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Culta-Weeder or 1500 Series Rod Weeder 5-Section

Assembly and Operating Instructions:



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Assembly

Forward

The assembly of your new machine is relatively simple if it is set up in the following sequence and the caution areas are particularly noted. The recommended assembly sequence will include setting up the entire main frame first. The wheel legs/lift assemblies, tongue & wing pull assemblies, tires, wing lift & transport brackets, cylinders, lead arms, backbones, spring cushions, goosenecks & shoes, boots & drivelines, shanks, and hydraulics will follow – respectively. Cautionary decals and tape should be applied after the machine’s function is verified.

Assembly Note#1: When making reference to the left and right hand side of the machine, it is always assumed that you are standing behind the machine looking forward towards the hitch/tractor.

Assembly Note#2: loose-assemble (finger tight fasteners of) all sub-components before securing in place (tightening) to allow for adjacent part assembly/orientation.

Step 1: Main Frame

- 1) Suspend center frame, inner wings, and outer wings on mounts high enough that wheel legs can be installed and assembled in their lowered position. 36”-48” high metal stands are recommended.
- 2) Open Main Frame & Tongue bolt kit #0410-332.
- 3) Attach inner wings to center frame with fasteners #8116-032 (Fabricated/Manufactured 1-1/4” x 7” NC bolt w/Nylock Nut). Bolt heads should rest against stops to prevent rotation.
- 4) Attach outer wings to inner wings with fasteners #8116-046 (Fabricated/Manufactured 1” x 7-7/8” NC bolt w/Nylock Nut). Bolt heads should rest against stops to prevent rotation.

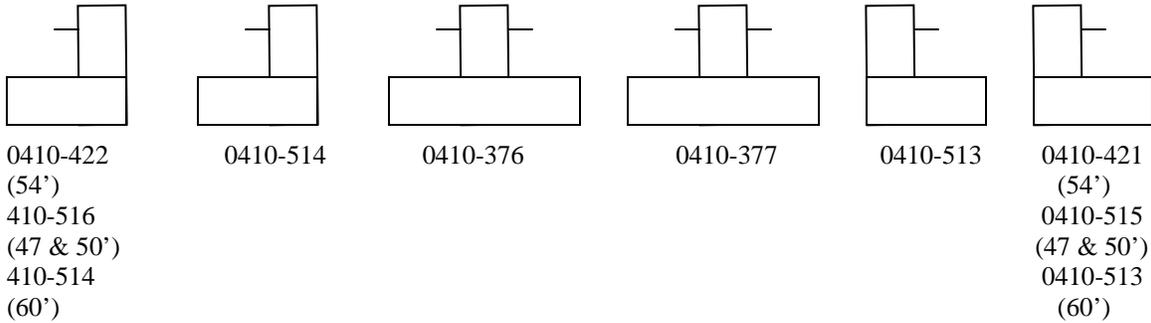
Wing Layout (length and part number chart)

47'	7' #0410-131	10-1/2' #0410-092	12' #CW9-066	10-1/2' #0410-091	7' #0410-132
50'	7' #0410-131	10-1/2' #0410-027	12' #CW9-066	12' #0410-028	7' #0410-132
54'	10-1/2' #0410-093	10-1/2' #0410-092	12' #CW9-066	10-1/2' #0410-091	10-1/2' #0410-094
60'	12' #0410-025	10-1/2' #0410-027	12' #CW9-066	12' #0410-028	12' #0410-026
	LH Outer Wing	LH Inner Wing	Center Section	RH Inner Wing	RH Outer Wing

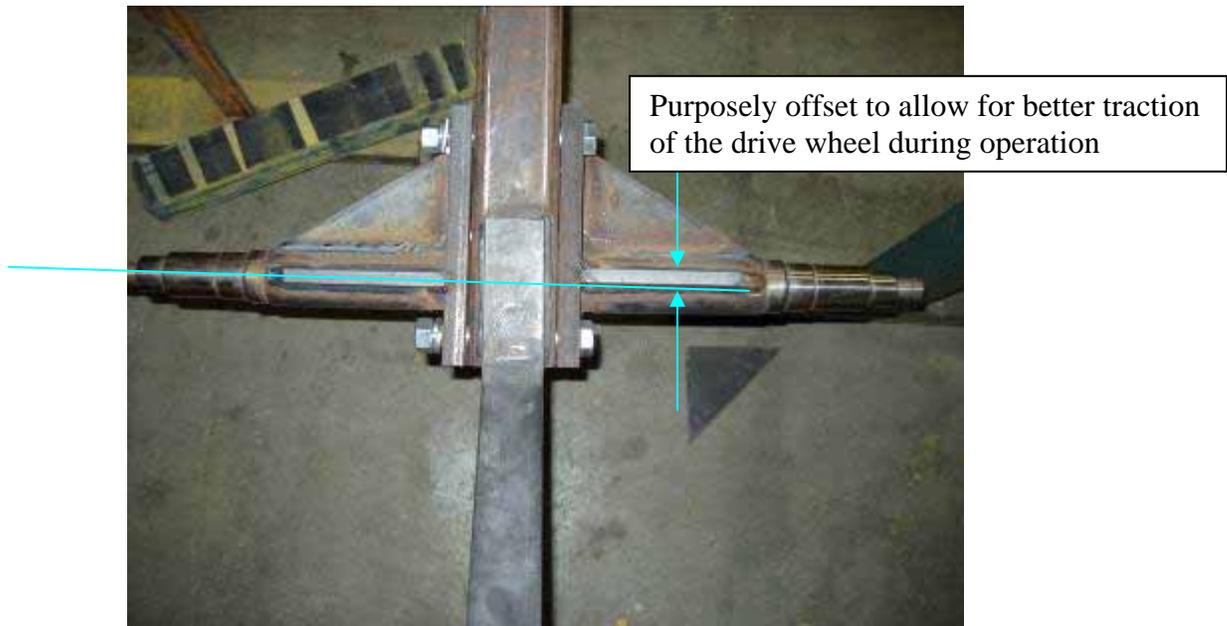
Step 2: Wheel Legs/Lift Assemblies

Note: some wheel hubs and spindles may, or may-not be pre-assembled. The following instructions apply to instances where those spindle hub-assemblies are pre-assembled.

Front



- 1) Open wheel leg bolt kits #0410-337, #410-377, & #410-336.
- 2) Install center frame wheel legs using 8117-003 (1-1/2" x 4-1/2" NC bolt w/Nylock Nut), 6136-675 bushing, and 7896-500 machine bushing. Note: the 0410-376 wheel leg assembly contains two left-hand spindle platforms rather than a left and a right to provide ~1.0" more depth/traction for operating the driveshaft. See Figure F for assembly detail.



- 3) Install wing frame wheel legs using 8116-802 (1-1/4" x 3-5/8" NC bolt w/Nylock Nut), 6136-627 bushings, and 7896-250 machine bushings.

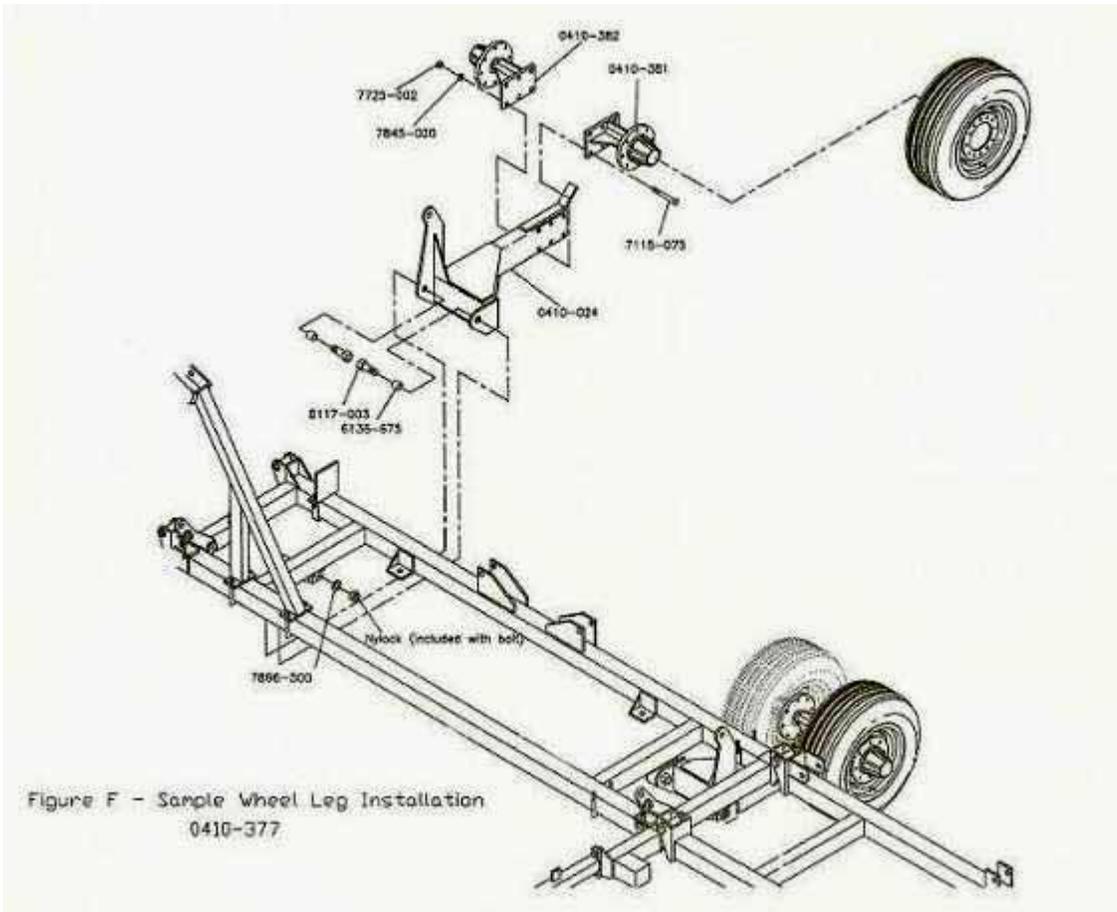


Figure F - Sample Wheel Leg Installation
0410-377

Note: the above illustration provides instruction regarding wheel leg assembly, spindles, hubs, and tires – only. The frame, brackets, and transport stand configuration shown may differ from model-to-model.

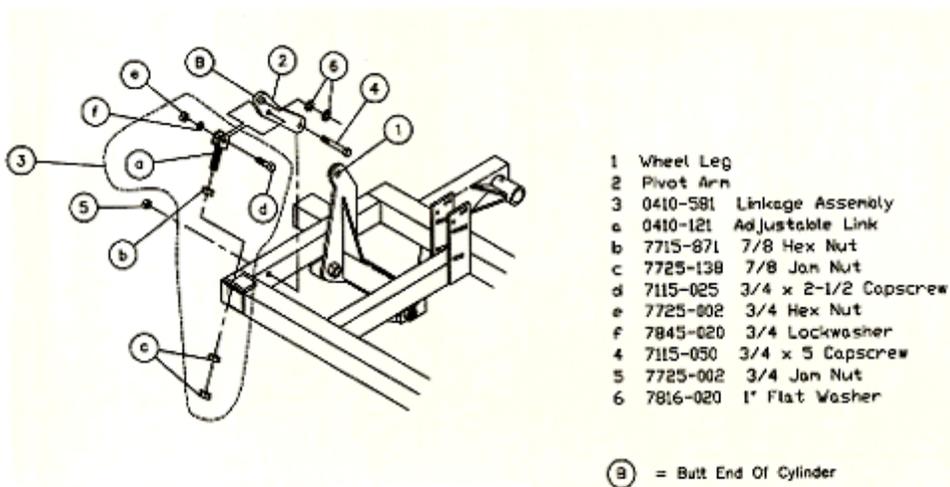


Figure H Cylinder Linkage

Step 3: Rolling Tongue, Tongue, and Wing Pull Assemblies

A. Install Wing Pulls and Cross Tongue

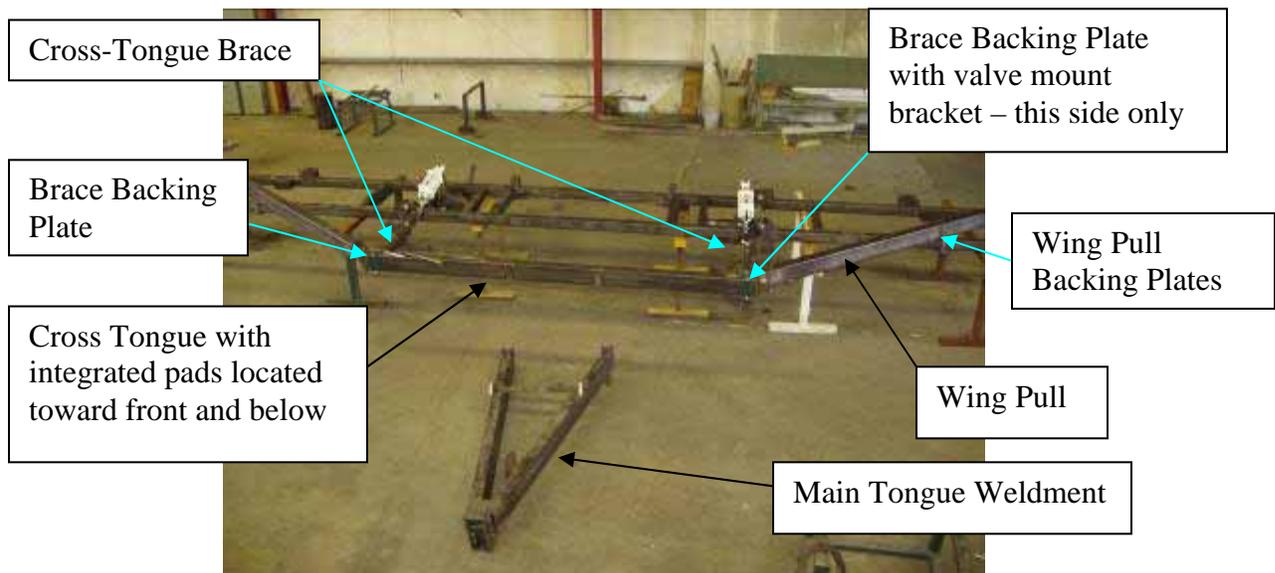
- 1) Attach Wing Pulls CW9-069 and CW9-070 with 8116-032 bolts w/Nylock Nuts (these are the large diagonal tube weldments).
- 2) Install wing pull bolts, 1-1/4" x 7" NC w/Nylock Nut through Cross tongue ends.
- 3) Secure Wing Pulls to Wing Frames using Cross-Tongue Braces with backing plates #CW9-037 and CW9-071 (backing plate with valve mount), 5/8 x 6-1/2 and 5/8 x 2-1/2 bolts, lockwashers, and hex nuts.

Note: Be sure to center the cross tongue and tongue members on Main Frame before securing/tightening.

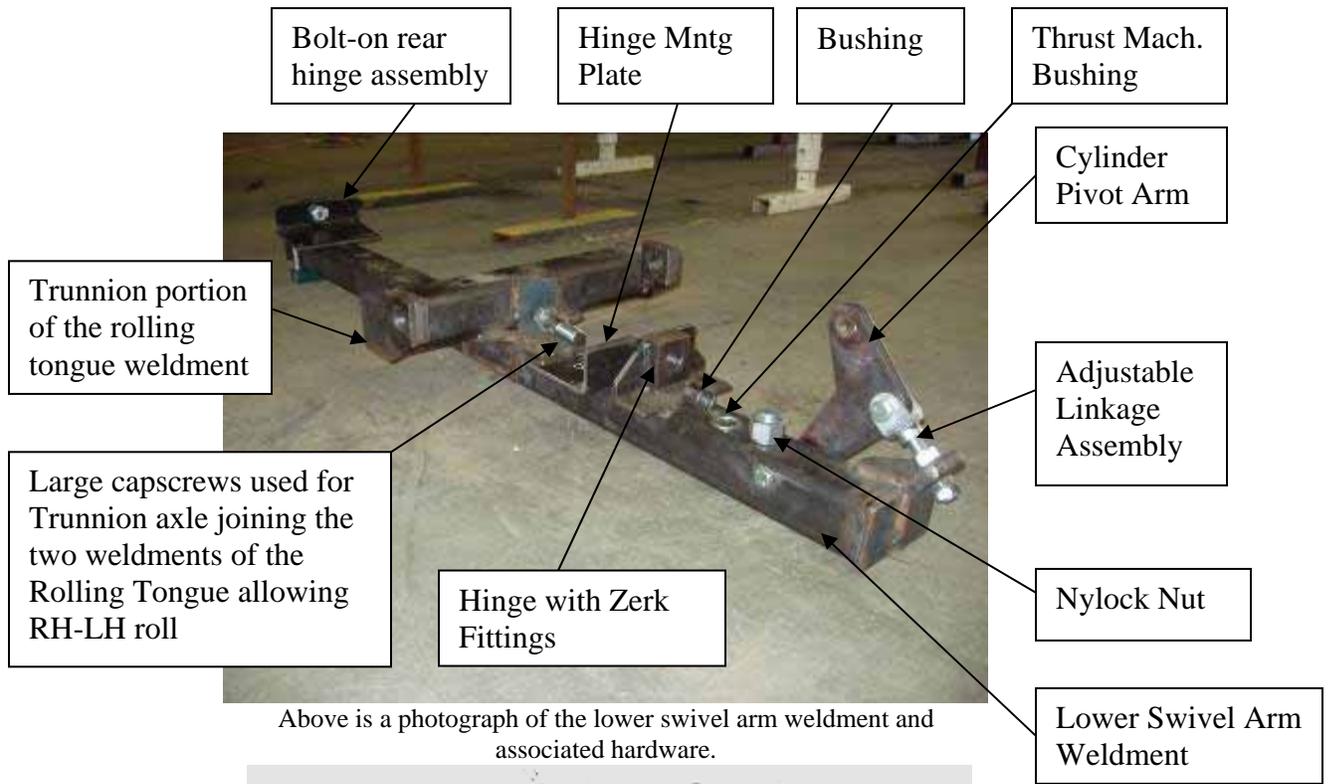
- 4) Secure Wing Pulls to Inner Wing Frames using two backing plates (#CW9-072).

B. Install Rolling Tongue and Tongue Assemblies (#410-345) using bolt kit #0410-331.

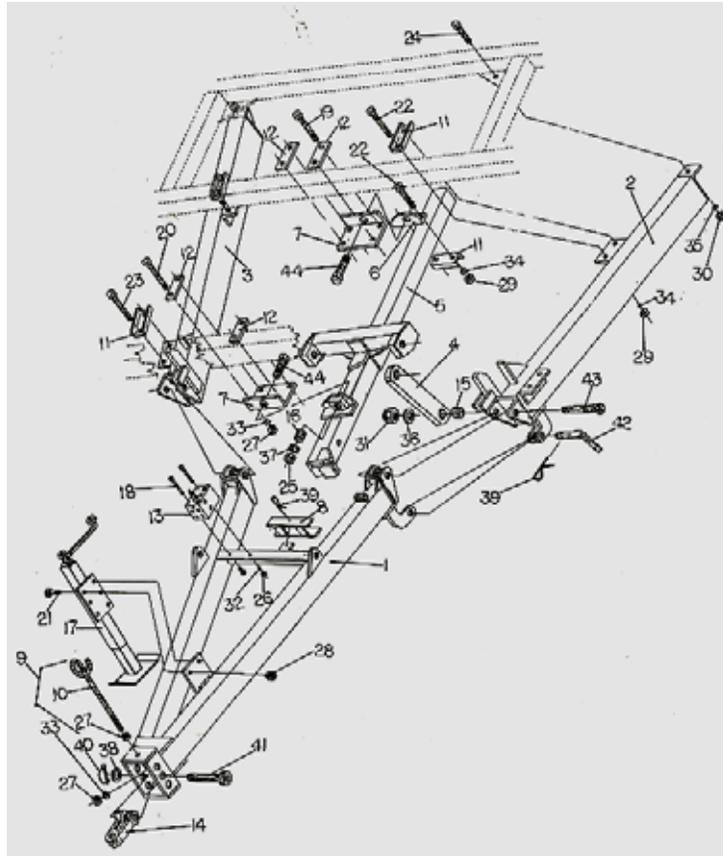
- 1) Install/mount tongue members using high-strength (bent) backing plates (#440-201).
- 2) Attach left and right rear tongue members using lockwashers and Nylock Nuts.
- 3) Attach rolling tongue to rear tongue members using the 8116-046 bolt with Nylock Nut.
- 4) Install tongue flapper, hose mast, lever arm, and cylinder lock & retainer clip.

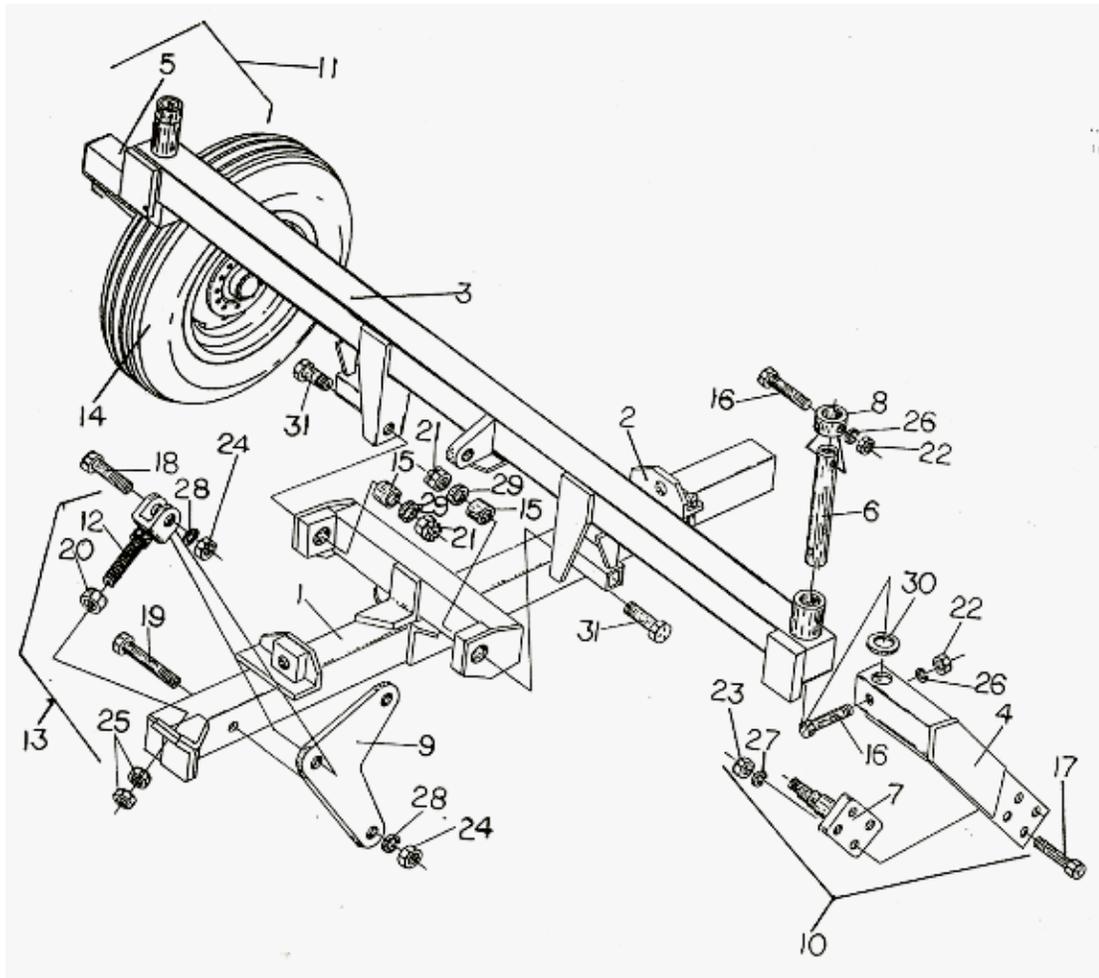


Tongue Layout – setup the wing-pulls and bracing first

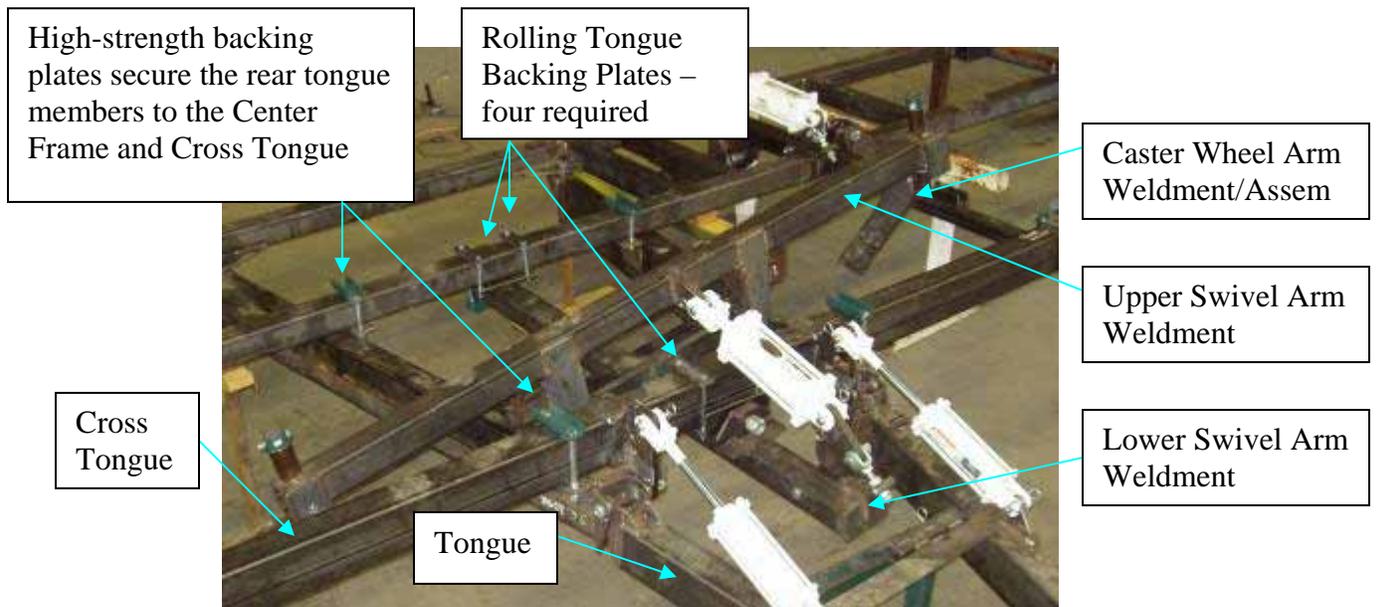


Above is a photograph of the lower swivel arm weldment and associated hardware.





Rolling tongue assembly illustrations are provided to assist in the assembly process; no bills of materials are provided.



Above is a photograph of the entire mounted rolling tongue assembly with caster wheel arms.

Lever Arms attached to cylinder rod end and rear tongue members via Bushings, Large Capscrews, Thrust Mach Bushings, and Nylock Nuts

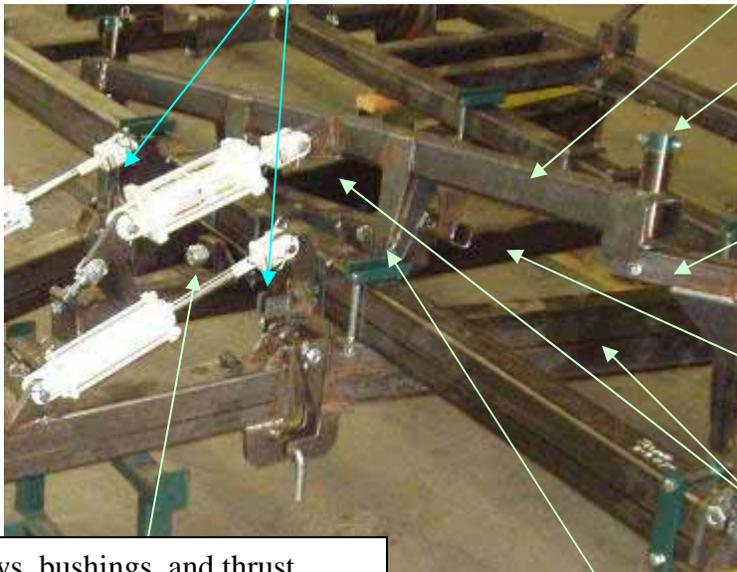
Upper Swivel Arm Weldment

Upper Bushing Retainer with fasteners

Caster Wheel Mount Weldment with fasteners

Lower Swivel Arm Weldment

Rear Tongue Members



Large capscrews, bushings, and thrust washers used for Trunnion axle movement. The fasteners allow the Rolling Tongue RH-LH roll and connect the Swivel Arm Assembly to the Main Frame and Cross Tongue – typical two places.

Large capscrews, bushings, and thrust washers used for Trunnion axle joining the Rolling Tongue allowing fore and aft roll of the Upper and Lower Swivel Arms – typical two places.

3/4-NC X 8 Capscrew

Lever Arm

Bushing

Thrust Bushing

Nylock Nut



Rolling tongue Lever Arm Assembly – two sets required per assembly

Step 4: Tires

WARNING: Be sure to grease wheel legs and hubs at time of assembly. Grease each wheel leg daily during normal field operations.

Note: When mounting tires, be sure tire cleats are all headed in the same direction on all wheel leg assemblies. Valve stem should be on lug bolt side when mounting.

- 1) Mount tires on wheel legs referencing Major Components Breakdown for correct size machine.
- 2) Install #0410-167 drive basket on left hand center wheel leg as shown on layout with longer lug bolts provided. See Figure G.

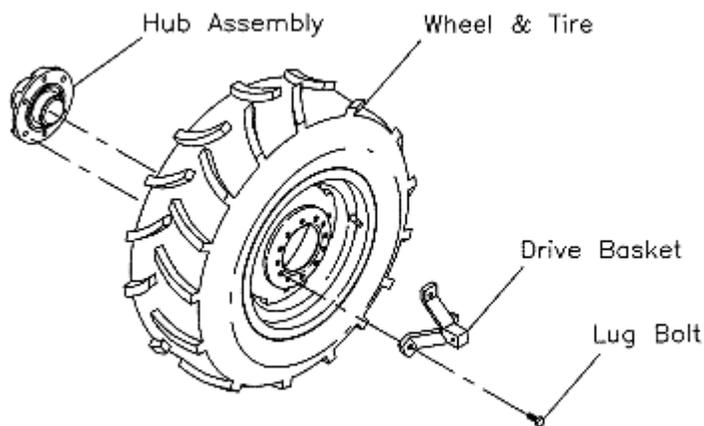
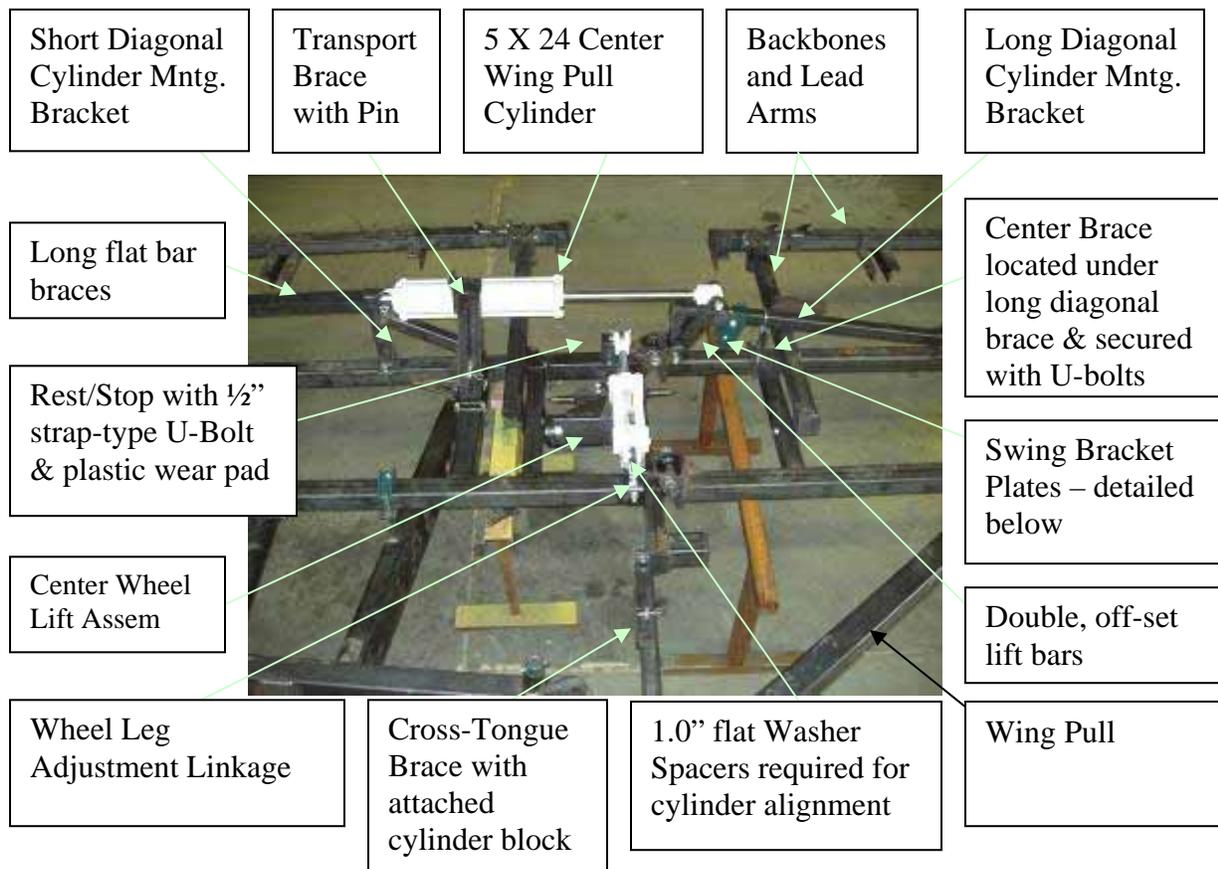


Figure G - Drive Basket Installation

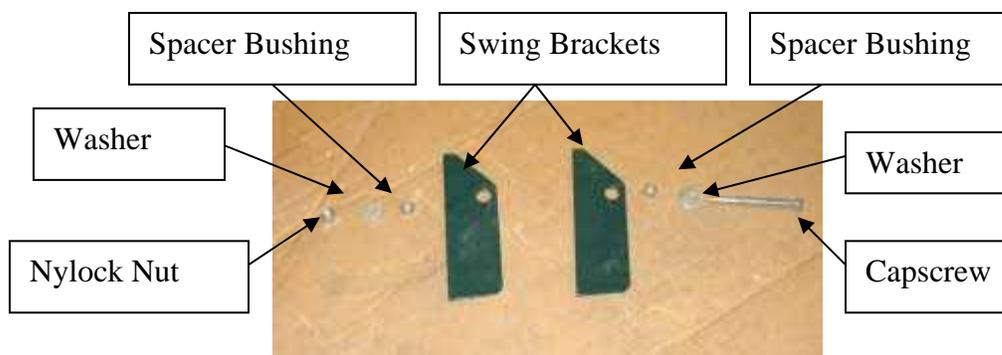
Step 5: Wing Lift Cylinder Brackets and Transport Stop-Brackets

Note: recommend that the brackets be placed into position prior to installing cylinders.

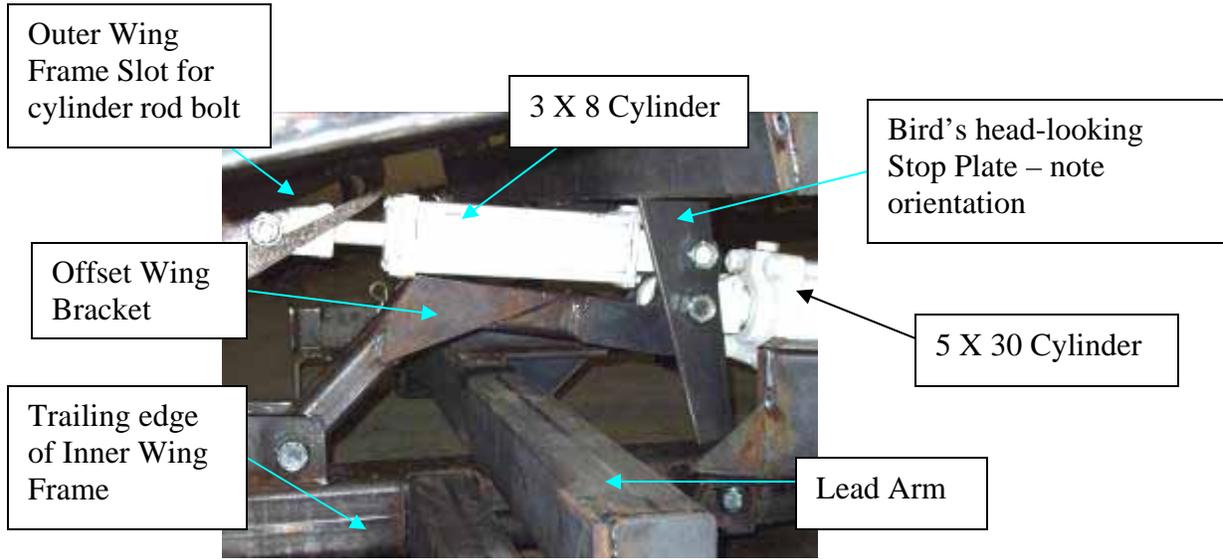
- 1) Install all Wing Lift and Transport Brackets using bolt kit #410-334 & #410-402.
- 2) **Note:** be sure to place the small center support braces under the longer diagonal bracket (see photo below) to prevent the brace from deformation during cylinder use.
- 3) Positioning of the transport stands: the back face of the transport brackets should be pre-positioned approximately 8-to-10" from the back face of the center frame weldment... finger tight. Secure the U-Bolts after folding the machine up (upon final testing of the hydraulics).



Above view is the LH quadrant of the main frame with Wing Lift brackets and associated hardware.



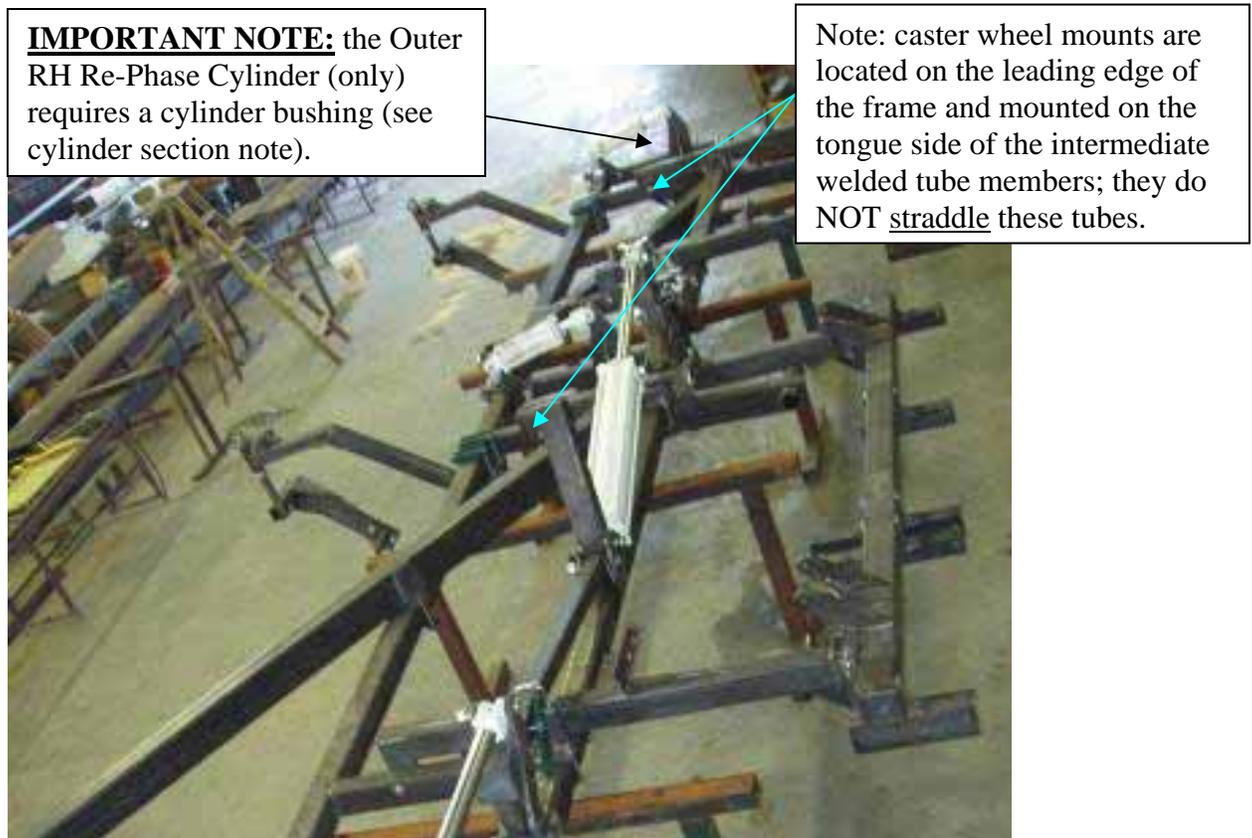
Swing Bracket assembly detail. The bushings allow for free movement of the plates which are mounted on both sides of the supporting tube (the long angle bracket)



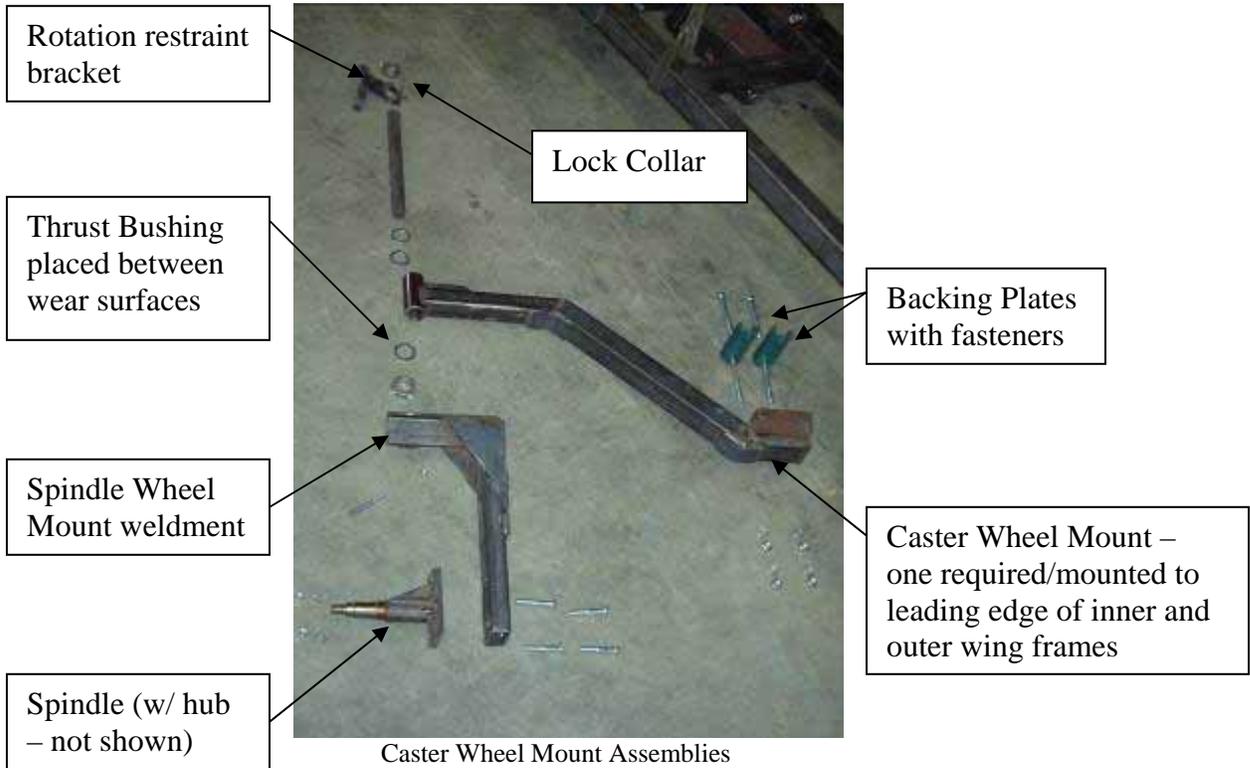
Bracket assemblies shown in the wing collapsed position – RH configuration/side shown – viewed from the front of the machine.

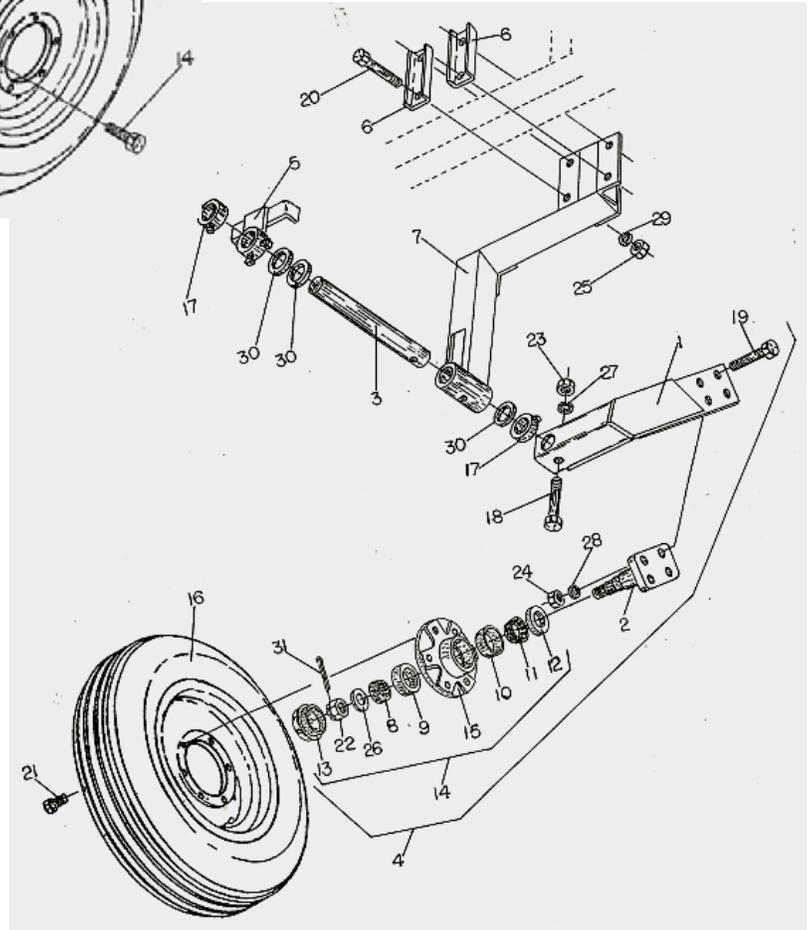
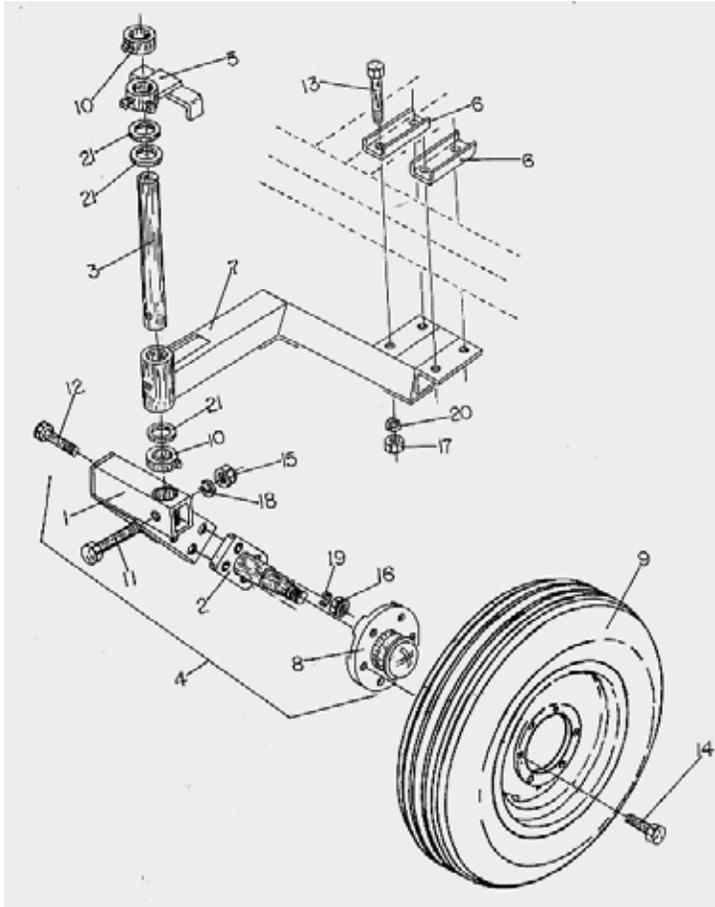
Step 6: Caster Wheel Mount Assemblies

1. Install the spindle platforms (#CW9-034) to leading edge of Frames with backing plates and fasteners (refer to pick lists #CW9-555 and #CW9-556)
2. Install and Caster Wheel Legs (#CW9-031 RH & #CW9-030 LH) with included fasteners to the spindle platforms



Caster Wheel Mount Location – view includes RH Outer and RH Inner Wing Frames with Lead Arms and Backbones.





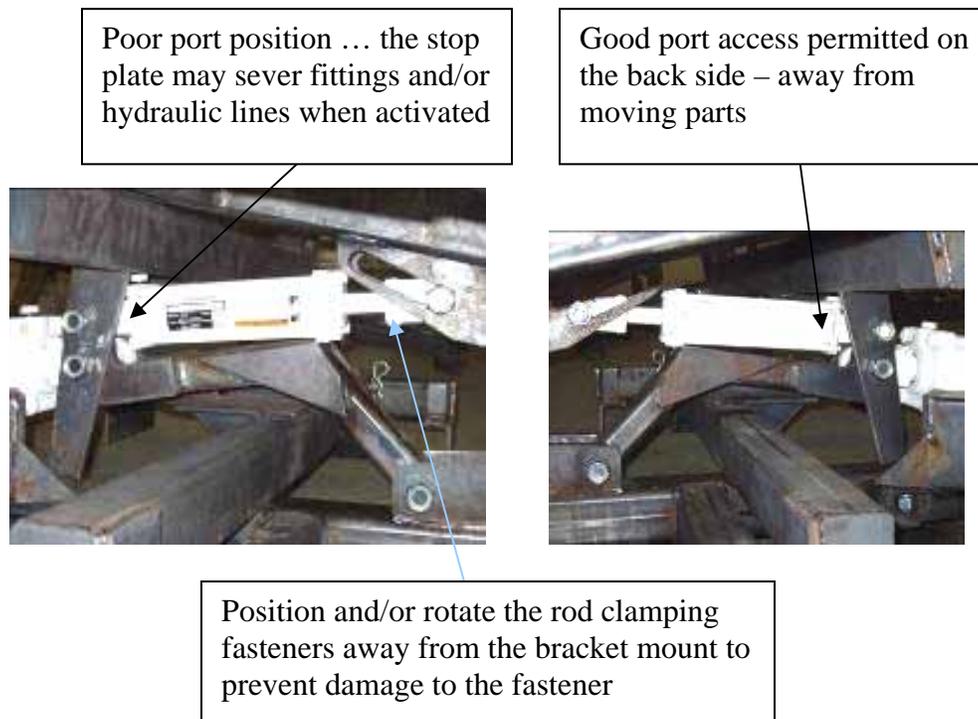
Caster wheel mount illustration is provided to assist in the assembly process; no bills of materials are provided.

Step 7: Cylinders

Note #1: Do not add hoses or fittings to the cylinders until the shanks have been installed.

Note #2: Cylinder depth stops may be installed after cylinder installation in place of machine stands (see diagram below).

Note #3: regular cylinder ports must be oriented to allow fitting access (see photos below)

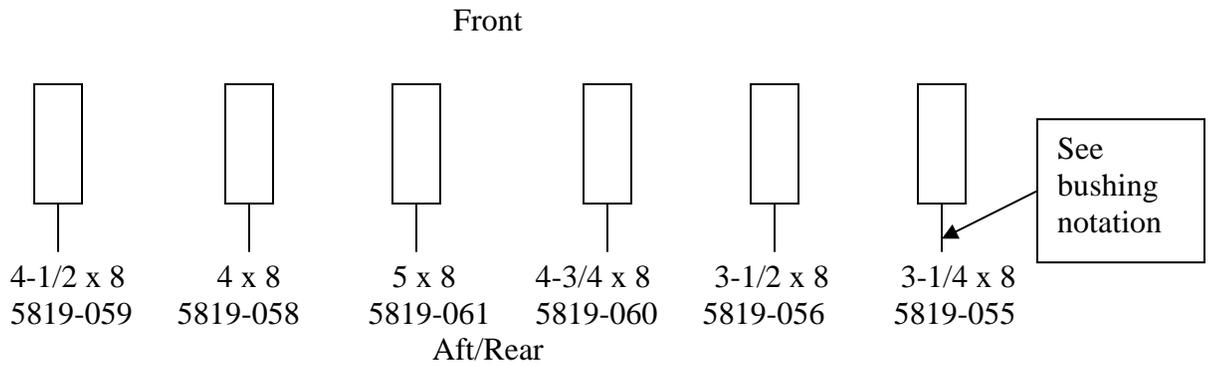


A. Main (Wheel) Lift Cylinders Assembly Steps:

Note #4: This is a rephasing hydraulic system and cylinders MUST be properly sequenced – refer to the hydraulic layout for correct placement.

Note #5: Be sure when mounting the re-phase cylinders that the valve ports are oriented face-up.

- 1) Install main lift re-phase cylinders and linkages (#0410-581) per the diagrams (below).
- 2) 1.0” (special) Fabricated/Manufactured Bolts are used in the assembly of these cylinders
- 3) 1.0” flat washers are used to align the cylinders in their brackets/mounts
- 4) **IMPORTANT NOTE:** the Outer RH Re-Phase Cylinder (only) requires a cylinder bushing (p/n 6146-013) to allow the re-phase system to operate correctly – mount the bushing by removing the rod end, installing the bushing, then remount the rod clevis end.

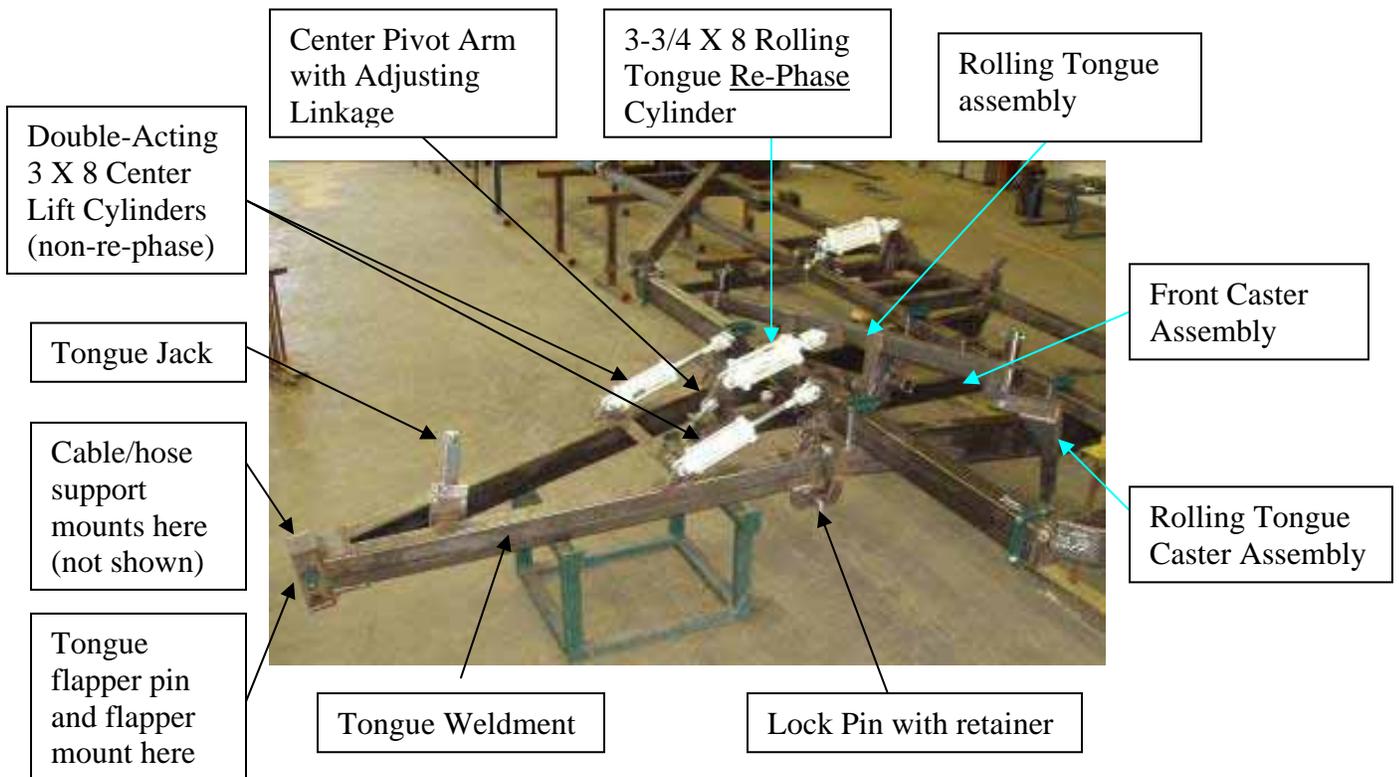


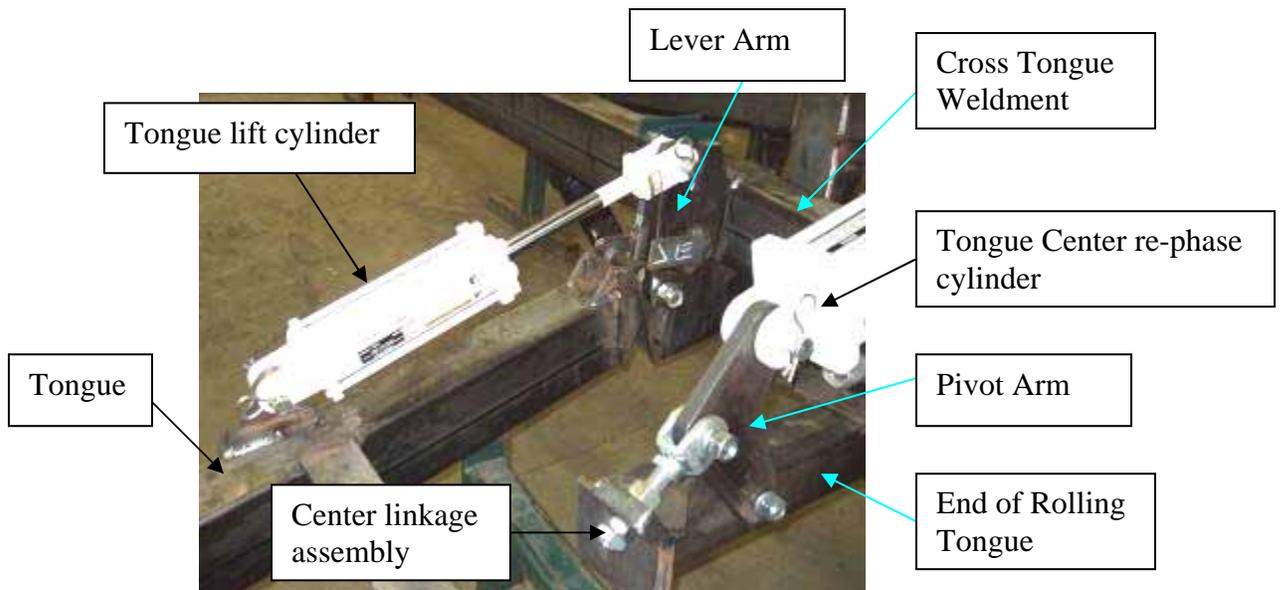
Re-Phase Cylinder Orientation/Layout

See Figure H for linkage assembly detail.

B. Tongue Cylinders

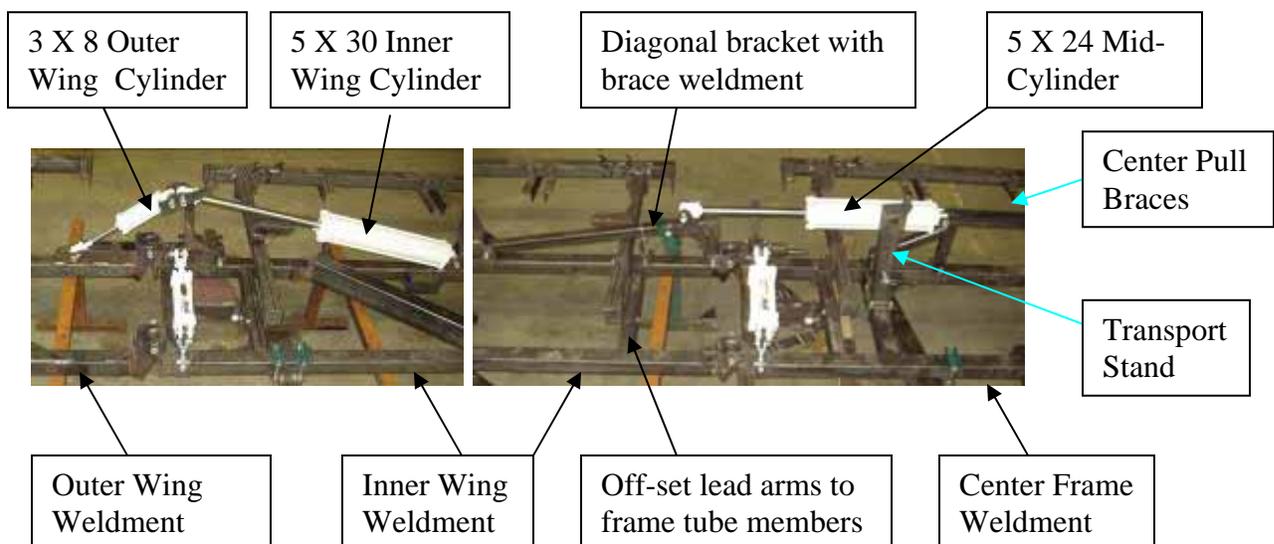
- 1) Standard Cylinder pins and keepers are used in assembly of the tongue cylinders. 1.0" flat washers are used to align the cylinder in the mounts/brackets.
- 2) The RH and LH cylinders mount to the Lever Arms as described in the tongue assembly instructions





C. Wing Pull Cylinders

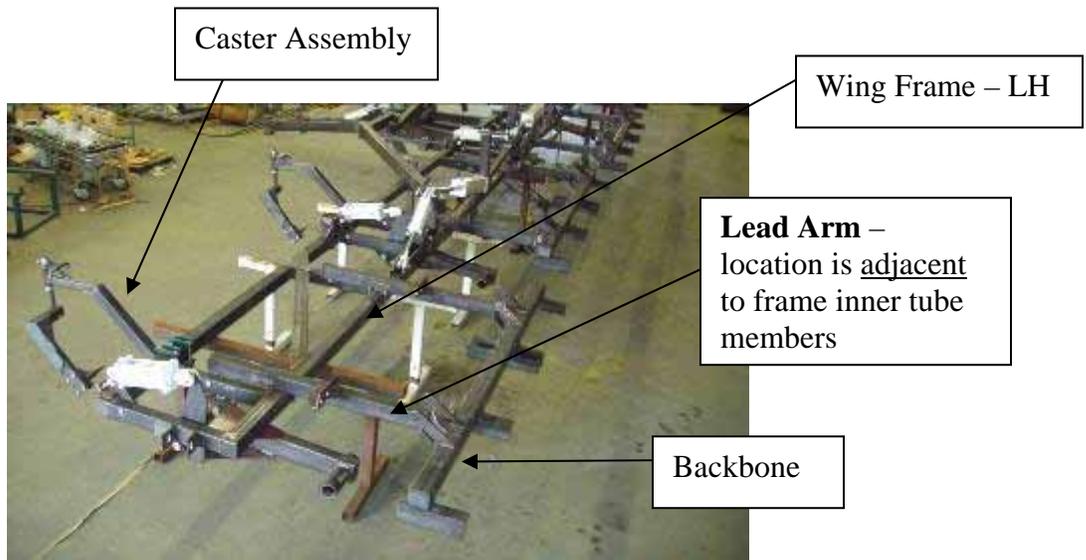
- 1) Wing pull cylinders are standard double-acting cylinders that allow the machine to collapse for transport.
- 2) Correct bracket orientation/mounting is essential for function and safety of the operator and use of equipment. Pay close attention to stop plate, brace, and bracket orientation.
- 3) The cylinder configuration is typical (mirrored) on the other side of the machine
- 4) Special Fabricated/Manufactured 1.0" capscrews are used in lieu of standard cylinder pins
- 5) The 5.0" bore cylinders require reducing bushings in their rod/clevis pin-mounting holes to allow for assembly of the aforementioned 1.0" capscrews (these may, or may-not be pre-installed... check the cylinder clevis through holes prior to searching the fastener kit for these).
- 6) Orient the ports in such a way to allow for easy access of hydraulic fittings and hose assemblies



Step 8: Lead Arms

1. Open lead arm and backbone bolt kit #0410-335.
2. Install lead arms using the 3/4" fasteners and the 5/8" U-bolts, lockwashers, and nuts. Refer to layout below for locations (see above photo).

Note: the lead arms do NOT mount over the intermediate frame tube members; they are off-set to one side of the frame weldment/intermediate tubes (see above and below photographs/illustrations).



Partial 60-Foot Culta-Weeder Assembly Shown

47 and 50 Foot Machine

Front of Tool

Outer Wing LH		Inner Wing LH		Center Frame		Inner Wing RH		Outer Wing RH	
0410-187	0410-188	0410-183	0410-184	CW9-063	CW9-064	0410-183	0410-184	0410-187	0410-188

54, 47 and 60 Foot Machine

Front of Tool

Outer Wing LH		Inner Wing LH		Center Frame		Inner Wing RH		Outer Wing RH	
0410-189	0410-186	0410-183	0410-184	CW9-063	CW9-064	0410-183	0410-184	0410-185	0410-190

Step 9: Backbones

1. Install backbones using the 1" pins (#8026-033) and roll pins (# 7022-005) from the #0410-335 bolt kit (backbone layout is provided below)
2. **GREASE BACKBONE PIVOT PINS DAILY.**

Backbone Layout

7' 0410-125				7' 0410-126
10-1/2' 0410-104	10-1/2' 0410-072		10-1/2' 0410-073	10-1/2' 0410-105
12' 0410-110	12' 0410-068	0410-004	12' 0410-005	12' 0410-052
LH OUTER WING	LH INNER WING	CENTER BACKBONE	RH INNER WING	RH OUTER WING

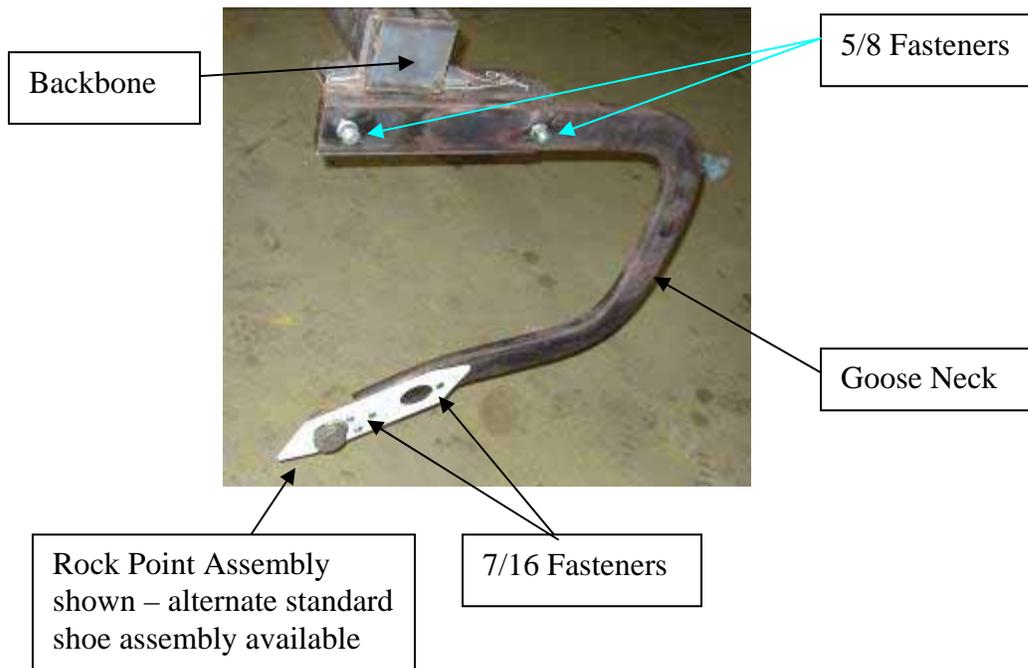
Step 10: Spring Cushion

KEY	PART	DESCRIPTION
1.	0410-040	SPRING GUIDE
2.	0410-041	SPRING ROD (1500 SERIES)
3.	0410-042	STOP, SPRING ROD
4.	0410-S25	SPRING CUSHION ASSY. (1500 SERIES)
5.	5114-001	SPRING
6.	6143-007	BUSHING, 1" X 9/16"
7.	6144-001	BUSHING, 1" X 7/16"
8.	7022-006	ROLL PIN, 3/8" X 2"
9.	7114-111	CAP SCREW, 5/8" NC X 2-1/4"
10.	7723-119	LOCK NUT, 5/8" NC
11.	7726-006	HEX NUT, 1" NC
12.	7726-015	JAM NUT, 1" NC
13.	7814-015	FLAT WASHER, 5/8"
14.	8816-001	SPRING RETAINER WASHER
15.	CW9-017	SPRING ROD (CW SERIES)

- 1) Open Spring Cushion bolt kit # CW9-523.
- 2) Install Springs to Spring Cushion Guide in the horizontal position and under Culta-Weeder backbone ears
- 3) Slide spring cushion rods (CW9-017) though holes on lead arms and secure in place with hex nuts provided.
- 4) Lift rear of spring cushion up and onto the rods
- 5) Attach the rear guide ears to the Culta-Weeder backbone per diagram.

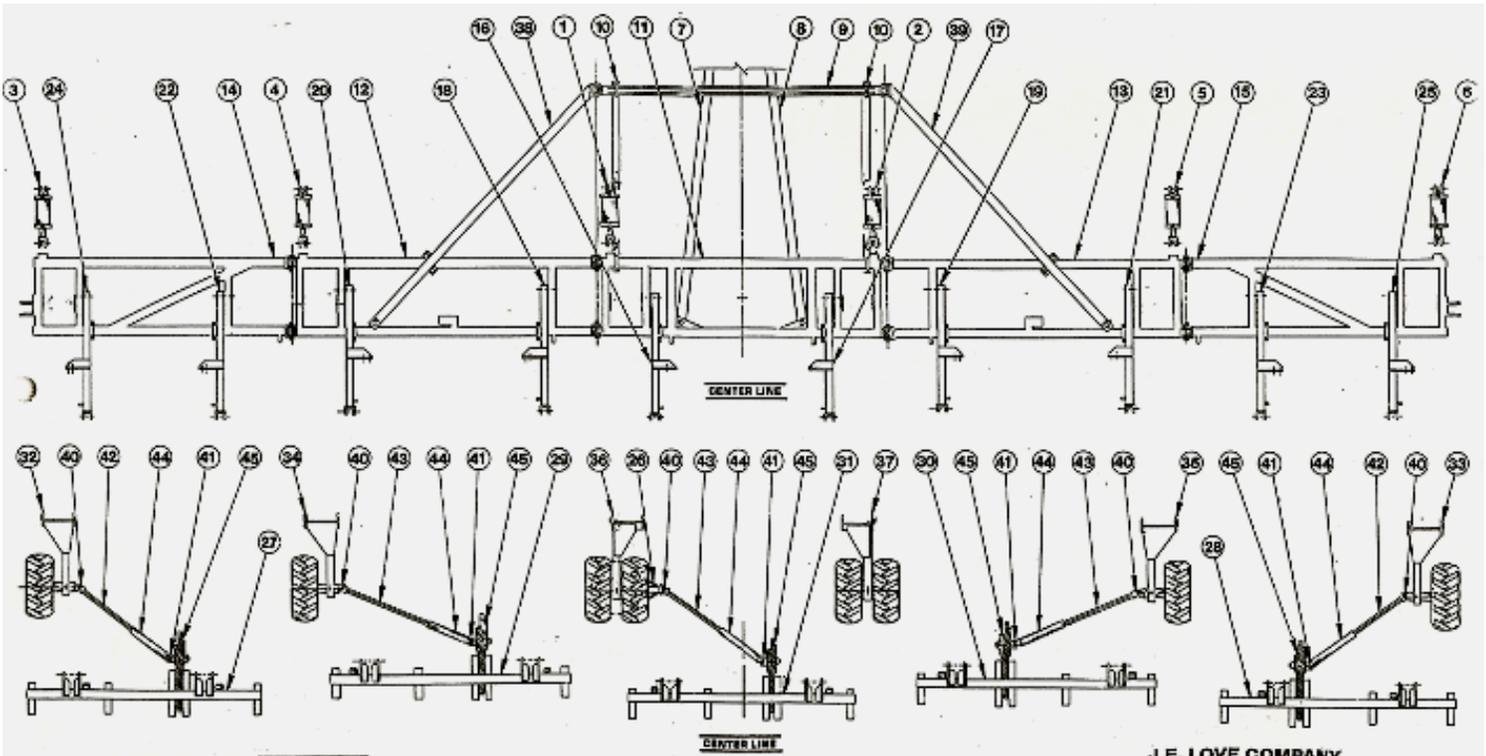
Step 11: Goosenecks and Shoes

1. Open gooseneck and shoe kit, part# 0410-392.
2. Attach goosenecks to backbones on outside of angle iron. Use 5/8 x 2-1/2" NC Bolts, lockwashers, and hex-nuts. See Diagram.
3. Attach shoes with short side of shoe pointing toward the ground, using 7/16 x 2" NC bolts and hex-nuts.



Step 12: Boots and Drivelines

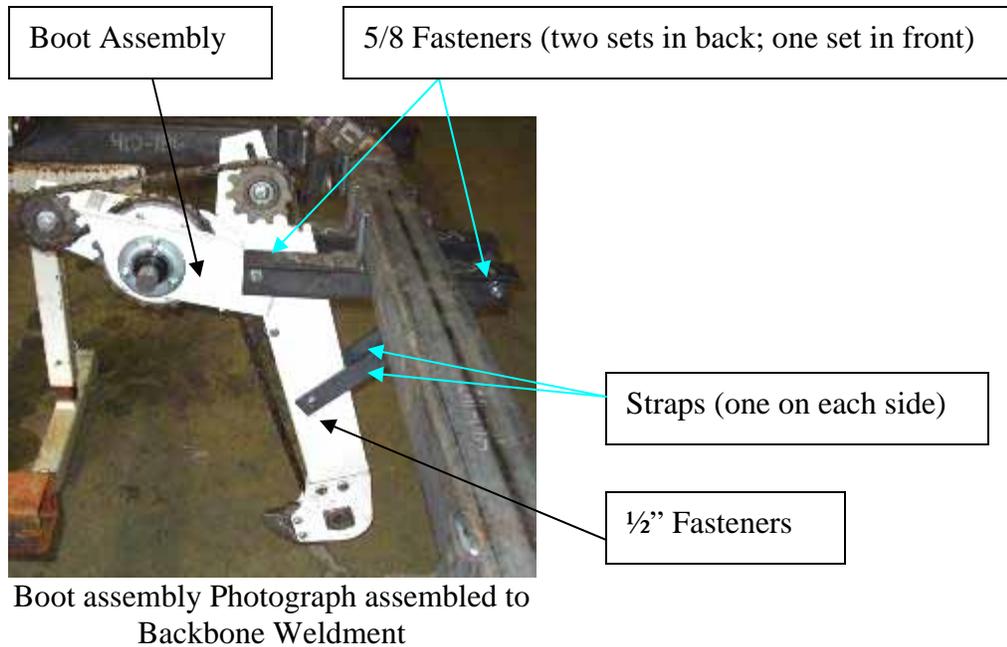
1. Open boot and driveline bolt kit #0410-333.
2. Attach boot assembly to Culta-Weeder backbone using 5/8 x 5" NC bolt with lockwasher and nut.
3. Attach boot straps #0412-202 to boot body with 1/2 x 3-1/2" NC bolt, lockwasher, and hex-nut. Attach straps to backbone between angle iron using 5/8 x 1-3/4" NC bolts, lockwashers, and hex-nuts.



The above drive line illustration applies to both stiff-tongue and rolling tongue applications. Please refer to actual material pick-lists for tongue differences.

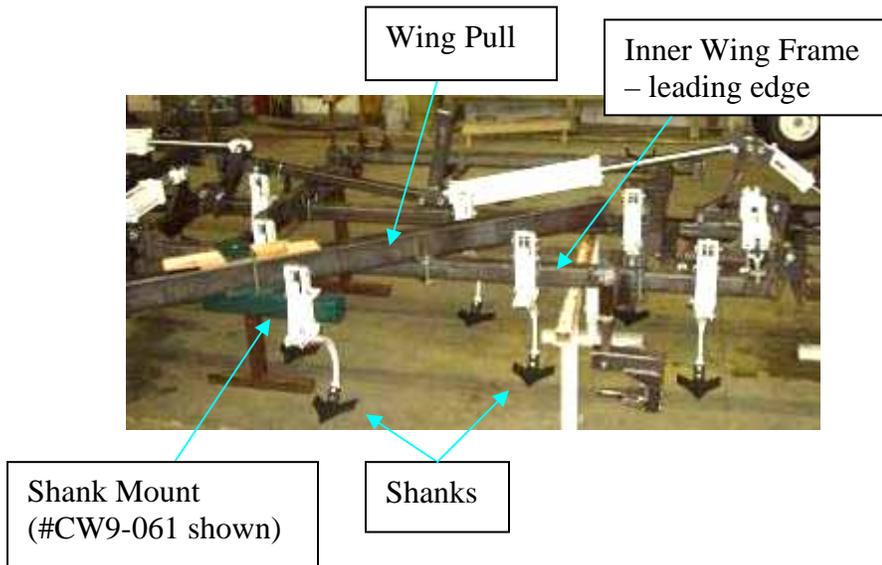
JE Love/Calkins Culta-Weeder 1500 series Rod Weeder
5-Section, 60-foot, single Drive Line
Bill Of Materials

Item No.	Description	Part Number
1	Hydraulic Cylinder, 5 X 8, AB1232	5-819-061
2	Hydraulic Cylinder, 4-3/4 X 8, AB1238	5-819-060
3	Hydraulic Cylinder, 4-1/2 X 8, AB1244	5-819-059
4	Hydraulic Cylinder, 4 X 8, AB1250	5-819-058
5	Hydraulic Cylinder, 3-3/4 X 8, AB1256	5-819-057
6	Hydraulic Cylinder, 3-1/2 X 8, AB1262	5-819-056
7	Tongue, Left	CW9-023
8	Tongue, Right	CW9-024
9	Cross Tongue	CW9-004
10	Brace, Cross Tongue	CW9-036
11	Center Frame, 12-Foot	CW9-066
12	Inner Wing Left, 12-Foot	410-027
13	Inner Wing Right, 12-Foot	410-028
14	Outer Wing Left, 12-Foot	410-025
15	Outer Wing Right, 12-Foot	410-026
16	Lead Arm, Left, Stiff, Long	See Corresponding Chart
17	Lead Arm, Right, Stiff, Long	See Corresponding Chart
18	Lead Arm, Right, Stiff, Short	See Corresponding Chart
19	Lead Arm, Left, Stiff	See Corresponding Chart
20	Lead Arm, Left, Stiff, Short	See Corresponding Chart
21	Lead Arm, Right, Stiff, Short	See Corresponding Chart
22	Lead Arm, Right, Stiff	See Corresponding Chart
23	Lead Arm, Left, Stiff	See Corresponding Chart
24	Lead Arm, Left, Stiff	See Corresponding Chart
25	Lead Arm, Right, Stiff	See Corresponding Chart
26	Drive Basket (Left center Wheel Leg)	410-167
27	Backbone, 12-Foot, Outer Wing, Left	410-110
28	Backbone, 12-Foot, Outer Wing, Right	410-052
29	Backbone, 12-Foot, Inner Wing, Left	410-068
30	Backbone, 12-Foot, Inner Wing, Right	410-005
31	Backbone, 12-Foot, Center	410-004
32	Wheel Leg Assembly, Outer Wing, Left	410-514
33	Wheel Leg Assembly, Outer Wing, Right	410-513
34	Wheel Leg Assembly, Inner Wing, Left	410-514
35	Wheel Leg Assembly, Inner Wing, Right	410-513
36	Wheel Leg Assembly, Center, Left	410-376
37	Wheel Leg Assembly, Center, Right	410-377
38	Wing Pull, Left	CW9-069
39	Wing Pull, Right	CW9-070
40	U-Joint 1-1/4" Square to 1-1/4" Square	5-546-005
41	U-Joint 1-1/4" Square to 1-7/16" Round	5-546-006
42	Drive Line 1-1/4" Square X 26"	6-566-058
43	Drive Line 1-1/4" Square X 40-3/4"	6-566-090
44	Drive Line 21-1/8" (female)	206-037
45	Boot Assembly – with standard point	410-524
46	Boot Assembly – with rock point	410-525



Step 13: Shanks

1. Open Shank Attach Kit #0410-338 for 60 foot machine. Attach shank mounts from crate to frame using #0410-079 backing plates and 5/8" fasteners. See Shank Layout sheet for locations. Use a grease pencil or permanent marking pen to mark shank locations on frame per diagram.
2. Attach shank assemblies #0410-555 or #0410-560 to frame using the 1/2" bolts provided and layout scheme/arrangement (refer to bolt kit #410-338).



Step 14: Hydraulics

1. Make sure that all cylinders are properly located, and that the main lift hydraulic cylinders are arranged/sequenced exactly per the diagram.



Main Hydraulic Manifold – to be attached to main tongue weldment

2. Attach hoses and fittings - plumbing the circuit per hydraulic layout (see schematic on next page).
3. Add hydraulic couplers (not supplied) to hose ends and connect to tractor
4. Fill hydraulic system per hydraulic layout.
5. Be sure to purge and/or prime wing lift cylinders before wings are raised.
6. For first-time charging, follow the following steps:
 - A. Leave the rod mountings free to extend without interference.
 - B. Remove all depth stops from the re-phase cylinders.
 - C. Operate the valve to extend the cylinders. Note: They will extend erratically, which is the reason for leaving them free to extend without interference. Note: When charging circuit, run tractor or hydraulic unit at fast idle to supply oil volume and pressure required to properly charge circuit.
 - D. Keep the valve open until all cylinders in the circuit are fully extended. Allow oil to flow through the circuit for an additional 5 minutes to purge the air from the circuit.
 - E. Retract the cylinders fully.
 - F. Repeat the above cycle to be certain that all cylinders extend evenly and are in phase with each other.
 - G. Re-connect rod end mountings. Note: 1" flat washers are needed to center the cylinders in their mounts. Offset cylinders will cause early cylinder failure, mechanical binding, and severe wear.
 - H. Reinstall all depth stops to the re-phase cylinders.

Hydraulics Bill-Of-Materials

Item	Qty	Part No.	Description
1	6	6822-301	SAE Hose X 113"
2	1	6822-283	SAE Hose X 102"
3	1	6822-266	SAE Hose X 66"

Item	Qty	Part No.	Description
22	6	5843-469	Fitting: 90-deg Restrictor Union – 1/16" Orifice
23	8	5843-219	Fitting: Reducer Bushing 7/8M-1/2F
24	10	5833-101	Fitting: Tee, 1/2" X 1/2" X 1/2"

4	4	6822-303	SAE Hose X 108"
5	2	6822-218	SAE Hose X 18"
6	1	6822-232	SAE Hose X 32"
7	1	6822-215	SAE Hose X 15"
8	3	6822-344	SAE Hose X 144"
9	1	6822-632	SAE Hose X 432"
10	1	6822-480	SAE Hose X 294"
11	1	6822-462	SAE Hose X 282"
12	1	6822-584	SAE Hose X 404"
13	2	6822-274	SAE Hose X 83"
14	2	6822-236	SAE Hose X 36"
15	2	6822-242	SAE Hose X 42"
16	0		
17	2	6822-280	SAE Hose X 92"
18	2	6822-222	SAE Hose X 22"
19	2	6822-220	SAE Hose X 20"
20	2	6822-256	SAE Hose X 56"
21	29	5846-095	Fitting: ½" 90-degree O-Ring Swivel

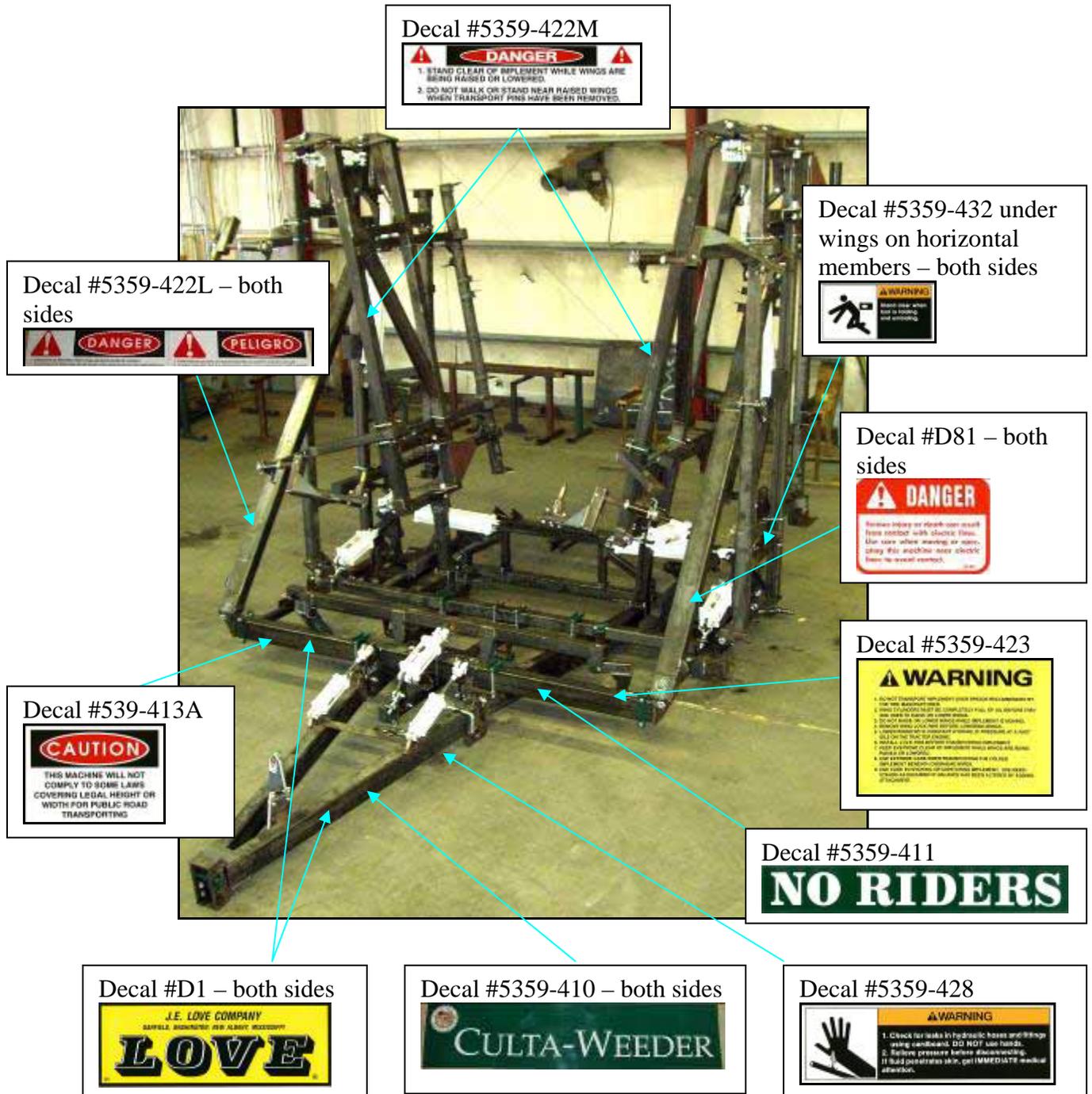
25	2	5833-110	Fitting: ½" Hex Nipple
26	12	5843-400	Fitting: ½" Straight Swivel Union M-F
27	10	5846-091	Fitting: ½" O-Ring Adapter
28	0		
29	1	5843-460	Fitting: ½" 90-degree Swivel
30	0		
A	1	5859-110	Valve block
B	1	5859-400	Hydraulic Stroke Control Valve
C	4	5818-600	3 x 8 SAE Cylinder (7108)
D	1	5819-061	5 x 8 SAE Cylinder
E	1	5819-060	4-3/4 x 8 SAE Cylinder
F	1	5819-059	4-1/2 x 8 SAE Cylinder
G	1	5819-058	4 x 8 SAE Cylinder
H	1	5819-057	3-3/4 x 8 SAE Cylinder
I	1	5819-056	3-1/2 x 8 SAE Cylinder
J	2	5818-580	5 x 24 SAE Cylinder (36.25)
K	2	5818-510	5 x 30 SAE Cylinder
L	1	5819-055	3-1/4 x 8 SAE Cylinder
M	16	5818-030	Clevis Pin Bushing

Step 15: Stickers, Placards, and Cautionary Tape

Below is the recommended decal placement for the Culta-Weeder with rolling tongue.

Decal placement should occur after mounting all periphery equipment (i.e.: wheels, shanks, boots, drivelines, hydraulic-related plumbing).

NOTE #1: Please provide an oil-free, clean surface for maximized decal adherence.



NOTE #2: Please apply portions of the included 18-yard roll of pinch-point / hazard tape on and/or around posts & brackets where potential occurrence is likely.

Assembly Completion:

- 1) Make sure that all bolts are tightened and/or secured.
- 2) Make sure all hose connections are tightened and/or secured.
- 3) The system is now ready to operate. Please refer to the operator's information and/or instruction for adjustments and care of the machine.

Most common start-up concerns ...trouble-shooting:

If the re-phase cylinders are erratic or sequence is confusing –

- A. Erratic cylinder operation is caused by an air lock. To correct the problem make sure that all the re-phase cylinders are oriented with their valve fittings face up. Make sure that all port fittings and hoses are secure – no leaks. Upon verification of fittings and cylinder orientation, operate the hydraulic valve extending the cylinders fully. This will bring the cylinders back into phase. *Note: If any cylinder gets out of phase with frequency or regularity, check ALL hoses, connections, and fittings. Any oil leak in the system will allow the cylinders to get out of phase. Additionally, worn seals within any given cylinder may cause a successive cylinder to (seemingly) malfunction.*
- B. Sequence of cylinder operation seems abnormal: Check the hose schematic against actual hose attachment. One or more hoses could be incorrectly attached to the re-phase, or regular cylinder(s). Re-attachment of re-phase cylinders mandates the aforementioned purging sequence.

Culta-Weeder Maintenance Chart

Lubrication

Drivelines	Daily
Backbones	Daily
Wheel Legs	Daily
Main Axles	Weekly
U-Joints	Weekly
Frame Hinge Points	Weekly

Grease is your cheapest hired hand. Good maintenance will pay huge dividends over the life of this tool!

Tire Pressure

Drive and flotation tires should carry approximately 35 PSI.

Fasteners

Prior to operation, check all fasteners for tightness. After the first days operation recheck all fasteners, and then at least weekly thereafter.

Note: Do not exceed 95 ft pounds on lug nuts. Over-tightening can actually cause the wheels to come loose!

Hydraulic Oil Type

Use 76 Hydraulic tractor fluid 3970 or equivalent.

Operator's Manual

Read and understand all operating instructions and precautions before attempting to operate machine. Pay particular attention to items marked with this symbol:



This indicates important information that involves your safety!

SAFETY & SIGNAL WORDS



THE SAFETY ALERT SYMBOL USED THROUGHOUT THIS MANUAL MEANS **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!** CAREFULLY READ, UNDERSTAND, AND FOLLOW THE INSTRUCTIONS THAT FOLLOWS THIS SYMBOL.

SIGNAL WORDS

Note the use of safety colors and the signal words DANGER, WARNING and CAUTION with the safety messages. These colors and words indicate the likely consequences in terms of degree of severity or the probability of severity.



!DANGER! (RED) - Immediate hazards which **WILL** result in severe personal injury or death.



!WARNING! (ORANGE) - Hazards or unsafe practices which **COULD** result in severe personal injury or death.



!CAUTION! (YELLOW) - Hazards or unsafe practices which **COULD** result in minor personal injury or product or property damage.

Pre-work Checklist

The following checklist was prepared so a dealership may check a machine before it is delivered to the customer. The checklist should be used before each working season and from time to time during the working season.

Pre-Work Checks

- _____ Check ALL bolts and nuts for tightness.
- _____ Check ALL hydraulic connections and hoses for leaks.
- _____ Check wheels and hubs for tightness (95 ft pounds max torque on wheel nuts)
- _____ Inflate all tires to 35-40 psi.
- _____ Inspect all lubricating points
- _____ Check all locks, blocks, and pins
- _____ Place all caution and warning placards/stickers
- _____ Place yellow-striped tape on items where potential pinch-points may occur

Customer Delivery-Checklist

- _____ Show your customer the proper machine settings, cylinder adjustments, and how to level machine from front to rear and from side to side.
- _____ Show the owner/operator proper grease points and when to grease.
- _____ Show the owner/operator proper transporting procedures. Make note of the transport main cylinder locks and wing transport lock-ups.

Safety Precautions

Be “safety minded”! Help yourself and those around you by explaining to them the importance of safe thinking and behavior when around farm machinery.



!DANGER! (RED) - Immediate hazards which WILL result in severe personal injury or death.

Be sure wing lift cylinders have been completely filled with oil before they are used to lift the wings. If an air pocket exists in the cylinder or hose, the wings could suddenly drop.

Use extreme caution when raising or lowering wing sections. Keep all personnel away from tool while wings are being raised or lowered. Never work or climb on tool with wings in a raised position!

Always use extreme care when transporting the folded machine beneath bridges, pipelines, telephone or electrical wires. CONTACTING WIRES WITH THE WINGS CAN RESULT IN EXTREME PERSONAL INJURY OR DEATH AS WELL AS DAMAGE TO THE WIRES!



!WARNING! (ORANGE) - Hazards or unsafe practices which COULD result in severe personal injury or death.

Before applying pressure to hydraulic system, make sure all fittings are tight and that hose lines have not been damaged. Cycle the hydraulic system several times to eliminate air. If air is present in the system, a sudden movement in the cylinders may occur.

Always use a broom or wood rod rather than a hand to search for hydraulic leaks. Hydraulic oil under extreme pressure can result in serious injuries, including finger loss and oil injection into blood stream.

Operator and Operation Information

Introduction: It is important for a customer to be familiar with the proper machine settings and to obtain proper instruction as to how a machine is to be set for field use.

1. Hydraulic Attachment Preparation:

- A. A tractor must obtain at least 1800 psi hydraulic pressure to meet the recommended hydraulic pressures for the Calkins in-line cylinder main lift system. Any system which attains pressure exceeding 2500 or less than 1800 can result in improper cylinder movements or the slow response in lowering of the machine.
- B. Be sure to couple hydraulic hoses to the proper tractor hydraulic valve. Use hose end fitting which are compatible with tractor hydraulic fittings.

2. Operating Hydraulic Wing Lift System

A. Changing machine to operation position.

- 1) Tractor must be hitched to machine when lowering or raising wings.
- 2) Remove L pins from wing transport latch lock assemblies and tongue. Reinstall L pins in holes provided.
- 3) Remove transport stops from Main Lift cylinders.
- 4) Increase tractor engine RPM to fast idle.
- 5) Lower wings with constant hydraulic pressure on wing lift cylinders.
- 6) Be sure wing lift cylinders are extended completely or wings will not work properly when machine is in field condition.

B. Raising the machine to transport position

- 1) Tractor must be hitched to machine with lowering or raising wings.
- 2) Increase tractor engine RPM to fast idle.
- 3) Raise wings with constant hydraulic pressure on wing lift cylinders until cylinders are completely closed.
- 4) Pin transport latches with L pins.
- 5) If machine is to be moved on public road or highway, be sure to place transport stops on both center section main lift cylinders.

3. Transporting Culta-Weeder

- A. Check state and local law requirements for over width or height machinery on public roads.
- B. Disconnect center section driveline before long moves or if the weeder is going to be moved over 8 MPH.
- C. Use extreme care in transporting machine under overhead bridges, pipes, telephone or electrical wires. If wings contact overhead wires, personal injury or death could result as well as damage to wires themselves.
- D. Care should be taken when on narrow roads or crossing narrow bridges.

4. Operating Main Lift Hydraulic System.

- A. Remove stops off both center section main lift cylinders. Place stops on welded ears of transport latches for field position. These stops must be used any time the machine is to be transported on public roads.
- B. Synchronizing of main lift cylinders.
 - 1) Remove all depth stops from master cylinder.
 - 2) Set tractor RPM to fast idle.
 - 3) Operate tractor hydraulic lever to raise machine so all cylinders are fully extended and full of oil, continue holding lever until oil can return to tractor (about 30 seconds). This should remove any air in system.
 - 4) Lower and raise the machine a few times to make sure all cylinders are synchronized and fully extend or retract at the same time. If any of the main lift cylinders do not operate properly, check assembly instructions for proper location of cylinders and hoses, and check for any leaks in system.
- C. Place depth stops on master cylinder for desired field operating depth (stops only needed on master cylinder). This would be the center section left-hand side cylinder, when standing at the rear of the tool facing the tractor.

Field Adjustments

1. **Leveling main frame and wings.** This adjustment is to prevent side draft and maintain equal depth of penetration across the complete width of the tool.
 - a. Locate the rod working shallow on the Culta-Weeder. Make sure adjustable linkage assembly is tight.
 - b. Raise cylinder base mounts at remaining wheel legs where rods are too deep. This will level all frame sections with the shallow frame section. This is accomplished by loosening both jam nuts in the linkage assembly and adjusting the hex nut to raise cylinder base mount off main frame.
 - c. After main frame and wing frames are level and if machine is working too shallow or too deep, readjust master cylinder depth stops to put rods at depth needed.
2. **Shank spring tension adjustment is required...** Due to soil variation and individual cultivation practices the Shank spring tension is **NOT** preset at the factory. The end user is responsible for setting the Shank tension bolt and securing the hex nut to prevent inadvertent disassembly in the field.

In some ground conditions you may find the need to readjust shank spring tension. The less tension used on the spring the more shank action you will have. Less tension will increase trash clearance while losing ground penetration.

- a. Loosen locknut on top of spring casting.
 - b. Tighten or loosen spring tension bolt on top of shank to desired action of shank, then relock nut on top of spring casting.
 - c. Check shank pressure by applying pressure with your foot on shank point. All shanks should have the same amount of pressure on them.
3. **When shanks are needed:**
 - a. Use shanks when ground conditions are extremely hard and when Culta-Weeder rod is not penetrating properly.
 - b. In extremely rocky ground the shanks may be able to loosen rocks ahead of the Culta-Weeder rod.
 - c. Shanks may be used ahead of boots only to help keep the boots in soft ground. This may help keep small rocks out of the boot chain or give longer chain life.
 - d. Shanks may be used behind tractor tracks to work the track out so the rod leaves the ground level.
 - e. Shanks are needed when stubble is at rod depth.
 4. **Adjustment of lead arm.** The standard setting for shanks is one inch deeper than the rod. This adjustment may be changed by placing a shim under the lead arm and the frame, then re-tightening the u-bolt. A ¼” shim will equal approximately 1” at the rod.

5. **Tiller Wheel Adjustment.** Tiller wheels may be used to control the rod depth while controlling the shank depth with the hydraulic cylinders.
 - a. Raise hydraulic cylinders until the tiller wheels come off the ground.
 - b. Loosen set collars, slide yoke up or down to achieve desired rod depth. Reset collars.
 - c. Be sure to maintain clearance on eccentric stop.

6. **Boot Assembly.** Chain alignment and tightness should be maintained at all times.
 - a. Check tightener sprocket for alignment with drive sprocket. Shims/washers may be placed between boot body and tightener sprocket to align chain. Boot body ear may be bent to also align tightener sprocket with drive sprocket.
 - b. Adjust chain tightness with Culta-Weeder rod in the ground and tension on rod. Adjust the chains to have one inch of free movement.
 - c. When weeding in wet ground, the cleaner sprocket may not be able to keep wet dirt from building up on the back side of the boot. If this condition exists, install boot covers (p/n 0412-074). Another concern: Dirt packing in around cleaner sprocket stopping sprocket from turning, resulting in cutting teeth off sprocket. Solution: Install boot covers.
 - d. There are several types of boot points available. Standard points are good for hard ground penetration. Rock points are good for rocky ground. Heavy duty rock points do not penetrate as well, but will protect Culta-Weeder boot side plates and keep small rocks from being picked up in the Culta-Weeder chain.
 - e. Check Culta-Weeder boot bottom bolts frequently as they may work loose in hard ground.
 - f. Make sure gooseneck shoes are properly installed. If they are mounted incorrectly, the Culta-Weeder rod will bind up, causing boot to turn harder.

Thank you for choosing JE Love Co. for your agricultural needs.