

# PARTS & INSTRUCTION MANUAL

# **DARF** **HAY RAKES**

MODELS 917 and 950



Manufactured by  
**NIKKEL IRON WORKS**  
SHAFTER, CA

E-Mail: [sales@nikkelironworks.com](mailto:sales@nikkelironworks.com)

*Use Only Genuine DARF Parts*

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**THIS BOOK COVERS ALL 917, 917WIDE & 950 MODELS - BEGINNING WITH MAY, 2001 PRODUCTION.**

Note: Right & Left are as viewed from the rear of the DARF RAKE

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# DARF 15 AND 17-WHEEL OVERHEAD RAKES

**MODEL 917BRWB ----- STANDARD OVERHEAD FRAME**

STANDARD WALKING BEAM AXLES, 6" WHEELS,  
STANDARD HUBS, BEARING CRANKS,  
17 RAKE WHEELS, RUBBER MOUNTED TEETH,  
BALL HITCH OR CLEVIS HITCH

REQUIRES 2 REMOTES FROM TRACTOR

**MODEL 917FDB-00 ----- STANDARD OVERHEAD FRAME**

FASSE 6-FUNCTION CONTROL VALVE  
STANDARD WALKING BEAM AXLES, 6" WHEELS,  
STANDARD HUBS , BEARING CRANKS  
RUBBER MOUNTED TEETH, 17 RAKE WHEELS,  
BALL HITCH OR CLEVIS HITCH

REQUIRES 1 REMOTE & 12-VOLT ACCESS

**MODEL 917BRWBW----- HEAVY DUTY WIDE OVERHEAD FRAME**

*(cover picture)*

HEAVY DUTY WALKING BEAM AXLES,  
5' REPHASING CYLINDERS, 6" WHEELS,  
HEAVY DUTY HUBS, BEARING CRANKS,  
17 RAKE WHEELS, RUBBER MOUNTED TEETH  
BALL HITCH OR CLEVIS HITCH

REQUIRES 2 REMOTES FROM TRACTOR

**MODEL 917FDWB-01 ----- HEAVY DUTY WIDE OVERHEAD FRAME**

FASSE 6-FUNCTION CONTROL VALVE  
5' REPHASING CYLINDERS, HEAVY DUTY WALKING  
BEAM AXLES, 6" WHEELS, HEAVY DUTY HUBS,  
BEARING CRANKS, RUBBER MOUNTED TEETH  
17 RAKE WHEELS, BALL HITCH OR CLEVIS HITCH

REQUIRES 1 REMOTE & 12-VOLT ACCESS

**MODEL 950BRWB ----- STANDARD OVERHEAD FRAME**

STANDARD WALKING BEAM AXLES, 6" WHEELS,  
STANDARD HUBS, BEARING CRANKS  
15 RAKE WHEELS, RUBBER MOUNTED TEETH  
BALL HITCH OR CLEVIS HITCH

REQUIRES 2 REMOTES FROM TRACTOR

**MODEL 950FDB-00 ----- STANDARD OVERHEAD FRAME**

FASSE 6-FUNCTION CONTROL VALVE  
STANDARD WALKING BEAM AXLES, 6" WHEELS,  
STANDARD HUBS, BEARING CRANKS  
15 RAKE WHEELS, RUBBER MOUNTED TEETH

BALL HITCH OR CLEVIS HITCH

REQUIRES 1 REMOTE & 12-VOLT ACCESS

# SAFETY PRECAUTIONS

**AVOID INJURY OR FATAL ACCIDENTS. READ THESE SAFETY PRECAUTIONS COMPLETELY AND CAREFULLY! UTILIZE THESE INSTRUCTIONS WHEN OPERATING YOUR MACHINE.**

This machine is inherently dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this machine's operations. Do not allow persons to operate or assemble this machine until they have read this manual & have developed a thorough understanding of the safety precautions and of how the machine works.

To prevent injury or death, use a tractor equipped with a roll-over protection system (ROPS). Do not paint over, remove or deface any safety or warning decals on your equipment. Observe all decals and practice the instructions on them.

**REMEMBER!** Your best insurance against accidents is a careful and responsible operator. If there is any portion of this manual or of the machine's operation you do not understand, contact your local authorized dealer.

## ***BEFORE OPERATING:***

- Carefully study and understand your manual.
- Give the machine a "once-over" for any loose bolts, worn parts, cracked welds, hydraulic leaks, frayed hoses, etc. – make necessary repairs. Follow the Performing Maintenance guidelines.
- Be sure the hydraulic lines do not conflict with moving parts.
- Be sure the machine is hitched properly to the tractor.

## ***DURING OPERATION:***

- Do not allow others to be careless near this equipment, or to ride in or on.
- Do not clean, lubricate or adjust your equipment while it is running.
- Be extra careful on inclines.
- Avoid loose fill, rocks & holes; they can be dangerous to the machines operation or movement.
- Do not back up with rake wheels lowered to raking position. Tooth breakage may result.
- Rake teeth can cause injury. Use special caution when lowering and raising, rake wheels will drop.
- Periodically clear machine of hay or other materials to prevent build-up of dry flammable materials.
- Always drive at a reasonable speed to maintain control of the situation at hand.

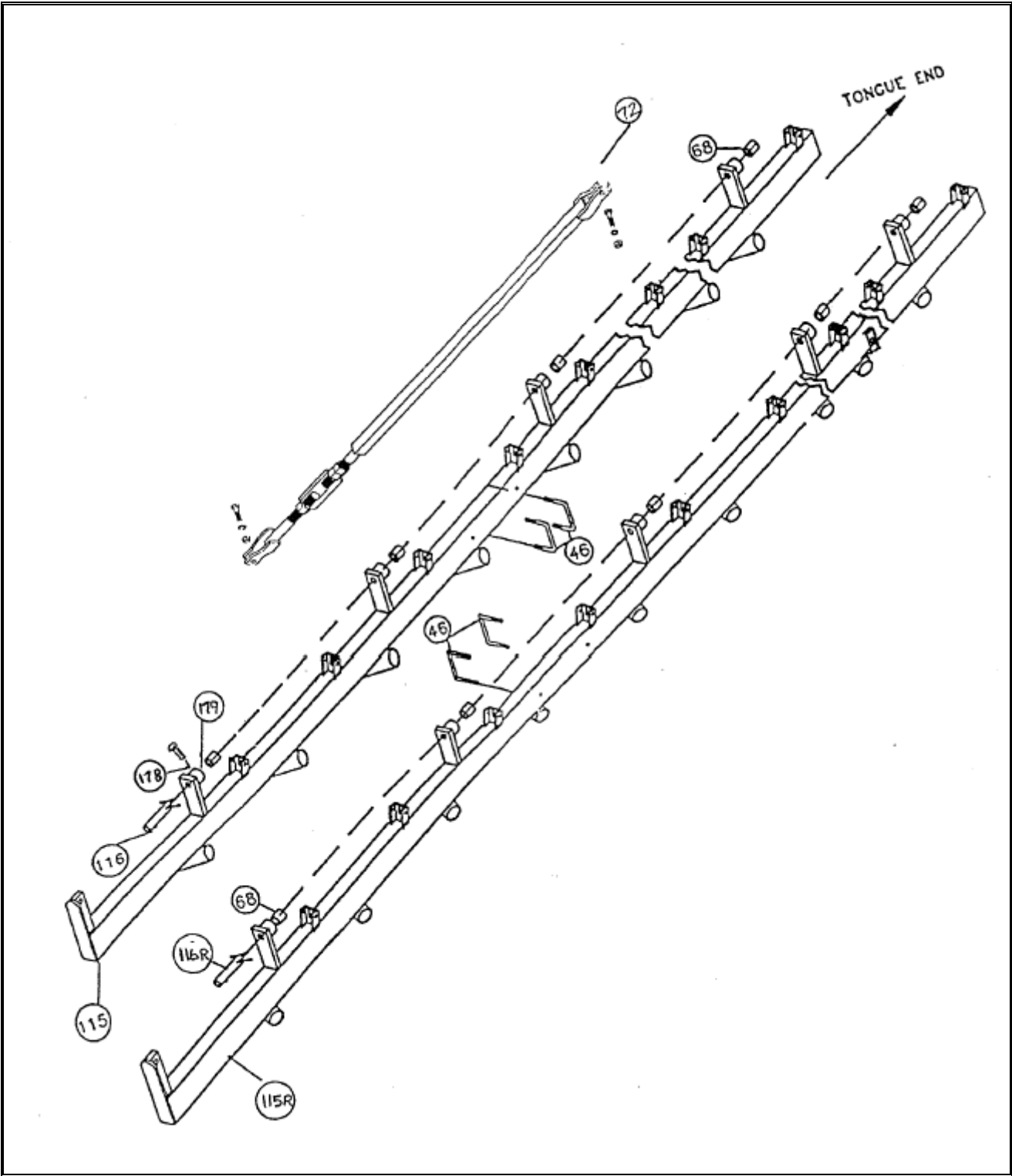
## ***HIGHWAY OPERATION:***

- Comply with your state and local laws governing highway safety and movement of farm machinery on public roads.
- Be a safe, courteous operator. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Watch for obstructions overhead and to the side while transporting.

## ***PERFORMING MAINTENANCE:***

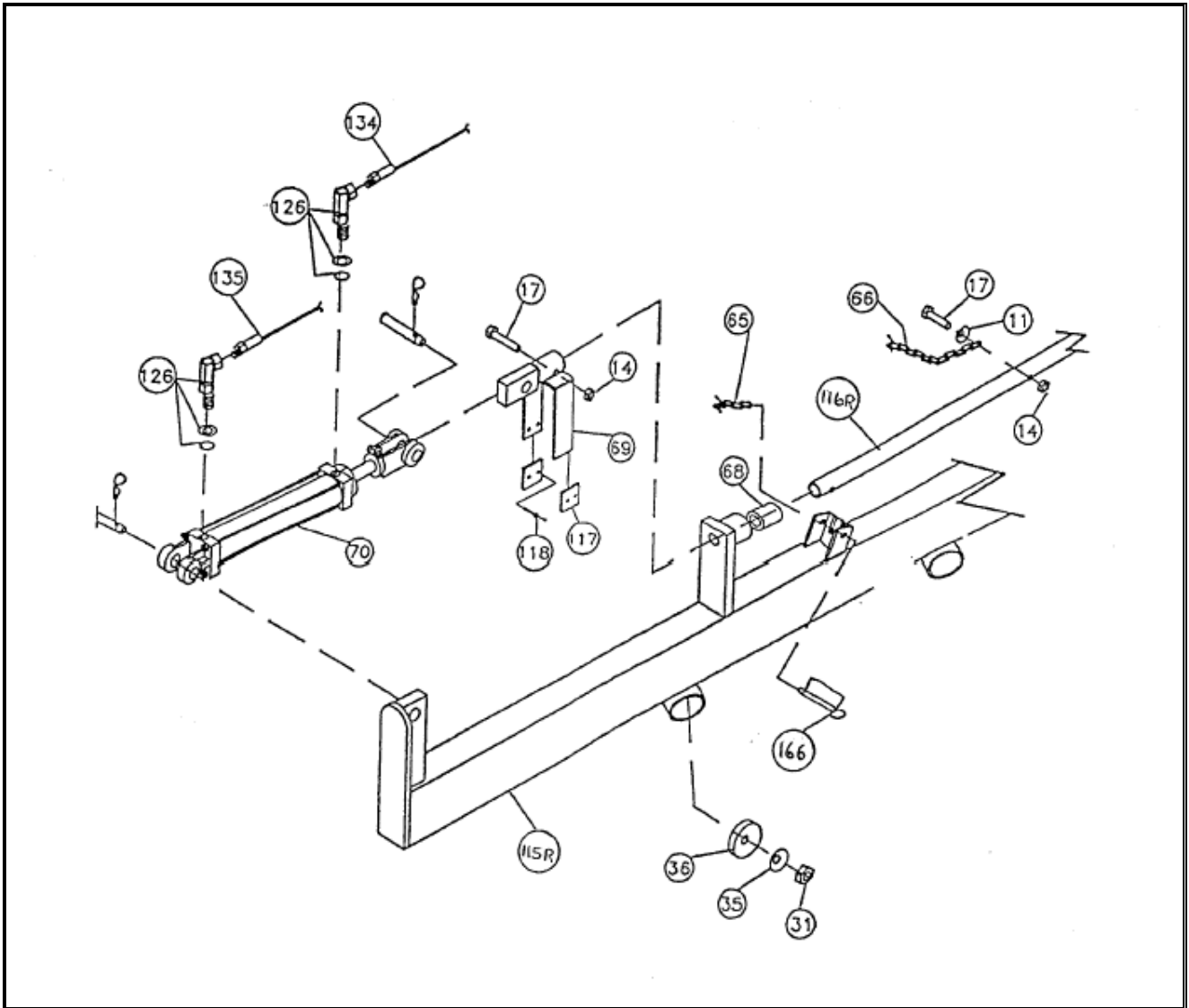
- Good maintenance is your responsibility. A poorly maintained machine is an invitation to trouble.
- Always use proper tools or equipment for the job at hand.
- Never use your hands to locate a hydraulic leak. Use a small piece of cardboard or wood.
- Hydraulic fluid escaping under pressure can penetrate the skin.
- Never replace hex bolts with less than Grade 5 bolts, unless otherwise specified.
- If the DARF rake is altered or modified from the original design, or if genuine replacement parts or teeth are not used and properly installed, NIKKEL IRON WORKS, INC. will not accept any responsibility or liability for injury or warranty.

# LEFT AND RIGHT RAKING FRAME





# RIGHT RAKE FRAME (REAR VIEW WITH HYDRAULICS)





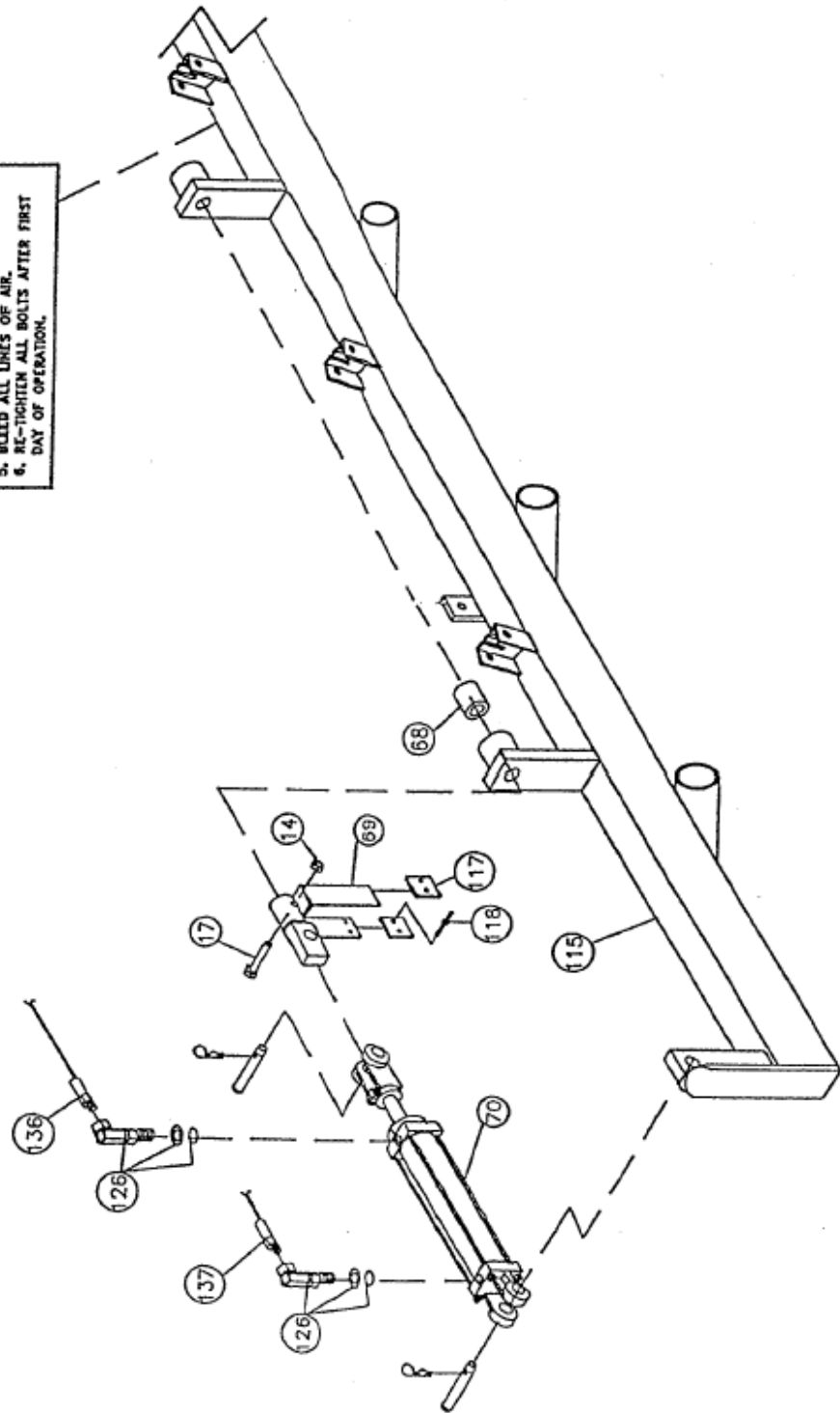


# LEFT RAKE FRAME (REAR VIEW WITH HYDRAULICS)

**OPERATING INSTRUCTION**

1. LEVEL RAKE USING HITCH ADJUSTMENT.
2. SET TIRE PRESSURE 20 PSI.
3. ADJUST RAKING WHEEL SPRING TENSION TO ASSURE CLEAR RAKING WITHOUT EXCESSIVE GROUND CONTACT.
4. CHECK HYDRAULIC OIL LEVEL IN TRACTOR.
5. BLEED ALL LINES OF AIR.
6. RE-TIGHTEN ALL BOLTS AFTER FIRST DAY OF OPERATION.

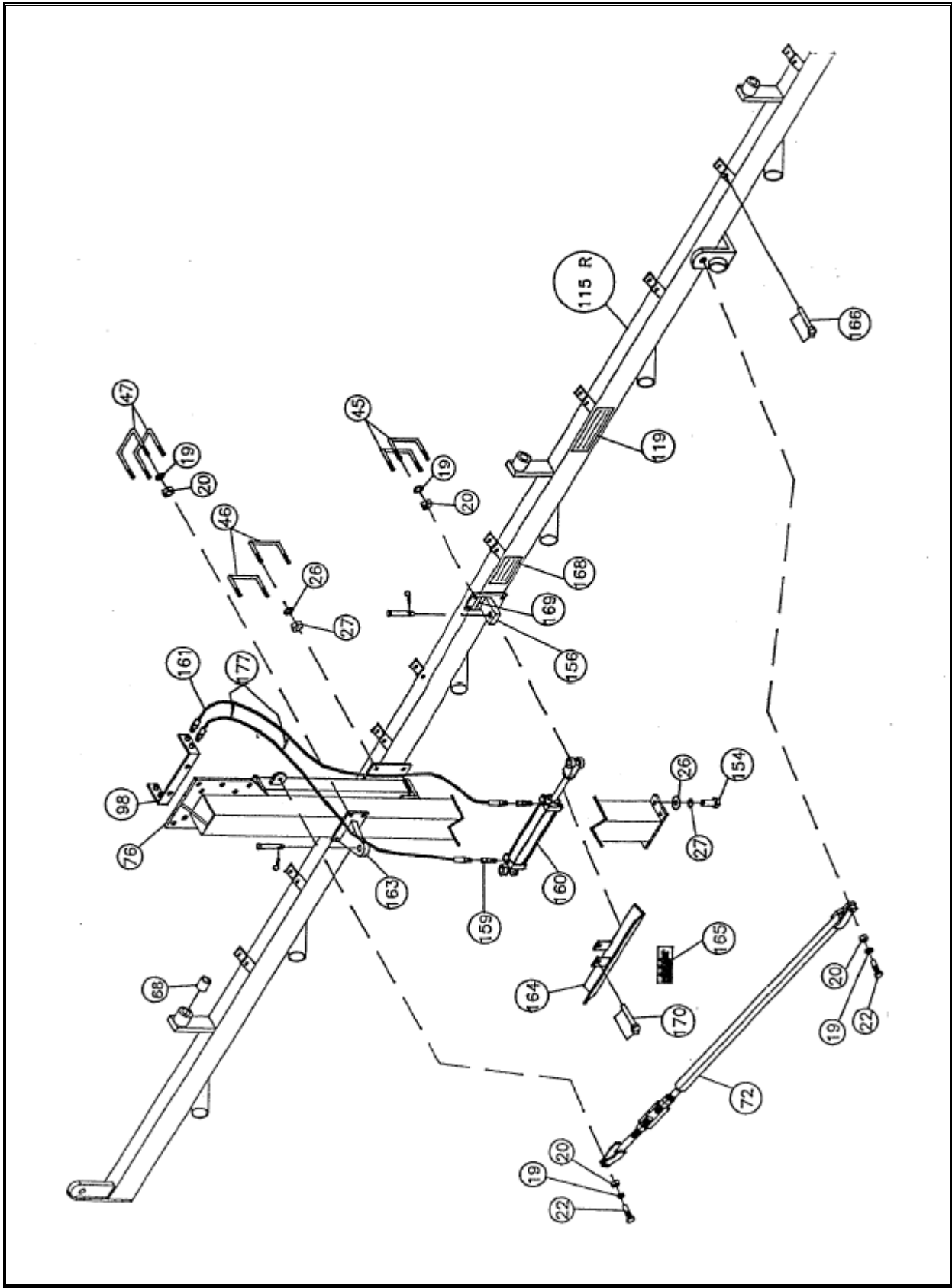
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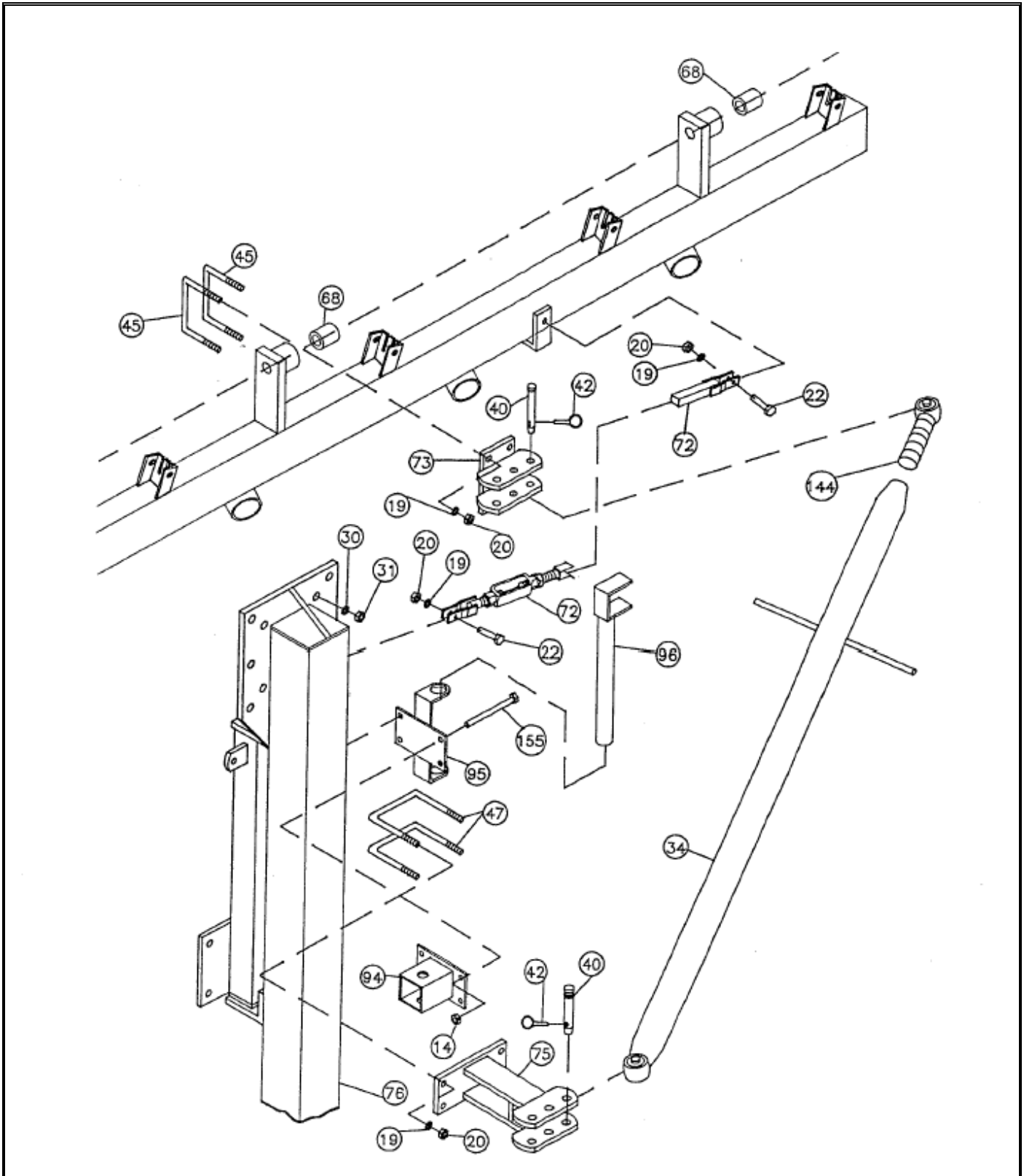
# RAKE FRAME AND RELATED PARTS

## FD MODELS



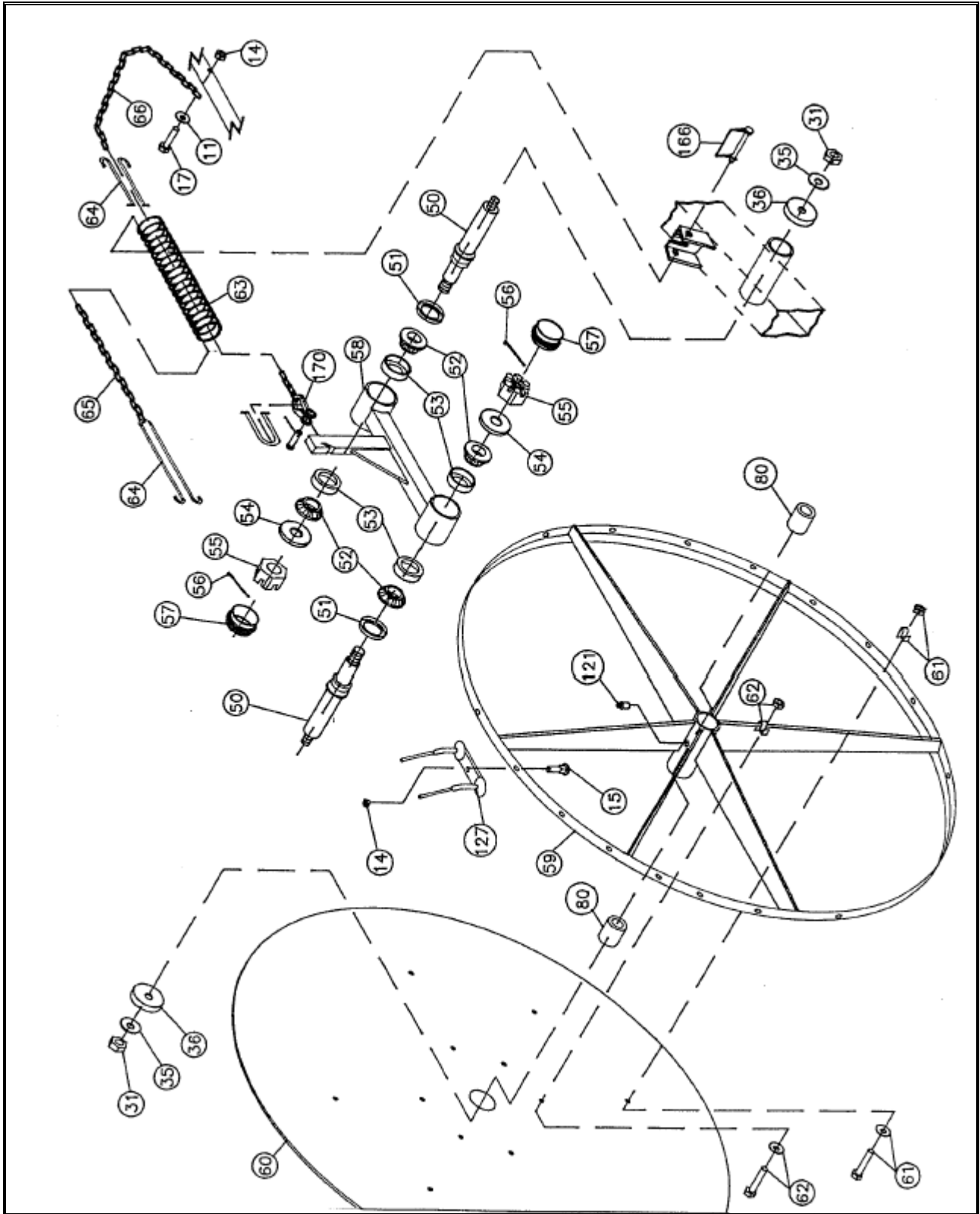


# RAKE FRAME AND RELATED PARTS STANDARD HYDRAULICS





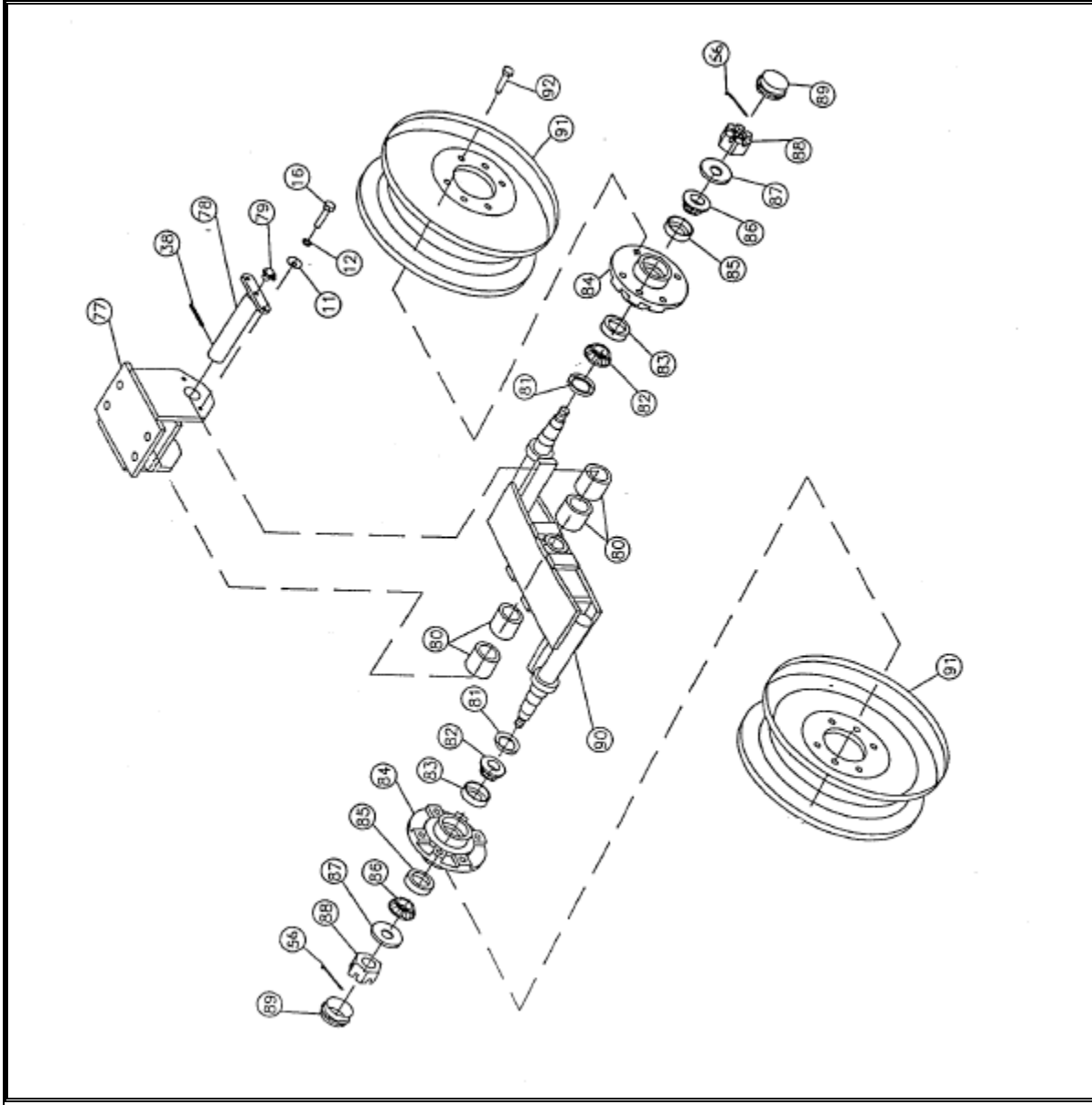
# RAKING WHEEL and BEARING CRANK





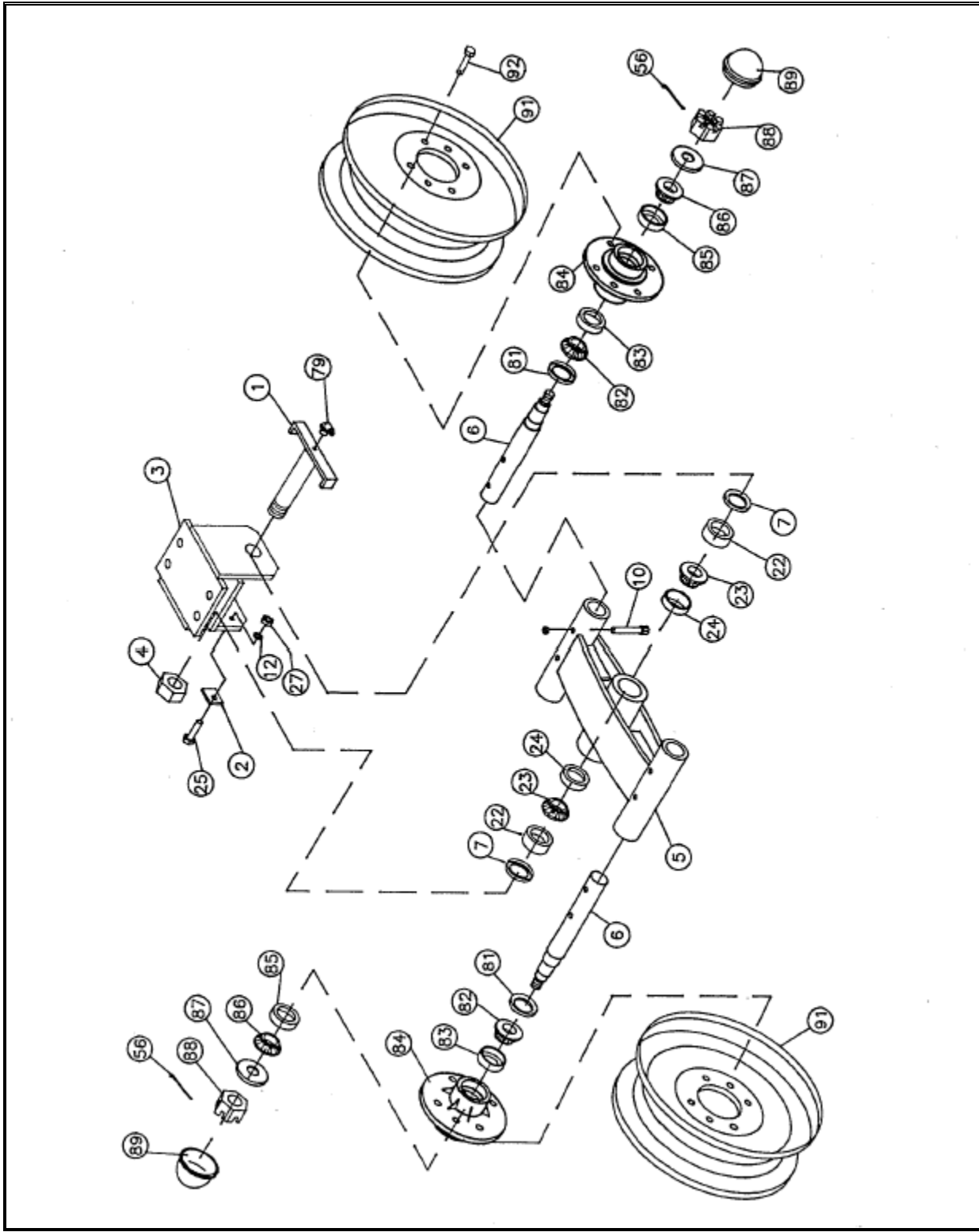


**WALKING BEAM ASSEMBLY  
STANDARD – Right or Left**



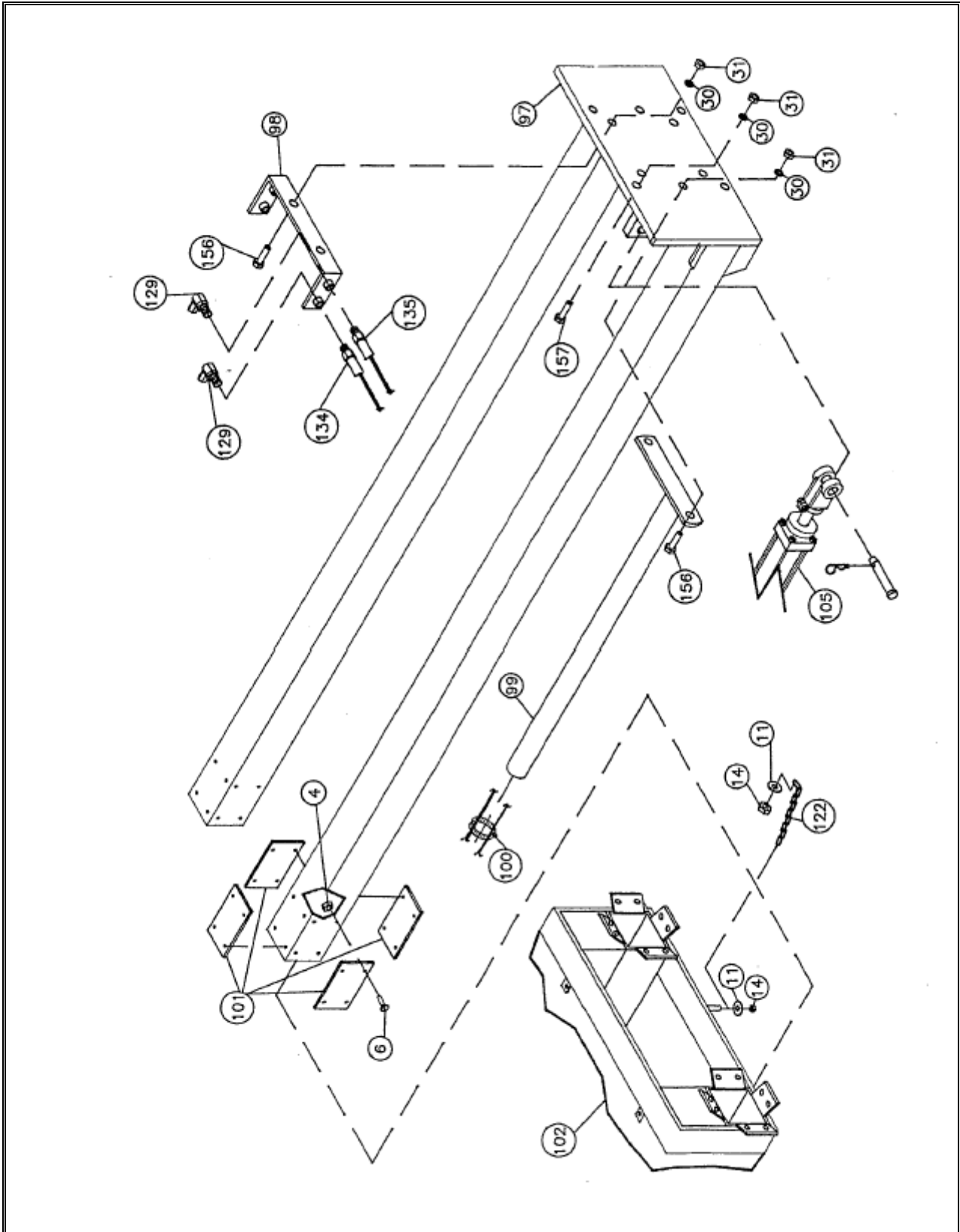


**HEAVY DUTY WALKING BEAM ASSEMBLY**  
**(Right or Left)**  
**Optional On All Rakes Except As Noted**



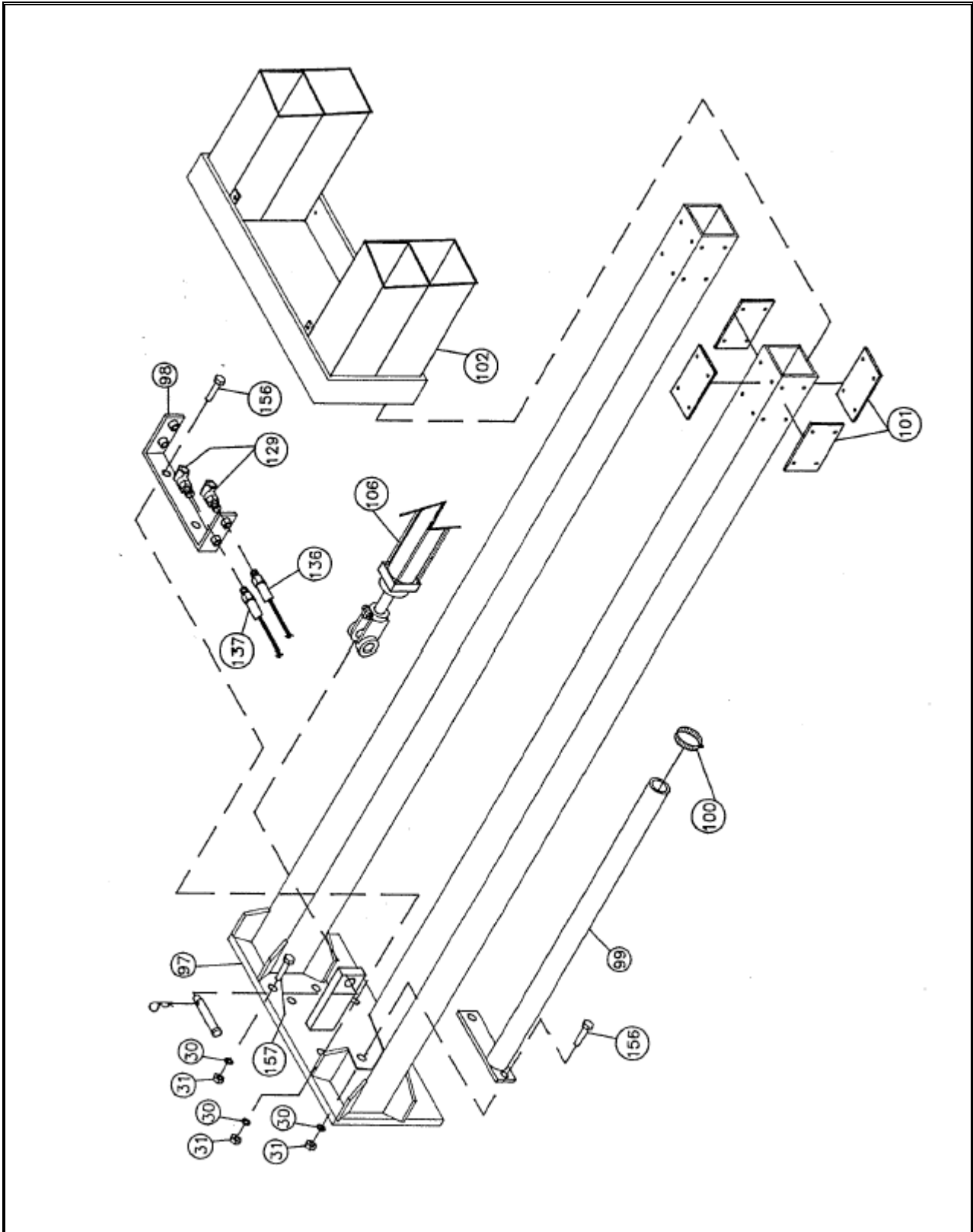


# OVERHEAD SLIDE SECTION RIGHT SIDE





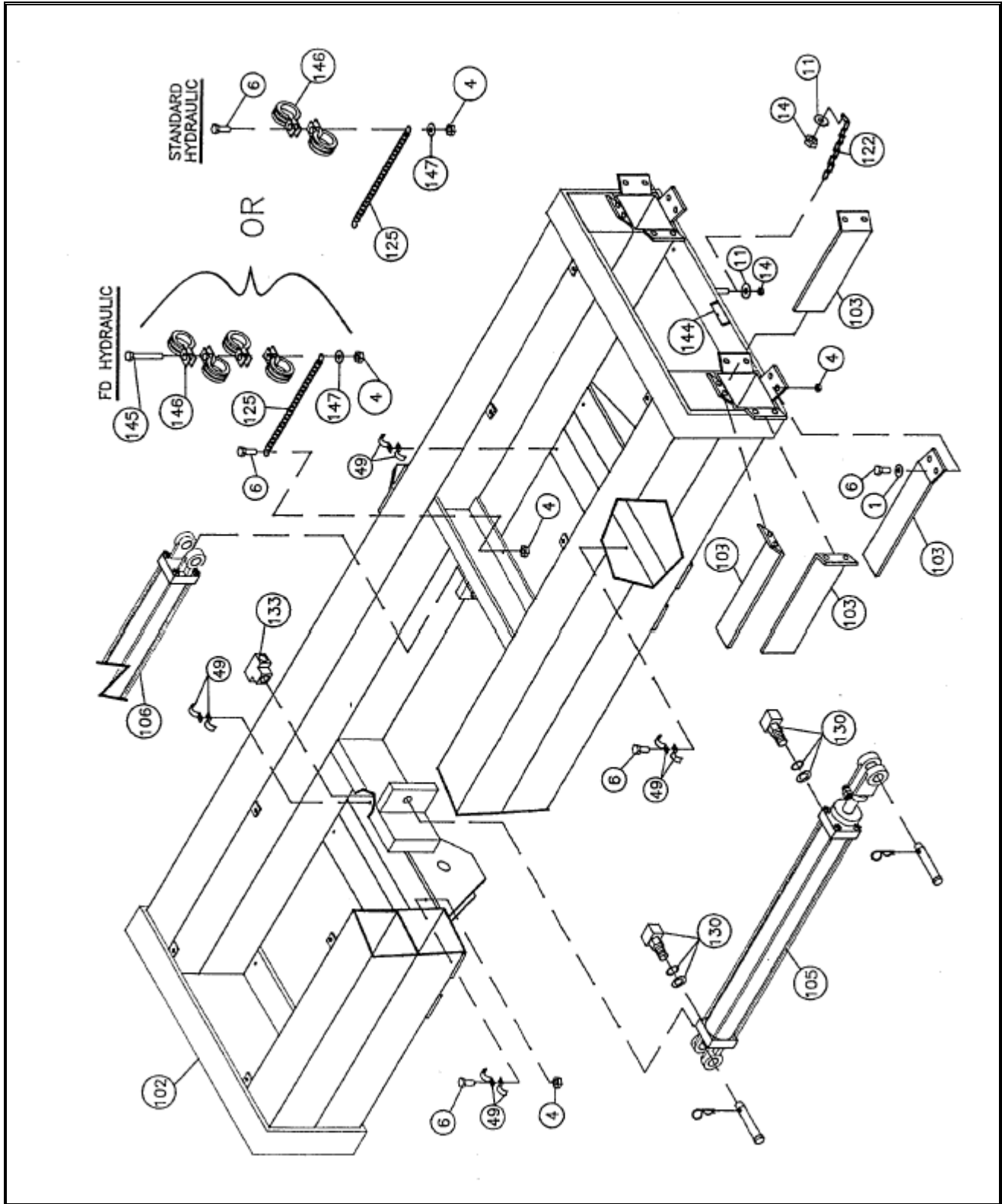
OVERHEAD SLIDE SECTION  
LEFT SIDE





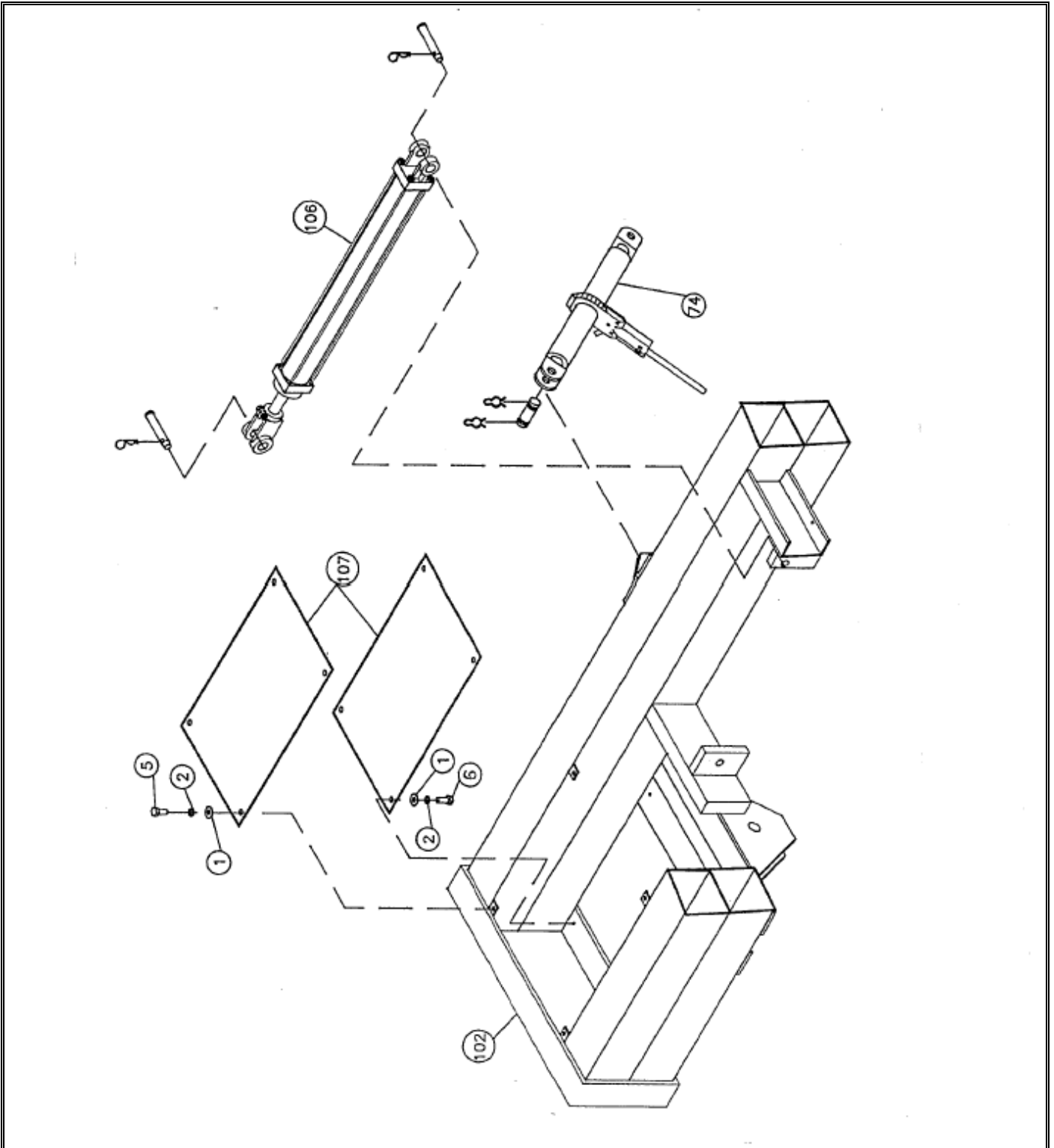


# OVERHEAD MAIN FRAME



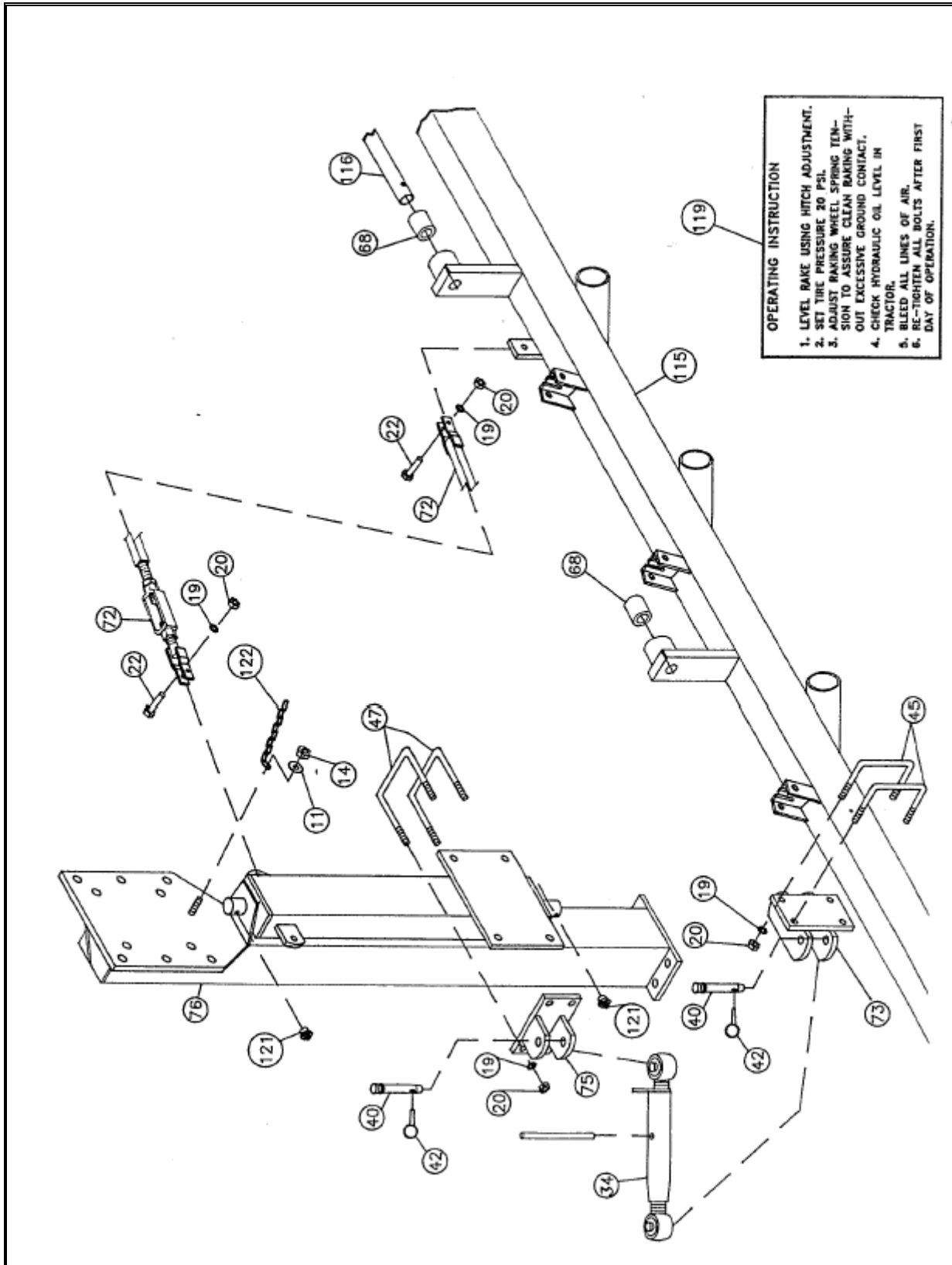


# OVERHEAD COVER PLATES



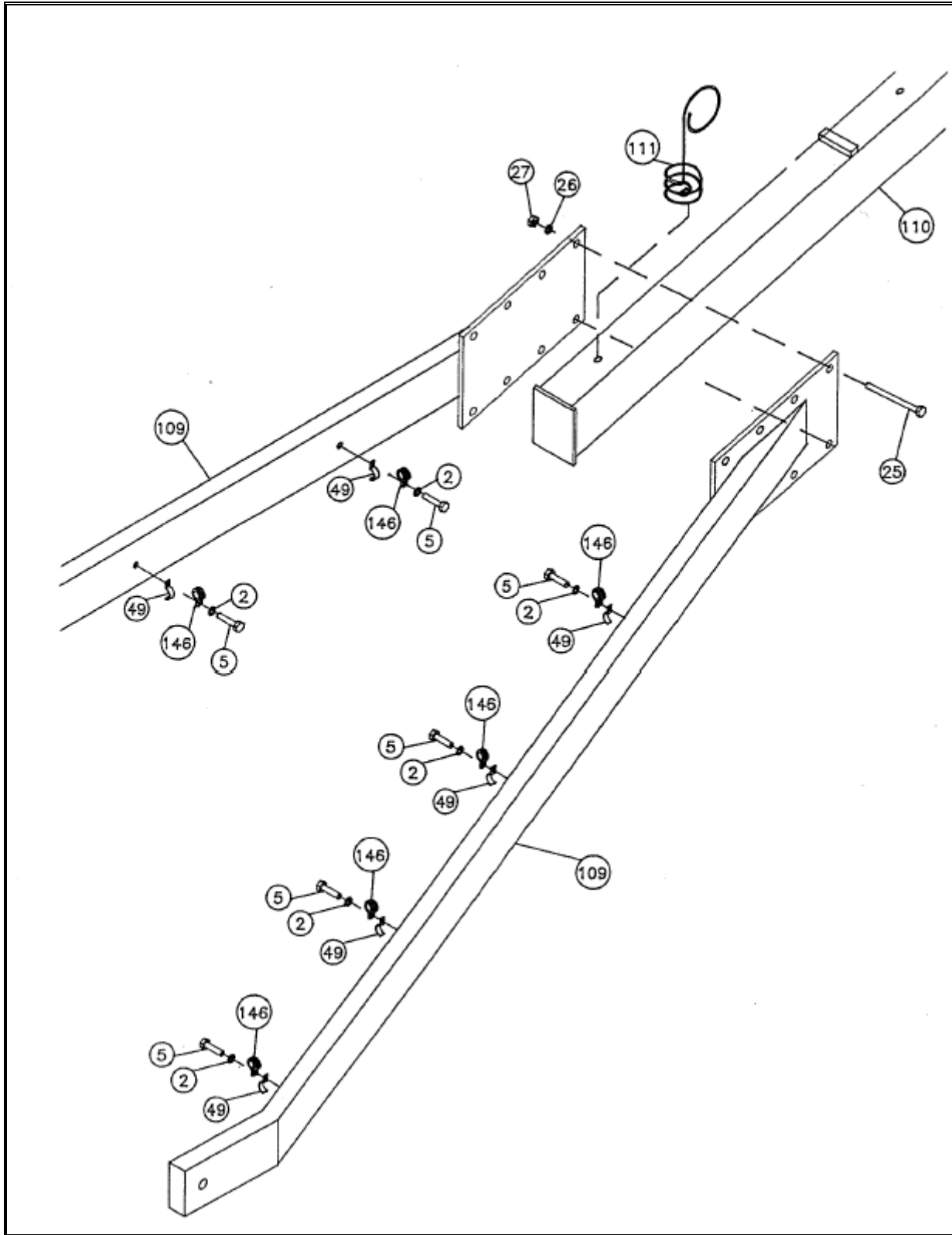


# LEG STRUT RIGHT OR LEFT SIDE





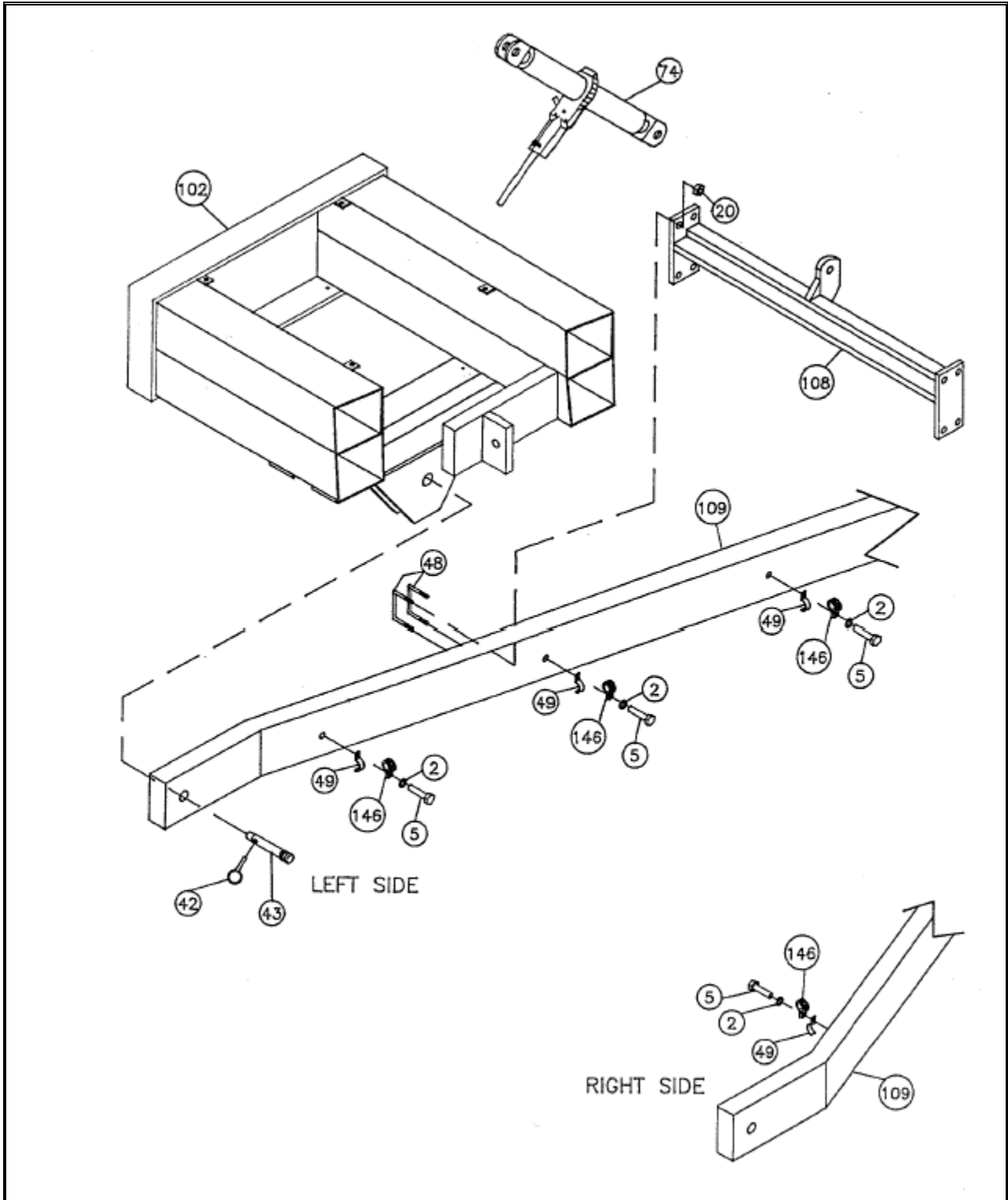
# TONGUE UNIT





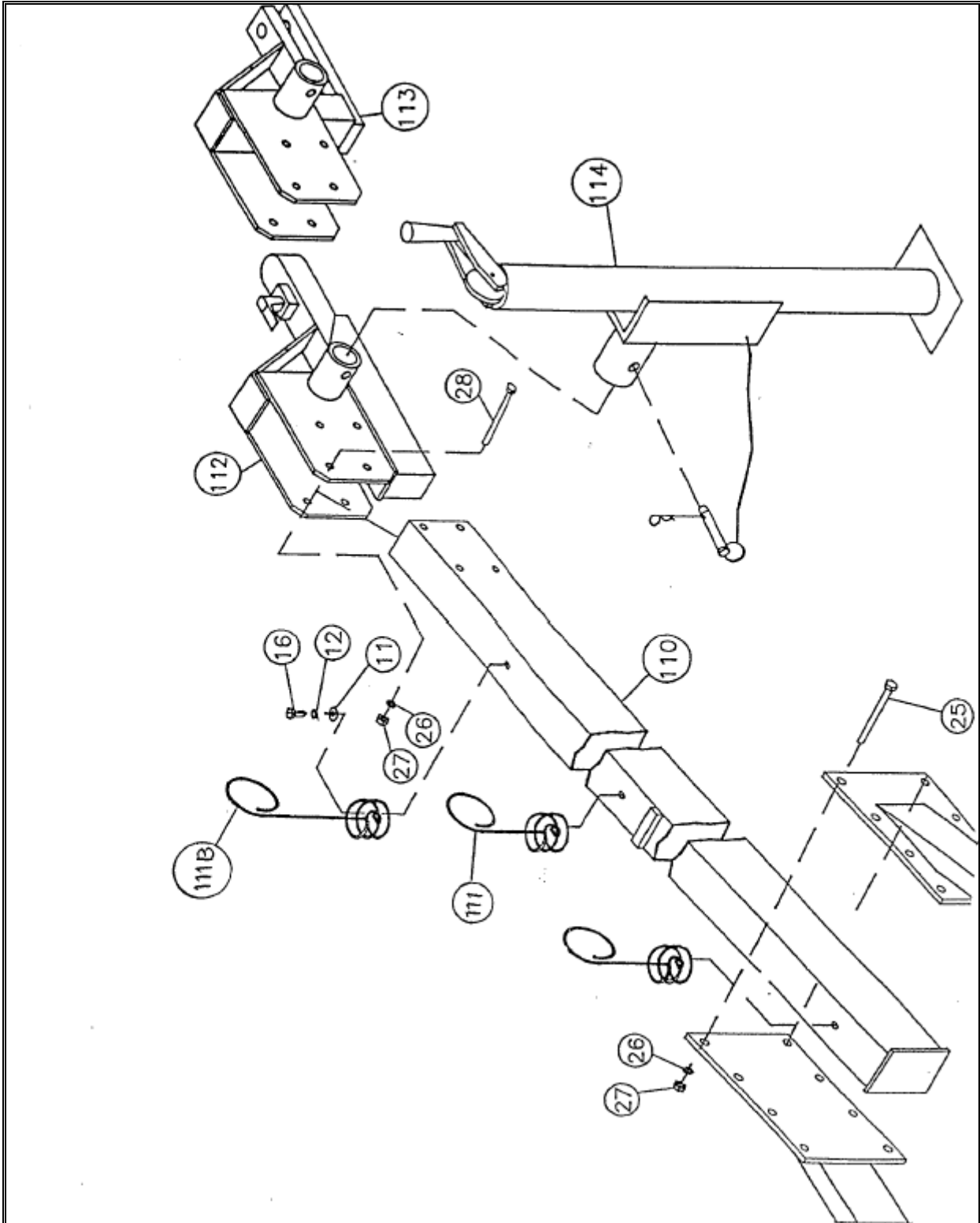


# UPPER TONGUE SECTION



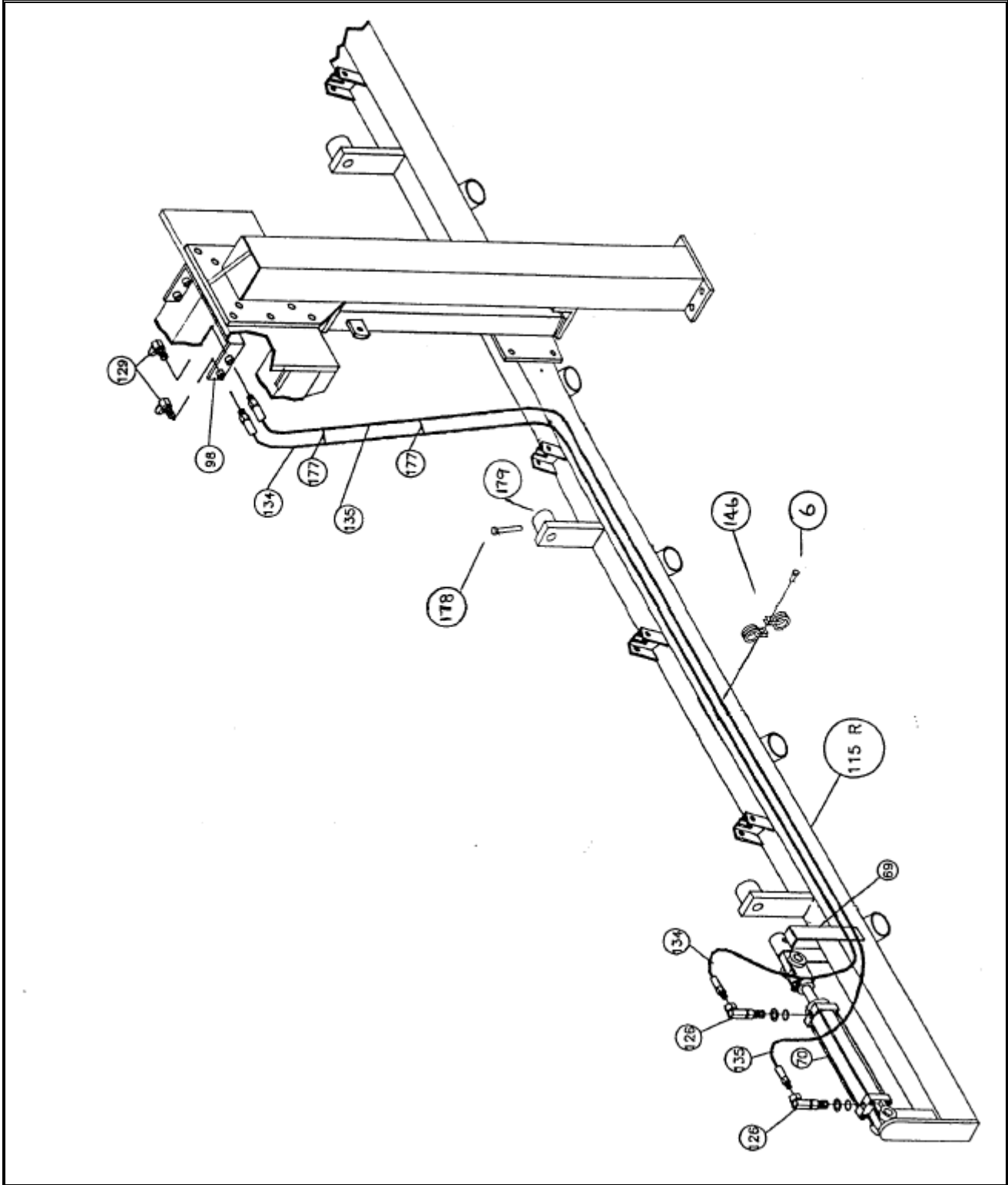


# LOWER TONGUE UNIT HITCH and JACK



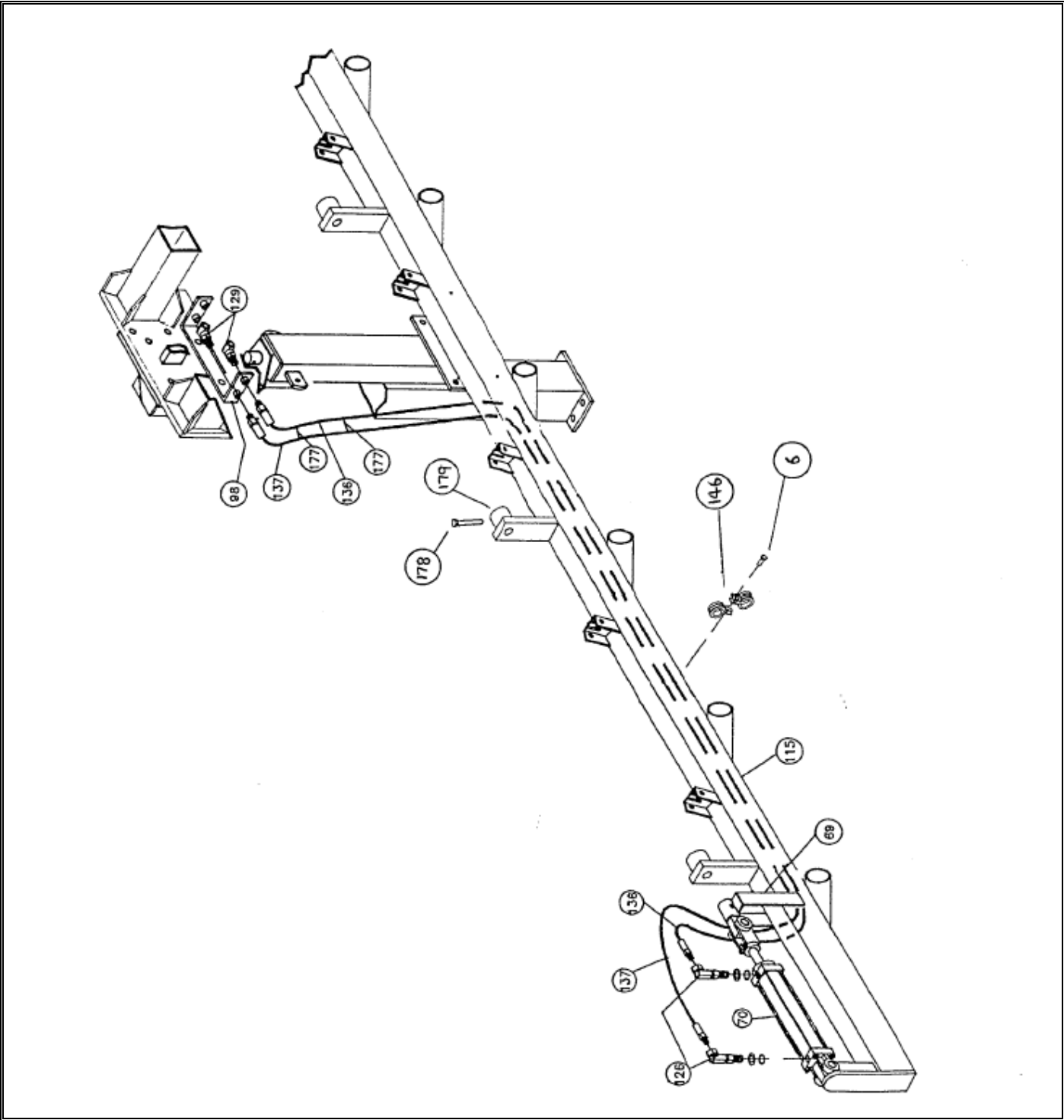


# STANDARD HYDRAULIC LAYOUT RIGHT SIDE





**STANDARD HYDRAULIC LAYOUT  
LEFT SIDE**











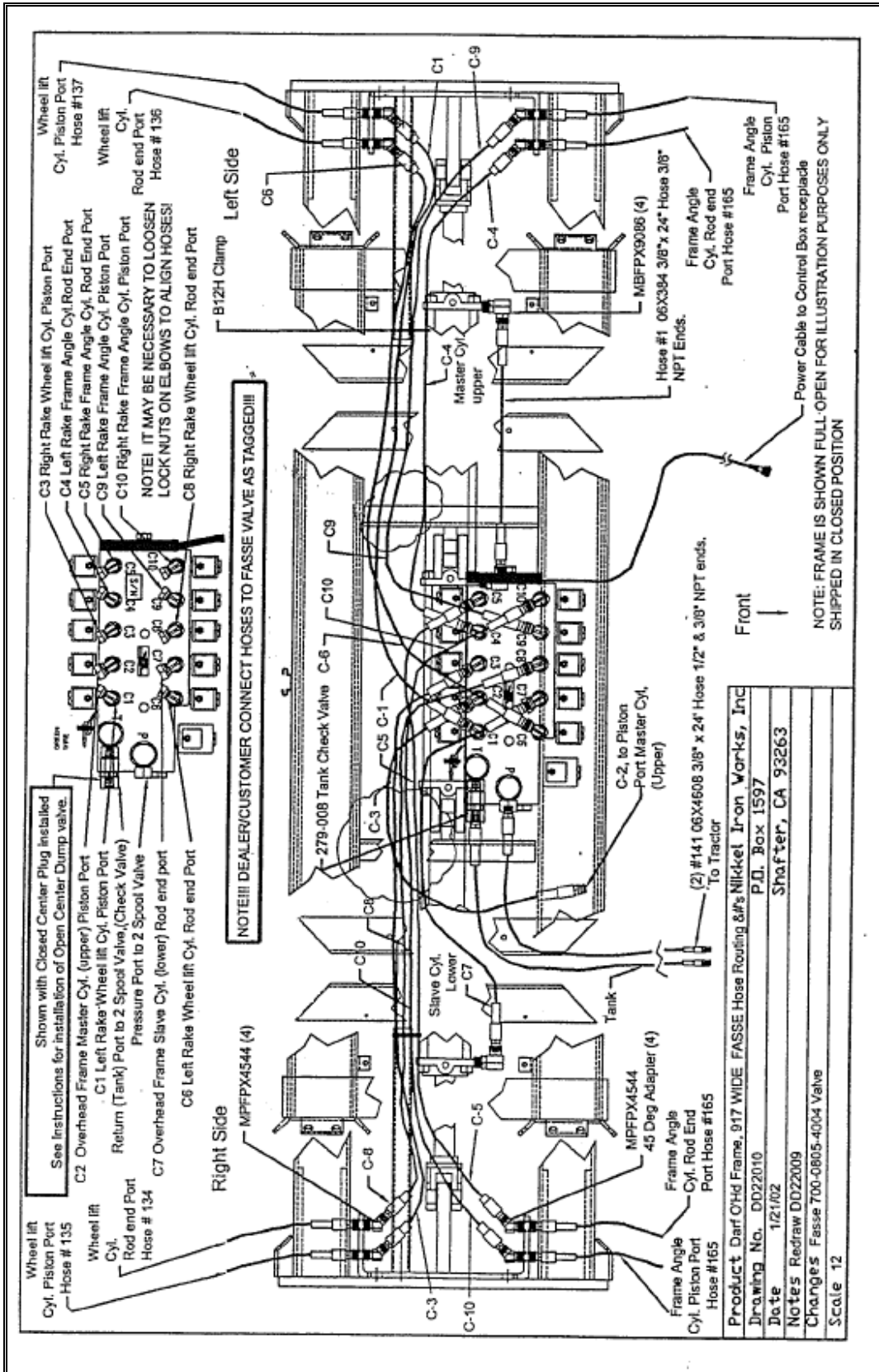








# HOSE ROUTING MODEL 917 WIDE with FASSE VALVE



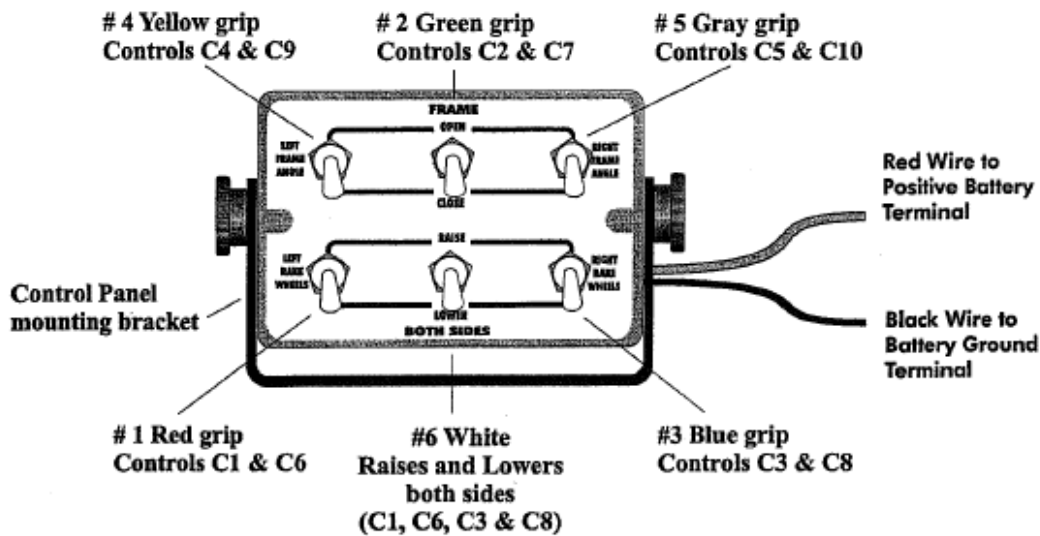
Product	Darf O/Hd Frame, 917 WIDE FASSE Hose Routing & #s Nickel Iron Works, Inc
Drawing No.	DD22010
Date	1/21/02
Notes	Redraw DD22009
Changes	Fasse 700-0805-4004 Valve
Scale	1:2





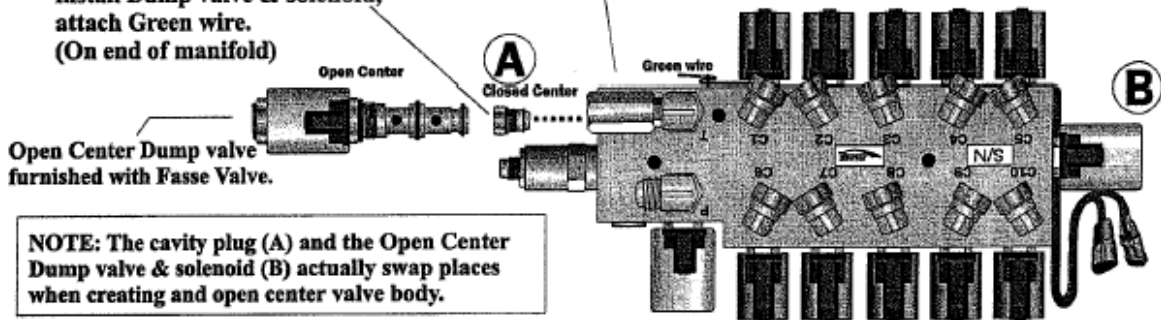
# FASSE SET UP – START UP INSTRUCTIONS

1. **Note:** The Fasse Valve for the Darf Rake is assembled for **CLOSED CENTER HYDRAULICS**. See below for installation of the Open Center Dump Valve supplied with the Fasse Valve.
2. Use the accompanying instructions for Fasse Start-up and reference.
3. If the hydraulics are erratic during start-up, AIR is likely the cause. Be sure to thoroughly purge the complete system.

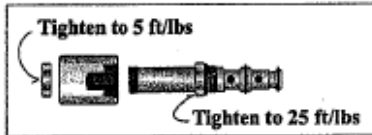


For Open Center Hydraulics, remove Closed Center plug and install Dump valve & solenoid, attach Green wire. (On end of manifold)

279-008 Check Valve. Installs in "tank" port.



**NOTE:** The cavity plug (A) and the Open Center Dump valve & solenoid (B) actually swap places when creating an open center valve body.



<b>Product:</b>	Fasse Set-up/Start-up Instructions	700-0805-4005	<b>Nikkel Iron Works, Inc.</b> P.O. Box 1597 Shafter, CA 93263
<b>Drawing No.:</b>	Dd22006		
<b>Date:</b>	10/27/04		
<b>Notes:</b>	6 Function control box. Beginning with 2002 production changes		
<b>Scale:</b>	4		

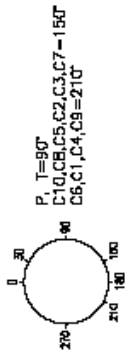
700-0805-4005

Switch No.	Boot Color	Switch Position	Hot Wires	Pressure Ports	Tank Ports	Function
1	Red	Up	Red & Org & Grn	C1	C6	L Rake Wheel Raise
		Down	Red & Org & Grn & Blk/Wht	C6	C1	L Rake Wheel Lower
2	White	Up	Red & Org & Org/Blk & Red/Blk & Grn	C1 & C3	C6 & C8	L & R Rake Wheel Raise
		Down	Red & Org & Org/Blk & Red/Blk & Grn & Blk/Wht	C6 & C8	C1 & C3	L & R Rake Wheel Lower
3	Blue	Up	Red/Blk & Org/Blk & Grn	C3	C8	R Rake Wheel Raise
		Down	Red/Blk & Org/Blk & Grn & Blk/Wht	C8	C3	R Rake Wheel Lower
4	Yellow	Up	Blue & Wht/Blk & Grn	C4	C9	L Rake Frame Angle
		Down	Blue & Wht/Blk & Grn & Blk/Wht	C9	C4	L Rake Frame Angle
5	Green	Up	Blu/Blk & Wht & Grn	C2	C7	Frame Master Raise
		Down	Blu/Blk & Wht & Grn & Blk/Wht	C7	C2	Frame Master Lower
6	Grey	Up	Grn/Wht & Red/Wht & Grn	C5	C10	R Rake Frame Angle
		Down	Grn/Wht & Red/Wht & Grn & Blk/Wht	C10	C5	R Rake Frame Angle



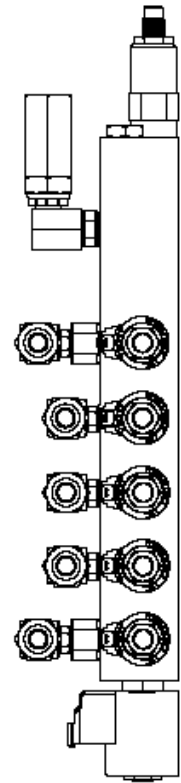
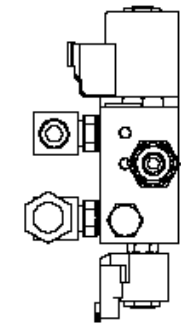
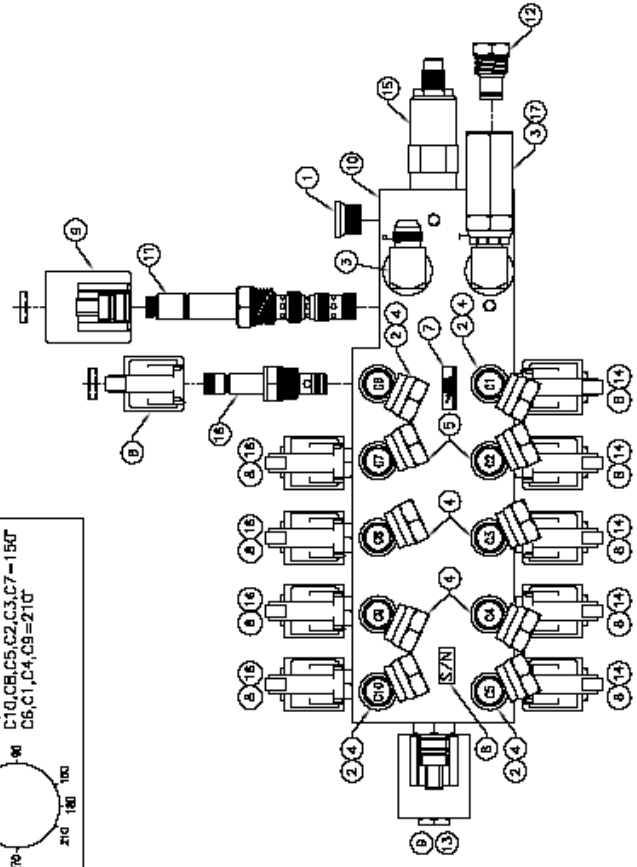


**FITTING ORIENTATION**



**PARTS LIST**

NO	PART NUMBER	QTY	PART DESCRIPTION
1	210-038	1	FITTING
2	210-151	4	FITTING
3	210-166	2	FITTING
4	210-169	6	FITTING
5	210-229	2	FITTING
6	232-05D	2	DECL SYN (SILVER)
7	232-06B	1	DECL PASSE BLM/GOLD 1" X .75" R
8	253-048	10	COIL
9	253-421	2	COIL
10	270-093	1	MANFOLD
11	273-00B	1	CARTRIDGE
12	273-012	1	CARTRIDGE
13	273-017	1	CARTRIDGE
14	273-077	5	CARTRIDGE
15	273-078	1	CARTRIDGE
16	273-578	3	CARTRIDGE
17	279-006	1	CHECK VALVE



**NOTE:**  
1. 210-151 FIT'S GO IN PORTS C1, C5, C6, AND C10 UNDER THE FITS 210-166.

**SPECIFICATIONS:**

- MAXIMUM PRESSURE 3000 PSI
- MAXIMUM FLOW 8 GPM
- PORT SIZE (P, T) -8 SAE O-RING
- PORT SIZE (ALL C) -6 SAE O-RING
- MOUNTING HOLES (2) .406 DIA
- MOUNTING HOLES (1) 5/16-18 TAPPED

REV	REVISION	DATE	BY	CHKD	APPROVED	REVISIONS	DATE	BY	CHKD	APPROVED
1	ISSUE FOR PRODUCTION	11/15/11	MD	MD	MD	1	11/15/11	MD	MD	MD
2	ISSUE FOR PRODUCTION	11/15/11	MD	MD	MD	2	11/15/11	MD	MD	MD
3	ISSUE FOR PRODUCTION	11/15/11	MD	MD	MD	3	11/15/11	MD	MD	MD

**FASSE VALVES**  
**MANI ASSY 0905 5DA CLSD D-INTO**  
 PART NO 302-682  
 SHEET 1 OF 8

# FA SSE SET UP-START UP INSTRUCTIONS

**THE CORRECT START-UP IS THE RESPONSIBILITY OF THE DEALER AND/OR OPERATOR !!  
PLEASE FOLLOW THESE INSTRUCTIONS**

1. Mount control box on tractor in a location easily accessible for the operator.  
Attach **RED** wire to positive battery lead ----- Attach **Black** wire to negative lead.  
Connect Control Cable from rake to Control Box cable with threaded coupler.  
**12-Volt DC Negative Ground Only.** Consult Factory for Positive Ground option.
2. Install correct tips on the 2 hydraulic hoses routed down the tongue. Locate hydraulic hose from the "P" port on the valve. Insert into one of the remote valve couplings. **DO NOT INSERT RETURN LINE AT THIS TIME.** Operate the control valve to determine which position it must be in to supply oil to the pressure hose. You may have a detent that allows the valve to remain in this position, or you may have to tie the valve handle with a bracket, wire or twine. Return the valve to neutral and install the **return hose in the return coupler.**
3. Remove the 1" pins on the rod end of the Frame Angle Cylinders, as well as the angle iron cylinder safety stop. Swing cylinders out to clear rake frame tab.
4. **With the tractor moving** operate the Tractor valve control handle to supply oil to the pressure hose.
5. You will likely see the overhead frame begin to move as a rule the right side frame will extend first, then the left side frame. **Until the air is purged from the system this may take place without using the white "Frame switch in the center of the control panel.**
6. **Until the system is fully purged, it is possible that any one or all of the 6 functions may cause the cylinders to extend or retract with the control switches in the neutral position.**
7. Operate the 4 remaining switches until the air is completely purged. Extend the rake frame cylinders fully and re-insert the 1" pins.
8. Check the tractor transmission/hydraulic oil level before completing the start-up. About 4-5 gallons may be required to replenish the system.
9. On occasion it is necessary to extend and retract the overhead frame 2-3 times in order that the hoses take a "set" so they will fold as intended.
10. **REMEMBER !! The rake must be moving at anytime you extend or retract the overhead frame.**

## **PURGING THE OVERHEAD FRAME REPHASING CYLINDERS**

To properly purge the air from the system, cylinders should be fully extended to the rephasing mode. (You will note that one side will extend first until the cylinders are fully purged) Hold the cylinders in the fully extended mode for approximately 30 seconds, retract the cylinders until the air is purged from the system. Make sure tractor RPM is moderate so the hydraulic pump is at its full capacity. During initial startup the seals may need a few cycles to seat themselves for a good seal.

**PATIENCE** is the key and air is the worst enemy. NEVER loosen a fitting to bleed off the system. **This can be dangerous!**

# OPERATING INSTRUCTIONS

## FULL HYDRAULIC MODELS

***Use with FASSE Valve instructions***

- Maintain tire pressure: 20 PSI front and rear.
- Adjust spring tension to allow crop to rotate raking wheels.
- Do not operate raking wheels in the ground.
- Install suitable hose couplers on the 3/8" hoses from the valve. Insert in tractor couplers. Lock tractor remote handle in position so oil is entering at the correct valve "in" port. If your tractor is closed center, install the closed center adapter furnished with the rake valve.
- Remove the two dealer installed safety transport chains-03PCCHAIN08

### **TO OPEN FROM TRANSPORT POSITION TO RAKING POSITION**

1. Operate the FASSE control switch as indicated on the valve decal to raise the raking wheels to the "up" position.
2. Operate the FASSE control switch to open the overhead frame, WHILE MOVING. Pull forward slowly until the main frame is fully open, then close about 4" to 6".
3. Using the FASSE control switch indicated on the valve decal, adjust the raking wheel frames to the required angle.
4. Level raking frames to the ground by alternately adjusting the main frame to drawbar adjusting links.
5. Operate the FASSE control switch as indicated on the valve decal to lower the raking wheels.
6. Check hydraulic fluid in your tractor. You will likely need to add approx. 4-5 gallons for initial start up.
7. Adjust the raking wheel crop contact (spring tension) by using the supplied rake crank handle and position chain in slot so the raking wheel will move the crop with minimum or no ground contact. The 2 slots in the chain bracket allow for 1/2 link adjustment. Replace handle in storage bracket.

**NOW YOU ARE READY TO RAKE**

### **TO CLOSE TO TRANSPORT POSITION FROM RAKING POSITION**

1. Operate the FASSE control switch as indicated on the valve decal to raise the raking wheels to the "up" position.
2. Return raking frames to straight position.
3. Operate the FASSE control switch to close the overhead frame WHILE MOVING. Pull forward slowly until main frame is fully closed.

**NOW YOU ARE READY TO TRANSPORT**

***DRIVE CAUTIOUSLY, GIVE ONCOMING AND PASSING TRAFFIC AMPLE ROOM***



# **OPERATING INSTRUCTIONS**

## **STANDARD & WIDE MODELS**

Maintain tire pressure @20 PSI

Adjust spring tension to allow crop to rotate raking wheels.

Do not operate raking wheels in the ground.

### **STANDARD HYDRAULICS**

1. Install suitable hose couplers on the 4 hoses supplied. You will need one double acting valve to open and close the main frame and one double acting valve for raising and lowering the raking wheels.
2. Remove the 2 dealer installed 03PCCHAIN08 safety transport chains.

### **TO OPEN FROM TRANSPORT POSITION TO RAKING POSITION**

1. Operate the tractor valve to raise the raking wheels to the “up” position.
2. To open the overhead frame, operate the tractor valve while moving. Pull forward slowly until the frame is fully open, or to the width suitable for your raking conditions.
3. Use the adjusting links on the raking wheel frames to adjust raking angle as required.
4. Level raking frames to the ground by alternately adjusting the main frame to drawbar adjusting links.
5. Operate the tractor valve to lower the raking wheels, check each raking wheel for proper crop contact.
6. Check hydraulic fluid in your tractor. You will need to add approximately 2 gallons for initial start up.

**NOW YOU ARE READY TO RAKE**

### **TO CLOSE TO TRANSPORT POSITION FROM RAKING POSITION**

1. Operate the tractor valve to raise raking wheels to the “up” position.
2. Return raking frames to straight position.
3. To close the overhead frame, operate the tractor valve while moving. Pull forward slowly until the frame is fully closed.

**NOW YOU ARE READY TO TRANSPORT**

***DRIVE CAUTIOUSLY, GIVE ONCOMING AND PASSING TRAFFIC AMPLE ROOM***



## PARTS LIST

## PARTS LIST

