Assembly Manual

SN 2320466371-

5 Section Field Cultivator

4000361193 / JAN 2024





VADERSTAD INC. LIMITED WARRANTY TERMS AND CONDITIONS - UNITED STATES AND CANADA

EFFECTIVE FOR EQUIPMENT RETAILED AND DELIVERED AFTER MAY 21ST, 2021

WHAT IS WARRANTED Vaderstad Inc. warrants its new equipment to be free of defects in material and workmanship at time of delivery to the first retail purchaser, renter, or lessee. These terms apply to all 10K, Amity, Concord, Wil-Rich and Wishek brands of new equipment originally marketed in the United States and Canada.

WARRANTY PERIOD

- 12 Months from the date of delivery to the first retail purchaser, renter or lessee.
- 483 Disk Chisel, Field Cultivator and Disk Cultivators: 3 years on main frames, wing frames, and shank assemblies •
- Precision Shank Drill: 3 years on main frame, wing frame, and rockshafts. •

EXCEPTIONS FROM THIS WARRANTY

- Freight Charges This warranty does not cover freight charges.
- Improvements, Changes, or Discontinuance Vaderstad Inc. reserves the right to make changes and improvements in design or changes in specifications at any time to any product without incurring any obligations to owners of products previously sold.
- Repairs and Maintenance Not Covered Under Warranty This warranty does not cover conditions resulting from misuse, natural calamities, use of non-Vaderstad Inc. parts, negligence, alteration, accident, use of unapproved attachments, usage which is contrary to the intended purposes, or conditions caused by failure to perform required maintenance. Replacement of Wear or Maintenance items (unless defective) such as but not limited to, filters, hoses, belts, lubricants, light bulbs, wheel alignment, tightening of nuts, belts, bolts, and fittings, service tune-up, computer parameter adjustments and general adjustments which may from time to time be required are not covered.
- Rubber Tire Warranty Rubber tires are warranted directly by the respective manufacturer only and not by Vaderstad Inc.
- Satellite Outages Interruptions in satellite interfaces and satellite communications are outside the control of this product and are not covered by this warranty. The company is not responsible for issues or degradation of system performance resulting from such interruptions in satellite interfaces and satellite communications where the issues are not related to defects in this product.

OWNER'S OBLIGATION

It is the responsibility of the Owner to transport the equipment or parts to the service shop of an authorized Vaderstad Inc. Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover rental of replacement equipment during the repair period, damage to products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or special handling requirements (such as, but not limited to, the use of cranes).

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY THIS WARRANTY IS IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PURPOSE OR OTHER REPRESENTATIONS, WARRANTIES OR CONDITIONS, EXPRESSED OR IMPLIED. The remedies of the Owner set forth herein are exclusive. The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of covered machines. Correction of defects, in the manner and for applicable period of time provided above, shall constitute fulfillment of all responsibilities of Vaderstad Inc. to the Owner, and Vaderstad Inc. shall not be liable for negligence under contract or in any manner with respect to such machines. IN NO EVENT SHALL THE OWNER BE ENTITLED TO RECOVER FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS BUT NOT LIMITED TO, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE OR COST OF RENTAL OR REPLACEMENT EQUIPMENT.

Some States or Provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply.

"VADERSTAD INC." AS REFERRED TO HEREIN WITH RESPECT TO SALES IN: UNITED STATES and CANADA: Vaderstad Inc.

PO Box 1030 Wahpeton, ND 58074

Additional Warranty Information

New Equipment Warranty - Equipment is eligible for warranty service only if it qualifies under the provisions of the New Equipment Warranty. The selling dealer will deliver this Warranty to the original retail purchaser at the time of sale, and the dealer will register the sale and Warranty with Vaderstad Inc. Subsequent Owners - This Warranty covers the first retail purchaser and all subsequent owners of the equipment during the specified warranty period. Should the Vaderstad Inc. Dealer sell this equipment to a subsequent owner, the Dealer must deliver the warranty document to the subsequent owner so the subsequent owner can register ownership with Vaderstad Inc. and obtain the remaining warranty benefits, if available, with no intermission in the Warranty Period. Subsequent Owner Procedure will apply. It is the responsibility of the subsequent owner to transport the equipment to the service shop of an authorized Vaderstad Inc. Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover charges for rental or replacement equipment during the repair period, products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or units sold at auction.

Warranty Service - To be covered by Warranty, service must be performed by an authorized Vaderstad Inc. It is recommended that you obtain warranty service from the Dealer who sold you the equipment because of that Dealer's continued interest in you as a valued customer. In the event this is not possible, warranty service may be performed by any other authorized Vaderstad Inc. Dealers in the United States or Canada. It is the responsibility of the Owner to transport the equipment to the service shop of an authorized Vaderstad Inc. Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty.

Maintenance Service - The Owner's Manual furnished to you with the equipment at the time of delivery contains important maintenance and service information. You must read the manual carefully and follow all the maintenance and service recommendations. Doing so will result in greater satisfaction with your equipment and help avoid service and warranty problems. Please remember that failures due to improper maintenance of your equipment are not covered by warranty. Maintenance Inspections - To insure the continued best performance from your agricultural equipment, we recommend that you arrange to make your equipment available to your selling Dealer for a maintenance inspection 30 days prior to warranty expiration.

Introduction

Safety Alerty Symbol



This is the safety alert symbol. The safety alert symbol will direct the operator's attention to information that involves personal safety and the safety of others.

Safety Messages

The words DANGER, WARNING, or CAUTION are used with the safety alert symbol. Learn to recognize these safety alerts and follow the recommended precautions and safety practices.



Indicates an imminently hazardous situation that, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.

Indicates an potentially hazardous situation that, if not avoided, could result in DEATH OR SERIOUS INJURY.



Indicates a potentially hazardous situation that, if not avoided, will result in MINOR INJURY.

Informational Messages

The word important or note are not related to personal safety but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: Identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of the machine, process, or its surroundings.

NOTE: identifies points of particular interest for more efficient and convenient repair or operation.

Safety Signs



Do not remove or obscure Danger, Warning, or Caution signs. Replace any Danger, Warning or Caution signs that are not readable or are missing. Replacement signs are available from the dealer in the event of loss or damage. The actual location of the safety signs is illustrated at the end of this section.

Keep signs clean by wiping off regularly. Use a cleaning solution if necessary.

If parts have been replaced or a used machine has been purchased, make sure all safety signs are in the correct location and can be read. Illustrations of safety sign locations are located at the rear of this section.

Replace any safety signs that cannot be read or are missing. Clean the machine surface thoroughly with a cleaning solution before replacing signs. Replacement safety signs are available from a dealer.

Introduction (Cont'd)

A Word to The Operator

It is the operator's responsibility to read and understand the safety section in this manual and the manual for all attachments before operating this machine.

Study the features in this manual and make them a working part of a safety program. Keep in mind that this safety section is written only for this type



of machine. Practice all other usual and customary safe working precautions. The operator can prevent serious injury and death.

This safety section is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of this machine. This section also suggests possible ways of dealing with these situations. This section is not a replacement for other safety practices featured in other sections of this manual.

Personal injury or death may result if these precautions are not followed.

Learn how to operate the machine and how to use the controls properly.

Do not let anyone operate the machine without instruction and training.

For personal safety and the safety of others, follow all safety precautions and instructions found in the manual and on safety signs affixed to the machine and all attachments.

Use only approved attachments and equipment.

Make sure the machine has the correct equipment needed by the local regulations.



An operator should not use alcohol or drugs which can affect their alertness or coordination. An operator on prescription or 'over the counter' drugs need medical advice on whether they can properly operate machines.

If any attachments used on this equipment have a separate Operator Manual, see that manual for other important safety information.

This Manual

Right-hand and left-hand, are used in this manual. This is determined by facing the direction of travel of the machine from rear.

The photos, illustrations, and data used in this manual were current at the time of printing, but due to the possible in-line production changes, your machine can vary slightly in detail. The manufacturer reserves the right to redesign and change the machine as necessary without nodification.





In some illustrations and photos used in this manual, shields or guards may have been removed for clarity. Never operate the machine with any shields or guards removed. If the removal of shields or guards is necessary to make a repair, they must be replaced before operation.

Operation

Prepare For Operation

Read and understand all operating instructions and precautions in this manual before operating or servicing the machine.

Know and understand the positions and operations of all controls. Make certain all controls are in neutral and the parking brake is applied before starting the machine. Make sure the steering wheel is centered and locked.



Any time the engine is running and the parking brake is disengaged, the machine will turn if the steering wheel is moved even though the travel control lever is in neutral.

Make certain all people are well away from the area of work before starting and operating the machine. Check and learn all controls in an area clear of people and obstacles before starting work. Be aware of the machine size and have enough space available to allow for operation. Never operate the machine at high speeds in crowded places.

Emphasize the importance of using correct procedures when working around and operating the machine. Do not let children or unqualified people operate the machine. Keep others, especially children, away from the area of work. Do not permit others to ride on the machine.

Make sure the machine is in the proper operating condition as stated in the Operator's Manual. Make sure the machine has the correct equipment required by local regulations.

All equipment has a limit. Understand the speed, brakes, steering, stability, and load characteristics of the equipment before starting.

Operation (Cont'd)

Personal Protective Equipment

Wear all personal protective equipment (PPE) and protective clothing issued or called for by job conditions and county local regulations. PPE includes, but is not limited to, equipment to protect eyes, lungs, ears, head, hands, and feet when operating, servicing, or repairing equipment.

Agricultural Chemicals

Agricultural chemicals can be very hazardous.

Improper use of fertilizer, fungicides, herbicides, insecticides and pesticides can injure people, plants, animals, soil and other people's property.

Always read and follow all manufacturers' instructions before opening any chemical container.

Read and follow instructions each time a chemical is used.

Use the same precautions when adjusting, servicing, cleaning or storing the machine as used when installing chemicals into the hoppers or tanks.

Inform anyone who comes in contact with chemicals of the potential hazards involved and the safety precautions required.

Stand upwind and away from smoke from a chemical fire.

Store or dispose of all unused chemicals only in a manner as specified by the chemical manufacturer.



Operation (Cont'd)

Traveling On Public Roads



Machine was designed for apply chemicals and fertilizers in off-road use. Do not use the machine for transporting product on public roads. Chemical spills result in environmental damage. A loaded machine driven on public roads also runs a high risk of tire failure. Personal injury could result.

Always walk around and visually inspect the machine before traveling on public roads. As a warning, honk the horn twice before starting the engine. Check for damage and / or faulty components that can fail and create a hazardous condition. Make sure all the machine systems operate properly. The following, including, but not limited to: front road lights, tail and brake lights, hazard warning lights, parking brake, horn, windshield wiper and washer and rear view mirrors. Repair or replace any component not in proper working order.

Never drive at a speed causing the machine to bounce or lose control.

Obey all traffic rules. Operate the machine with hazard warning lights on, unless prohibited by law. Use of road lights while traveling on public roads is operator's responsibility.

Maintenance (Cont'd)

Fire Prevention And First Aid

Be prepared for emergencies.

Keep a first aid kit handy for treatment of minor cuts and scratches.

Always carry one or more fire extinguishers of the correct type. Check fire extinguishers regularly as instructed by the manufacturer. Make sure the fire extinguishers are properly charged and in operating condition.

Due to the nature of the crops this machine will operate in, the risk of fire is of concern. Use a water type fire extinguisher or other water source for a fire in crops.

For fires involving anything other than crops, such as oil or electrical components, use a dry chemical fire extinguisher





with a ABC rating. Mount fire extinguishers within easy reach of where fires can occur. Frequently remove accumulated crop material from the machine and check for overheated components. Check the machine daily for any noises that are not normal. Such noises could indicate a failed component that can cause excess heat.

If any flame cutting, welding, or arc welding is to be done on the machine or attachments, make sure to clear any crop material or debris from around the area. Make sure the area below the work area is clear of any flammable material as falling molten metal or sparks can ignite the material.

If fire occurs stand upwind and away from the smoke from the fire.

High Pressure Leaks

Fluid leaking from the hydraulic system or the fuel injection system under high pressure can be very hard to see. The fluid can go into the skin causing serious injury.

Fluid injected into the skin must be surgically removed within a few hours. If not removed immediately, serious infection or reaction can develop. Go immediately to a doctor who knows about this type of injury.

Use a piece of cardboard or wood to search for possible leaks. Do not use your bare hand. Wear leather gloves for hand protection and safety goggles for eye protection.

Relieve all pressure before loosening any hydraulic lines. Relieve the pressure by lowering raised equipment, shutting off accumulator valve, if equipped, and shutting off the engine. Tighten all connections securely before apply pressure.

Maintenance (Cont'd)

Tire Safety

Check the tires for cuts, bulges and the correct pressure. Replace worn or damaged tires. When tire service is needed, have a qualified tire mechanic service the tire. Changing the tire can be very hazardous and must be done by a qualified tire mechanic using the proper tools and equipment. See the Specifications Sections for the correct tire size.

Tire explosion and / or serious injury can result from over inflation. Do not exceed the tire inflation pressures. See the Specifications Section for the correct tire pressure.

Do not inflate a tire that is seriously under inflated or has been run flat. Have the tire checked by a qualified tire mechanic.

Do not weld on the rim when a tire is installed. Welding can make an air / gas mixture that can cause an explosion and burn with high temperatures. This danger applies to all tires, inflated or deflated. Removing air or breaking the bead is not enough. The tire must be

completely removed from the rim prior to welding.

When preparing a calcium chloride solution for fluid ballasting the tractor tires, never pour water onto the calcium chloride. A chlorine gas can be generated which is poisonous and explosive. This can be avoided by slowly adding calcium chloride flakes to water and stirring until they are dissolved.

When seating tire beads onto the rims, never exceed 2.4 bars (35 psi) or the maximum inflation pressure specified on the tire. Inflation beyond this maximum pressure may break the bead, or even the rim, with explosive force.







Replacement Parts

Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications.

The manufacturer will not accept responsibility for installation of unapproved parts and / or accessories and damages as a result of their usage.

Torque Specifications



Grade 2		Grade 5			Grade 8	
Bolt Diameter	3/8" (9.53 mm)	1/2" (12.7 mm)	5/8" (15.88 mm)	3/4" (19.05 mm)	7/8" (22.23 mm)	1" (25.4 mm)
Hex Head	9/16" (14.3 mm)	3/4" (19.05 mm)	15/16" (23.83 mm)	1-1/8" (28.58 mm)	1-5/16" (33.34 mm)	1-1/2" (38.1 mm)
Torque ft/lbs (N.m)						
UNC GR2	18 (24.40)	45 (61.01)	89 (120.67)	160 (216.93)	252 (341.67)	320 (433.86)
UNC GR5	30 (40.67)	68 (92.19)	140 (189.81)	240 (325.39)	360 (488.09)	544 (737.56)
UNC GR8	40 (54.23)	100 (135.58)	196 (165.74)	340 (460.98)	528 (715.87)	792 (1073.81)
UNF GR2	21 (28.47)	51 (69.15)	102 (138.29)	178 (241.34)	272 (368.78)	368 (498.94)
UNF GR5	32 (43.39)	70 (94.91)	168 (227.78)	264 (357.94)	392 (531.48)	572 (775.53)
UNF GR8	48 (65.08)	112 (151.85)	216 (292.86)	368 (498.94)	792 (1073.81)	840 (1138.89)

Wheel Nut & Bolt Torque				
Nut Size	Grade	Torque ft/lbs (N.m)		
1/2" - 20UNF x 60"	5	93 (126.1)		
1/2" - 20UNF x 60"	5	93 (126.1)		
1/2" - 20UNF x 90"	5	93 (126.1)		
9/16" - 18UNF x 90"	5	133 (180.3)		
5/8" - 18UNF x 90"	5	187 (253.5)		
5/8" - 18UNF x 90" (Heavy Hex)	5	187 (253.5)		
3/4" - 16UNF (Bud Nut)	8	462 (626.4)		
3/4" - 16UNF (Flange Nut)	8	462 (626.4)		
7/8" - 14UNF (Flange Nut)	8	735 (996.5)		
Nut Size	Grade	Torque ft/lbs (N.m)		
1/2" - 20UNF x 1-7/16"	5	72 (97.6)		
1/2" - 20UNF x 1-1/4"	5	72 (97.6)		
1/2" - 20UNF x 1-1/2"	5	72 (97.6)		
1/2" - 20UNF x 1-3/4"	5	72 (97.6)		
1/2" - 20UNF x 1"	5	72 (97.6)		
9/16" - 18UNF x 1-3/4"	5	103 (139.6)		
9/16" - 18UNF x 2-1/4"	5	103 (139.6)		

STEP 1:

While frame is still in shipping configuration. Secure a sling around the center balance of wing rest. Attach sling to overhead hoist. Pull all slack out of the sling.



Cut bands holding wing rests (240818) to main frame. Using hoist move attached wing rests off to the side for later.

STEP 3:

Wrap sing around center balancing point of shipping bundle and lay bundle down. Support frame securely 36" to 40" off the ground.

STEP 4:

Once the frame is safely supported cut all bands holding the front frame in place. Loosen up all the pivot bolts (A). Secure sling to center balance to main frame and inner wings. Attach to overhead hoist. 1x10

Α

STEP 5:

Raise the hoist slowly while the front frame rotates 180° when the entire frame is lying flat. Add supports to the front frame so that the front and rear are level.

STEP 6:

Align the flange on the front section of the frame to the main frame. Use four of each of the following (1) $\frac{3}{4}$ x 2 grade 8 bolts, (2) $\frac{3}{4}$ lock washer, and (3) $\frac{3}{4}$ nut. to secure frame flanges making sure to align bolts front to back do this at all (B) locations do not tighten.



R

Notes: Wait till after step 12 to tighten flange bolts.



STEP 9:

Retrieve wing rest removed from upright shipping configurations in step 2. Remove hardware connecting both wing rests together.



STEP 10:

Use four each of the following parts (1) 3/4 x 2 grade 8 bolts, (2) 3/4 lock washer, and (3) 3/4 "nuts to secure (4) wing rest to main frame. The wing rest must be placed behind truss anchors and center mounts must be in front of anchor straps as shown.



Use one (1) 5/8 x 3 x 5-1/4" U-bolt and two (2) 5/8 top lock hex nut in two places as shown to secure center of the wing rest to the main frame. Repeat steps 10 & 11 to install front wing rest.

FRONT WING REST ASSEMBLY





STEP 12:

Attach plates (1) using a total of eight of each of the following parts: (2) 5/8: x 1-3/4" grade 5 bolt, (3) 5/8" lock washer, and (4) 5/8" grade 5 nut. Do the same steps on the LH wing. Note: the bolt heads must be on the inside of the braces as shown. Go back and tighten flange bolts in step 6.





Repeat step 13 for RH and LH inner wings.





Install anchor link (1) to wing anchor on the axle and the main frame. Use a 1-1/4" x 3-3/8" inch long pin (2) with two machine bushinWgs (3) and two 1/4" x 2-1/4" roll pin to secure both ends. Do this in two places as shown.



DEPTH CONTROL 5 SECTION QX² & XL²





Install shaft end of 4x12 hydraulic cylinder (1) 358314 to wing anchors. Use headless pin (2) 1x3-7/16, two flat washers (3) 1 (1/1/16x2-1/2ACT) 2ZP, and two roll pin (4) 1/4x2-1/4 ZP. Use headless pin (5) and same washers and roll pin that were used in rod end for the base end of cylinder to center axle as shown. Same tasks to be done on both RH and LH sides of center axle.



Hydraulic ports to face towards the sky as illustrated.





STEP 16:

Thread 1-1/4" jam nut (1) onto the clevis adjust rod (2) and install in front end of the main frame anchor tube (1) as shown. Do this in two placeS.



Slide the main frame anchor tube (1) from the back to the front of the frame over the front wing rest crossmember. Use a 1-1/4" x 3-3/8" long headless pin (3) with two machinery bushings (4), and two 1/4" x 2-1/4" long roll pin (5) to secure the rear end of the wing tube to the upper hole in the axle anchor. Do this in two places.













QX² & XL²



20



















QX² & XL² SIZES 11' & 13' T/L HITCH A-FRAME 13' LL



QX² & XL² SIZES 11' & 13' T/L HITCH A-FRAME 13' LL

ITEM	PART #	QTY	DESCRIPTION	ITEM	PART #	QTY	DESCRIPTION
1	42824	1	CAST DUAL HITCH	17	67743	1	13EXC CENTER LIFT TUBE BRACKET
2	11638	2	BOLT, HITCH SPECIAL 1-1/4 X 6-1/2	18	220785	1	CENTER FRAME HITCH ATTACHMENT
3	88133	2	PIN-COTTER: 3/16 DIA X 2 ZP	19	67933	2	PLATE (3-HOLE) 5-SECT
4	88350	2	NUT-CASTLE: 1-1/4-7NC 2ZP	20	67906	1	LINKAGE
5	88622	4	NUT JAM 1-1/4-7NC 5Z	21	67937	1	CENTER HITCH BRACKET
6	88294	8	BOLT-HEX: 5/8-11NC X 2 5ZP	22	220796	1	QX ² & XL ² HITCH TUBE-LEFT
7	88129	16	WASHER-LOCK: HELICAL 5/8ID (11/16ACT) ZP	23	42484	16	PIN-ROLL: 1/4 X 2-1/4 ZP
8	88126	16	NUT-HEX: 5/8-11NC 5ZP	24	88440	16	BUSHING-MACHINERY: 1-1/4 X 1-7/8 14GA ZP
9	88349	2	BOLT-HEX: 1-1/4-7NC X 6-1/2 5ZP	25	68034	2	HEADLESS PIN(2) 1-1/4X3.38
10	68040	6	FLAT (RED) 11' & 13"	26	68032	1	HEADLESS PIN(2) 1-1/4X7.25
11	88293	24	BOLT-HEX: 3/4-10NC X 6 5ZP	27	68030	1	HEADLESS PIN(2) 1-1/4X6.13
12	88110	28	NUT-HEX: 3/4-10NC 5ZP	28	68031	4	HEADLESS PIN(2) 1-1/4X5.12
13	88130	28	WASHER-LOCK: HELICAL 3/4ID (13/16ACT) ZP	29	88503	4	BLT-U 5/8-11NC X 3 X 5-1/4 Z
14	88305	4	BOLT-HEX: 3/4-10NC X 5 5ZP	30	233672	1	13 EXC MAIN FRAME HITCH
15	68354	1	4 HOLE BOLT PLATE (3.5 X 4.75) RED	31	68036	1	ADJUSTER ASSEMBLY
16	220795	1	QX ² & XL ² HITCH TUBE-RIGHT				



NO MAIN FRAME TIRES USED

T/L HITCH T-STYLE FLOATING



T/L HITCH T-STYLE FLOATING

ITEM	PART NUMBER	QTY	DESCRIPTION
1	88133	2	PIN-COTTER: 3/16 DIA X 2 ZP
2	88350	2	NUT-CASTLE: 1-1/4-7NC 2ZP
3	55920	1	CAST DUAL HITCH
4	11638	2	BOLT, HITCH SPECIAL 1-1/4X6-1/2
5	334051	1	T-HITCH WELDMENT
6	88349	2	BOLT-HEX: 1-1/4-7NC X 6-1/2 5ZP
7	88622	4	NUT JAM 1-1/4-7NC 5Z
8	334677	2	WIDER HITCH PLATE - PAINTED
9	88293	24	BOLT-HEX: 3/4-10NC X 6 5ZP
10	88130	24	WAHSER-LOCK: HELICAL 3/4ID (13/16ACT) ZP
11	88110	24	NUT-HEX: 3/4-10NC 5ZP
12	68040	4	FLAT (RED) 11' & 13'
13	334643	1	HITCH TUBE WELDMENT RIGHT
14	88767	2	PIN ROLL 1/4DIA X 2-1/2Z
15	221714	1	HEADLESS PIN(2) 1X4.00
16	88501	2	BLT-U 5/8-11NC X 4 X 4-1/4 Z
17	88129	4	WASHER-LOCK: HELICAL 5/8ID (11/16ACT) ZP
18	88126	4	NUT-HEX: 5/8-11NC 5ZP
19	334045	1	T-HITCH WEIGHT BALANCE BRACE WELDMENT
20	88845	8	NUT TOP LK 5/8-11NC 5Z
21	334050	1	T-HITCH BRACE BACK PLATE
22	89547	8	BOLT-HEX: 5/8-11NC X 5-1/2 8YZP
23	334646	1	HITCH TUBE WELDMENT LEFT
24	88264	1	BOLT-HEX: 1-8NC X 6 5ZP
25	88196	4	WASHER-FLAT: 1 (1/1/16 X 2-1/2ACT) 2ZP
26	88348	1	NUT-LOCK: 2 POS 1-8NC 2ZP

QX² & XL² 13' TL HITCH A-FRAME FLOATING



QX² & XL² 13' TL HITCH A-FRAME FLOATING

PART #	QTY	DESCRIPTION
11638	2	BOLT, HITCH SPECIAL 1-1/4X6-1/2
42824	1	CAST DUAL HITCH
88350	2	NUT-CASTLE: 1-1/4-7NC 2ZP
88133	2	PIN-COTTER: 3/16 DIA X 2ZP
233670	1	13FT QUADX HITCH
88395	8	BOLT-HEX: 5/8-11NC X 5 5ZP
88369	8	NUT-LOCK: 2 POS 5/8-11NC 5YZP
88622	4	NUT JAM 1-1/4-7NC 5Z
88264	2	BOLT-HEX: 1-8NC X 6 5ZP
88196	4	WASHER-FLAT: 1(1-1/16X2-1/2ACT) 2ZP
247421	4	PLATE
88348	4	NUT-LOCK: 2 POS 1-8NC 2ZP
88349	2	BOLT-HEX: 1-1/4-7NC X 6-1/2 5ZP
223324	2	HYD CY2-1/2X8 (SAE)
NSS - supplied with Part #14	1	HEADLESS PIN
NSS - supplied with Part #14	4	PIN-COTTER
88293	24	BOLT-HEX: 3/4-10NC X 6 5ZP
247417	2	ANCHOR WELD RH
220795	1	QX ² & XL ² HITCH TUBE - RIGHT
68040	4	FLAT (RED) 11' & 13'
220792	1	13FT QX ² /XL ² HITCH TUBE
88130	24	WASHER-LOCK: HELICAL 3/4ID (13/16ACT) ZP
88110	24	NUT-HEX: 3/4-10NC 5ZP
220796	1	QX ² & XL ² HITCH TUBE - LEFT
88126	8	NUT-HEX: 5/8-11NC 5ZP
88129	8	WASHER-LOCK: HELICAL 5/8ID (11/16ACT) ZP
88294	8	BOLT-HEX: 5/8-11NC X 2 5ZP
	PART # 11638 42824 88350 88133 233670 88395 88369 88622 88264 88196 247421 88348 88349 223324 NSS - supplied with Part #14 NSS - supplied with Part #14 88293 247417 220795 68040 220792 88130 88110 220796 88126 88129 88294	PART # QTY 11638 2 42824 1 88350 2 88133 2 233670 1 88395 8 88369 8 88622 4 88264 2 28349 2 23324 2 23324 2 NSS - supplied with Part #14 1 NSS - supplied with Part #14 4 88293 24 247417 2 220795 1 68040 4 220792 1 88130 24 88110 24 220796 1 88126 8 88126 8 88126 8 88126 8 88126 8
Hydraulic Weight Balance Assembly

Hyd-Weight Balance Kit



INNER WING HINGE



Inner Wing Fold Assembly

STEP 23

Insert 48523 wing lift bushing (1) into the 221267 wing lift link as shown.



STEP 24

Use a 88447 1 x 3-1/2 grade 5 bolt and 89075 nylon locknut to secure the bushing end of the wing lift link (1) and 245306 link strap (2) to the frame as shown.



Inner Wing Fold Assembly (Cont'd)

STEP 25

Use a 88580 1 x 4-1/2 inch grade 5 bolt (1) and 89075 nylon locknut to secure the end of the lift link arm to the frame.



STEP 26

Use a 42473 1/2 x 2-3/8 inch pin (1) and two 42484 2-1/4 inch roll pins secure the base end of the 20966F 5 x 30 wing lift cylinder to frame.



STEP 27

Note: Install the bolt so the nut will be facing back on the slot as shown.

Use a 355975 bolt (1), two 86196 flat washers (2) and a 89075 locknut (3) to install the rod end of the cylinder to the wing lift links.

Use the hydraulic cylinder to align the ends of the links.

Tighten the bolt (1) until the bolt cannot be freely turned and loosen the nut one complete turn.

Follow Steps 61 through 65 for all wing hinge installations.



Inner Wing Fold Assembly (Cont'd)

STEP 28

The 221356 outer wing rest (1) is angled to the outside of the frame and the 221358 inner wing rest (2) is angled to the inside of the frame.

Use two $88503 5/8 \times 3 \times 5-1/4$ inch U-bolts, four 88129 lock washers, and four 88126 nuts to bolt the outer wing rest to the most outside frame crossmember.

Use two $88503 5/8 \times 3 \times 5-1/4$ inch U-bolts, four 88129 lock washers, and four 88126 nuts to bolt the inner wing rest to the inside rear frame crossmember.

NOTE: Do not tighten the nuts.





Be sure the measurement from center of the bolt (1) of link between main and wing frame to edge (2) of all rests is 30 3/4 inches (78.1 cm).

NOTE: The inner (3) and outer (4) wing rest mounts must align as shown.

Tighten all nuts when the rests are positioned correctly.

Follow Steps 56 and 57 for the other rear wing rests.



STEP 30

Use two $88503 5/8 \times 3 \times 5-1/4$ inch U-bolts, four 88129 lock washers, and four 88126 nuts to bolt the inner wing rest (1) to the inside rear frame crossmember.



Inner Wing Fold Assembly (Cont'd)

STEP 31

Use two $88503 5/8 \times 3 \times 5-1/4$ inch U-bolts, four 88129 lock washers, and four 88126 nuts to bolt the outer wing rest (1) to the most outside frame crossmember.



STEP 32

Be sure the measurement from the center of the bolt (1) of link between main and wing frame to edge (2) of all rests is 30 3/4 inches (78.1 cm).

NOTE: The inner (3) and outer (4) wing rest mounts must align as shown.

Tighten all nuts when the rests are positioned correctly.

Follow Steps 66 through 70 for the other front wing rests.



STEP 33

Place the hinge assembly on the **front** outside edge of the wing frame.

Using four $9/16 \times 4$ inch grade 5 bolts (1), lock washers and nuts to secure the hinge assembly to the frame.

NOTE: Do not tighten the bolts.



Inner Wing Fold Assembly (Cont'd)

STEP 34

Secure the inside the hinge assembly to the frame using two $88503 5/8 \times 3 \times 5 \cdot 1/4$ inch U-bolts (1), four 88129 lock washers and four 88126 nuts.



STEP 35

Use a 88393 1 x 2-1/2 inch grade 5 bolt (1) and 89075 nylon locknut (2) to install the 350611 right-hand anchor strap and 350605 left-hand anchor strap to the hinge assembly.



NOTE: Between the hinge assembly (4) and anchor strap (3) place the two 88196 1 inch flat washers (5) as shown.



Inner Wing Fold Assembly (Cont'd)

STEP 36

Use a 42473 1 x 3 inch pin (1) and two 42484 roll pins to install the base end of the 51229F1 4 x 30 wing hinge cylinder to the frame.



STEP 37

Fasten the other end of the anchor strap using a 88398 1 x 4 inch grade 5 bolt (1), seven 88196 1 inch flat washers and 89050 nylon locknut.

Two flat washers (2) and five flat washers (3) are positioned as shown.

Begin tightening all hardware in the following order:

- 1. Inner bolt of the anchor strap
- 2. Outside bolt of the anchor strap
- 3. Inner U-bolt of the hinge assembly
- 4. Bolts holding the frame to the rear axle
- 5. The U-bolts of the hinge assembly
- 6. Tighten the bolts from Step 71.

Follow Steps 71 through 75 to install the other front wing hinge.

STEP 38

To install the rear hinge assembly, remove the two 89165 bolts (1) that secure the axle shaft to the frame.





Inner Wing Fold Assembly (Cont'd)

STEP 39

Place the rear hinge assembly on the outer edge, using the two bolts (1), lock washers and nuts that were removed in Step 65. Install four 88292 5/8 x 3-1/2 grade 5 bolts (2), lock washers and nuts through the frame.

NOTE: Do not tighten the bolts.



STEP 40

Use two $88503 5/8 \times 3 \times 5-1/4$ inch U-bolts (1), four 88129 lock washers and four 88126 nuts to secure the inside end of the hinge assembly to the frame.

Use one $88393 1 \times 2-1/2$ inch grade 5 bolt (2), two 88196 flat washers between the strap and the hinge assembly and two 89075 nylon locknuts to fasten the anchor strap (3) to the hinge assembly.



STEP 41

Secure the other end of the anchor strap using a 88398 1 x 4 inch grade 5 bolt (1), 89075 nylon locknut and two 88196 flat washers.

NOTE: When fastening the hinge assembly and anchor strap place the two flat washers as shown in image (2).

Begin tightening all hardware in the following order:

- 1. Inner bolt of the anchor strap
- 2. Outside bolt of the anchor strap
- 3. Inner U-bolt of the hinge assembly
- 4. Bolts holding the frame to the rear axle
- 5. The U-bolts of the hinge assembly
- 6. Tighten the bolts from Step 77.

Follow Steps 76 through 79 or installation of the other rear wing hinge.



Outer Wing Assembly (Cont'd)

STEP 42

Stand the outer wing (1) next to the inner wing frame on a sheet of plywood.

Carefully place the outer wing onto the stands 24 1/2 inches (62.2 cm) off the ground aligned with the inner wing.

Remove the band securing the front section (2) and unfold.



STEP 43

Loosen the hinge bolt (1) on the pivot point for the front of the outer wing frame.

Carefully flip the front section and adjust the frame to align the bolt holes (2).



STEP 44

Use four 88290 3/4 x 2 inch grade 8 bolts (1), 88130 lock washers and 88110 nuts (2) to secure the frame flanges.

NOTE: Be sure to install the bolts from front to back.

Use Steps 81 and 82 for the other hinges on the outer wing frames.

Tighten the pivot bolts (3) that were loosened in Step 81 and all hinge flange bolts (1).



OUTER WING HINGE



Outer Wing Assembly (Cont'd)

STEP 45

Use four 88292 5/8 x 3-1/2 inch grade 5 bolts (1), 88129 lock washers and 88126 nuts to secure the hinge to the inner wing frame.

Use two 88503 5/8 x 3 x 5-1/4 inch U-bolts (2), four 88129 lock washers and four 88126 nuts to secure the end of the hinge to the inner wing frame.



STEP 46

Install the 221695 wing latch (1) on the inside of both the front and rear hinge using a 42484 $1/4 \times 1-1/2$ inch roll pin (2).





STEP 47

Insert a 88901 1 x 9-1/2 hinge grade 5 bolt (1), 88196 washer (2) and 89075 locknut (3) into the hinge of both wings.

Outer Wing Assembly (Cont'd)

STEP 48

Install the 221188 5 section wing links (1) on either side of hinge (2), use a 221692 4-1/4 inch pin (3) and a 89011 $3/8 \times 2$ inch grade 5 bolt and nut (4).



STEP 49

Use a $88264 \ 1 \ x \ 6$ inch grade 5 bolt (1), two 88196 flat washers and a 89075 nylon locknut to secure the 5 section wing arm to the wing link.



STEP 50

Use a 42473 2-3/8 inch pin (1) and 2 42484 2-1/4 inch long roll pin to install the base end of the 51229F 4 x 30 outer wing lift cylinder to the frame of the inner wing.



Outer Wing Assembly (Cont'd)

STEP 51

Use a 88264 1 x 6 inch grade 5 bolt (1), two 88196 flat washers and 89075 locknut to secure the yoke of the hydraulic cylinder to the 221190 section wing arms.

NOTE: The bolt must turn freely after the locknut is tightened.



STEP 52

Follow Steps 83 through 89 for all outer wing hinge assemblies.



STEP 53

Using proper lifting equipment and safety measures to raise the outside of the outer wing to an approximate 25 to 30° angle.

Insert the bottom loop (1) of the 25863 spring into the bracket on the frame.

Use a pry bar, as shown, to extend the spring towards the bracket (2) on the hinge latch.

NOTE: Before installing the spring be sure there is enough clearance between the hook and body of the spring to allow installation on the bracket (2).



Outer Wing Assembly (Cont'd)

STEP 54

Hook the spring on the edge of the bracket (1) and remove the pry bar.



STEP 55

Carefully tap the spring until it slides into the bracket hole (1).

Follow Steps 80 through 82 on all outer wing hinges.



Outer Wing Stub Assembly

Stub Locations



Outer Wing Stub Assembly (Cont'd)

STEP 56

Install four long shank mounting stubs (1) according to the diagram for stub locations.

Use four $88307 \ 1/2 \ x \ 3-1/2$ inch grade 5 bolts, four 88303 lock washers and four 88104 nuts to secure each stub to the outside of the outer frame using the flange bracket on the inside of the frame.

IMPORTANT: Be sure all bolts are positioned with the head on the tire side of the frame.

Repeat this step for the other side.



Hydraulic Assembly (Cont'd)

46 Fold Hydraulics



REF.	PART NO.	DESCRIPTION
1	247430	HSE, 3KPSI: 1/2 x 65 8FJX-8FJX
2	14644	HSE, 3KPSI: 3/8 x 36 8FJX-8FJX
3	25602	HSE, 3KPSI: 3/8 x 65 8FJX-8FJX
4	67636	HSE, 3KPSI: 3/8 x 72 8FJX-8FJX
5	56540	HSE, 3KPSI: 3/8 x 89 8FJX-8FJX
6	13268	HSE, 3KPSI: 3/8 x 78 8FJX-8FJX
7	13484	HSE, 3KPSI: 3/8 x 156 8FJX-8FJX
8	234940	HSE, 3KPSI: 1/2 x 216 8FJX-8FJX
9	24024	ADP 8MORB x 8MJ
10	247425	QUICK COUPLER 8 ORB
11	25580	ELB 8MORB x 8MJ

Hydraulic Assembly (Cont'd)

55 Fold Hydraulics



REF.	PART NO.	DESCRIPTION
1	350600	RSTR ADP 8MORB x 8FORB (.060) W/ INSERT
2	247430	HSE, 3KPSI: 1/2 x 65 8FJX-8FJX
3	247459	HSE, 3KPSI: 3/8 x 284 8FJX-8FJX
4	25602	HSE, 3KPSI: 3/8 x 65 8FJX-8FJX
5	67636	HSE, 3KPSI: 3/8 x 72 8FJX-8FJX
6	56540	HSE, 3KPSI: 3/8 x 89 8FJX-8FJX
7	25580	ELB 8MORB x 8MJ
8	13268	HSE, 3KPSI: 3/8 x 78 8FJX-8FJX
9	233689	HSE, 3KPSI: 3/8 x 180 8FJX-8FJX
10	234940	HSE, 3KPSI: 1/2 x 216 8FJX-8FJX
11	24024	ADP 8MORB x 8MJ
12	247425	QUICK COUPLER 8 ORB

Wing Fold System Information

Wil-Rich products use several 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's hydraulic system or disconnected, it is critical to relieve any pressure from the wing fold circuit. On an older tractor, shutting the tractor down, moving the control lever back and forth before disconnecting the hoses can relieve this pressure. Modern tractors can retain significant pressure in the hydraulic lines and contain this pressure once the lines have been disconnected. Before disconnecting the 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.

Hydraulic Assembly (Cont'd)

STEP 78

Insert two 25580 8MORB X 8MJ elbow fittings (1) into the depth control cylinders of the outer wings as shown.

Route the hydraulic lines from both cylinders to the back of the outer wing.



STEP 79

Route the hydraulic lines along the back of the wing to the main frame. Be sure the secure the lines with zip ties and route through the loop (1) on the inner wing hinge.



STEP 80

Insert two 25580 8MRB x 8MJ elbow fittings (1) into the 67688F2 4 x 10 inch depth control cylinders of the inner wing as shown.

Route one hydraulic line from each depth control cylinder to the back of the inner wing frames.



Hydraulic Assembly (Cont'd)

STEP 80

Install the 13215 clamp (1) for the hydraulic lines from the 67688F2 depth control cylinder on the inner wing to the frame using a 89375 $3/8 \times 1-1/2$ inch carriage grade 5 bolt, 88362 lock washer and 88103 nut.





STEP 81

Install a 25580 8MORB x 8MJ elbow fitting (1) into the rod end of the 20966F 5 x 30 inch wing lift cylinder for folding the inner wing as shown.

STEP 82

Route the hydraulic lines (1) from the wing lift cylinder and depth control cylinders along the frame towards the center of the main frame where they will connect to the tee fittings (2).



Hydraulic Assembly (Cont'd)

STEP 83

Install the tee fittings (1) on both hydraulic lines from the lift cylinders.

Continue running the depth control lines (2) along the frame towards the main frame.

Attach the two wing lift hydraulic lines to 13238 to tees and route along the depth control lines (2) on the frame.



STEP 84

Secure the depth control lines and then the lift lines using a 89373 $3/8 \times 2-1/2$ inch carriage grade 5 bolt (1), 13215 clamp (2), 88362 lock washer (3) and 88103 nut (4).



Hydraulic Assembly (Cont'd)

STEP 85

On the inner wing frame secure the depth lines and then the lift lines using a 89473 $3/8 \times 2-1/2$ inch carriage grade 5 bolt, 13215 clamp, 88362 lock washer, 88103 nut, 15543 base plate, a second 13215 clamp, 88362 lock washer and 88103 nut (1).

After crossing from the inner wing frame to the main frame secure the depth lines and then the lift lines using a $89473 \ 3/8 \ x \ 2-1/2$ inch carriage bolt, $13215 \ clamp$, $88362 \ lock \ washer$, $88103 \ nut$, $15543 \ base \ plate$, $13215 \ clamp$, $88362 \ lock \ washer \ and \ 88103 \ nut$ (2) as done in Step 122.

IMPORTANT: Be sure to leave approximately 30 inches (91.4 cm) of hose (3) between clamps on the inner wing (1) and the main frame (2).

STEP 86

Install one line (1) on the depth control cylinder of the main frame and route the remaining three lines along the main frame (2).





Hydraulic Assembly (Cont'd)

STEP 87

Insert a 25580 8MORB x 8MJ elbow fitting (1) into the rod end port of the wing folding cylinder as shown.



STEP 88

Route the hydraulic lines of the wing lift cylinder looping slightly to the 13238 8MJ tee (1) that connects the two wing fold hydraulics at the center point of the main frame.



STEP 89

Connect both wing lift hydraulics to the 13238 tee (1) in the center of the main frame. Connect the hoses to the tee along with the wire harnesses (2) from both sets of markers. Run the hoses and harnesses towards the front of the frame as shown.



Hydraulic Assembly (Cont'd)

STEP 90

Use clamps and cable ties (1) to secure the hoses and wiring harnesses as needed.



STEP 91

Connect the hoses running from the rear of the main frame and each other wing with 4-way tee fittings (1).

On the right and left sides of the 4-way fittings clamp the lines to the main frame using a $89473 \ 3/8 \ x \ 2-1/2$ inch bolt, 13215 clamp, 88362 lock washer, 88103 nut, 15543 base plate, 13215 clamp, 88362 lock washer and 88103 nut (2).



STEP 92

Install a 25580 8MORB x 8 MJ elbow fitting (1) in the single point cylinder in the direction shown.

Hydraulic Assembly (Cont'd)

STEP 93

Connect and route the hydraulic hose (1) from the single point cylinder to the other single point cylinder (2).



STEP 94

Install a 3-way tee (1) into the single point hydraulic cylinder positioned as shown.

Connect the hose (2) from Step 150 to one port of the 3-way tee (1).





STEP 95

Insert an 25580 8MORB x 8MJ elbow fitting (1) in the rod end port of the outer wing cylinder as shown.

Hydraulic Assembly (Cont'd)

STEP 96

Route the hydraulic lines towards the rear of the frame. Secure the hydraulic lines with a 89375 $3/8 \times 1-1/2$ inch carriage grade 5 bolt, 13215 clamp, 88362 lock washer, and 88103 nut (1).



STEP 97

Follow the diagram (on Page 48) for connecting the hose to the single point valve (1).



Hydraulic Assembly (Cont'd)

STEP 98

Route all the hydraulic lines along the hitch frame towards the hitch.

Use a 89473 3/8 x 2-1/2 inch carriage grade 5 bolt, 13215 clamp, 88362 lock washer, 88103 nut, 15543 plate, 13215 clamp, 88362 lock washer and 88103 nut (1) to secure the hoses to the frame.

NOTE: Secure any loose hoses with cable ties as needed.



STEP 99

Run the hydraulic lines through the opening (1) in the hose holder as shown.



STEP 100

Connect the wiring harnesses (1) as shown.

NOTE: Use cable ties to secure the harness to the hydraulic hoses running to the hitch.



Hydraulic Assembly (Cont'd)

STEP 101

Be sure to keep electrical wire harness straight as it is routed to the hitch, securing it with cable ties to the hydraulic lines.



STEP 102

Use two large cable ties to secure the relief valve (1) to the frame bracket.



Single Point Depth Control



CHECK VALVE



Single Point Depth Control (Cont'd)

STEP 61

Insert the 222180 plunger (1) into the slide adjust securing it with two 89078 roll pins (2).



STEP 62

Install the 241488 single point inner tube (1) through the bushings installed in Step 92.

Install the 222111 slide adjust (2) on the adjustment arm (1).

Install the adjustment bracket stop (3) on the adjustment arm with a $1/4 \times 2 \cdot 1/2$ inch roll pin (4).



STEP 63

Screw the 222182 adjust crank (1) into the slide bracket (2) using three 88561 nuts (3) as shown.

NOTE: Bottom the nut (3) out on the threads. The two inner nuts (4) are positioned forward as shown. The handle must rotate freely when the inner nuts (4) are tightened against each other.





5-SEC ASSEMBLY MANUAL 74312B 8/11

55, 55-60 DEPTH CONTROL HYDRAULICS



5-SEC ASSEMBLY MANUAL 74312B 8/11

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.

- 1) 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.
- Most fittings, except the connection tips at the tractor end and some valves, are JIC or Oring type fitting. JIC and O-ring 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.
DEPTH INDICATOR



Depth Gauge Assembly

STEP 65

Use two $88514 3/8 \times 4 \times 3 - 3/4$ inch U-bolts (1), four 88362 lock washers (2) and two 88103 nuts (3) to secure the 69303 depth gauge (4) to the frame.



STEP 66

Install the 69309 depth indicator arm through the depth gauge slot (1).

Use a 69314 4-1/2 inch exhaust clamp (2), two flange nuts (3), a 88566 $3/8 \times 3/4$ grade 5 bolt (4), a 88162 nylon locknut and bracket (5) to install the depth indicator arm to the axle as shown.



Safety Light Assembly

STEP 71

Use a $89347 1/2 \times 3-1/4$ inch U-bolt (1), two 88362 lock washers (2) and 88103 two nuts (3) to install the 223130 short base pivot to the frame (4).

Insert 223140 12 x 12 inch light arm into the short base pivot (5). Install a 88702 square head set screw and 88103 3/8 nut to secure the light arm.

- NOTE: Any attachments to the rear tool bars must be installed before the safety lights can be installed.
- NOTE: Each 223130 short base pivot must be a minimum of 15 inches (38.1 cm) from the center of the frame to a maximum of 50 inches (127 cm).



STEP 72

Secure the 223126 light / reflector bracket to the offset light arm with a 88702 $3/8 \times 3/4$ inch square head set screw (1) and 88103 nut.

Use two 88203 1/4 x 1 grade 5 inch bolts (2) and two 88172 nuts to secure the red light to 223126 light / reflector bracket.

NOTE: Be sure to route wiring inside the offset light arm.

Repeat Steps 127 and 128 for the opposite side light.



STEP 73

Use two zip ties to secure the 41359 reflector bracket (1) to the wing rest.

Secure the 30651 SMV reflector to the bracket with two $88993 1/4 \times 3/4$ grade 5 bolts (2), two 88261 flat washers, two 88262 lock washers and two 88172 nuts.



Safety Light Assembly (Cont'd)

NOTE: Be sure to secure both lights offset arms inside the frame crossmember a minimum of 15 and a maximum of 50 inches (76 to 254 cm) from the center of the rear frame with the reflector (2) centered between the two arms (1).



STEP 74

Use two 88386 $3/8 \times 2-1/2 \times 3-1/4$ inch U-bolts (1) and four 88162 locknuts to secure the 240237 pivot plate to the upper crossmember of the rear wing rest.

Use a $88702 \ 3/8 \ x \ 3/4$ square head set screw (2) to secure the 223121 48 inch offset light arm to the pivot plate in the bottom hole.



STEP 75

Secure the light / reflector bracket to the offset light arm with a 88702 3/8 x 3/4 square head set screw (1) and 88103 nut.

Use two 88203 1/4 x 1 inch grade 5 bolts (2) and two 88172 nuts to secure the 223143 amber light to the 223126 light / reflector bracket.

NOTE: Be sure to route wiring inside the offset light arm.

Repeat Steps 130 and 131 for the other side light.



5 SECTION CULTIVATOR

Safety Light Assembly (Cont'd)

STEP 76

Route the wiring (1) for the 223143 amber lights along the rear wing rest as shown and secure to the wing rest with tie wraps (2) as needed to maintain a clean straight line.





STEP 77

Route the wires from the 223143 amber safety lights to the center (1) of the main frame where the hydraulic lines and 223144 red safety light wiring intersect.





TWIN SPRING SHANK ASSEMBLY

Attach shank (1) to each assembled twin spring assemblies (2) using $5/8-11NC \times 1-3/4$ grade 5 bolt (3) and lock washer 5/8" (4).

SINGLE SPRING SHANK ASSEMBLY

Attach shank (1) to each assembled single spring assemblies (2) using $5/8 \times 1-1/2$ grade 5 bolt (3) and lock washer 5/8" (4).



13' MAIN FRAME



79115-13.PLT

11'8" WING



79115W11.PLT

9'4" INNER WING



79115-9.PLT

9'4" OUTER WING



940WSHANK

7' OUTER WING

*



70WSHANK