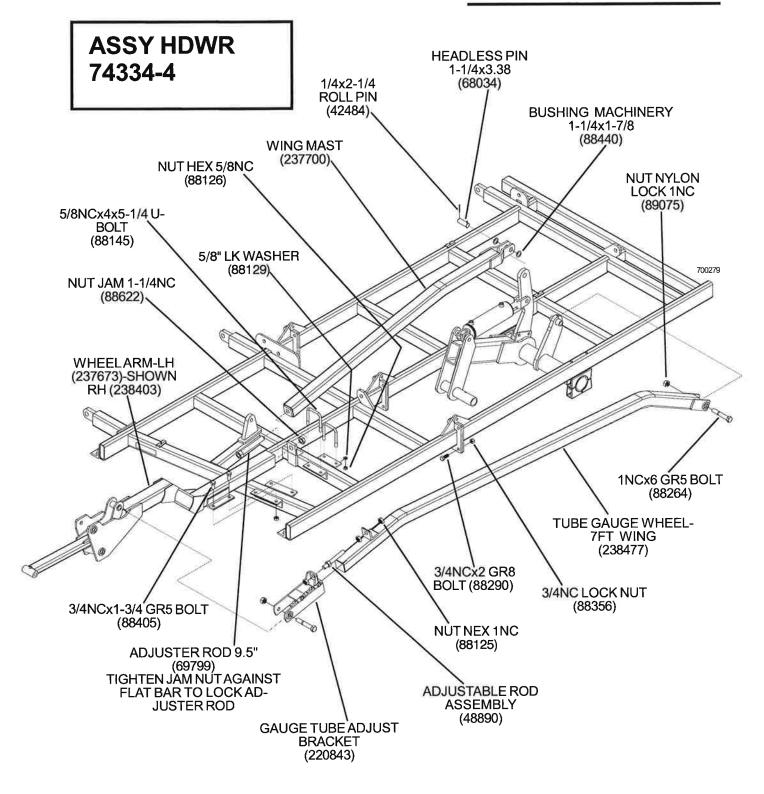
MAINFRAME & MAIN AXLE



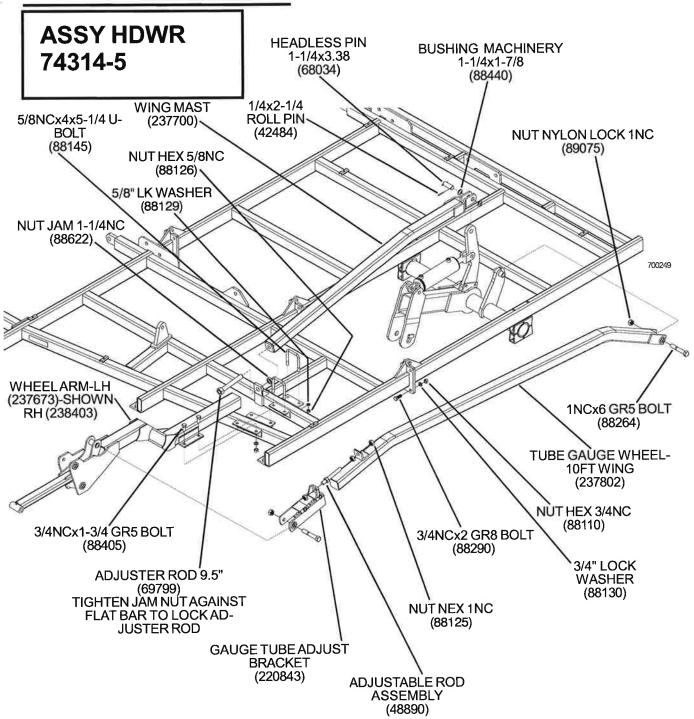
4FT WING HINGE



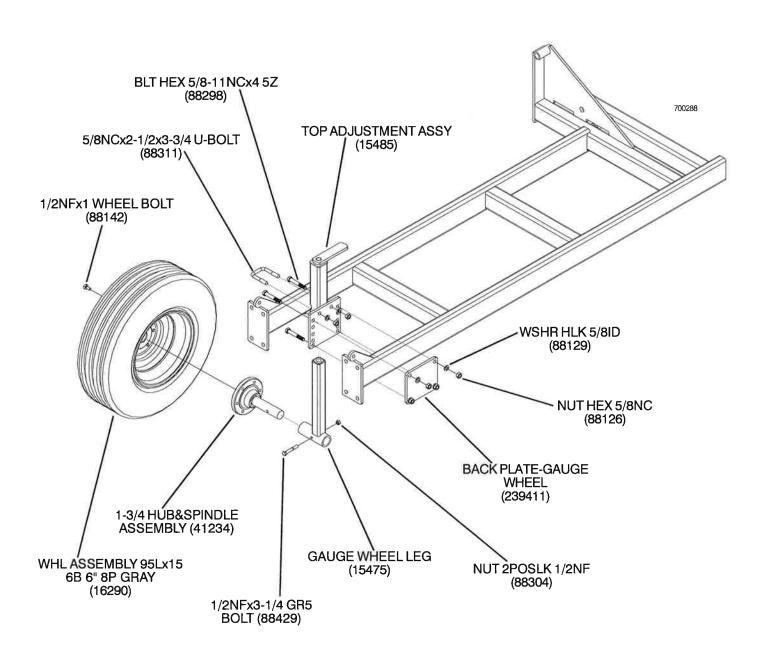
7FT WING ASSEMBLY



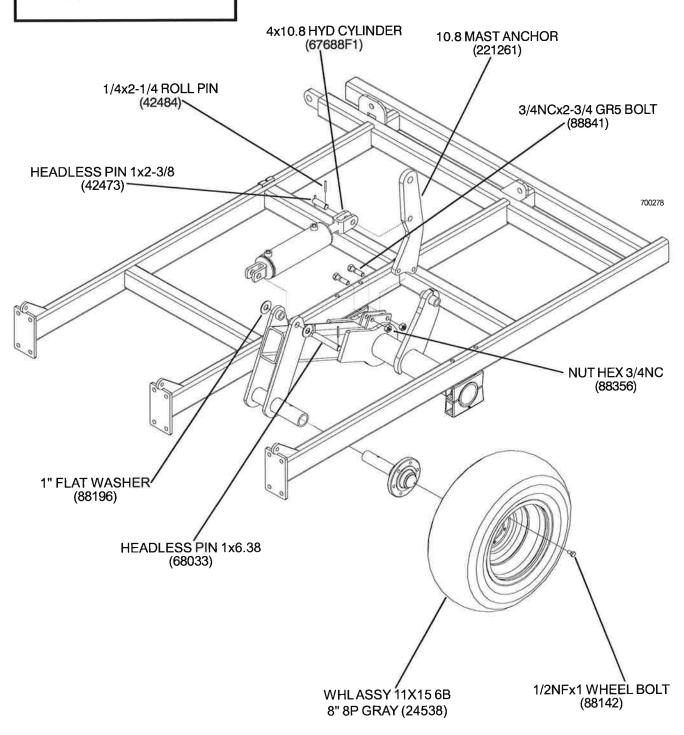
10FT WING ASSEMBLY



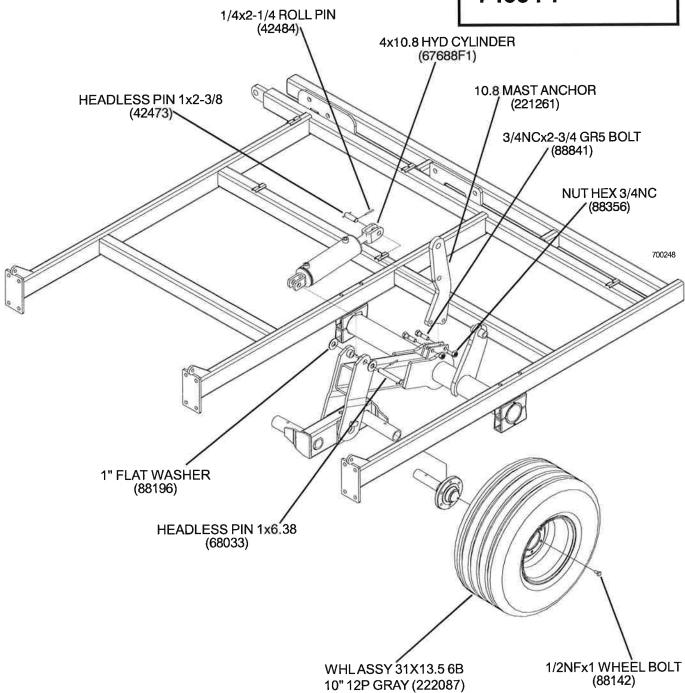
RIGID GAUGE WHEEL 4FT WING



7FT WING SINGLE AXLE



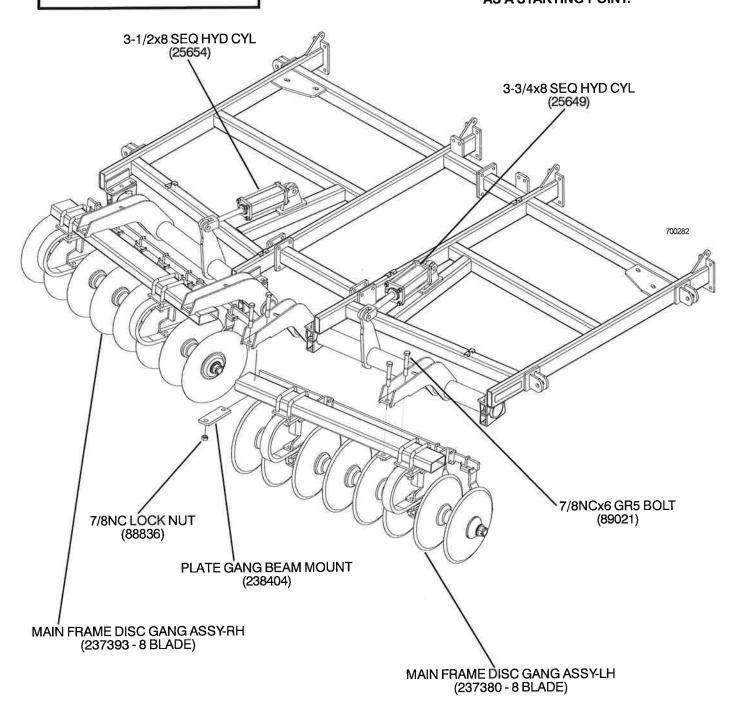
10FT WING TANDEM AXLE



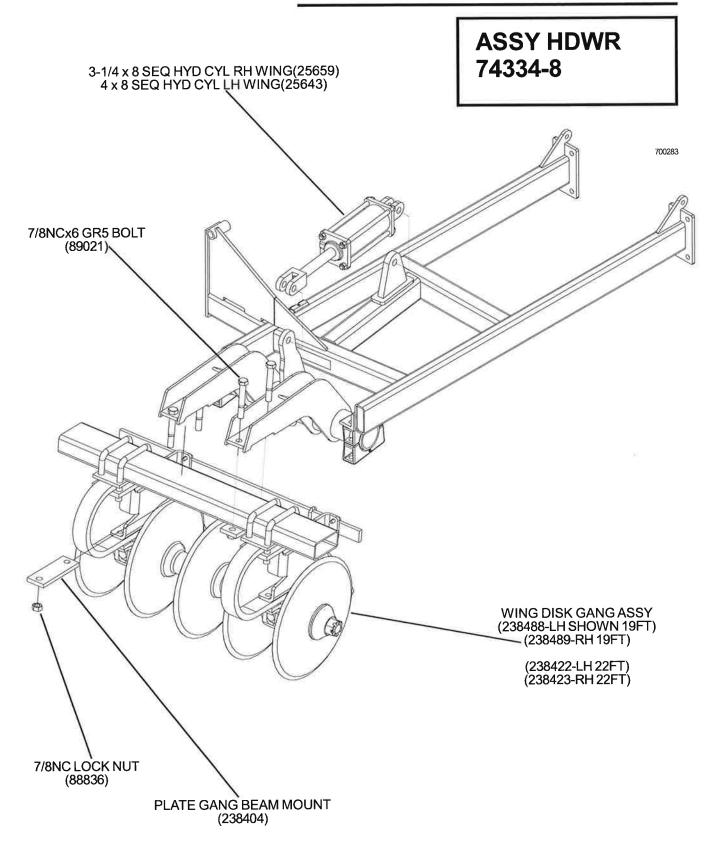
MAIN FRAME DISC GANGS

ASSY HDWR 74334-8

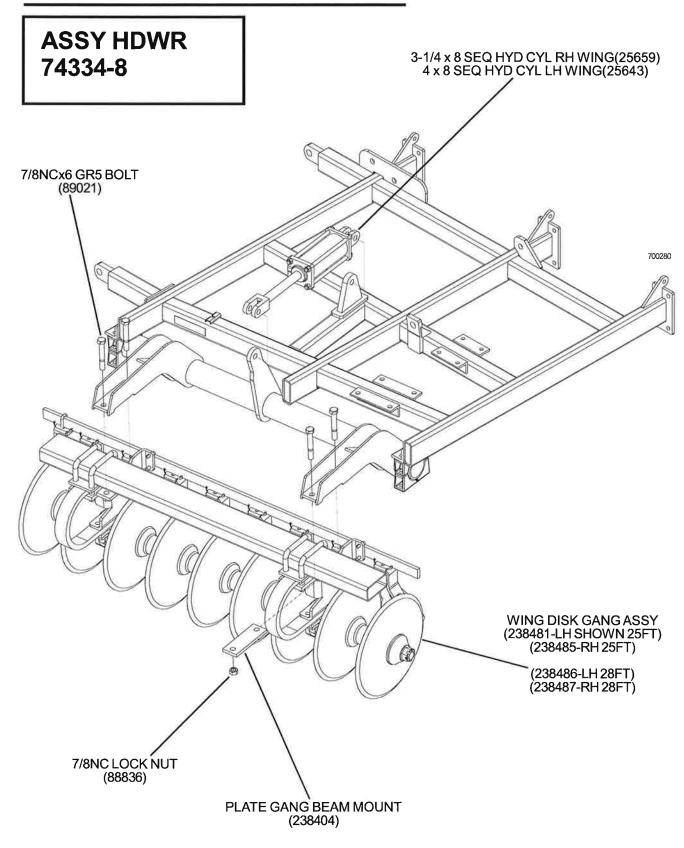
NOTE:
THE SPACING BETWEEN
CENTER DISK BLADES
IS 12" AT THE CLOSEST POINT.
EACH GANG IS 6" OUT
FROM CENTER. USE THIS
AS A STARTING POINT.



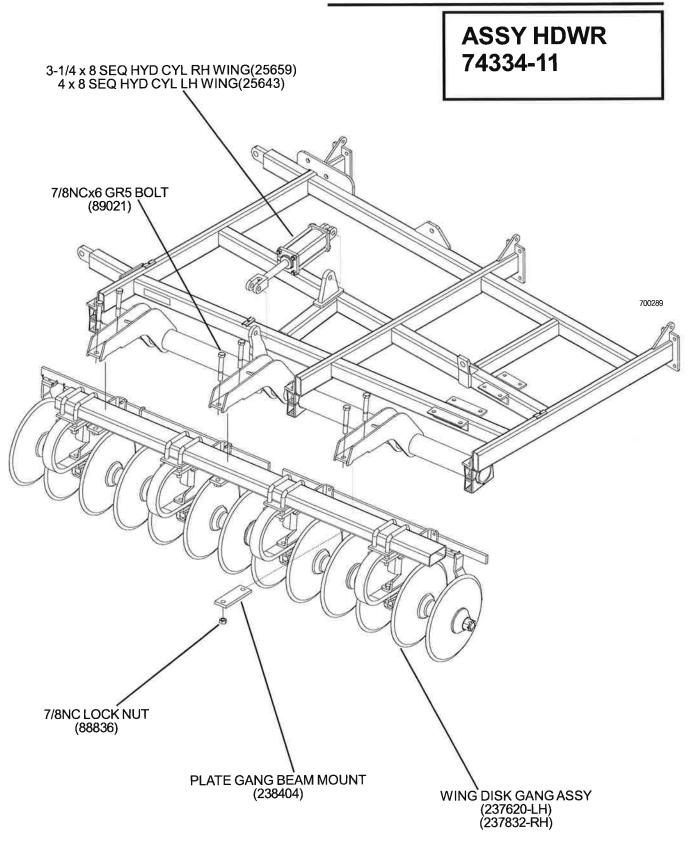
4FT WING DISC GANG 19 & 22FT



7FT WING DISC GANG 25 & 28FT

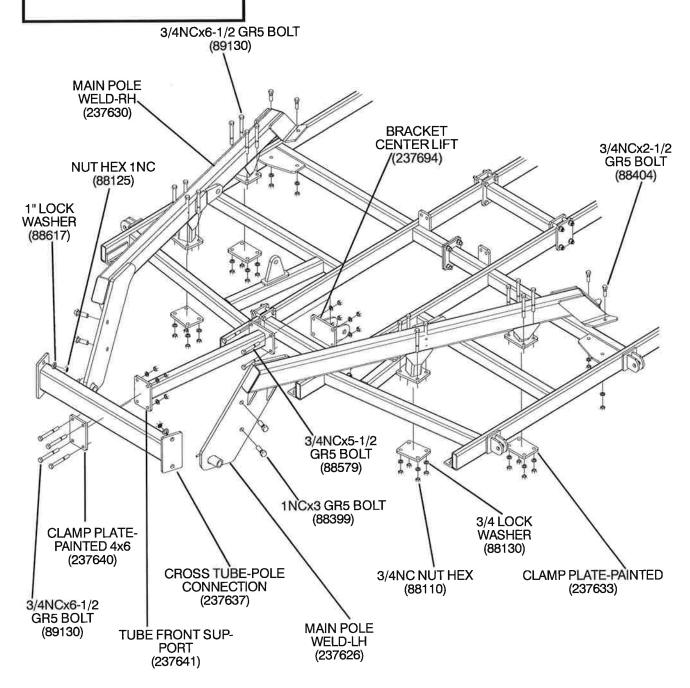


10FT WING DISC GANG 31FT

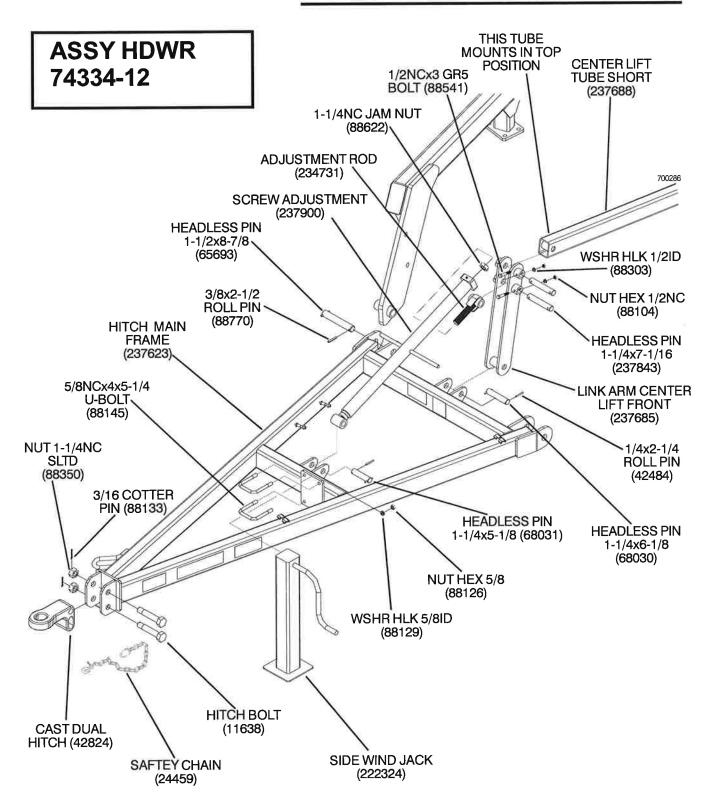


MAIN POLE ASSY

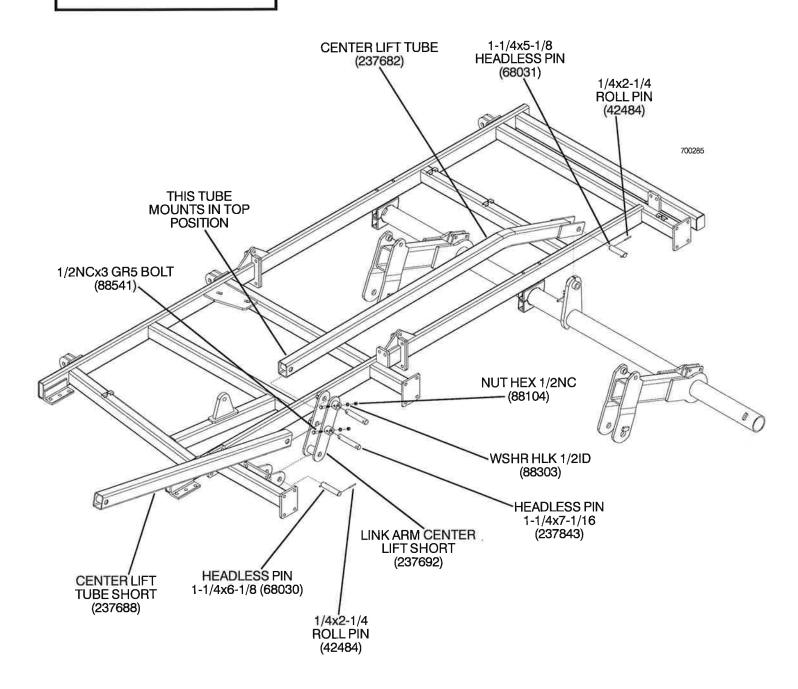
ASSY HDWR 74257-2



MAIN HITCH & LEVEL LIFT ASSY

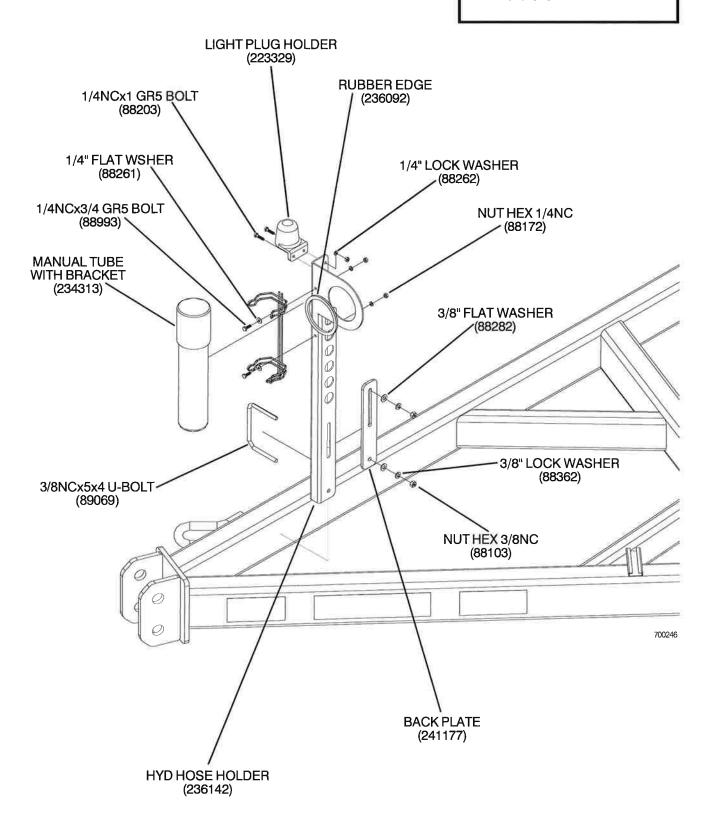


LEVEL LIFT ASSY CONTINUED



UTILITY POLE

ASSY HDWR 236095

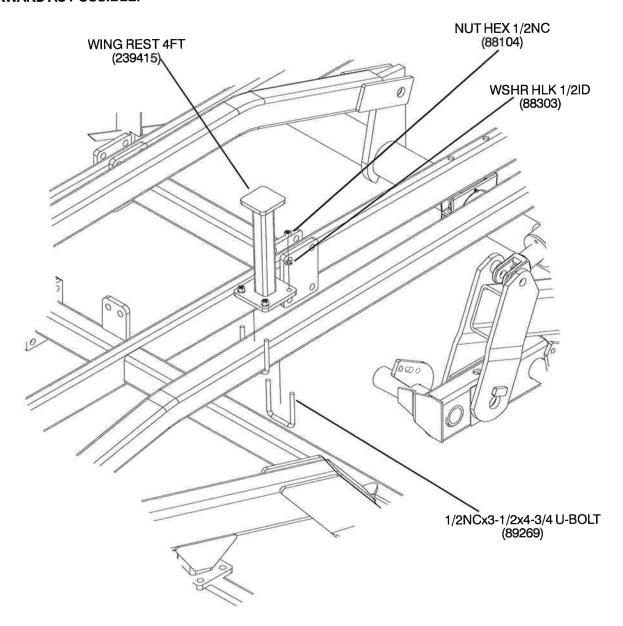


WING REST 4FT WINGS

ASSY HDWR 74257-4

NOTE:

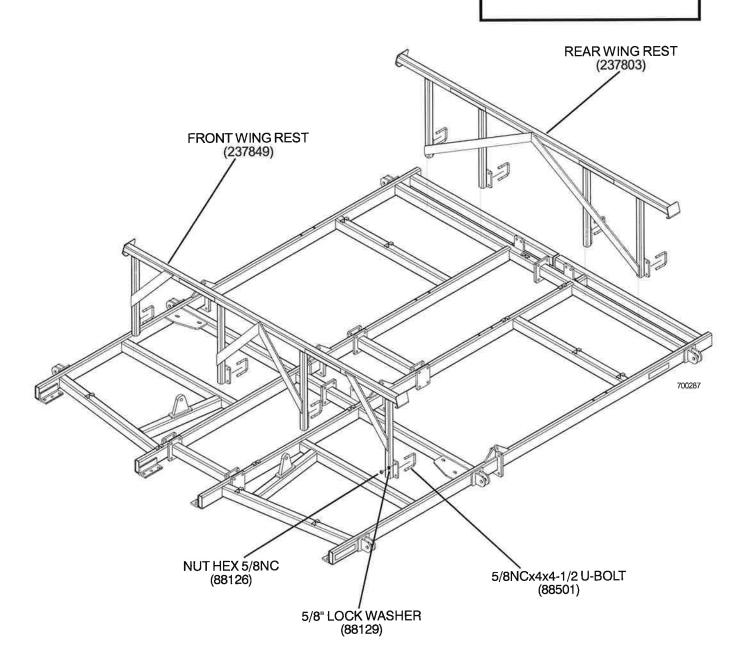
239415 WING REST IS MOUNTED ON THE MAST TUBE FOR THE WALKING TANDEM, AS SHOWN, WITH 4FT WINGS. MOUNT WING REST AS FAR FORWARD AS POSSIBLE.



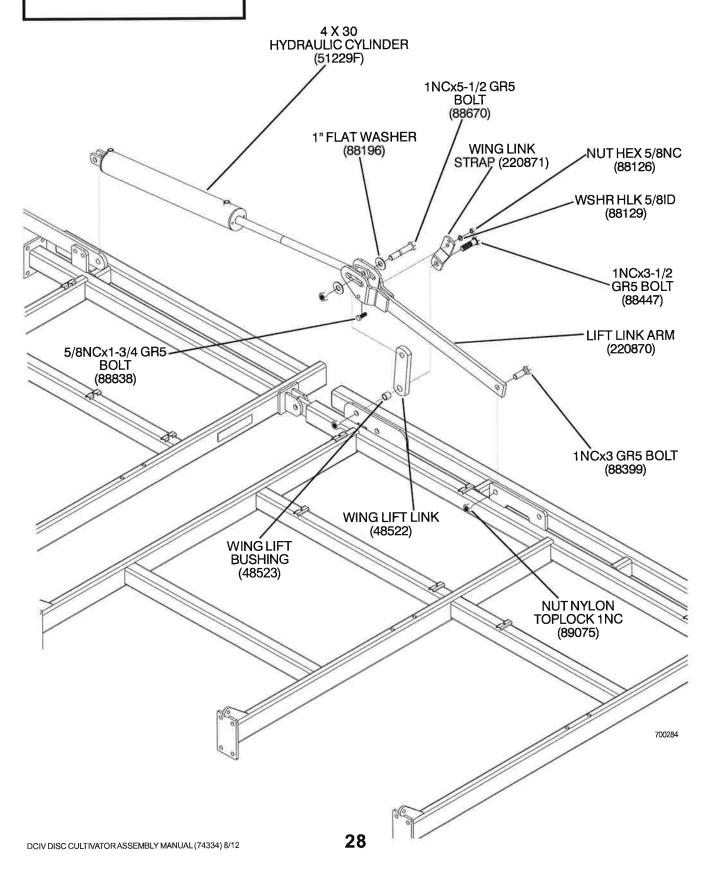
WING REST 7 & 10FT WINGS

NOTE:

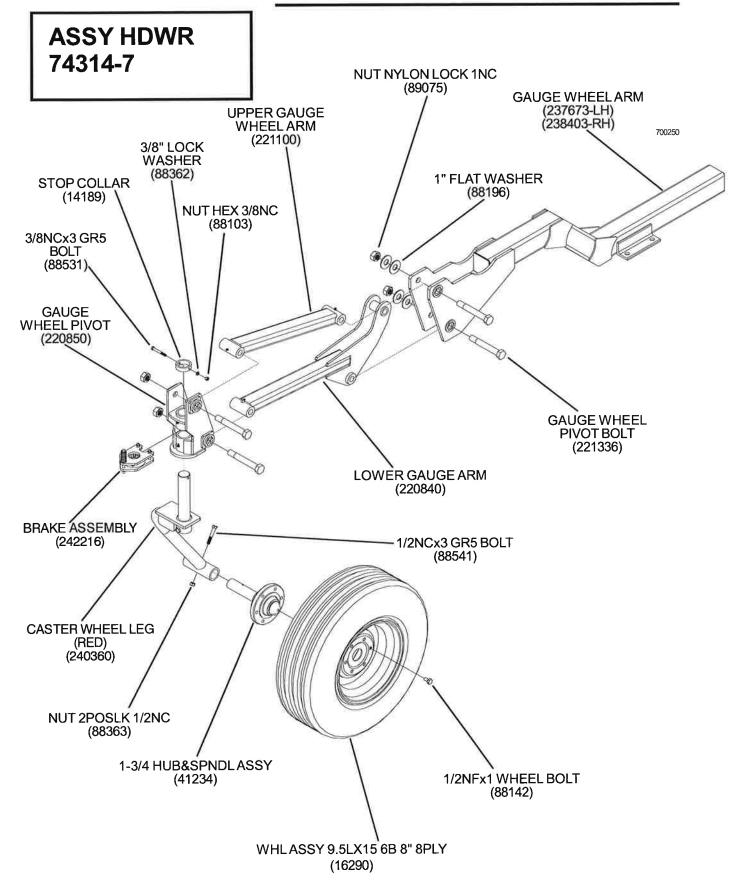
237803 WING REST IS MOUNTED ON THE REAR AND 237849 IS MOUNTED ON THE FRONT, AS SHOWN.



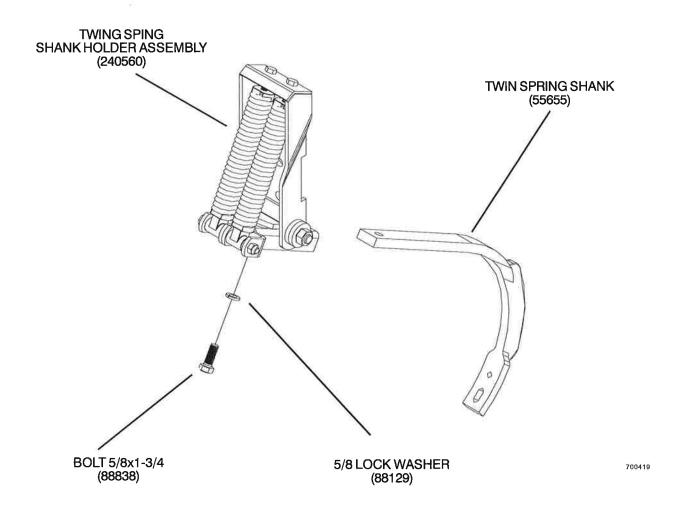
WING LIFT COMPONENTS 25,28 &31FT



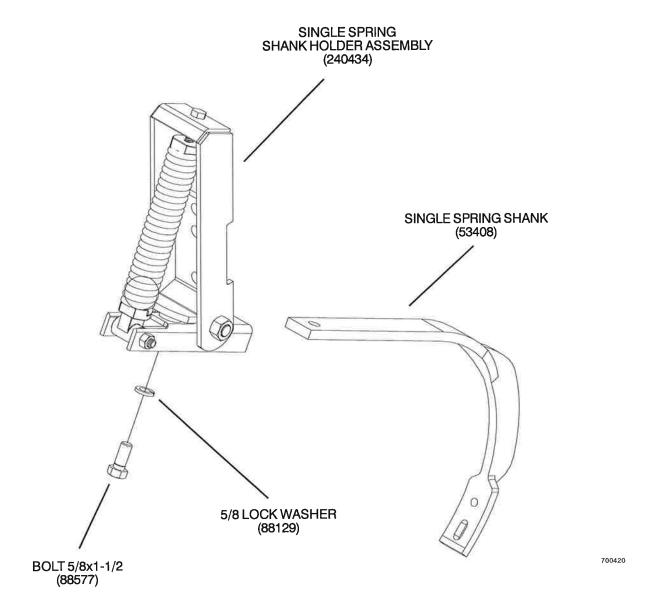
WING CASTERING GAUGE WHEEL

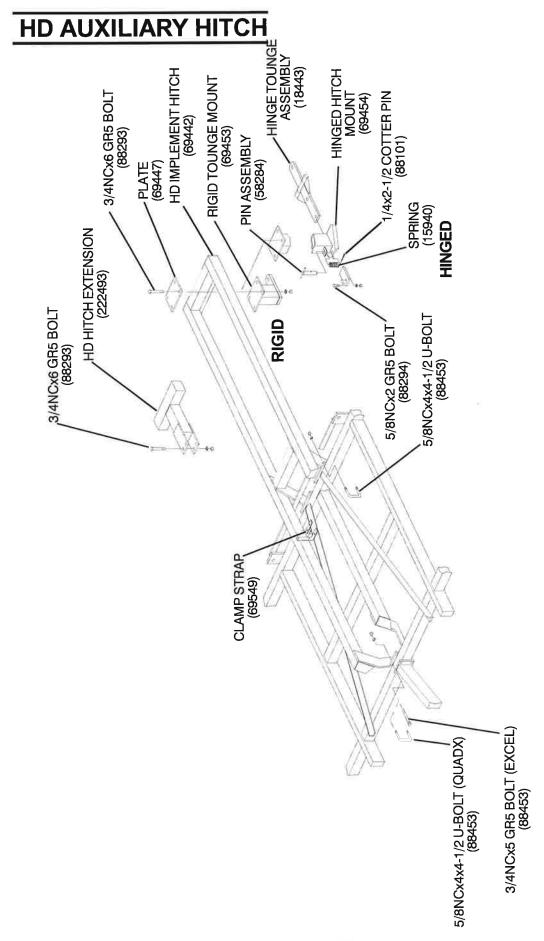


TWIN SPRING SHANK ASSEMBLY

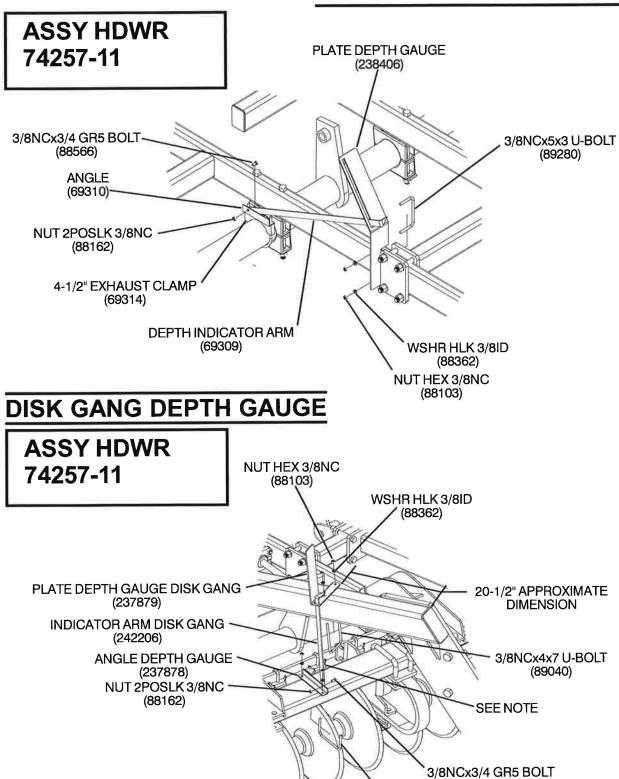


SINGLE SPRING SHANK ASSEMBLY





MAIN FRAME DEPTH GAUGE



NOTE:

The indicator arm must be twisted slightly for proper alignment. Make sure the twist is made close to the end with the hole. Make sure the indicator arm is aligned vertically before bolts are tightened.

33

(88566)

3/8NCx6x3-3/4 U-BOLT (89358)

DEPTH GAUGE ASSEMBLY/ OPERATING INSTRUCTIONS

The depth gauge is designed to provide a visual representation of the disk cultivator operating depth. When properly assembled and set, this gauge will display the approximate operating depth of the unit.

The disk cultivator should already have been set-up, per the instructions noted in the assembly/operator's manual. Next, move the disk cultivator to a flat area or to a concrete surface. Unfold the wings and lower the unit to the ground, so that the sweeps are just contacting the surface.

Align the gauge vertically and loosely secure with the u-bolts indicated. Position the depth indicator arm through the slot in the gauge and secure to the inside of the angle with the 3/8" bolt and lock nut.

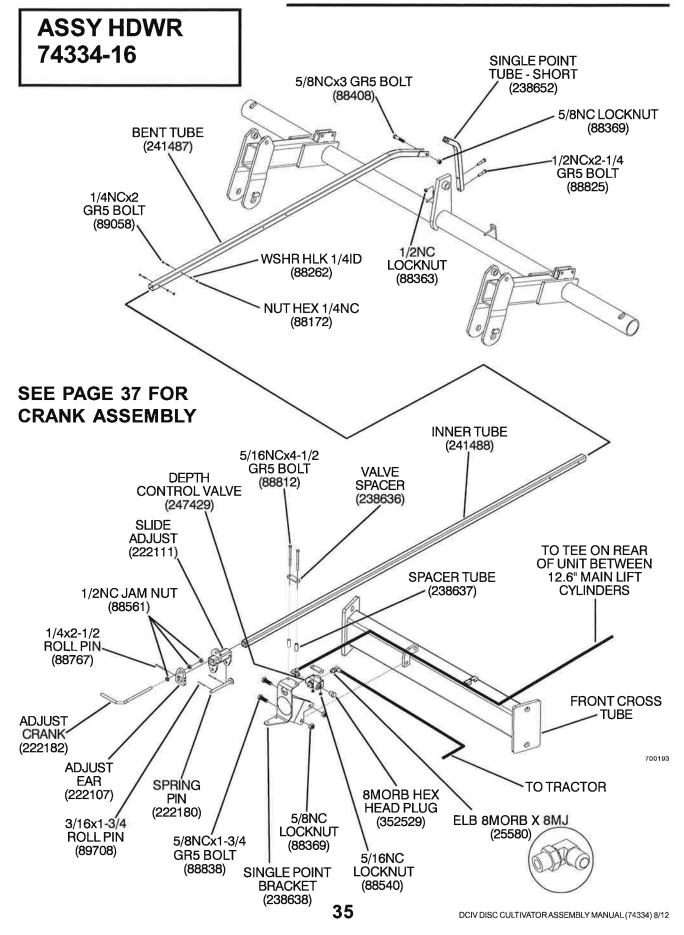
The depth indicator arm should be free to rotate, do not over tighten the bolt.

Place the 4-1/2" exhaust clamp around the axle tube and place the angle over the exhaust clamp saddle and secure with the nuts provided. Move the clamp and depth indicator arm laterally as required to align with the slot in the front depth gauge. Once the depth gauge is positioned where desired, tighten the u-bolts securley. Before tightening the exhaust clamp around the rear axle, rotate the clamp, angle and depth indicator arm so that the top edge of the arm is in line with the (0) setting on the depth gauge. The bottom edge of the depth arm should be resting on the angle. Tighten the exhaust clamp to hold the indicator arm at the (0) position with the unit sweeps resting on the ground.

This gauge is designed to give a relative indication of operating depth.

As the unit is lowered into the ground, the axle will rotate and move the indicator arm up to the numbered positions. A reading of "2" indicates an approximate operating depth of 2". You may need to adjust the arm as you get the unit into the field conditions as ground conditions, type of tires and attachment loading will vary the actual depth of the unit.

SINGLE POINT DEPTH CONTROL



SINGLE POINT DEPTH CONTROL

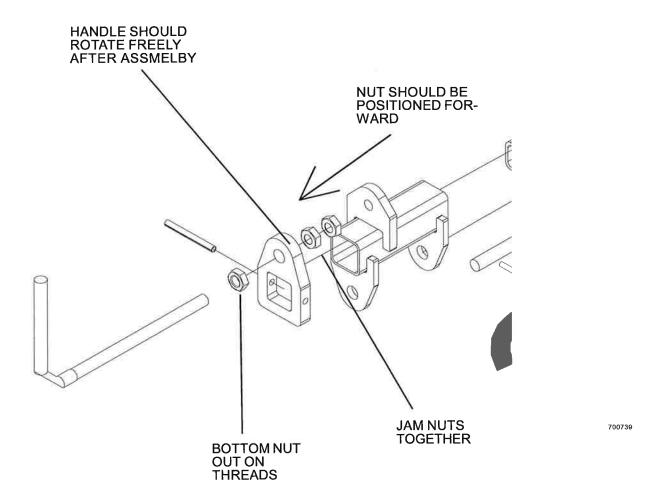
The Disk Cultivator single point depth control is designed to allow the adjustment of the operating depth of the unit. The normal procedure involves use of adjustable screw stops on the hydraulic lift cylinders. The depth control valve is placed in the base circuit and functions as a shut off valve to contain the oil flow and hold the depth of the machine.

Note: Use of the single point depth control will still require that the lift circuit be regularly purged to maintain the lift sequence. The reliability of the depth control is dependent on the containment of oil in the cylinders and curcuit: this valve will not ensure proper function without purging of the system.

ADJUSTMENTS

The single point control valve is used to control the operating depth of the unit. As the unit is lowered into the ground the axle will rotate back. By positioning the depth control valve to contact the depth arm the valve will shut off the flow of oil and stop the axle rotation. Once the valve has been installed the adjustments will need to be made in the field. Level the complete unit. Adjust the depth stop collars on all the main lift cylinders to the clevis end of the rod. Cycle the hydraulic system to purge and lower the unit into the ground. As the decal notes each turn of the adjustment tube will adjust the depth of the unit approximately 1/4", either up or down. Turn the adjustment tube clockwise to raise the unit or counterclockwise to lower the unit. Adjust as required to the desired operating depth.

HANDLE ASSEMBLY



Initial Assembly and Charging of Lift Systems

All WIL-RICH lift systems should be assembled as noted in the appropriate assembly manual. For best functional results the following steps should be followed.

- Position the main lift cylinders in the locations and connect the hydraulic circuitry as shown.
 Attach the base end of all cylinders but do not connect the rod ends. Support the cylinders to allow the rods to extend without machine contact.
- 2) Most fittings, except the connection tips at the tractor end and some valves, are JIC or Oring type fitting. JIC and Oring fitting do not require any type of thread compound to seal properly. **NOTE: Take care to keep all connections, fitting, hose, etc as clean as possible.**
- 3) Where pipe threads are used a thread-sealing compound should be used. **NOTE: Do not use Teflon type tape on any hydraulic circuitry; use an appropriate liquid compound.** If any tape or contaminate enters the system if can clog the bypass hole.
- 4) With all connections secured and the cylinders supported to allow rod extension apply pressure to the system.

The main or base cylinder should extend as oil flows into the base of the cylinder. Because there is air in the remaining cylinders and in the connecting hoses the outer cylinders may extend quickly. Just because the cylinders are extended does not mean the system has been purged. Continue to direct oil into the system until all cylinders have extended fully. **NOTE:** the cylinders will only bypass when the cylinders are fully extended. By allowing the cylinders to extend without having to lift the unit you allow the cylinders to reach the bypass position.

Keep in mind that all the oil going to the outer cylinders must be bypassed through the base cylinder bypass hole and subsequent cylinders. This will take some time, in some cases a considerable amount of time. On large unit with multiple wings and lift cylinders it will take longer to charge the system and a large amount of oil will be required. Check that your tractor has sufficient oil capacity; you may need to add oil to your reservoir. Also, because of the of the need to force all the oil though the by-pass holes you will need to have a system pressure of 2500-3000 psi.

Once all cylinders on the unit have been fully extended, retract the cylinders and again extend fully. Hold the cylinders in the extended (bypass) position for a few minutes, retract the cylinders and observe that the cylinders are working in sequence. Attach the cylinder rod ends to the anchor points of the unit. Raise and lower the unit and check to ensure the unit is moving in a level manner.

If the cylinders have been properly bypassed, all cylinders and hoses should be filled with oil with no air in the system. In actuality there will still be some air in the system as it is unlikely all air has been purged from the system. Even with some air in the system the cylinders should move in sequence and lift and control the depth of the unit. If the cylinders don't seem to be bypassing it may indicate that some debris has blocked the bypass hole. Because the hole may be blocked it is critical to maintain clean oil. Protect the complete hydraulic system at all connection points.

Wing Fold System Information

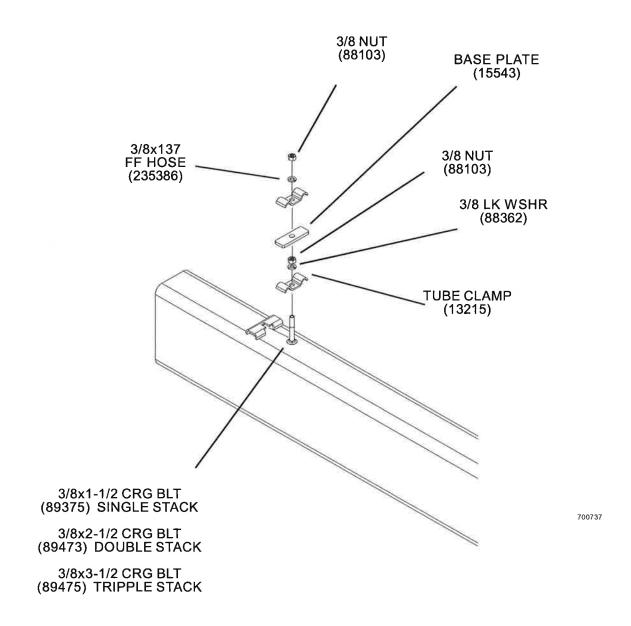
WIL-RICH products use a number of varying designs to fold implement wings. All utilize a two-way cylinder of varying diameters and strokes. All wing fold cylinders use an integral or in-line restrictor to control the cylinder stroke speed. This restrictor is critical to the safe operation of the unit and use of non-WIL-RICH cylinders is not recommended.

Assembly of the wing fold circuitry and mounting of the fold cylinders is outlined in the appropriate Assembly Manual. It is important to properly charge the wing fold cylinders and circuitry in the assembly process. Mount the base of all wing fold cylinders to their anchor points as noted. Tighten all hoses and fittings per specifications. **Before attaching the rod ends of any wing fold cylinders fully extend and retract all cylinders to ensure that the cylinders are filled with oil**. This can be made easier by supporting the cylinders with some type of blocking. Support so that all cylinder rods can be extended and retracted without machine interference. After the cylinders are fully charged attach the rod end of the cylinders to the appropriate anchor. Pressurize the system and check for proper wing fold.

When folding any winged implement make certain that the wing fold cylinders have been fully retracted. Any time the unit is to be stored with the wings folded, whether connected to the tractor hydraulic system or disconnected, it is critical to relieve any pressure from the wing fold circuit. On older tractor, shutting the tractor down, moving the control lever back and forth before disconnecting the hoses can relieve this pressure. Modern tractor can retain significant pressure in the hydraulic lines and contain this pressure once the lines have been disconnected. Before disconnecting folding cylinder hydraulic hoses, relieve pressure from the wing-fold hydraulic system by moving the tractor control valve to the float position while the engine is running.

It is critical to relieve the pressure on all wing fold circuits before storing the unit. Failure to do so may allow the wings to extend or unfold unexpectedly.

HOSE CLAMP ASSEMBLY



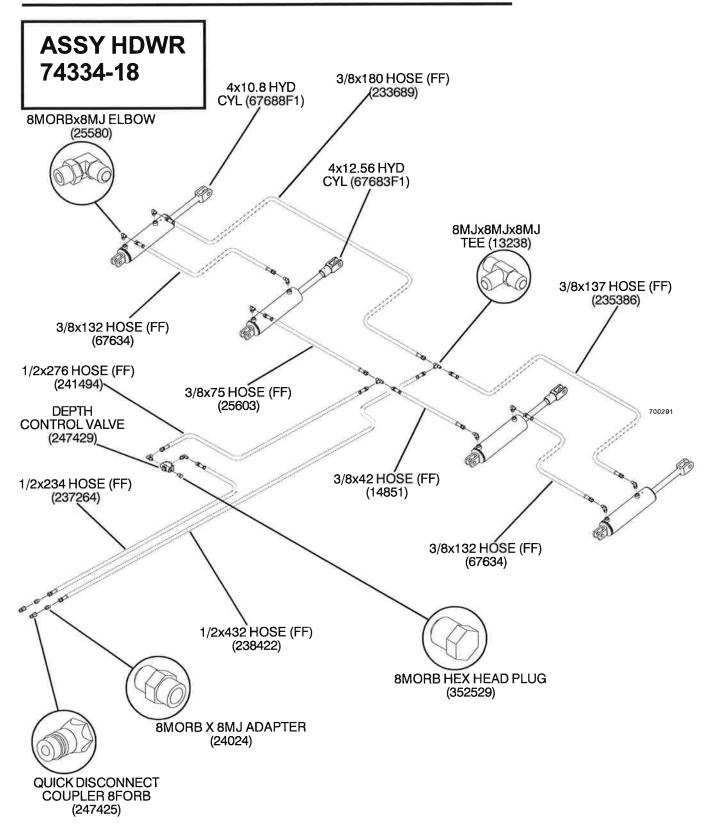
40

DEPTH CONTROL HYDRAULICS 19 & 22FT

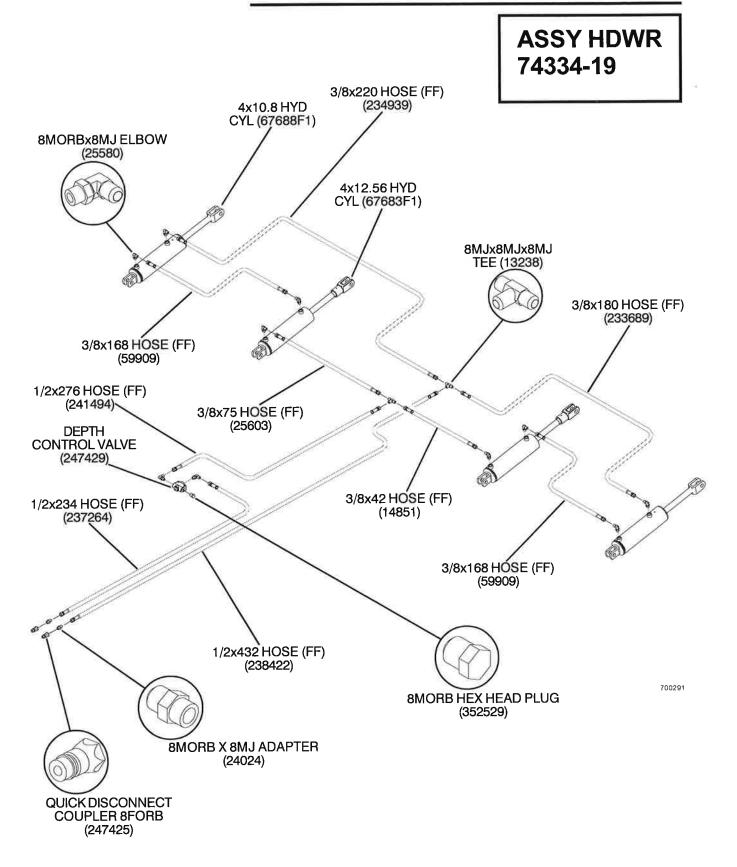
ASSY HDWR

74334-17 3/8x75 HOSE (FF) (25603)8MJx8MJx8MJ 8MORBx8MJ ELBOW TEE (13238) (25580)3/8x42 HOSE (FF) (14851)3/8x89 HOSE (FF) (56540) -DEPTH **CONTROL VALVE** (247429) 1/2x276 HOSE (FF) (241494) 1/2x234 HOSE (FF) (237264)3/8x65 HOSE (FF) (25602)4x12.56 HYD CYL (67683F) 1/2x432 HOSE (FF) (238422) 8MORB HEX HEAD PLUG (352529)700290 **8MORB X 8MJ ADAPTER** (24024)QUICK DISCONNECT **COUPLER 8FORB** (247425)

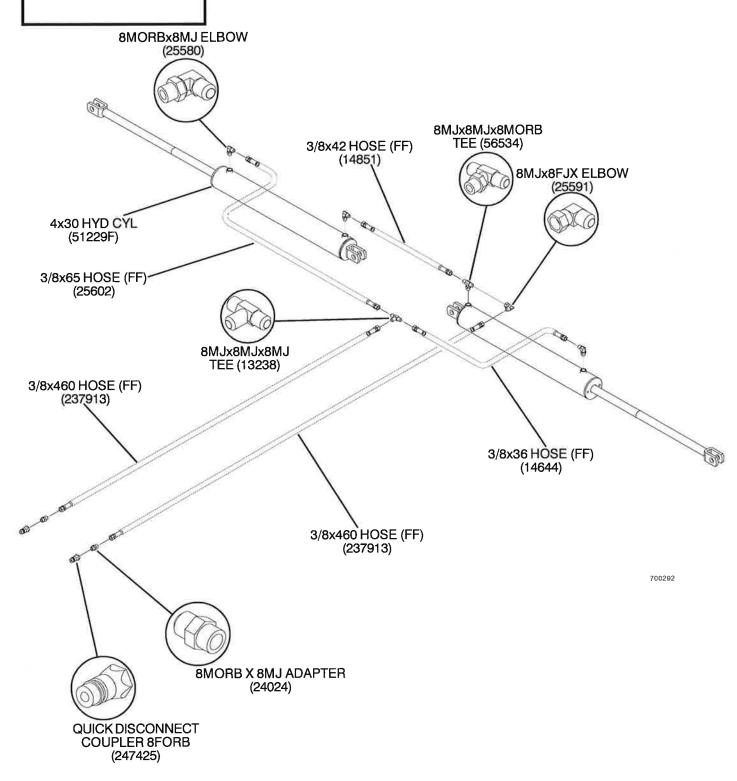
DEPTH CONTROL HYDRAULICS 25 & 28FT



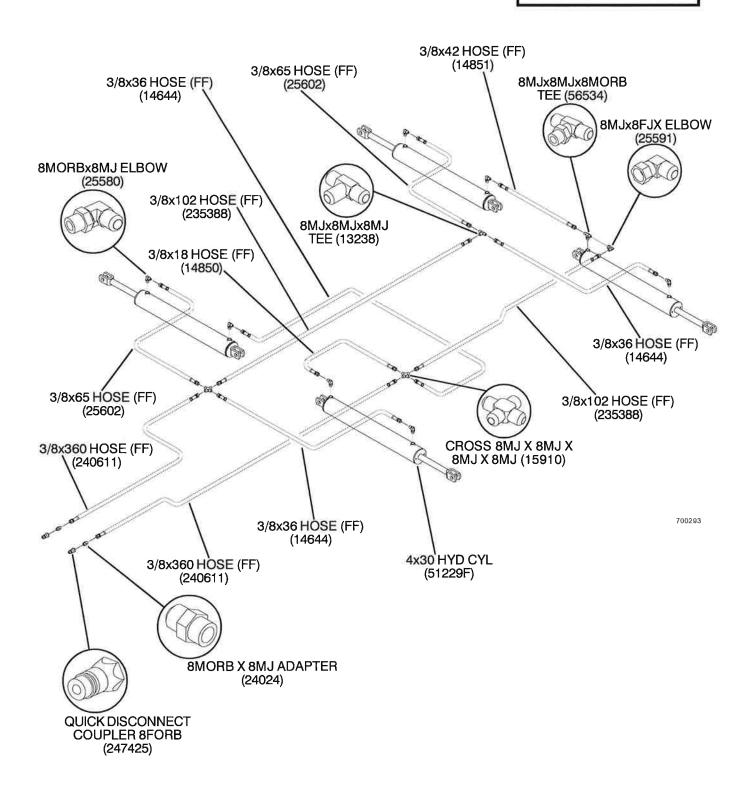
DEPTH CONTROL HYDRAULICS 31FT



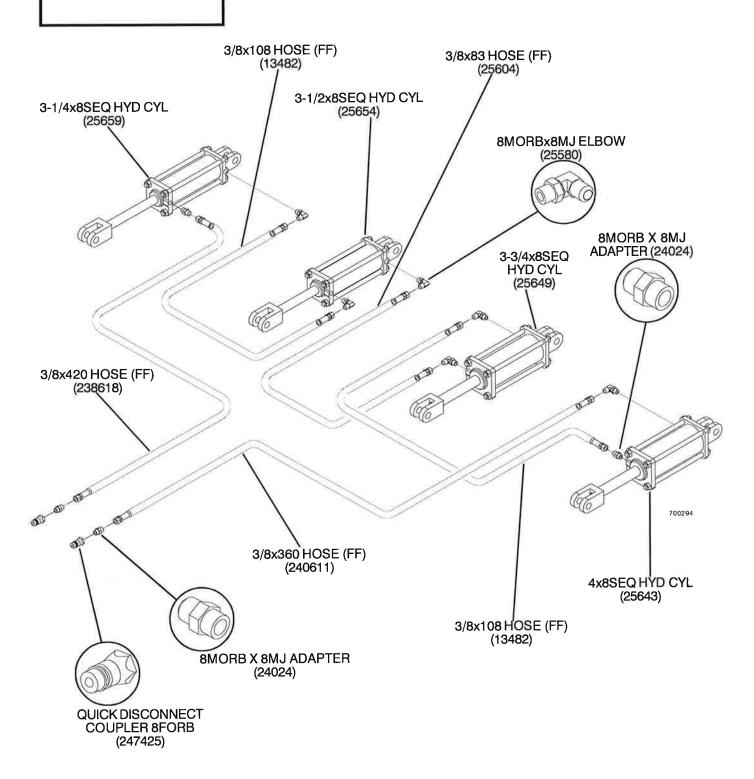
WING FOLD HYDRAULICS 19 & 22FT



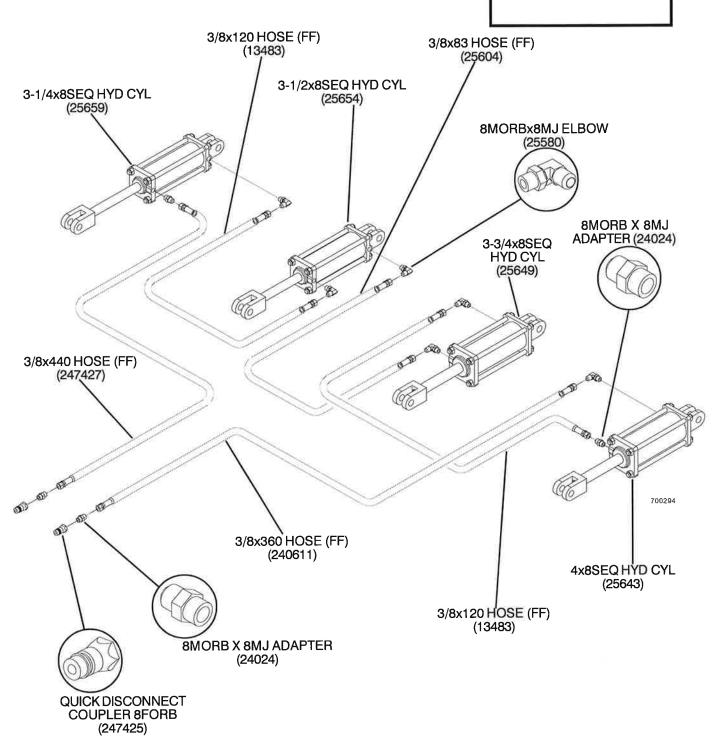
WING FOLD HYDRAULICS 25, 28 & 31FT



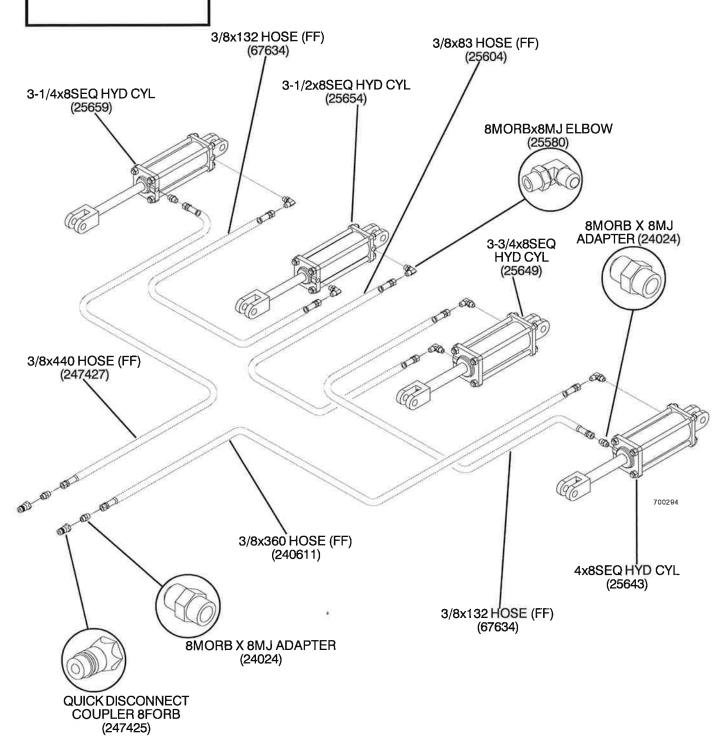
19 & 22FT DISK LIFT HYDRAULICS



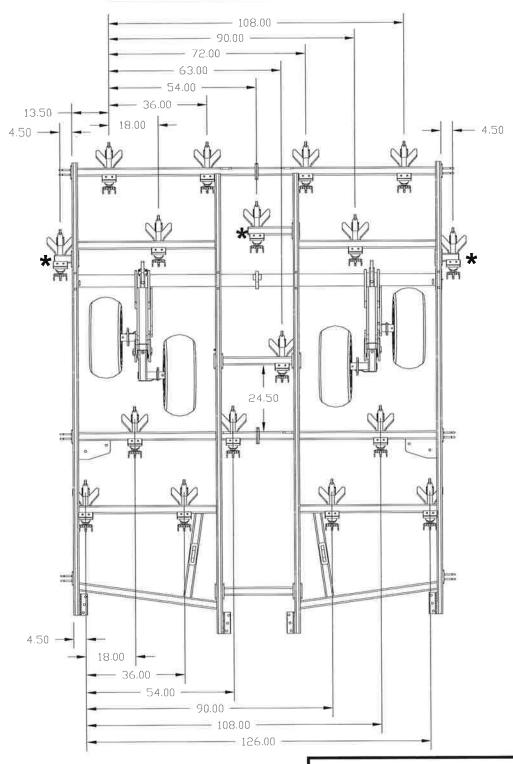
25 & 28FT DISK LIFT HYDRAULICS



31FT DISK LIFT HYDRAULICS



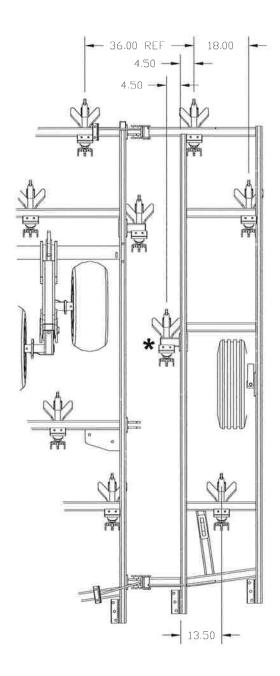
11FT MAIN FRAME SHANK PLACEMENT



*-Stubs indicated are additions to main frame.

Position Note:

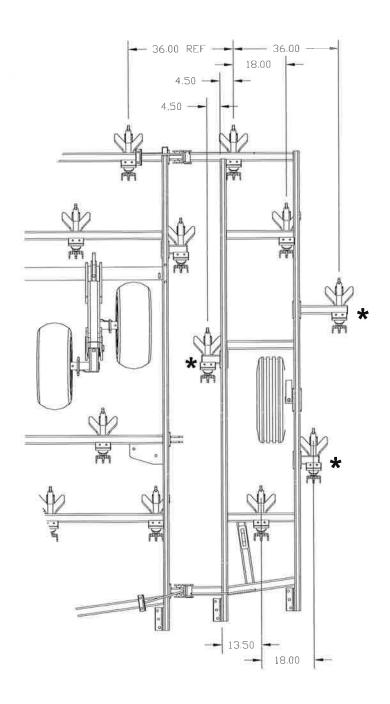
USED ON 19FT DISK CULTIVATOR



*-Stubs indicated are additions to wing.

Position Note:

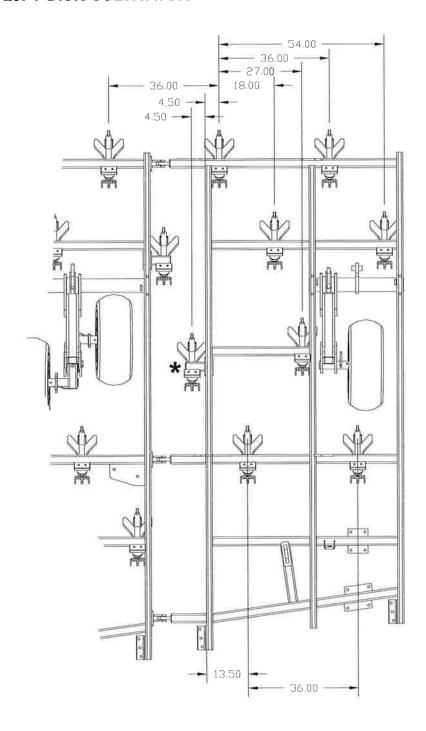
USED ON 22FT DISK CULTIVATOR



*-Stubs indicated are additions to wing.

Position Note:

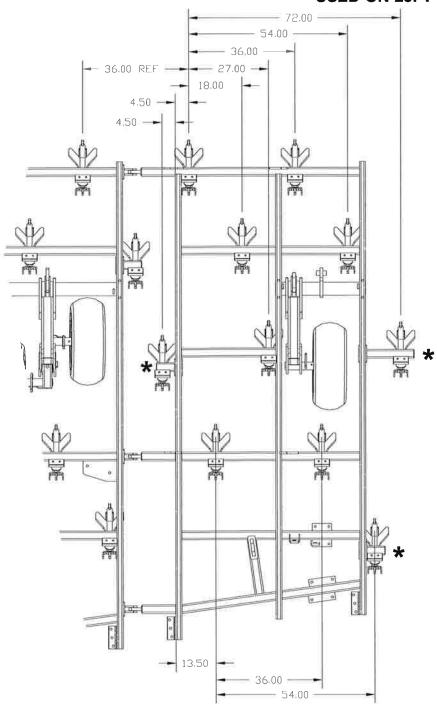
USED ON 25FT DISK CULTIVATOR



*-Stubs indicated are additions to wing.

Position Note:

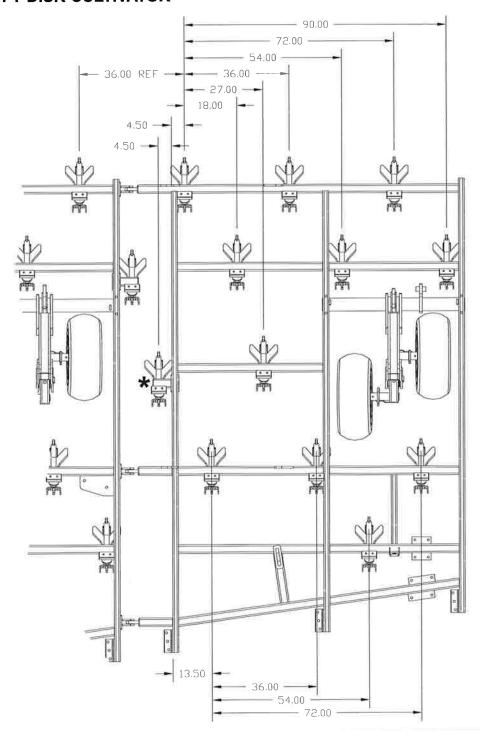
USED ON 28FT DISK CULTIVATOR



*-Stubs indicated are additions to wing.

Position Note:

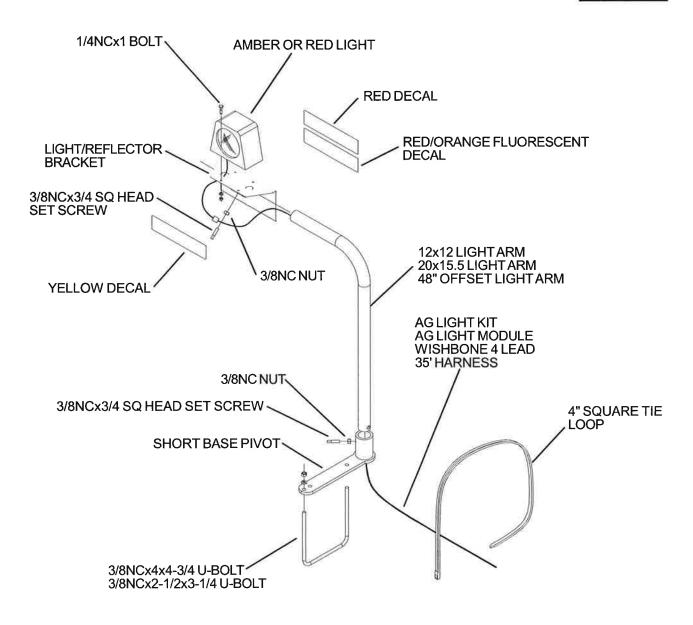
USED ON 31FT DISK CULTIVATOR

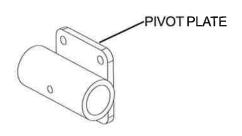


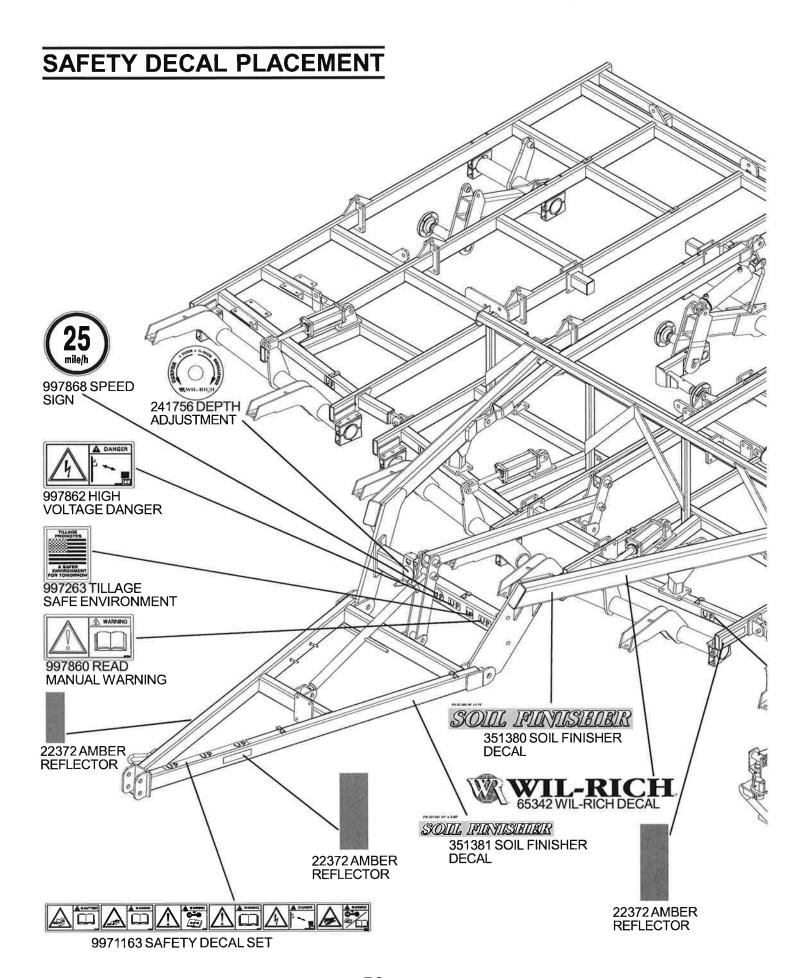
*-Stubs indicated are additions to wing.

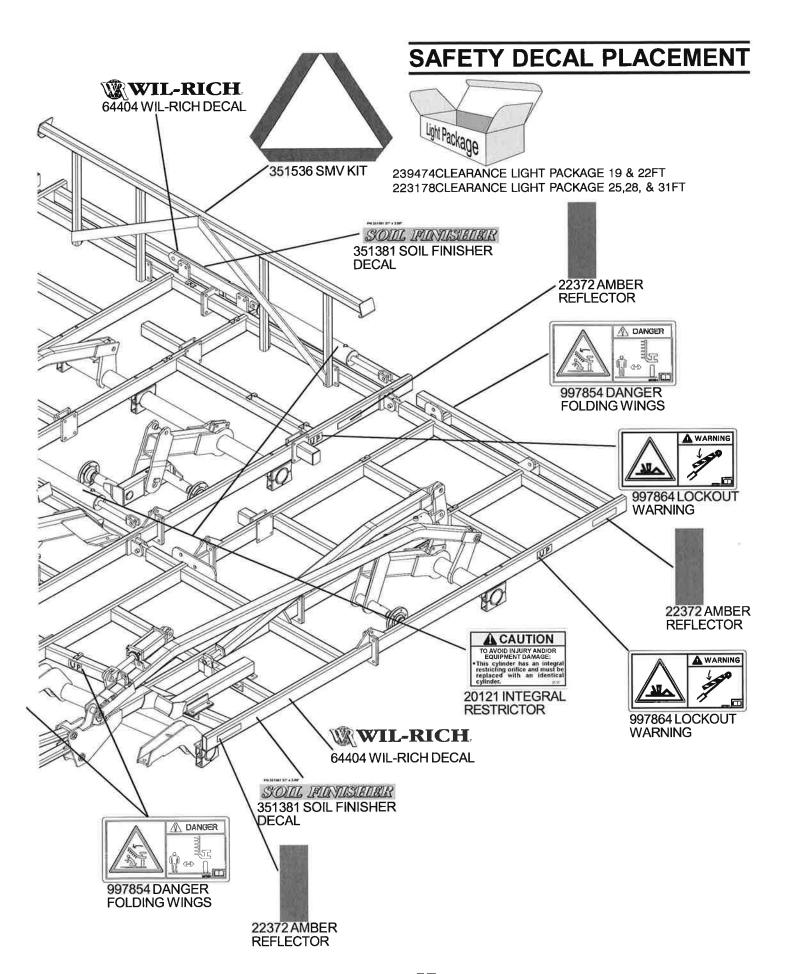
Position Note:

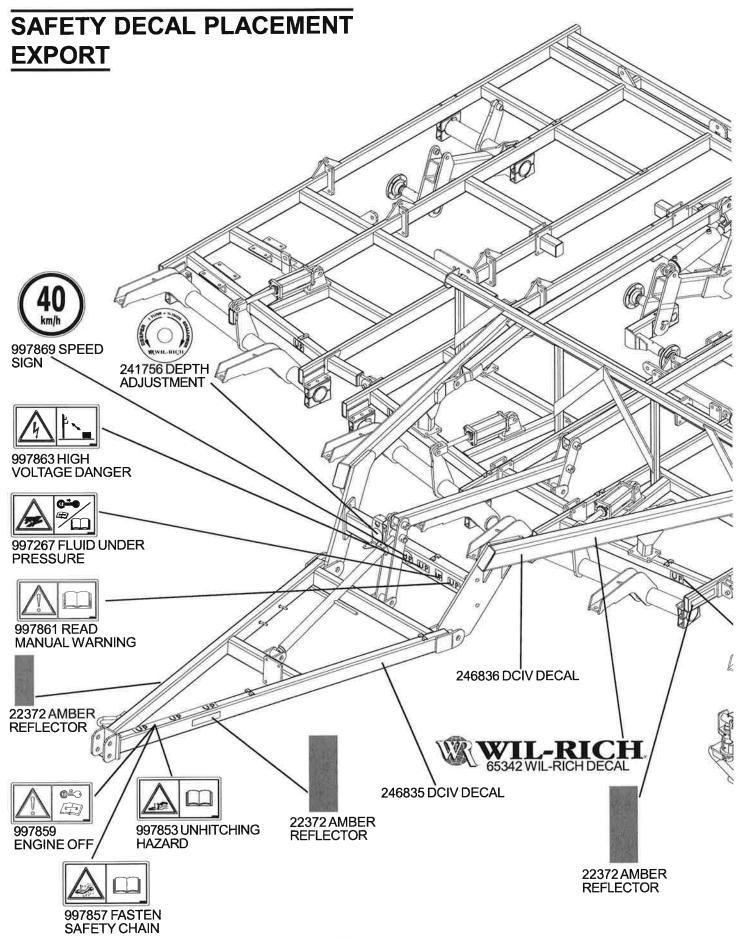












SAFETY DECAL PLACEMENT EXPORT **WWIL-RICH** 64404 WIL-RICH DECAL Light Package 239474CLEARANCE LIGHT PACKAGE 19 & 22FT 223178CLEARANCE LIGHT PACKAGE 25,28, & 31FT 351536 SMV KIT -246835 DCIV DECAL 22372 AMBER REFLECTOR A DANGER (de) 997855 DANGER **FOLDING WINGS** 997865 LOCKOUT WARNING 22372 AMBER REFLECTOR A CAUTION TO AVOID INJURY AND/OR EQUIPMENT DAMAGE: This cylinder has an integra restricting orifice and most beplaced with an identica cylinder. 20121 INTEGRAL 997865 LOCKOUT **RESTRICTOR** WARNING WIL-RICH 64404 WIL-RICH DECAL 246835 DCIV DECAL A DANGER 997855 DANGER **FOLDING WINGS** 22372 AMBER

REFLECTOR