

ASSEMBLY MANUAL

EXCEL FIELD CULTIVATOR

WARRANTY

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

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

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

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

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

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

WARRANTY CLAIMS PROCEDURE


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

TO THE OWNER

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

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

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

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

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

MODIFICATIONS

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

CONTENTS

TO THE OWNER	3
GENERAL INFORMATION	4
PERSONAL SAFETY	5

ASSEMBLY

11', 13' & 16' MAIN FRAME	6
7' & 9' 4" WING	7
11'8" WING	8
3' OUTER WING	9
5' FLOATING OUTER WING W/GA. WHEEL	10
WING LIFT COMPONENTS	11
PARALLEL LINK GAUGE WHEEL	12
11', 13' & 16' HITCH ASSEMBLY	13
WING REST	14
TIRES & WALKING TANDEM	15
WING FOLD HYDRAULICS	
11' MF w/7' WING	16
11', 13' & 16' MF w/9'4" & 11'8" WINGS	17
11', 13' & 16' MF w/9'4" & 11'8" WINGS	18
LIFT HYDRAULICS	
11', 13' & 16' MF w/7' WINGS	19
11', 13' & 16' MF w/9'4" & 11'8" WINGS	20
SHANK PLACEMENTS	
11' MAIN FRAME	21
13' MAIN FRAME	22
16' MAIN FRAME	23
7' WING	24
9' WING	25
11'8" WING	26
2' OUTER RIGID STUB	27
3' OUTER WING	27
5' OUTER WING	28
6' OUTER WING	29
5 SECTION ASSEMBLY	
CENTERFRAME	30
HYD TUBE MOUNTING	31
11'8" INSIDE WING	32
OUTER WING HINGE	33
7' OR 9'4" RIGHT OUTER WING	34
WING FOLD HYDRAULICS	35
FRAME LIFT HYDRAULICS	36
MAIN FRAME SHANK PLACEMENT	37
11'8" INNER WING SHANK PLACEMENT	38
7' OUTER WING SHANK PLACEMENT	39
9'4" OUTER WING SHANK PLACEMENT	40
SINGLE POINT DEPTH CONTROL	41-45

GENERAL INFORMATION

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

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

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

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

Loosely install all bolts connecting mating parts before final tightening.

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

On new machines, all nuts and bolts must be re-checked 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

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	1-5/8	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



CAUTION

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

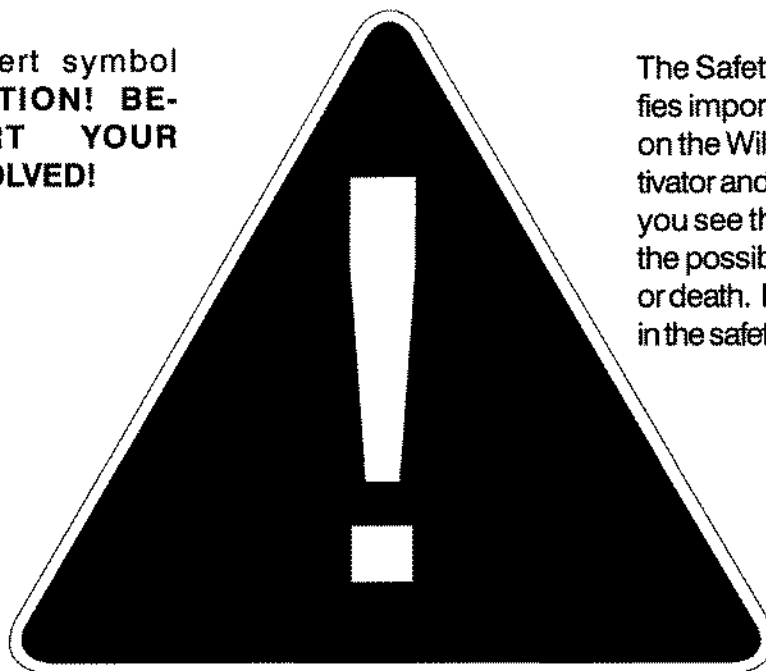
- Just before and during operation be sure no one is on or around the implement.
- Before activating the hydraulic system, check hoses for proper connections.
- Before lowering the wings for the first time, make sure the entire system has been charged with oil.
- With wings down always install hydraulic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

49165.EPS

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 the Wil-Rich Excel Field Cultivator 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 guide-lines:

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.

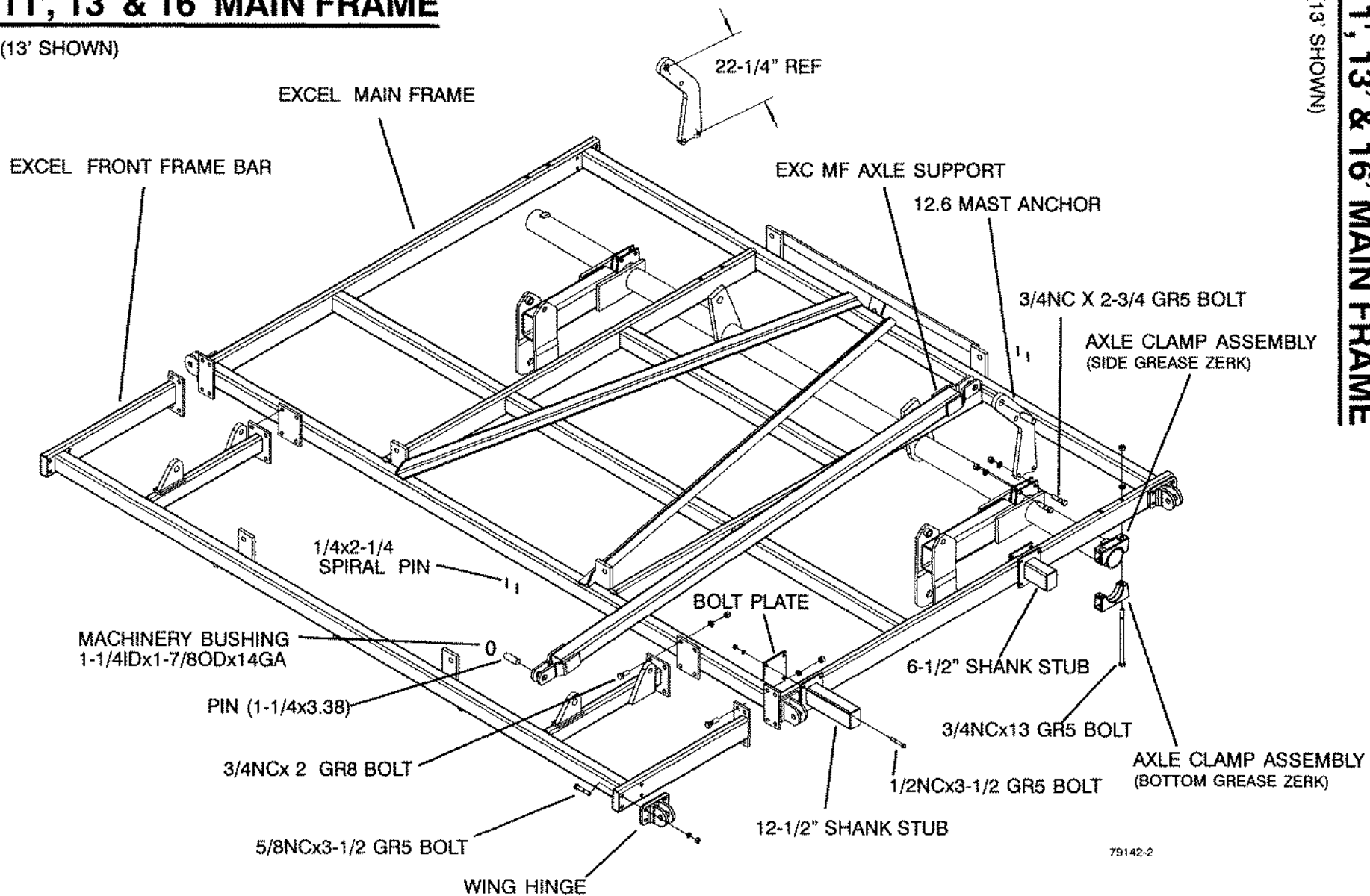
ADDRESS INQUIRIES TO: WIL-RICH PO BOX 1030
WAHPETON, ND 58074
PH (701) 642-2621 FAX (701) 642-3372

11', 13' & 16' MAIN FRAME

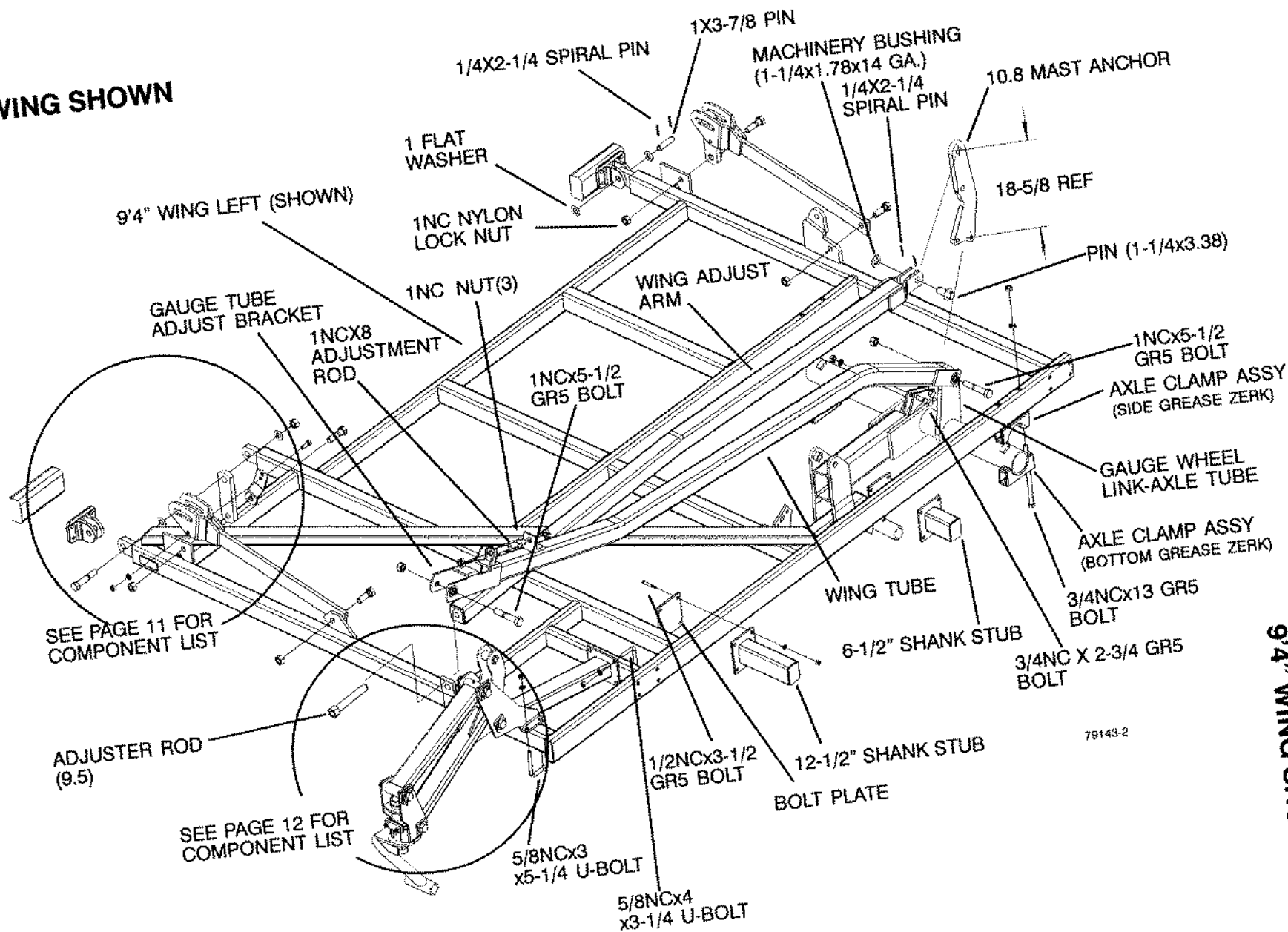
(13' SHOWN)

(13' SHOWN)

11', 13' & 16' MAIN FRAME



9'4" WING SHOWN



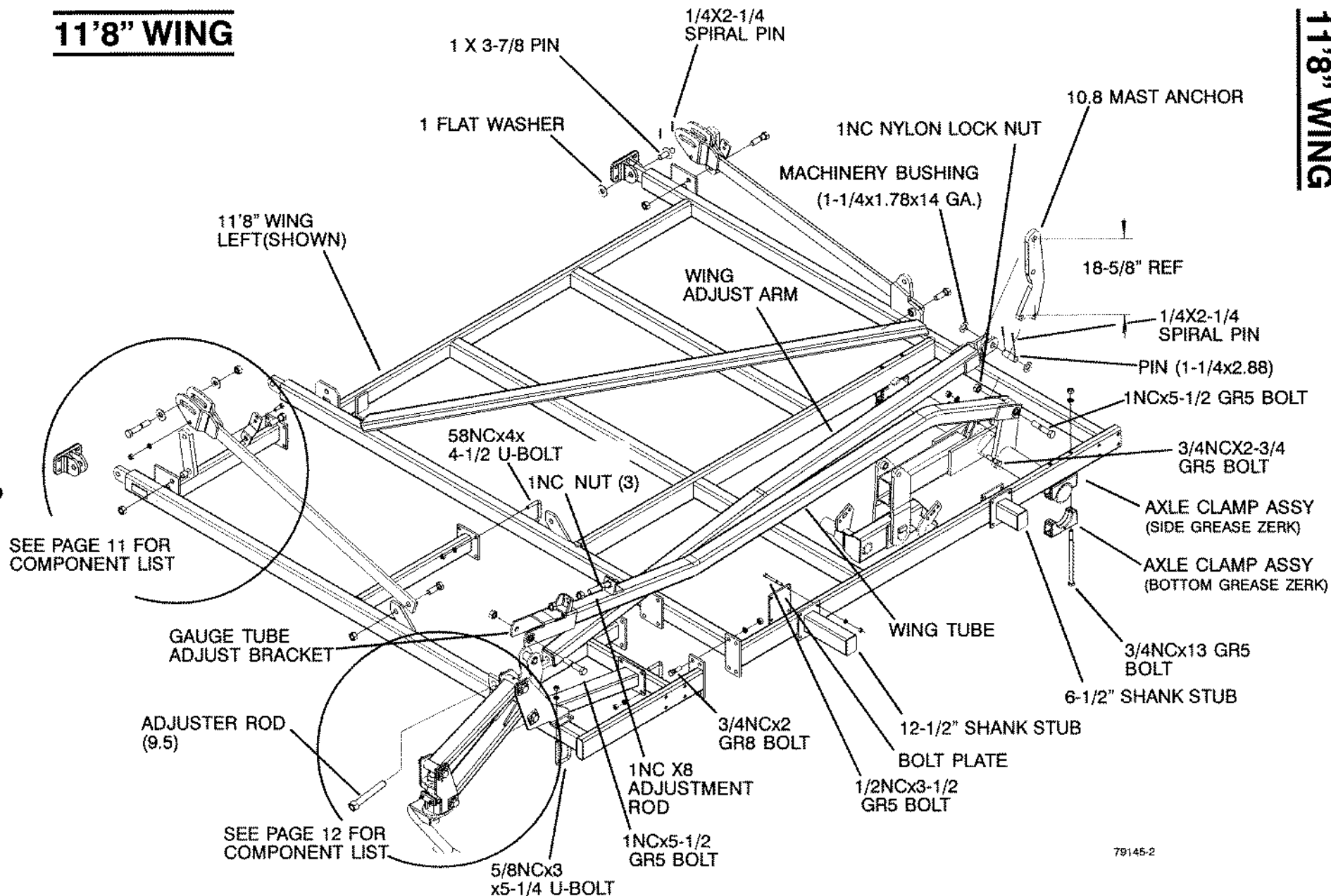
79143-2

7' & 9'4" WING
9'4" WING SHOWN

11'8" WING

11'8" WING

8

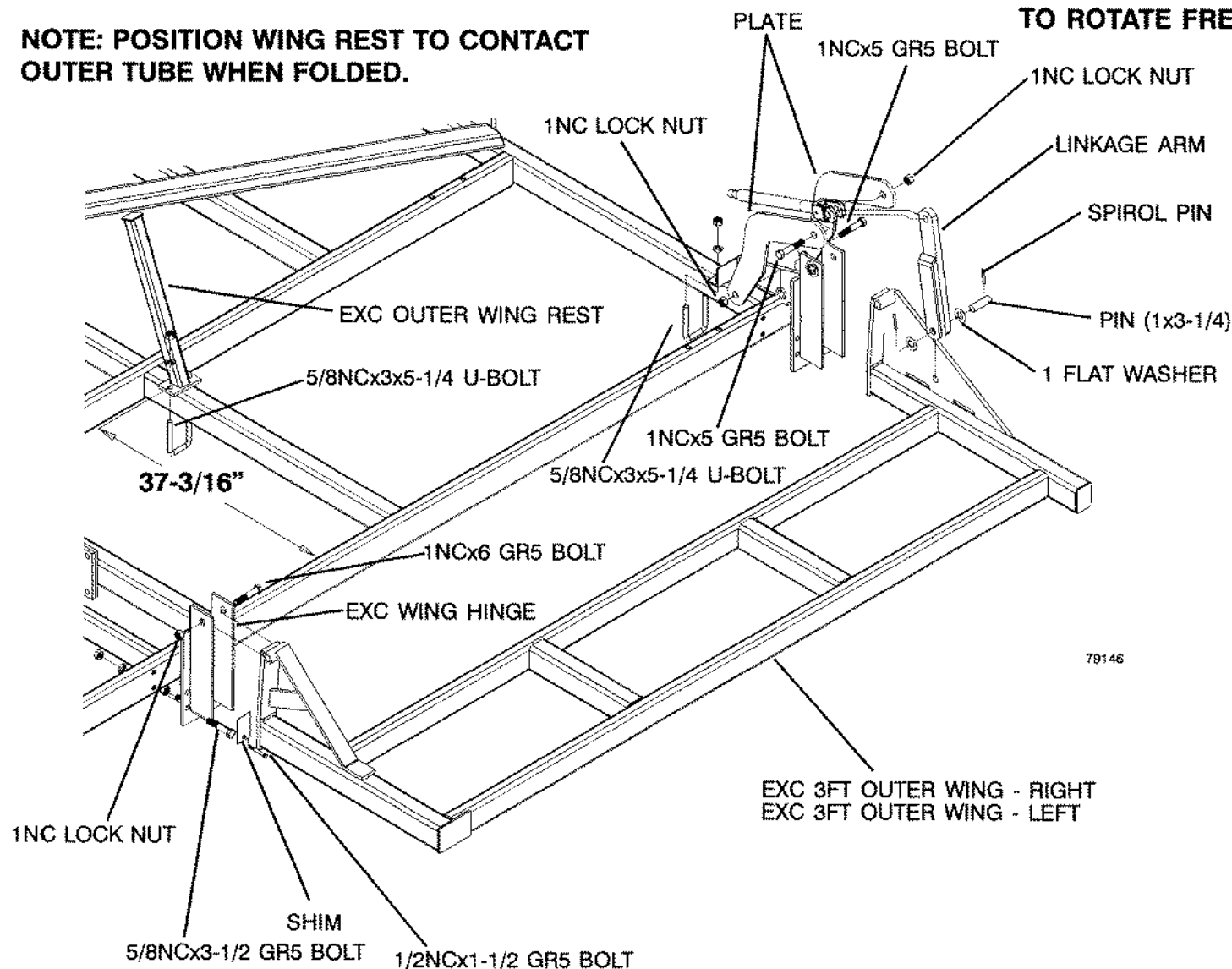


79145-2

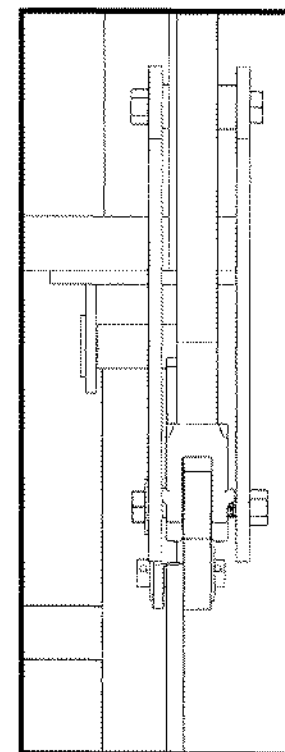
3' OUTER WING

NOTE: POSITION WING REST TO CONTACT OUTER TUBE WHEN FOLDED.

NOTE: DO NOT OVERTIGHTEN WING FOLD LINKAGE BOLTS. LINKS NEED TO ROTATE FREELY.



**HINGE AREA
TOP VIEW**

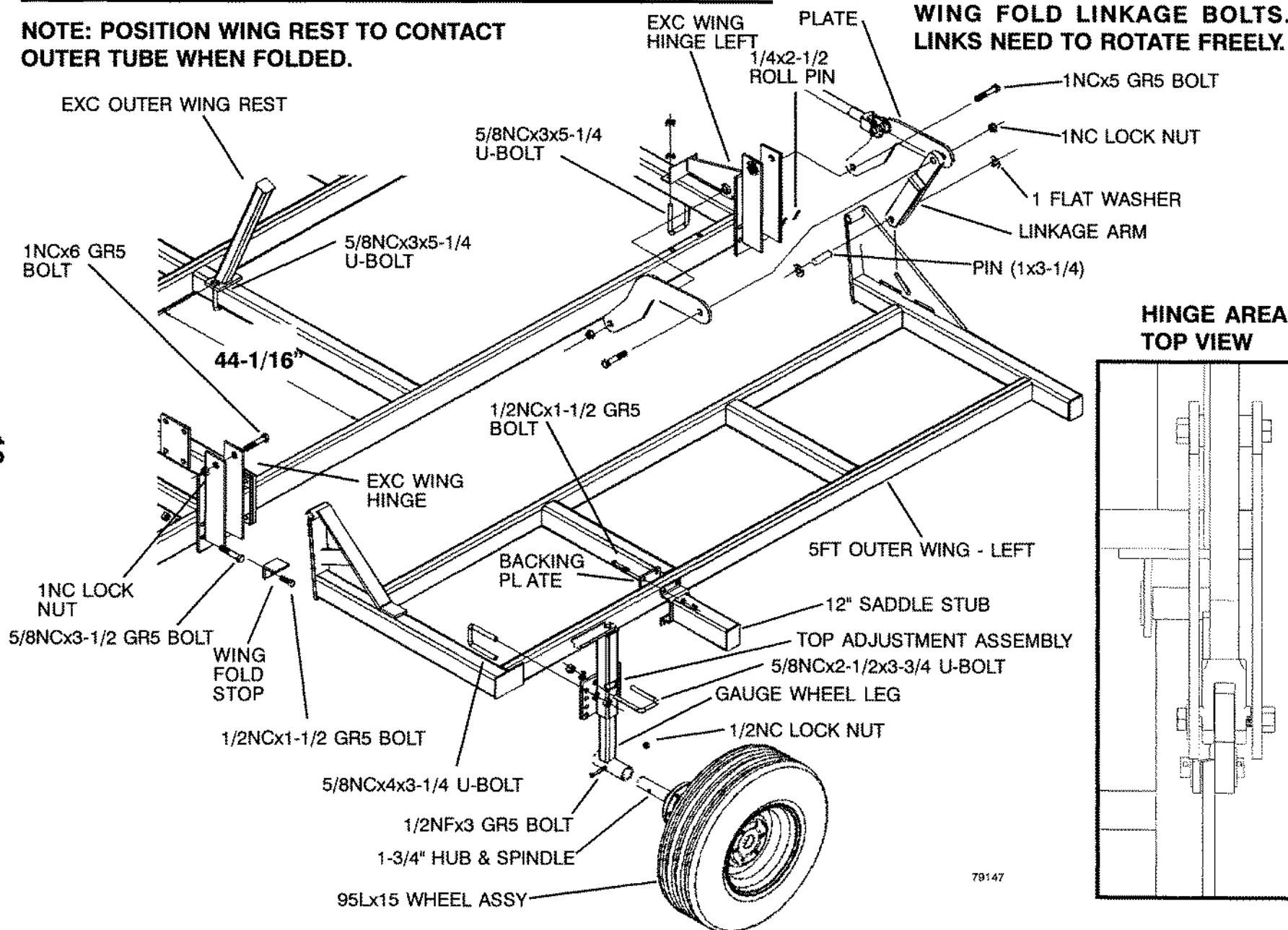


3' OUTER WING

5' FLOATING OUTER WING W/GAUGE WHEEL

NOTE: POSITION WING REST TO CONTACT OUTER TUBE WHEN FOLDED.

NOTE: DO NOT OVERTIGHTEN WING FOLD LINKAGE BOLTS. LINKS NEED TO ROTATE FREELY.

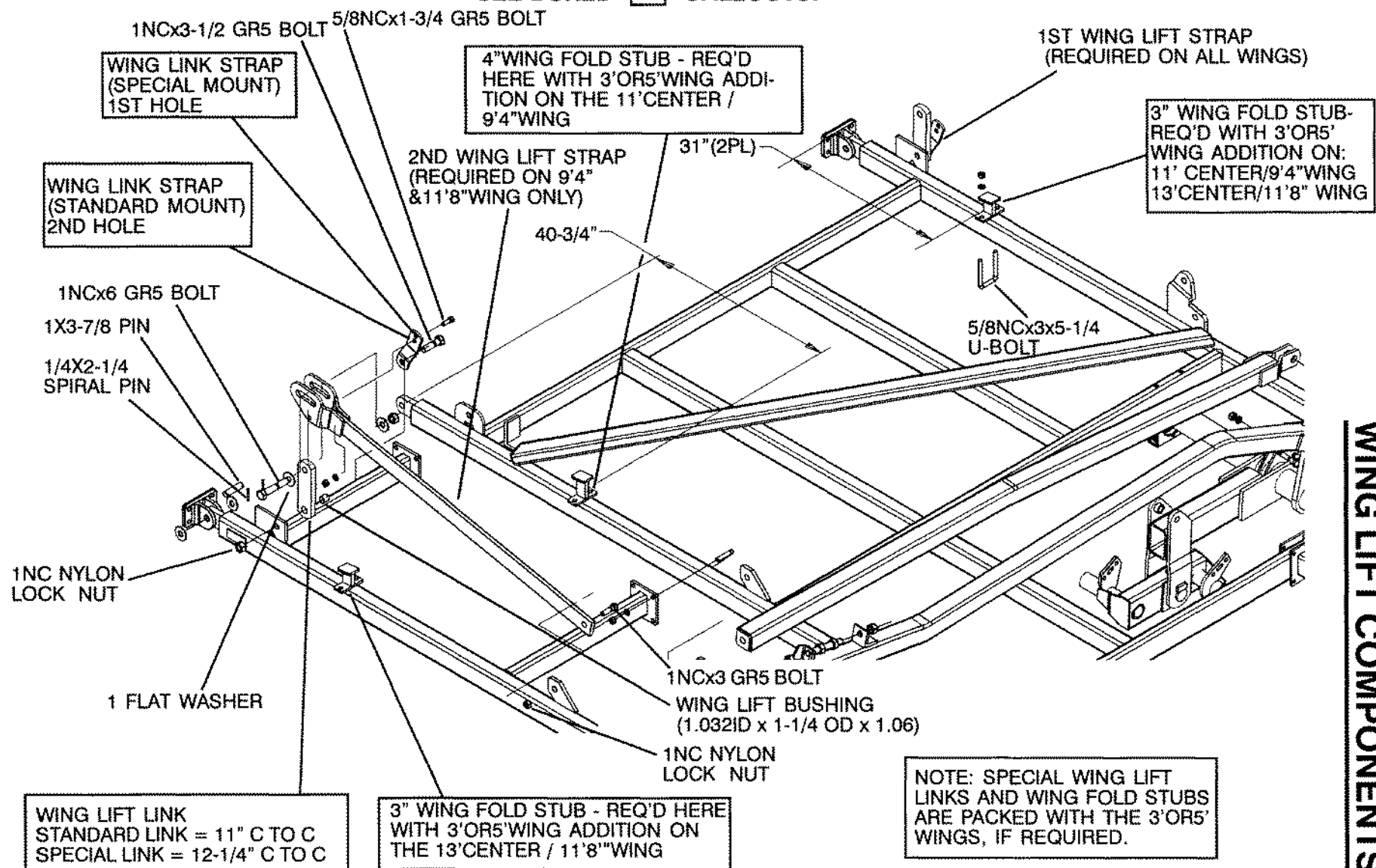


79147

5' FLOATING OUTER WING W/GAUGE WHEEL

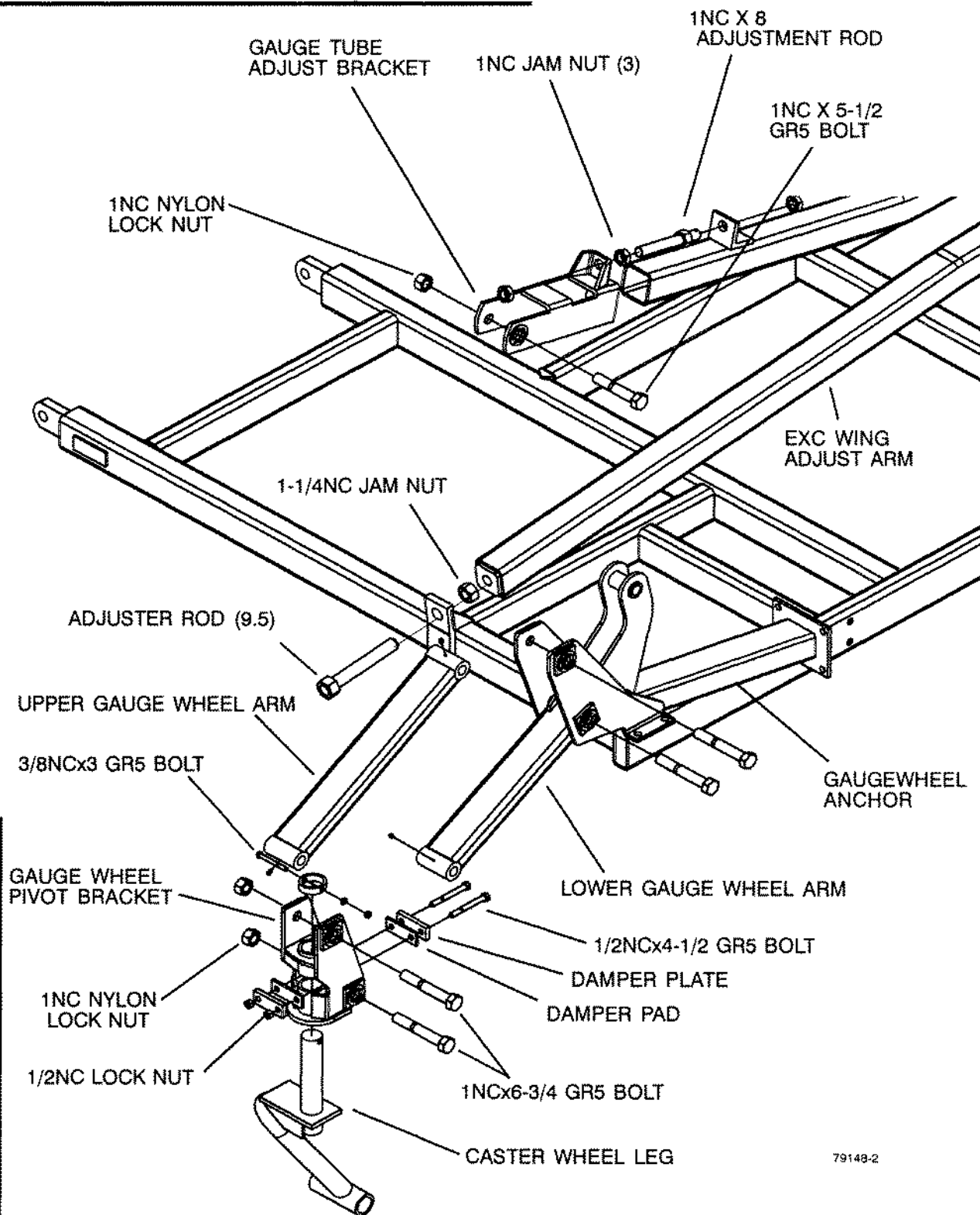
WING LIFT COMPONENTS

NOTE: SPECIAL WING LIFT STRAP MOUNTING, WING FOLD STUBS AND WING WING LIFT LINK LENGTH ARE NECESSARY WHEN 3' OR 5' WINGS ARE ADDED TO 11' CENTER/9'4" WING OR 13' CENTER/11'8" WING MODELS.
SEE BOXED ☐ CALLOUTS.



WING LIFT COMPONENTS

PARALLEL LINK GAUGE WHEEL

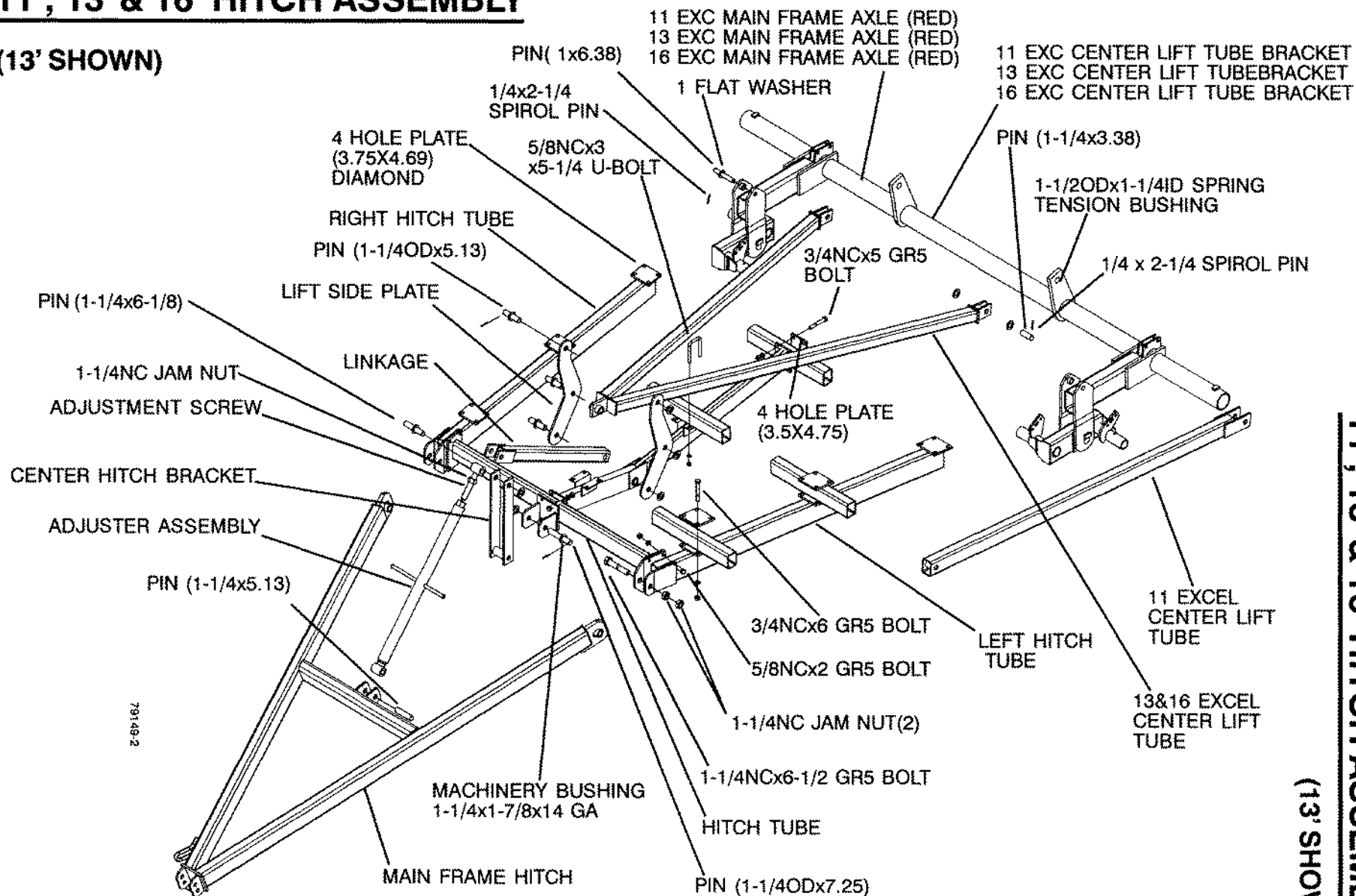


79148-2

PARALLEL LINK GAUGE WHEEL

11', 13' & 16' HITCH ASSEMBLY

(13' SHOWN)



11', 13' & 16' HITCH ASSEMBLY

(13' SHOWN)

WING REST

11FT FRONT WING REST
(REQUIRED WITH
9'4" WINGS ONLY)

11FT REAR WING REST

**NOTE: CENTER WING
REST ON MAIN FRAME**

5/8NCx4x4-1/4 U-BOLT

11' EXCEL
CENTER FRAME

13.38 (2PL)

79150

5/8NCx3
x5-1/4 U-BOLT

**NOTE: CENTER WING
REST ON MAIN FRAME**

13FT FRONT WING REST

13FT REAR WING REST

5/8NCx4x
4-1/4 U-BOLT

13' EXCEL
CENTER FRAME

79150_3

3/4NCx2-1/2 GR5 BOLT

16FT FRONT
WING REST

16FT REAR WING REST

**NOTE: CENTER WING
REST ON MAIN FRAME**

5/8NCx4x
4-1/4 U-BOLT

16' EXCEL
CENTER FRAME

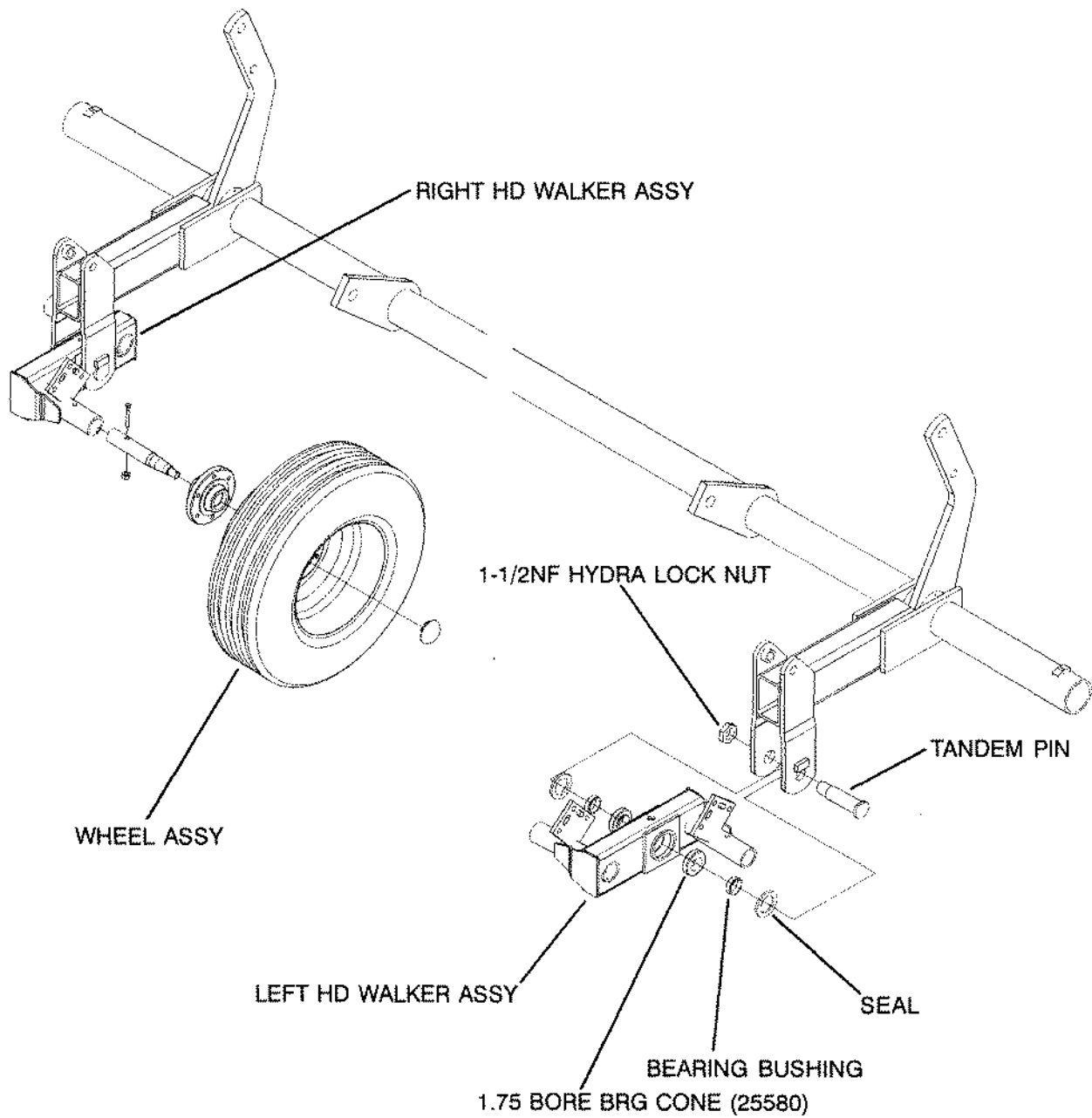
5/8NCx3
x5-1/4 U-BOLT

5/8NCx3-1/2
GR5 BOLT

79150_2

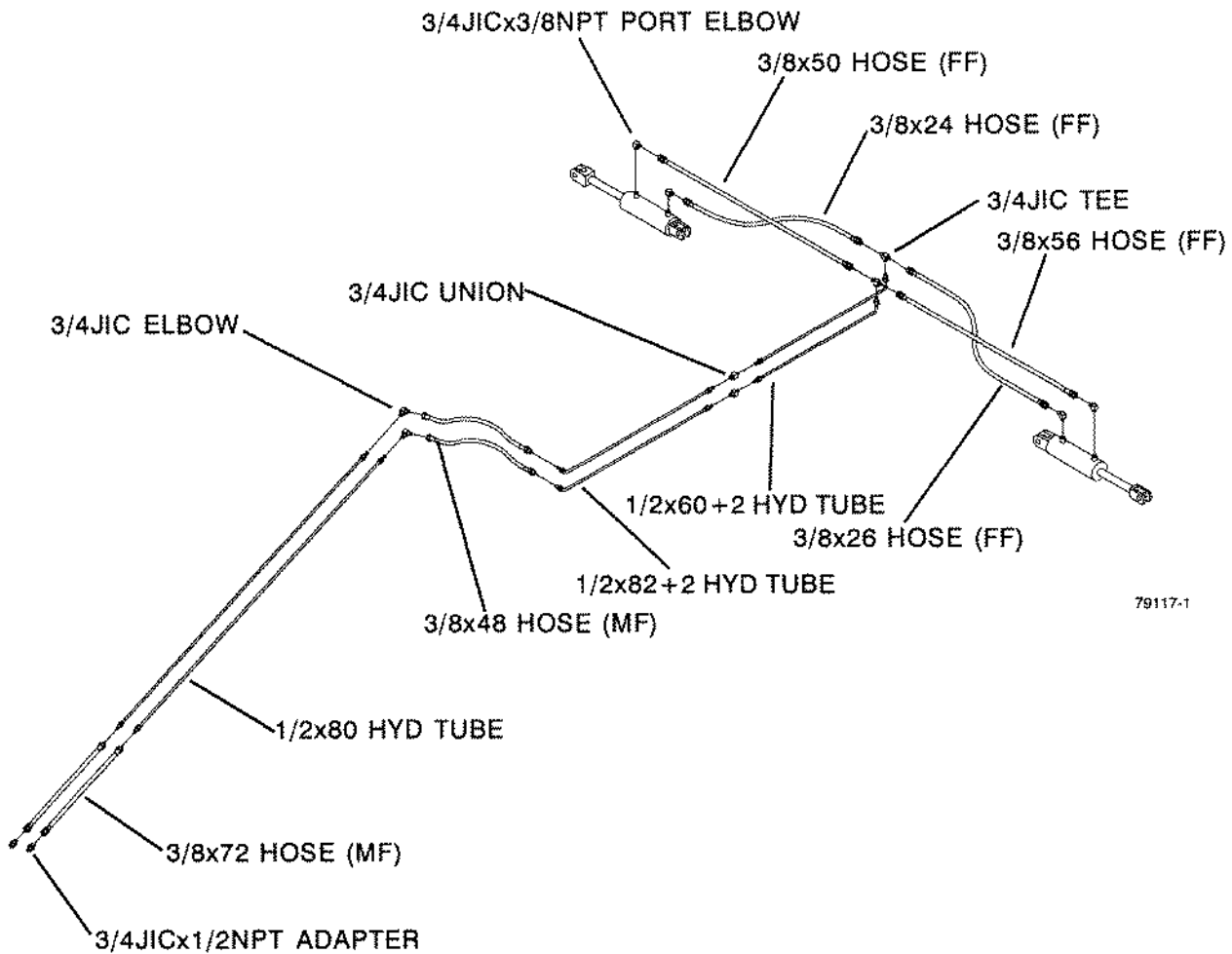
**NOTE: THE 16' FRONT WING
REST INCLUDES THE WING
HINGE. THE BOLT-ON HINGE IS
NOT REQUIRED.**

TIRES & WALKING TANDEM



11'MF w/7' WING

WING FOLD HYDRAULICS



79117-1

! WARNING

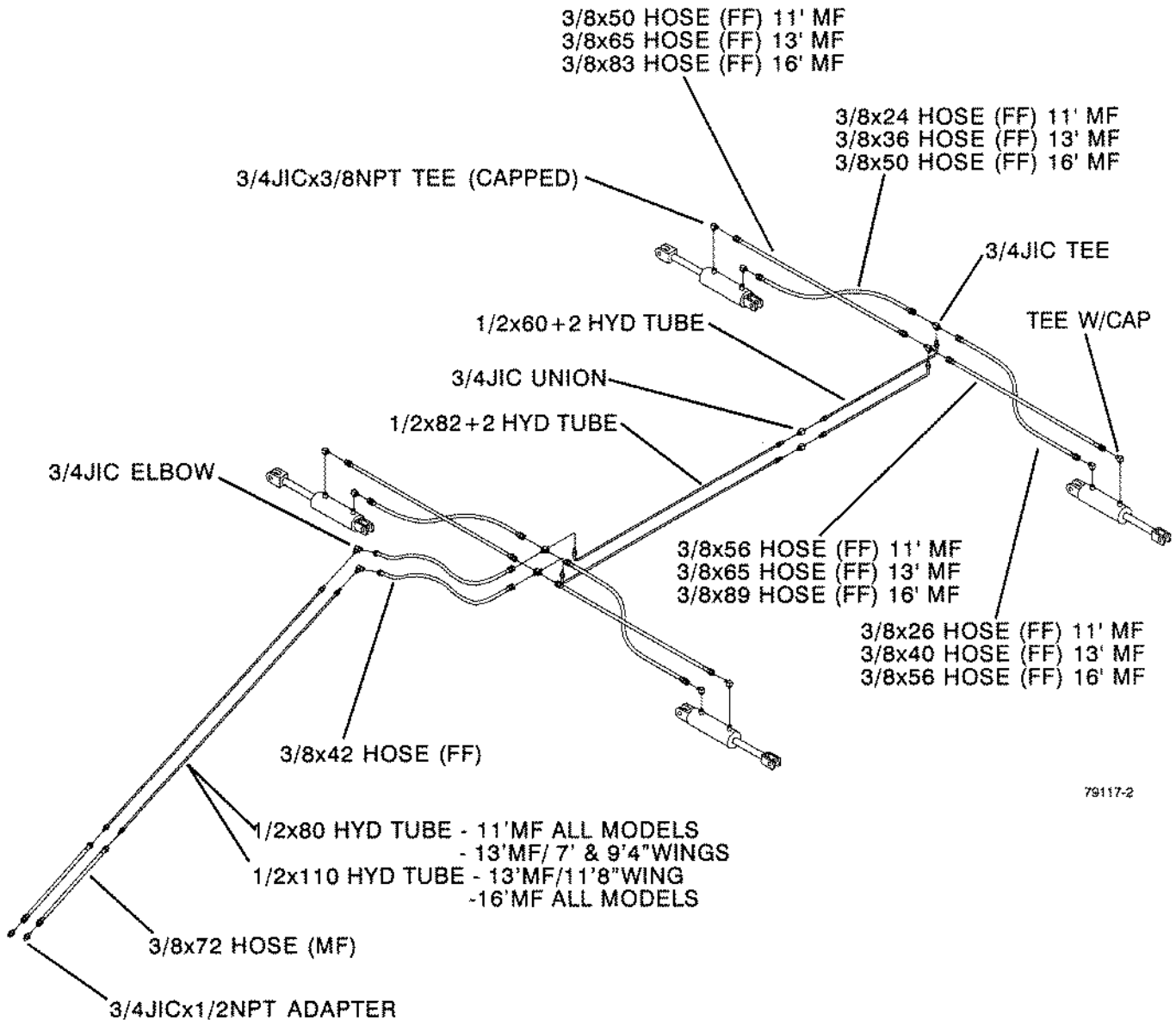
HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death:

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

11', 13' & 16' MF w/9'4" & 11'8" WINGS

WING FOLD HYDRAULICS



79117-2

CAUTION

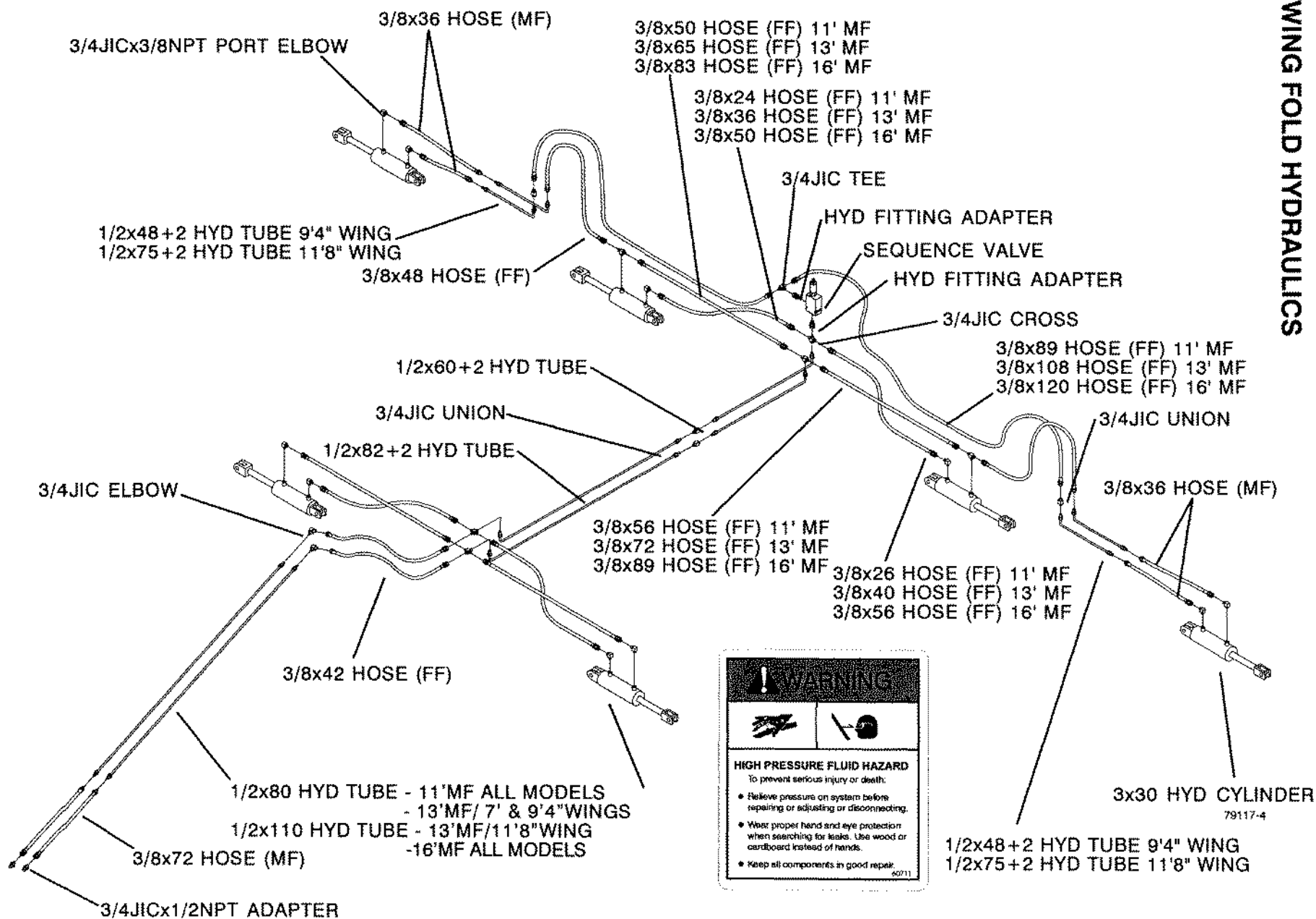
FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY AND/OR EQUIPMENT DAMAGE.

- 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.

11', 13' & 16' MF w/9'4" & 11'8" WINGS

WING FOLD HYDRAULICS



CAUTION

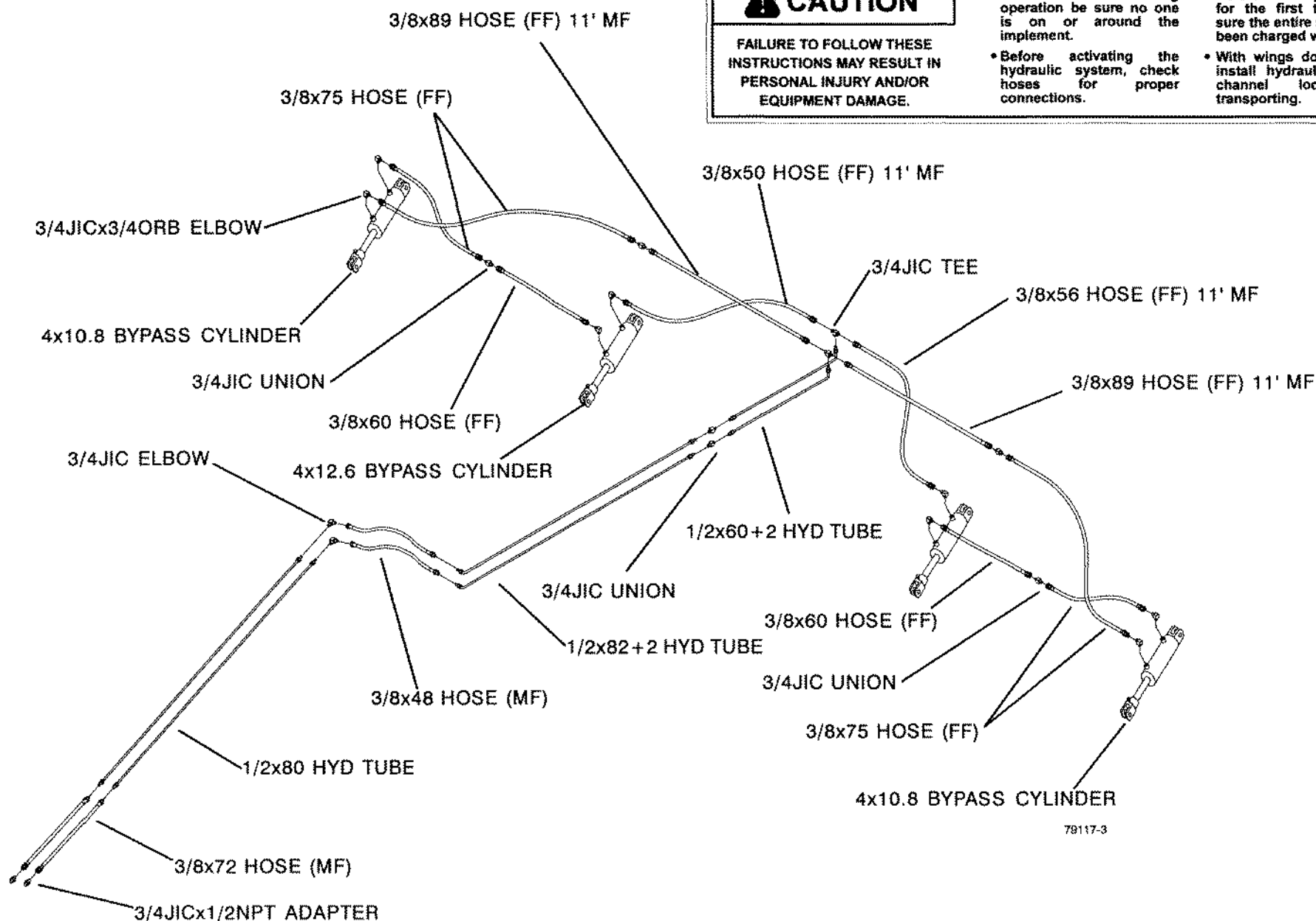
FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY AND/OR EQUIPMENT DAMAGE.

• Just before and during operation be sure no one is on or around the implement.

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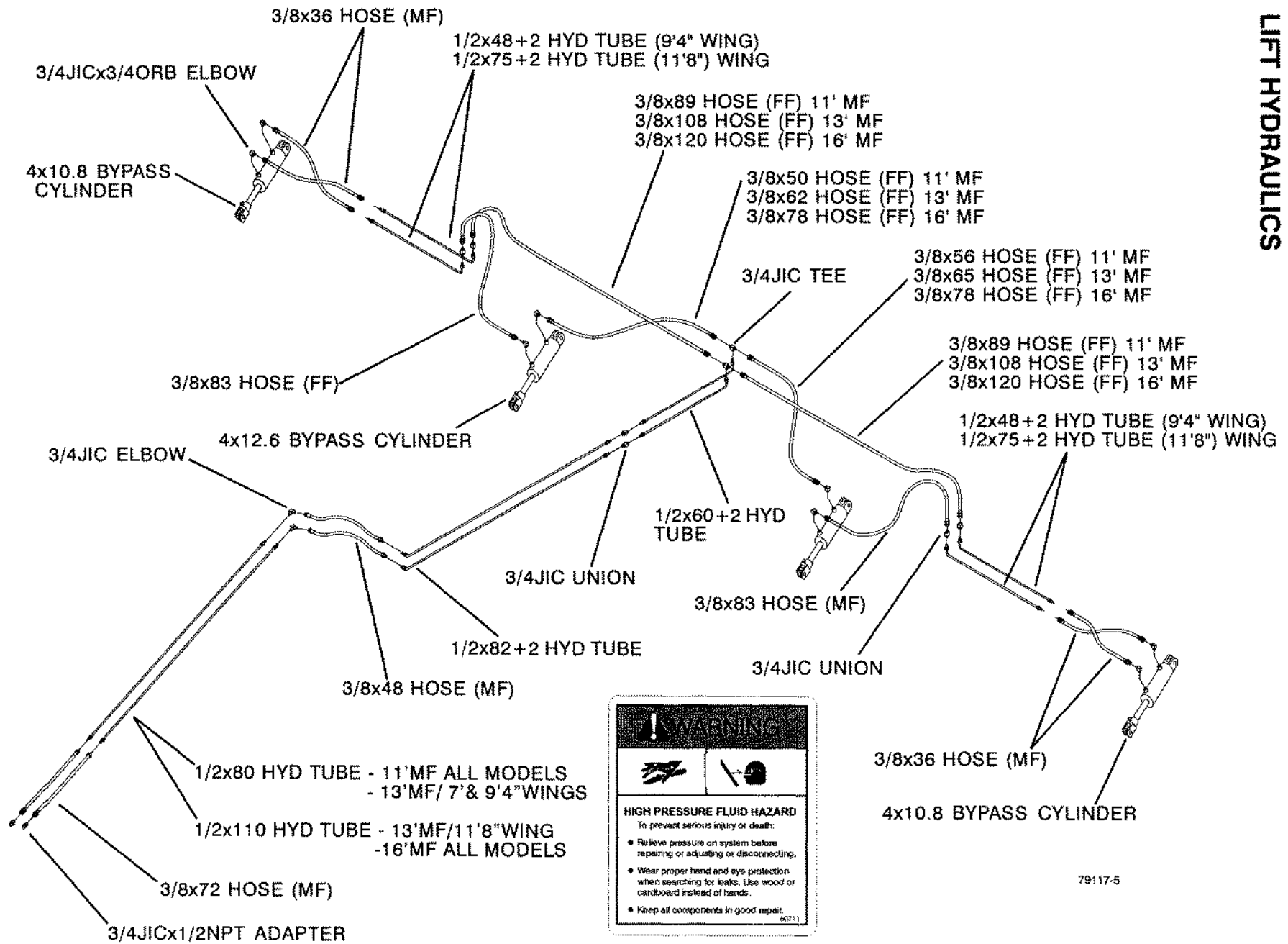
• With wings down always install hydraulic cylinder channel lock(s) for transporting.



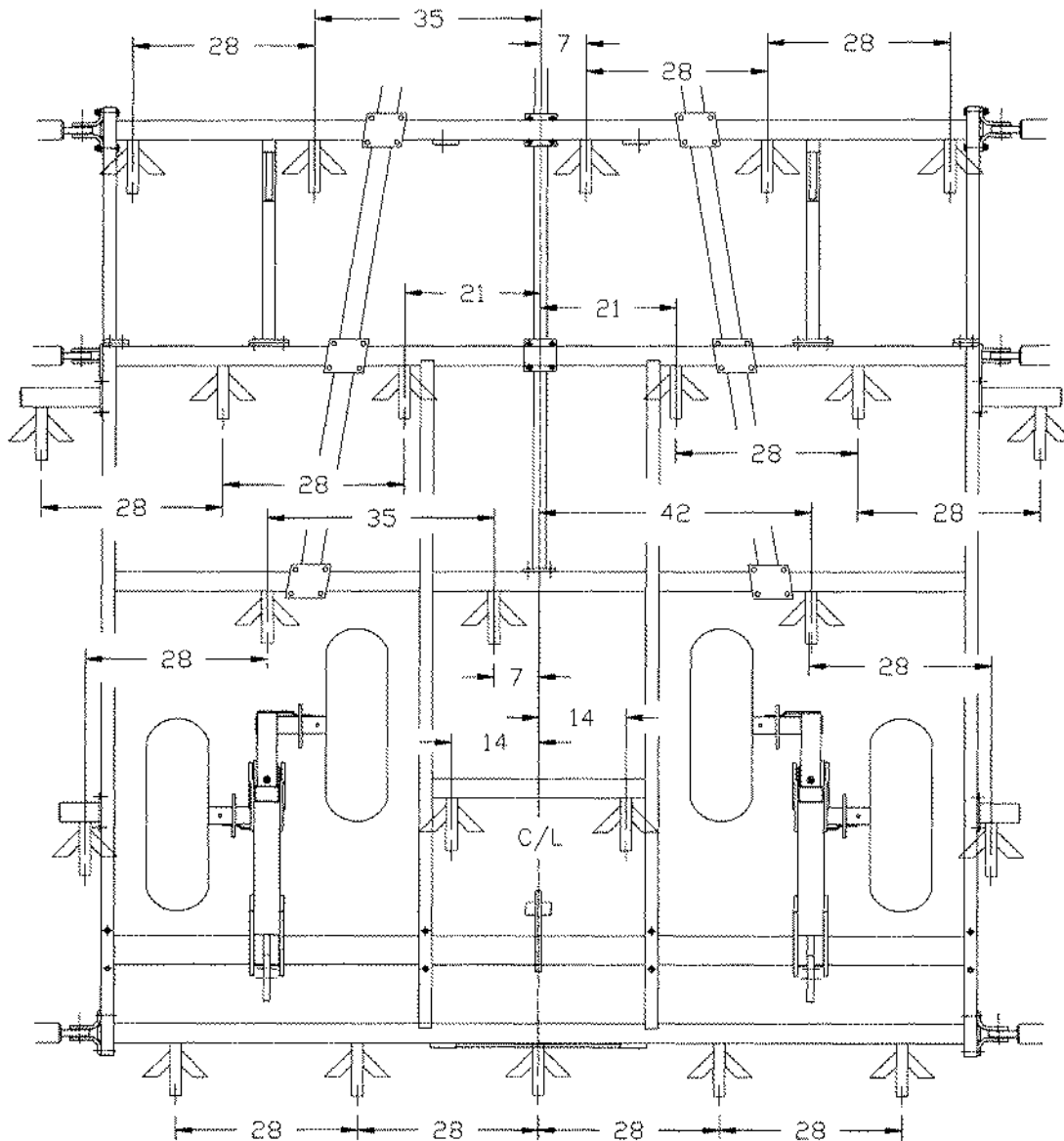
11' MF w/7' WINGS
LIFT HYDRAULICS

79117-3

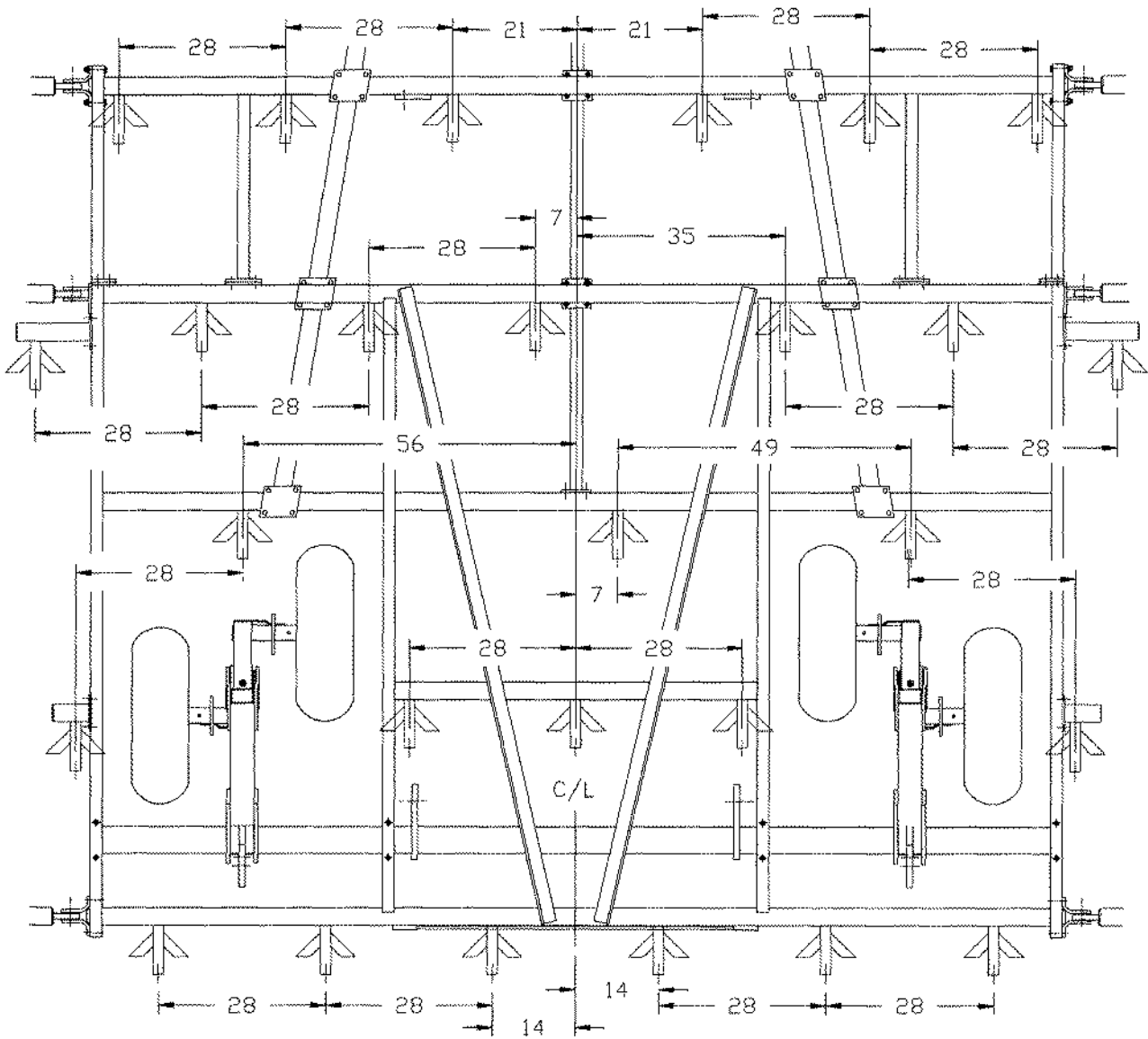
11', 13' & 16' MF w/9'4" & 11'8" WINGS LIFT HYDRAULICS



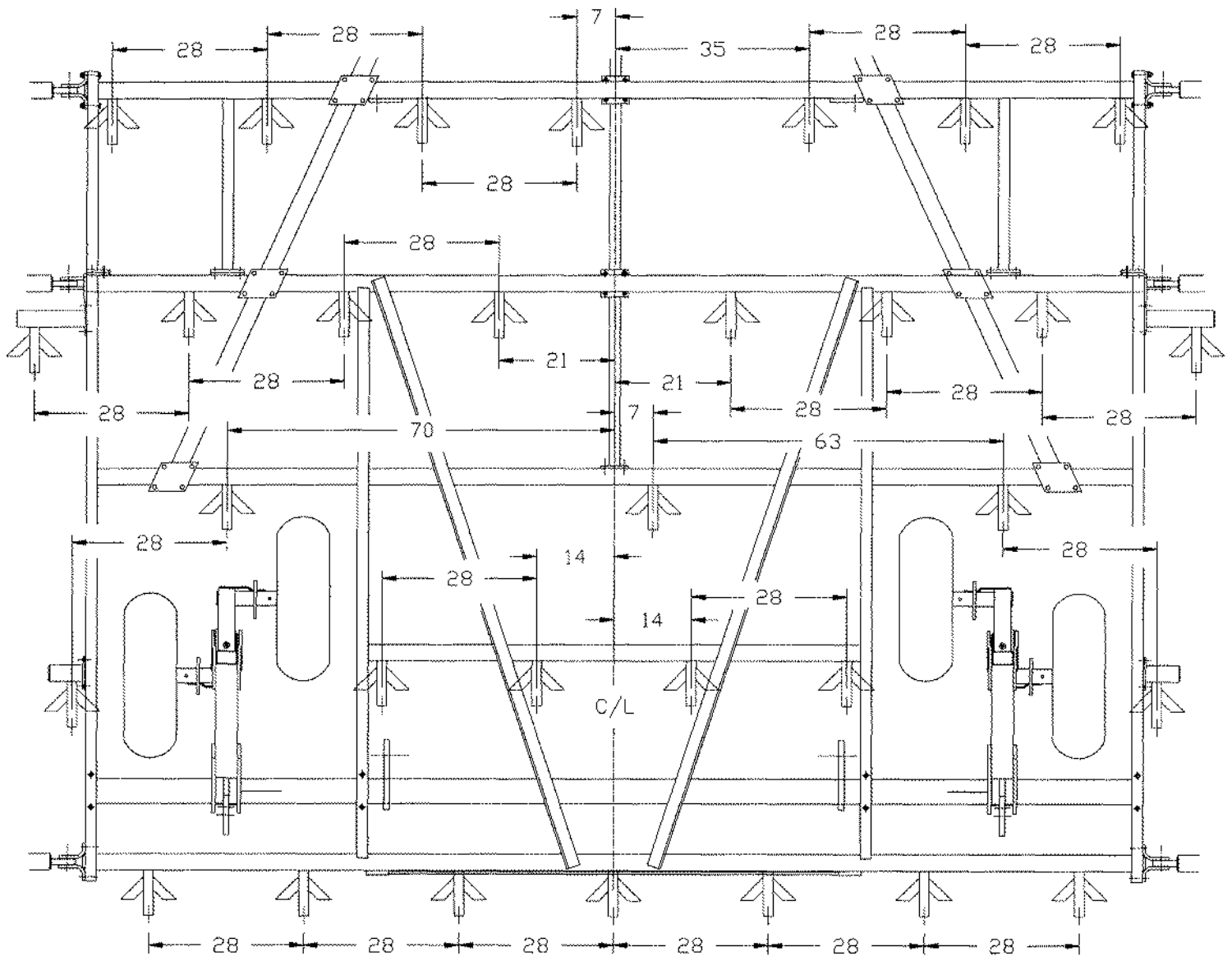
11' MAIN FRAME



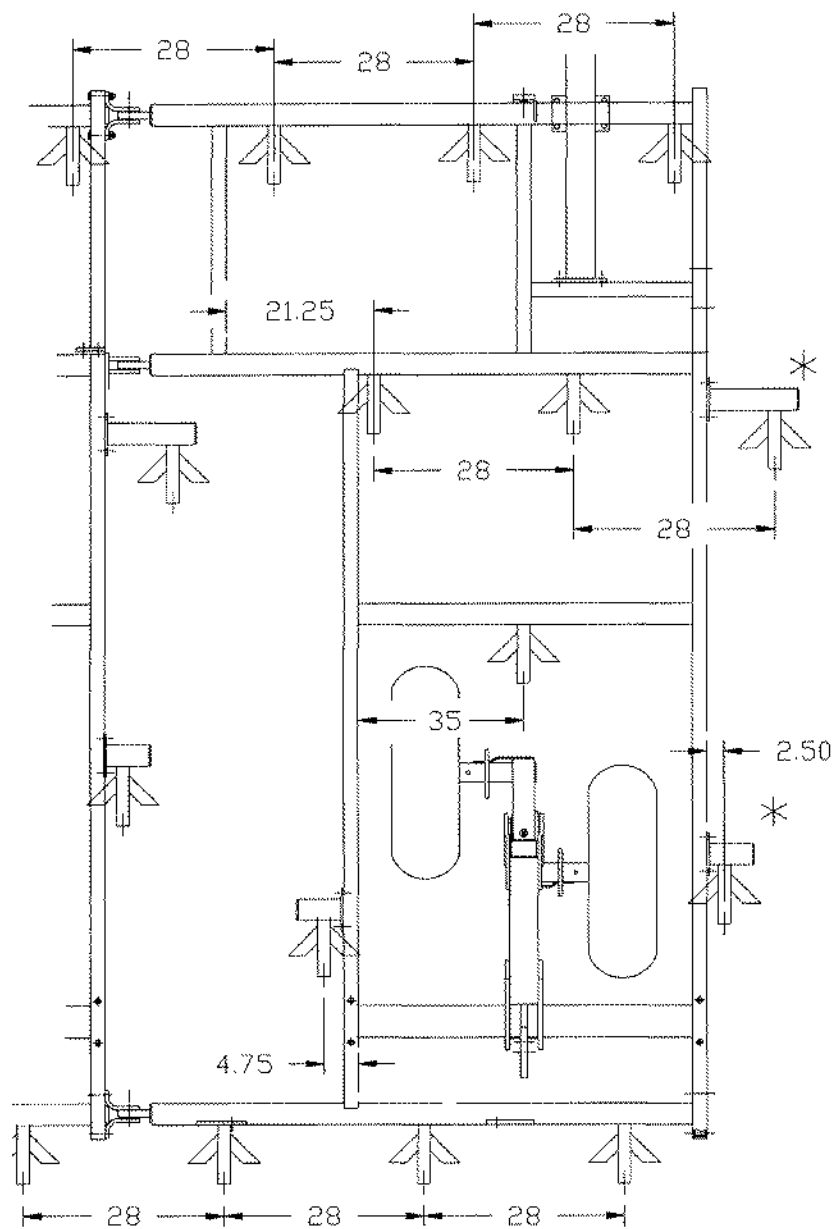
13' MAIN FRAME



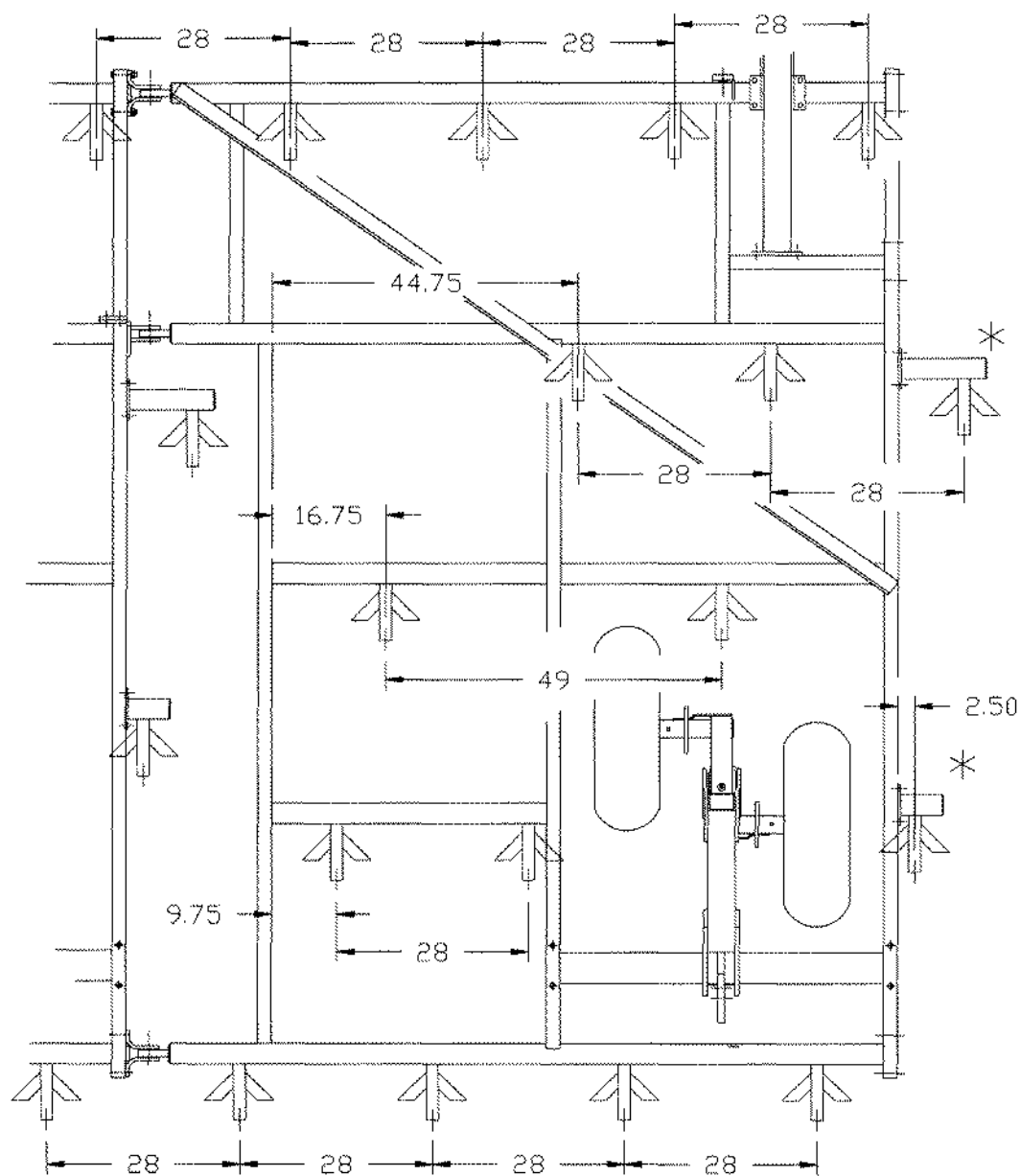
16' MAIN FRAME



7' WING

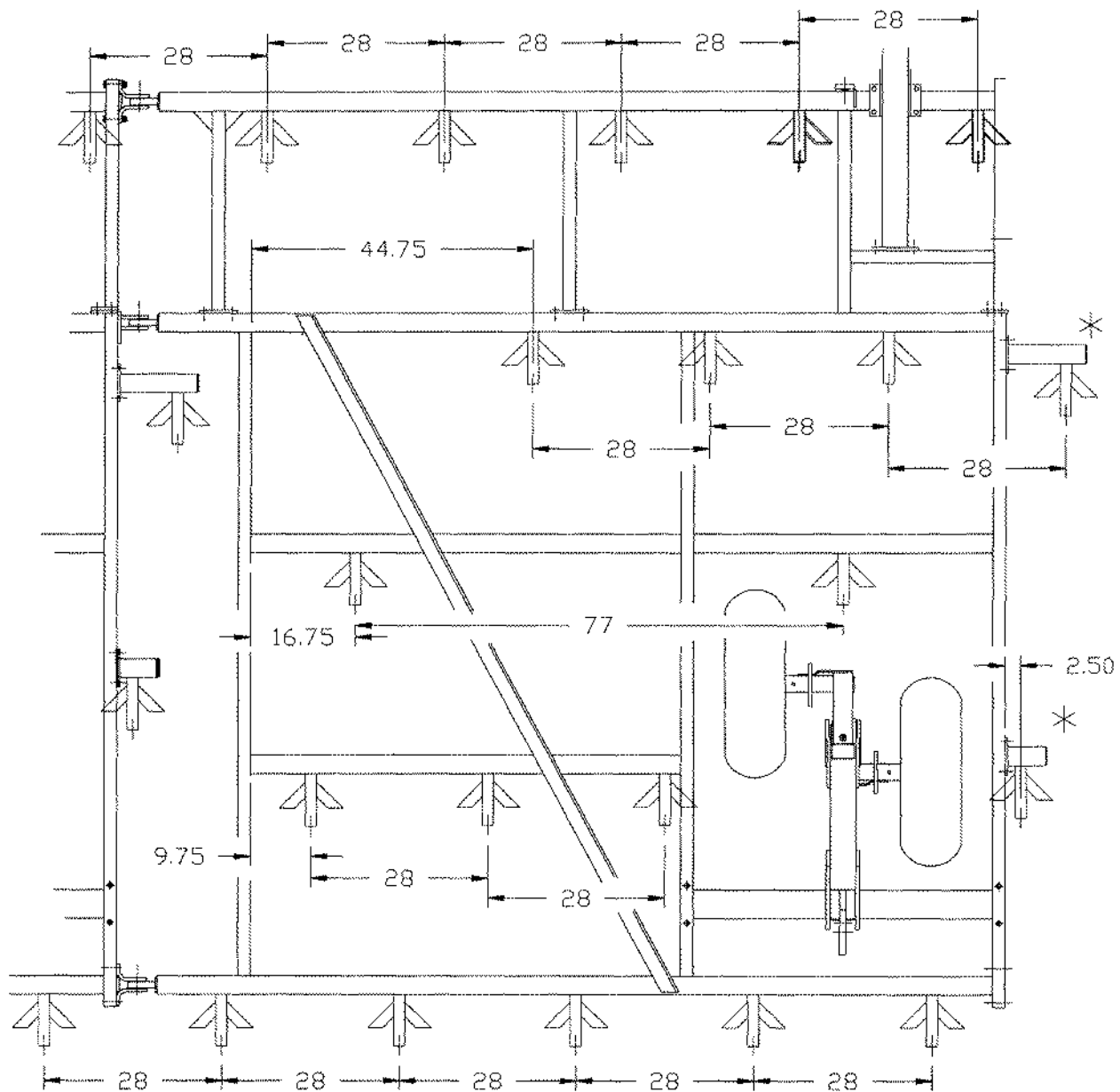


(*) SHANKS NOT IN BASE WING



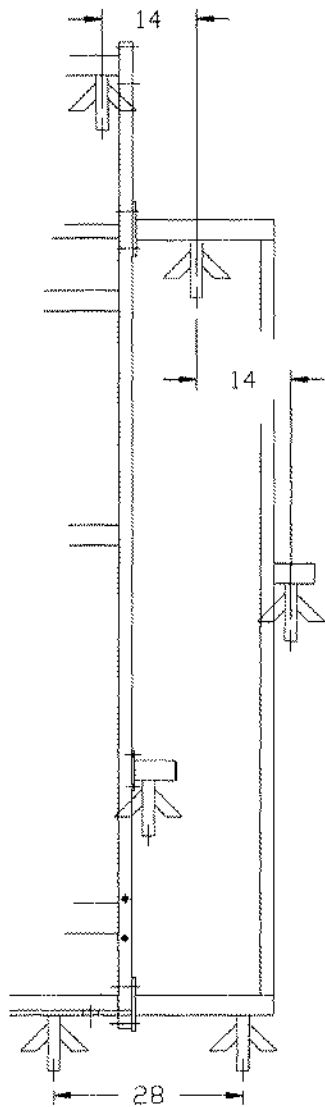
(*) SHANKS NOT IN BASE WING

11'8" WING



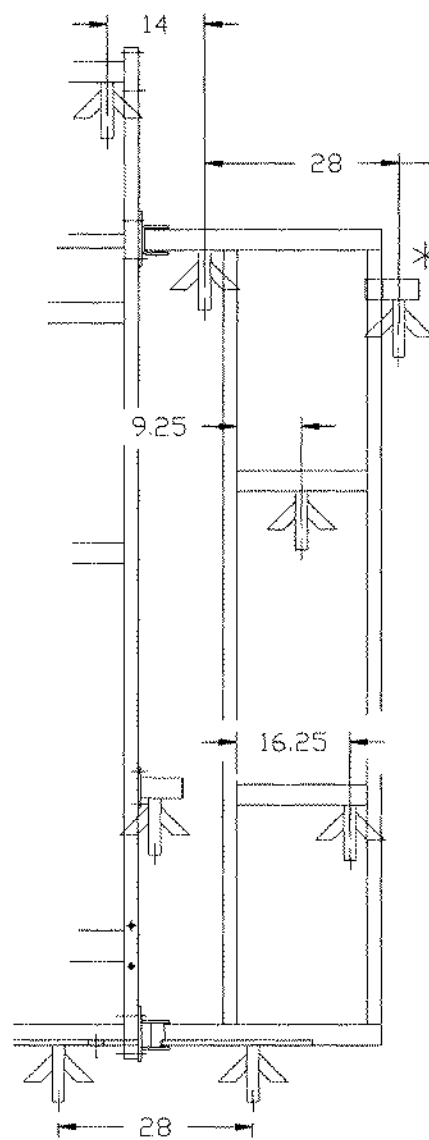
(*) SHANKS NOT IN BASE WING

2' OUTER RIGID STUB



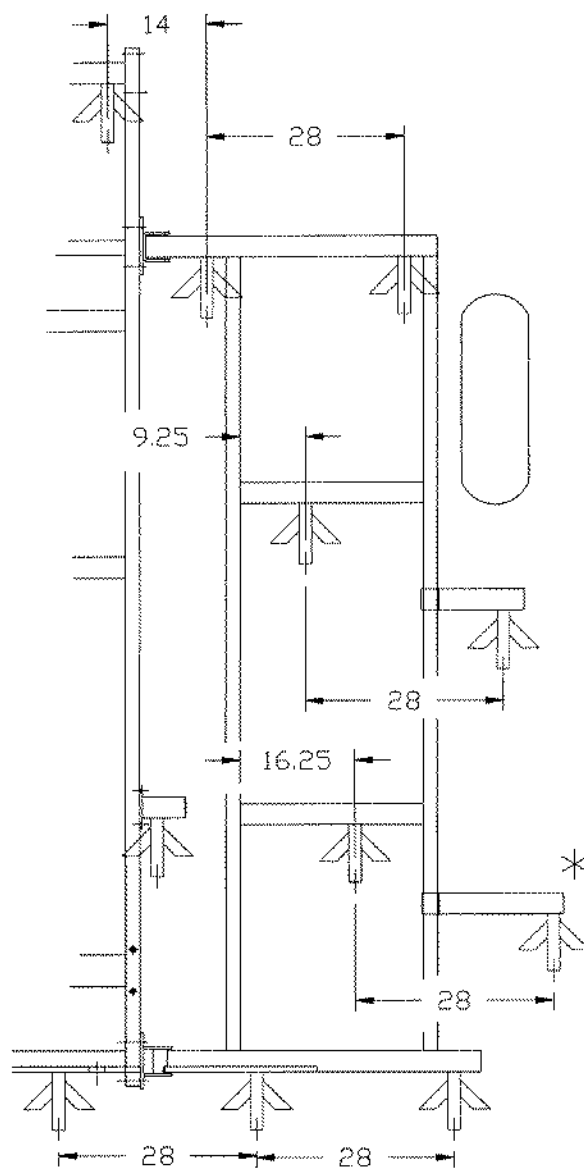
(*) SHANKS NOT IN BASE WING

3' OUTER WING



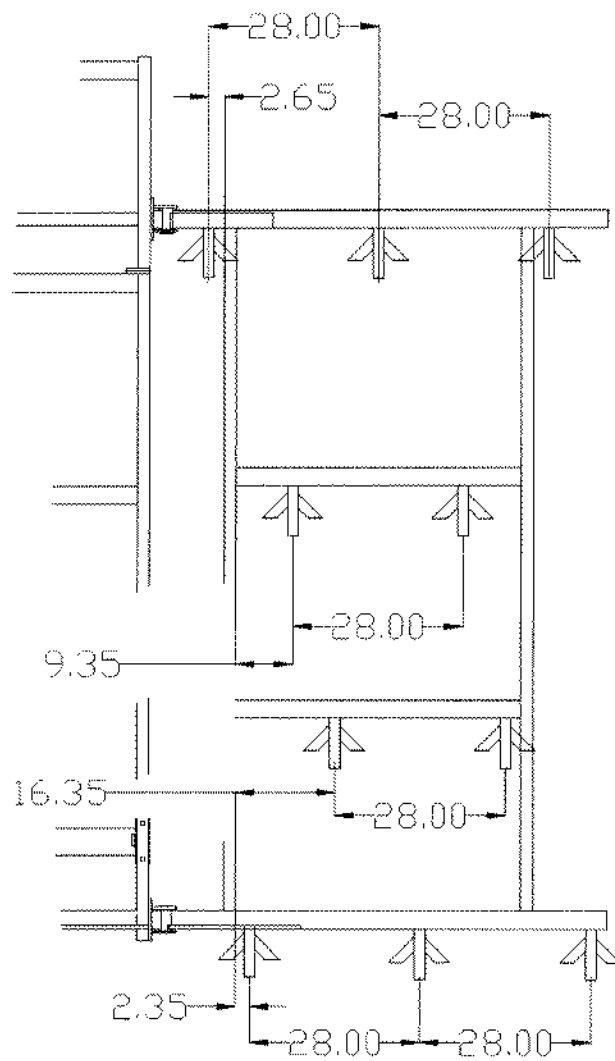
(*) SHANKS NOT IN BASE WING

5' OUTER WING



(*) SHANKS NOT IN BASE WING

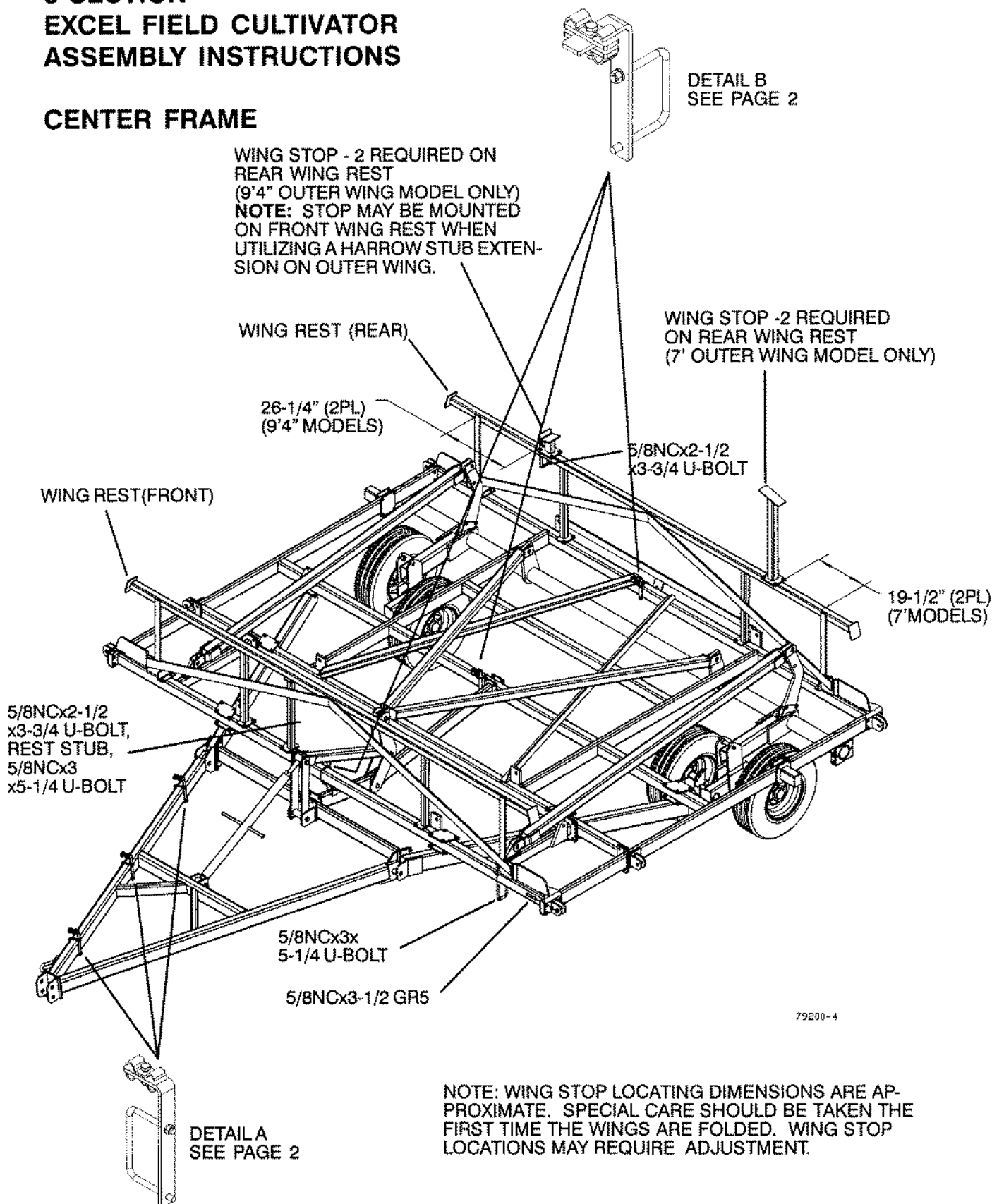
6' OUTER WING



(*) SHANKS NOT IN BASE WING

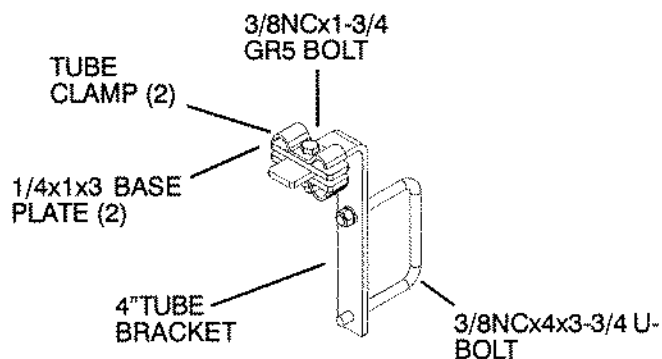
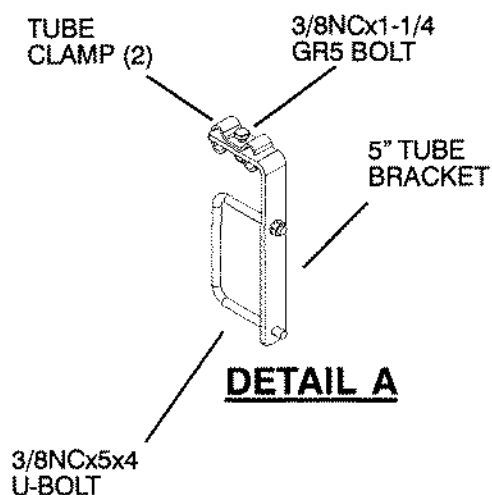
5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

CENTER FRAME

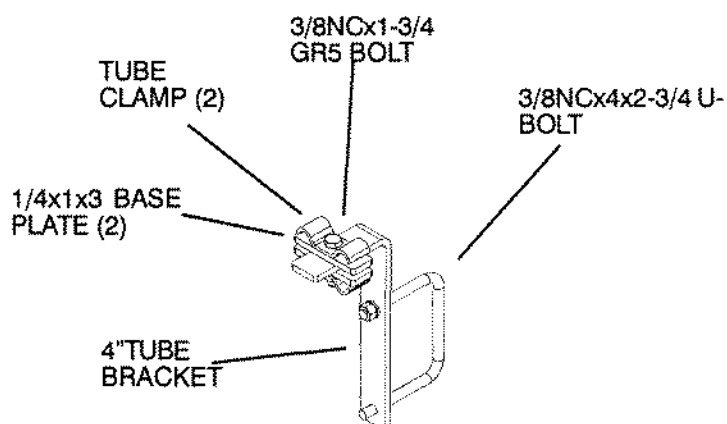


5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

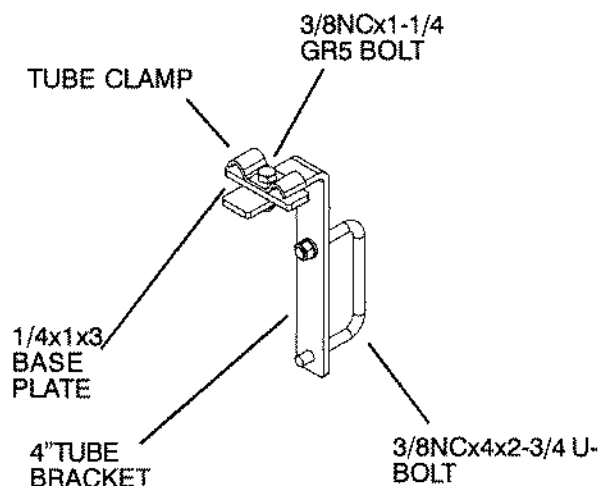
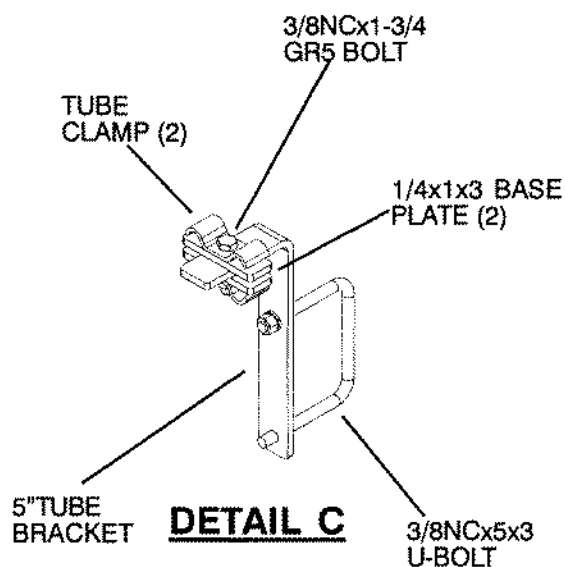
HYDRAULIC TUBE MOUNTING CLAMP DETAILS



DETAIL B



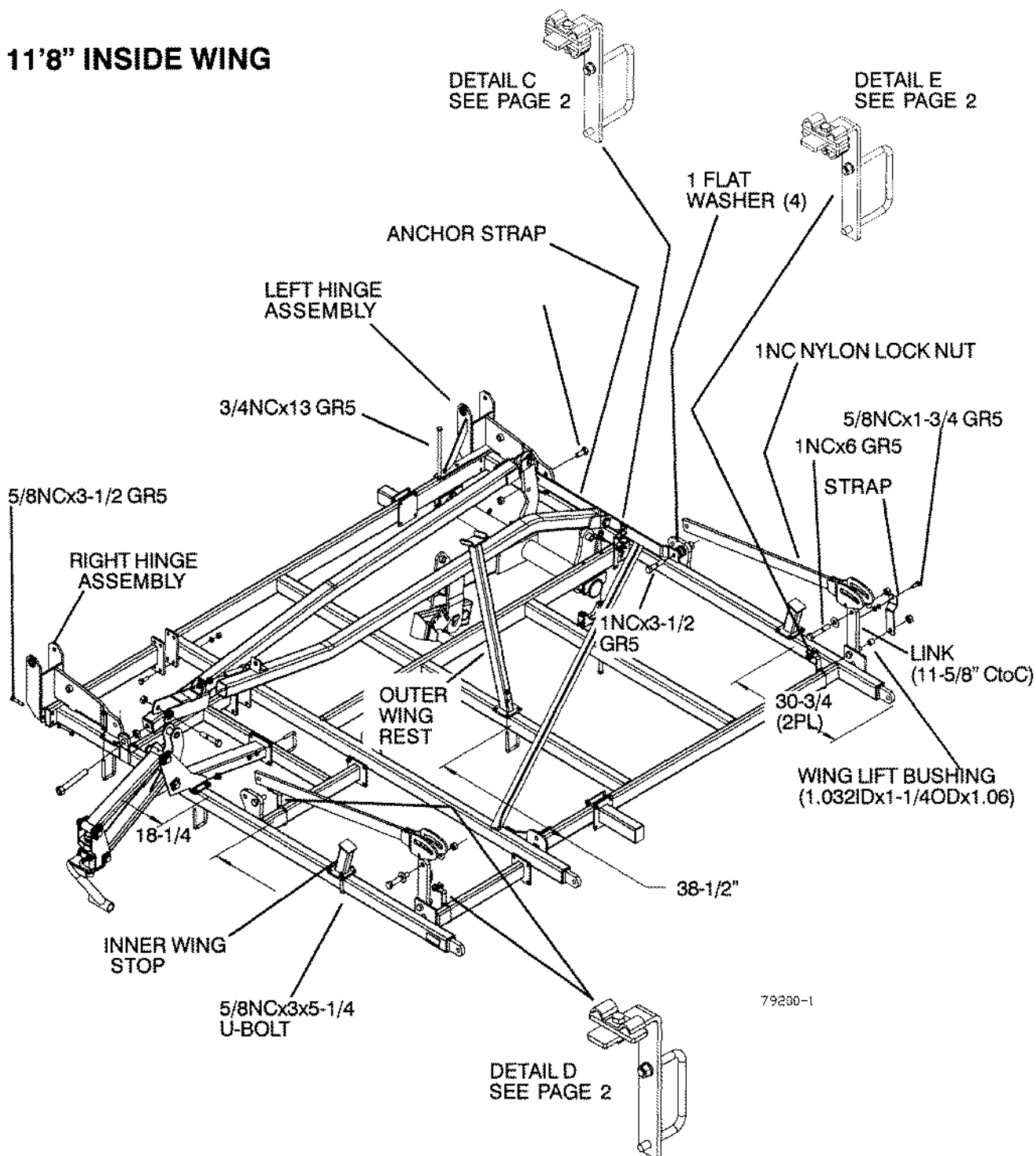
DETAIL E



DETAIL D

5 SECTION **EXCEL FIELD CULTIVATOR** **ASSEMBLY INSTRUCTIONS**

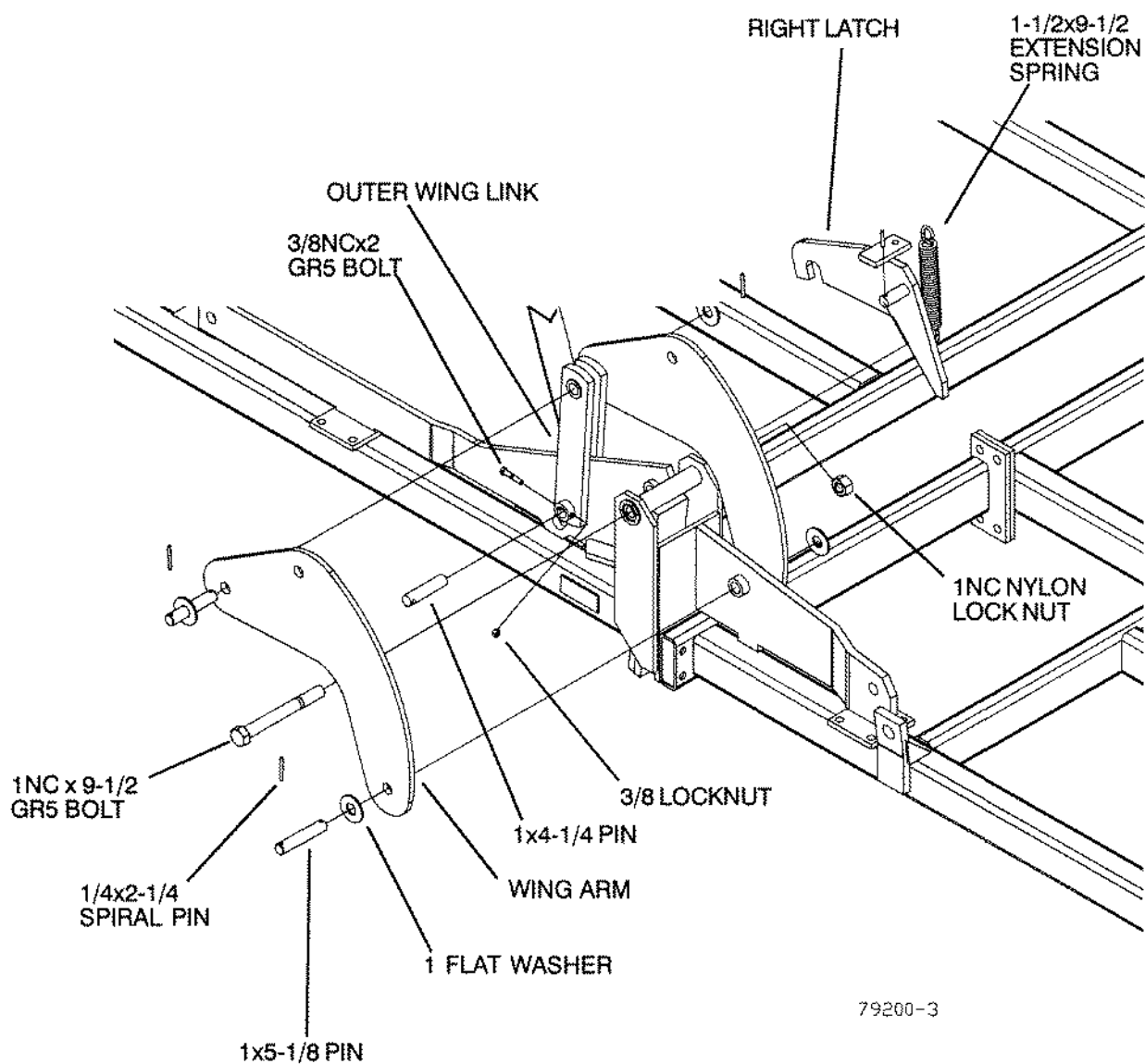
11'8" INSIDE WING



NOTE: WING STOP LOCATING DIMENSIONS ARE APPROXIMATE. SPECIAL CARE SHOULD BE TAKEN THE FIRST TIME THE WINGS ARE FOLDED. WING STOP LOCATIONS MAY REQUIRE ADJUSTMENT.

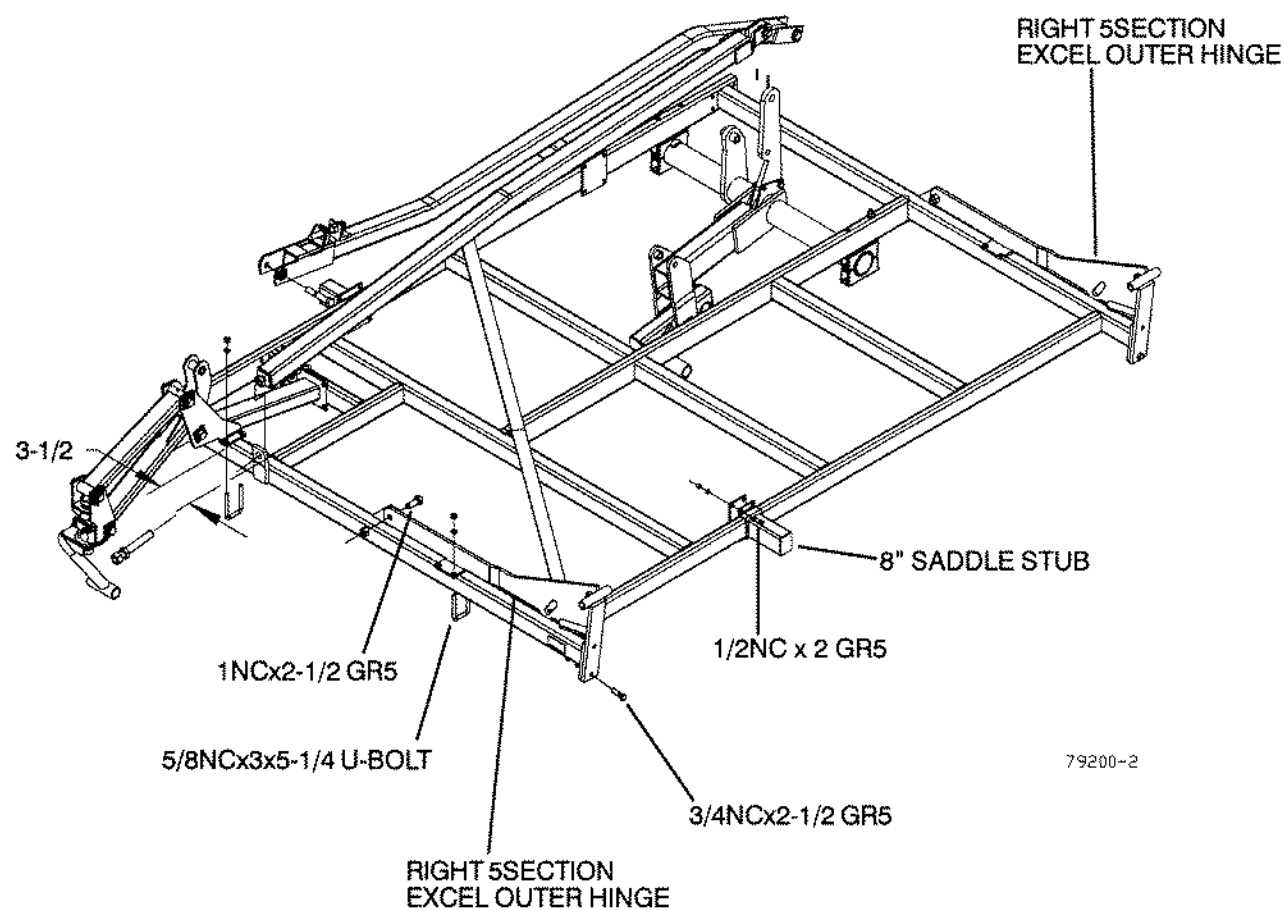
5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

OUTER WING HINGE



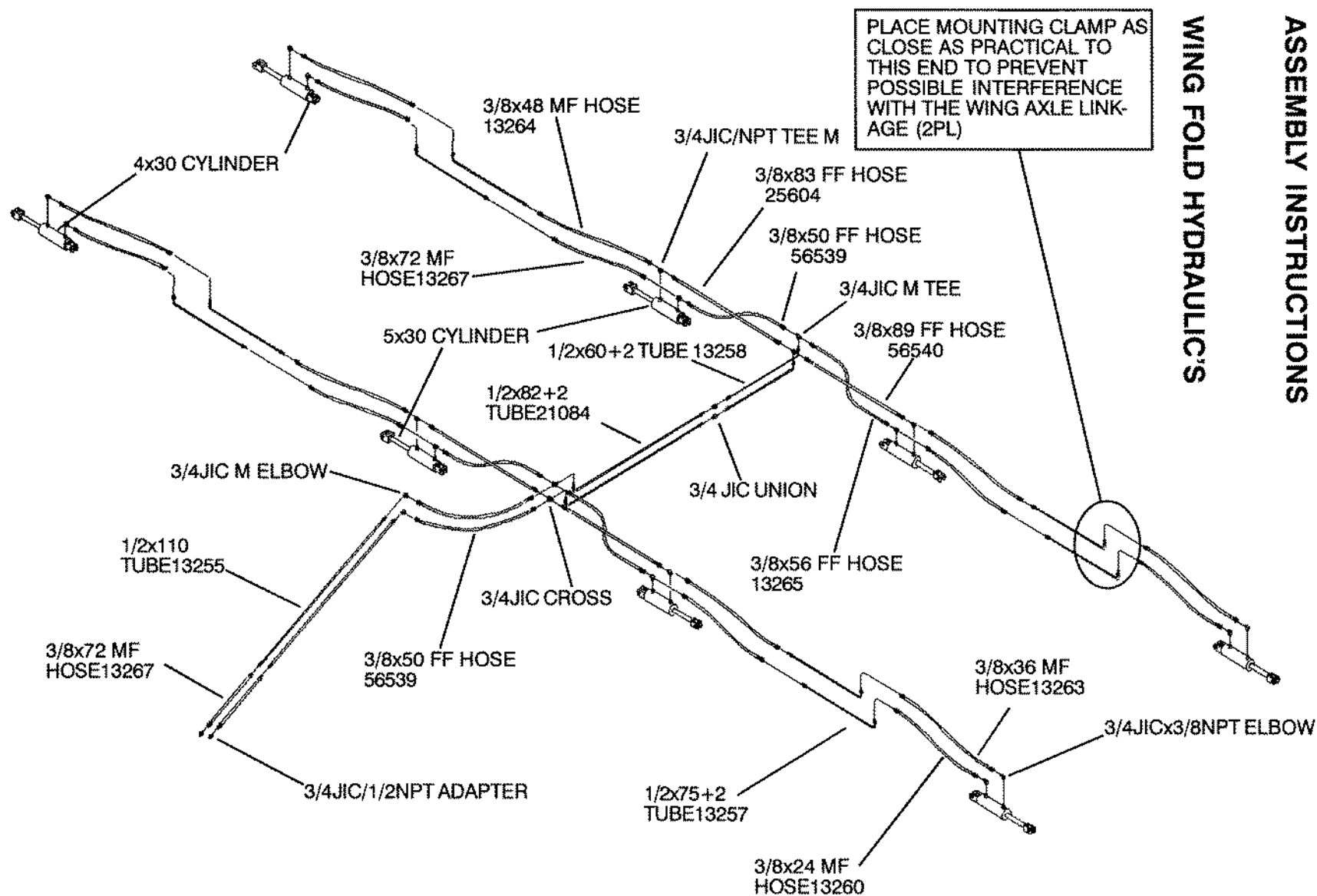
5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

**7' OR 9'4" RIGHT OUTER WING
(9'4" SHOWN)**



5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

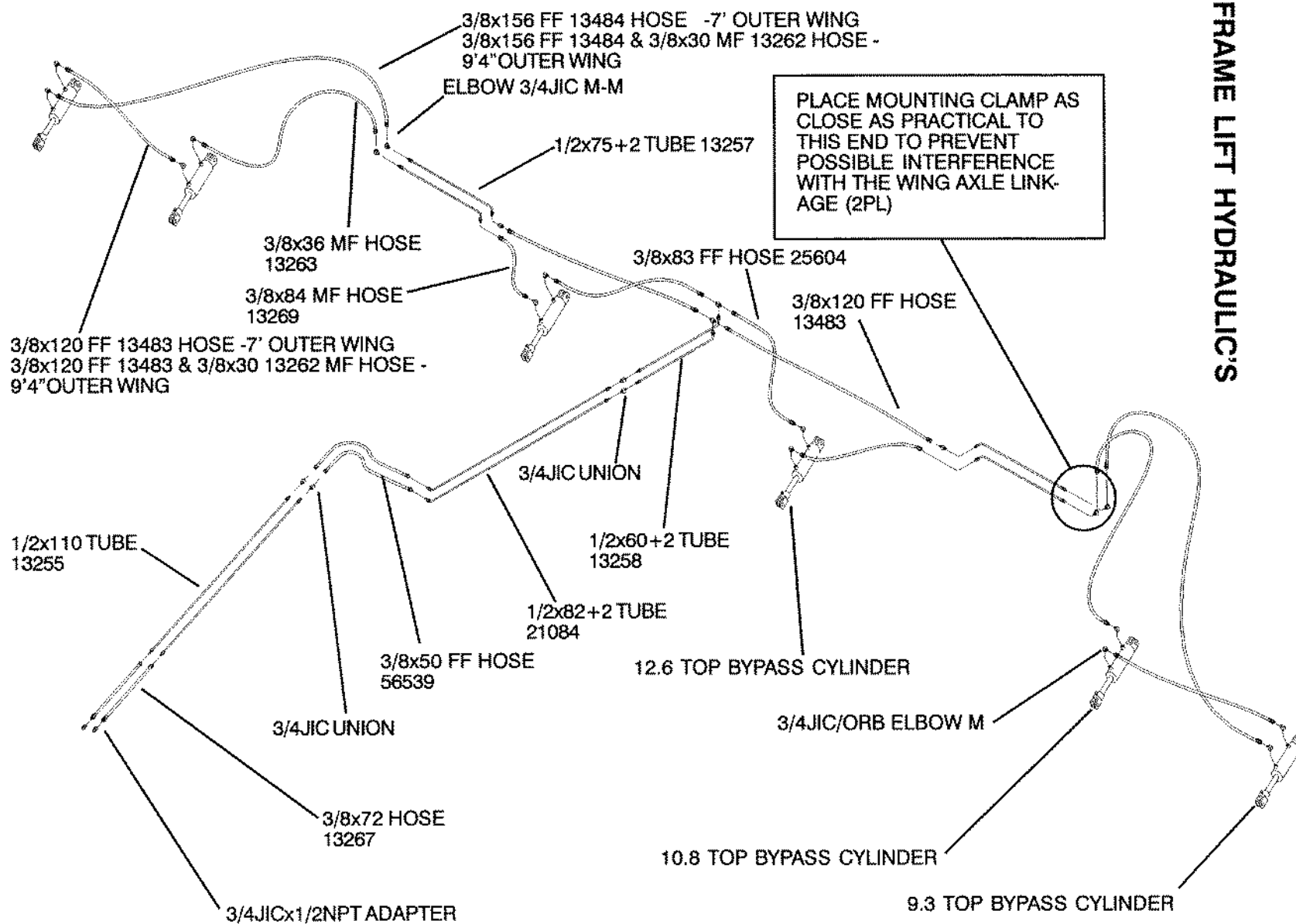
WING FOLD HYDRAULICS



79117-F

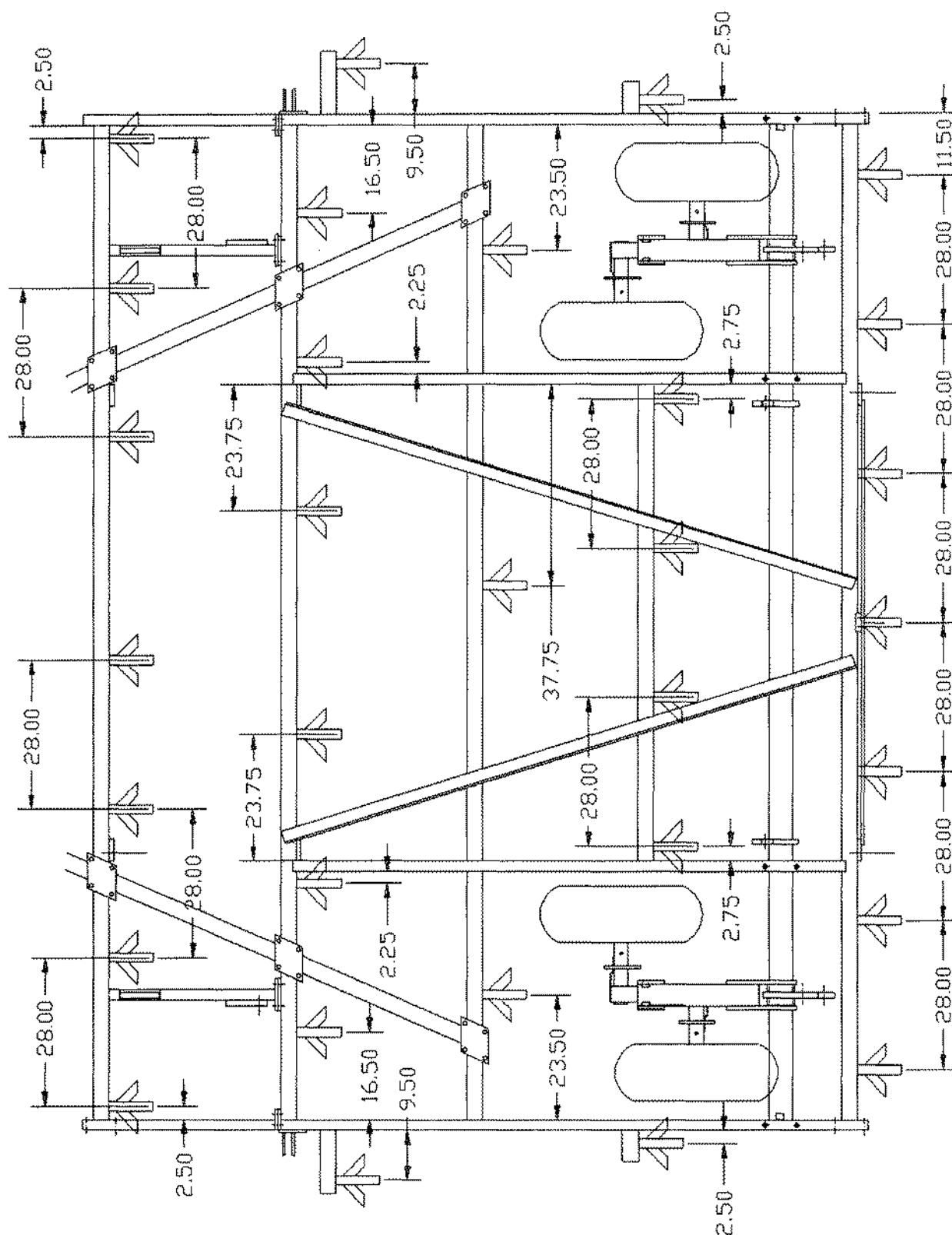
5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

FRAME LIFT HYDRAULICS



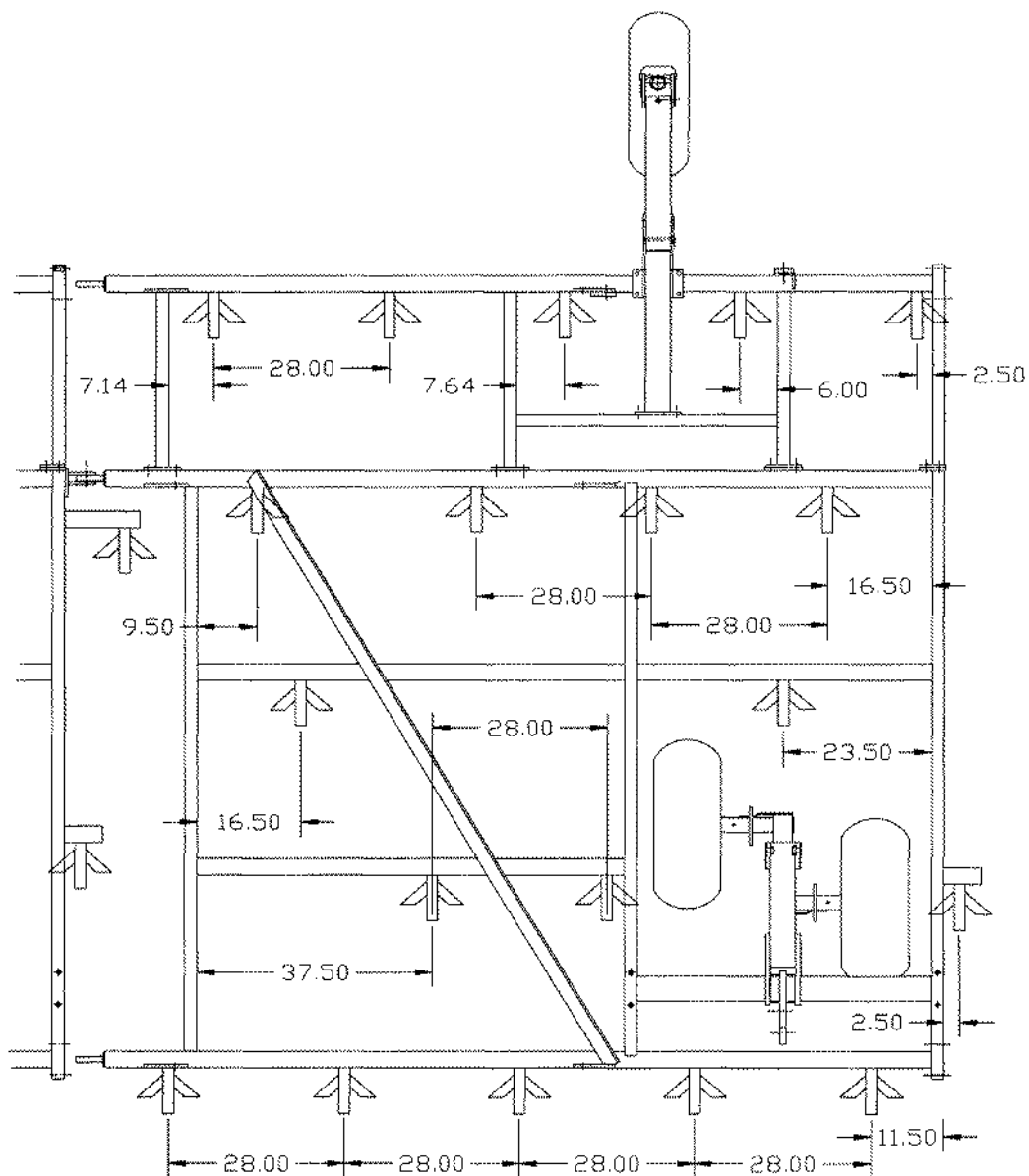
79117L

MAIN FRAME SHANK PLACEMENT



5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

11'8" INNER WING SHANK PLACEMENT

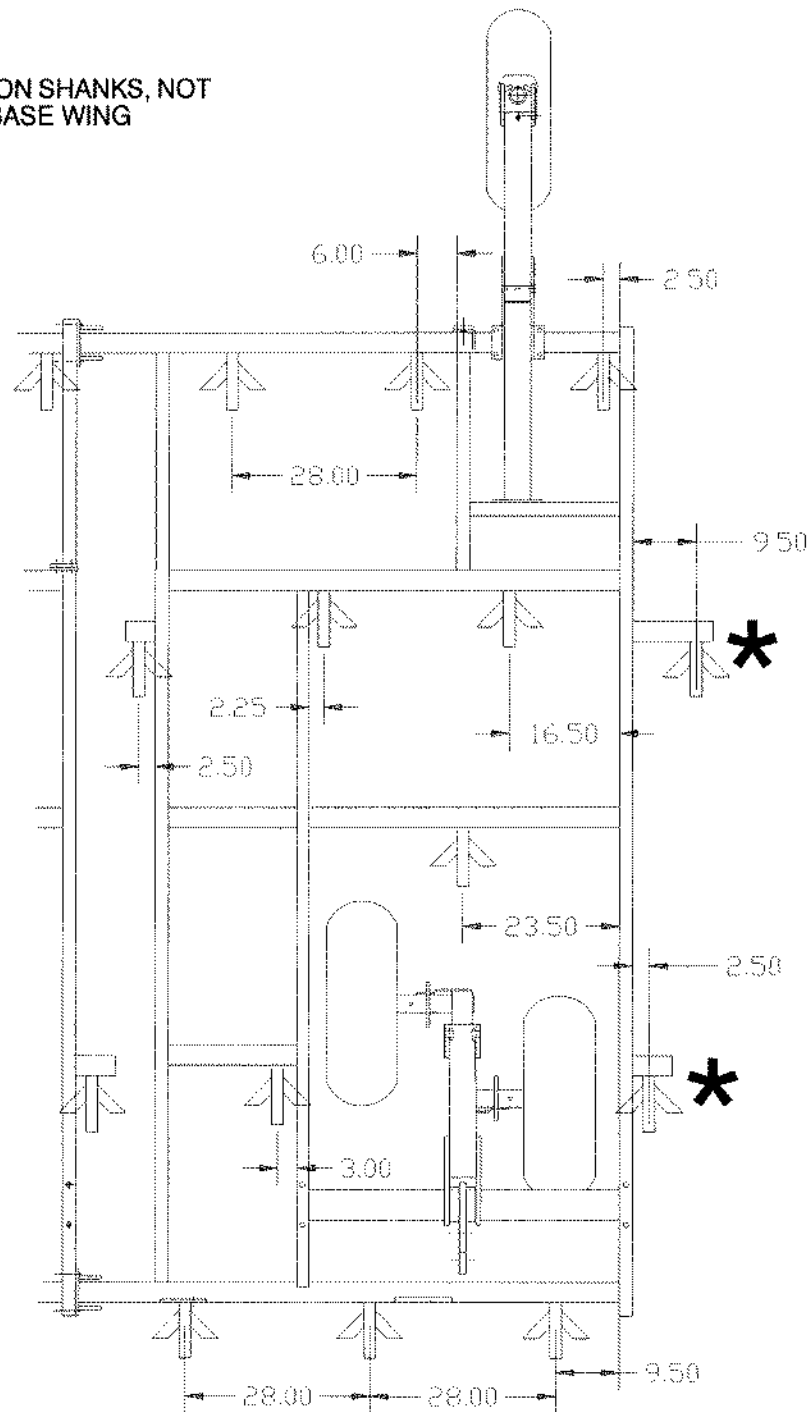


IWSHANK

5 SECTION
EXCEL FIELD CULTIVATOR
ASSEMBLY INSTRUCTIONS

7' OUTER WING
SHANK PLACEMENT

***** = DENOTES ADD-ON SHANKS, NOT INCLUDED WITH BASE WING

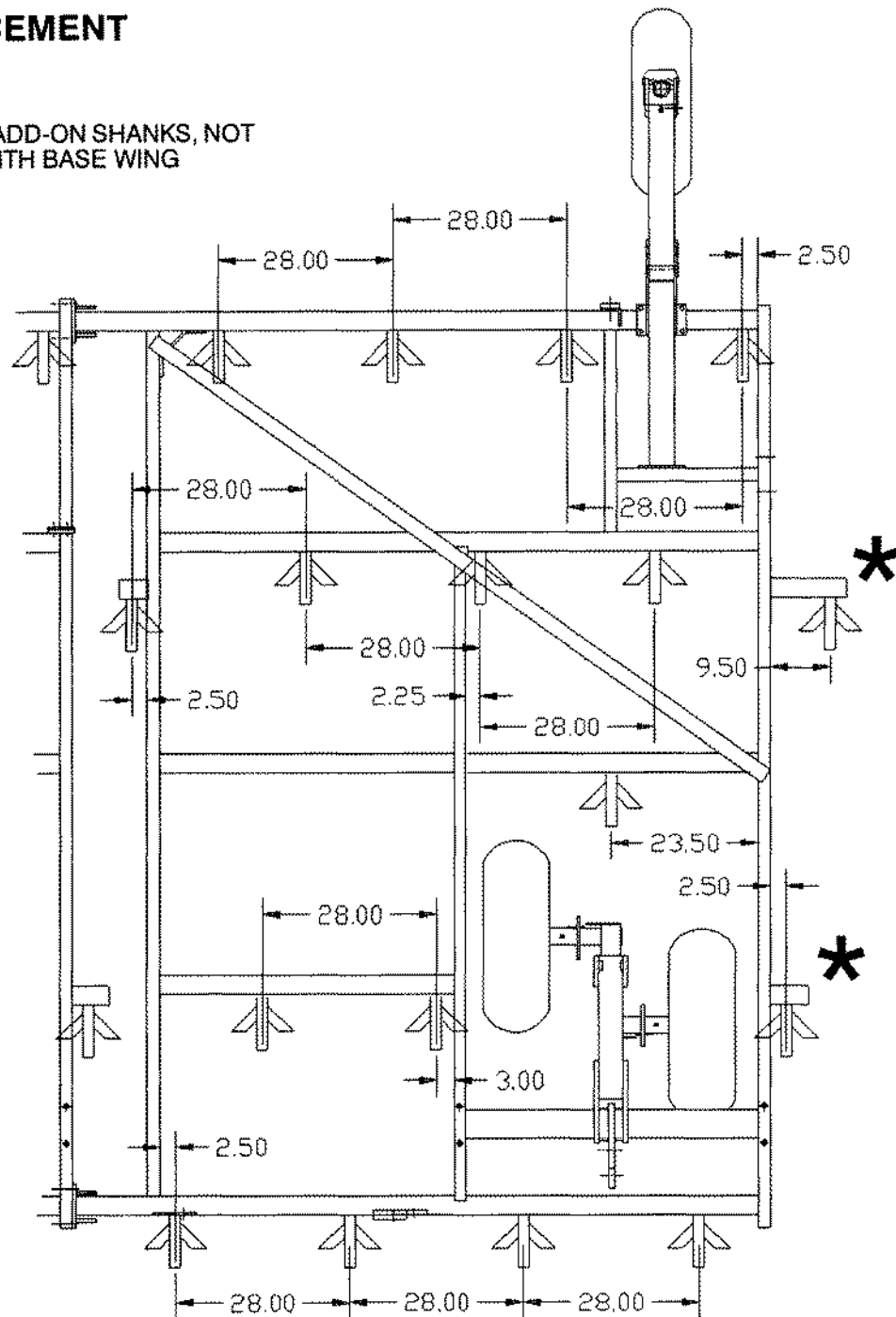


70WSHANK

5 SECTION EXCEL FIELD CULTIVATOR ASSEMBLY INSTRUCTIONS

9'4" OUTER WING SHANK PLACEMENT

***** = DENOTES ADD-ON SHANKS, NOT INCLUDED WITH BASE WING



94OWSHANK

EXCEL SINGLE POINT DEPTH CONTROL

Functional Information and Assembly/Operating Instructions

The eXcelfield cltivator 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 hyd 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 circuit; this valve will not ensure proper function without the purging of the system.

The single point depth control consists of two parts - the rebound valve and the single point control valve. Each part performs a distinct functions and work together to control the depth of the unit.

REBOUND VALVE

The rebound valve is mounted at the front of the eXcel hitch as shown on page 42. Position the mounting bracket to the side of the hitch, secure with the u-bolts and assemble the hyd fittings and hoses. **Make certain that the valve is tied to the mail lift cylinder circuit and that the hoses are routed to the specified ports of the rebound valve. The valve will not function properly if it is incorrectly placed in the circuit.** Securely tighten all bolts and fittings once the valve has been positioned.

The rebound valve addresses problems of air ingestion, uneven cylinder rod extension, and stability when using series cylinders in agricultural equipment. The manifold assembly cancels or dampens these problems through the use of three cartridges: (1) counterbalance, (2) pressure reducing and relieving, and (3) check.

■ The **counterbalance** addresses air ingestion by preventing the implement's series cylinders from running ahead of the oil supply. This prevents a vacuum and air sucking past the rod seals into the cylinders. Since air is highly compressible and expandable, its presence causes spongy and unsynchronized cylinder movements. This cartridge is also a holding and relief cartridge and provides "on-the-go" depth selection. The operator can manually select variable working depths on the go from the tractor cab. The new work depth will hold to 3000 psi before relieving.

■ The **pressure reducing and relieving** addresses the effects of compression (3000psi) which expands the hydraulic circuitry, and de-compression (zero psi) which returns the circuitry to a relaxed state. De-compression accumulatively transfers excess oil from the series into the last cylinder. An example of compression to de-compression accumulatively occurs when the center section rises to work shallow and the wing section then ride above the surface. The reducing valve cancels these effects by maintaining a minimum 750 psi on the rod side of the last series cylinder, and bleeding off higher pressures at a restrictive rate of flow.

■ The **check** adds stability by trapping the pressure of 750 psi established by the pressure reducing and relieving cartridge. Implement draft maintains this minimum pressure. The stiffened circuitry stabilizes implement frame and tools and can enable faster operating speeds.

SINGLE POINT VALVE

Assembly

The single point control valve is mounted at the rear of the unit as shown on page 43. Mount the arm mount w/ bearing to the bottom of the cast bearing cap. Attach the arm to the bearing and secure with the setscrew provided. Mount the DCV valve to the arm with

the plunger to the front. Align the plunger with the axle plate on the 13' and 16' eXcel axle. On the 11' eXcel there is only a single plate located in the center of the axle. Mount the depth arm to the axle tube on the 11' axle as shown and position the depth arm to align with the DCV valve plunger. Align the contact surface of the depth arm with the back edge of the lift plate in the center and secure. Thread the threaded adjustment arm approximately 1" into the long adjustment tube. Secure the assembly to the arm with the flat washer and cotter pin. Screw the grease zerk into the adjustment tube and pump a liberal amount of grease into the tube to prevent thread seizing and repel water.

Connect the hoses to the depth valve and into the base side of the main lift circuit. Route the hoses around shanks or frame members and secure with tie straps. Insert the adjustment tube in the front support and mount the front support to the front of the second frame tube in the location shown with the u-bolt provided. Place cotter pin into the adjustment tube behind the front support, position the spring over the tube in front of the support and secure in position with flat washer and cotter pin. The plastic disk with the adjustment decal is slid on the tube and should rotate freely. Place the rod through the end of the adjustment tube and secure with the 1/4" roll pins in each end.

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 axle plate (13'&16') or the depth arm (11') 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. 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.

The function of this depth control system is dependent on the containment of oil in the hydraulic cylinders and circuitry. The rebound valve described above is effective in maintaining a balance and sequenced system but internal leaks can occur. As a safety measure, once you have determined the maximum depth that you will be operating the unit you can adjust the main lift cylinders screw collars to maintain this maximum depth. It may also be necessary to purge the hydraulic system occasionally to clean out air and stabilize the system.

