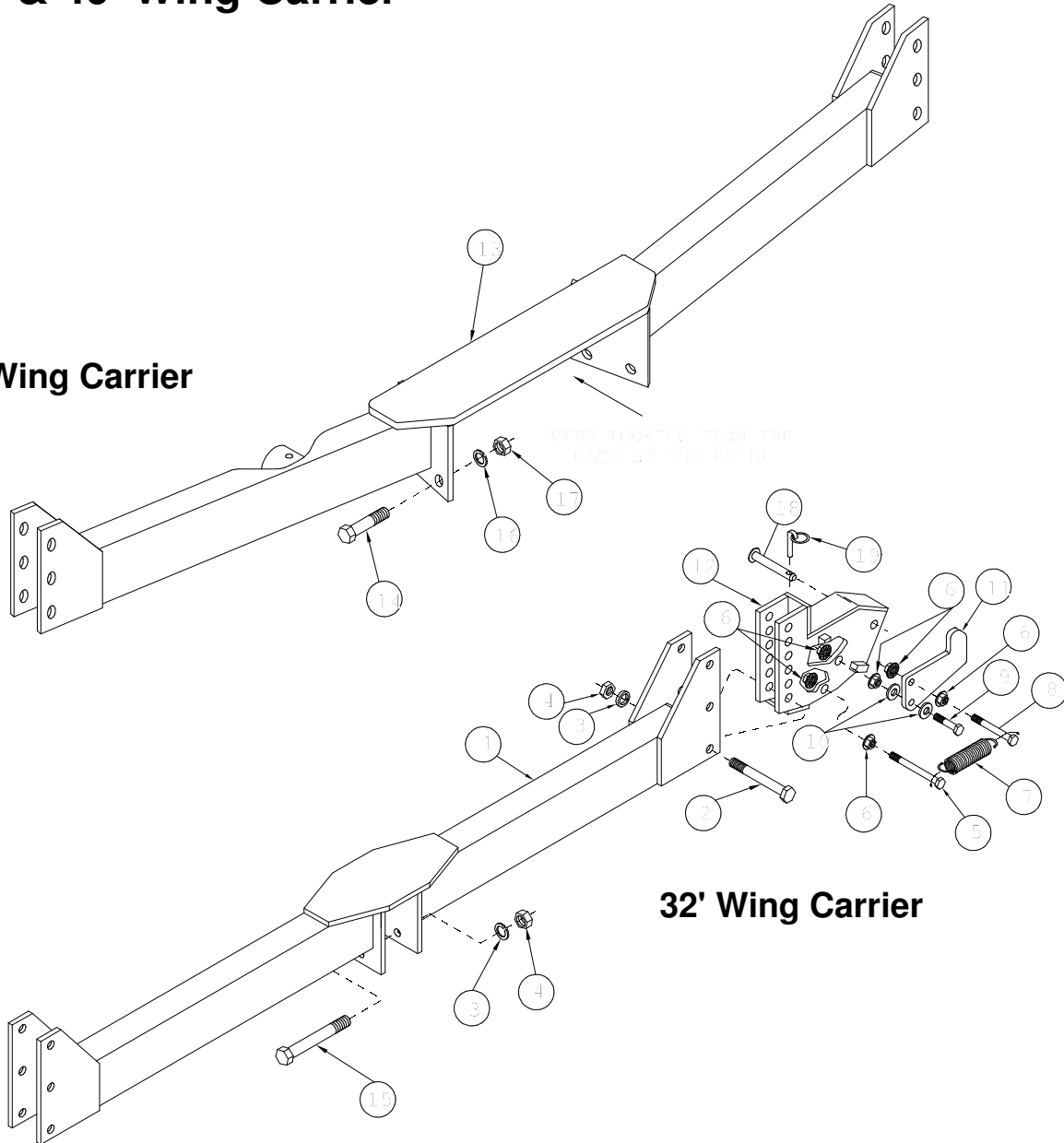


32' & 40' Wing Carrier

40' Wing Carrier



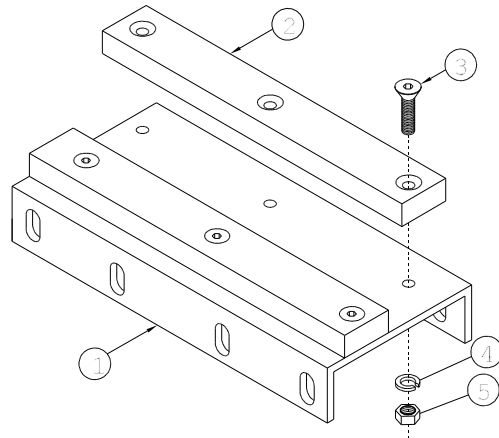
32' Wing Carrier

Item	Part No.	Description
1	959502	32' Wing Carrier
2	01299700	HHCS 3/4" x 5"
3	330332	Lock Washer 3/4"
4	330290	Hex Nut 3/4"
5	334300	HHCS 1/2" x 3 1/2"
6	335836	Whiz Nut 1/2"
7	500173	Spring
8	335422	HHCS 1/2" x 2 1/2"
9	331926	HHCS 1/2" x 2"
10	330159	Flat Washer 1/2"
11	219055	Wing Latch Plate
12	959528	Wing Carrier Stand
13	959510	40' Wing Carrier
14	01071000	HHCS 5/8" x 2"
15	334466	HHCS 3/4" x 6"
16	330878	Lock Washer 5/8"
17	330571	Hex Nut 5/8"
18	331215	Clevis Pin 3/4" x 5 1/4"
19	330456	Klik Pin 7/16"

Bottom Slide Assembly

#866954

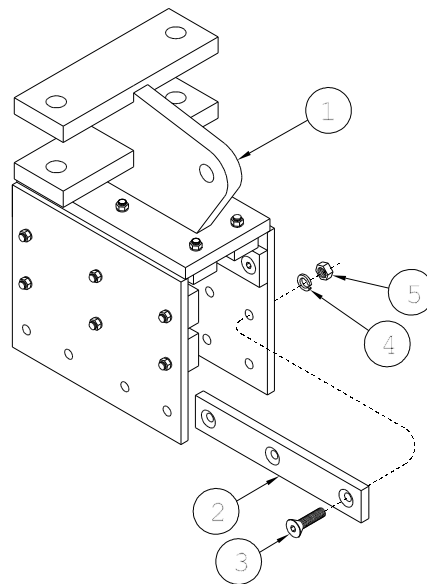
Item	Part No.	Description
1	219337	Bottom Slide Plate
2	571216	Nylatron 3/4" x 2" x 12"
3	02935500	Screw 5/16" x 1 1/4"
4	330845	Lock Washer 5/16"
5	330811	Hex Nut 5/16"



Top Slide Assembly

#866947

Item	Part No.	Description
1	958892	Slide Weldment
2	571216	Nylatron 3/4" x 2" x 12"
3	337683	Screw 5/16" x 1 3/4"
4	330845	Lock Washer 5/16"
5	330811	Hex Nut 5/16"

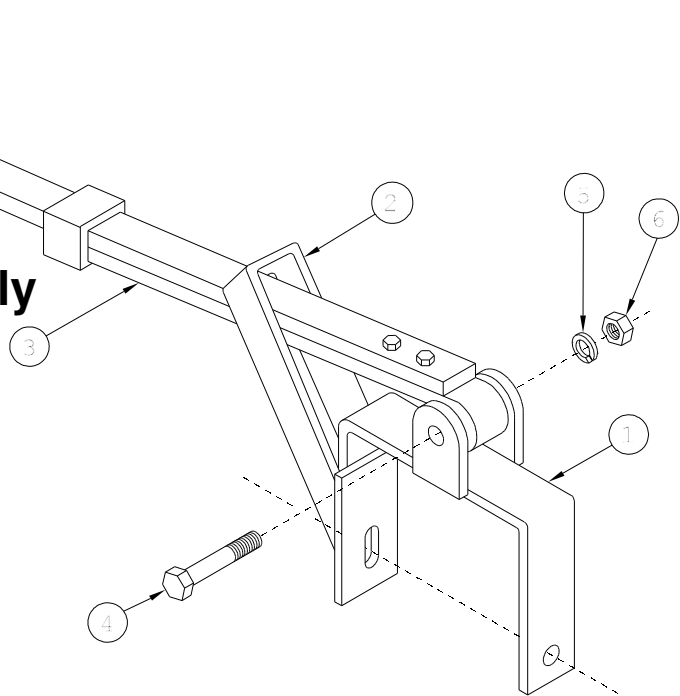


Presswheel Spring Assembly

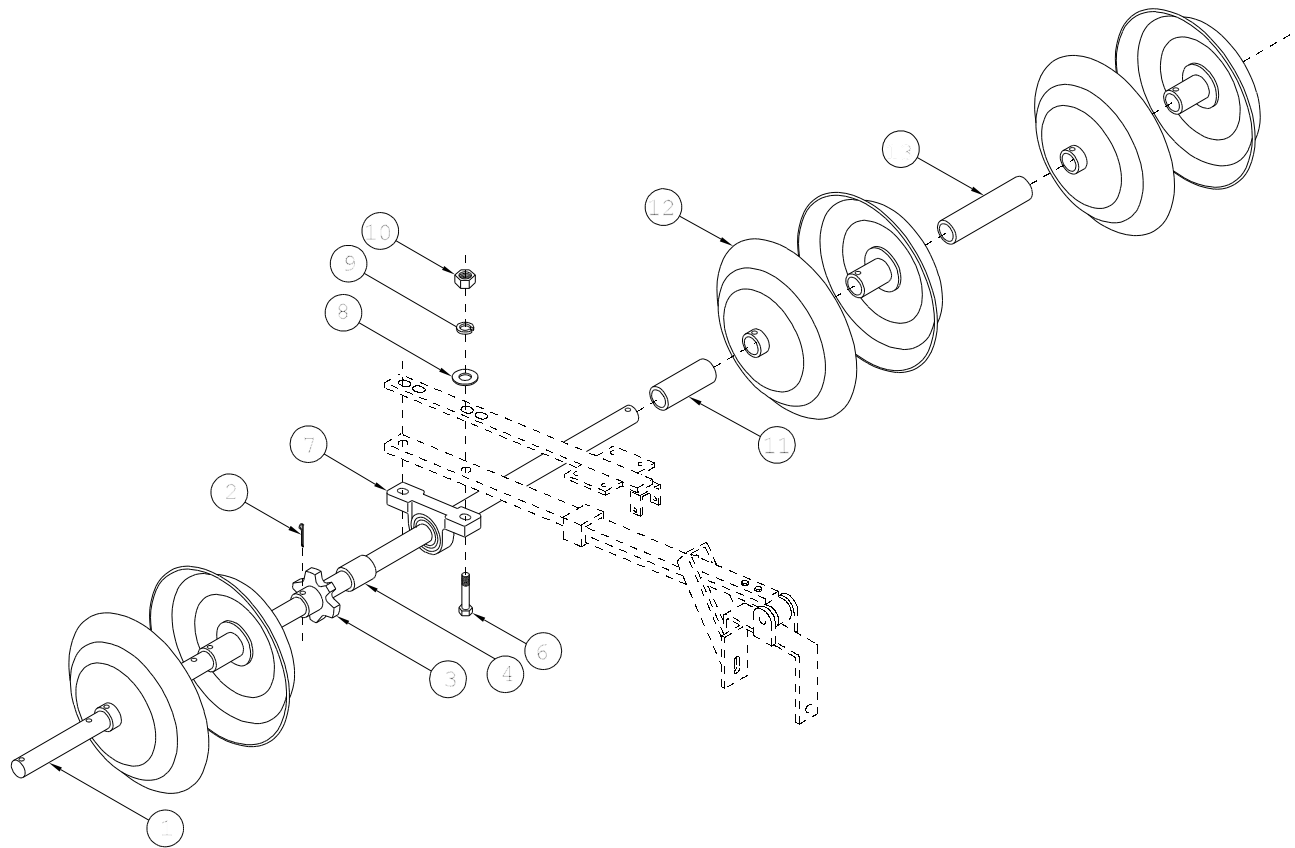
#866665

Presswheel Spring Assembly 4x6

Item	Part No.	Description
1	959320	Presswheel Hanger
2	902429	Adjustable Presswheel Spring Slide
3	501221	Presswheel Spring
4	01116300	HHCS 5/8" x 3 1/2"
5	330878	Lock Washer 5/8"
6	330571	Hex Nut 5/8"



Presswheel Assembly



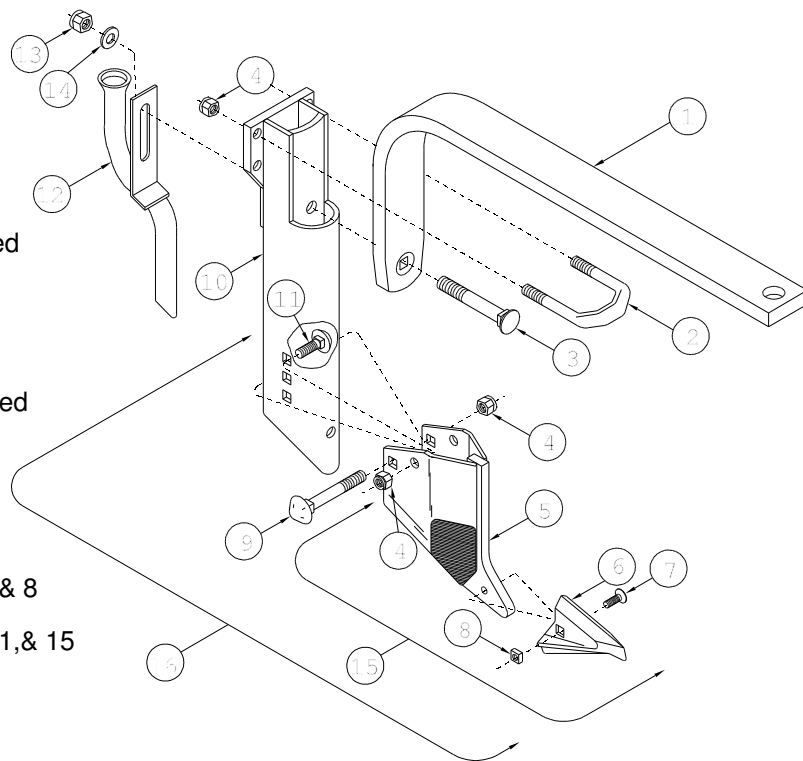
Item	Part No.	Description	Item	Part No.	Description
1		Presswheel Shaft	3	430082	Sprocket 6 Tooth
	300467	1 1/4" x 66 1/8" Non-Driver	4	900431	Presswheel Spacer 2"
	301937	1 1/4" x 66 1/8" Non-Driver	6	335422	HHCS 1/2" x 2 1/2"
	301960	1 1/4" x 78 1/8" Driver	7	400085	Bearing 1 1/4" 2B Pillow Block
	301945	1 1/4" x 76 1/8" Driver	8	330159	Flat Washer 1/2"
	300566	1 1/4" x 86 1/8" Non-Driver	9	330142	Lock Washer 1/2"
	300442	1 1/4" x 54 1/8" Non-Driver	10	330134	Hex Nut 1/2"
	300475	1 1/4" x 56 1/8" Non-Driver	11	140020	Presswheel Spacer 4"
	301903	1 1/4" x 54 1/8" Driver	12	901678	Steel Presswheel Half
	301911	1 1/4" x 56 1/8" Driver	13	140228	Presswheel Spacer 6"
	300434	1 1/4" x 78 1/8" Non-Driver			
2	332403	Cotter Pin 3/16" x 2 1/4"			

Trash Shank Tooth Assemblies

#866632

Back Row - Long

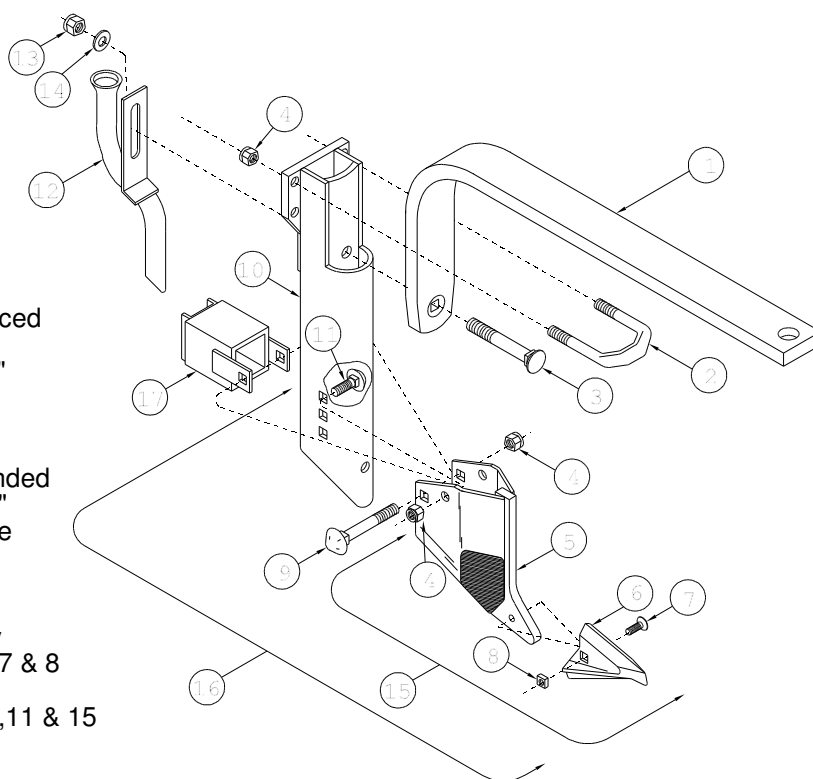
Item	Part No.	Description
1	502211	Back Row Tooth
2	333906	U-bolt 3/8" Flattened
3	333997	Plow Bolt 7/16" x 3 1/2"
4	336909	Nylock Jam Nut 3/8"
5	938423	Trash Shoe Hard Surfaced
6	501114	Plant Point A-66
7	334326	Machine Bolt 1/4" x 7/8" Flat Head
8	332163	Square Nut 1/4"
9	335075	Carriage Bolt 3/8" x 2 1/2"
10	938415	Trash Tooth Boot Extended
11	330548	Carriage Bolt 3/8" x 3/4"
12	940874	Trash Shank Feed Tube 2nd Row
13	330738	Nylock Hex Nut 7/16"
14	330894	Flat Washer 3/8"
15	853473	Point & Shoe Assembly INCLUDES: Items 5,6,7 & 8
16	853499	Boot & Shoe Assembly INCLUDES: Items 4,10,11,& 15



#866962

Back Row - Long w/Bumper

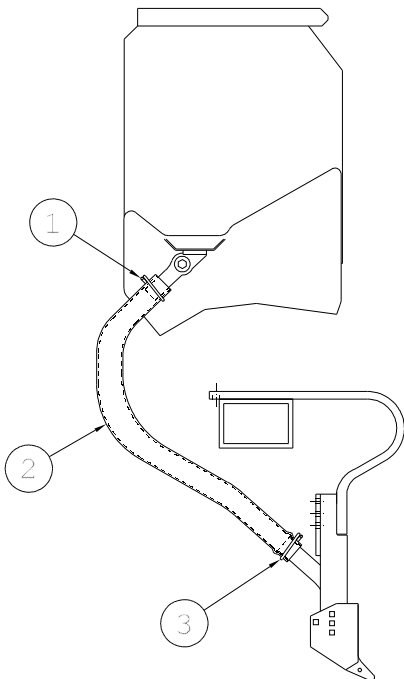
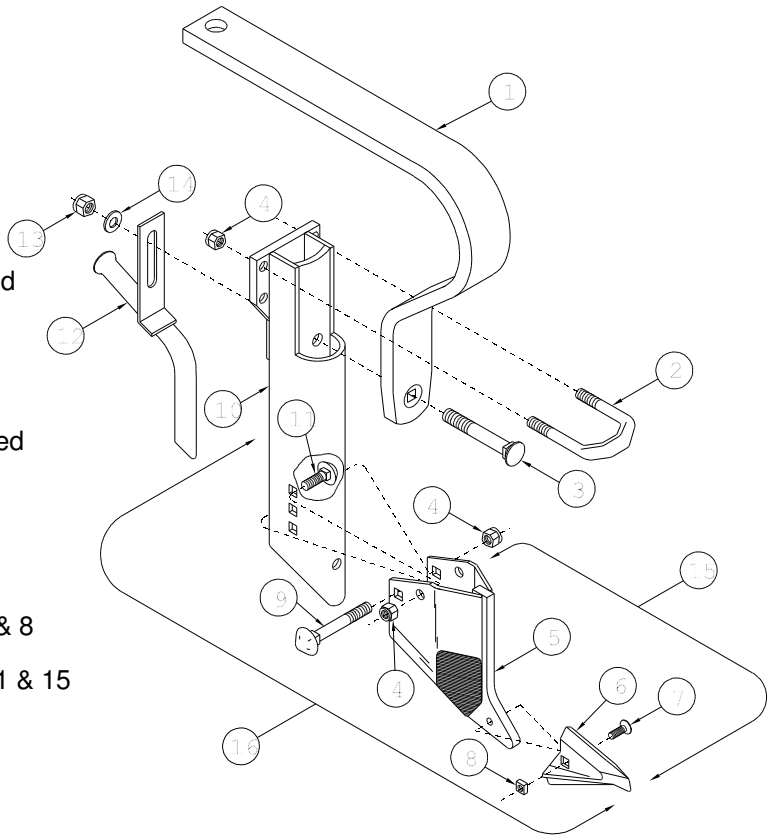
Item	Part No.	Description
1	502211	Back Row Tooth
2	333906	U-bolt 3/8" Flattened
3	333997	Plow Bolt 7/16" x 3 1/2"
4	336909	Nylock Jam Nut 3/8"
5	938423	Trash Shoe Hard Surfaced
6	501114	Plant Point A-66
7	334326	Machine Bolt 1/4" x 7/8" Flat Head
8	332163	Square Nut 1/4"
9	333716	Carriage Bolt 3/8" x 3"
10	938415	Trash Tooth Boot Extended
11	330548	Carriage Bolt 3/8" x 3/4"
12	940874	Trash Shank Feed Tube 2nd Row
13	330738	Nylock Hex Nut 7/16"
14	330894	Flat Washer 3/8"
15	853473	Point & Shoe Assembly INCLUDES: Items 5,6,7 & 8
16	853499	Boot & Shoe Assembly INCLUDES: Items 4,10,11 & 15
17	938639	Trash Shank Bumper



Trash Shank Tooth Assemblies

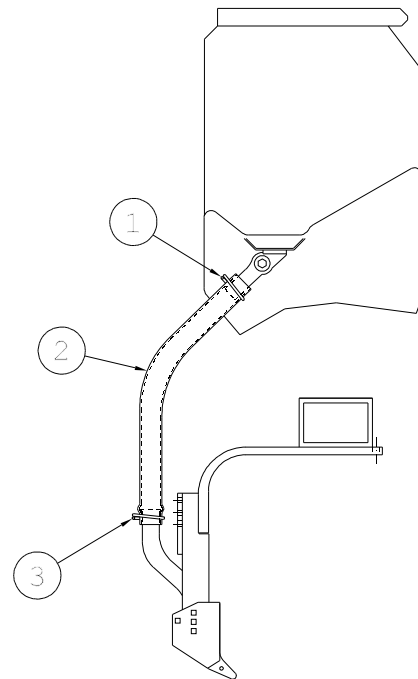
#843193 Front Row

Item	Part No.	Description
1	501106	Front Row Tooth
2	333906	U-bolt 3/8" Flattened
3	333997	Plow Bolt 7/16" x 3 1/2"
4	336909	Nylock Jam Nut 3/8"
5	938423	Trash Shoe Hard Surfaced
6	501114	Plant Point A-66
7	334326	Machine Bolt 1/4" x 7/8" Flat Head
8	332163	Square Nut 1/4"
9	335075	Carriage Bolt 3/8" x 2 1/2"
10	938415	Trash Tooth Boot Extended
11	330548	Carriage Bolt 3/8" x 3/4"
12	938621	Trash Shank Feed Tube 1st & 2nd Row
13	330738	Nylock Hex Nut 7/16"
14	330894	Flat Washer 3/8"
15	853473	Point & Shoe Assembly INCLUDES: Items 5,6,7 & 8
16	853499	Boot & Shoe Assembly INCLUDES: Items 4,10,11 & 15



Front Row Tooth Hoses

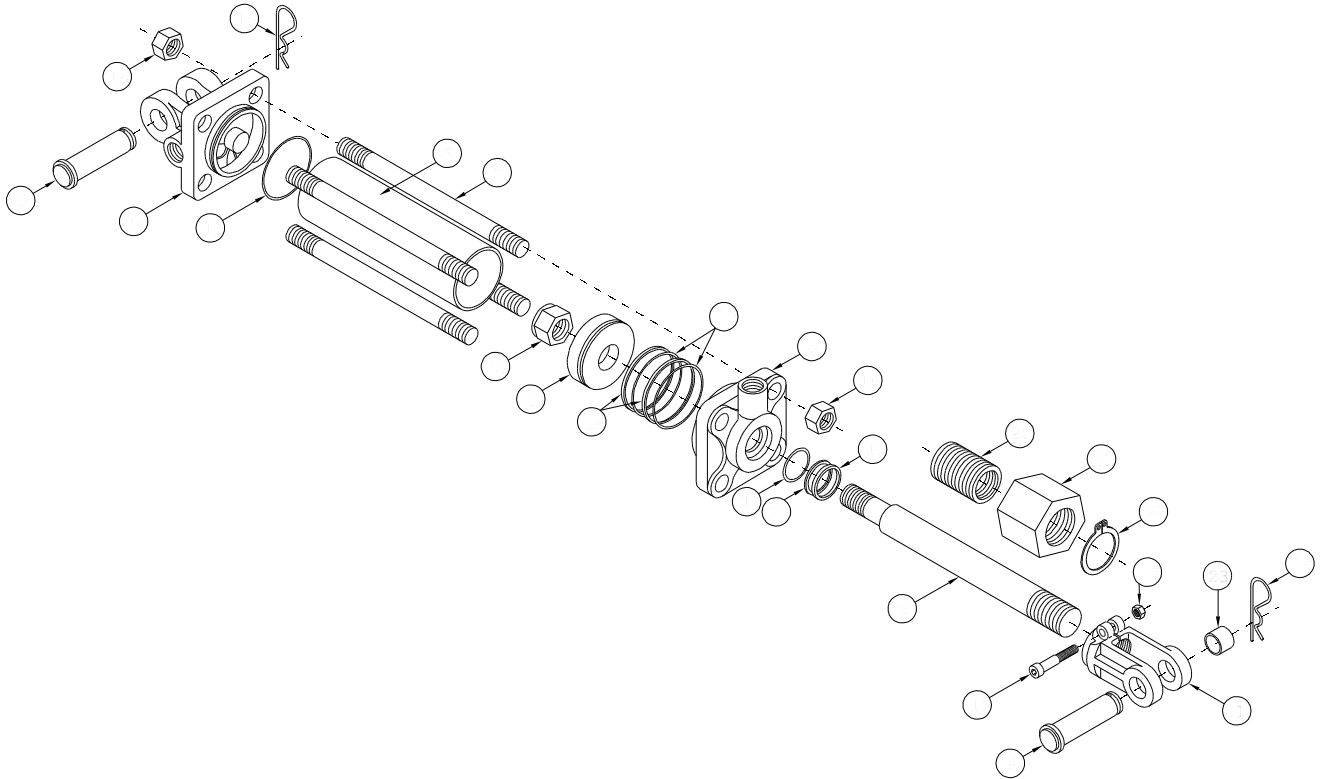
1	600106	Clamp 1.438" x .162" (A-23) or Clamp 1.375" x .132" (N-22)
2	571224	Feed Tube - 24 1/4"
3	600106	Clamp 1.438" x .162" (A-23) or Clamp 1.375" x .132" (N-22)



Back Row Tooth Hoses

1	600106	Clamp 1.438" x .162" (A-23) or Clamp 1.375" x .132" (N-22)
2	570275	Feed Tube - 18 1/4"
3	600106	Clamp 1.438" x .162" (A-23) or Clamp 1.375" x .132" (N-22)

Hydraulic Cylinders



2" x 8" Hydraulic Cylinder 1 1/16" Ram w/Depth Control

CBI No. 460006

Item	Part No.	Description
1	460295	Clevis
2	460667	Rod
3	460626	Head
4	460683	Piston
5	460725	Tube
6	460741	Base
7	460758	Tie Rod
8	460451	Clevis Pin
10	460634	Rod Wiper
11	460659	Rod O-Ring
12	463034	Rod Back-up
13	460642	Piston O-Ring
14	460709	Piston Back-up
15	460394	Piston Nut
16	460691	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
20	461517	Retaining Ring
21	460774	Outside Collar
22	460766	Inside Collar
	460782	Seal Kit

3" x 30" Hydraulic Cylinder 1 1/4" Ram w/1/2" NPTF Ports

CBI No. 460147

Item	Part No.	Description
1	461483	Clevis
2	460824	Rod C
3	460881	Head
4	460964	Piston C
5	461004	Tube
6	461038	Base
7	461053	Tie Rod
10	460329	Rod Wiper
11	460337	Rod O-Ring
12	463042	Rod Back-up
13	460923	Piston O-Ring
14	460980	Piston Back-up
15	460394	Piston Nut C
	461285	Piston Nut M
16	460972	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
	461079	Seal Kit

Hydraulic Cylinders

4" x 8" Hydraulic Cylinder 3000 PSI 1 1/4" Ram w/Depth Control

CBI No. 473215

Item	CBI No.	Description
1	461095	Rod Clevis w/bushings
2	473256	Rod
3	473322	Head
4	473314	Piston
5	461293	Tube
6	473306	Clevis Base
7	473330	Tie Rod
8	463133	Clevis Pin
10	460329	Seal (wiper lip type)
16	461442	Nut
17	460691	Nut
18	460477	Cap Screw
	473280	Stop Collar Assembly
	473348	Seal Kit

3" x 40" Hydraulic Cylinder 1 1/2" Ram

CBI No. 460600

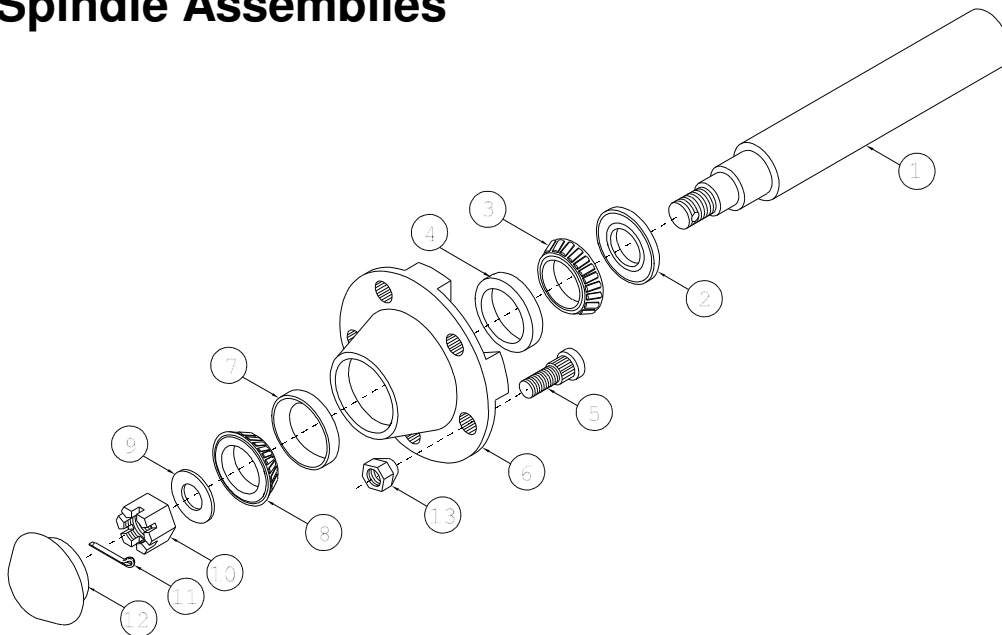
Item	Part No.	Description
1	461483	Clevis
2	460949	Rod C
3	460899	Head
4	460964	Piston C
5	461012	Tube
6	461038	Base
7	461061	Tie Rod
8	460451	Clevis Pin
9	463133	Clevis Pin
10	460907	Rod Wiper
11	460915	Rod O-Ring
12	463067	Rod Back-up
13	460923	Piston O-Ring
14	460980	Piston Back-up
15	460394	Piston Nut C
	461285	Piston Nut M
16	460972	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
	461087	Seal Kit

3" x 8" Hydraulic Cylinder 1 1/4" Ram w/Depth Control

CBI No. 469924

Item	Part No.	Description
1	471038	Clevis
3	469726	Head
9	463133	Clevis Pin
10	460329	Rod Wiper
13	460923	Piston O-Ring
14	460980	Piston Back-up
15	461285	Piston Nut
16	460972	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
20	463398	Retaining Ring
21	463380	Outside Collar
22	461525	Inside Collar
	461079	Seal Kit

Hub & Spindle Assemblies



#831677 - Q736 Hub w/ 1 5/8" x 14 1/2" Spindle

Item	Part No.	Description
1	400820	Spindle 1 5/8" x 14 1/2"
2	400044	Dust Seal
3	05741400	Inner Bearing Cone
* 4	05742200	Inner Bearing Cup
* 5	331306	Lug Bolt
6	550012	5 Bolt Hub Q736 w/ cups and lug bolts
* 7	400036	Outer Bearing Cup
8	400028	Outer Bearing Cone
9	330480	Spindle Washer
10	330472	Spindle Nut
11	02154300	Cotter Pin
12	600312	Dust Cap
13	331314	Lug Nut

* Items #4, #5, & #7 are pressed in hub

#831685 - Q736 Hub w/ 1 5/8" x 11 1/2" Spindle

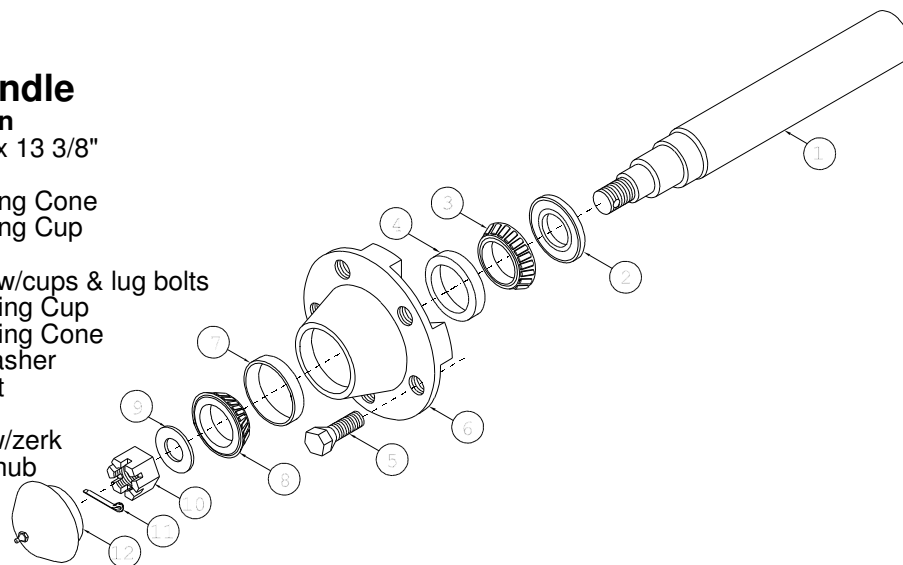
Item	Part No.	Description
1	400838	Spindle 1 5/8" x 11 1/2"
2	400044	Dust Seal
3	05741400	Inner Bearing Cone
* 4	05742200	Inner Bearing Cup
* 5	331306	Lug Bolt
6	550012	Hub Q736 w/ cups and lug bolts
* 7	400036	Outer Bearing Cup
8	400028	Outer Bearing Cone
9	330480	Spindle Washer
10	330472	Spindle Nut
11	02154300	Cotter Pin
12	600312	Dust Cap
13	331314	Lug Nut

* Items #4, #5, & #7 are pressed in hub

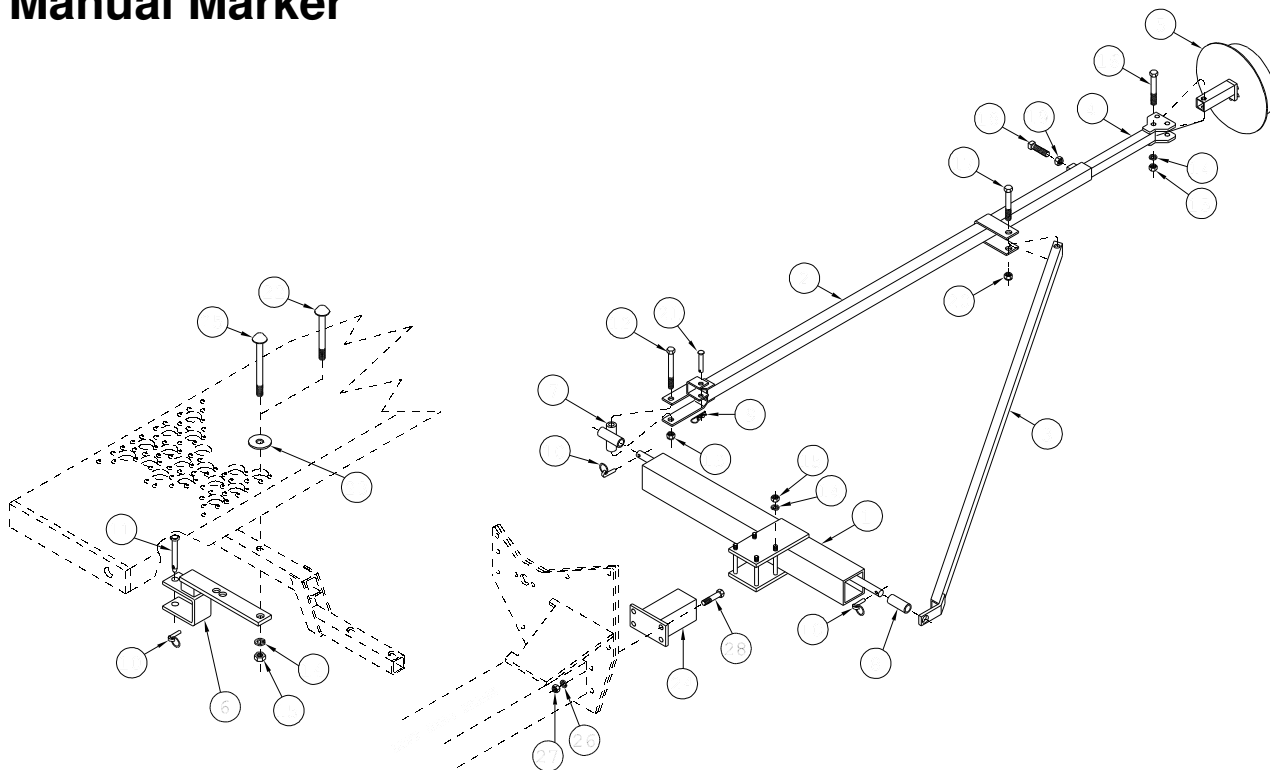
#843235 - Q783 Hub w/ 2" x 13 3/8" Spindle

Item	Part No.	Description
1	401083	Spindle 2" x 13 3/8"
2	400861	Dust Seal
3	400853	Inner Bearing Cone
* 4	400846	Inner Bearing Cup
5	330464	Lug Bolt
6	550707	Hub Q783 w/cups & lug bolts
* 7	05742200	Outer Bearing Cup
8	05741400	Outer Bearing Cone
9	02080000	Spindle Washer
10	331801	Spindle Nut
11	02154300	Cotter Pin
12	600221	Dust Cap w/zerk

* Items #4 & #7 are pressed in hub



Manual Marker



#029827 (Prior 1999)

Marker carrier bracket is mounted under the second walkboard, fourth walkboard mounting bracket in from the outside of the drill standing in back of the drill. Use (Item #22) 1/2" x 4 1/2" carriage bolt to mount walkboards to walkboard mount brackets. Use (Item #25) 1/2" x 5" carriage bolt to mount walkboard to walkboard mount to carrier bracket as shown.

Item	Part No.	Description
1	923623	Mounting Bracket
2	923854	Marker Arm
3	923862	Brace Arm
4	923912	Extension Arm 90"
5	842500	Marker Blade Assembly
6	937029	Carrier Bracket
7	908632	U-Joint
8	140962	Hinge Spacer Spool
9	330860	Hair Pin 5/32"
10	330456	Klik Pin 7/16"
11	330449	Clevis Pin 3/4" x 4 1/2"
12	330233	HHCS 3/4" x 4 1/2"
13	330316	Hex Nut 3/4" Nylock
14	330142	Lock Washer 1/2"
15	330134	Hex Nut 1/2"
16	334946	HHCS 1/2" x 3"
17	335620	HHCS 5/8" x 3"
18	331223	Set Screw 5/8" x 1 3/4" Sq Head
19	331538	Jam Nut 5/8"
20	01572700	Hex Nut 5/8" Nylock
21	333971	Clevis Pin 5/8" x 2 1/2"
22	333377	Carriage Bolt 1/2" x 4 1/2"
23	330183	Flat Washer 5/8"
24	959817	Marker Mount
25	337642	Carriage Bolt 1/2" x 5"

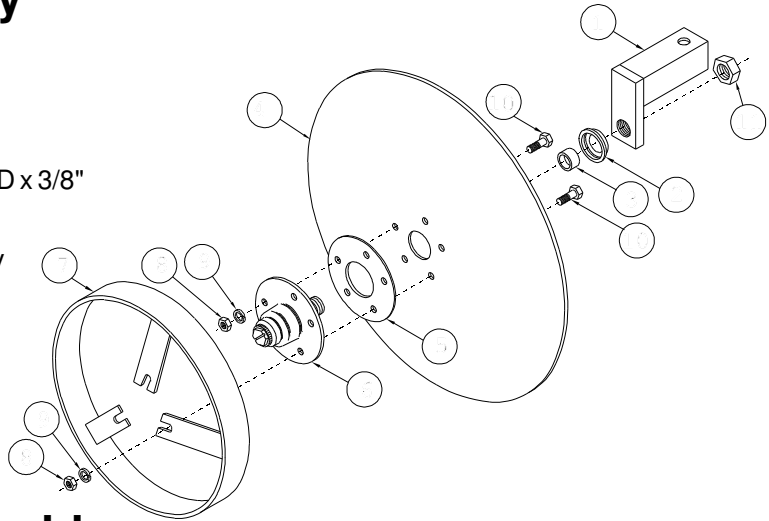
#030544

Marker carrier bracket is mounted under the second walkboard, fourth walkboard mounting bracket in from the outside of the drill standing in back of the drill. Use (Item #22) 1/2" x 5" carriage bolt to mount walkboards to walkboard mount brackets. Use (Item #25) 1/2" x 6" carriage bolt to mount walkboard to walkboard mount to carrier bracket as shown.

Item	Part No.	Description
1	961375	Mounting Bracket
2	923854	Marker Arm
3	961359	Brace Arm
4	923912	Extension Arm 90"
5	842500	Marker Blade Assembly
6	937029	Carrier Bracket
7	961367	U-Joint
8	151696	Hinge Spacer Spool
9	330860	Hair Pin 5/32"
10	330456	Klik Pin 7/16"
11	330449	Clevis Pin 3/4" x 4 1/2"
12	330233	HHCS 3/4" x 4 1/2"
13	330316	Hex Nut 3/4" Nylock
14	330142	Lock Washer 1/2"
15	330134	Hex Nut 1/2"
16	334946	HHCS 1/2" x 3"
17	335620	HHCS 5/8" x 3"
18	331223	Set Screw 5/8" x 1 3/4" Sq Head
19	331538	Jam Nut 5/8"
20	01572700	Hex Nut 5/8" Nylock
21	333971	Clevis Pin 5/8" x 2 1/2"
22	337642	Carriage Bolt 1/2" x 5"
23	330183	Flat Washer 5/8"
24	959817	Marker Mount
25	335364	Carriage Bolt 1/2" x 6"
26	330878	Lock Washer 5/8"
27	330571	Hex Nut 5/8"
28	01071000	HHCS 5/8" x 2"

Marker Blade Assembly #842500

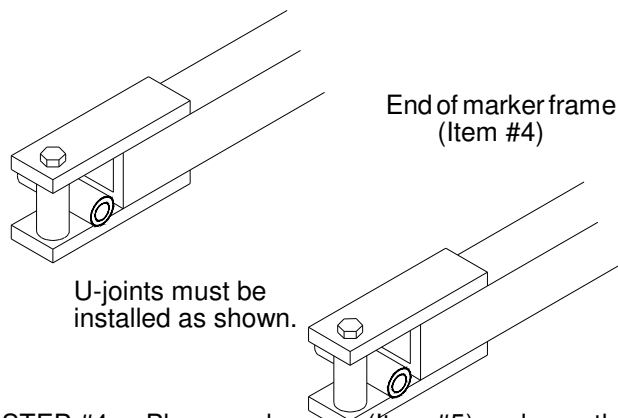
Item	Part No.	Description
1	919639	Marker Angle Adj. Tube
2	400747	Neoprene Seal
3	146217	Bushing 7/8" OD x 21/32" ID x 3/8"
4	501171	Marker Disc Blade
5	601393	Cellulose Fiber Gasket
6	842492	Marker Bearing Assembly
7	928564	Depth Band
8	330811	Hex Nut 5/16"
9	330845	Lock Washer 5/16"
10	01144500	HHCS 5/16" X 3/4"
11	331538	Jam Nut 5/8"



Hydraulic Marker Assembly

(Item Numbers refer to parts page #65 unless otherwise specified.)

- STEP #1.** Bolt marker mounting tube (Item #27) to the end plate on the frame using four (4) 5/8" x 2" HHCS with lock washers and hex nuts.
- STEP #2.** Slide marker mounting bracket (Item #1) to mounting tube, and secure with four (4) 1/2" lock washers and hex nuts.
- STEP #3.** Slide u-joints (Item #2) over each end of the shaft on mounting bracket (Item #1). Turn the u-joint so the vertical spool is toward the inside of the drill and slide the marker frame (Item #4) over them and secure using two (2) 3/4" x 3 1/2" HHCS with lock washers and hex nuts.



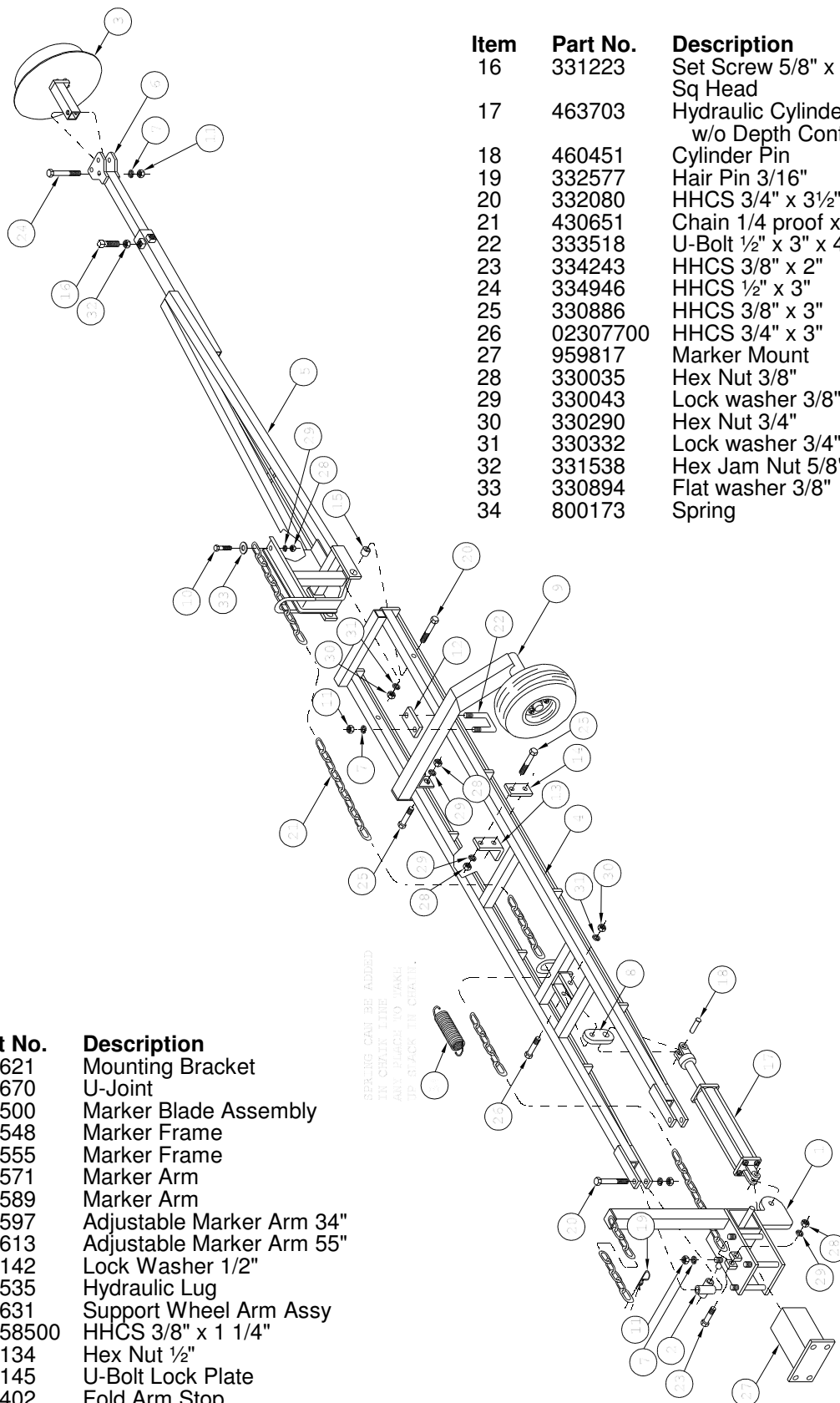
- STEP #4.** Place marker arm (Item #5) underneath marker frame and line up holes in the side tubes on the marker frame. Slip bushings (Item #15) into marker arm and secure with 3/4" x 3 1/2" HHCS with lock washers and hex nuts.
- STEP #5.** Install fold arm stop (Item #13) to the marker arm (Item #4) using plate (Item #14) and secure with 3/8" x 3" HHCS and lock washers and hex nuts. This should be adjusted so the marker blade does not hit the marker frame or cylinder when marker is folded.

- STEP #6.** Install one end of the chain (Item #21) to the marker arm (Item #5) using a 3/8" x 1 1/4" HHCS with flat washer, lock washer, and hex nut. Lay the chain over the channel and through the loop to on down the ladder to the mounting bracket (Item #1). Raise the marker by hand and fold the marker arm down. (This will require some help). Attach the chain between the two smaller plates on the mounting bracket (Item #1) using a 3/8" x 2" HHCS with lock washer and hex nut. Leave a small amount of slack in the chain. Excess slack can be taken up using spring (Item #34).
- STEP #7.** Install marker blade assembly (Item #3) between the plates on the adjustable marker arm (Item #6) using three (3) 1/2" x 3" HHCS with lock washers and hex nuts.
- STEP #8.** Slide the adjustable marker arm (Item #6) into the marker arm (Item #5) and use a 5/8" x 1 3/4" set screw with 5/8" hex jam nut to secure the adjustable marker arm at the length needed.
- STEP #9.** Install the cylinder with the base end attached to the marker mounting bracket (Item #1) and the ram end to the bolt on lug (Item #8). Connect the hydraulic lines as shown in the hydraulic diagram on page 65.
- STEP #10.** The marker may be secured in the folded position by wrapping the small chain around the marker arm (Item #5) inserting the end link through one of the other links and securing with a hair pin (Item #19).

Hydraulic Marker

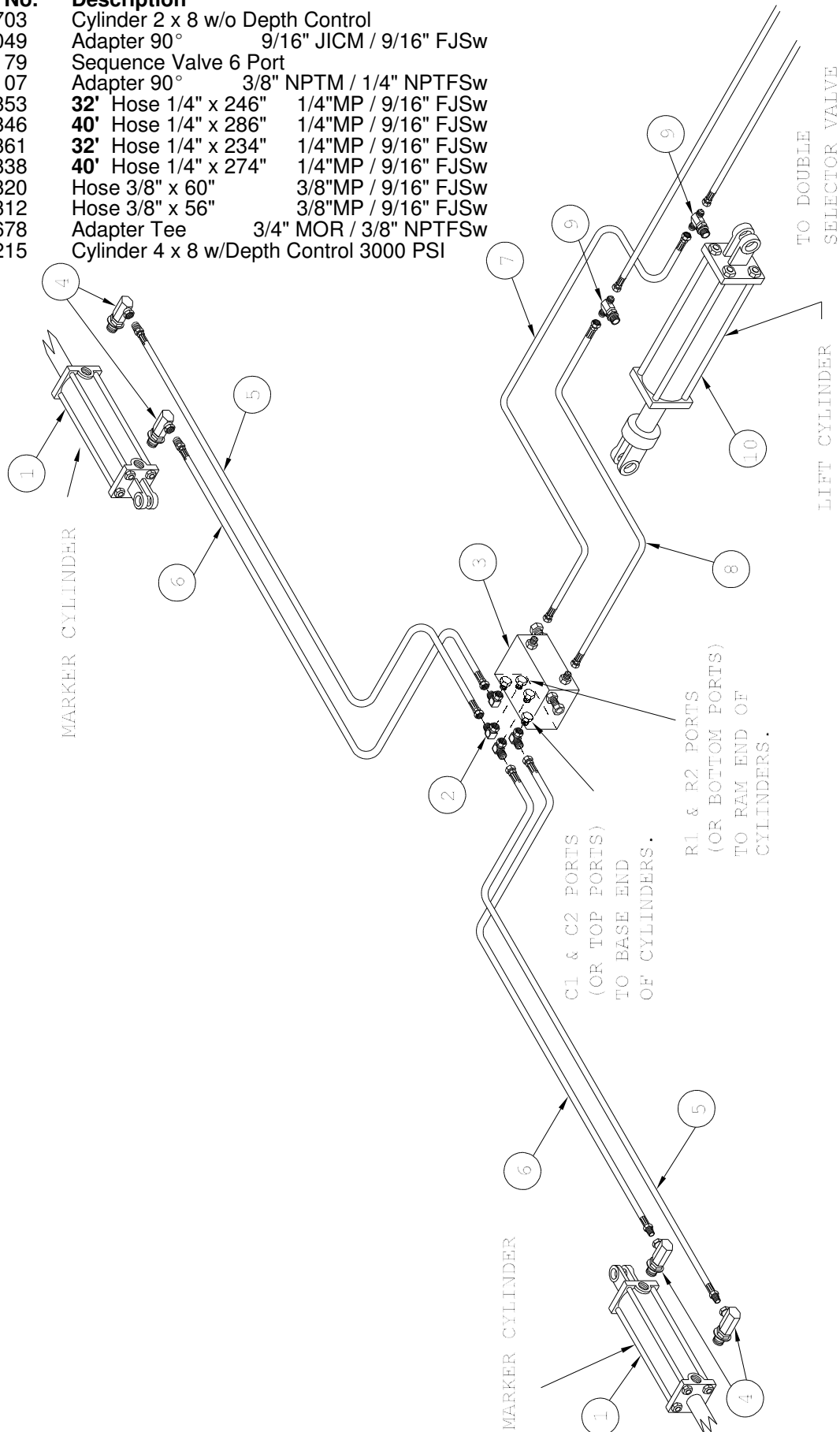
Item	Part No.	Description
1	919621	Mounting Bracket
2	919670	U-Joint
3	842500	Marker Blade Assembly
4	919548	Marker Frame
	919555	Marker Frame
5	919571	Marker Arm
	919589	Marker Arm
6	919597	Adjustable Marker Arm 34"
	919613	Adjustable Marker Arm 55"
7	330142	Lock Washer 1/2"
8	182535	Hydraulic Lug
9	819631	Support Wheel Arm Assy
10	01158500	HHCS 3/8" x 1 1/4"
11	330134	Hex Nut 1/2"
12	183145	U-Bolt Lock Plate
13	182402	Fold Arm Stop
14	182394	Fold Arm Stop Lock Plate
15	142646	Marker Arm Spacer

Item	Part No.	Description
16	331223	Set Screw 5/8" x 1 3/4" Sq Head
17	463703	Hydraulic Cylinder 2" x 8" w/o Depth Control
18	460451	Cylinder Pin
19	332577	Hair Pin 3/16"
20	332080	HHCS 3/4" x 3 1/2"
21	430651	Chain 1/4 proof x 8'
22	333518	U-Bolt 1/2" x 3" x 4 1/2"
23	334243	HHCS 3/8" x 2"
24	334946	HHCS 1/2" x 3"
25	330886	HHCS 3/8" x 3"
26	02307700	HHCS 3/4" x 3"
27	959817	Marker Mount
28	330035	Hex Nut 3/8"
29	330043	Lock washer 3/8"
30	330290	Hex Nut 3/4"
31	330332	Lock washer 3/4"
32	331538	Hex Jam Nut 5/8"
33	330894	Flat washer 3/8"
34	800173	Spring



Marker Hydraulics

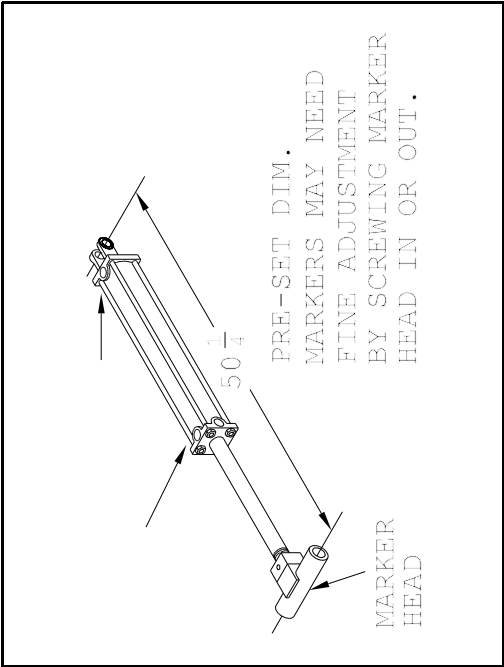
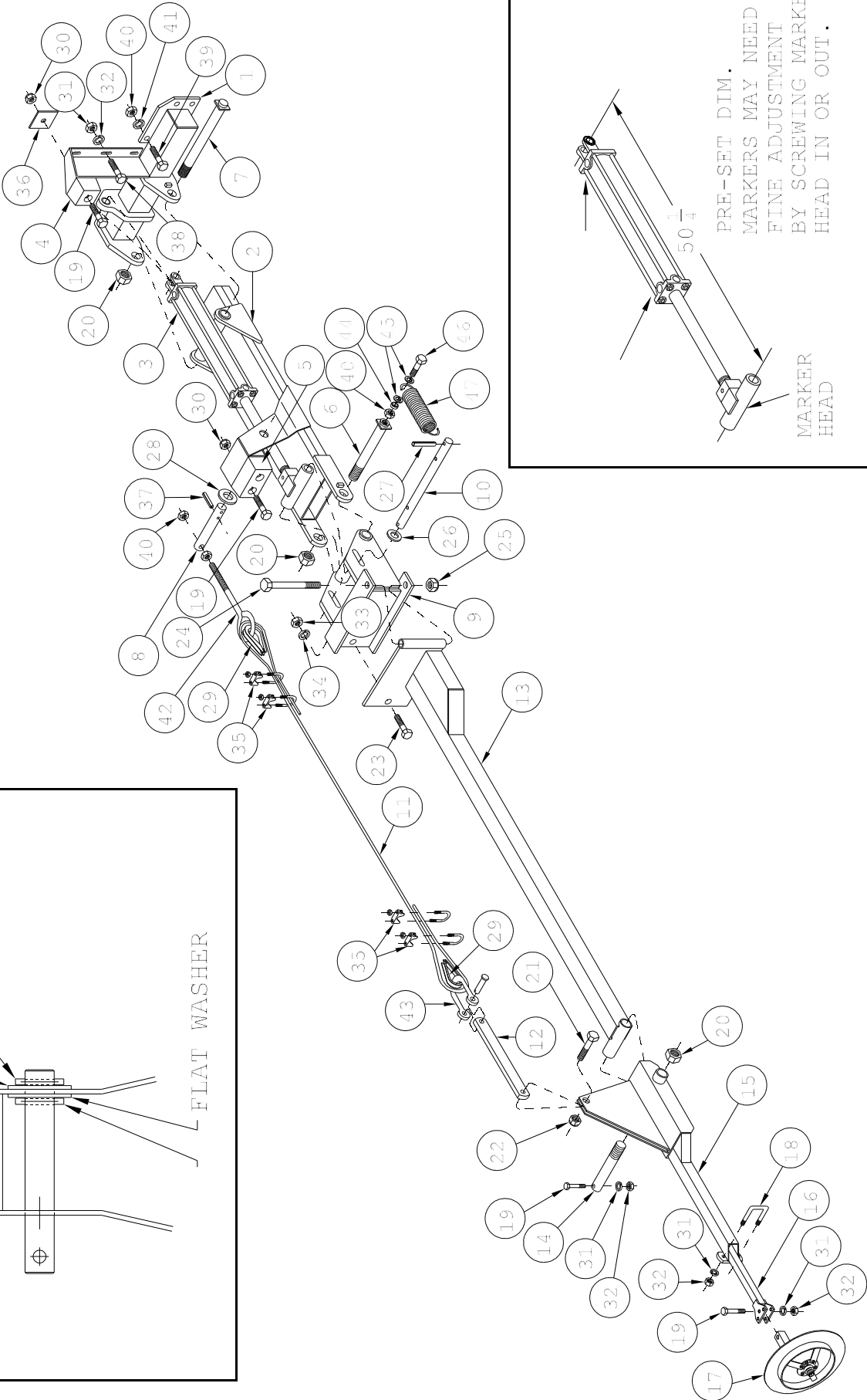
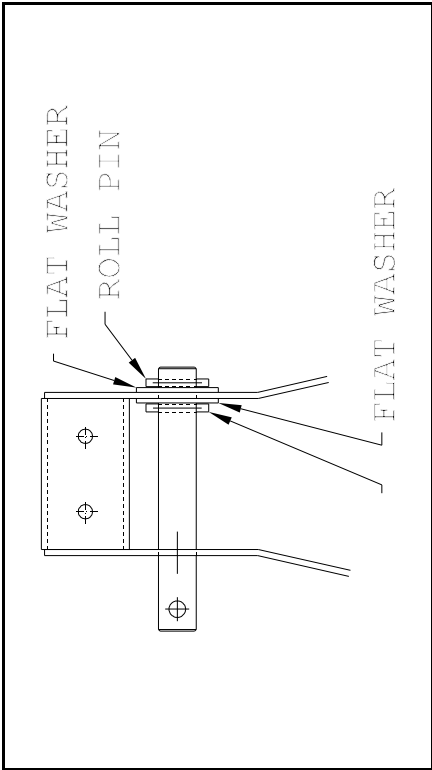
Item	Part No.	Description
1	463703	Cylinder 2 x 8 w/o Depth Control
2	469049	Adapter 90° 9/16" JICM / 9/16" FJSw
3	470179	Sequence Valve 6 Port
4	464107	Adapter 90° 3/8" NPTM / 1/4" NPTFSw
5	469353	32' Hose 1/4" x 246" 1/4"MP / 9/16" FJSw
6	469346	40' Hose 1/4" x 286" 1/4"MP / 9/16" FJSw
7	469361	32' Hose 1/4" x 234" 1/4"MP / 9/16" FJSw
8	469338	40' Hose 1/4" x 274" 1/4"MP / 9/16" FJSw
9	469320	Hose 3/8" x 60" 3/8"MP / 9/16" FJSw
10	469312	Hose 3/8" x 56" 3/8"MP / 9/16" FJSw
11	468678	Adapter Tee 3/4" MOR / 3/8" NPTFSw
12	473215	Cylinder 4 x 8 w/Depth Control 3000 PSI



Hydraulic Fold Over Marker Assembly

(Item Numbers refer to parts page #68 unless otherwise specified.)

- STEP #1. Remove end cap steps and using 5/8" x 1 3/4" bolts (Item #39) and the same holes, mount the left and right marker mounts to the end of the wing frames. Use the 1/2" x 1 1/2" bolt (Item #38) to mount marker mounts to holes in grain box. Secure with lock washers and hex nuts.
- STEP #2. Install the marker first section (Item #2) to the left and right marker mounts using the 15 3/4" first section marker pin (Item #7). Secure with 1 1/2" hex jam nut w/set screw (Item #20). At this point, you may want to block or use a stand to rest the marker first section on.
- STEP #3. Mount the whole dock bumpers (Item #5) to marker first section and the half dock bumpers (Item #4) to marker mounts using 1/2" x 3" bolts (Item #19) and secure with 1/2" hex nylock (Item #30).
- NOTE:** Spacer plate (Item #36) may have to be used later if marker mounts need to be adjusted out to make the marker fold correctly. Store the spacer plate as shown in the lay-out drawing.
- STEP #4. Install the left and right marker breakaways (Item #9) using the 13" second section marker pin (Item #6). Secure with 1 1/2" hex jam nut w/set screw (Item #20).
- STEP #5. Mount the cylinder assemblies (Item #3) with base ends to the left and right marker mounts using cylinder pins provided with the cylinders. Screw the marker cylinder bracket in or out to get the pre-set measurement of 50 1/4". When the measurement is set, mount the ram end to the slotted holes in the marker breakaways using marker cylinder pin (Item #10). Secure by using 1" flat washers and 1 3/4" roll pins (Items #26 & #27).
- STEP #6. Install marker second section left and rights (Item #13) to marker breakaways using a 1" x 10 1/2" bolt (Item #24) and secure with a 1" hex nylock nut (Item #25). Install a 3/8" x 1 1/2" bolt (Item #23) as shown in drawing and secure with lock washers and hex nuts. This bolt acts as a shear bolt.
- STEP #7. Mount marker third section - left and rights (Item #15) to second section using the 9 13/16" third section marker pin (Item #14). Secure pin with a 1/2" x 3" bolt (Item #19) and lock washer and hex nut. Secure threaded end using 1 1/2" hex jam nut w/set screw (Item #20).
- STEP #8. Slide adjustable marker arms (Item #16) into marker third sections and use 1/2" x 2" x 3" u-bolts with lock washers and hex nuts to secure.
- STEP #9. Bolt marker blade assemblies to adjustable marker arms using 1/2" x 3" bolts with lock washers and hex nuts. Tighten hardware. Angle settings will be dependent on field conditions and the amount of furrow desired.
- STEP #10. Install marker adjustment rod mount pin (Item #8) to marker first section as shown in the insert of the drawing page.
- STEP #11. Slip marker adjustment rod (Item #42) into adjustment rod pin as shown in drawing and secure with a 5/8" flat washer and 5/8" hex nylock nut.
- STEP #12. Attach marker linkage plate (Item #12) to marker third section using a 3/4" x 2 1/2" bolt (Item 21) and secure with a 3/4" hex nylock nut. Hook up linkage plate (Item #12) to adjustment rod (Item #42) using the same bolt and hex nylock as above.
- STEP #13. For assembly of hydraulics, see hydraulic lay-out on page 70. After hydraulics are complete, raise markers slowly to fill with oil. Sequence several times to eliminate air in the system. Be sure to check for leaks in the system.
- STEP #14. After markers are folded, take all slack out of the adjustment rods.
- STEP #15. Measure distance as required and set adjustable marker arms to proper positions.
- STEP #16. If the marker is extending and retracting faster or slower than the operator prefers, adjust the sequence valve needle seats IN half turn or OUT half turn to raise or lower the markers faster or slower. Only turn needle seats half turns at a time.

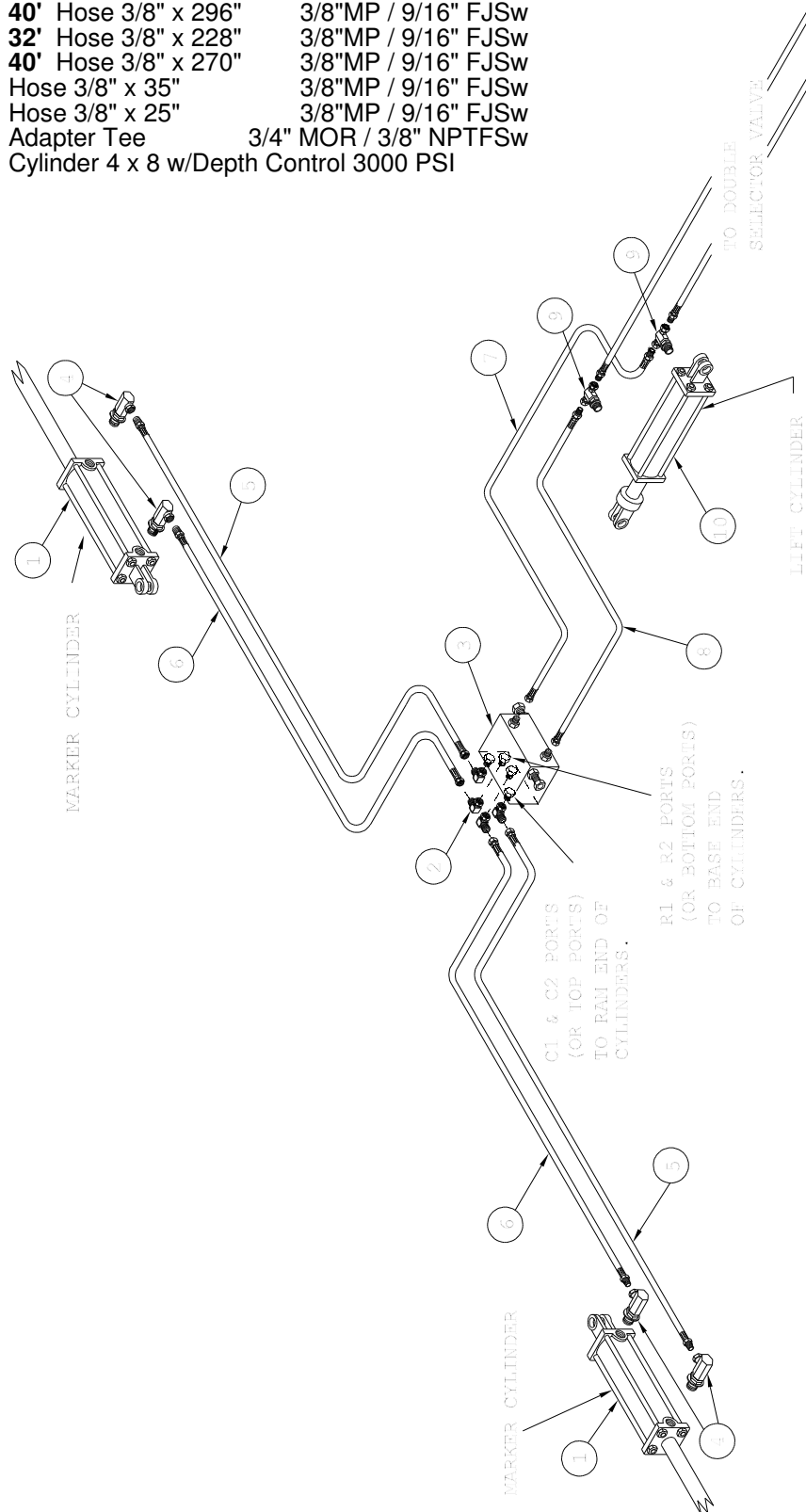


Hydraulic Fold Over Marker

Item	Part No.	Description	Item	Part No.	Description
1	960435	Marker Mount Left (Shown)	17	842500	Marker Blade Assembly
	960427	Marker Mount Right (Shown)	18	331124	U-bolt 1/2" x 2" x 3"
2	960476	Marker First Section	19	334946	HHCS 1/2" x 3"
3	867523	Marker Cylinder Assembly	20	333583	Hex Jam Nut 1 1/2" w/set screw
4	10746600	Dock Bumper Half (1 Piece)	21	335174	HHCS 3/4" x 2 1/2"
5	00188300	Dock Bumper (One Pair)	22	330316	Hex Nylock 3/4"
6	960583	Marker Pin Second Section	23	335703	HHCS 3/8" x 1 1/2"
7	960591	Marker Pin First Section	24	331744	HHCS 1" x 10 1/2"
8	310441	Adjustment Rod Mount Pin	25	330597	Hex Nylock 1"
9	960450	Marker Breakaway Left (Shown)	26	330407	Flat Washer 1"
	960468	Marker Breakaway Right	27	330662	Roll Pin 5/16" x 1 3/4"
10	306621	Marker Cylinder Pin	28	330423	Flat Washer 1 1/2"
11	960567	Adjustment Rod 32'	29	330183	Flat Washer 5/8"
	960575	Adjustment Rod 40'	30	331363	Hex Nylock 1/2"
12	220426	Linkage Plate	31	330134	Hex Nut 1/2"
13	960526	Second Section Left (Shown) 32'	32	330142	Lock Washer 1/2"
	960534	Second Section Right 32'	33	330035	Hex Nut 3/8"
	960542	Second Section Left 40'	34	330845	Lock Washer 3/8"
	960559	Second Section Right 40'	35	01572700	Hex Nylock 5/8"
14	310474	Third Section Marker Pin	36	220434	Bumper Spacer Plate
15	960484	Third Section Left (Shown) 32'	37	333203	Roll Pin 5/16" x 2 1/2"
	960492	Third Section Right 32'	38	01147800	HHCS 1/2" x 1 1/2"
	960500	Third Section Left 40'	39	01146000	HHCS 5/8" x 1 3/4"
	960518	Third Section Right 40'	40	330571	Hex Nut 5/8"
16	919597	Adjustable Marker Arm	41	330878	Lock Washer 5/8"

Fold Over Marker Hydraulics

Item	Part No.	Description
1	867523	Marker Cylinder Assembly
2	469049	Adapter 90° 9/16" JICM / 9/16" FJSw
3	469072	Sequence Valve 6 Port (.076)
4	463539	Adapter 90° 1/2" NPTM / 3/8" NPTFSw
5	470153	32' Hose 3/8" x 252" 3/8"MP / 9/16" FJSw
	469098	40' Hose 3/8" x 296" 3/8"MP / 9/16" FJSw
6	470120	32' Hose 3/8" x 228" 3/8"MP / 9/16" FJSw
	469106	40' Hose 3/8" x 270" 3/8"MP / 9/16" FJSw
7	470351	Hose 3/8" x 35" 3/8"MP / 9/16" FJSw
8	470369	Hose 3/8" x 25" 3/8"MP / 9/16" FJSw
9	468678	Adapter Tee 3/4" MOR / 3/8" NPTFSw
10	473215	Cylinder 4 x 8 w/Depth Control 3000 PSI

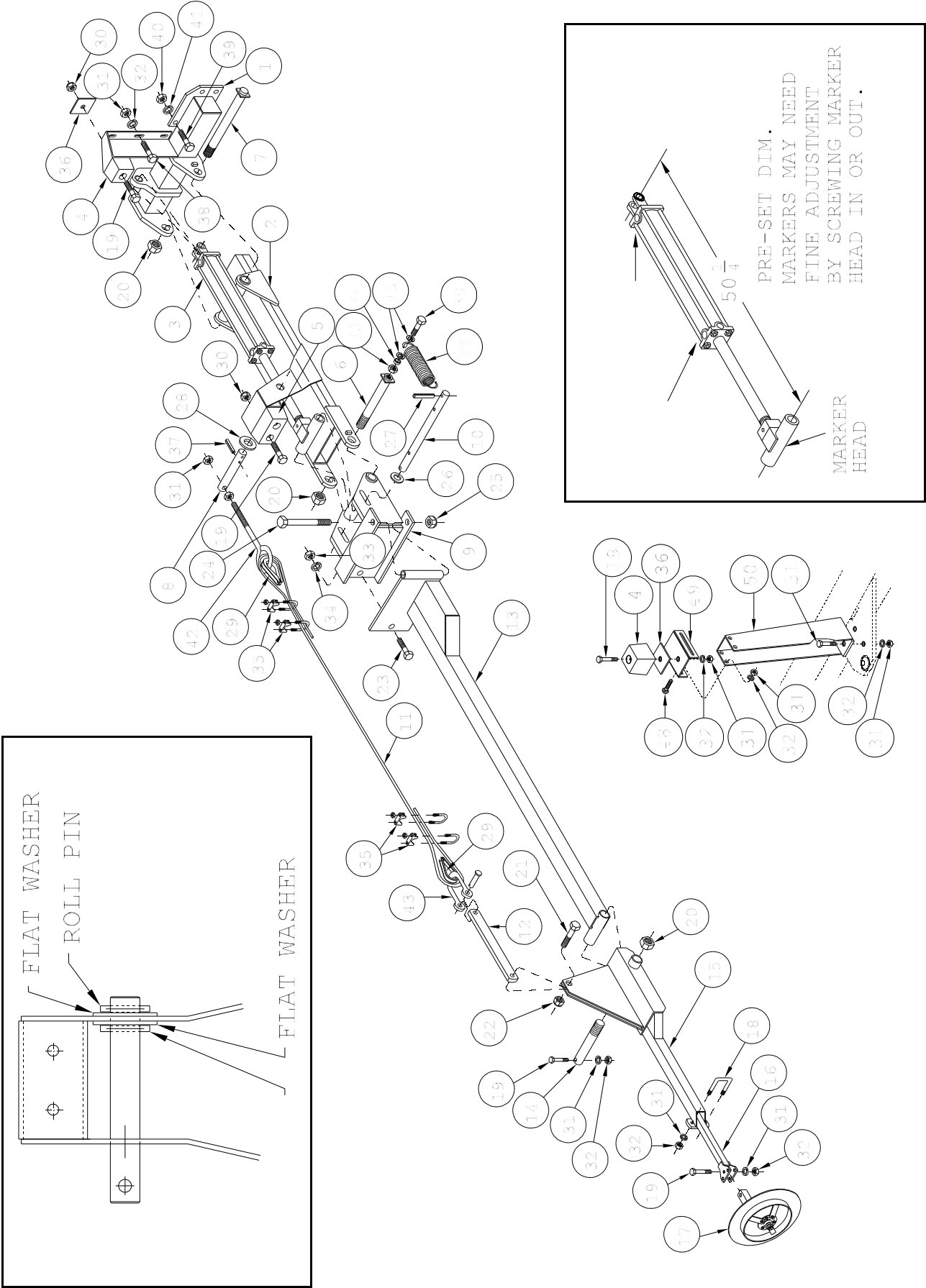


Hydraulic 180° Fold Over Marker Assembly

(Item Numbers refer to parts page #72 unless otherwise specified.)

- STEP #1. Using 5/8" x 1 3/4" bolts (Item #39), mount the left and right marker mounts to holes in the end of the wing frames. Use the 1/2" x 1 1/2" bolt (Item #38) to mount to holes in grain box. Secure with lock washers and hex nuts.
- STEP #2. Install the marker first section (Item #2) to the left and right marker mounts using the 15 3/4" first section marker pin (Item #7). Secure with 1 1/2" hex jam nut w/set screw (Item #20). At this point, you may want to block or use a stand to rest the marker first section on.
- STEP #3. Mount the whole dock bumpers (Item #5) to marker first section and the half dock bumpers (Item #4) to marker mounts using 1/2" x 3" bolts (Item #19) and secure with 1/2" hex nylock (Item #30).
- NOTE:** Spacer plate (Item #36) may have to be used later if dock bumpers need to be adjusted out to make the marker fold right. Store the spacer plate as shown in the lay-out drawing.
- STEP #4. Install the left and right marker breakaways (Item #9) using the 13" second section marker pin (Item #6). Secure with 1/2" hex jam nut w/set screw (Item #20). On the 5/8" x 2" bolt (Item #46), assemble machine bushings (Item #45), spacer bushing (Item #44), and a hex nut in the order shown on lay-out drawing. Screw bolts into each end of second section pin (Item #6). Adjust bolt so there is 1 5/8" from outside of nut to outside of bolt head. Tighten hex nut down. See drawing lay-out. Slip spring (Item #47) between machine bushings and slip other end on marker cylinder pin. Secure with roll pin.
- STEP #5. Mount the base ends of the cylinder assemblies (Item #3) to the left and right marker mounts using cylinder pins provided with the cylinders. Screw the marker cylinder bracket in or out to get the pre-set measurement of 50 1/4". When the measurement is set, mount the ram end to the slotted holes in the marker breakaways using marker cylinder pin (Item #10). Secure by using 1" flat washers and 1 3/4" long roll pins (Items #26 & #27).
- STEP #6. Install marker second section left and rights (Item #13) to marker breakaways using a 1" x 10 1/2" bolt (Item #24) and secure with a 1" hex nylock nut (Item #25). Install a 3/8" x 1 1/2" bolt (Item #23) as shown in drawing and secure with lock washers and hex nuts. This bolt acts as a shear bolt.
- STEP #7. Mount marker third section left and rights (Item #15) to second section using the 9 3/16" third section marker pin (Item #14). Secure pin with a 1/2" x 3" bolt (Item #19) using lock washer and hex nut. Secure threaded end using 1 1/2" hex jam nut w/set screw (Item #20).
- STEP #8. Slide adjustable marker arms (Item #16) into marker third sections and use 1/2" x 2" x 3" u-bolts with lock washers and hex nuts to secure.
- STEP #9. Install marker adjustment rod mount pin (Item #8) to marker first section as shown in the insert of the drawing page.
- STEP #10. Slip marker eyebolt (Item #42) into adjustment rod pin as shown in drawing and secure with 5/8" hex nuts; one on each side of pin.
- STEP #11. Attach marker linkage plate (Item #12) to marker third section using a 3/4" x 2 1/2" bolt (Item #21) and secure with a 3/4" hex nylock nut. Attach clevis (Item #43) to linkage plate and secure with pin and cotter pin furnished with clevis. Bend cable thimble (Item #29) and slip one on to the clevis and the other on to the eyebolt. Thread cable and secure with cable clamps (Item #35). DO NOT completely tighten clamps. Cable will have to be adjusted later. Allow 6 to 7 cable rope diameters between clamps.
- STEP #12. Install marker stand (Item #50) out on pull bar lug using 1/2" x 2 1/2" bolt with lock washers and hex nuts. Mount marker stand adjustment bracket (Item #49) to the top of marker stand and secure with 1/2" x 1 1/4" carriage bolts with lock washers and hex nuts. Install half dock bumper using 1/2" x 3" bolt with lock washer and hex nut. Spacer plate (Item #36) is to be used only if marker does not meet marker stand.
- STEP #13. For assembly of hydraulics, see hydraulic drawing on page 73. After hydraulics are complete, raise markers slowly to fill with oil. After markers are folded, adjust eyebolt so all take-up is exposed. Tighten cable as tight as you can and tighten clamps down securely. Finish taking out the slack in the cable by tightening the eyebolt. Tighten eyebolt until marker blade assembly is about 2 inches off the second section. Sequence several times to eliminate air in the system. Make sure markers are folding and unfolding smooth. Be sure to check for leaks in the system.
- STEP #14. Measure distance as required and set adjustable marker arms to proper positions.
- STEP #15. If the marker is extending and retracting faster than the operator prefers, adjust the sequence valve needle seats IN a half turn or OUT a half turn to raise or lower the markers faster or slower. Only turn needle seats half turns at a time.

Hydraulic 180° Fold Over Marker

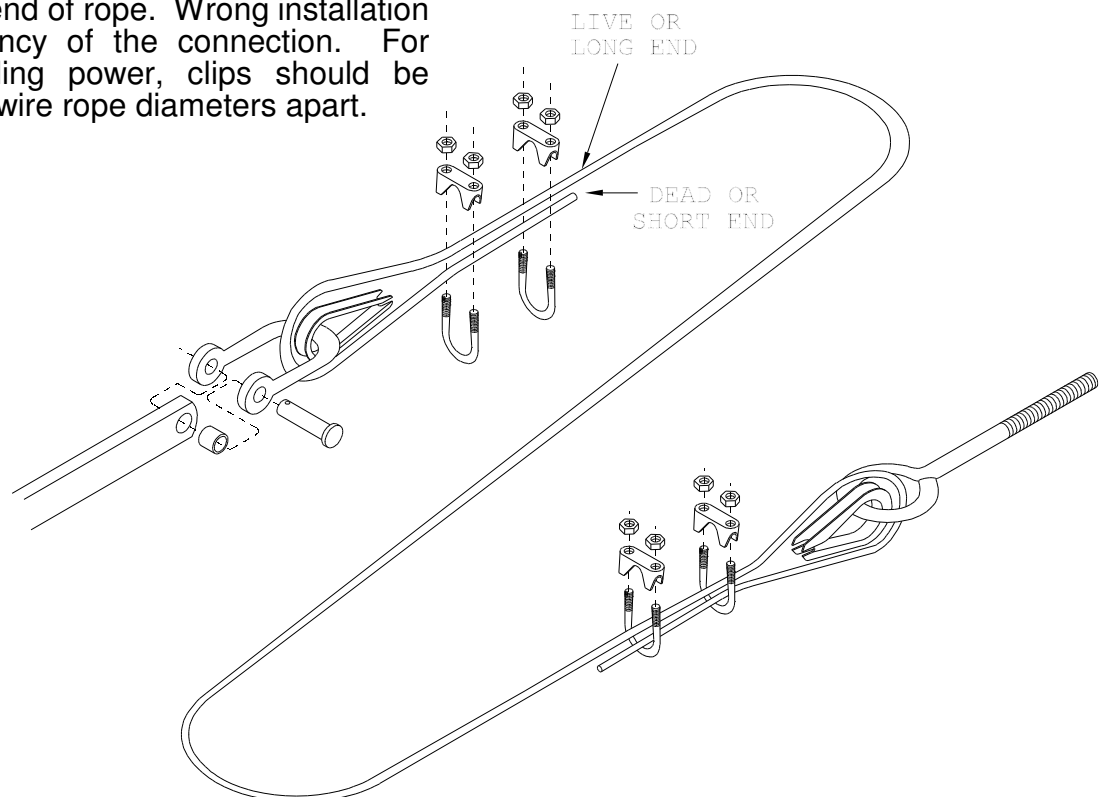


Hydraulic 180° Fold Over Marker

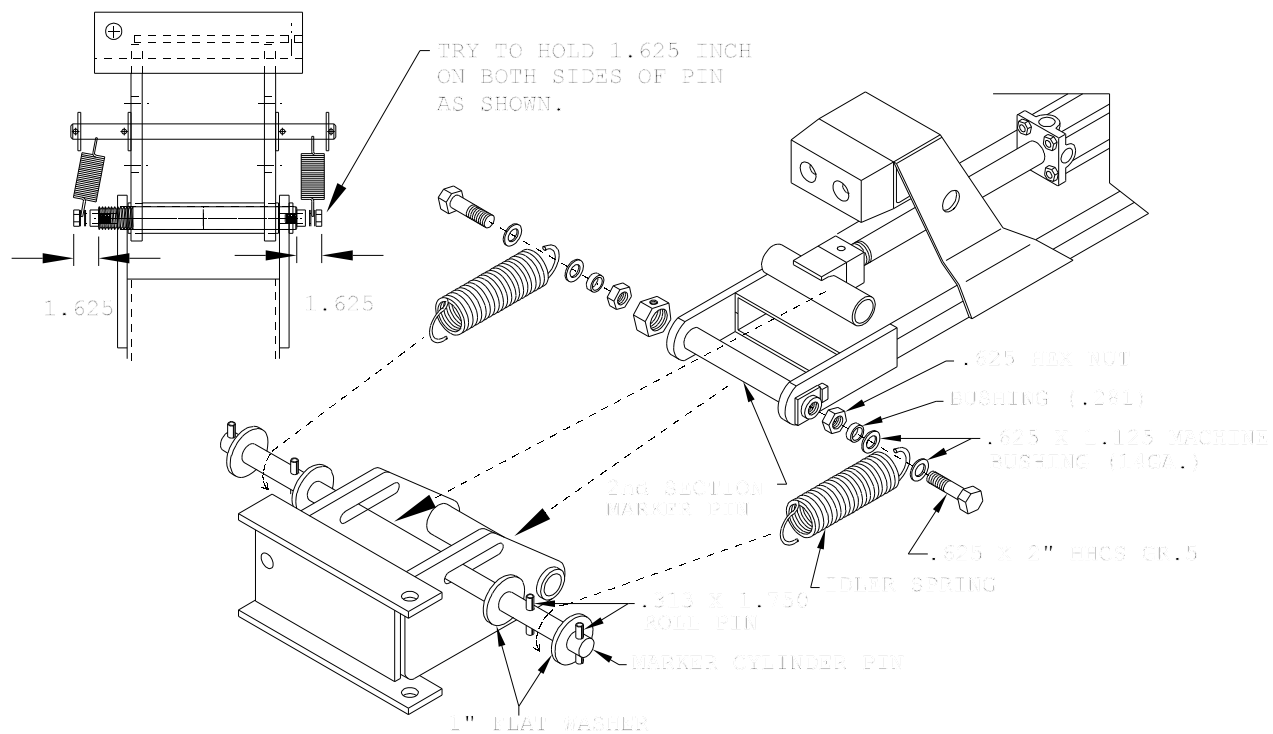
Item	Part No.	Description	Item	Part No.	Description
1	960435	Marker Mount Left (shown)	21	335174	HHCS 3/4" x 2 1/2"
	960427	Marker Mount Right	22	330316	Hex Nylock 3/4"
2	960476	First Section Marker	23	335703	HHCS 3/8" x 1 1/2"
3	867523	Marker Cylinder Assembly	24	331744	HHCS 1" x 10 1/2"
4	10746600	Half Dock Bumper	25	330597	Hex Nylock 1"
5	00188300	Dock Bumper	26	330407	Flat washer 1"
6	960583	Second Section Marker Pin	27	330662	Roll Pin 5/16" x 1 3/4"
7	960591	First Section Marker Pin	28	330423	Flat Washer 1 1/2"
8	310441	Adjustment Rod Mount Pin	29	06480800	Cable Thimble 1/4"
9	960450	Breakaway Left (shown)	30	331363	Hex Nylock 1/2"
	960468	Breakaway Right	31	330134	Hex Nut 1/2"
10	310565	Cylinder Pin	32	330142	Lock washer 1/2"
11	05109400	Cable 1/4" x 8' 32'	33	330035	Hex nut 3/8"
	05109400	Cable 1/4" x 10' 40'	34	330043	Lock washer 3/8"
12	220426	Linkage Plate	35	02118800	Cable Clamp
13	960526	Second Section Left 32' (shown)	36	220434	Bumper Spacer Plate
	960534	Second Section Right 32'	37	333203	Roll Pin 5/16" x 2 1/2"
	960542	Second Section Left 40'	38	335240	HHCS 1/2" x 1 3/4"
	960559	Second Section Right 40'	39	01071000	HHCS 5/8" x 2"
14	310474	Third Section Marker Pin	40	330571	Hex Nut 5/8"
15	960484	Third Section Left 32' (shown)	41	330878	Lock washer 5/8"
	960492	Third Section Right 32'	42	337782	Eyebolt 1/2" x 6" Welded
	960500	Third Section Left 40'	43	605980	Utility Clevis Loose Pin
	960518	Third Section Right 40'	44	146209	Bushing 9/32"
16	919597	Adjustable Marker Arm	45	330720	Machine Bushing 5/8" x 1 1/8" x 14ga
17	842500	Marker Blade Assembly	46		
18	331124	U-bolt 1/2" x 2" x 3"	47	500173	Idler Spring
19	334946	HHCS 1/2" x 3"	48	01136100	Carriage Bolt 1/2" x 1 1/4"
20	333583	Hex Jam Nut 1 1/2" w/set screw	49	960773	Marker Stand Adjustment Brkt
			50	960781	Marker Stand
			51	335422	HHCS 1/2" x 2 1/2"

Wire rope clamps.

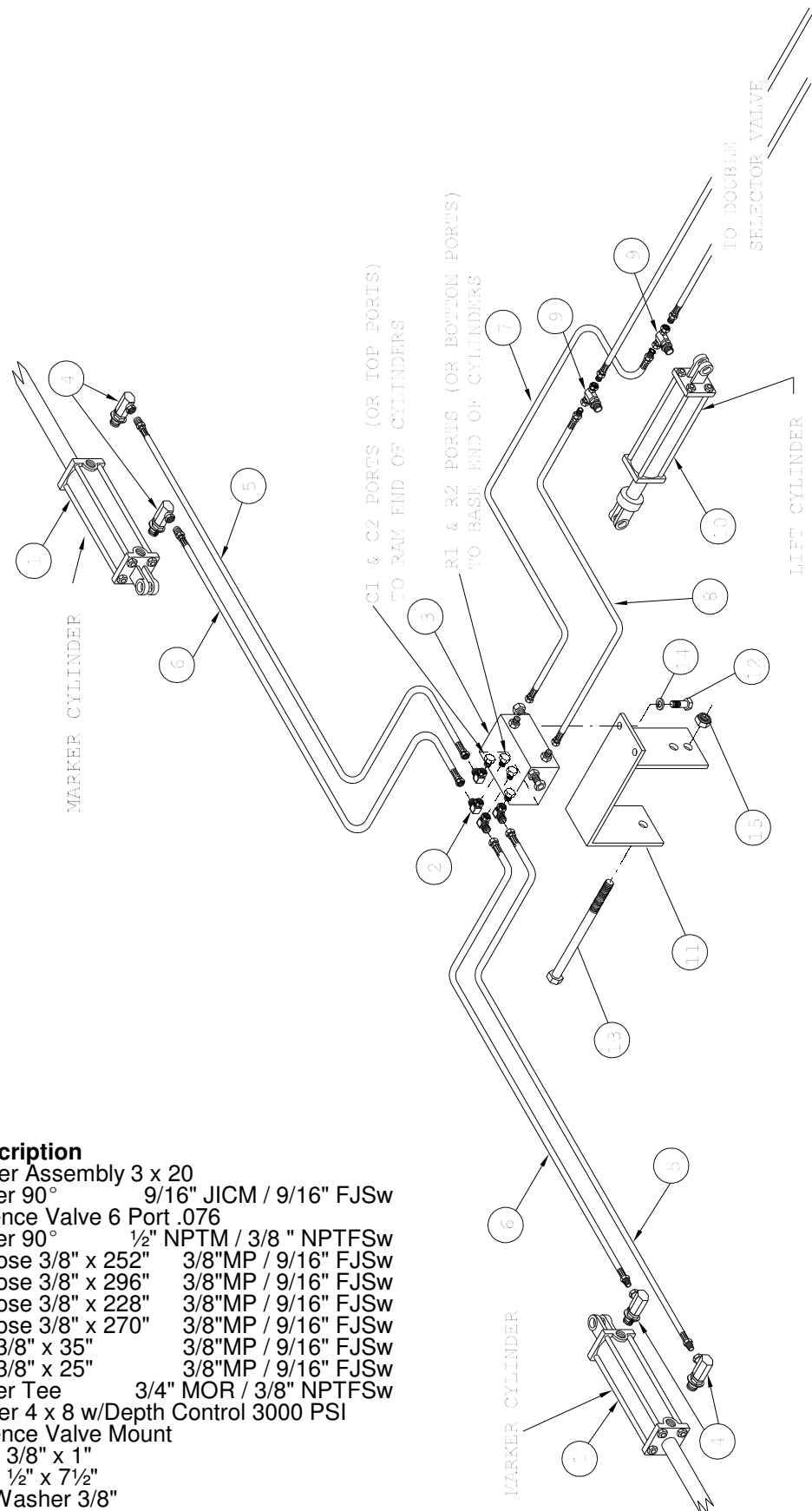
U-bolt clips must be installed correctly to obtain maximum holding power. Install u-bolt section of clip on dead or short end of rope, and saddle on live or long end of rope. Wrong installation reduces efficiency of the connection. For maximum holding power, clips should be installed 6 to 7 wire rope diameters apart.



Hydraulic 180° Fold Over Marker Spring Installation



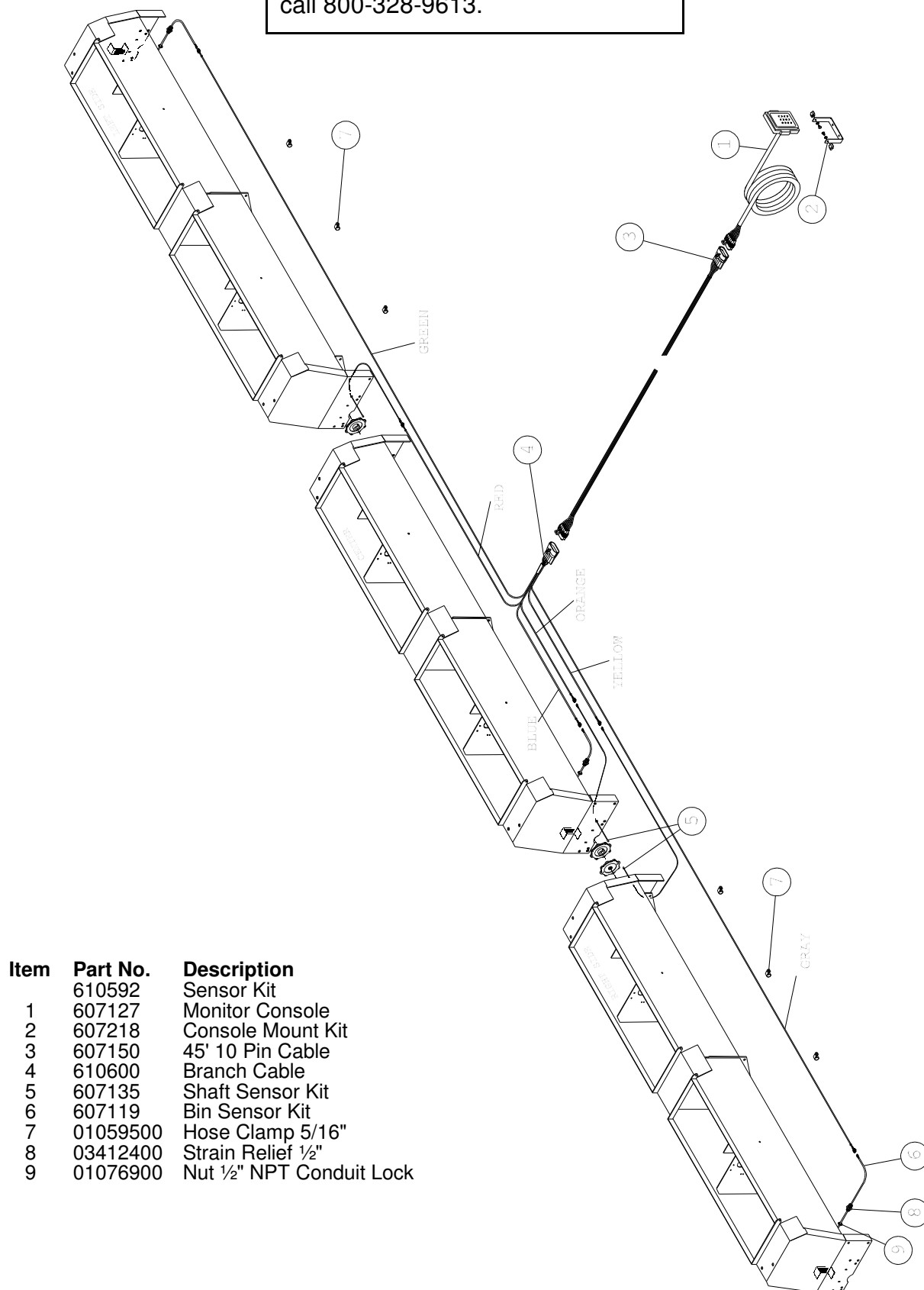
180° Fold Over Marker Hydraulics



Item	Part No.	Description
1	867523	Cylinder Assembly 3 x 20
2	469049	Adapter 90° 9/16" JICM / 9/16" FJSw
3	469072	Sequence Valve 6 Port .076
4	463539	Adapter 90° 1/2" NPTM / 3/8" NPTFSw
5	470153	32' Hose 3/8" x 252" 3/8"MP / 9/16" FJSw
	469098	40' Hose 3/8" x 296" 3/8"MP / 9/16" FJSw
6	470120	32' Hose 3/8" x 228" 3/8"MP / 9/16" FJSw
	469106	40' Hose 3/8" x 270" 3/8"MP / 9/16" FJSw
7	470351	Hose 3/8" x 35" 3/8"MP / 9/16" FJSw
8	470369	Hose 3/8" x 25" 3/8"MP / 9/16" FJSw
9	468678	Adapter Tee 3/4" MOR / 3/8" NPTFSw
10	473215	Cylinder 4 x 8 w/Depth Control 3000 PSI
11	959841	Sequence Valve Mount
12	01017300	HHCS 3/8" x 1"
13	335273	HHCS 1/2" x 7 1/2"
14	330043	Lock Washer 3/8"
15	331363	Nylock Nut 1/2"

3200 Shaft & Bin Monitor System

For Micro-Trak service and support,
call 800-328-9613.





P.O.Box 1438

Dodge City, Kansas 67801

(620) 227-7106

All Grain Drills Final Assembly Check List

Drill Model # _____

Drill Serial # _____

SR. NO.	DESCRIPTION	CHECKED		INITIALS
		Yes	No	
1	Check console, Light kit, Chain bag			
2	No missing nuts & bolts and that all nuts & bolts are tight.			
3	Center lug bolts torque to 120 ft. lbs.			
4	All bearing zerks are greased.			
5	No hydraulic leaks			
6	All decals on and in proper place.			
7	Paint touched up and good overall appearance.			
8	Sprockets aligned properly & chains adjusted visually or with the laser check tool.			
9	Chains are not very tight and have some slack.			
10	Wobble slot open to $\frac{3}{4}$ " and then close at $\frac{3}{8}$ ".			
11	Gauge in store position.			
12	Test shaft trak. Box monitor and shaft.			
13	Final check on opener assembly.			
14	All lock out brackets in place			
15	Manual in box.			
16	No hardware left in box assemblies. (Bolts, Nuts, Tools)			
17	Walk boards aligned and evenly spaced.			
18	Lower seed tubes good and not smashed.			
19	If opener bars off, then seed tubes and extra parts in drill.			
20	Center drive properly aligned (For 4700 drills only).			
21	Center drive in road position (For 4700 drills only).			

Remarks: _____

Signature: _____

Date: _____