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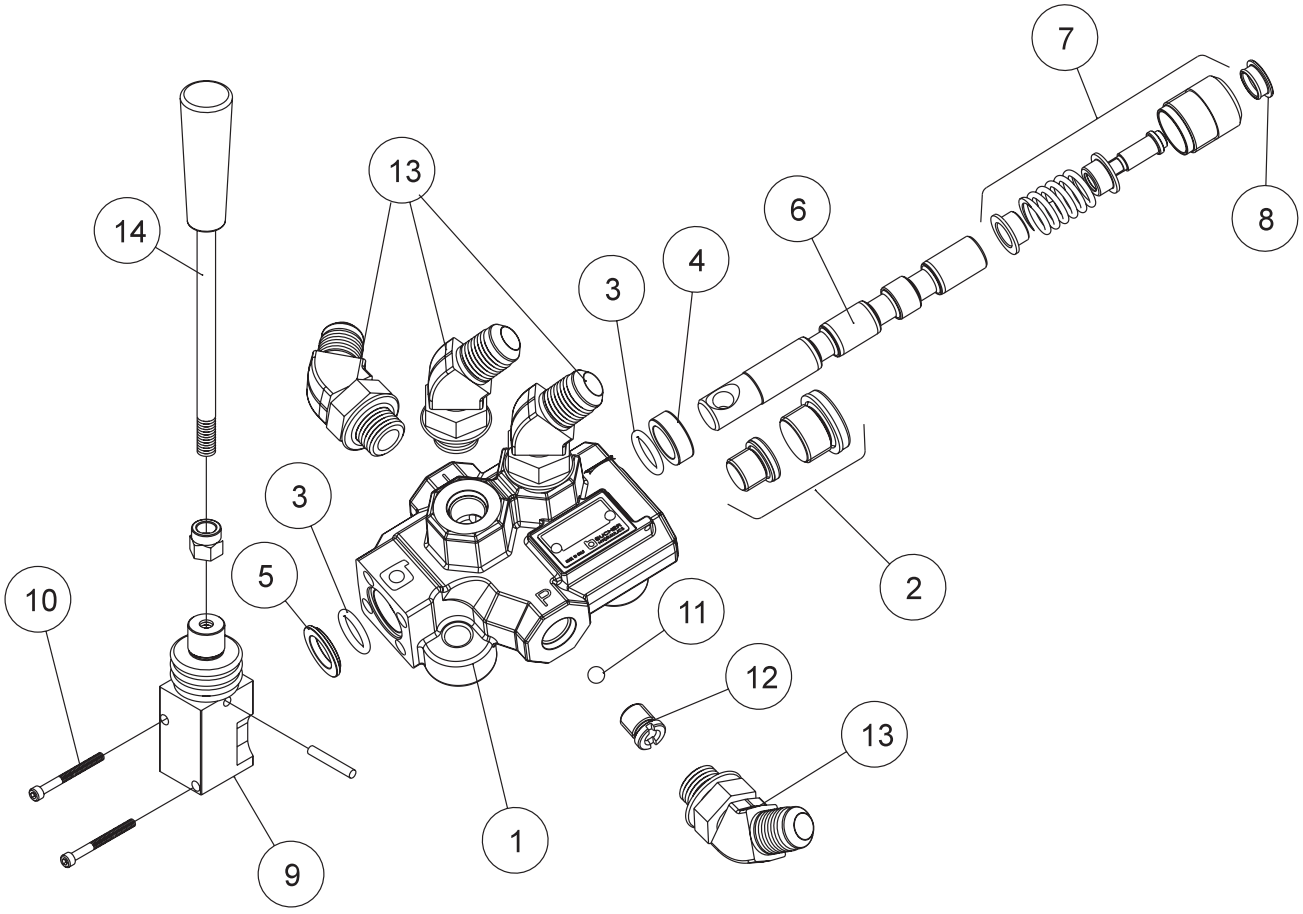
ACCESSORIES

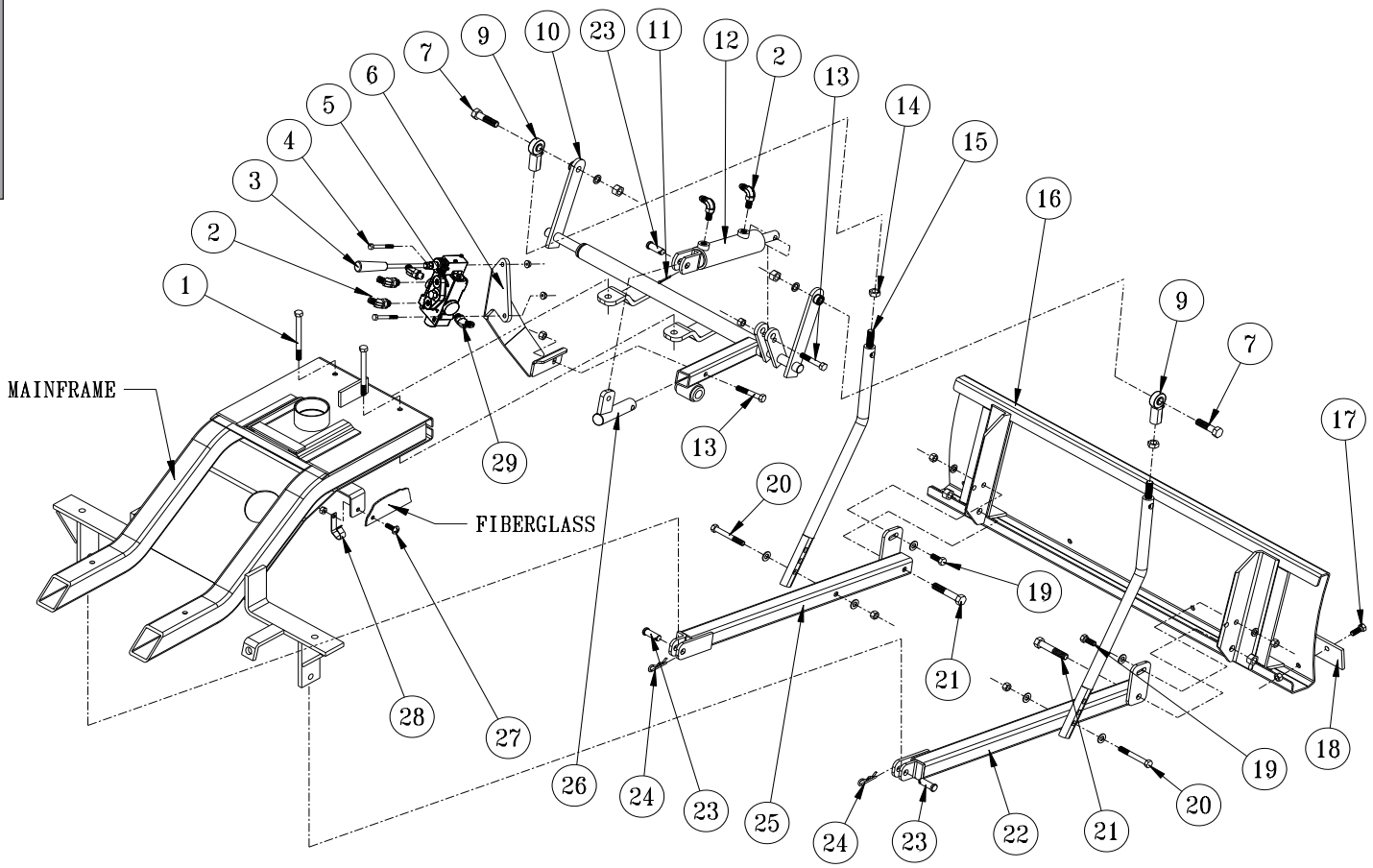
13-731 SINGLE BANK HYDRAULIC VALVE DRAWING



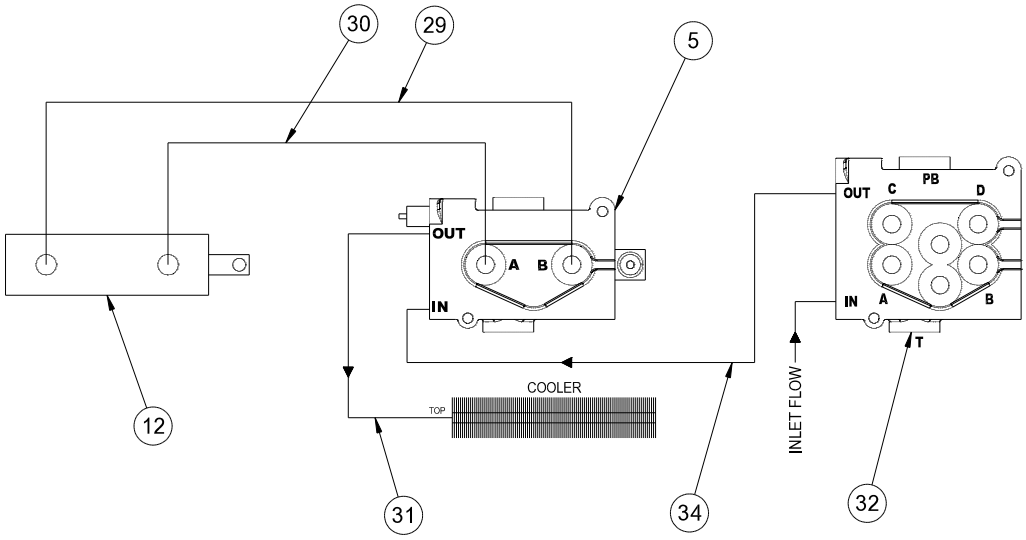
13-731 SINGLE BANK HYDRAULIC VALVE PARTS LIST

REF #	PART #	DESCRIPTION	QUANTITY
1*	13-731-01	Actuator Housing Assembly	1
2*	13-731-02	Valve Plug	1
3*†	78-415-03	O-Ring Seal	2
4*†	78-415-05	Spacer	3
5*	78-415-04	Flanged Washer HDM10	3
6*	13-731-03	Spool	1
7*	78-415-11	Positioner	1
8*	78-415-08	Plug	3
9*	78-415-09	Lever Group HDS11	3
10*	78-415-10	Metric Socket Screw M5 x .8 x 45	2
11*	13-731-04	1/4" Ball	1
12*†	13-731-05	Check Valve	1
13	18-188	45° ELbow	4
14	78-417	Straight Handle	1
	78-417-01	Tapered Knob	1
*	13-731	Single Bank Hydraulic Valve (includes all * items)	
†	13-731-01	Actuator Housing Assembly	1 per Bank

43-003 HYDRAULIC SAND PLOW DRAWING



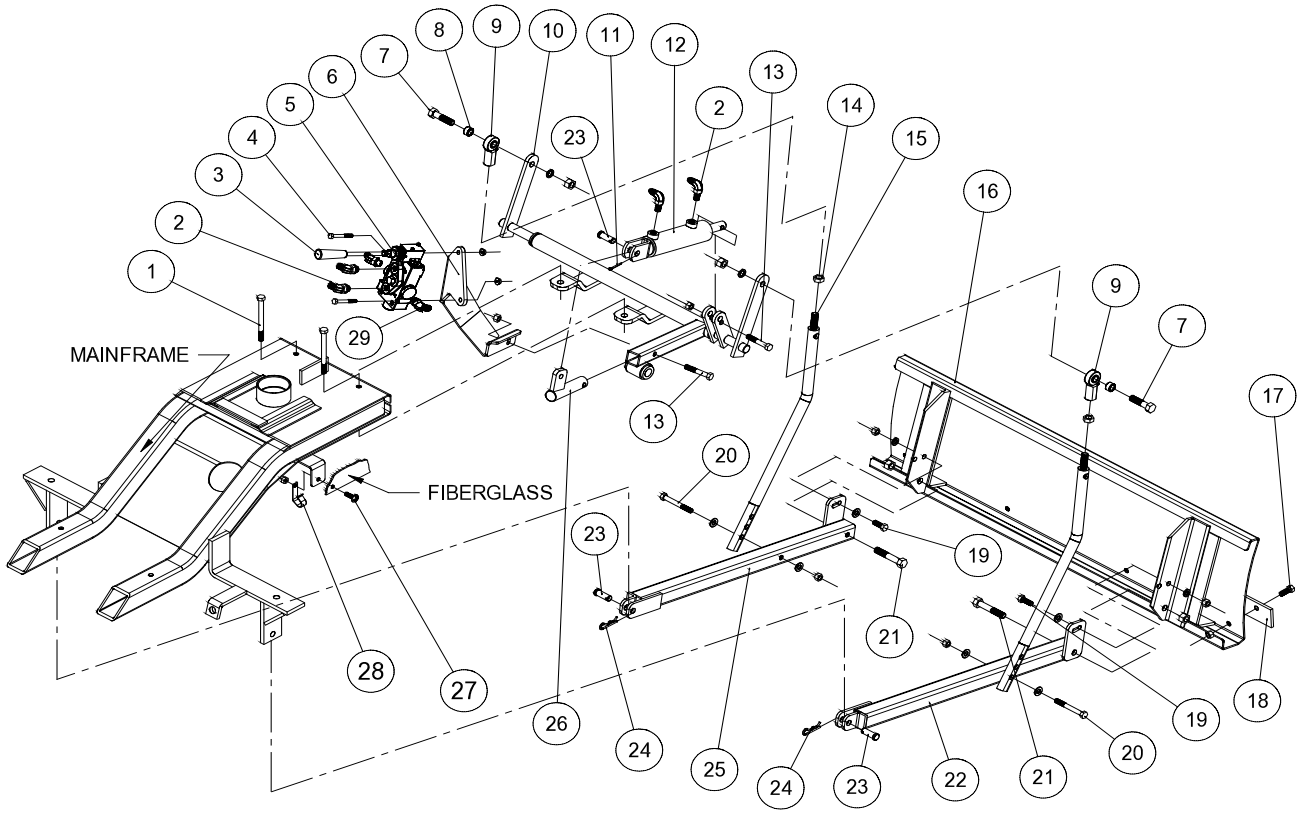
HYDRAULIC VALVE PLUMBING DRAWING



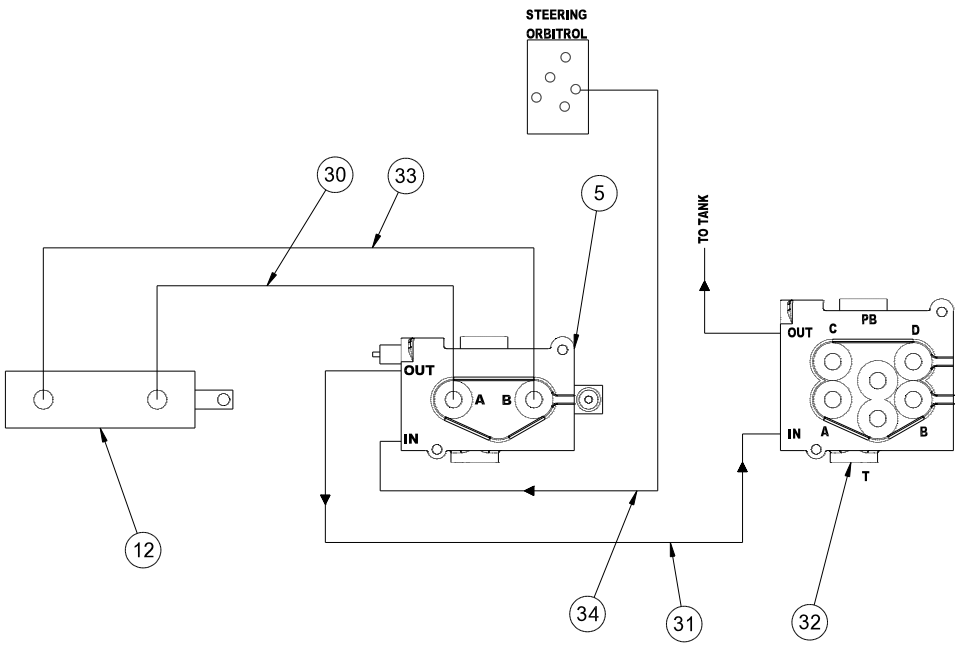
43-003 HYDRAULIC SAND PLOW PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-38-16-350	Bolt, 3/8 - 16 x 3 1/2 (Part of machine)	2
	HW-38	Washer, 3/8	2
	HNTL-38-16	Lock Nut, 3/8 - 16	2
2	18-188	45° Elbow	6
3	78-417	Straight Handle Kit	1
4	HB-14-20-200	Bolt, 1/4 - 20x 2	2
	HNFL-14-20	Flange Whiz-Lock Nut, 1/4 - 20	2
5	13-731	Single Bank Hydraulic Valve	1
6	43-050	Valve Mount	1
7	HB-12-13-200	Bolt, 1/2 - 13 x 2	2
	HNTL-12-13	Lock Nut, 1/2 - 13	2
	HMB-12-14	Machine Bushing, 1/2 x 14GA	2
9	80-006	Rod End	2
10	42-346	Lift Assembly	1
	18-221	Bushing	2
11	HP-18-100	Cotter Pin, 1/8 x 1	1
12	14-534	Hydraulic Cylinder	1
13	HB-38-16-200	Bolt, 3/8 - 16 x 2	2
	HNTL-38-16	Lock Nut, 3/8 - 16	2
14	HNJ-12-20	Jam Nu,t 1/2 - 20	2
15	27-073	Lift Rod	2
16	27-017	Aluminum Sand Plow Blade	1
17	HB-38-16-100	Bolt, 3/8 - 16 x 1	4
	HNFL-38-16	Flange Whiz Lock Nut, 3/8 - 16	4
18	13-167	Wear Blade	1
19	HB-38-16-125	Bolt, 3/8 - 16 x 1 1/4	2
	HW-38	Washer, 3/8	2
	HWL-38	Lockwasher, 3/8	2
	HN-38-16	Nut, 3/8 - 16	2
20	HB-38-16-250	Bolt, 3/8 - 16 x 2 1/2	2
	HW-38	Washer, 3/8	4
	HNTL-38-16	Lock Nut, 3/8 - 16	2
21	HB-12-13-300	Bolt, 1/2 - 13 x 3	2
	HNTL-12-13	Lock Nut, 1/2 - 13	2
22	27-050	Right Pusher Bar	1
23	HCP-12-150	Clevis Pin, 1/2 x1 1/2	3
24	HHP-18	Bridge Pin, 1/8	2
25	27-049	Left Pusher Bar	1
26	42-096	Cylinder Lift	1
27	HSTP-516-18-100	Machine Screw, 5/16 - 18 x 1 (on machine)	
28	HLC-A-58	Loom Clamp	1
29	18-168	Elbow 90°	2
30	43-048	Hose, 20"	1
31	43-047	Hose, 57½"	1
32		Valve (on machine)	1
33	43-049	Hose, 18"	1
34	43-156	Hose, 75"	1

43-003 HYDRAULIC SAND PLOW DRAWING



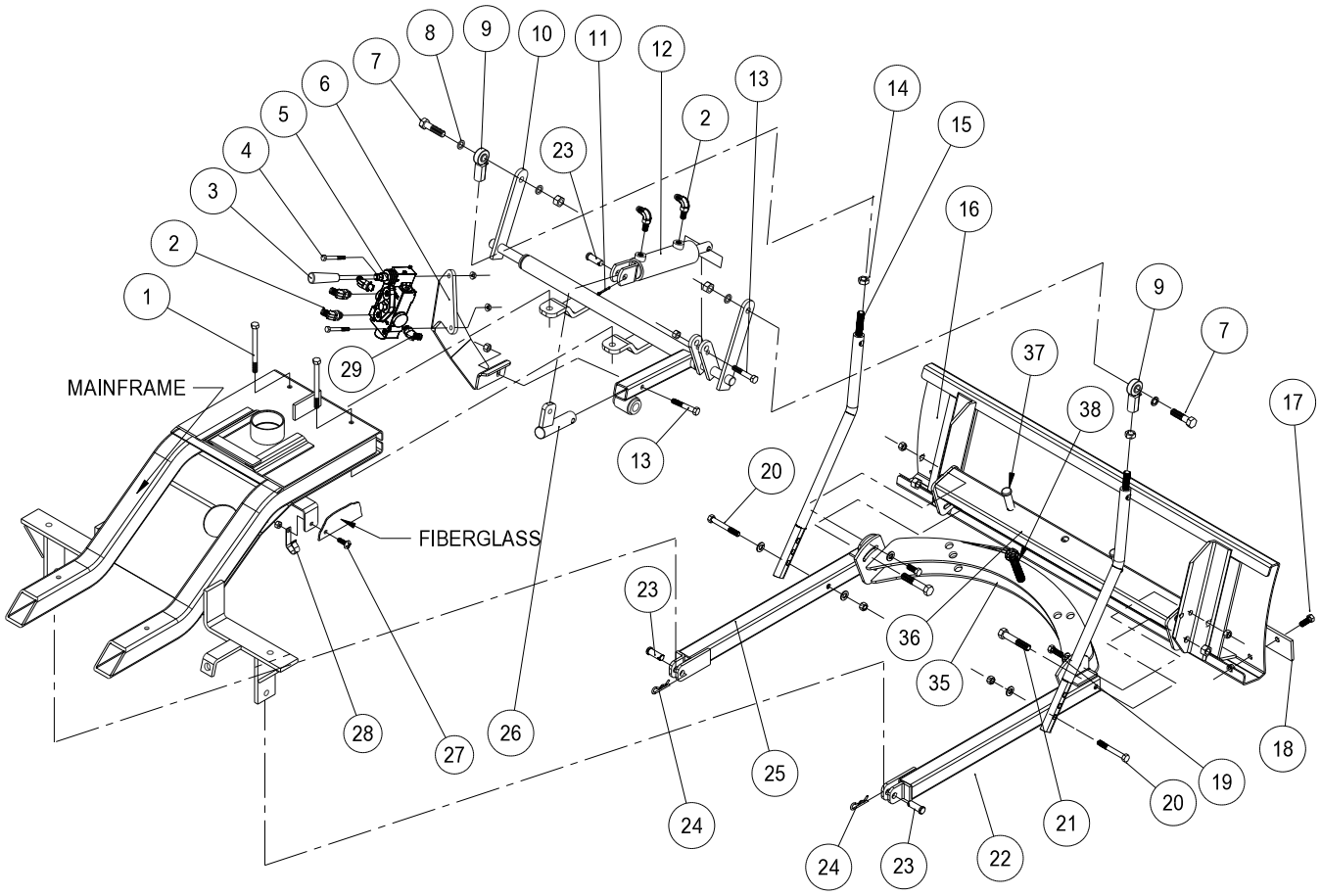
HYDRAULIC VALVE PLUMBING FOR 43-500 DIESEL



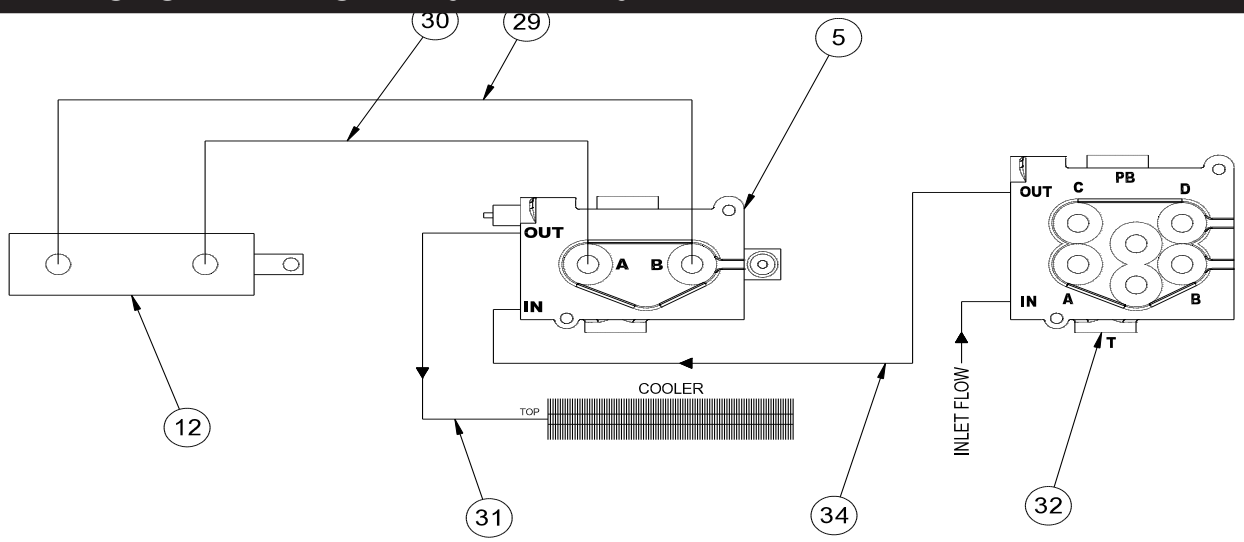
43-003 HYDRAULIC SAND PLOW INSTRUCTIONS

1. Assemble Pusher Bars (Ref # 22 and 25) to Plow Blade (Ref # 16) using one 3/8-16 x 1 Bolt (Ref # 19) and one 3/8-16 x 3 Bolt (Ref #21) per Pusher Bar. There are 2 holes to bolt (Ref # 19) hardware in. Using hole closest to the blade will result in a shallow cut, whereas using the hole furthest from the blade will result in a deeper cut. The slot on the pusher bar is for a more fine tuned adjustment.
2. Assemble the Lift Assembly (Ref # 10) to the Main Frame using the two studs that are under the frame and below the front of the console.
3. Place Cylinder Lift (Ref # 26) into the tube on Lift Assembly (Ref # 10) with the tab pointing up hold with a 3/8-16 x 2 Bolt (Ref # 13), assemble the Valve Mount (Ref # 6) onto this bolt on the outside of the tube and secure both with one 3/8-16 Nut. Using a 3/8-16 x 2 Bolt mount the Hydraulic Cylinder (Ref # 12) to the Lift Assembly and secure with one 3/8-16 Nut. Connect the other end of the Hydraulic Cylinder to the Cylinder Lift using ½ x 1½ Clevis Pin (Ref # 23) and 1/8 x 1 Cotter Pin (Ref #11).
4. Thread one ½ - 20 Jam Nut (Ref # 14) onto each Lift Rod (Ref # 15) followed by the Rod Ends (Ref # 9). Adjust to equal lengths. Bolt Lift Rods to Lift Arms on Lift Assembly (Ref # 10) with Rod Ends to the outside. Bolt from outside and secure with ½ -13 Lock Nut.
5. Slide the Plow/Pusher Bar Assembly under machine and connect to machine. Secure using ½ x 1½ Clevis Pins (Ref # 23) and 1/8" Bridge Pins (Ref # 24).
6. To connect Lift Rods (Ref # 15) to Pusher Bars start by lifting up the Plow Blade. Using one 3/8-16 x 3 Bolt (Ref # 20) and two 3/8" Washers assembly the Lift Rods to the Right (Ref #22) and Left (Ref # 25) Pusher Bars using the bottom hole in the Lift Rods as illustrated. Secure each with one 3/8-16 Lock Nut.
7. To fine tune the height of the blade off ground; turn the Rod Ends (Ref # 9) on the Lift Rods (Ref # 15). Turning the Rod Ends counter-clockwise will increase down pressure. Turning them clockwise will decrease down pressure.
8. Thread four of the 45° Elbow fittings (Ref # 2) into the Single Bank Valve (Ref # 5), one each in the **A** port, **B** port, **IN** port and **OUT** port. Thread the remaining two 45° Elbow fittings into the ports on the Hydraulic Cylinder (Ref # 12). Make sure the fittings on the Hydraulic Cylinder are pointing towards the machine.
9. Connect the 57½" Hoses (Ref # 31) to the fittings on the Single Bank Hydraulic Valve (Ref #5). One to the **IN** port and one to the **OUT** port. Next connect the 18" Hose (Ref # 27) to the fitting in the **B** port and connect the 20" Hose (Ref # 28) to the fitting in the **A** port.
10. Mount the Single Bank Hydraulic Valve (Ref # 5) to the Valve Mount (Ref # 6) as illustrated using the two ¼ - 20 x 2 Bolts (Ref # 4). Secure with the two ¼ - 20 Flange Whiz-Lock Nuts. Connect the Straight Handle Kit (Ref # 3) to the Valve. Reference *Single Bank Hydraulic Valve Drawing* on page 6 for a detailed view of the Valve.
11. Route the 18" Hose (Ref # 29) from the **B** port on the Single Bank Hydraulic Valve (Ref # 5) to the rear port on the Hydraulic Cylinder. Route the 20" Hose (Ref # 30) from the **A** port on the Single Bank Hydraulic Valve to the front port on the Cylinder.
12. Disconnect the negative (-) ground battery cable from the battery. Place a drain pan under the valve on the machine. **ENGINE MUST BE COOL BEFORE DISCONNECTING THE HOSES.**
13. Disconnect the hose from the **T** port on the 2 Bank Valve (Ref # 32) and the **top** port on the Oil Cooler. Discard this hose, it will not be used. Connect the 75" Hose (Ref # 34) from the **T** port on the Single Bank Valve to the top port on the Oil Cooler. *This hose may be a bit long on the Gasoline Models so you may have to loop the hose around the back of the pump to use up some hose.* Connect the 57½" Hose (Ref # 31) from the **P** port of the Single Bank Valve to the **T** port of the 2 Bank Valve. Tie up Hoses using 5/8 Loom Clamp (Ref # 28). Route the 57½" & 75" Hoses under the body and along the frame avoiding any pinch points. Fasten to the frame using the 14½" Nylon Ties.
14. Reconnect the negative (-) ground battery cable to battery.
15. Make sure that everything is clear of the machine. Start the machine, work the valve so that the plow will both raise and lower. Also, do this with both the attachment lift and the rake lift. Work the lift a number of times until all air works out of the plow circuit and the cylinder works smoothly. At this time look for hydraulic leaks. If there are leaks, turn engine off and repair, start up and check again.
16. Check the hydraulic oil level. The level should be 2" to 2½" below the top of the tank. If more is needed, use SAE 10W-40 API service SG motor oil.

43-013 HYDRAULIC ANGLE SAND PLOW DRAWING



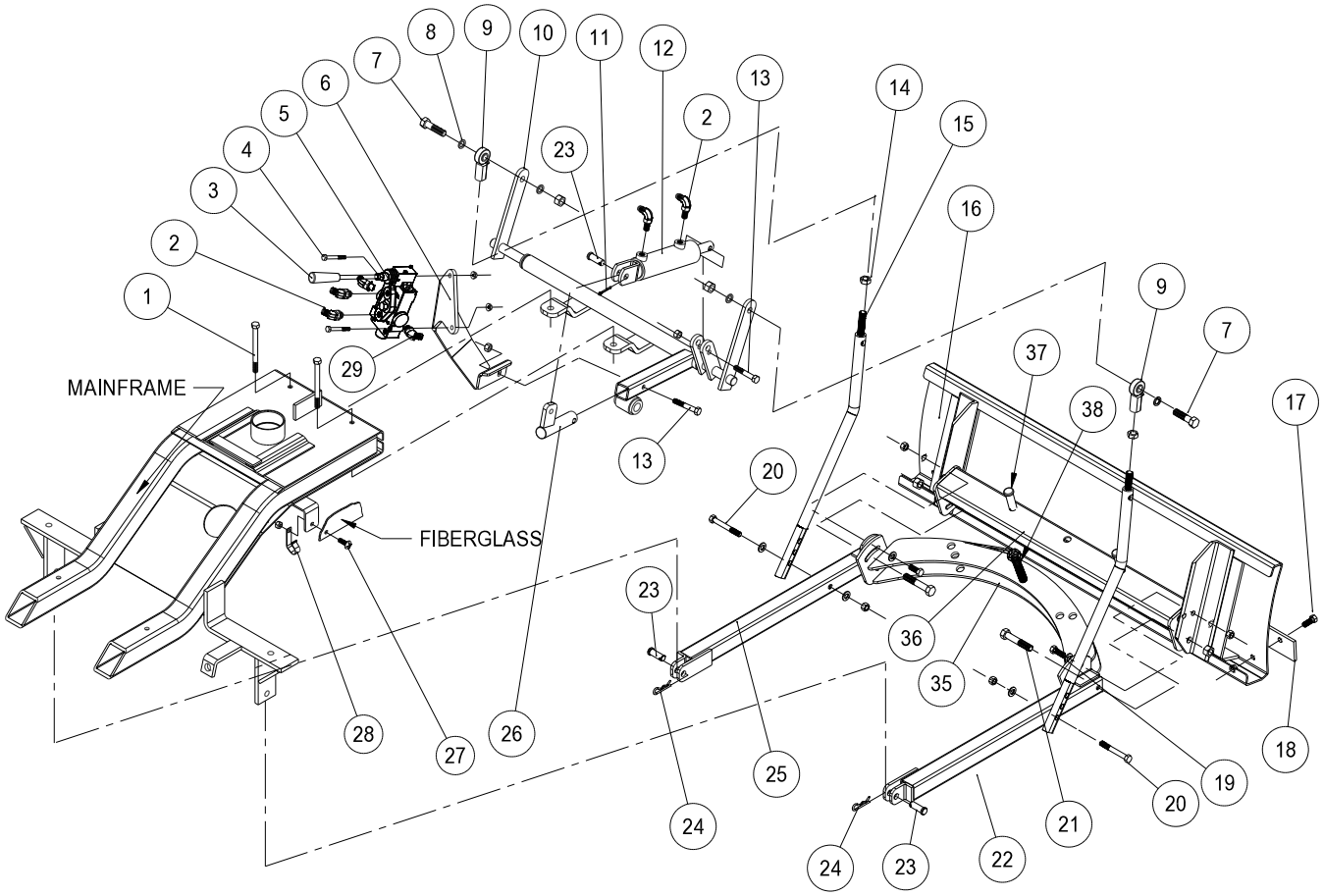
HYDRAULIC VALVE PLUMBING DRAWING



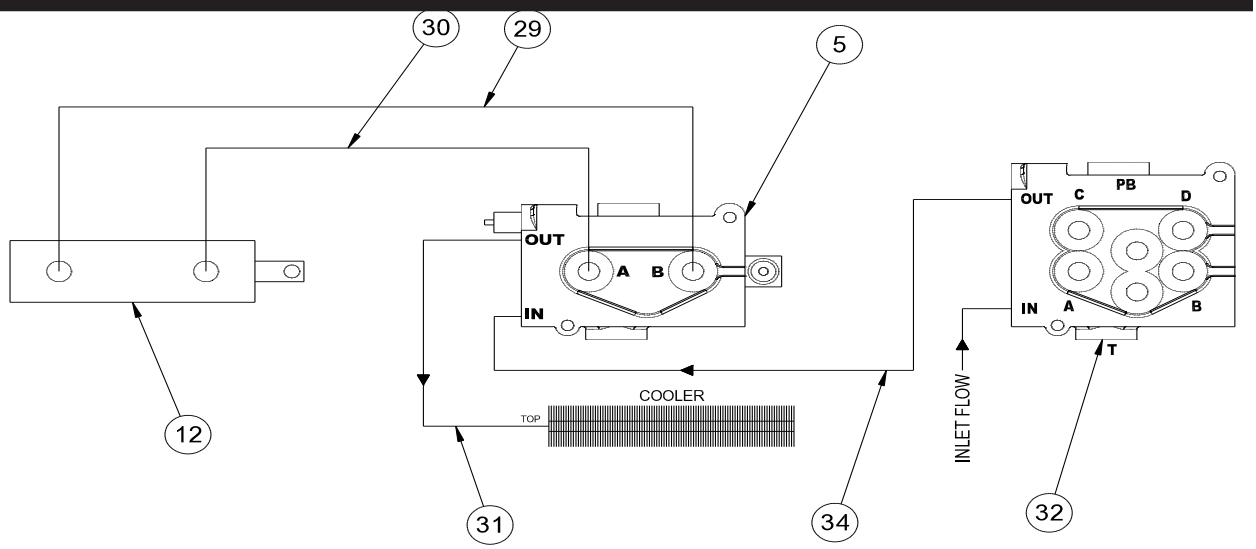
43-013 HYDRAULIC ANGLE SAND PLOW PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-38-16-350	Bolt, 3/8 - 16 x 3 1/2 (Part of machine)	2
	HW-38	Washer, 3/8	2
	HNTL-38-16	Lock Nut, 3/8 - 16	2
2	18-188	45° Elbow	4
3	78-417	Straight Handle Kit	1
4	HB-14-20-200	Bolt, 1/4 - 20x 2	2
	HNFL-14-20	Flange Whiz-Lock Nut, 1/4 - 20	2
5	13-731	Single Bank Hydraulic Valve	1
6	43-050	Valve Mount	1
7	HB-12-13-200	Bolt, 1/2 - 13 x 2	2
	HNTL-12-13	Lock Nut, 1/2 - 13	2
8	HMB-12-14	Machine Bushing, 1/2 x 14GA	8
9	80-006	Rod End	2
10	42-346	Lift Assembly	1
	18-221	Bushing	2
11	HP-18-100	Cotter Pin, 1/8 x 1	1
12	14-534	Hydraulic Cylinder	1
13	HB-38-16-200	Bolt, 3/8 - 16 x 2	2
	HNTL-38-16	Lock Nut, 3/8 - 16	6
14	HNJ-12-20	Jam Nu,t 1/2 - 20	2
15	27-073	Lift Rod	2
16	27-017	Aluminum Sand Plow Blade	1
17	HB-38-16-100	Bolt, 3/8 - 16 x 1	4
	HNFL-38-16	Flange Whiz Lock Nut, 3/8 - 16	4
18	13-167	Wear Blade	1
19	HB-38-16-125	Bolt, 3/8 - 16 x 1 1/4	4
	HW-38	Washer, 3/8	2
	HWL-38	Lockwasher, 3/8	2
	HN-38-16	Nut, 3/8 - 16	4
20	HB-38-16-250	Bolt, 3/8 - 16 x 2 1/2	2
	HW-38	Washer, 3/8	4
	HNTL-38-16	Lock Nut, 3/8 - 16	2
21	HB-38-16-250	Bolt, 3/8 - 16 x 2 1/2	2
	HNTL-38-16	Lock Nut, 3/8 - 16	2
22	42-458	Right Pusher Bar	1
23	HCP-12-150	Clevis Pin, 1/2 x1 1/2	3
24	HHP-18	Bridge Pin, 1/8	2
25	42-459	Left Pusher Bar	1
26	42-096	Cylinder Lift	1
27	HSTP-516-18-100	Machine Screw, 5/16 - 18 x 1 (on machine)	
28	HLC-A-58	Loom Clamp	1
29	18-168	Elbow 90°	2
30	43-048	Hose, 20"	1
31	43-047	Hose, 57½"	1
32		Valve (on machine)	1
33	43-049	Hose, 18"	1
34	43-156	Hose, 75"	1
35	42-456	Plow Mount	1
36	42-495	Pivot Frame	1
37	HCP-58-250	Clevis pin, 3/8 - 2 1/2	2
	HHP-18	Bridge Pin	2
38	HB-58-11-300	Bolt, 5/8 - 11 x 3	1
	HNTL-58-11	Lock Nut, 5/8 - 11	1

43-013 HYDRAULIC ANGLE SAND PLOW DRAWING



HYDRAULIC VALVE PLUMBING DRAWING

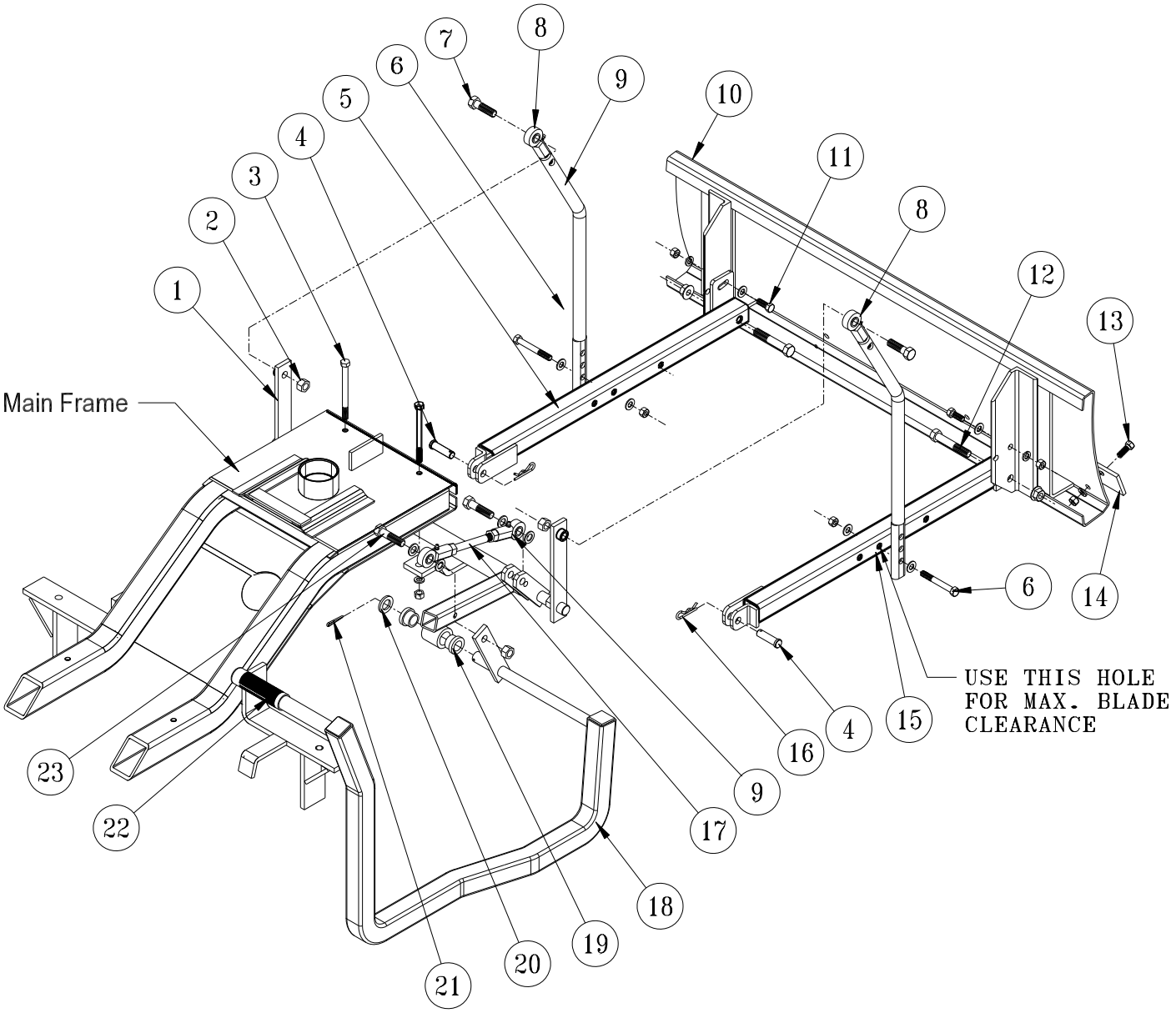


43-013 HYDRAULIC ANGLE SAND PLOW INSTRUCTIONS

1. Assemble Pusher Bars (Ref # 22 and 25) to Plow Blade (Ref # 16) using one $^{3}/_{8}$-16 x $1^{1}/_{4}$ Bolt (Ref # 19) and one $^{3}/_{8}$-16 x $2^{1}/_{2}$ Bolt (Ref #21) per Pusher Bar. There are 2 holes to bolt (Ref # 19) hardware in. Using hole closest to the blade will result in a shallow cut, whereas using the hole furthest from the blade will result in a deeper cut. The slot on the pusher bar is for a more fine tuned adjustment.
2. Assemble the Lift Assembly (Ref # 10) to the Main Frame using the two studs that are under the frame and below the front of the console.
3. Place Cylinder Lift (Ref # 26) into the tube on Lift Assembly (Ref # 10) with the tab pointing up hold with a $^{3}/_{8}$-16 x 2 Bolt (Ref # 13), assemble the Valve Mount (Ref # 6) onto this bolt on the outside of the tube and secure both with one $^{3}/_{8}$-16 Nut. Using a $^{3}/_{8}$-16 x 2 Bolt mount the Hydraulic Cylinder (Ref # 12) to the Lift Assembly and secure with one $^{3}/_{8}$-16 Nut. Connect the other end of the Hydraulic Cylinder to the Cylinder Lift using ½ x 1½ Clevis Pin (Ref # 23) and $^{1}/_{8}$ x 1 Cotter Pin (Ref #11).
4. Thread one ½ - 20 Jam Nut (Ref # 14) onto each Lift Rod (Ref # 15) followed by the Rod Ends (Ref # 9). Adjust to equal lengths. Bolt Lift Rods to Lift Arms on Lift Assembly (Ref # 10) with Rod Ends to the outside. Bolt from outside with the ½" Machine Bushing (Ref # 8) between Rod End and Lift Arm and secure with ½ -13 Lock Nut.
5. Slide the Plow/Pusher Bar Assembly under machine and connect to machine. Secure using ½ x 1½ Clevis Pins (Ref # 23) and $^{1}/_{8}$" Bridge Pins (Ref # 24).
6. To connect Lift Rods (Ref # 15) to Pusher Bars start by lifting up the Plow Blade. Using one $^{3}/_{8}$-16 x 2½ Bolt (Ref # 20) and two $^{3}/_{8}$" Washers assembly the Lift Rods to the Right (Ref #22) and Left (Ref # 25) Pusher Bars using the bottom hole in the Lift Rods as illustrated. Secure each with one $^{3}/_{8}$-16 Lock Nut.
7. To fine tune the height of the blade off ground; turn the Rod Ends (Ref # 9) on the Lift Rods (Ref # 15). Turning the Rod Ends counter-clockwise will increase down pressure. Turning them clockwise will decrease down pressure.
8. Thread two of the 45° Elbow fittings (Ref # 2) into the Single Bank Valve (Ref # 5), one each in the **A** port, **B** port. Thread two of the 90° Elbow fittings (Ref # 29) into the Single Bank Valve **IN** port and **OUT** port. Thread the remaining two 45° (Ref # 2) Elbow fittings into the ports on the Hydraulic Cylinder (Ref # 12). Make sure the fittings on the Hydraulic Cylinder are pointing towards the machine.
9. Connect the 57½" Hose (Ref # 31) to the inlet on the Single Bank Hydraulic Valve (Ref #5). Connect the 75" Hose (Ref # 34) to the **OUT** port. Next connect the 18" Hose (Ref # 27) to the fitting in the **B** port and connect the 20" Hose (Ref # 28) to the fitting in the **A** port.
10. Mount the Single Bank Hydraulic Valve (Ref # 5) to the Valve Mount (Ref # 6) as illustrated using the two ¼ - 20 x 2 Bolts (Ref # 4). Secure with the two ¼ - 20 Flange Whiz-Lock Nuts. Connect the Straight Handle Kit (Ref # 3) to the Valve. Reference *Single Bank Hydraulic Valve Drawing* on page 6 for a detailed view of the Valve. *The Single Bank Valve is used in some other applications, therefore the handle housing may need to be reversed. Remove the two screws holding the housing assembly onto the valve body, turn it over and reinstall the screws. The handle must be pointing upward (**reference drawing on page 2**) when the valve is sitting on a table.*
11. Route the 18" Hose (Ref # 29) from the **B** port on the Single Bank Hydraulic Valve (Ref # 5) to the rear port on the Hydraulic Cylinder. Route the 20" Hose (Ref # 30) from the **A** port on the Single Bank Hydraulic Valve to the front port on the Cylinder.
12. Disconnect the negative (-) ground battery cable from the battery. Place a drain pan under the valve on the machine. **ENGINE MUST BE COOL BEFORE DISCONNECTING THE HOSES.**
13. Disconnect the hose from the **T** port on the 2 Bank Valve (Ref # 32) and the **top** port on the Oil Cooler. Discard this hose, it will not be used. Connect the 75" Hose (Ref # 34) from the **T** port on the Single Bank Valve to the top port on the Oil Cooler. *This hose may be a bit long on the Gasoline Models so you may have to loop the hose around the back of the pump to use up some hose.* Connect the 57½" Hose (Ref # 31) from the **P** port of the Single Bank Valve to the **T** port of the 2 Bank Valve. Tie up Hoses using $^{5}/_{8}$ Loom Clamp (Ref # 28). Route the 57½" & 75" Hoses under the body and along the frame avoiding any pinch points. Fasten to the frame using the 14½" Nylon Ties.
14. Reconnect the negative (-) ground battery cable to battery.
15. Make sure that everything is clear of the machine. Start the machine, work the valve so that the plow will both raise and lower. Also, do this with both the attachment lift and the rake lift. Work the lift a number of times until all air works out of the plow circuit and the cylinder works smoothly. At this time look for hydraulic leaks. If there are leaks, turn engine off and repair, start up and check again.
16. Check the hydraulic oil level. The level should be 2" to 2½" below the top of the tank. If more is needed, use SAE 10W-40 API service SG motor oil.

42-011 -AB ALUMINUM SAND PLOW DRAWING

42-011 -SB STEEL SAND PLOW DRAWING



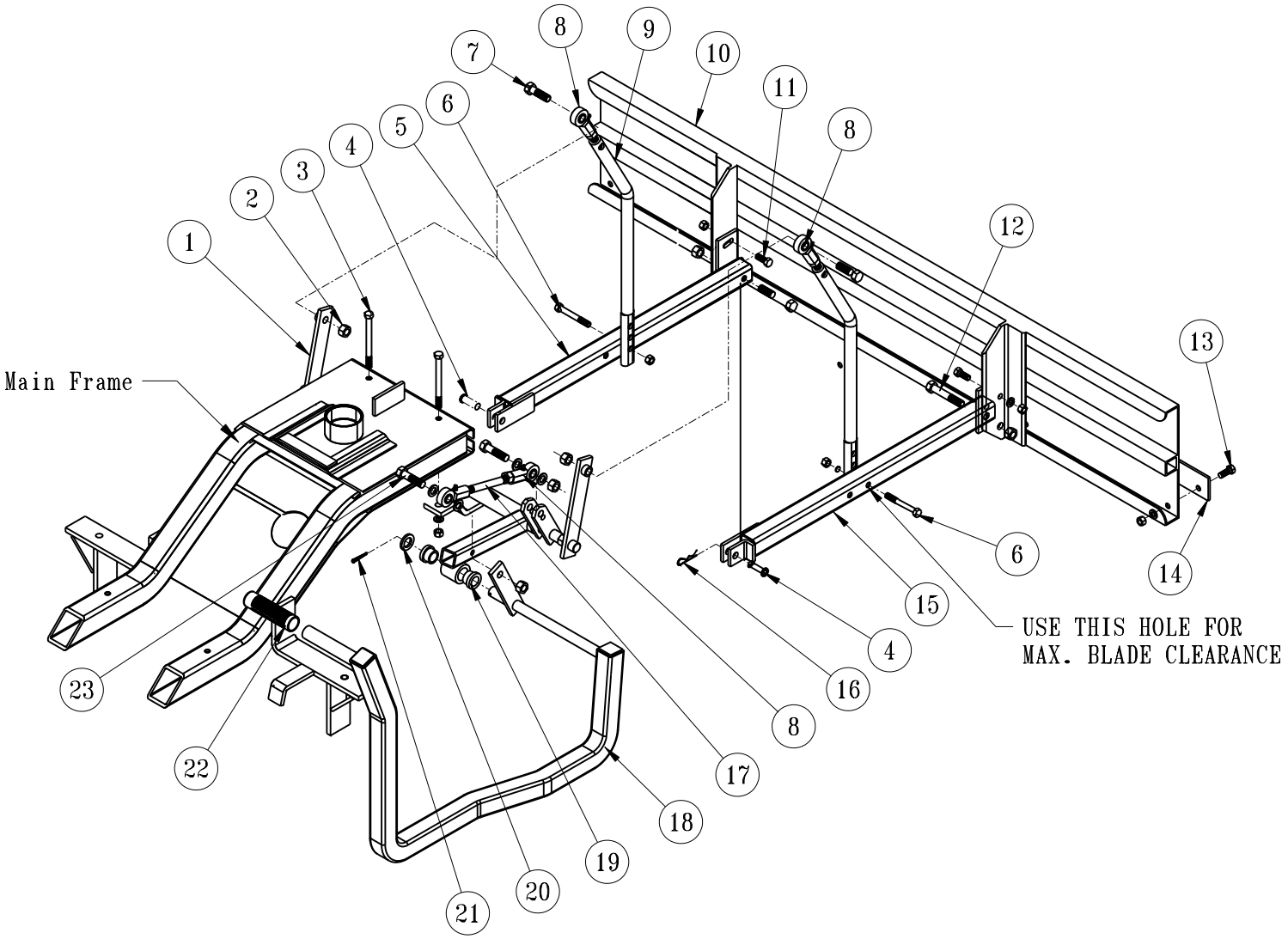
42-011 SAND PLOW PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-346	Lift Assembly	1
2	HNTL-12-13	Lock Nut 1/2 - 13	4
3	HB-38-16-350	Bolt 3/8 - 16 x 3 1/2 (part of main frame)	2
	HWL-38	Lock Washer 3/8	2
	HN-38-16	Nut 3/8 - 16	2
4	HCP-12-150	Clevis Pin 1/2 x 1 1/2	2
5	27-049	Left Pusher Bar	1
6	HB-38-16-250	Bolt 3/8 - 16 x 2 1/2	2
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	2
7	HB-12-13-200	Bolt 1/2 - 13 x 2	2
	HMB-12-14	Machine Bushing 1/2 x 14GA	8
8	80-006	Rod End	4
	HNJ-12-20	Jam Nut 1/2 - 20	4
9	27-073	Lift Rod	2
10	27-017	Aluminum Sand Plow Blade	1
	13-352	Steel Sand Plow Blade	1
11	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	2
	HW-38	Washer 3/8	2
	HWL-38	Lock Washer 3/8	2
	HN-38-16	Nut 3/8 - 16	2
12	HB-12-13-300	Bolt 1/2 - 13 x 3	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
13	HB-38-16-100	Bolt 3/8 - 16 x 1	4
	HNFL-38-16	Flange Whiz Lock Nut 3/8 - 16	4
14	13-167	Wear Blade	1
15	27-050	Right Pusher Bar	1
16	HHP-18	Bridge Pin 1/8	2
17	42-348	Rod	1
18	42-347	Lift Handle(includes Ref# 20)	1
19	18-221	Flange Bushing	2
20	HMB-34-14	Machine Bushing 3/4 - 14GA	1
21	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
22	15-019	Grip	1
23	HB-12-13-200	Bolt 1/2 - 13 x 2	2

SAND PLOW INSTALLATION

1. Assemble (Ref# 5 and 16) Pusher Bars to (Ref# 11) Plow using (Ref# 12 and 13) hardware. There are 2 holes to bolt (Ref# 12) hardware in. Using hole closest to the blade will result in a shallow cut, whereas using the hole furthest from the blade will result in a deeper cut. The slot on the pusher bar is for a more fine tuned adjustment.
2. Assemble the (Ref# 1) Lift Assembly to the Main Frame using the two studs that are under the frame and below the front of the console.
3. Attach the (Ref# 19) Lift Handle to the lift assembly using (Ref# 21 & 22) Cotter Pin and Machine Bushing. Using (Ref# 18 & 9) Rod and Yoke attach the handle to the lift assembly.
4. Put (Ref# 9) Rod Ends onto (Ref# 10) Lift Rods with Jam Nut first. Adjust to equal lengths. Bolt Lift Rods to Lift Arms with Ball Joints to the outside. Bolt from outside with the 1/2" Machine Bushing between Rod End and Lift Arm and the 1/2 - 13 nut on the inside. Use (Ref# 7) Hardware.
5. Slide Plow under machine and connect to machine. Use (Ref# 4 & 17) Clevis Pin and Bridge Pin.
6. Lift up the plow using the bottom hole in the Lift Rod as a starting point. Secure to the Pusher Bars. Use (Ref# 6) hardware. For maximum blade clearance use the second hole from the front of the pusher bar. The three holes in the lift rods are for adjusting the hand lever. The top hole moves the lever forward. Each hole down moves hte lever to the rear of the machine.
7. For fine tuning of blade height off ground twist (Ref# 9) rod end on (Ref# 18) rod. Twisting the rod end out will increase down pressure. Twisting the rod end onto the rod will decrease down pressure.

42-136 60" SAND PLOW DRAWING



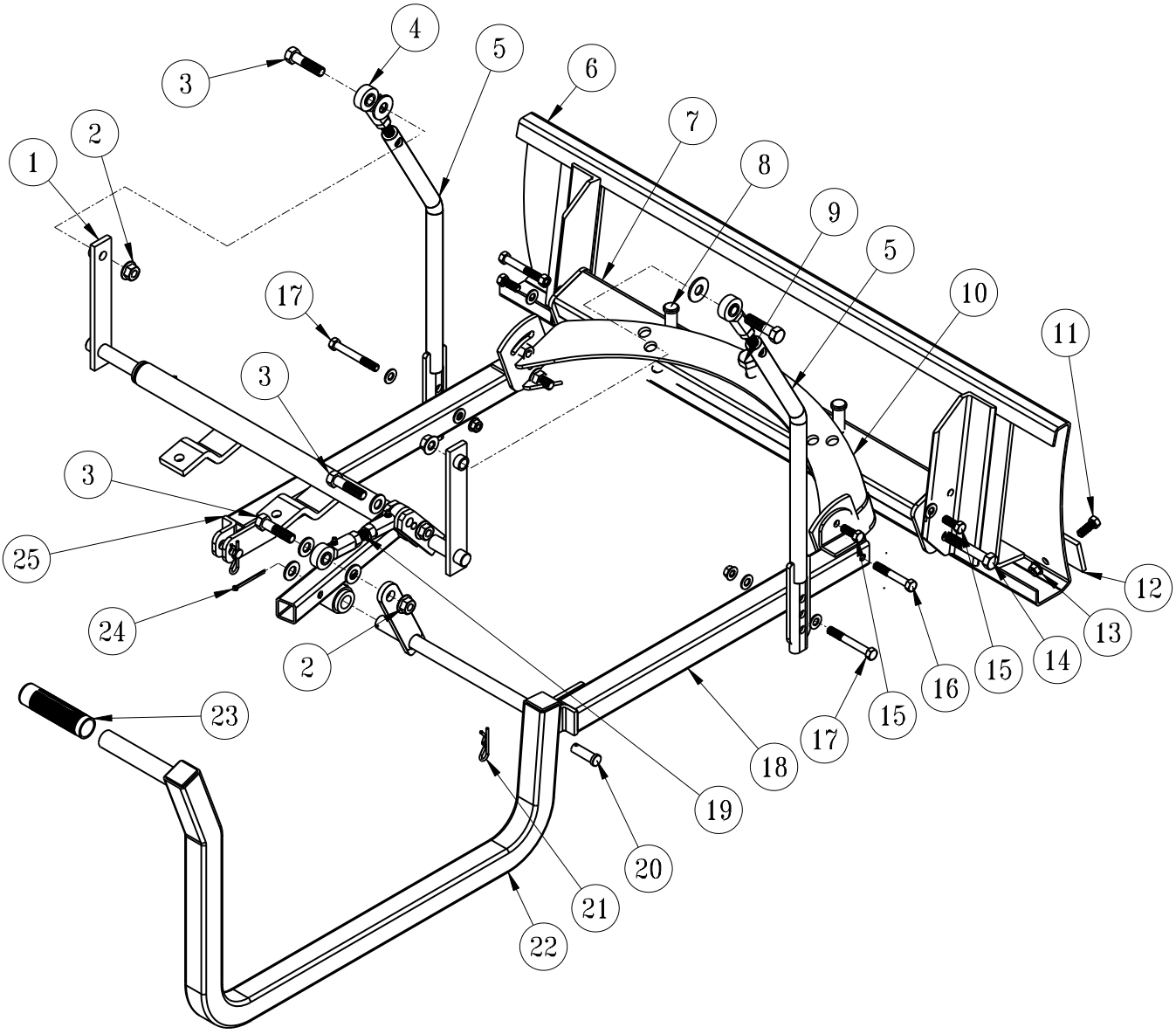
42-136 60" SAND PLOW PART LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-092	Lift Assembly (includes Ref# 20)	1
2	HNTL-12-13	Lock Nut 1/2 - 13	4
3	HB-38-16-350	Bolt 3/8 - 16 x 3 1/2 (part of main frame)	2
	HWL-38	Lock Washer 3/8	2
	HN-38-16	Nut 3/8 - 16	2
4	HCP-12-150	Clevis Pin 1/2 x 1 1/2	2
5	27-049	Left Pusher Bar	1
6	HB-38-16-300	Bolt 3/8 - 16 x 3	2
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	2
7	HB-12-13-200	Bolt 1/2 - 13 x 2	2
	HMB-12-14	Machine Bushing 1/2 x 14GA	6
8	80-006	Rod End	4
	HNJ-12-20	Jam Nut 1/2 - 20	4
9	27-073	Lift Rod	2
10	35-011	Aluminum Plow Blade 60"	1
11	HB-38-16-100	Bolt 3/8 - 16 x 1	2
	HW-38	Washer 3/8	2
	HWL-38	Lock Washer 3/8	2
	HN-38-16	Nut 3/8 - 16	2
12	HB-12-13-300	Bolt 1/2 - 13 x 3	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
13	HB-38-16-100	Bolt 3/8 - 16 x 1	5
	HWL-38	Lock Washer 3/8	5
	HN-38-16	Nut 3/8 - 16	5
14	35-012	Wear Blade	1
15	27-050	Right Pusher Bar	1
16	HHP-18	Bridge Pin 1/8	2
17	42-348	Threaded Rod	1
18	42-347	Lift Handle	1
19	18-221	Flange Bushing	2
20	HMB-34-14	Machine Bushing 3/4 - 14GA	1
21	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
22	15-019	Grip	1
23	HB-12-13-200	Bolt 1/2 - 13 x 2	2

INSTALLATION INSTRUCTIONS

1. Assemble pusher bars (Ref 5 and 16) to plow (Ref 11) using hardware (Ref 12 & 13). There are 2 holes to bolt the hardware in. Using hole closest to the blade will result in a shallow cut, whereas using the hole furthest from the blade will result in a deeper cut. The slot on the pusher bar is for fine tuned adjustment.
2. Assemble the lift assembly (Ref 1) to the main frame using the two studs that are under the frame and below the front of the console.
3. Attach the lift handle (Ref 19) to the lift assembly using cotter pin and machine bushing (Ref 21 & 22). Using rod and yoke (Ref 18 & 9) attach the handle to the lift assembly.
4. Put rod ends (Ref 9) onto lift rods (Ref 10) with jam nut first. Adjust to equal lengths. Bolt lift rods to lift arms with ball joints to the outside. Bolt from outside with the 1/2" machine bushing between rod end and lift arm and the 1/2 -13 nylon lock nut on the inside. Use (Ref 7) hardware.
5. Slide plow under machine and connect to machine. Use clevis pin and bridge pin (Ref 4 & 17).
6. Lift up the plow using the bottom hole in the Lift Rod as a starting point. Secure to the Pusher Bars. Use (Ref# 6) hardware. For maximum blade clearance use the second hole from the front of the pusher bar. The three holes in the lift rods are for adjusting the hand lever. The top hole moves the lever forward. Each hole down moves hte lever to the rear of the machine.
7. For fine tuning of blade height off ground twist rod end (Ref 9) on rod (Ref 18). Twisting the rod end out will increase down pressure. Twisting the rod end onto the rod will decrease down pressure.

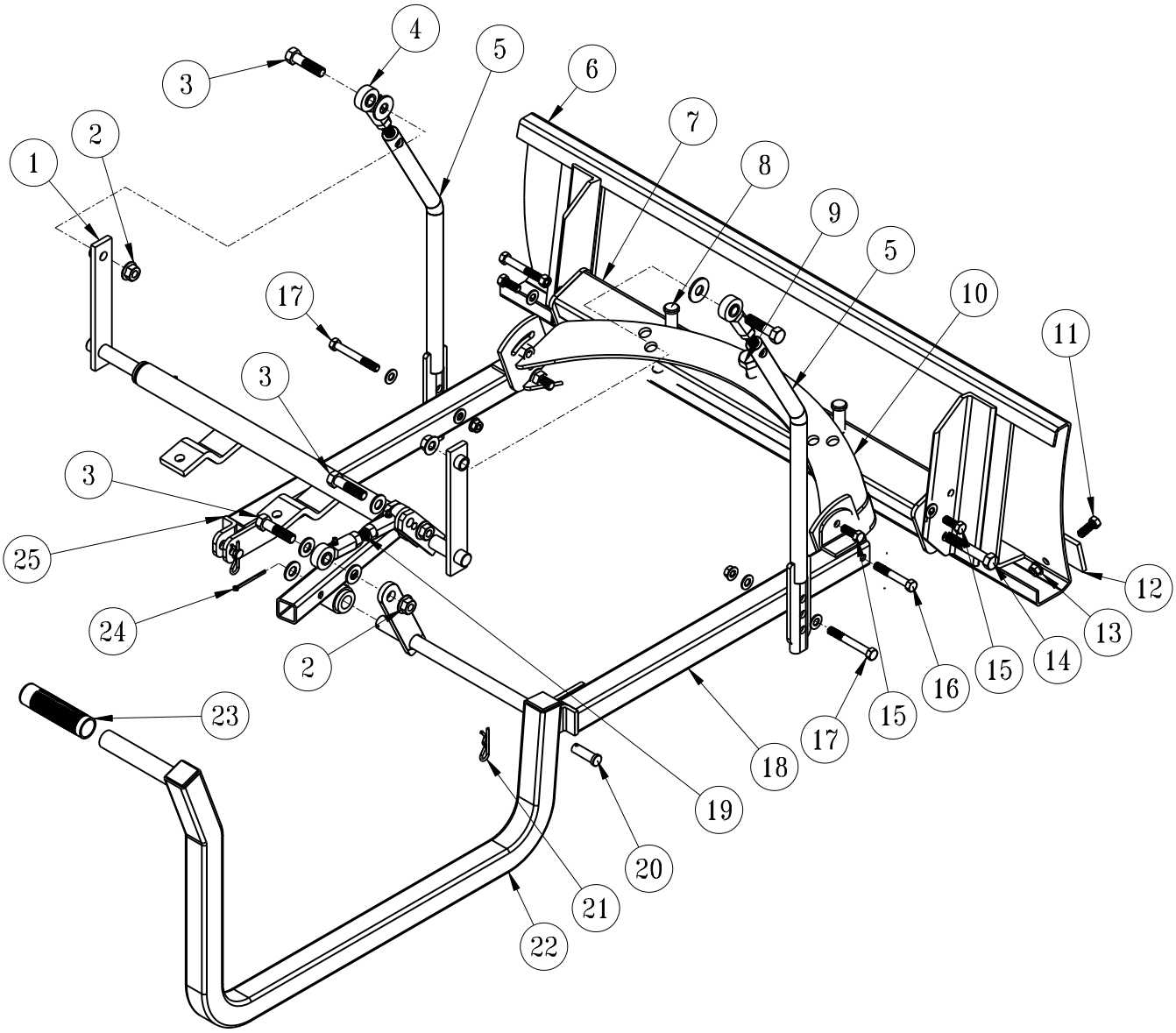
42-460 40" ANGLE PLOW



40" ANGLE PLOW PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-346	Lift Assembly	1
	18-221	Flange Bushing	2
2	HNTL-12-13	Lock Nut 1/2 - 13	4
3	HB-12-13-200	Bolt 1/2 - 13 x 2	4
	HMB-12-14	Machine Bushing 1/2 x 14GA	8
4	80-006	Rod End	4
	HNJ-12-20	Jam Nut 1/2 - 20	4
5	27-073	Lift Rod	2
6	27-017	Aluminum Sand Plow Blade	1
7	42-495	Pivot Frame	1
8	HCP-58-250	Clevis Pin 5/8 x 2 1/2	2
	HHP-18	Bridge Pin 1/8	2
9	HB-58-11-300	Bolt 5/8 -11 x 3	1
	HNTL-58-11	Lock Nut 5/8 - 11	1
10	42-456	Plow Mount	1
11	HB-38-16-100	Bolt 3/8 - 16 x 1	4
12	13-167	Wear Blade	1
13	HNFL-38-16	Flange Whiz Lock Nut 3/8 - 16	4
14	HB-12-13-200	Bolt 1/2 - 13 x 2	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
15	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	4
	HW-38	Washer 3/8	4
	HWL-38	Lock Washer 3/8	4
	HN-38-16	Nut 3/8 - 16	4
16	HB-38-16-250	Bolt 3/8 - 16 x 2 1/2	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
17	HB-38-16-250	Bolt 3/8 - 16 x 2 1/2	2
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	2
18	42-458	Right Pusher Bar	1
19	42-348	Rod	1
20	HCP-12-150	Clevis Pin 1/2 x1 1/2	2
21	HHP-18	Bridge Pin 1/8	2
22	42-347	Lift Handle	1
	18-221	Flange Bushing	2
23	15-019	Grip	1
24	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
	HMB-34-14	Machine Bushing 3/4 - 14GA	1
25	42-459	Left Pusher Bar	1

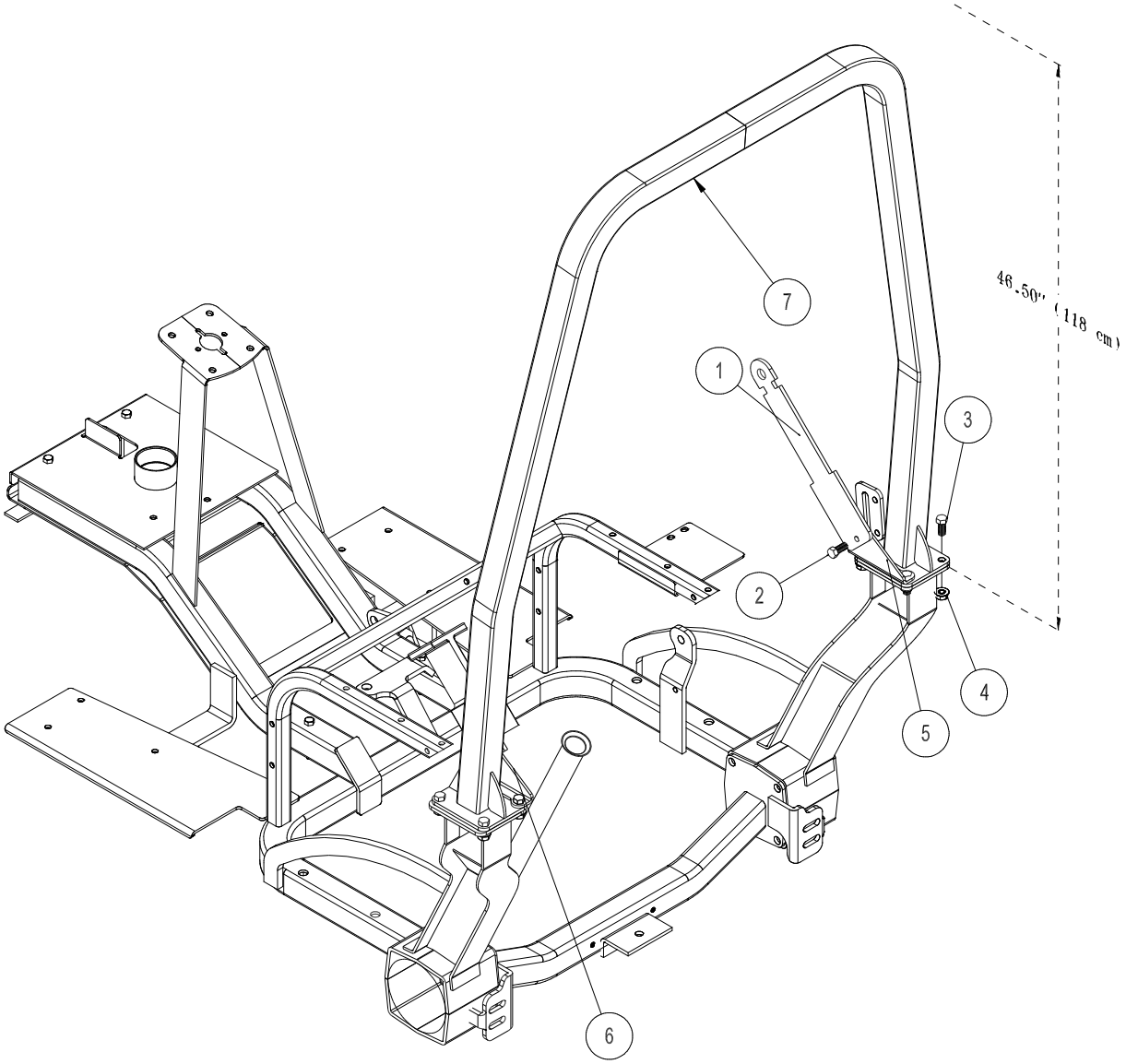
42-490 60" ANGLE PLOW



60" ANGLE PLOW PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-346	Lift Assembly	1
	18-221	Flange Bushing	2
2	HNTL-12-13	Lock Nut 1/2 - 13	4
3	HB-12-13-200	Bolt 1/2 - 13 x 2	4
	HMB-12-14	Machine Bushing 1/2 x 14GA	8
4	80-006	Rod End	4
	HNJ-12-20	Jam Nut 1/2 - 20	4
5	27-073	Lift Rod	2
6	35-012	Aluminum Sand Plow Blade	1
7	42-495	Pivot Frame	1
8	HCP-58-250	Clevis Pin 5/8 x 2 1/2	2
	HHP-18	Bridge Pin 1/8	2
9	HB-58-11-300	Bolt 5/8 -11 x 3	1
	HNTL-58-11	Lock Nut 5/8 - 11	1
10	42-456	Plow Mount	1
11	HB-38-16-100	Bolt 3/8 - 16 x 1	5
12	35-011	Wear Blade	1
13	HNFL-38-16	Flange Whiz Lock Nut 3/8 - 16	5
14	HB-12-13-200	Bolt 1/2 - 13 x 2	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
15	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	4
	HW-38	Washer 3/8	4
	HWL-38	Lock Washer 3/8	4
	HN-38-16	Nut 3/8 - 16	4
16	HB-38-16-250	Bolt 3/8 - 16 x 2 1/2	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
17	HB-38-16-250	Bolt 3/8 - 16 x 2 1/2	2
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	2
18	42-458	Right Pusher Bar	1
19	42-348	Rod	1
20	HCP-12-150	Clevis Pin 1/2 x1 1/2	2
21	HHP-18	Bridge Pin 1/8	2
22	42-347	Lift Handle	1
	18-221	Flange Bushing	2
23	15-019	Grip	1
24	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
	HMB-34-14	Machine Bushing 3/4 - 14GA	1
25	42-459	Left Pusher Bar	1

42-800 ROLL OVER PROTECTION



42-800 ROP

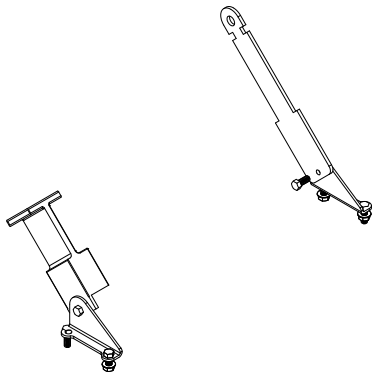
REF#	PART #	DESCRIPTION	QUANTITY
1	76-198-03	Seat belt	1
2	HB-716-14-100	Bolt $^{7}/_{16}$ - 14 x 1	2
3	HB-716-14-125	Bolt $^{7}/_{16}$ - 14 x $1^{1}/_{4}$	8
4	HNTL-716-14	Lock Nut $^{7}/_{16}$ - 14	10
5	42-802	Right Seat belt Bracket	1
6	42-803	Left Seat Belt Bracket	1
7	42-801	ROPS Bar	1

INSTALLATION INSTRUCTIONS

The Following ROP instructions apply to all Super Star Machines.

After wheels are mounted and machine is all set up.

1. Line up the mount plate on the ROPs to the square mounting plate by the seat, with the bend in the ROP bar toward the rear of the machine.
2. Place four bolts in the outside mount plate holes and tighten.
3. Place the seat belt brackets over the inside mount holes and bolt in place with the remaining four bolts. The seat belt bracket are mounted with the bends to the outside and the holes to the front
4. Mount seat belts onto seat belt bracket. The strap goes on the left side and the lock goes on the right side.
8. Tighten all hardware.



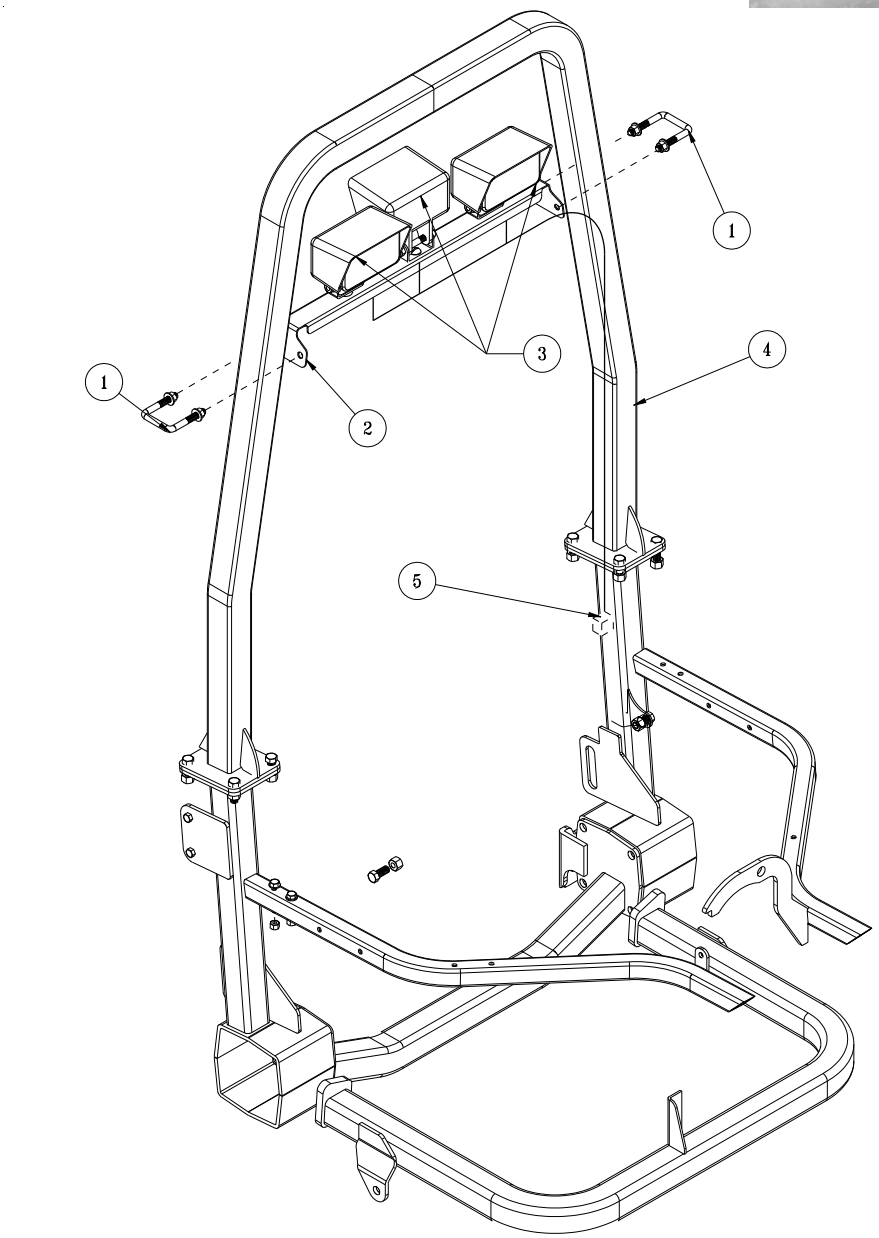
ROPs have been certified to meet OSHA 1928.52 and seat belts are certified to OSHA 1928.51.

ROPs come standard on Diesel Super star 43-000-B starting serial number 14068.

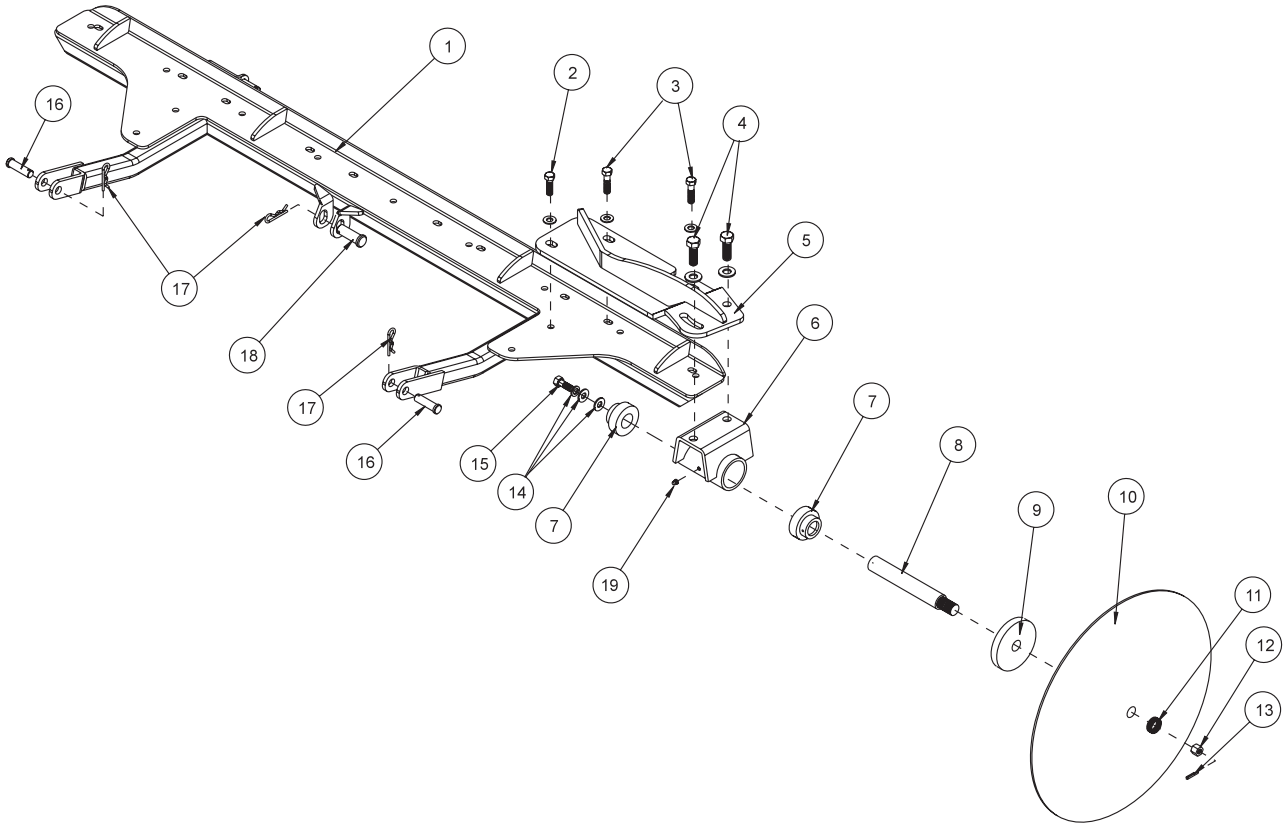
1**5-622 Weather Canopy available for the 42-800 ROPs.**

42-837 LIGHT KIT FOR MACHINES WITH ROCKER SWITCHES

REF#	PART#	DESCRIPTION	QUANTITY
1	17-537	Square U-bolt	2
2	12-198	Light Bar	1
3	34-201	Light	3
4	42-800	ROPS	1
5	43-505	Light Wire Harness (plugs into switch wire harness)	1



42-223 ADJUSTABLE DISC EDGER DRAWING



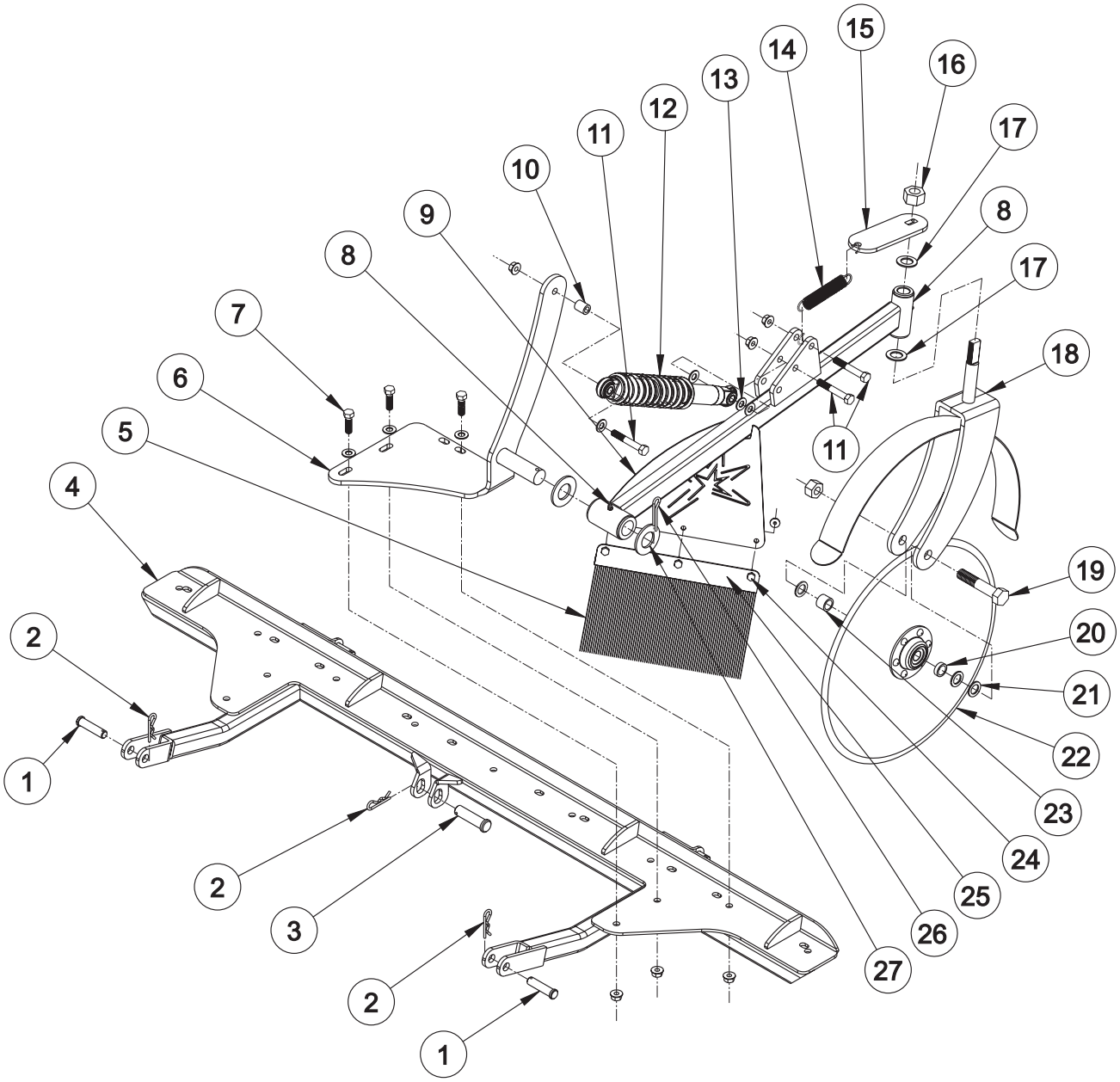
42-223 ADJUSTABLE DISC EDGER PARTS LIST

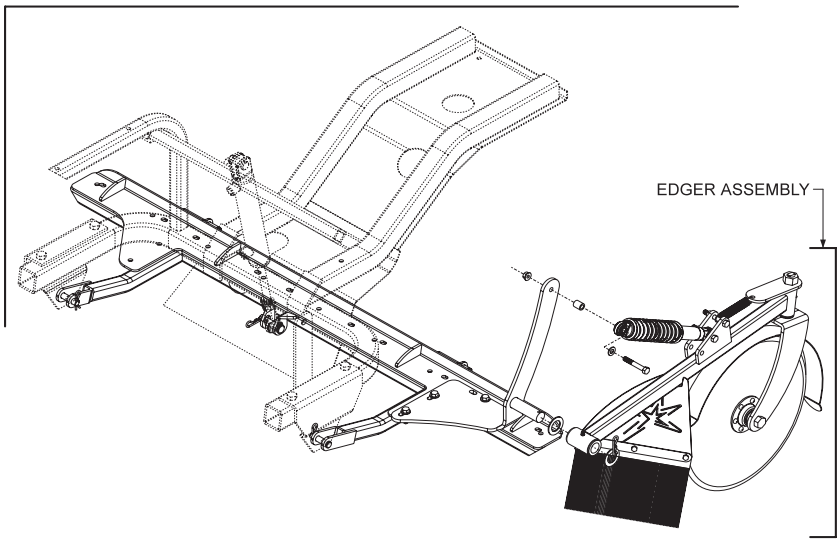
REF#	PART#	DESCRIPTION	QUANTITY
1	42-203	Attachment Lift Assembly	1
2	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	1
	HW-38	Washer 3/8	1
	HNTL-38-16	Lock Nut 3/8 -16	1
3	HB-38-16-150	Bolt 3/8 - 16 x 1 1/2	2
	HW-38	Washer 3/8	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
4	HB-12-13-150	Bolt 1/2 - 13 x 1 1/2	2
	HW-12	Washer 1/2	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
5	42-224	Edger Mount	1
6	13-203	Spindle	1
7	13-391	Bearing and Collar	2
8	13-206	Spindle Shaft	1
9	13-205	1/2 Disc Flange	1
10	13-204	Disc	1
11	HMB-34-10	Machine Bushing 3/4 x 10GA	4
12	HNA-34-16	Axle Nut 3/4 - 16	1
13	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
14	HWL-38	Washer 3/8	1
	HW-516	Washer 5/16	1
	HW-716	Washer 7/16	1
15	HB-38-16-100	Bolt 3/8 -16 x 1	1
16	HCP-12-200	Clevis Pin 1/2 x 2	2
17	HHP-18	Bridge Pin 1/8	3
18	HCP-58-250	Clevis Pin 5/8 x 2 1/2	1
19	HG-14-28-180	Grease Fitting 1/4 - 28 x 180	1

INSTALLATION INSTRUCTIONS

1. For initial assembly, bolt spindle assembly (Ref 6) to the edger mount (Ref 5). Use the 1/2 - 13 bolts, washers and lock nuts (Ref 4) to hold in place.
2. Make sure the 1/2" disc flange (Ref 9) is on the spindle shaft (Ref 8) up to the shoulder. Then place the disc (Ref 10) onto the shaft, curved towards the spindle housing, followed by four machine bushings (Ref 11), and the axle nut (Ref 12).
3. Tighten axle nut and slide in the cotter pin (Ref 13).
4. The edger mount mounts onto the attachment lift assembly (Ref 1). Use the 3/8 bolts, washers and lock nuts (Ref 2 and 3) with the 1 1/4" bolt going into the last hole on the mount plate.
5. The Edger mounts under the center of the trap rake.
6. Place the handle and linkage onto the empty linkage port of the two bank valve on the machine.
7. Start the engine and lower the cylinder for the attachment lift FULLY. Stop engine.
8. Slide Edger under the trap rake from the right side.
9. Position the lift arms on the attachment lift assembly to the lift brackets on the machine. Hold in place with 1/2 x 2 clevis pin and bridge pins (Ref 16 and 17).
10. Attach the cylinder to the center tab on the attachment lift assembly using the 5/8 x 2 1/2 clevis pin and bridge pin (Ref 17 and 18).
11. Start engine and test lift and Edger to make sure all works well.

42-750 CART PATH AND SIDEWALK EDGER DRAWING





42-750 CART PATH AND SIDEWALK EDGER PARTS LIST

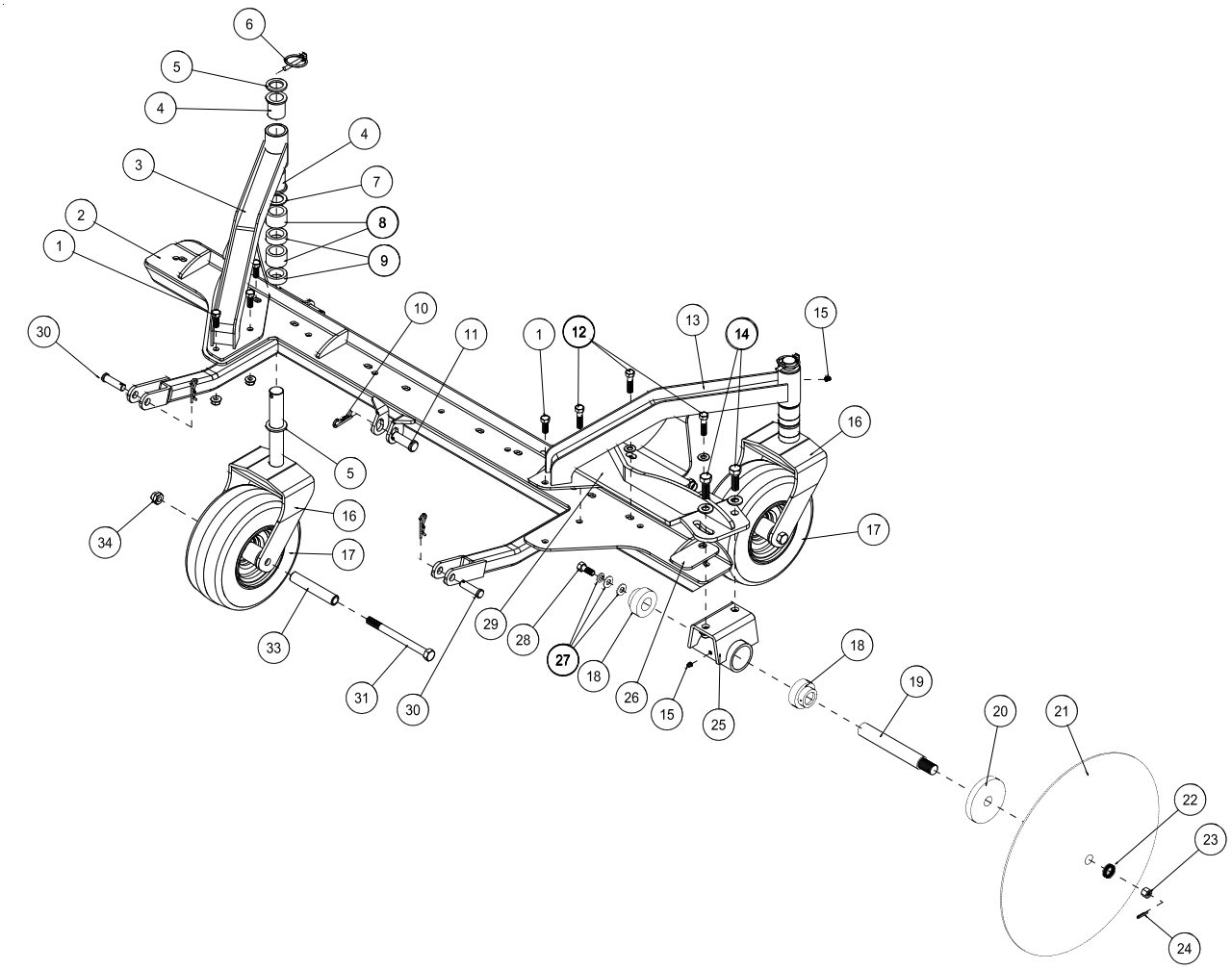
REF#	PART#	DESCRIPTION	QUANTITY
1	HCP-12-200	Clevis Pin, 1/2 x 2	2
2	HHP-.177	Bridge Pin, .177 x 3.75	3
3	HCP-58-250	Clevis Pin, 5/8 x 2 1/2	1
4	42-203	Attachment Lift Assembly	1
5	42-758	Brush	1
6	42-754	Edger Mount	1
7	HB-38-16-125	Bolt, 3/8 -16 x 1¼	3
	HNFL-38-16	Flange Whiz-Lock Nut, 3/8 -16	3
	HW-38	Flat Washer, 3/8	3
8	HG-14-28-180	Grease Fitting, 1/4 - 28 x 180°(Part of 42-755)	2
9	42-755	Edger Arm	1
10	10-134	Spacer	1
11	HB-38-16-250	Bolt, 3/8 - 16 x 2½	3
	HNFL-38-16	Flange Whiz-Lock Nut, 3/8 -16	3
12	60-123	Shock Absorber	1
13	HW-38	Flat Washer, 3/8	3
14	48-109	Spring	1
15	42-757	Spring Mount	1
16	HNTL-34-16	Lock Nut, ¾ - 16	1
17	HMB-34-10	Machine Bushing, ¾ x 10GA	2
18	42-756	Edger Fork	1
19	HB-58-11-325	Bolt, 5/8 - 11 x 3¼	1
	HNTL-58-11	Nylon Lock Nut, 5/8 -11	1
20	60-325	Spacer	1
21	HMB-58-14	Machine Bushing, 5/8 x 10GA	3
22	42-752	Edger Blade	1
23	76-298	Spacer	2
24	HB-14-20-075	Bolt, ¼ - 20 x ¾	3
	HNFL-14-20	Flange Whiz-Lock Nut, ¼ - 20	3
25	42-759	Brush Holder	1
26	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
27	HMB-100-14	Machine Bushing, 1 x 14GA	2

INSTALLATION INSTRUCTIONS

For your convenience and ease of installation, a major set of components are pre-assembled at the factory. This is the *"Edger Assembly"* and includes Reference #'s 11 thru 25.

1. Slide Attachment Lift Assembly (Ref 4) under machine and attach using (2) ½ x 2" Clevis Pins (Ref 1) & (2) Bridge Pins (Ref 2). Connect the free end of the hydraulic cylinder to the Attachment Lift Assembly (Ref 4) as illustrated using the 5/8 x 2½ Clevis Pin (Ref 3) & (1) Bridge Pin (Ref 2).
2. Attach the Edger Mount (Ref 6) to the Attachment Lift Assembly (Ref 4) using (3) 3/8 - 16 x 1¼ bolts, 3/8 Flat Washers and 3/8 -16 Whiz-Lock Nuts (Ref 7).
3. Now slide (1) 1" Machine Bushing (Ref 27) on the Edger Mount's (Ref 6) pin. Next install the "Edger Assembly" (see sidebar) onto the pin. Place the second 1" Machine Bushing (Ref 27) on the pin. Secure with a 1/8 x 1½ Cotter Pin (Ref 26).
4. Slide (1) 3/8" Flat Washer onto (1) 3/8 - 16 x 2½ bolt & insert this in the free end of the Shock Absorber (Ref 12). Next, slide the Spacer (Ref 10) onto the bolt and use (1) 3/8 -16 Whiz-Lock Nut to secure the Shock Absorber (Ref 12) to the Edger Mount (Ref 6) as illustrated.
5. Grease all Grease Fittings (Ref 8) and check all fasteners for proper installation.

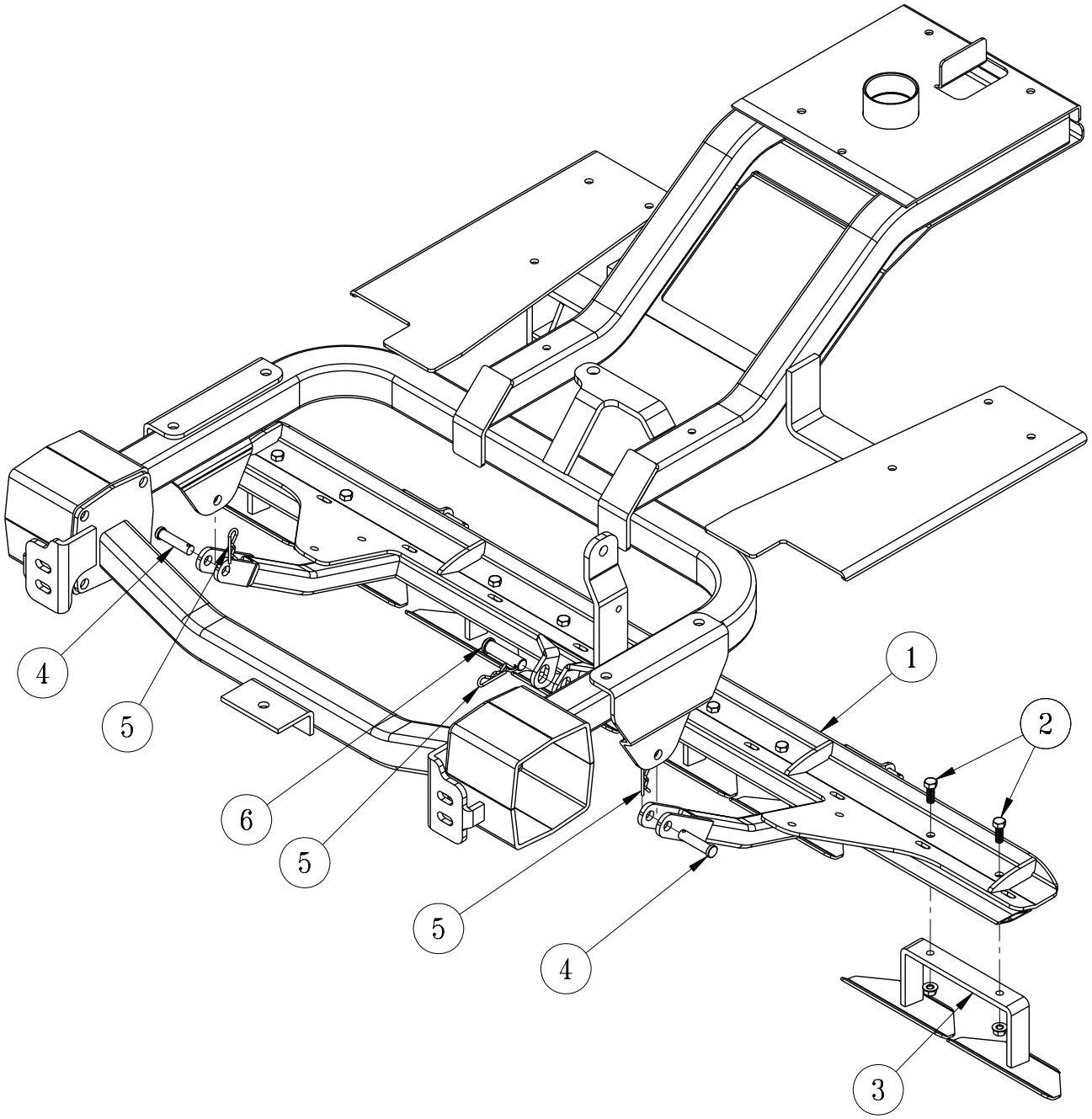
42-287 EDGER KIT WITH CASTOR WHEELS DRAWING



42-287 EDGER KIT WITH CASTOR WHEELS PARTS LIST

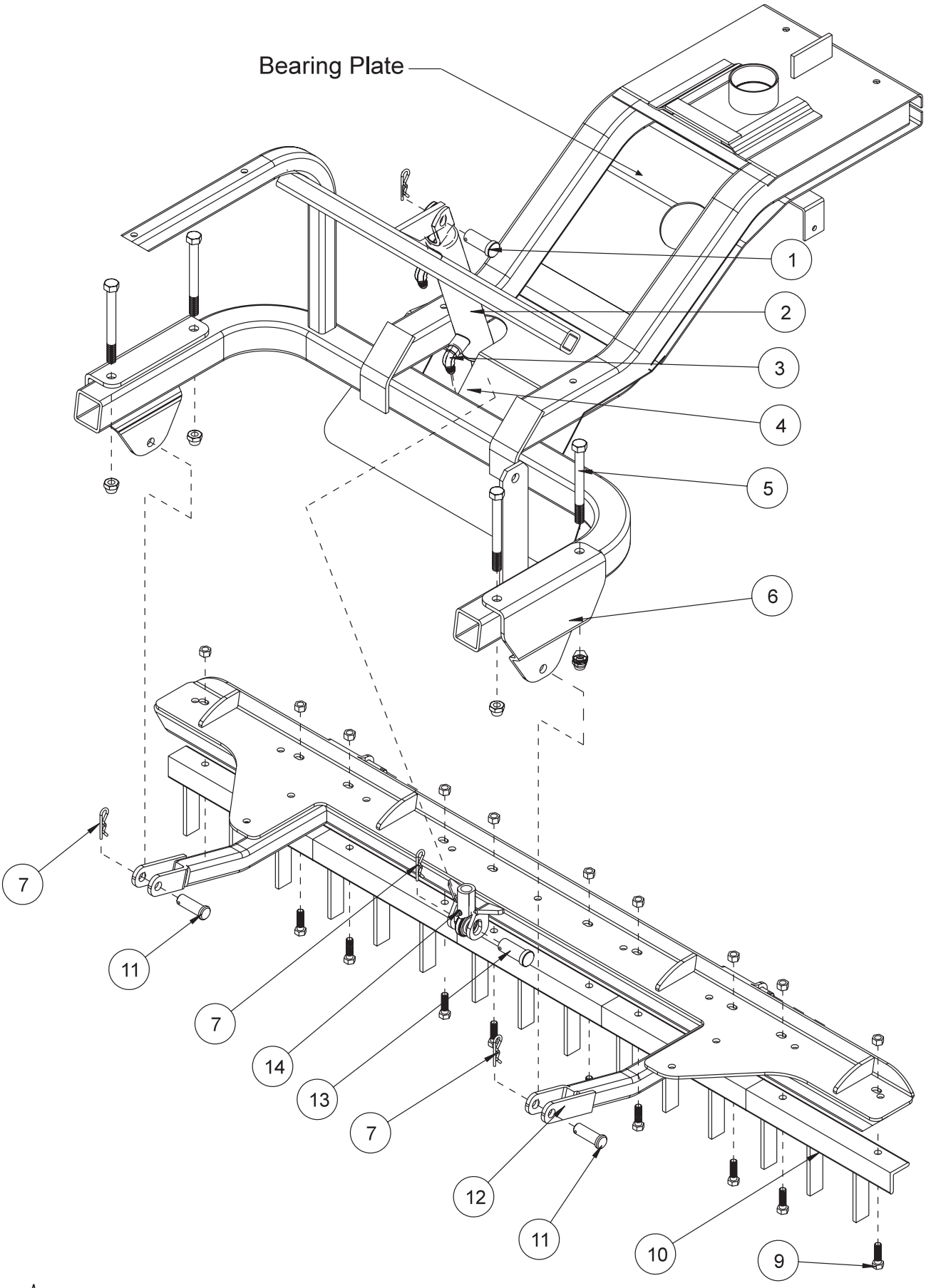
REF#	PART#	DESCRIPTION	QUANTITY
1	HB-38-16-100	Bolt 3/8 - 16 x 1	4
	HNFL-38-16	Flange Whiz Lock Nut 3/8 -16	4
2	42-203	Attachment Lift Assembly	1
3	42-293	Left Castor Bracket	1
4	18-035	Flange Bushing (part of 42-292)	2
5	HMB-100-10	Machine Bushing 1 x 10GA	4
6	42-539	Lynch Pin	2
7	HMB-100-14	Machine Bushing 1 x 14GA	2
8	29-585	1" Spacer	4
9	29-584	1/2" Spacer	4
10	HHP-18	Bridge Pin 1/8	3
11	HCP-58-250	Clevis Pin 5/8 x 2 1/2	1
12	HB-38-16-150	Bolt 3/8 - 16 x 1 1/2	3
	HW-38	Washer 3/8	3
	HNFL-38-16	Flange Whiz Lock Nut 3/8 - 16	3
13	42-292	Right Castor Mount	1
	18-035	Flange Bushing (part of 42-293)	2
14	HB-12-13-150	Bolt 1/2 - 13 x 1 1/2	2
	HW-12	Washer 1/2	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
15	HG-14-28-180	Grease Fitting 1/4 - 28 x 180° (part of 42-292, 42-293 and 13-203)	3
16	10-312	Castor Fork	2
17	42-202	Tire and Wheel	2
18	13-391	Bearing and Collar	2
19	13-206	Spindle Shaft	1
20	13-205	1/2 Disc Flange	1
21	13-204	Disc	1
22	HMB-34-10	Machine Bushing 3/4 x 10GA	4
23	HNA-34-16	Axle Nut 3/4 - 16	1
24	HP-18-150	Cotter Pin 1/8 x 1 1/2	1
25	13-203	Spindle	1
26	42-294	Edger Spacer	1
27	HWL-38	Washer 3/8	1
	HW-516	Washer 5/16	1
	HW-716	Washer 7/16	1
28	HB-38-16-100	Bolt 3/8 - 16 x 1	1
29	42-224	Edger Mount	1
30	HCP-12-200	Clevis Pin 1/2 x 2	2
31	HB-12-13-600	Bolt 1/2 - 13 x 6	2
33	33-338	Axle Bearing	2
34	HNTL-12-13	Lock Nut 1/2 -13	2

43-130 WEED CULTIVATOR



REF#	PART #	DESCRIPTION	QUANTITY
1	43-131	Attachment Lift Assembly	1
2	HB-38-16-125	Bolt, $^{3}/_{8}$ - 16 x $1^{1}/_{4}$	8
	HNFL-38-16	Flange Nut, $^{3}/_{8}$ - 16	8
3	13-096	Blade Assembly	4
4	HCP-12-200	Clevis Pin $^{1}/_{2}$ x 2	2
5	HHP-18	Bridge Pin $^{1}/_{8}$	3
6	HCP-58-250	Clevis Pin $^{5}/_{8}$ x $2^{1}/_{2}$	1

42-008 SAND CULTIVATOR DRAWING



42-008 SAND CULTIVATOR PARTS LIST

REF#	PART#	DESCRIPTION	QTY
1	HCP-58-175	Clevis Pin $^{5}/_{8}$ - $1^{3}/_{4}$	1
2		Hydraulic Cylinder	1
3	18-168	90° Elbow	2
4	42-217	Cylinder Mount	1
5	HB-12-13-500	Bolt $^{1}/_{2}$ - 13 x 5	4
	HNTL-12-13	Lock Nut $^{1}/_{2}$ - 13	4
6	42-015	Attachment Mount	2
*7	HHP-18	Bridge Pin $^{1}/_{8}$	3
*9	HB-38-16-125	Bolt $^{3}/_{8}$ - 16 x $1^{1}/_{4}$	10
	HNTL-38-16	Lock Nut $^{3}/_{8}$ - 16	10
*10	42-038	Tine Segment	5
*11	HCP-12-200	Clevis Pin $^{1}/_{2}$ x 2	2
*12	42-203	Attachment Lift	1
*13	HCP-58-250	Clevis Pin $^{5}/_{8}$ x $2^{1}/_{2}$	1
14	18-154	Rod End	1
*	42-008	Sand Cultivator (all other parts reference only)	

INSTALLATION INSTRUCTIONS

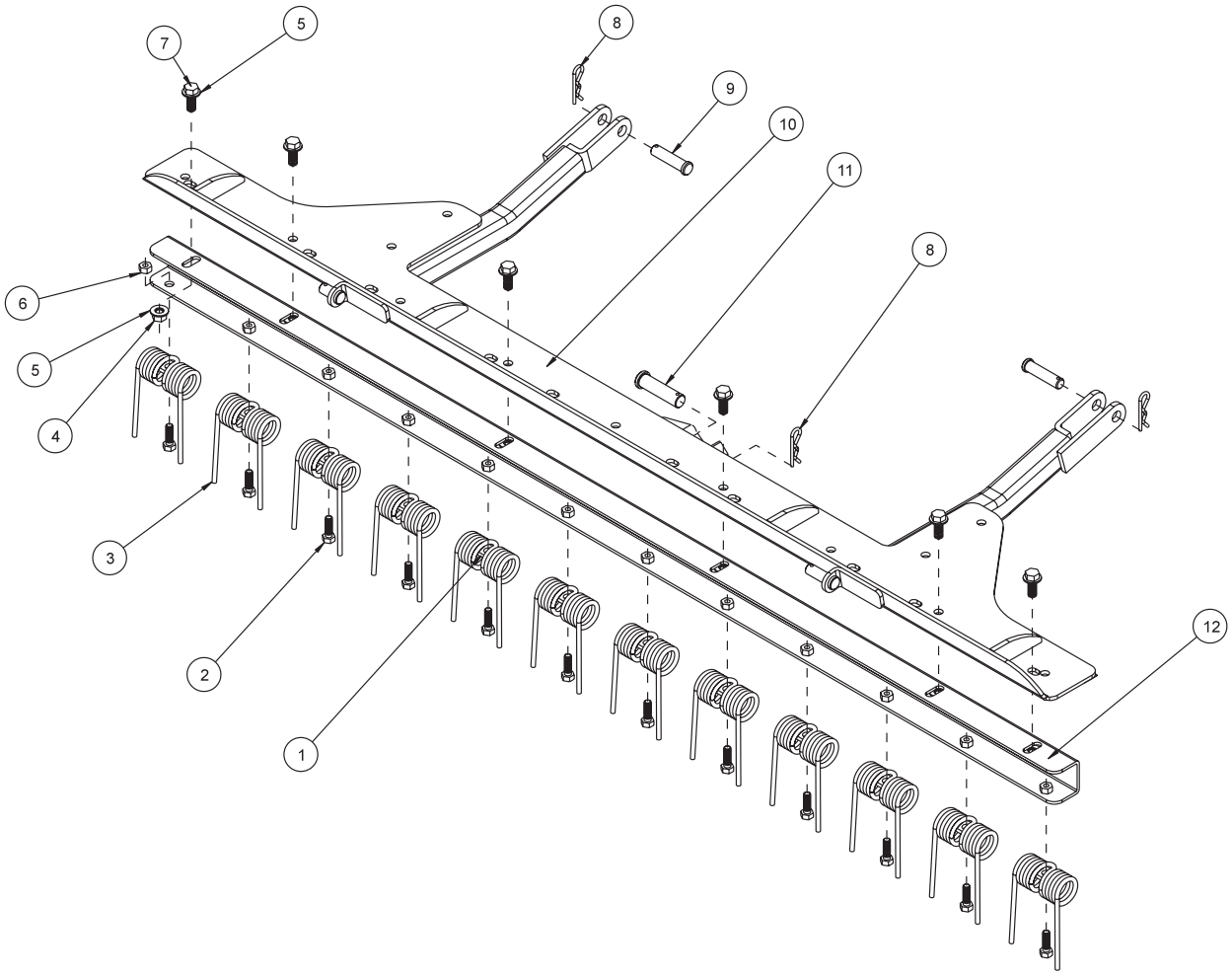
1. Tine segments (Ref 10) should be bolted to the attachment lift (Ref 12). Attach the attachment lift to attachment mount (Ref 6) using (Ref 11and 7) clevis pin and bridge pin.
2. Remove the cylinder from the cylinder mount (Ref 4). Remove the cylinder mount from the machine.

*3. Place the valve handle and linkage in the empty port on the valve.

4. Lift attachment lift up or extend cylinder so rod end (Ref 14) lines up with the holes on the center of the attachment lift. Use clevis pin and bridge pin (Ref 7 and 13) to fasten cylinder to sand cultivator.
5. Turn machine on and test for proper operation.

* For machines prior to serial numbers 4500 (3WD) and 12500 (2WD).

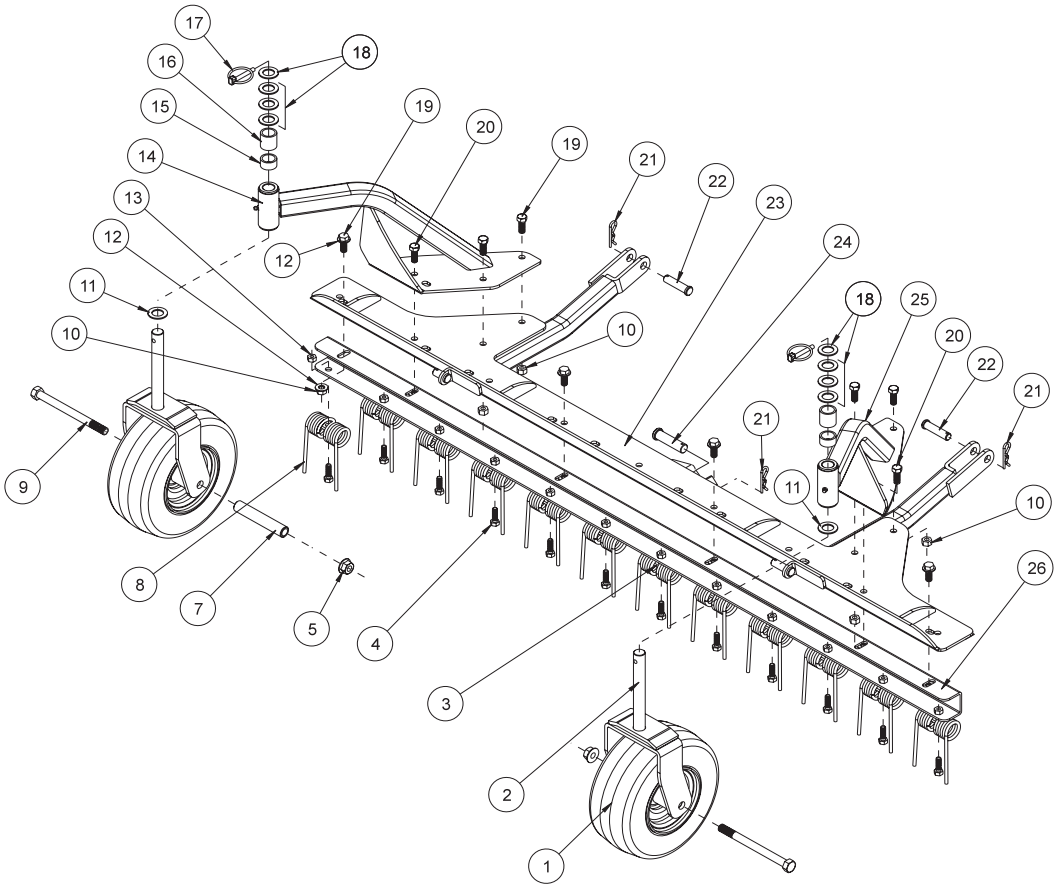
42-340 SAND CULTIVATOR WITH SPRING TINES DRAWING



42-340 SAND CULTIVATOR WITH SPRING TINES PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-177	Spring Holder	12
2	HB-516-18-100	Hex Bolt $^{5}/_{16}$ - 18 x 1	12
3	42-122	Rake Spring	12
4	HNTL-38-16	Lock Nut $^{3}/_{8}$ - 16	6
5	HW-38	Flat Washer $^{3}/_{8}$	12
6	HNTL-516-18	Lock Nut $^{5}/_{16}$ - 18	12
7	HB-38-16-100	Hex Bolt $^{3}/_{8}$ - 16 x 1	6
8	HHP-18	Bridge Pin $^{1}/_{8}$	3
9	HCP-12-200	Clevis Pin ½ x 2	2
10	42-203	Attachment Lift Bar	1
11	HCP-58-250	Clevis Pin $^{5}/_{8}$ x 2½	1
12	42-343	Spring Bar	1

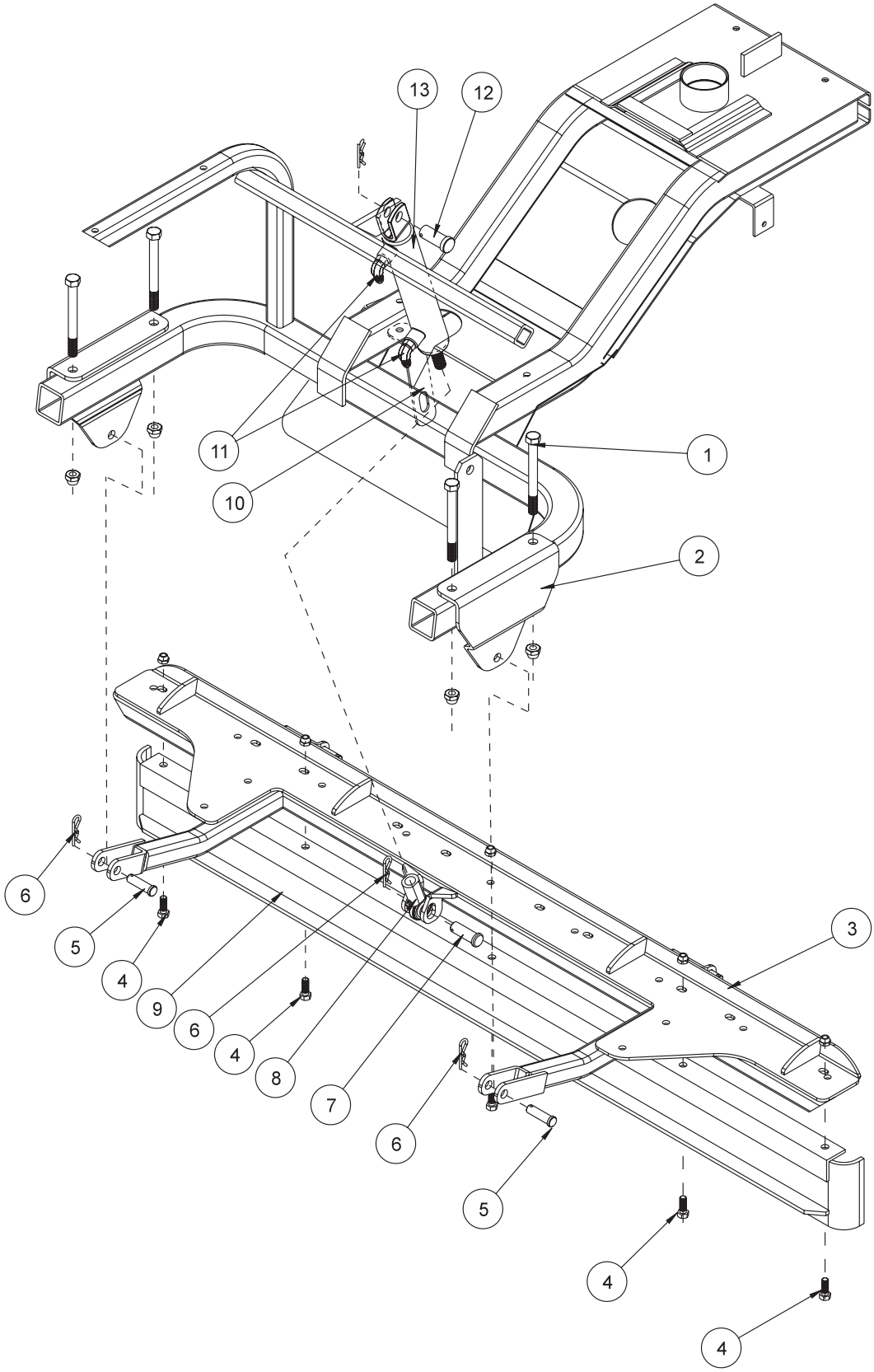
42-341 FIELD SCARIFIER WITH TINES AND CASTOR WHEELS DRAWING



42-341 FIELD SCARIFIER WITH TINES AND CASTOR WHEELS PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-202	Tire & Wheel	2
2	42-204	Castor Fork	2
3	42-177	Spring Holder	12
4	HB-516-18-100	Hex Bolt 5/16 - 18 x 1	12
5	HNTL-12-13	Lock Nut ½ - 13	2
7	33-338	Axle Bearing	2
8	42-122	Rake Spring	12
9	HB-12-13-600	Hex Bolt ½ - 13 x 6	2
10	HNTL-38-16	Lock Nut 3/8 - 16	10
11	HMB-34-14	Machine Bushing ¾ x 14GA	2
12	HW-38	Flat Washer 3/8	12
13	HNTL-516-18	Lock Nut 5/16 - 18	12
14	42-289	Right Castor Wheel Bracket	1
	10-025	Flange Bushing (Part of 42-289)	2
	HG-14-28-180	Grease Fitting 1/4 - 28 x 180° (Part of 42-289)	1
15	42-215	Short Spacer	2
16	42-214	Long Spacer	2
17	42-539	Lynch Pin ¼"	2
18	HMB-34-10	Machine Bushing ¾ x 10GA	8
19	HB-38-16-100	Hex Bolt 3/8 - 16 x 1	8
20	HB-38-16-125	Hex Bolt 3/8 - 16 x 1¼	2
21	HHP-18	Bridge Pin 1/8	3
22	HCP-12-200	Clevis Pin ½ x 2	2
23	42-203	Attachment Lift Bar	1
24	HCP-58-250	Clevis Pin 5/8 x 2½	1
25	42-288	Left Castor Wheel Bracket	1
	10-025	Flange Bushing (Part of 42-288)	2
	HG-14-28-180	Grease Fitting 1/4 - 28 x 180° (Part of 42-288)	1
26	42-343	Spring Bar	1

42-010 CONSTRUCTION LEVELING BLADE DRAWING



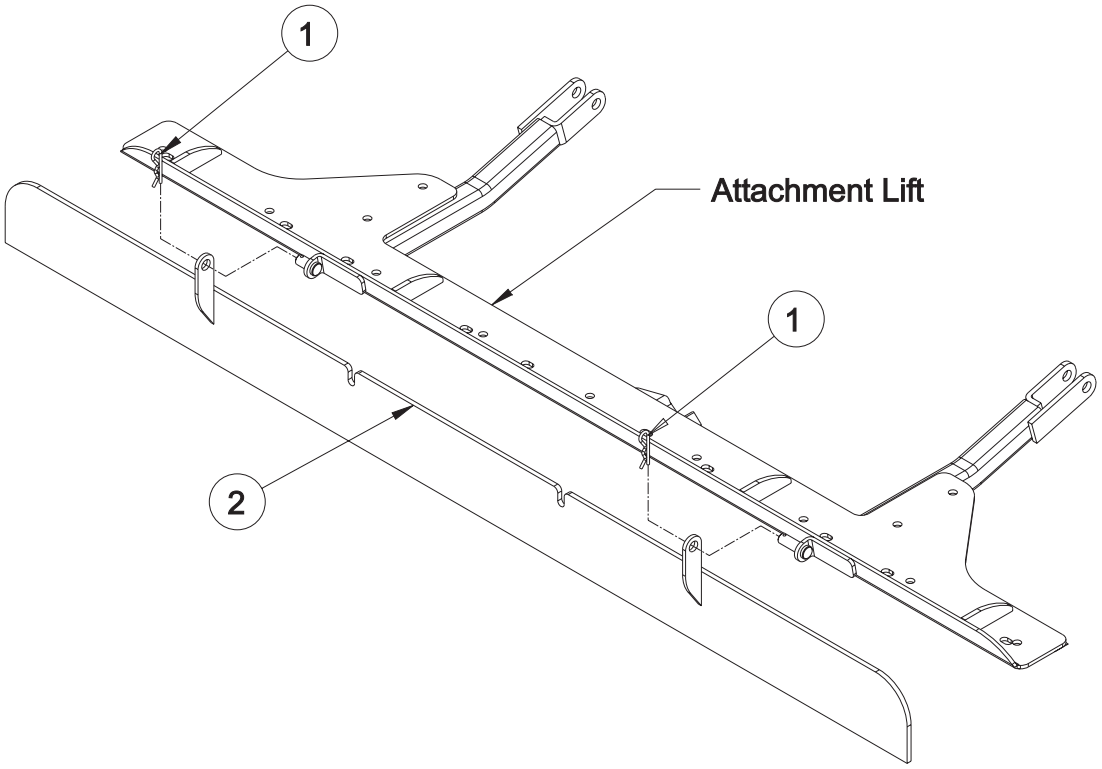
42-010 CONSTRUCTION LEVELING BLADE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-12-13-500	Bolt 1/2 - 13 x 5	4
	HNTL-12-13	Lock Nut 1/2 - 13	4
2	42-015	Attachment Mount	2
*3	42-203	Attachment Lift	1
*4	HB-38-16-100	Bolt 3/8 - 16 x 1	5
	HNTL-38-16	Lock Nut 3/8 - 16	5
*5	HCP-12-200	Clevis Pin 1/2 x 2	2
*6	HHP-18	Bridge Pin 1/8	3
*7	HCP-58-250	Clevis Pin 5/8 x 2 1/2	1
8	18-154	Rod End	1
*9	42-097	Leveling Blade	1
10	42-217	Cylinder Mount	1
11	18-168	90° Elbow	2
12	HCP-34-175	Clevis Pin 3/4 - 1 3/4	1
13	10-135	Hydraulic Cylinder	1
*	42-010	Construction Leveling Blade (all other parts are reference only)	

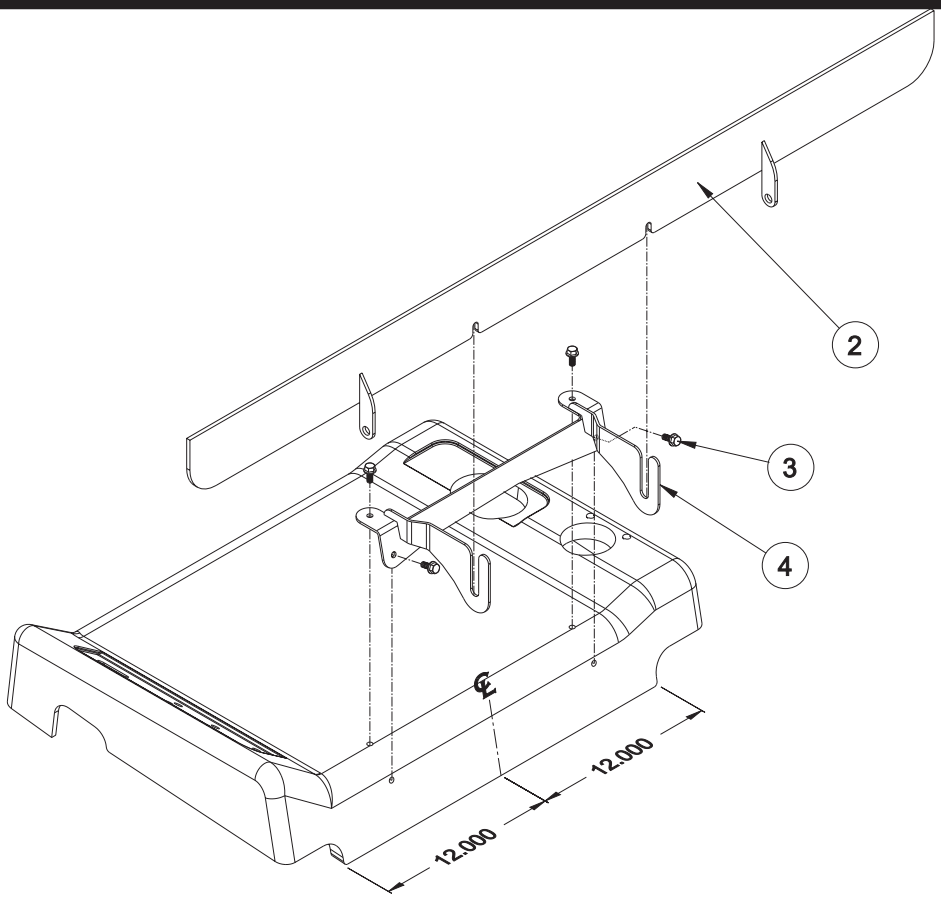
INSTALLATION INSTRUCTIONS

1. Remove the cylinder mount (Ref 10) from the machine.
2. Bolt leveling blade (Ref 9) to attachment lift (Ref 3) using five 3/8 - 16 x 1 bolts and five 3/8 - 16 lock nuts as shown on drawing.
3. Attach the attachment lift to attachment mount (Ref 3) using clevis pin and bridge pin (Ref 5 and 6).
4. Lift attachment lift up or extend cylinder so rod end (Ref 8) lines up with the holes on the center of the attachment lift. Use 5/8 x 2 1/2 clevis pin and bridge pin (Ref 6 & 7) to fasten cylinder to cultivator.
5. Turn machine on and test for proper operation.

42-210 GRADER BLADE DRAWING



42-210 GRADER BLADE MOUNT DRAWING



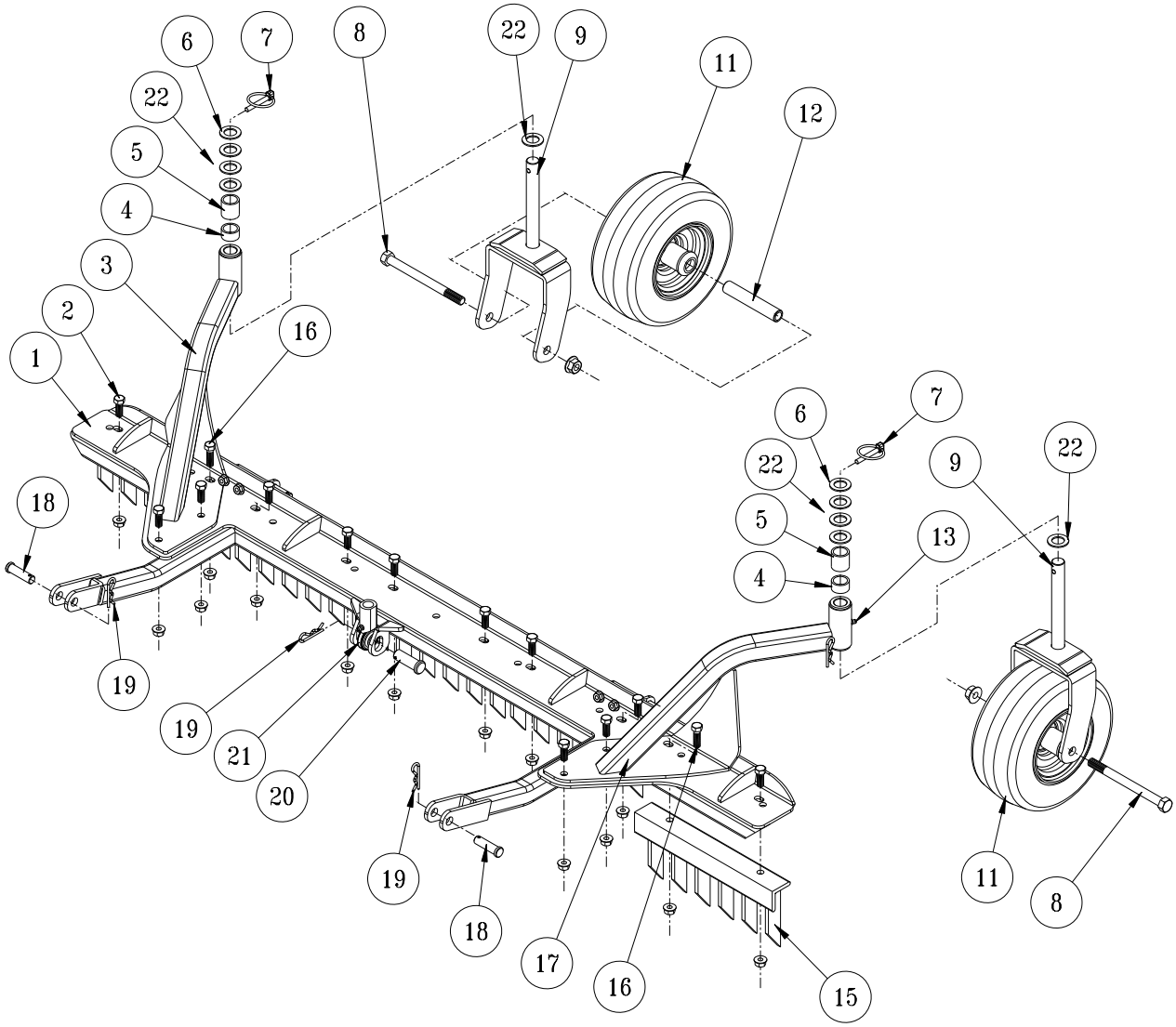
42-210 GRADER BLADE PARTS LIST

REF#	PART#	DESCRIPTION	QTY
1	HHP-18	Bridge Pin $^{1}/_{8}$	2
2	42-207	Grader Blade	1
3	HBFL-516-18-075	Flange Bolt, $^{5}/_{16}$ - 18 x $^{3}/_{4}$	4
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18 *(not illustrated)*	4
4	42-386	Grader Blade Mount	1

42-210 GRADER BLADE INSTALLATION INSTRUCTIONS

1. Install Grader Blade (Ref 2) onto Attachment Lift by sliding tabs onto clevis pins and secure with Bridge Pins (Ref 1).
2. Install Grader Blade Mount (Ref 4) on seat panel.
3. Position the Grader Blade Mount (Ref 4) to be centered on the rear of the Seat Panel as illustrated. Mark the hole locations on the Seat Panel. Using an Ø$^{11}/_{32}$ drill located the holes at the four marks made previously. The top two holes will be drilled through the fiberglass and the steel panel and the rear holes will be drilled through the fiberglass only.
4. Bolt the Grader Blade Mount (Ref 4) to the Seat Panel using the four $^{5}/_{16}$ -18 Flange Bolts and Flange Nuts (Ref 3).
5. The Grader Blade Mount is used for the storage of the Grader Blade when not in use. To store, turn the Grader Blade to the position illustrated in the **Grader Blade Mount Drawing** and place in the Grader Blade Mount.
6. Turn machine on and test for proper operation.

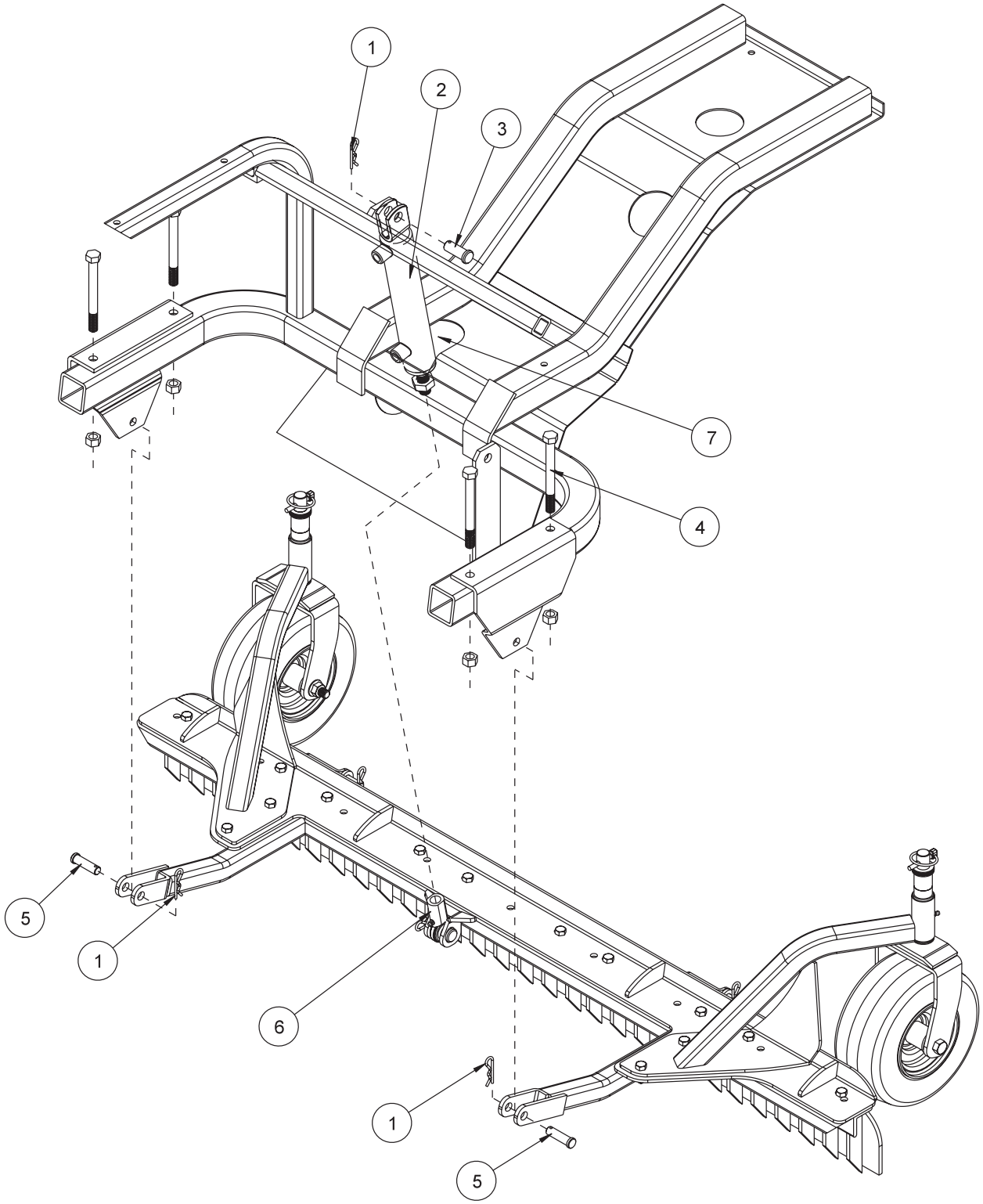
42-178 INFIELD SCARIFIER WITH VERTICAL BLADES DRAWING



42-178 INFIELD SCARIFIER WITH VERTICAL BLADES PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-203	Attachment Lift Assembly	1
2	HB-38-16-100	Bolt 3/8 - 16 x 1	12
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	12
3	42-205	Left Castor Wheel Bracket	1
	10-025	Bushing (part of 42-205)	2
4	42-215	Short Spacer	2
5	42-214	Long Spacer	2
6	HMB-34-14	Machine Bushing 3/4 x 14GA	2
7	42-539	Lynch Pin 5/16	2
8	HB-12-13-600	Bolt 1/2-13 x 6	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
9	42-204	Castor Fork	2
11	42-202	Tire and Wheel	2
12	33-338	Axle Bearing	2
13	HG-14-28-180	Grease Fitting 1/4 - 28 x 180° (part of 42-205 and 42-206)	2
15	26-042	Tine Segment	5
16	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	2
	HW-38	Washer 3/8	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
17	42-206	Right Castor Wheel Bracket	1
	10-025	Bushing (part of 42-205)	2
18	HCP-12-200	Clevis Pin 1/2 x 2	2
19	HHP-18	Bridge Pin 1/8	3
20	HCP-58-250	Clevis Pin 5/8 x 2 1/2	1
21	18-154	Rod End (part of machine)	1
22	HMB-34-10	Machine Bushing 3/4 x 10GA	8

42-178 SCARIFIER MOUNTING DRAWING



42-178 SCARIFIER MOUNTING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HHP-18	Bridge Pin 1/8	3
2	10-135	Hydraulic Cylinder (part of machine)	1
3	HCP-58-175	Clevis Pin 5/8 x 1 3/4	1
4	HB-12-13-500	Bolt 1/2 - 13 x 5	4
	HNTL-12-13	Lock Nut 1/2 - 13	4
5	HCP-12-200	Clevis Pin 1/2 - 2	2
6	18-154	Rod End (part of machine)	1
7	42-217	Cylinder Mount (part of machine)	1

INSTALLATION INSTRUCTIONS

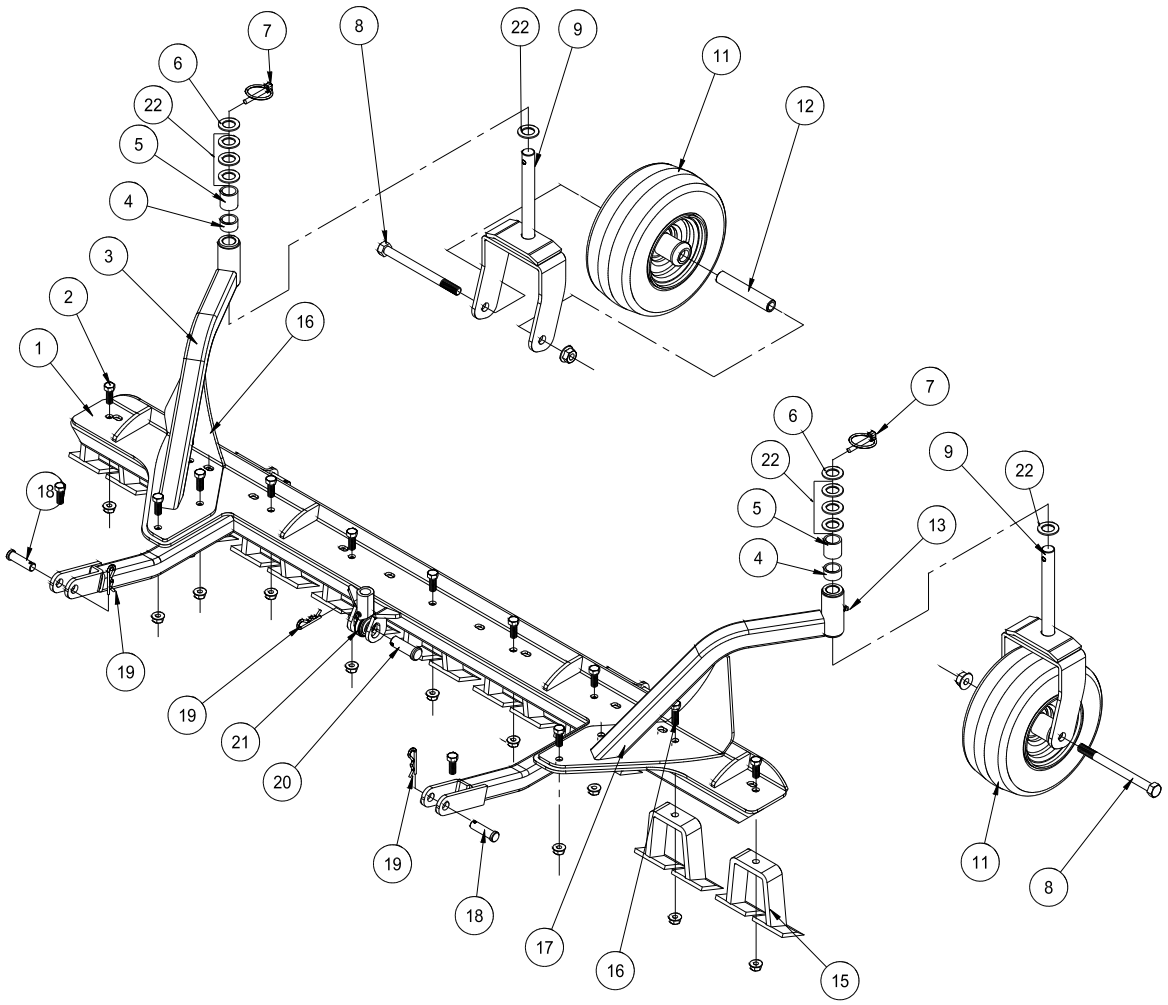
1. Assemble the Scarifier as shown on previous page.
2. Remove the rod end (Ref 6) on the hydraulic cylinder (Ref 2) from the cylinder mount (Ref 7). Remove the cylinder mount (Ref 7) from the machine.

*3. Place the handle and linkage onto the empty linkage port of the two bank valve on the machine.

4. Slide the Scarifier under the machine lining up the hydraulic cylinder and the center of the attachment lift assembly.
5. Extend hydraulic cylinder all the way down by pushing the lever forward.
6. Mount the rod end of the cylinder onto the attachment lift assembly and secure with a clevis pin and bridge pin.
7. Attach the arms on the attachment lift to the attachment mount on the machine and secure with clevis pin and bridge pin.
8. Turn machine on and test for proper operation.
9. Adjust castor wheels by placing the short or long spacer on the castor wheel fork before placing the castor wheel assembly into the castor wheel brackets. Be sure both castor wheels are adjusted to the same height.

* For machines prior to serial numbers 4500 (3WD) and 12500 (2WD).

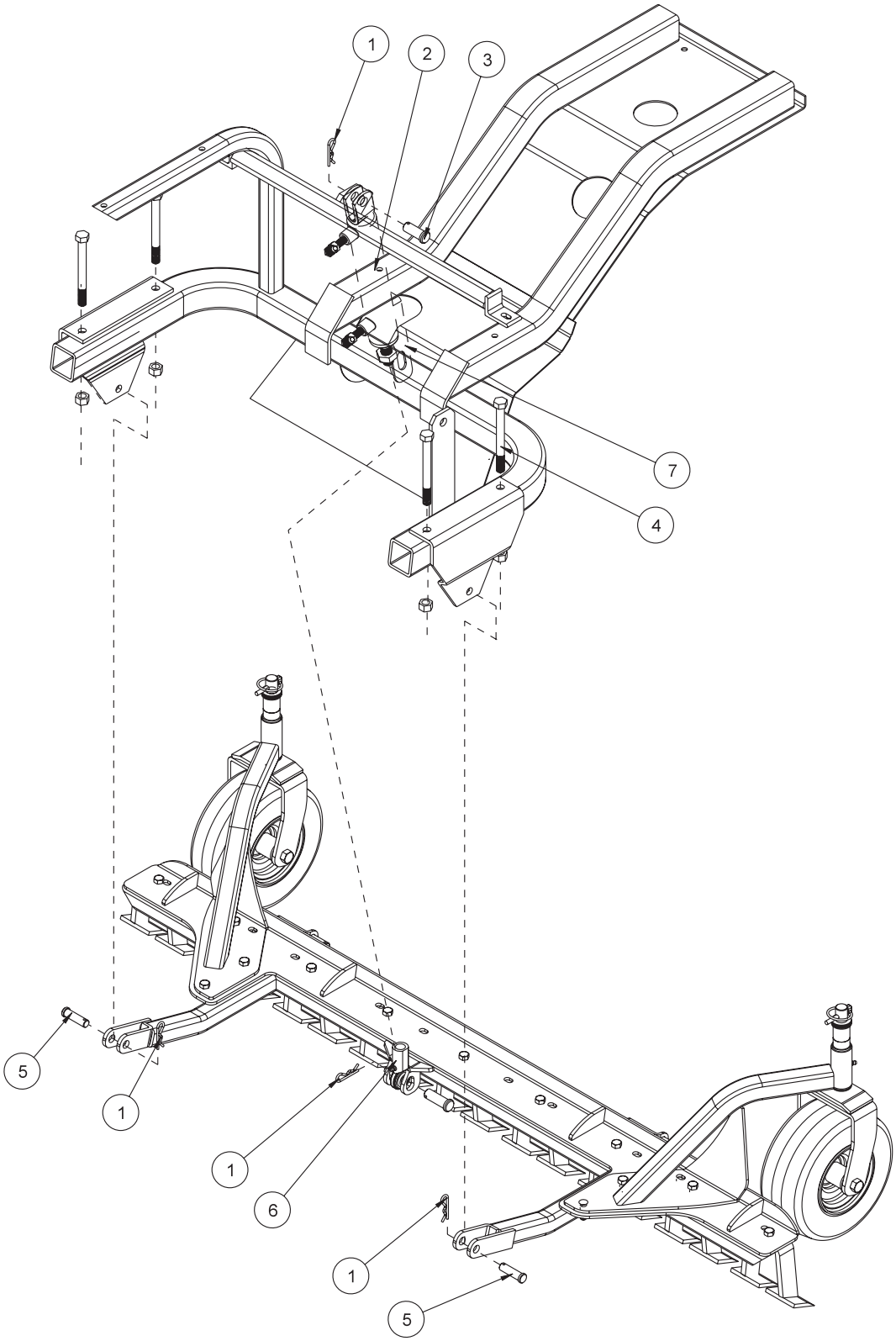
42-179 INFIELD SCARIFIER WITH CHISEL BLADES DRAWING



42-179 INFIELD SCARIFIER WITH CHISEL BLADES PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-203	Attachment Lift Assembly	1
2	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	11
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	11
3	42-205	Left Castor Wheel Bracket	1
	10-025	Bushing (part of 42-205)	2
4	42-215	Short Spacer	2
5	42-214	Long Spacer	2
6	HMB-34-14	Machine Bushing 3/4 x 14GA	2
7	42-539	Lynch Pin 5/16	2
8	HB-12-13-600	Bolt 1/2-13 x 6	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
9	42-204	Castor Fork	2
11	42-202	Tire and Wheel	2
12	33-338	Axle Bearing	2
13	HG-14-28-180	Grease Fitting 1/4 - 28 x 180° (part of 42-205 and 42-206)	2
15	13-114	Digger Blade	9
16	HB-38-16-150	Bolt 3/8 - 16 x 1 1/2	2
	HW-38	Washer 3/8	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
17	42-206	Right Castor Wheel Bracket	1
	10-025	Bushing (part of 42-205)	2
18	HCP-12-200	Clevis Pin 1/2 x 2	2
19	HHP-18	Bridge Pin 1/8	3
20	HCP-58-250	Clevis Pin 5/8 x 2 1/2	1
21	18-154	Rod End (part of machine)	1
22	HMB-34-10	Machine Bushing 3/4 x 10GA	8

42-179 SCARIFIER MOUNTING DRAWING



42-179 SCARIFIER MOUNTING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HHP-18	Bridge Pin 1/8	3
2	10-135	Hydraulic Cylinder (part of machine)	1
3	HCP-58-175	Clevis Pin 5/8 x 1 3/4	1
4	HB-12-13-500	Bolt 1/2 - 13 x 5	4
	HNTL-12-13	Lock Nut 1/2 - 13	4
5	HCP-12-200	Clevis Pin 1/2 - 2	2
6	18-154	Rod End (part of machine)	1
7	42-217	Cylinder Mount (part of machine)	1

INSTALLATION INSTRUCTIONS

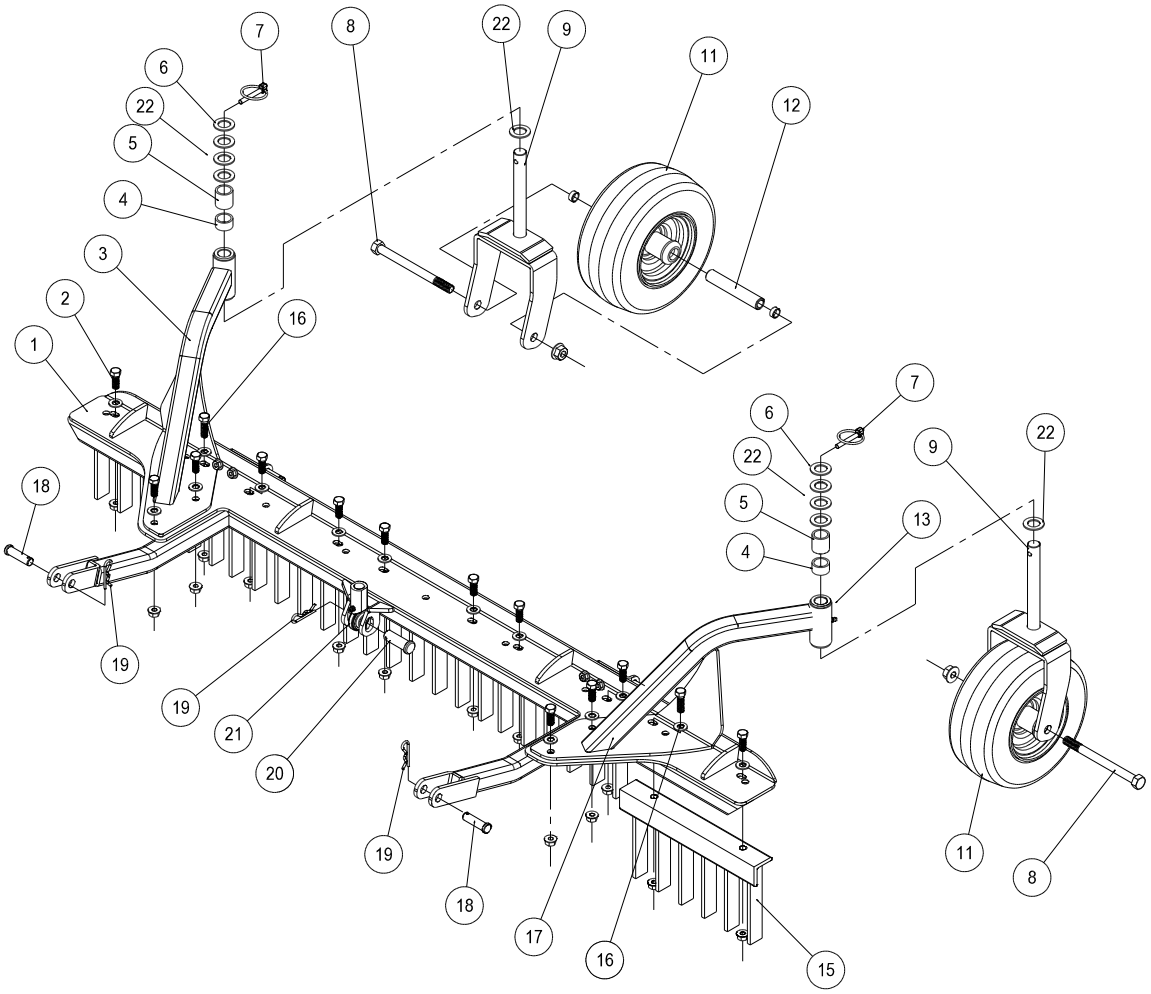
1. Assemble the Scarifier as shown on previous page.
2. Remove the rod end (Ref 6) on the hydraulic cylinder (Ref 2) from the cylinder mount (Ref 7). Remove the cylinder mount (Ref 7) from the machine.

*3. Place the handle and linkage onto the empty linkage port of the two bank valve on the machine.

4. Slide the Scarifier under the machine lining up the hydraulic cylinder and the center of the attachment lift assembly.
5. Extend hydraulic cylinder all the way down by pushing the lever forward.
6. Mount the rod end of the cylinder onto the attachment lift assembly and secure with a clevis pin and bridge pin.
7. Attach the arms on the attachment lift to the attachment mount on the machine and secure with clevis pin and bridge pin.
8. Turn machine on and test for proper operation.
9. Adjust castor wheels by placing the short or long spacer on the castor wheel fork before placing the castor wheel assembly into the castor wheel brackets. Be sure both castor wheels are adjusted to the same height.

* For machines prior to serial numbers 4500 (3WD) and 12500 (2WD).

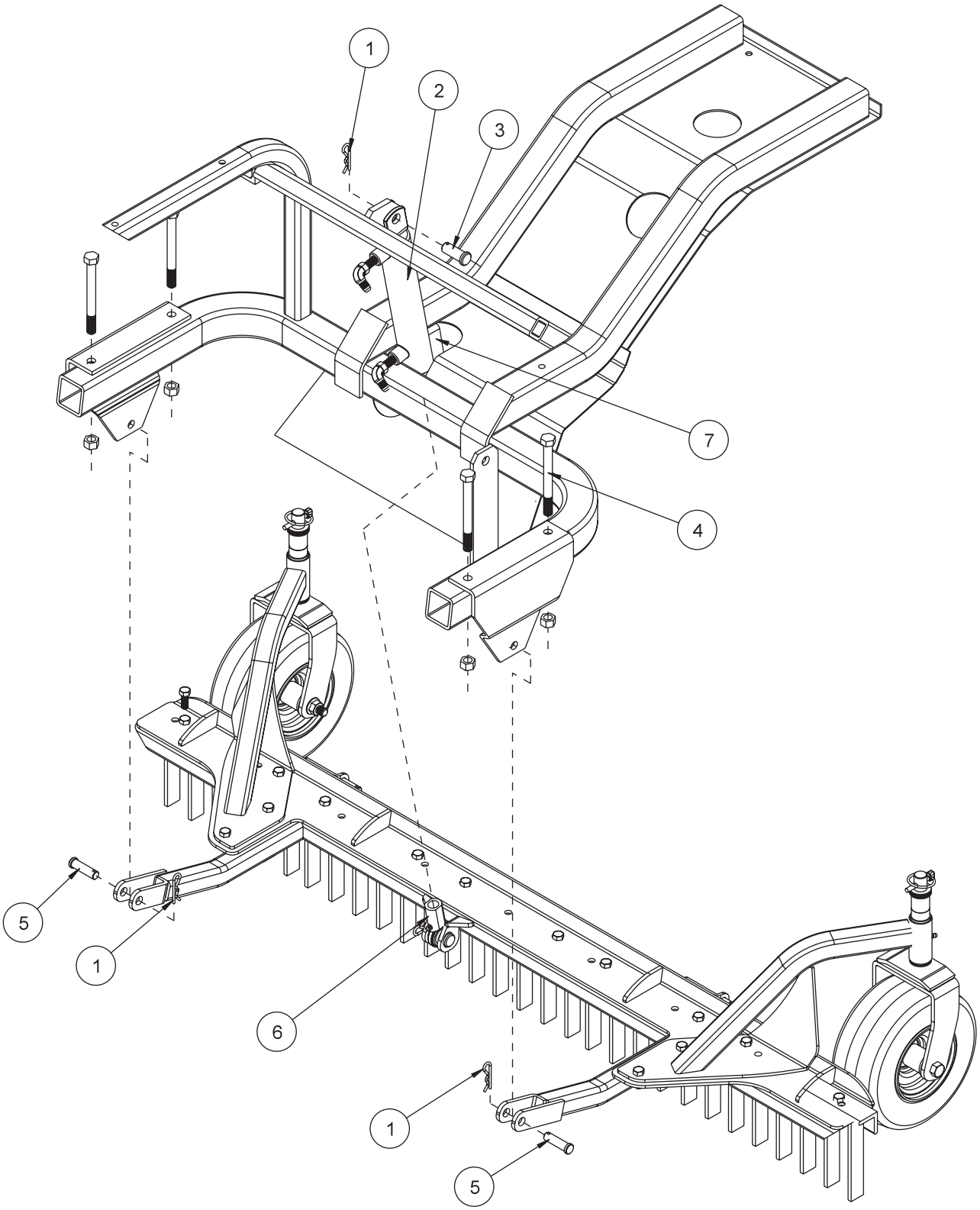
42-285 SCARIFIER WITH VERTICAL BLADES



42-285 SCARIFIER WITH VERTICAL BLADES PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-203	Attachment Lift Assembly	1
2	HB-38-16-100	Bolt 3/8 - 16 x 1	12
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	12
3	42-288	Left Castor Wheel Bracket	1
	10-025	Bushing (part of 42-288)	2
4	42-215	Short Spacer	2
5	42-214	Long Spacer	2
6	HMB-34-14	Machine Bushing 3/4 x 14GA	2
7	42-539	Lynch Pin 5/16	2
8	HB-12-13-600	Bolt 1/2-13 x 6	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
9	42-204	Castor Fork	2
11	42-202	Tire and Wheel	2
12	33-338	Axle Bearing	2
13	HG-14-28-180	Grease Fitting 1/4 - 28 x 180° (part of 42-288 and 42-289)	2
15	42-241	Tine Segment	5
16	HB-38-16-125	Bolt 3/8 - 16 x 1 1/4	2
	HW-38	Washer 3/8	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
17	42-289	Right Castor Wheel Bracket	1
	10-025	Bushing (part of 42-289)	2
18	HCP-12-175	Clevis Pin 1/2 x 1 3/4	2
19	HHP-18	Bridge Pin 1/8	3
20	HCP-58-250	Clevis Pin 5/8 x 2 1/2	1
21	18-154	Rod End (part of machine)	1
22	HMB-34-10	Machine Bushing 3/4 x 10GA	8

42-285 SCARIFIER WITH VERTICAL BLADES MOUNTING DRAWING



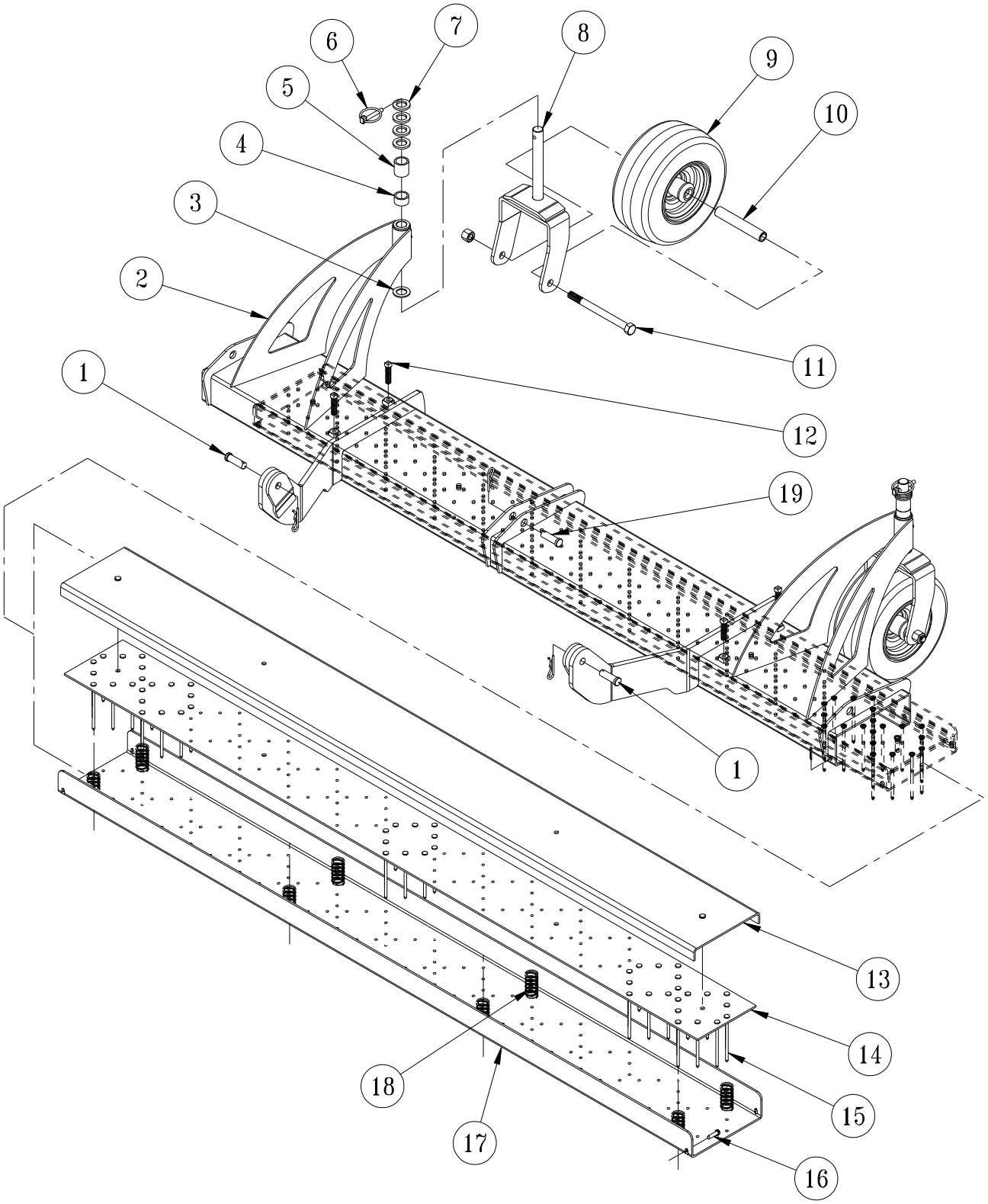
42-285 SCARIFIER WITH VERTICAL BLADES MOUNTING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HHP-18	Bridge Pin 1/8	3
2		Hydraulic Cylinder (part of machine)	1
3	HCP-58-175	Clevis Pin 5/8 x 1 3/4	1
4	HB-12-13-500	Bolt 1/2 - 13 x 5 (part of machine)	4
	HNTL-12-13	Lock Nut 1/2 - 13 (part of machine)	4
5	HCP-12-175	Clevis Pin 1/2 - 1 3/4	2
6	18-154	Rod End (part of machine)	1
7	42-217	Cylinder Mount (temporary part of machine)	1

INSTALLATION INSTRUCTIONS

1. Assemble the Scarifier as shown on previous page.
2. Disconnect the rod end (Ref 6) on the hydraulic cylinder (Ref 2) from the cylinder mount (Ref 7). Remove the cylinder mount (Ref 7) from the machine.
3. Place the handle and linkage onto the empty linkage port of the two bank valve on the machine.
4. Slide the Scarifier under the machine lining up the hydraulic cylinder and the center of the attachment lift assembly.
5. Extend hydraulic cylinder all the way down by pushing the lever forward.
6. Mount the rod end of the cylinder onto the attachment lift assembly and secure with a clevis pin and bridge pin.
7. Attach the arms on the attachment lift to the attachment mount on the machine and secure with clevis pin and bridge pin.
8. Turn machine on and test for proper operation.
9. Adjust castor wheels by placing the short or long spacer on the castor wheel fork before placing the castor wheel assembly into the castor wheel brackets. Be sure both castor wheels are adjusted to the same height.

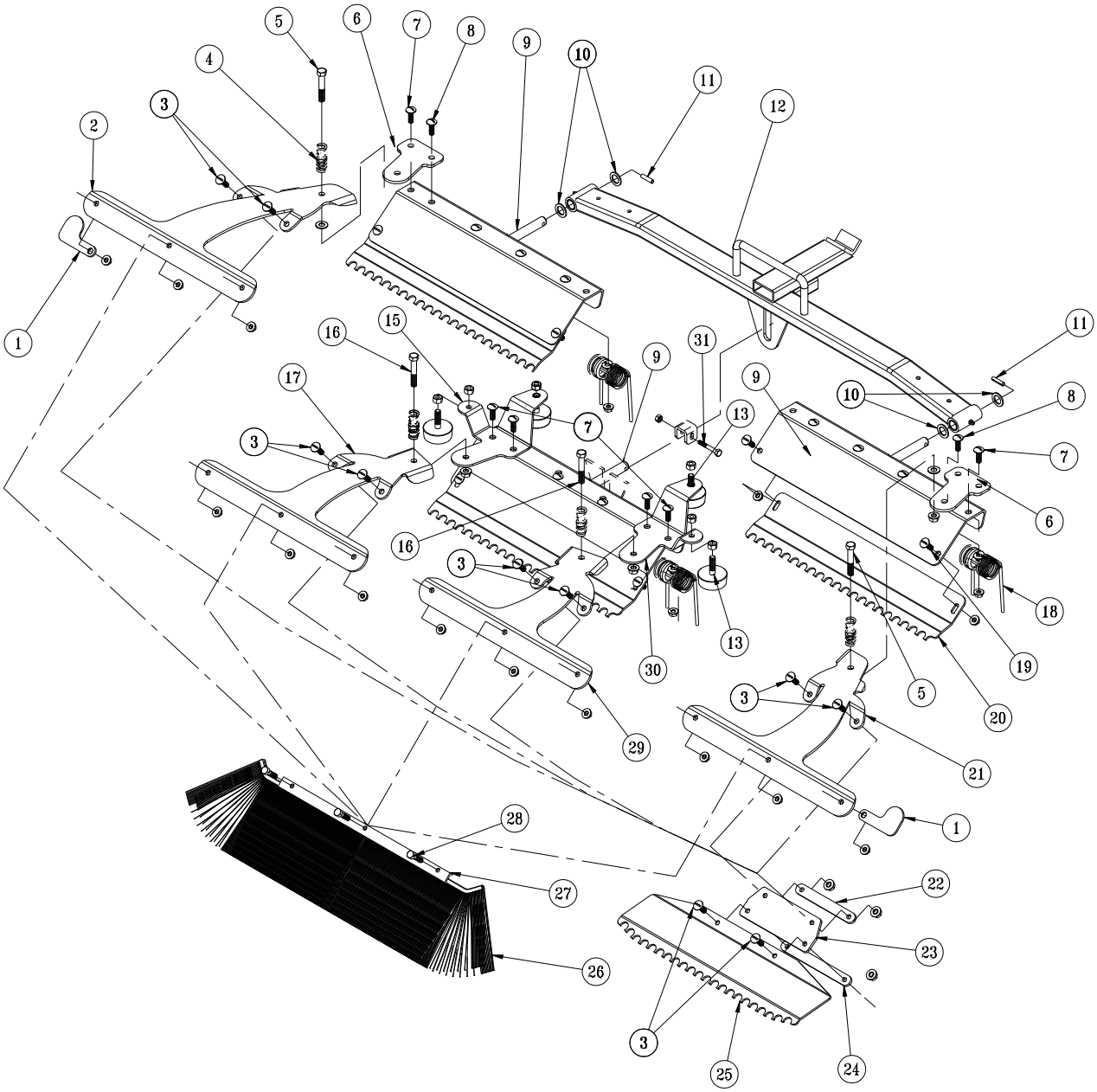
43-011 NAIL SCARIFIER WITH CASTOR WHEELS DRAWING



43-011 NAIL SCARIFIER WITH CASTOR WHEELS PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HCP-12-200	Clevis Pin, ½ x 2	2
	HHP-18	Bridge Pin, 1/8	2
2	43-171	Nail Scarifier Frame	1
	10-025	Flange Bushing (Part of 43-171)	4
	HG-14-28-180	Grease Fitting, 1/4 - 28 x 180° (Part of 43-171)	2
3	HMB-34-14	Machine Bushing, ¾ x 14GA	2
4	42-215	Short Spacer	2
5	42-214	Long Spacer	2
6	42-539	Lynch Pin, ¼"	2
7	HMB-34-10	Machine Bushing, ¾ x 10GA	8
8	42-204	Castor Fork	2
9	42-202	Tire & Wheel	2
10	33-338	Axle Bearing	2
11	HB-12-13-600	Hex Bolt, ½ - 13 x 6	2
	HNTL-12-13	Lock Nut, ½ - 13	2
12	HSSQS-38-16-150	SS Sq. Head Set Screw, 3/8 - 16 x 1½	4
	HN-38-16	Nut, 3/8 - 16	4
13	43-172	Cover	1
14	43-174	Nail Plate Cover	1
15	9028	Spiral Shank Nail, 7GA x 4"	130
16	HCP-14-075	Clevis Pin, ¼ x ¾	1
	HP-332-075	Cotter Pin, 3/8 x ¾	1
17	43-173	Nail Plate	1
18	43-175	Compression Spring	8
19	HCP-58-200	Clevis Pin, 5/8 x 2	1
	HHP-18	Bridge Pin, 1/8	1

42-391Q 72"(183CM) ProBrush TOURNAMENT RAKE DRAWING



42-391Q 72"(183CM) ProBrush TOURNAMENT RAKE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-489	Tip Guard	2
2	42-397	Outside Brush Arm, LH	1
3	HSTP-516-18-100	Phillip Truss Head Screw, $^{5}/_{16}$ - 18 x 1	16
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	16
4	11-055	Compression Spring	4
5	HB-38-16-250	Hex Bolt, $^{3}/_{8}$ - 16 x $2^{1}/_{2}$	2
	HW-38	Flat Washer, $^{3}/_{8}$	2
	HNTL-38-16	Lock Nut, $^{3}/_{8}$ - 16	2
6	42-396	Outside Brush Arm Mount	2
7	HSTP-516-18-100	Phillips Truss Head Screw, $^{5}/_{16}$ - 18 x 1	4
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	4
8	HSTP-516-18-125	Phillips Truss Head Screw, $^{5}/_{16}$ - 18 x 1¼	12
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	12
9	42-140	Outside Rake	3
10	HMB-58-14	Machine Bushing $^{5}/_{8}$ x 14GA	4
11	HRP-14-100	Roll Pin $^{1}/_{4}$ x 1	2
12	43-154	Draw Bar	1
13	50-081	Rubber Bumper	2
14	50-081	Rubber Bumper	2
	HNFL-38-16	Flange Whiz-Loc Nut $^{3}/_{8}$ - 16	6
15	42-399	Brush Arm Mount, LH	1
16	HB-38-16-250	Hex Bolt, $^{3}/_{8}$ - 16 x 2½	2
	HNTL-38-16	Lock Nut, $^{3}/_{8}$ - 16	2
17	42-454	Inside Brush Arm, LH	1
18	42-122	Rake Spring	12
	42-177	Spring Holder	12
19	HSTP-516-18-075	Phillip Truss Head Screw, $^{5}/_{16}$ - 18 x $^{3}/_{4}$	6
	HNFL-516-18	Flange Whiz-Loc Nut $^{5}/_{16}$ - 18	6
20	42-171	Groomer Blades	3
21	42-393	Outside Brush Arm, RH	1
22	42-105	Top Strap	4
23	42-107	Matting	4
24	42-106	Bottom Strap	4
25	42-170	Finishing Blades	4
26	42-466	Brush, 21"	4
27	42-465	Brush Clamp	4
28	HB-516-18-125	Hex Bolt, $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	12
	HNFL-516-18	Flange Whiz-Loc Nut $^{5}/_{16}$ - 18	12
29	42-453	Inside Brush Arm, RH	1
30	42-398	Brush Arm Mount, RH	1

42-391Q 72"(183CM) ProBrush TOURNAMENT RAKE DRAWING

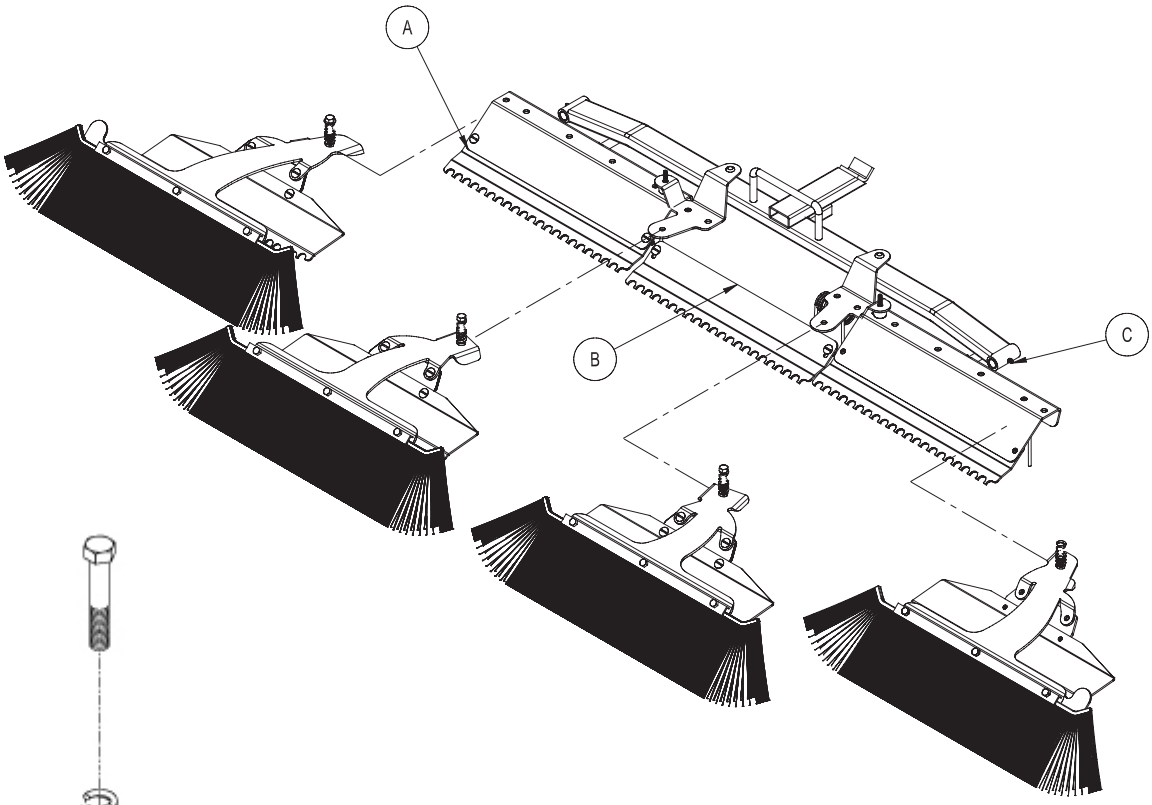


Fig. 1

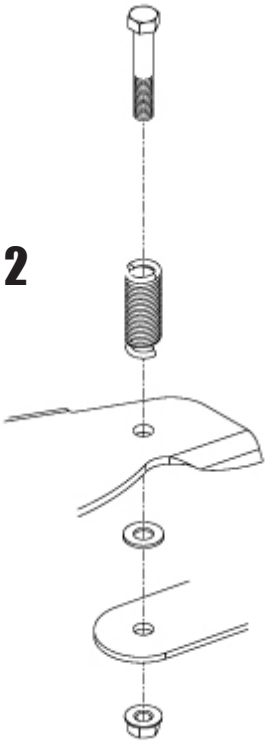


Fig. 2

Fig. 3

ProBrush TOURNAMENT RAKE ASSEMBLY INSTRUCTIONS

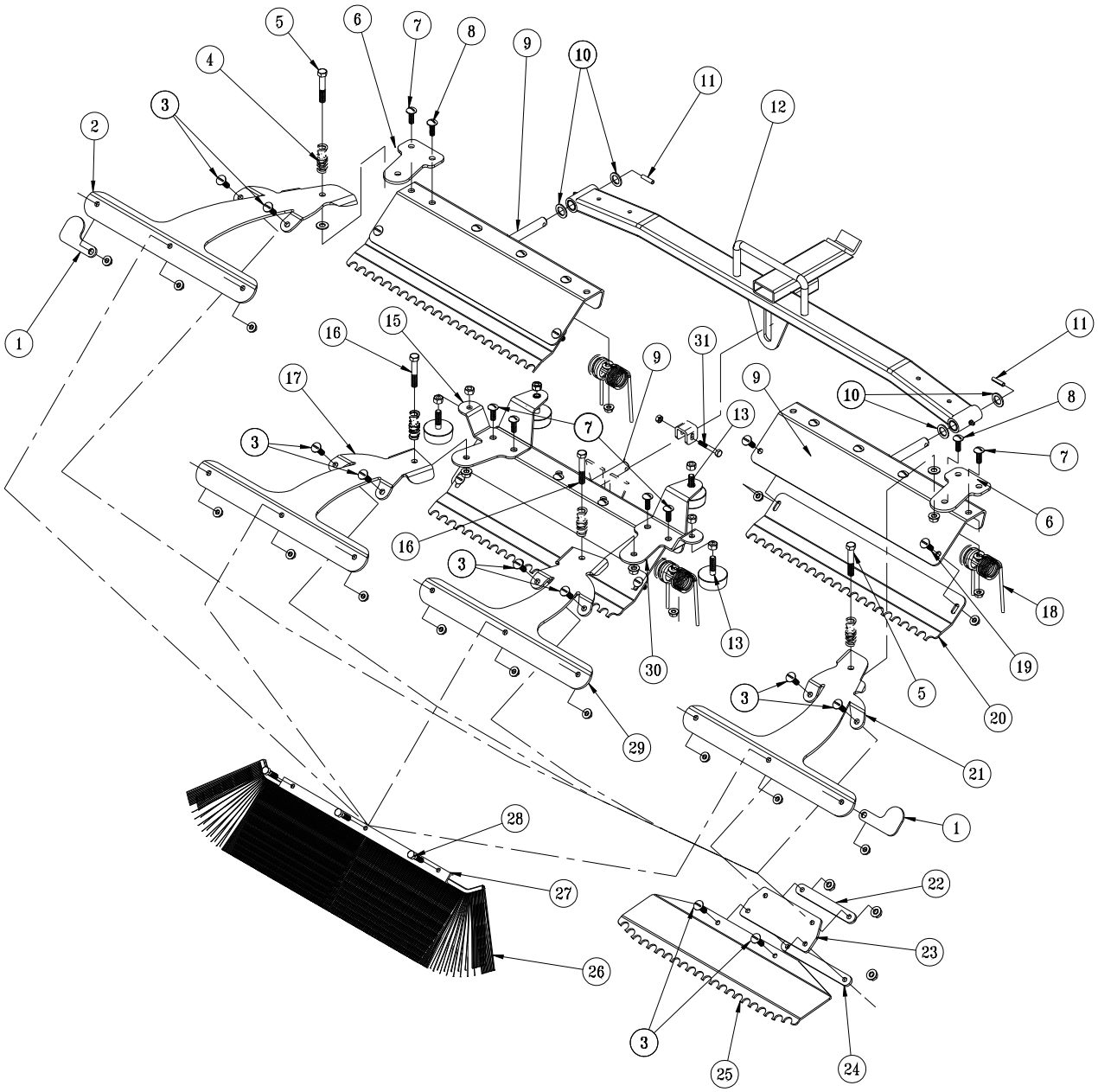
Your **ProBrush TOURNAMENT RAKE** comes mostly assembled.

1. Before assembly please note the two Brush/Finish Blade Assemblies (Refs A & C in Fig.1) that are mounted on the outside (RH & LH) have flat washers that are between the Brush Arms (Refs 2 & 21) and the Brush Arm Mount (Ref 6).
2. Also please note the placement of the Brush/Finish Blade Assemblies as illustrated in Fig 1. They must be mounted as illustrated to work as intended.
3. Begin assembling your **ProBrush TOURNAMENT RAKE** by inserting the Outside and Center Groomer Blade Assemblies (Refs A, B & C in Fig.1) in their locations as illustrated. Secure the Outside Assemblies with the ¼" Pin (Ref 11) and the Center Assembly with the ¼" x 1¾" Bolt and Lock Nut (Ref 13).
4. Mount the Brush/Finish Blade Assemblies to the Brush Arm Mounts (Refs 6, 30 & 15) as illustrated using the $^{3}/_{8}$ x 2½ Bolts and Lock Nuts. Assemble with the Springs (Ref 4) as shown in Fig. 2. Please note that the $^{3}/_{8}$" Flat Washers are used only on the Outside Assemblies. Secure when assembled.
5. Mount your **ProBrush TOURNAMENT RAKE** to the trap rake quick hitch. Position the Rake so it is centered and equal distance away from the right and left hand tires (2-3 inches). Fig. 4. Once positioned, set the Adjustment Screws on the Hitch so they touch the trap rake hitch. Fig. 5.
6. Run machine and test for operation of the Rake by raising and lowering the assembly and with rake down turn sharp corners in both directions to ensure rake is not contacting the tires. Test Rake in sand to ensure tire tracks are covered when turning sharp corners. If the tire tracks are not covered by the Rake, turn the Adjustment Screws on the Rake Hitch so the rake comes closer to the tires when turning. For reference see Fig. 4 and 5 below.

NOTE:

The Outside Brush/Finish Blade Assemblies may be rotated 180° for transport and for working in narrow areas, as illustrated in Fig.3 on the facing page.

42-392Q 84"(213CM) ProBrush TOURNAMENT RAKE DRAWING



42-392Q 84"(213CM) ProBrush TOURNAMENT RAKE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-489	Tip Guard	2
2	42-397	Outside Brush Arm, LH	1
3	HSTP-516-18-100	Phillip Truss Head Screw, $^{5}/_{16}$ - 18 x 1	16
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	16
4	11-055	Compression Spring	4
5	HB-38-16-250	Hex Bolt, $^{3}/_{8}$ - 16 x $2^{1}/_{2}$	2
	HW-38	Flat Washer, $^{3}/_{8}$	2
	HNTL-38-16	Lock Nut, $^{3}/_{8}$ - 16	2
6	42-396	Outside Brush Arm Mount	2
7	HSTP-516-18-100	Phillips Truss Head Screw, $^{5}/_{16}$ - 18 x 1	4
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	4
8	HSTP-516-18-125	Phillips Truss Head Screw, $^{5}/_{16}$ - 18 x 1¼	12
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	12
9	42-102	84" Outside Rake	3
10	HMB-58-14	Machine Bushing $^{5}/_{8}$ x 14GA	4
11	HRP-14-100	Roll Pin $^{1}/_{4}$ x 1	2
12	43-144	84" Draw Bar	1
13	50-081	Rubber Bumper	2
14	50-081	Rubber Bumper	2
	HNFL-38-16	Flange Whiz-Loc Nut, $^{3}/_{8}$ - 16	6
15	42-399	Brush Arm Mount, LH	1
16	HB-38-16-250	Hex Bolt, $^{3}/_{8}$ - 16 x 2½	2
	HNTL-38-16	Lock Nut, $^{3}/_{8}$ - 16	2
17	42-454	Inside Brush Arm, LH	1
18	42-122	Rake Spring	12
	42-177	Spring Holder	12
19	HSTP-516-18-075	Phillip Truss Head Screw, $^{5}/_{16}$ - 18 x $^{3}/_{4}$	6
	HNFL-516-18	Flange Whiz-Loc Nut $^{5}/_{16}$ - 18	6
20	42-129	Groomer Blades	3
21	42-393	Outside Brush Arm, RH	1
22	42-105	Top Strap	4
23	42-107	Matting	4
24	42-106	Bottom Strap	4
25	42-135	Finishing Blades	4
26	42-466	Brush, 21"	4
27	42-465	Brush Clamp	4
28	HB-516-18-125	Hex Bolt, $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	12
	HNFL-516-18	Flange Whiz-Loc Nut $^{5}/_{16}$ - 18	12
29	42-453	Inside Brush Arm, RH	1
30	42-398	Brush Arm Mount, RH	1

42-392Q 84"(213CM) ProBrush TOURNAMENT RAKE DRAWING

Fig. 1

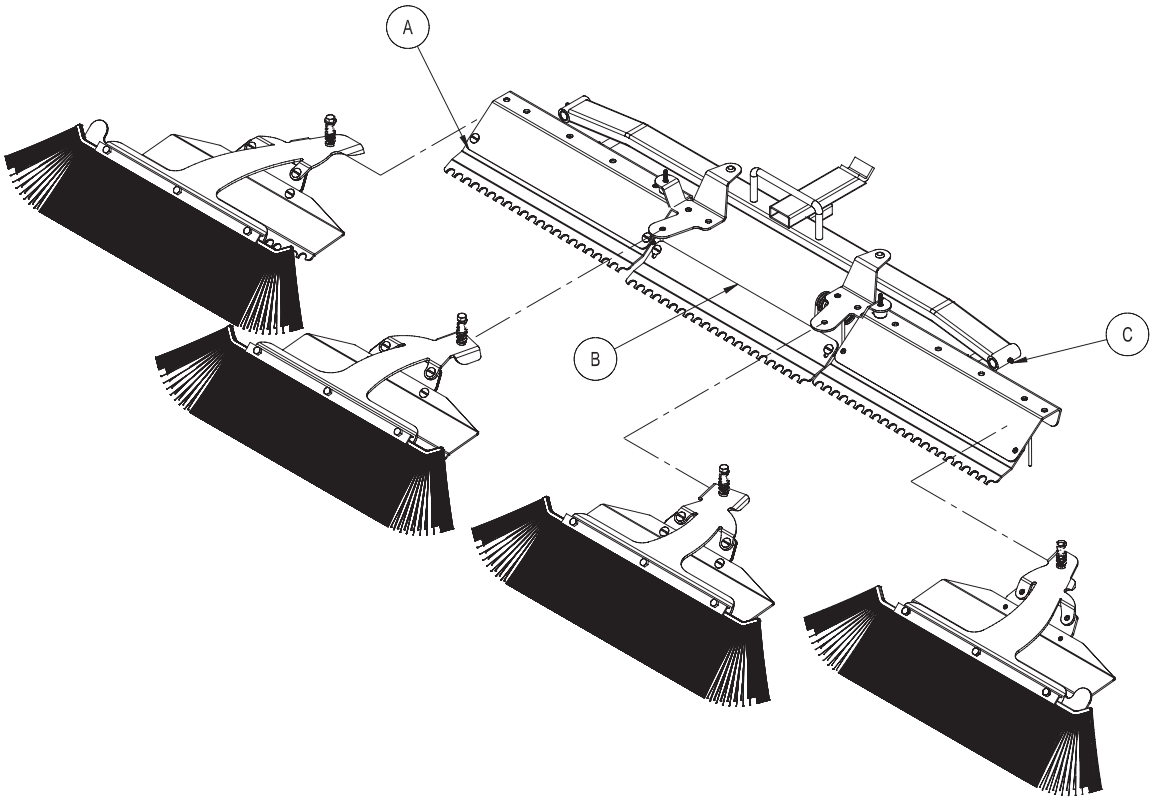


Fig. 2

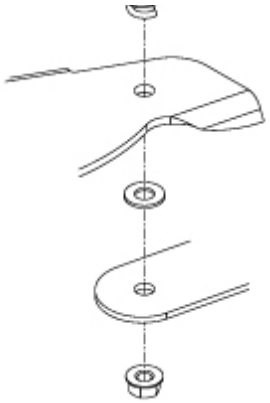


Fig. 3

PROBRUSH TOURNAMENT RAKE ASSEMBLY INSTRUCTIONS

Your **PROBRUSH TOURNAMENT RAKE** comes mostly assembled.

1. Before assembly please note the two Brush/Finish Blade Assemblies (Refs A & C in Fig.1) that are mounted on the outside (RH & LH) have flat washers that are between the Brush Arms (Refs 2 & 21) and the Brush Arm Mount (Ref 6).
2. Also please note the placement of the Brush/Finish Blade Assemblies as illustrated in Fig 1. They must be mounted as illustrated to work as intended.
3. Begin assembling your **PROBRUSH TOURNAMENT RAKE** by inserting the Outside and Center Groomer Blade Assemblies (Refs A, B & C in Fig.1) in their locations as illustrated. Secure the Outside Assemblies with the ¼" Pin (Ref 11) and the Center Assembly with the ¼" x 1¾" Bolt and Lock Nut (Ref 13).
4. Mount the Brush/Finish Blade Assemblies to the Brush Arm Mounts (Refs 6, 30 & 15) as illustrated using the $^{3}/_{8}$ x 2½ Bolts and Lock Nuts. Assemble with the Springs (Ref 4) as shown in Fig. 2. Please note that the $^{3}/_{8}$" Flat Washers are used only on the Outside Assemblies. Secure when assembled.
5. Mount your **PROBRUSH TOURNAMENT RAKE** to the trap rake quick hitch. Position the Rake so it is centered and equal distance away from the right and left hand tires (2-3 inches). Fig. 4. Once positioned, set the Adjustment Screws on the Hitch so they touch the trap rake hitch. Fig. 5.
6. Run machine and test for operation of the Rake by raising and lowering the assembly and with rake down turn sharp corners in both directions to ensure rake is not contacting the tires. Test Rake in sand to ensure tire tracks are covered when turning sharp corners. If the tire tracks are not covered by the Rake, turn the Adjustment Screws on the Rake Hitch so the rake comes closer to the tires when turning. For reference see Fig. 4 and 5 below.

NOTE:

The Outside Brush/Finish Blade Assemblies may be rotated 180° for transport and for working in narrow areas, as illustrated in Fig.3 on the facing page.

42-130Q 84" (213CM) MILD STEEL TOURNAMENT RAKE DRAWING

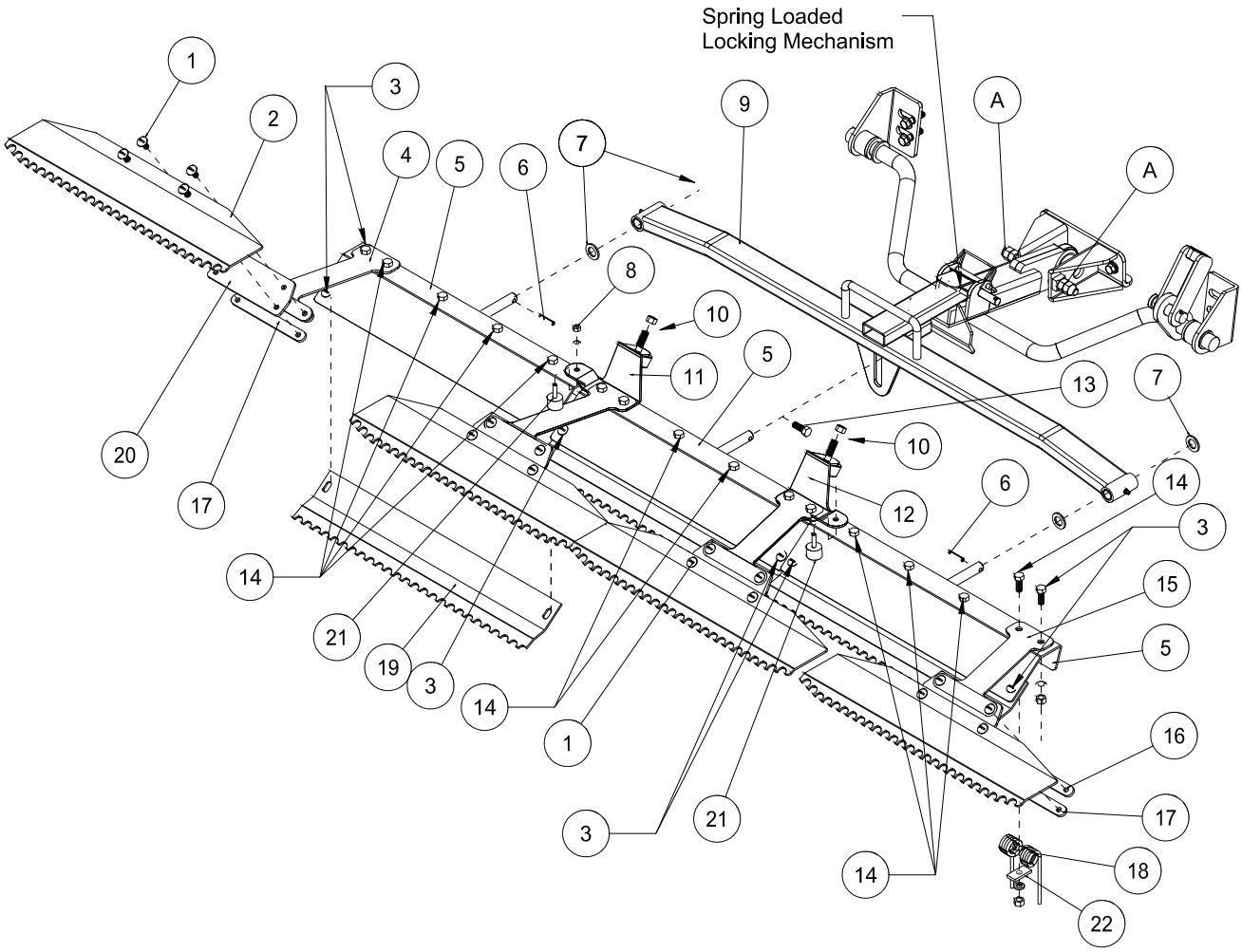


Fig. 4

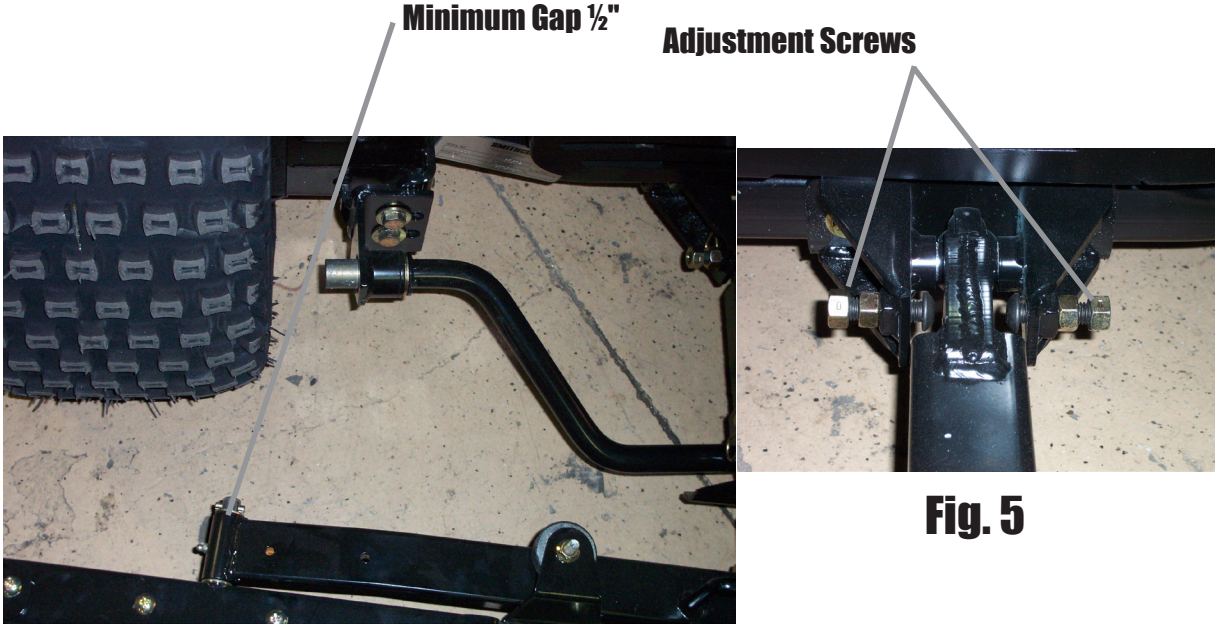
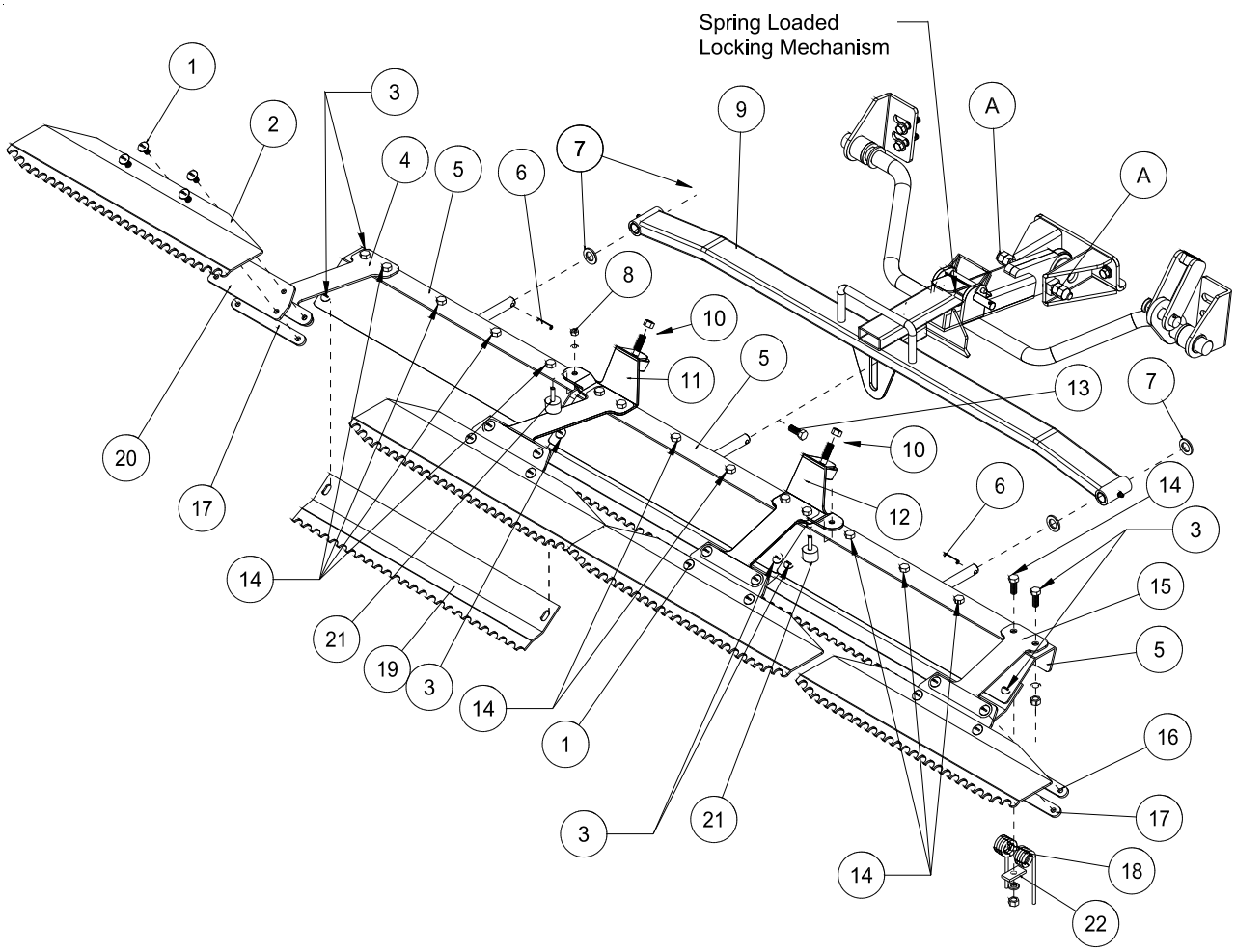


Fig. 5

42-130Q 84" (213CM) MILD STEEL TOURNAMENT RAKE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HSTP-516-18-100	Phillips Machine Screw $^{5}/_{16}$ - 18 x 1	16
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	16
2	42-135	Finishing Blades	4
3	HSTP-516-18-075	Phillips Machine Screw $^{5}/_{16}$ - 18 x $^{3}/_{4}$	6
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	6
4	42-111	Left Outside Mount	1
5	42-102	Outside Rake	3
6	HRP-14-100	Roll Pin $^{1}/_{4}$ x 1	2
7	HMB-58-14	Machine Bushing $^{5}/_{8}$ x 14GA	4
8	HNC-14-20	Cap Nut $^{1}/_{4}$ - 20	2
	HWL-14	Lock Washer $^{1}/_{4}$	2
9	43-144	Draw Bar	1
10	42-116	Rubber Grommet	2
11	42-110	Left Inside Mount	1
12	42-108	Inside Trowel Mount	1
13	HB-14-20-150	Bolt $^{1}/_{4}$ - 20 x $1^{1}/_{2}$	1
	HNTL-14-20	Lock Nut $^{1}/_{4}$ - 20	1
14	HSTP-516-18-125	Phillips Machine Screw $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	12
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	12
15	42-109	Outside Towel Mount	1
16	42-105	Top Strap	4
17	42-106	Bottom Strap	4
18	42-122	Rake Spring	12
19	42-129	Groomer Blades	3
20	42-107	Matting	4
21	HSTP-38-16-125	Phillips Machine Screw $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	4
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	4
22	15-013	Rubber Bumper	2
23	42-177	Spring Holder	12

42-130Q 84" (213CM) MILD STEEL TOURNAMENT RAKE DRAWING

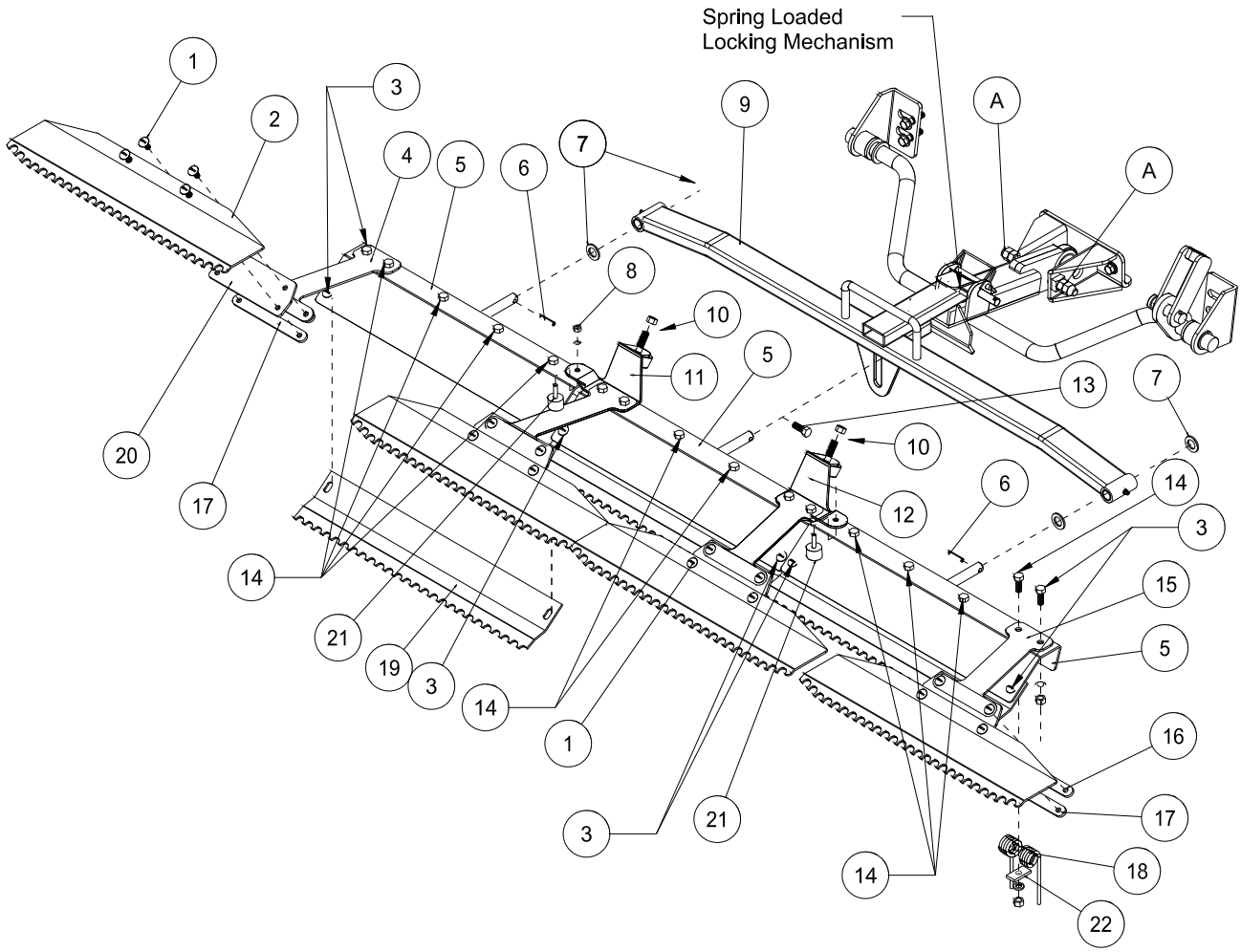


RAKE ASSEMBLY INSTRUCTIONS

1. Bolt rake spring (Ref 18) to rake frames (Ref 5) using hardware (Ref 14). Leave the two outside holes on right, left, and center rake open.
2. Attach rubber bumper (Ref 22) using cap nut and washer (Ref# 8). Attach rubber grommeta (Ref 10)to inside mounts (Ref 11 & 12)
3. Attach the left outside mount (Ref 4), the left inside mount (Ref 11), the outside trowel mount (Ref 15), and the inside trowel mount (Ref 12) to the outside and center rakes (Ref 5) as shown. Use the $1^{1}/_{4}$" truss head screws (Ref 14) on the outside hole of each rake. Use the spring holder (Ref 23) and the $1^{1}/_{4}$" truss head screws (Ref 21) to attach rake springs (Ref 18) to the rakes under the left outside and inside mounts and the outside and inside trowel mounts.
4. Slide a machine bushing onto outside rake frames then slide the outside rake frames (Ref 5) into the tubing on the end of the drawbar. Hold in place with another machine bushing and a roll pin (Ref 6).
5. Attach center rake (Ref 5) to draw bar (Ref 9) as shown, using $1^{1}/_{2}$ bolts and lock nuts (Ref 13) with the shaft of the center rake in the slot on the bottom of the drawbar.
6. Attach the matting (Ref 20) and the top strap (Ref 16) to the inside and outside mounts using the truss head screw $^{5}/_{16}$ - 18 x 1 (Ref 1). Attach four finishing blades (Ref 2) to the matting on the inside and outside mounts with the truss head screw $^{5}/_{16}$ - 18 x 1 (Ref 1) going through the finishing blade, matting, and bottom strap (Ref 17).
7. Place the three groomer blades (Ref 19) under the three rake assemblies as shown, using (Ref 3).
8. Attach the rake lift to the trap rake quick hitch, by sliding the the hitch into the spring loaded locking mechanism.
9. With the rake on the ground pull the rake to the right side until it is 2-3 inches from the tire.
10. Using the adjustment bolts (Ref A) on the side of hitch, adjust the bolts until it hits the trap rake hitch. Lock jam nut so adjustment will not change.
11. Repeat steps for the left side.
12. Turn machine on and test for operation of rake assembly by raising and lowering the rake assembly. Also with rake down, turn sharp corners to check that rake does not touch wheels.

NOTE: Test rake in sand to assure tire tracks are covered by the rake when turning sharp corners in either direction. If there are tire tracks, readjust using the adjusting screws on the hitch, so the rake comes closer to the tire.

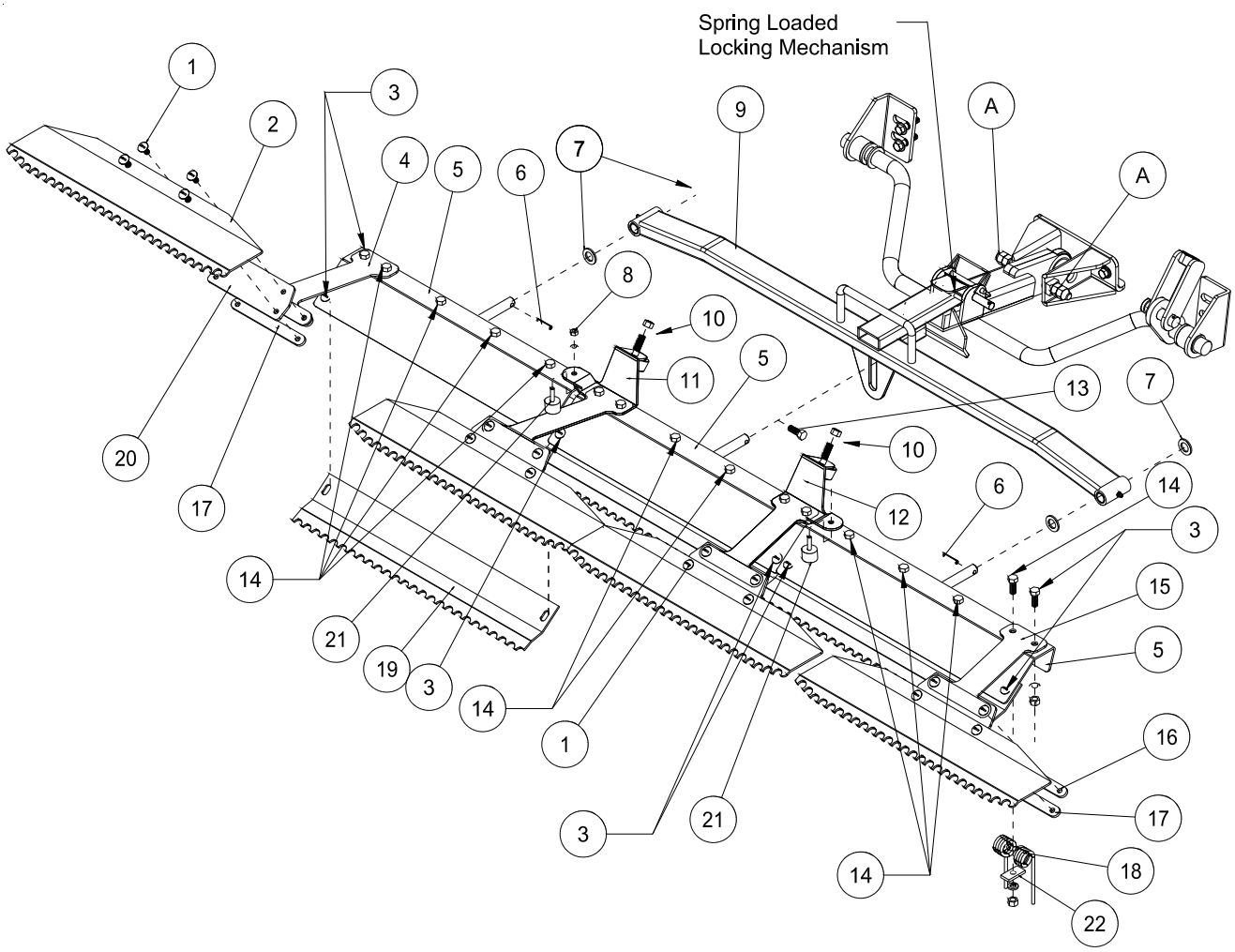
42-132Q 72"(183CM) MILD STEEL TOURNAMENT RAKE DRAWING



42-132Q 72"(183CM) MILD STEEL TOURNAMENT RAKE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HSTP-516-18-100	Phillips Machine Screw $^{5}/_{16}$ - 18 x 1	16
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	16
2	42-170	Finishing Blades	4
3	HSTP-516-18-075	Phillips Machine Screw $^{5}/_{16}$ - 18 x $^{3}/_{4}$	6
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	6
4	42-111	Left Outside Mount	1
5	42-140	Outside Rake	3
6	HRP-14-100	Roll Pin $^{1}/_{4}$ x 1	2
7	HMB-58-14	Machine Bushing $^{5}/_{8}$ x 14GA	4
8	HNC-14-20	Cap Nut $^{1}/_{4}$ - 20	2
	HWL-14	Lock Washer $^{1}/_{4}$	2
9	43-154	Draw Bar	1
10	42-116	Rubber Grommet	2
11	42-110	Left Inside Mount	1
12	42-108	Inside Trowel Mount	1
13	HB-14-20-150	Bolt $^{1}/_{4}$ - 20 x $1^{1}/_{2}$	1
	HNTL-14-20	Lock Nut $^{1}/_{4}$ - 20	1
14	HSTP-516-18-125	Phillips Machine Screw $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	12
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	12
15	42-109	Outside Towel Mount	1
16	42-105	Top Strap	4
17	42-106	Bottom Strap	4
18	42-122	Rake Spring	12
19	42-171	Groomer Blades	3
20	42-107	Matting	4
21	HSTP-38-16-125	Phillips Machine Screw $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	4
	HNFL-516-18	Flange Loc-Nut $^{5}/_{16}$ - 18	4
22	15-013	Rubber Bumper	2
23	42-177	Spring Holder	12

42-132Q 72"(183CM) MILD STEEL TOURNAMENT RAKE DRAWING

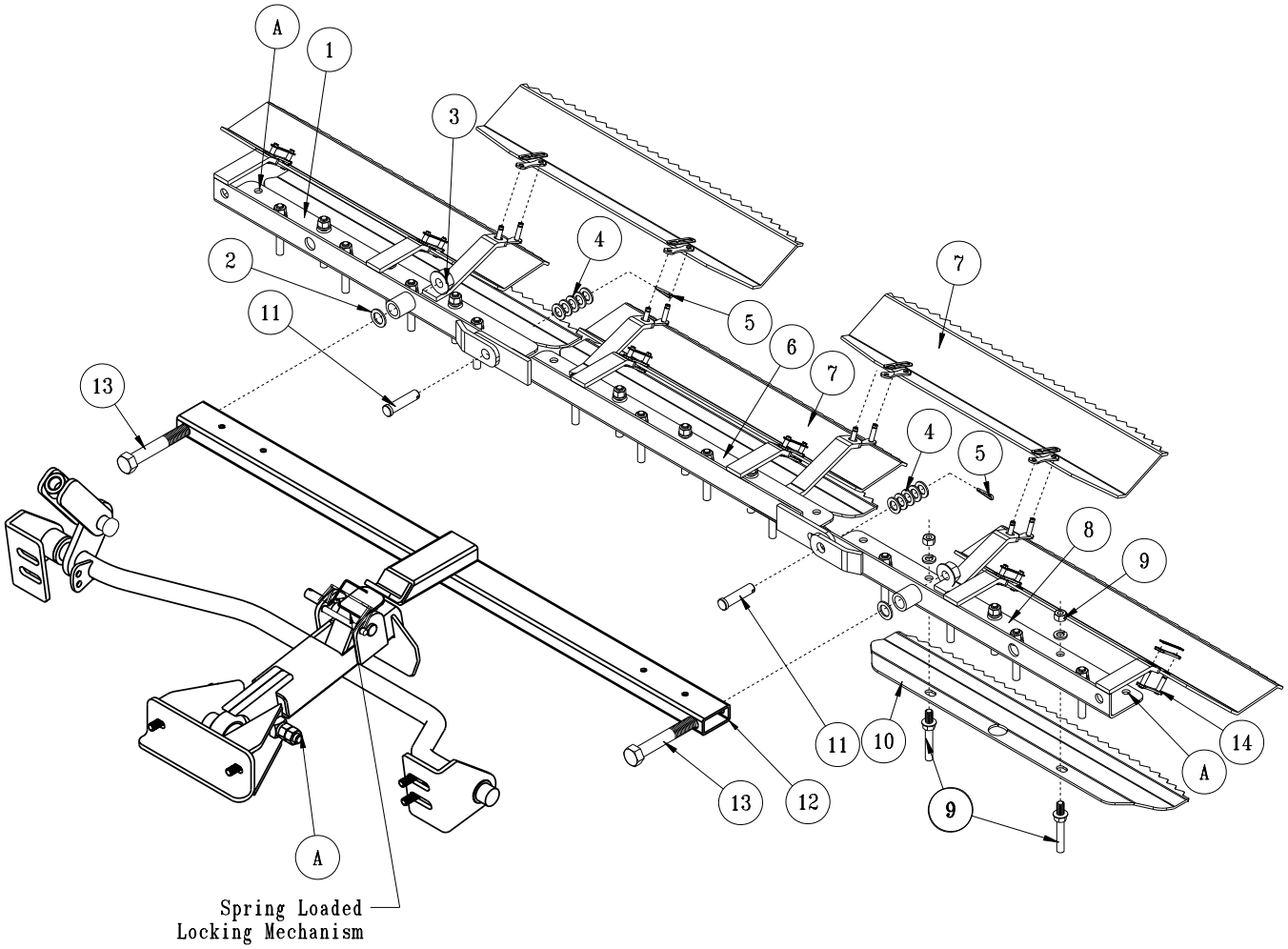


RAKE ASSEMBLY INSTRUCTIONS

1. Bolt rake spring (Ref 18) to rake frames (Ref 5) using hardware (Ref 14). Leave the two outside holes on right, left, and center rake open.
2. Attach rubber bumper (Ref 22) using cap nut and washer (Ref# 8). Attach rubber grommets (Ref 10)to inside mounts (Ref 11 & 12)
3. Attach the left outside mount (Ref 4), the left inside mount (Ref 11), the outside trowel mount (Ref 15), and the inside trowel mount (Ref 12) to the outside and center rakes (Ref 5) as shown. Use the $1^1/_4$" truss head screws (Ref 14) on the outside hole of each rake. Use the spring holder (Ref 23) and the $1^1/_4$" truss head screws (Ref 21) to attach rake springs (Ref 18) to the rakes under the left outside and inside mounts and the outside and inside trowel mounts.
4. Slide a machine bushing onto outside rake frames then slide the outside rake frames (Ref 5) into the tubing on the end of the drawbar. Hold in place with another machine bushing and a roll pin (Ref 6).
5. Attach center rake (Ref 5) to draw bar (Ref 9) as shown, using $1^1/_2$ bolts and lock nuts (Ref 13) with the shaft of the center rake in the slot on the bottom of the drawbar.
6. Attach the matting (Ref 20) and the top strap (Ref 16) to the inside and outside mounts using the truss head screw $^5/_{16}$ - 18 x 1 (Ref 1). Attach four finishing blades (Ref 2) to the matting on the inside and outside mounts with the truss head screw $^5/_{16}$ - 18 x 1 (Ref 1) going through the finishing blade, matting, and bottom strap (Ref 17).
7. Place the three groomer blades (Ref 19) under the three rake assemblies as shown, using (Ref 3).
8. Attach the rake lift to the trap rake quick hitch, by sliding the the hitch into the spring loaded locking mechanism.
9. With the rake on the ground pull the rake to the right side until it is 2-3 inches from the tire.
10. Using the adjustment bolts (Ref A) on the side of hitch, adjust the bolts until it hits the trap rake hitch. Lock jam nut so adjustment will not change.
11. Repeat steps for the left side.
12. Turn machine on and test for operation of rake assembly by raising and lowering the rake assembly. Also with rake down, turn sharp corners to check that rake does not touch wheels.

NOTE: Test rake in sand to assure tire tracks are covered by the rake when turning sharp corners in either direction. If there are tire tracks, readjust using the adjusting screws on the hitch, so the rake comes closer to the tire.

13-438Q RAKE ASSEMBLY WITH FINISHING BLADES DRAWING



13-438Q RAKE ASSEMBLY WITH FINISHING BLADES PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	13-441	Right Rake	1
2	HMB-58-14	Machine Bushing 5/8 x 14GA	2
3	HNCL-58-11	Lock Nut 5/8 - 11	2
4	HMB-12-14	Machine Bushing 1/2 x 14GA	10
5	HP-18-100	Cotter Pin 1/8 x 1	2
6	13-753	Center Rake	1
7	13-443	Finishing Blade	5
8	13-439	Left Rake	1
9*		Rake teeth	25
10	13-442	Groomer Blade	3
11	HCP-12-150	Clevis Pin 1/2 - 1 1/2	2
12	43-145	Drawbar	1
13	HB-58-11-400	Bolt 5/8 - 11 x 4	2
14	13-417	Connector Link	10
*	13-090	Rake Teeth Kit (25 Studs and Hardware)	1

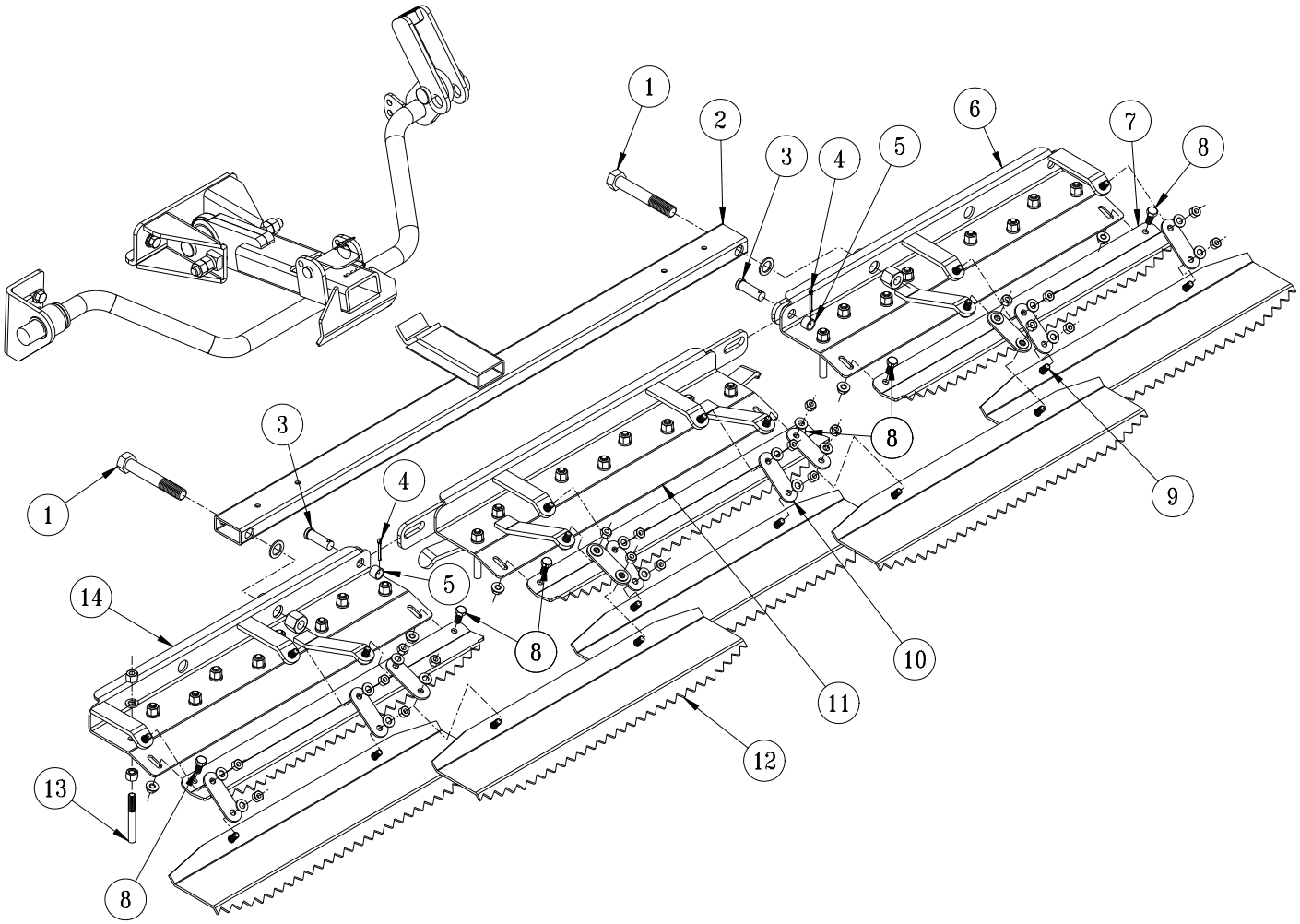
INSTALLATION INSTRUCTIONS

1. Bolt rake teeth (Ref 9) to frames, keeping all the same length. **Leave the two outside holes on right and left rake open (Ref A).**
2. Lay out rake frames (Ref 1,6 and 8). Connect them using clevis pin, machine bushing and cotter pin (Ref 11, 4 and 5).
3. Attach drawbar to left and right frames using bolt, machine bushing, and nut (Ref 13, 2 and 3).
4. Attach five finishing blades (Ref 7) to the tabs of the rake frames using master link (Ref 14). Blades may be mounted with saw tooth up or down, depending on the desired finish of the sand trap.
5. Attach the rake lift to the trap rake quick hitch, by sliding the the hitch into the spring loaded locking mechanism.
6. With the rake on the ground pull the rake to the right side until it is 2-3 inches from the tire.
7. Repeat steps on left side.
8. Turn machine on and test for operation of rake assembly by raising and lowering the rake assembly. Also with rake down, turn sharp corners to check that rake does not touch wheels.
9. **NOTE:** Test rake in sand to assure tire tracks are covered by the rake when turning sharp corners in either direction. If there are tire tracks, readjust using the adjusting screws on the hitch, so the rake comes closer to the tire.

GROOMER BLADES - GOLF COURSE USE ONLY.

1. Place the three groomer blades (Ref 10) under the three rake assemblies (Ref 1, 6 and 8) .
2. Center blades below rear most row of rake teeth. The blade is designed to miss the outside two “teeth’ and fit around the center ‘tooth’.
3. Remove the two ‘teeth’ that line up with slots of each groomer blade. Move blade up and into position and reattach ‘teeth’. Blade thickness should be accounted for by shortening the ‘teeth’ an equal length.

13-758 MAX FLEX SAND RAKE



13-758 MAX FLEX SAND RAKE

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-58-11-400	Bolt, $^{5}/_{8}$ - 11 x 4	2
	HMB-58-14	Machine Bushing, $^{5}/_{8}$ x 14GA	2
	HNCL-58-11	Lock Nut, $^{5}/_{8}$ - 11	2
2	43-145	Drawbar	1
3	HCP-12-150	Clevis Pin, $^{1}/_{2}$ - $1^{1}/_{2}$	2
4	HP-18-100	Cotter Pin, $^{1}/_{8}$ x 1	2
5	76-275	Spacer	2
6	13-762	Right Rake	1
7	13-759	Grooming Blade	3
8	HB-516-18-075	Bolt, $^{5}/_{16}$ - 18 x $^{3}/_{4}$	6
	HNFL-516-18	Flange Lock Nut, $^{5}/_{16}$ - 18	6
9	HBFL-516-18-100	Flange Lock Bolt, $^{5}/_{16}$ - 18 x 1	20
	HNTL-516-18	Nylon Lock Nut, $^{5}/_{16}$ - 18	20
	HW-516	Flat Washer, $^{5}/_{16}$	20
10	13-757	Rake Connect Strap	10
11	13-761	QH Center Rake	1
12	13-443	Finishing Blade	5
14	13-763	Left Rake	1
13*	13-445	Rake Teeth Kit (27 Studs and Hardware)	1

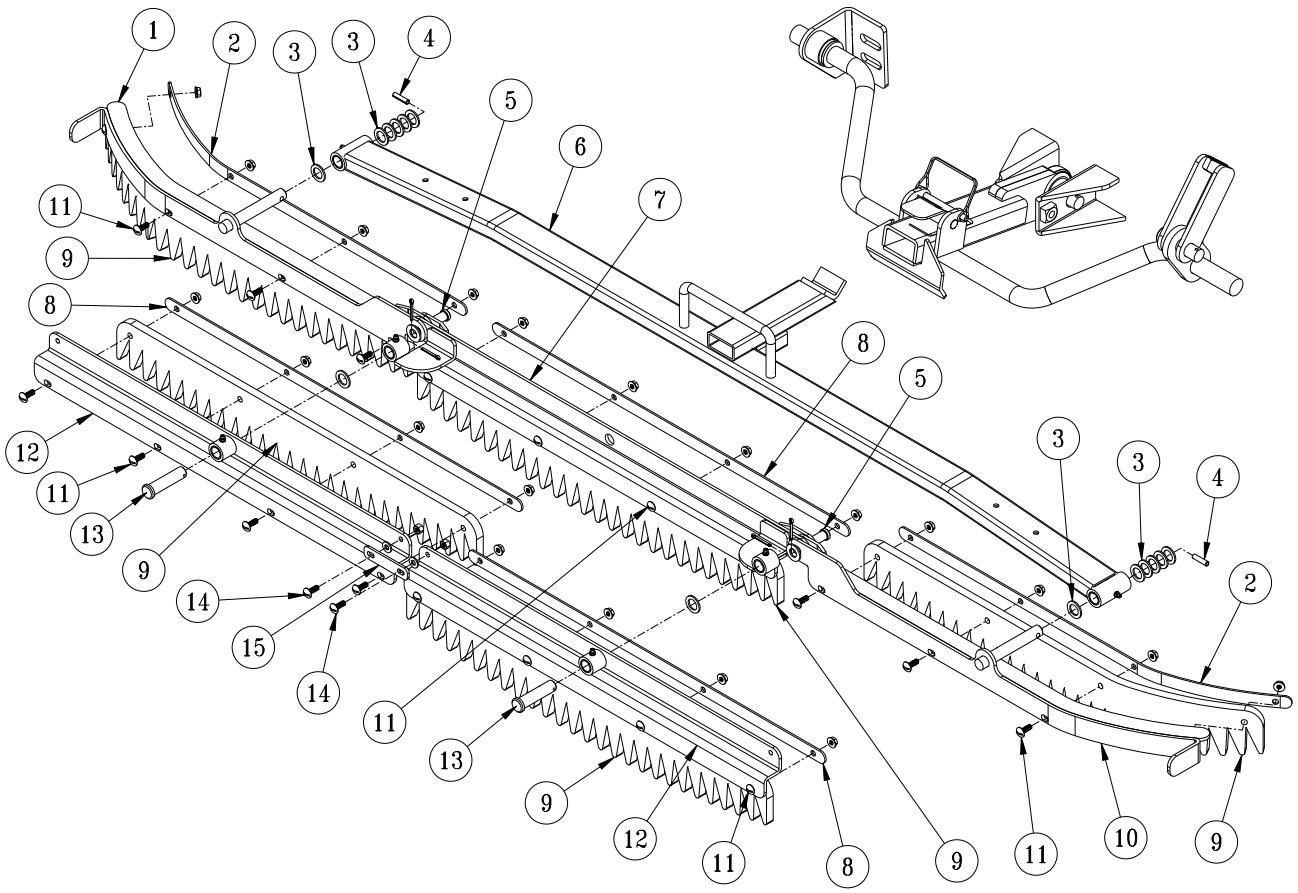
INSTALLATION INSTRUCTIONS

1. Bolt rake teeth (Ref 13) to frames, keeping all the same length.
2. Lay out rake frames (Refs 6, 11 & 14). Connect them using Clevis Pin (Ref 3), Spacer (Ref 5) and Cotter Pin (Ref 4).
3. Attach Left Frame (Ref 14) and Right Frame (Ref 6) to Drawbar (Ref 2) using $^{5}/_{8}$ Bolt, Machine Bushing, and Center Lock Nut (Ref 1).
4. Attach the three Groomer Blades (Ref 7), one to each of the Rake Frames (Refs 6, 11 & 14) using two Hex Bolts and Flange Lock Nuts (Ref 8). Slide Groomer Blades to end of slot and tighten hardware.
5. Attach the five Finishing Blades (Ref 12) to the tabs of the rake frames using two Rake Connect Strap (Ref 10) per Finishing blade. Secure using Flange Lock Bolt, Flat Washer and Nylon Lock Nut (Ref 9).

NOTE: Attach Straps using hardware as illustrated, placing Flat Washer on Strap then secure with Lock Nut. Attaching with the Flange Bolt in contact with the Strap will cause the Strap to bind and misalign Finishing Blade.

6. Attach the rake to the trap rake quick hitch by sliding the the drawbar hitch into the spring loaded locking mechanism.
7. With the rake on the ground pull the rake to the right side until it is 2-3 inches from the tire.
8. Repeat steps on left side.
9. Turn machine on and test for operation of rake assembly by raising and lowering the rake assembly. Also with rake down, turn sharp corners to check that rake does not touch wheels.
10. **NOTE:** Test rake in sand to assure tire tracks are covered by the rake when turning sharp corners in either direction. If there are tire tracks, readjust using the adjusting screws on the hitch, so the rake comes closer to the tire.

45-511 RUBBER FLEX RAKE ASSEMBLY DRAWING



45-511 RUBBER FLEX RAKE ASSEMBLY PARTS LIST

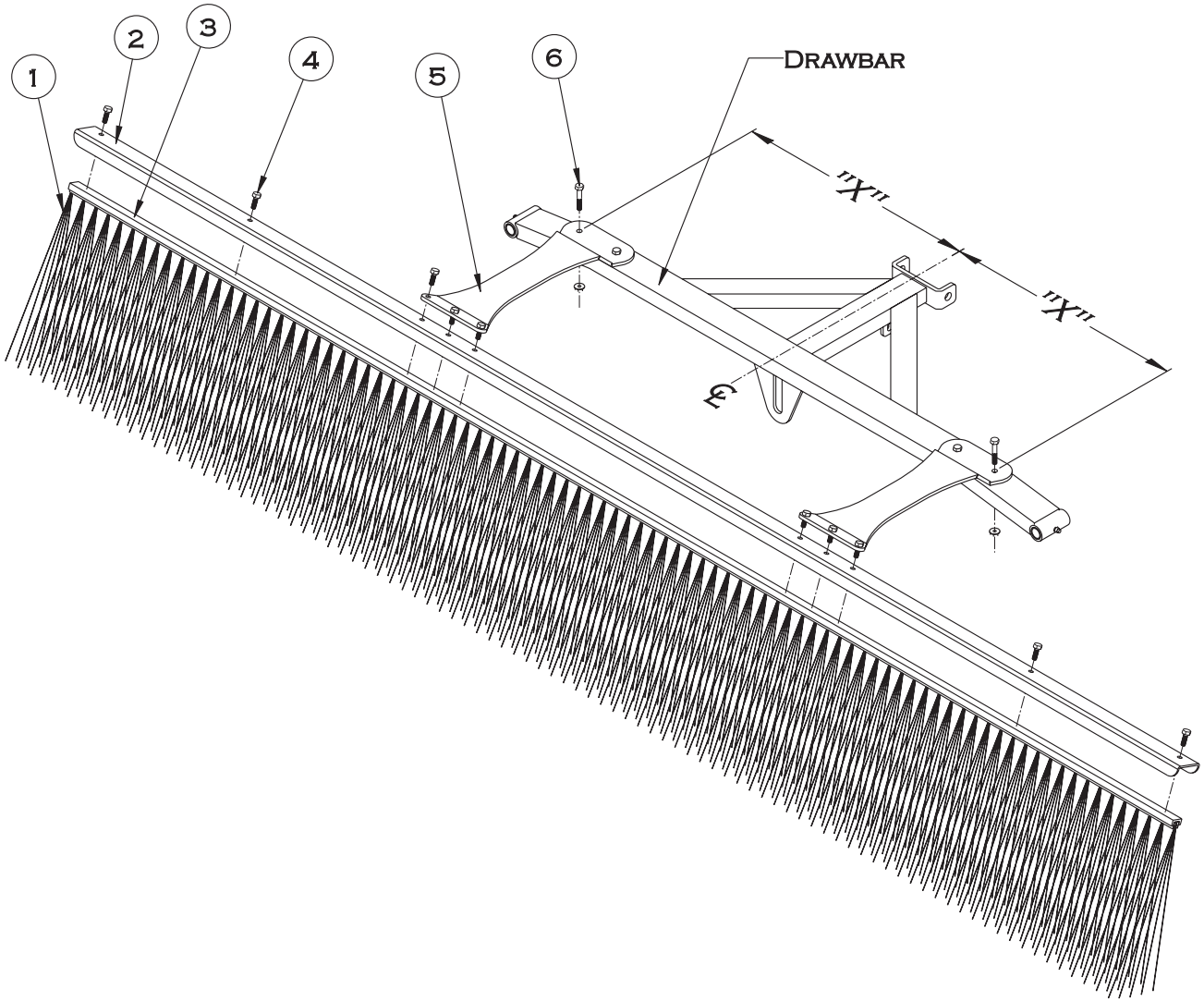
REF#	PART#	DESCRIPTION	QUANTITY
1	45-653	LH Wing	1
2	45-657	Curved Cover Strap	2
3	HMB-58-14	Machine Bushing, $^{5}/_{8}$ x 14GA	12
4	HRP-14-100	Roll Pin, $^{1}/_{4}$ x 1	2
5	HCP-12-150	Clevis Pin, $^{1}/_{2}$ - $1^{1}/_{2}$	2
	HMB-12-14	Machine Bushing, $^{1}/_{2}$ x 14GA	2
	HP-18-100	Cotter Pin, $^{1}/_{8}$ x 1	2
6	45-649	Drawbar	1
7	45-654	Center Rake	1
8	45-658	Flat Cover Strap	1
9	45-651	Rubber Rake Blade	5
10	45-652	RH Wing	1
11	HSTP-14-20-100	Phillips Machine Screw, $^{1}/_{4}$ - 20 x 1	20
	HNFL-14-20	Flange Lock Nut, $^{1}/_{4}$ - 20	20
12	45-655	Rear Rake Mount	2
13	HCP-58-250	Clevis Pin, $^{5}/_{8}$ x $2^{1}/_{2}$	2
	HMB-58-14	Machine Bushing, $^{5}/_{8}$ x 14GA	2
	HP-18-100	Cotter Pin, $^{1}/_{8}$ x 1	2
14	HSTP-14-20-075	Phillips Machine Screw, $^{1}/_{4}$ - 20 x $^{3}/_{4}$	2
	HNTL-14-20	Nylon Lock Nut, $^{1}/_{4}$ - 20	2
	HW-14	Flat Washer, $^{1}/_{4}$	2
15	45-656	Rake Strap	1

INSTALLATION INSTRUCTIONS

1. Bolt rubber rake blades (Ref 9) onto all five rake sections using $^{1}/_{4}$ x1 machine bolts, and flange lock nuts (Ref 11). Add cover straps (Ref 8) and then tighten hardware.
2. Lay out right, left and center rake sections and connect them using $^{1}/_{2}$ x $1^{1}/_{2}$ clevis pins, machine bushings, and cotter pins (Ref 5).
3. Attach the three assembled sections onto the drawbar (Ref 6) and secure with machine bushings and roll pins (Ref 3 and 4).
4. Connect the two rear rake mounts (Ref 12) together with the rake strap (Ref 8) using two $^{1}/_{4}$ x $^{3}/_{4}$ machine bolts with nylon lock nuts (Ref 14). **Only tighten enough so they move freely.**
5. Connect the two assembled rear rake mounts onto the other rake sections using two $^{5}/_{8}$ x $2^{1}/_{2}$ clevis pins, machine bushings and cotter pins (Ref 13).
6. Attach the rake to the bunker rake quick hitch by sliding the drawbar into the spring loaded locking mechanism.
7. With the rake on the ground, pull the rake to the sides and adjust hitch stops so the rake stops about 2" from the tires.
8. Start machine and test for operation of rake assembly by raising and lowering the rake assembly. Check for loose hardware.

13-740 SAND RAKE BRUSH KIT DRAWING

For use with 42-130 and 45-511



13-740 SAND RAKE BRUSH KIT PARTS LIST

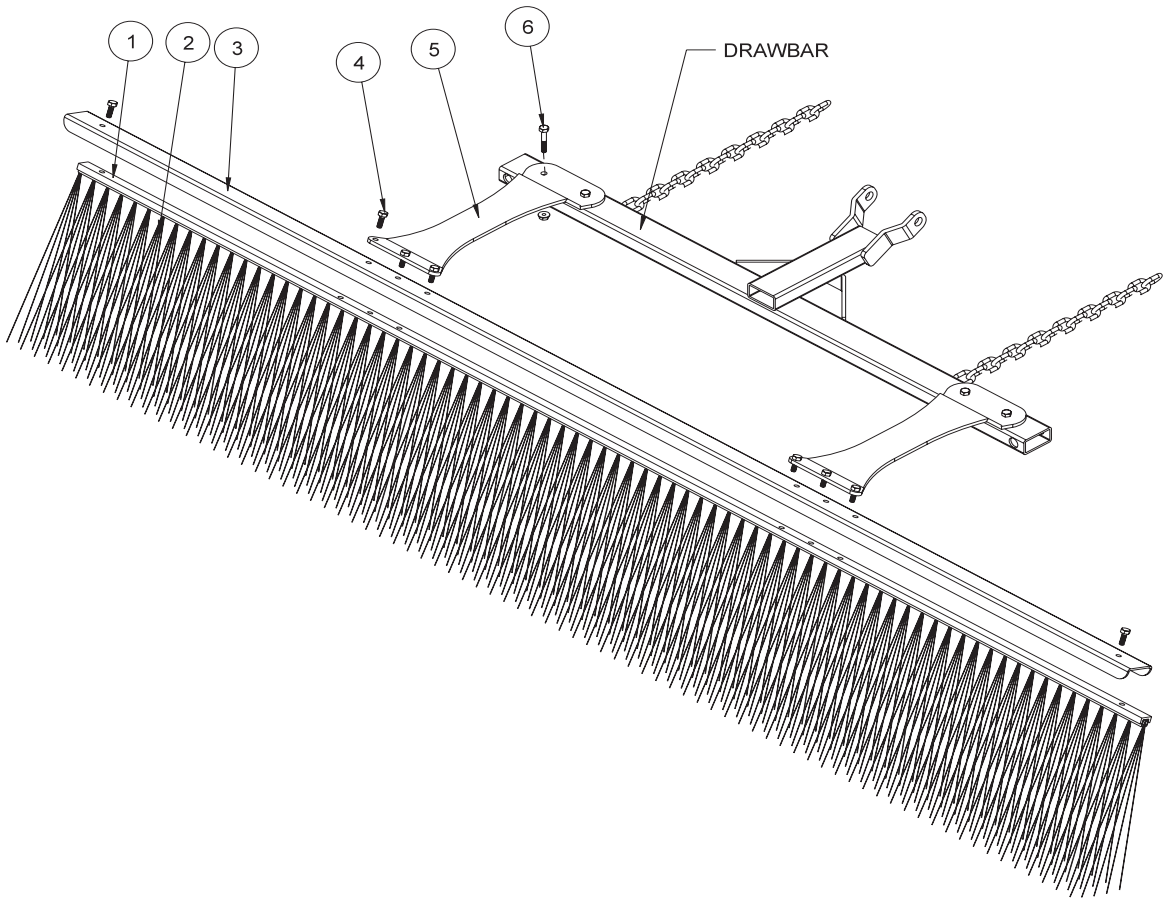
REF#	PART#	DESCRIPTION	QUANTITY
1	13-738	Brush, 89 x 11	1
2	13-737	Brush Channel	1
3	13-739	Brush Track	1
4	HB-14-20-075	Bolt $^1/_4$ - 20 x $^3/_4$	10
	HNFL-14-20	Flange Whiz-Lock Nut $^1/_4$ - 20	10
5	13-681	Mounting Brackets	2
6	HB-14-20-150	Bolt $^1/_4$ - 20 x $1^1/_2$	4
	HNFL-14-20	Flange Whiz-Lock Nuts $^1/_4$ - 20	4

INSTALLATION INSTRUCTIONS

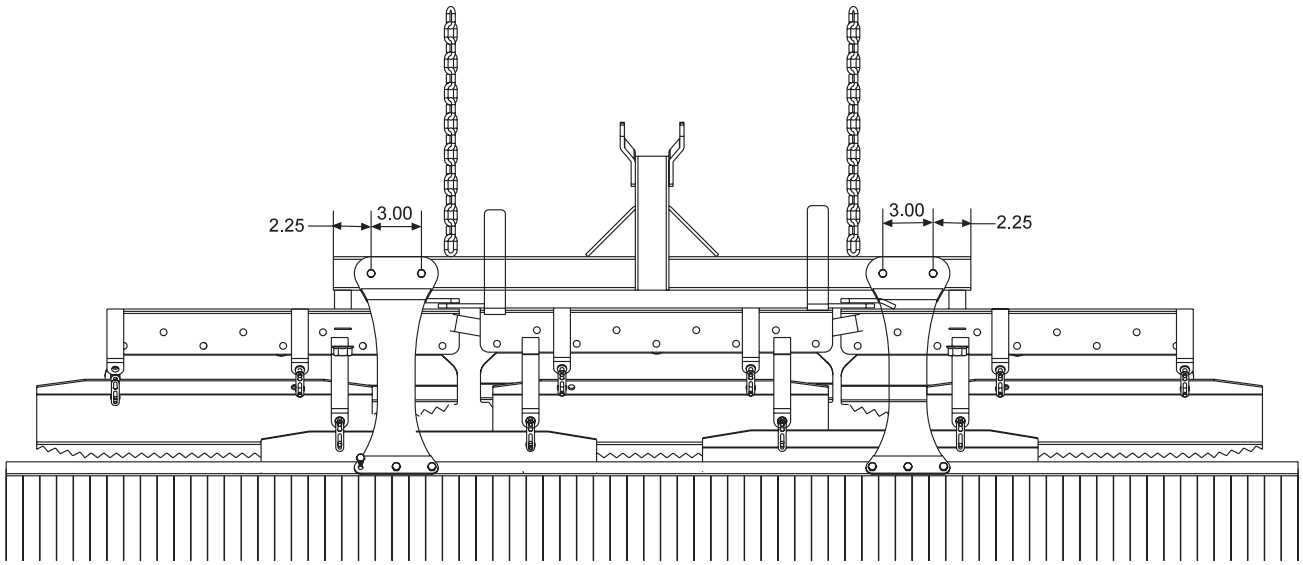
1. Place the Brush(Ref 1) into the Brush Track(Ref 3). Place the Brush Channel(Ref 2) between the brush track and the mounting brackets. Now bolt the Mounting Brackets(Ref 5) to the brush track using the ¾" bolts and flange whiz-lock nuts(Ref 4).
2. To mount the Brush Assembly(Refs 1-5) to the Rake Drawbar, first align the Mounting Brackets so the Brush Assembly is centered ("X" measurements are equal) on the Rake Drawbar. Mark the locations for the four holes that will need to be drilled. *Note: To fit the curve of the Rake Drawbar, a small amount of twist will need to be put in the Mounting Brackets. This can be done by clamping the Mouning Brackets to the Drawbar.*
3. Mount the Brush Assembly to the Rake Drawbar using the four 1½" bolts and flange whiz-lock nuts(Ref 6).

13-684 SAND RAKE BRUSH KIT DRAWING

For use with 13-438



HOLE LOCATION



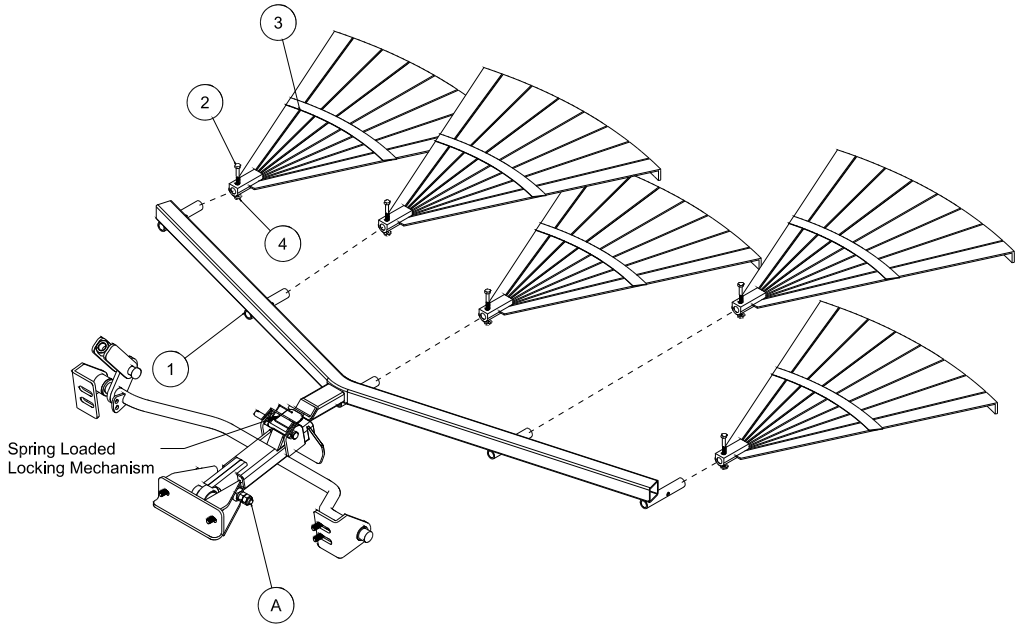
13-684 SAND RAKE BRUSH KIT PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	13-683	Brush Track	1
2	13-682	Brush 77 x 11	1
3	13-688	Brush Channel	1
4	HB-14-20-075	Bolt 1/4 - 20 x 3/4	8
	HNFL-14-20	Flange Whiz-Lock Nut 1/4 - 20	8
5	13-681	Mounting Brackets	2
6	HB-14-20-150	Bolt 1/4 - 20 x 1 1/2	4
	HNFL-14-20	Flange Whiz-Lock Nuts 1/4 - 20	4

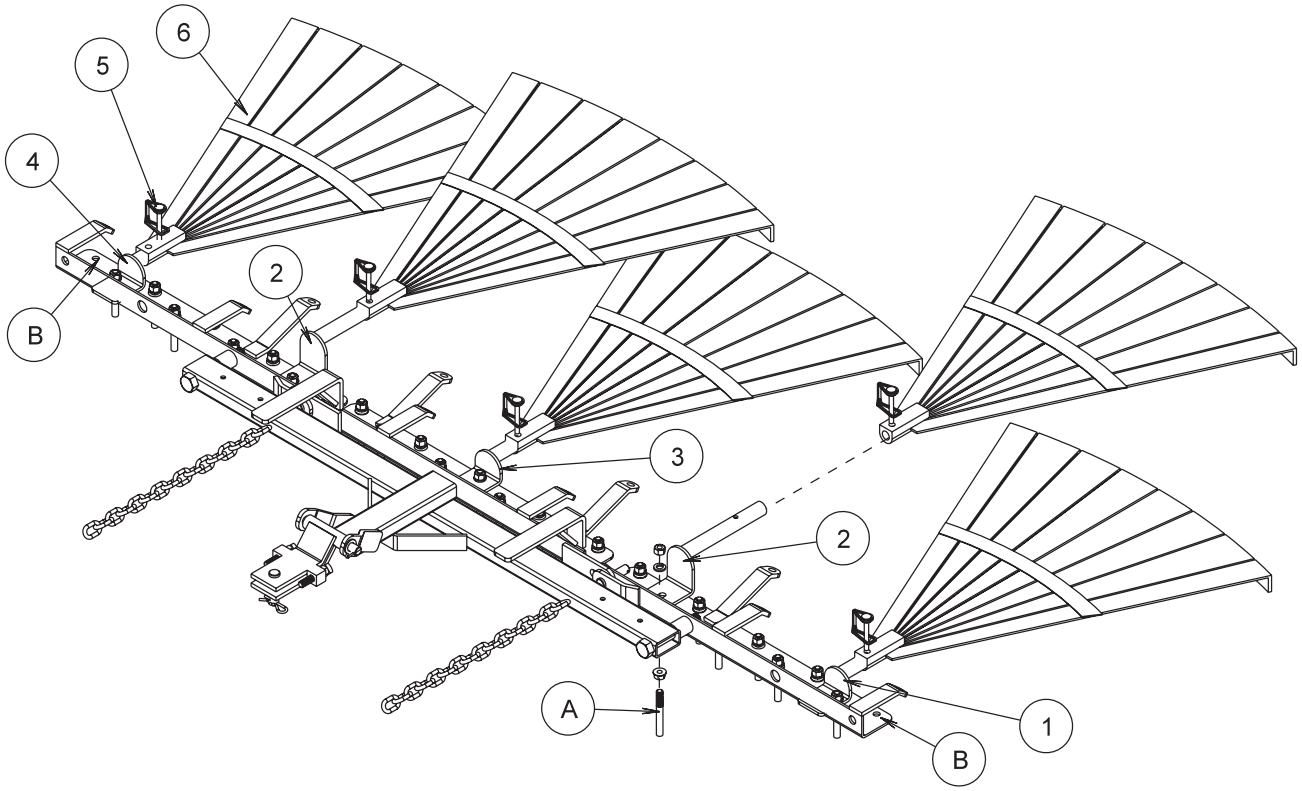
INSTALLATION INSTRUCTIONS

1. Place the brush (Ref 2) into the brush track (Ref 1). Place the brush channel (Ref 3) between the brush track and the mounting brackets. Now bolt the mounting brackets (Ref 5) to the brush track using the 3/4" bolts and flange whiz-lock nuts (Ref 3).
2. Two holes need to be drilled into the drawbar of the rake to install the brush. Drill two .281 holes 2 1/4" in from each end and 3" apart (see drawing).
3. Mount the brush assembly to the drawbar using four 3/4" bolts and flange whiz-lock nuts (Ref 5).

13-298Q FAN RAKE ATTACHMENT DRAWING



13-319-KFAN RAKE KIT DRAWING



13-298Q FAN RAKE ATTACHMENT PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	43-153	Frame	1
2	HB-14-20-200	Bolt $^1/_4$ - 20 x 2	5
3	13-310	Rake	5
4	HNCL-14-20	Center Lock Nut $^1/_4$ - 20	5

INSTALLATION INSTRUCTIONS

1. Assemble the five rakes (Ref 3) to the frame using the bolt and center lock nuts (Ref 2 and 4). Slide the fan rake assembly under the rear of the trap rake to the hitch.
2. Attach the rake lift to the trap rake quick hitch, by sliding the the hitch into the spring loaded locking mechanism.
3. With the rake on the ground pull the rake to the right side until it is 2-3 inches from the tire.
4. Repeat steps on left side.
5. Turn machine on and test for operation of rake assembly by raising and lowering the rake assembly. Also with rake down, turn sharp corners to check that rake does not touch wheels.

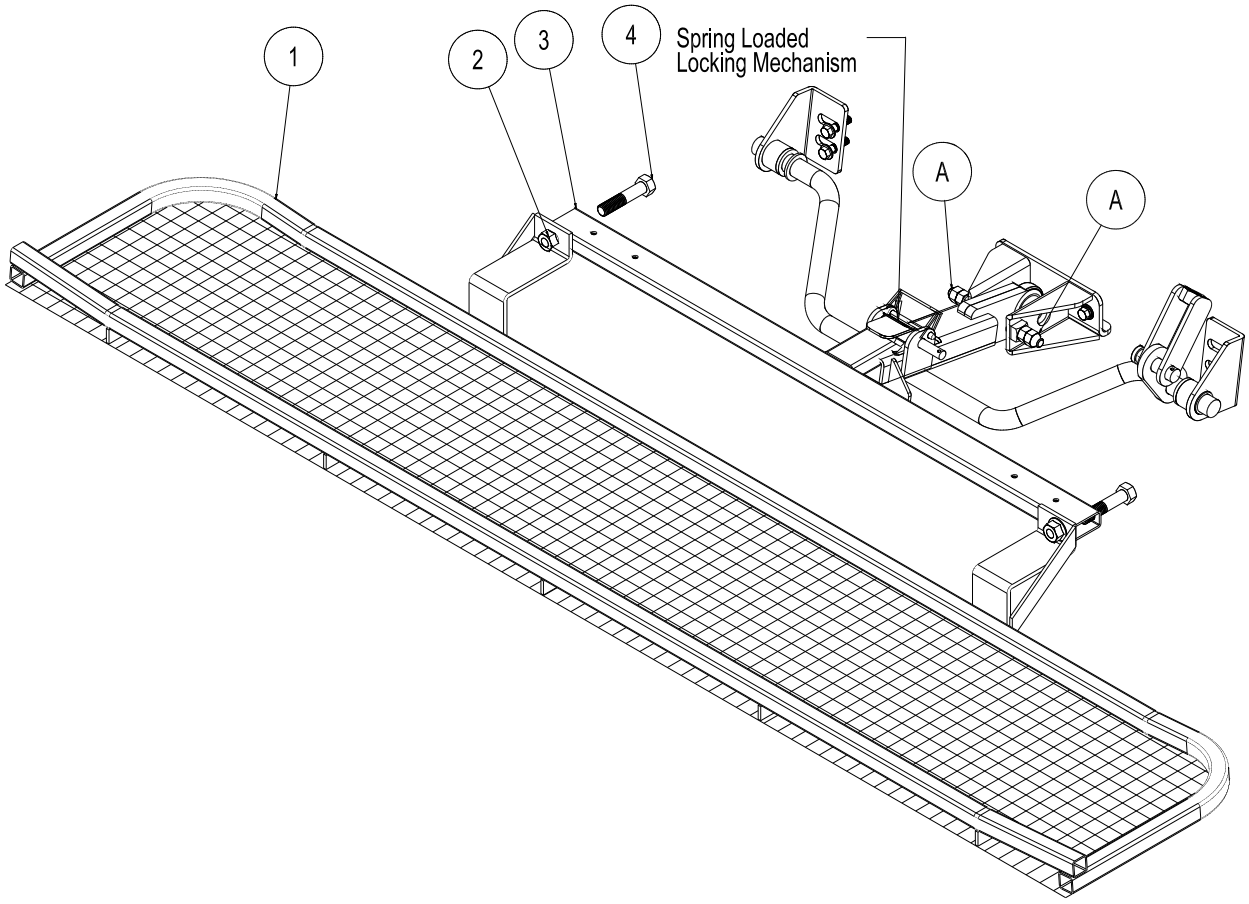
13-319-K FAN RAKE KIT PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	13-326	Left Holder	1
2	13-329	Long Holder	2
3	13-327	Center Holder	1
4	13-328	Right Holder	1
5	29-541	Lock Pin	5
6	13-310	Rake	5

FAN RAKE KIT INSTRUCTIONS

1. Remove connector links that hold rake blades to rake frame if desired.
2. Remove groomer blades from rake frame that are held on with rake teeth studs (Ref A). Replace rake teeth studs, if desired.
3. Place left holder (Ref 1), angle side up, to the second rake tooth hole from the end and install rake tooth stud. The first rake tooth hole from each end (Ref B) have no rake teeth in them.
4. Remove the 8th rake tooth stud from the end of right and left rake frame and place long holders (Ref 2) on top, reinstall rake teeth studs.
5. Remove rake tooth in direct center of rake and install the center holder (Ref 3). Reinstall rake teeth studs.
6. Place right holder (Ref 4), angle side up, to the second rake tooth hole from the end and install rake tooth stud. The first rake tooth hole from each end (Ref B) have no rake teeth in them.
7. Slide fan rake (Ref 6) onto holders and pin with lock pin (Ref 5).

26-007Q PROFESSIONAL INFIELD FINISHER DRAWING



26-007Q PROFESSIONAL INFIELD FINISHER PARTS LIST

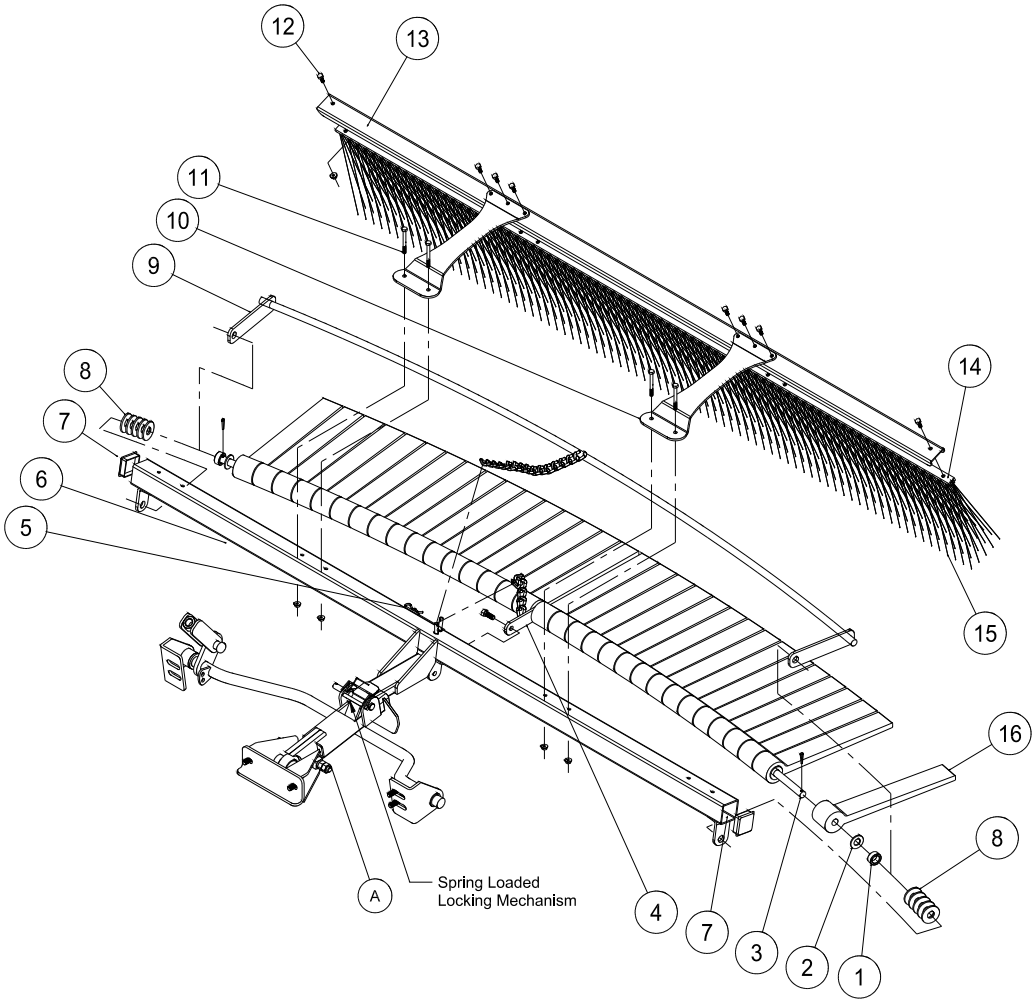
REF#	PART#	DESCRIPTION	QUANTITY
1	26-045	Leveling Screen	1
2	HNCL-58-11	Center Lock Nut $^{5}/_{8}$ - 11	2
3	43-145	Drawbar	1
4	HB-58-11-300	Bolt $^{5}/_{8}$ - 11 x 3	2

INSTALLATION INSTRUCTIONS

The Professional Field Finisher is used for smoothing and leveling fields to professional standards.

1. Attach leveling screen (Ref 1) to drawbar (Ref 3) using two bolts (Ref 4) and center lock nuts (Ref 2).
2. Mount Professional Field Finisher to the hitch on the trap rake by sliding the drawbar into the quick hitch locking mechanism.
3. When Professional Field Finisher is attached, adjust bolts on hitch (Ref A) to hold Finisher in desired position.
4. **NOTE:** When assembled properly, rake will angle down from front to back. If front of finisher is not higher than the back, damage will result to infield.
5. When removing the attachment from machine. Push down on quick hitch locking mechanism and pull accessory out.

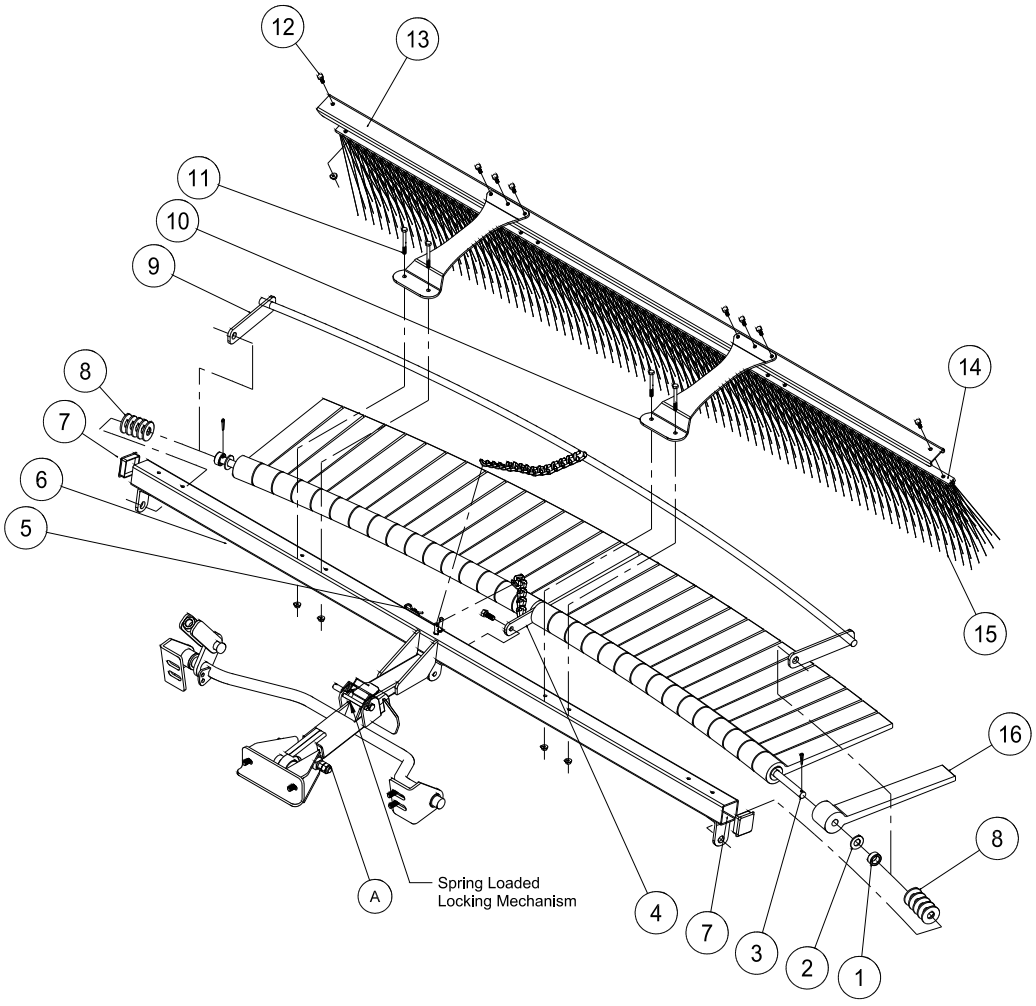
43-002Q FLEX ACTION FIELD FINISHER WITH BRUSH DRAWING



43-002Q FLEX ACTION FIELD FINISHER WITH BRUSH PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	11-040	Spacer, 3/4"	2
2	HW-58	Washer, 5/8	32
3	26-049	Mounting Bar	1
	HP-18-100	Cotter Pin, 1/8 x 1	2
4	26-048	Flail Bar Strap	1
	HB-38-16-100	Bolt 3/8-16 x 1	1
	HNCL-38-16	Center Lock Nut 3/8-16	1
5	HHP-18	Bridge Pin, 1/8	2
6	43-146	Frame	1
7	18-297	Cap Plug	2
8	HMB-58-14	Machine Bushing 5/8 x 14GA	10
9	26-047	Leveler Bar	1
10	43-041	Mount Bracket	2
11	HB-14-20-250	Bolt, 1/4-20 x 2 1/2	4
	HNFL-14-20	Flange Whiz-Lock Nut, 1/4-20	4
12	HB-14-20-075	Bolt, 1/4-20 x 3/4	8
	HNFL-14-20	Flange Whiz-Lock Nut, 1/4-20	8
13	13-688	Brush Channel	1
14	13-683	Brush Track	1
15	13-682	Brush, 77 x 11	1
16	26-041	Rasp Flail	32

43-002 Q FLEX ACTION FIELD FINISHER WITH BRUSH DRAWING



43-002Q FLEX ACTION FIELD FINISHER WITH BRUSH INSTRUCTIONS

ASSEMBLY INSTRUCTIONS

1. Install flail bar strap (Ref 4) to center of mounting bar (Ref 3) with chain on top of flail bar strap and mounting bar bent away from you. Apply a light coat of lubricant to overall length of mounting bar.
2. Install one rasp flail (Ref 16) with knobby side down adjacent to sides of flail bar strap. Now install a flat washer (Ref 2) so it sits adjacent with the outside of the rasp flail. Continue to install flails with knobby sides down with washers between until you have 16 flails and washers on each side of bar strap. Force all flails tightly toward bar strap.
3. After all 32 flails have been installed, place one spacer (Ref 1) to each end of mounting bar adjacent to washer.
4. Install leveler bar (Ref 9) to mounting bar, with curved leveler bar resting on top on the smooth sides of flails. If all flails and washers do not fit snugly at this time, remove leveler bar and install enough machine bushings to ensure a snug fit. Then reinstall leveler bar.
5. Lay the frame (Ref 6) on the floor or bench with welded tabs facing up. Install ends of assembled mounting bar, with knobby sides of flails up, into welded tabs on each end of frame and secure with $^{1}/_{8}$ x 1 cotter pin.
6. Install flail bar strap (Ref 4) to center tab on frame with $^{3}/_{8}$ -16 x 1 bolt and $^{3}/_{8}$ -16 center lock nut. Loose fit is required. Do not over tighten.
7. Flip assembly over so knobby sides of flails are now facing down. Install hitch to frame with clevis pin (Ref 3) and cotter pin (Ref 24). The hitch should be attached to the frame as shown.
8. Install bar strap chain over welded pin on frame. Install leveler bar chain on to pin and secure in place with bridge pin. Use last bridge pin and clevis pin to hitch field finisher to your machine.

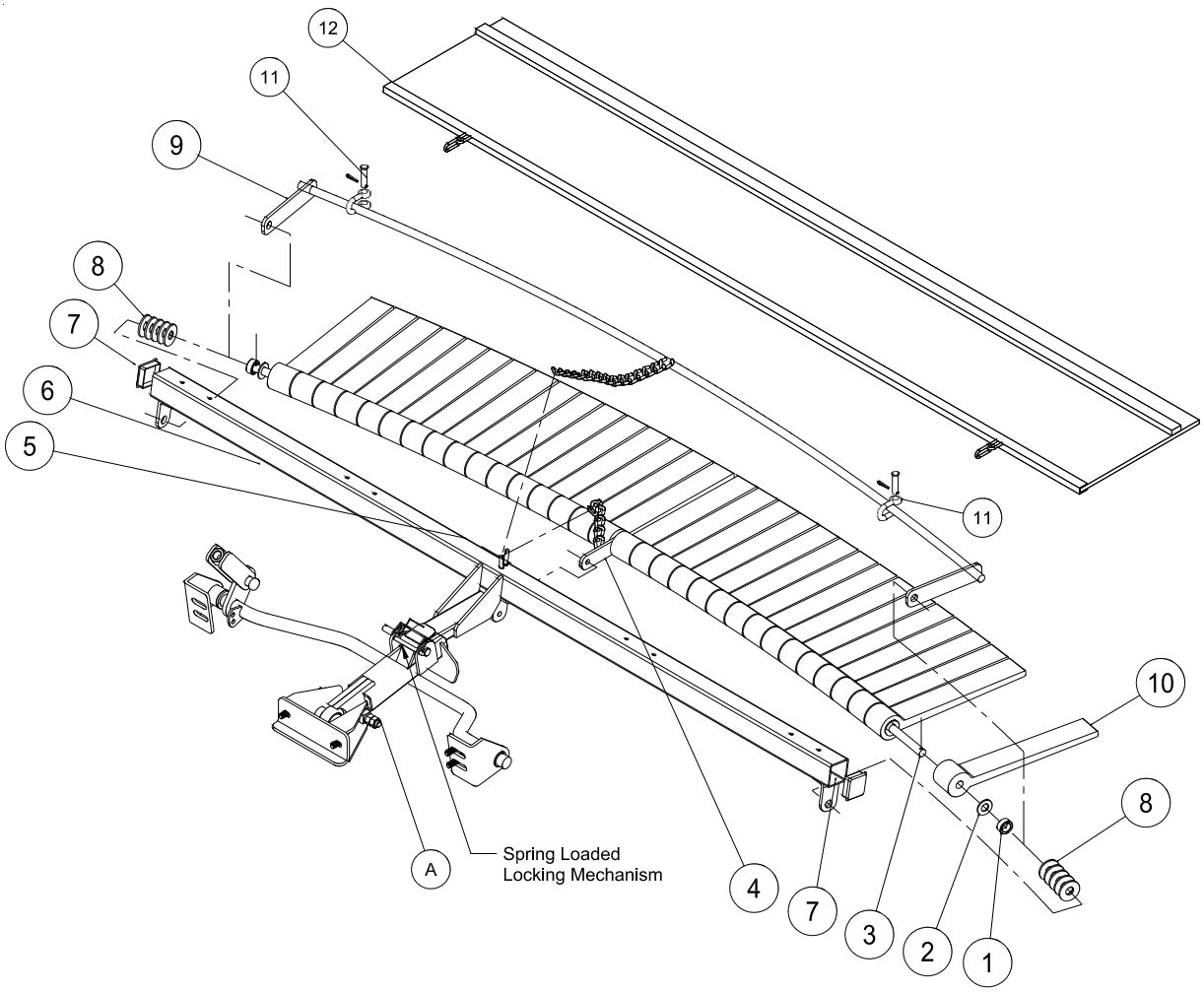
OPERATING INSTRUCTIONS

Running attachment with all flails down, flat on the surface, will provide a leveling function. Running attachment partially raised and flails at a 20° - 40° angle in relation to the level surface, will provide a finishing function. The flails increase down pressure for desired finish. Drive in wide circular patterns and increase or decrease ground speed to achieve desired finish.

BRUSH ASSEMBLY

1. Place the brush (Ref 15) into the brush track (Ref 14). Place the brush channel (Ref 13) between the brush track and the mounting brackets. Now bolt the mounting brackets (Ref 10) to the brush track using the $^{1}/_{4}$-20 x $^{3}/_{4}$ bolts and $^{1}/_{4}$-20 flange whiz-lock nuts (Ref 12).
2. Mount the brush assembly to the frame using the (4) $^{1}/_{4}$-20 x $2^{1}/_{2}$ bolts and $^{1}/_{4}$-20 flange whiz-lock nuts (Ref 11).

26-008Q FLEX ACTION FIELD FINISHER DRAWING



26-008Q FLEX ACTION FIELD FINISHER PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	11-040	Spacer 3/4"	2
2	HW-58	Washer 5/8	32
3	26-049	Mounting Bar	1
4	26-048	Flail Bar Strap	1
	HB-38-16-100	Bolt 3/8 - 16 x 1	1
	HNCL-38-16	Center Lock Nut 3/8 - 16	1
5	HHP-18	Bridge Pin 1/8	2
6	43-146	Frame	1
7	18-297	Cap Plug	2
8	HMB-58-14	Machine Bushing 5/8 x 14GA	10
9	26-047	Leveler Bar	1
10	26-041	Rasp Flail	32
11	21-260	Clevis	2
12	26-115	Mesh Finisher	1

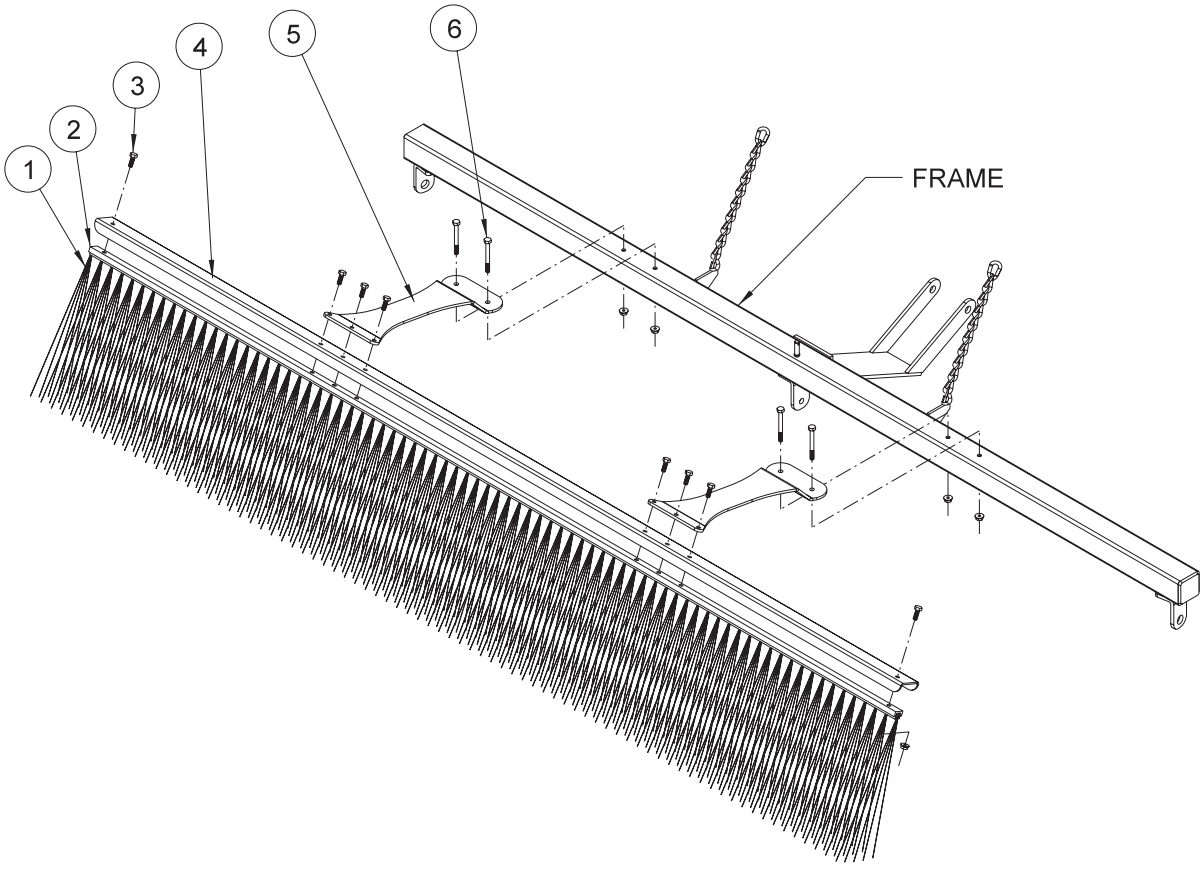
INSTALLATION INSTRUCTIONS

1. Install flail bar strap (Ref 4) to center of mounting bar (Ref 3) with chain on top of flail bar strap and mounting bar bent away from you. Apply a light coat of lubricant to overall length of mounting bar.
2. Install one rasp flail (Ref 16) with knobby side down adjacent to sides of flail bar strap. Now install a flat washer (Ref 2) so it sits adjacent with the outside of the rasp flail. Continue to install flails with knobby sides down with washers between until you have 16 flails and washers on each side of bar strap. Force all flails tightly toward bar strap.
3. After all 32 flails have been installed, place one spacer (Ref 1) to each end of mounting bar adjacent to washer.
4. Install leveler bar (Ref 9) to mounting bar, with curved leveler bar resting on top on the smooth sides of flails. If all flails and washers do not fit snugly at this time, remove leveler bar and install enough machine bushings to ensure a snug fit. Then reinstall leveler bar.
5. Lay the frame (Ref 6) on the floor or bench with welded tabs facing up. Install ends of assembled mounting bar, with knobby sides of flails up, into welded tabs on each end of frame and secure with 1/8 x 1 cotter pin.
6. Install flail bar strap (Ref 4) to center tab on frame with 3/8 -16 x 1 bolt and 3/8 -16 center lock nut. Loose fit is required. Do not over tighten.
7. Flip assembly over so knobby sides of flails are now facing down. Install hitch to frame with clevis pin (Ref 3) and cotter pin (Ref 24). The hitch should be attached to the frame as shown.
8. Install bar strap chain over welded pin on frame. Install leveler bar chain on to pin and secure in place with bridge pin. Use last bridge pin and clevis pin to hitch field finisher to your machine.

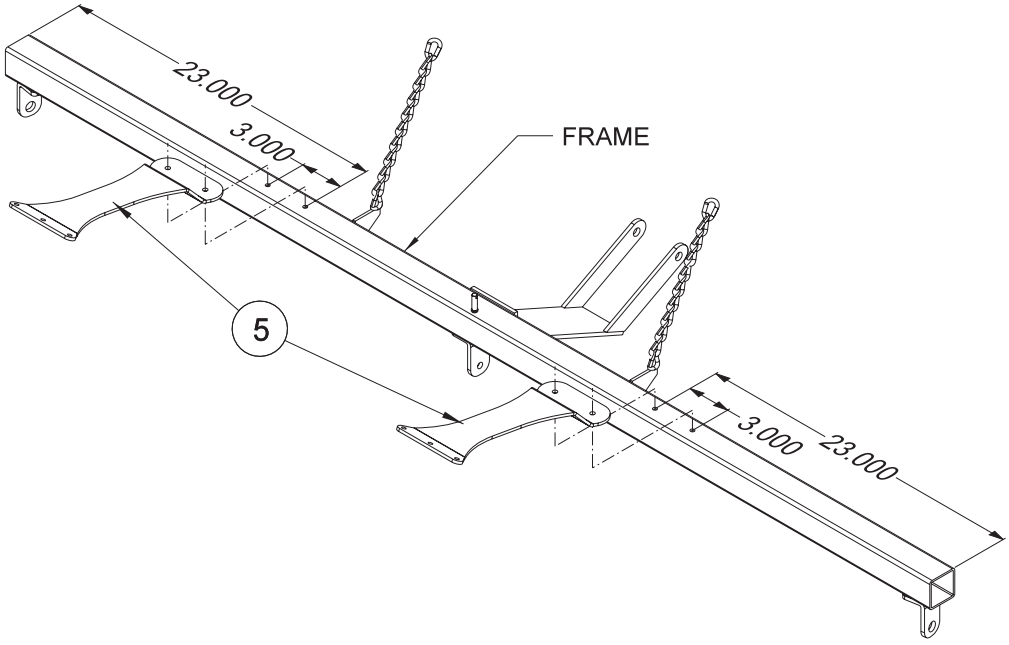
OPERATING INSTRUCTIONS

Running attachment with all flails down, flat on the surface, will provide a leveling function. Running attachment partially raised and flails at a 20° - 40° angle in relation to the level surface, will provide a finishing function. The flails increase down pressure for desired finish. Drive in wide circular patterns and increase or decrease ground speed to achieve desired finish.

43-043 FINISHING BRUSH KIT DRAWING



HOLE LOCATION



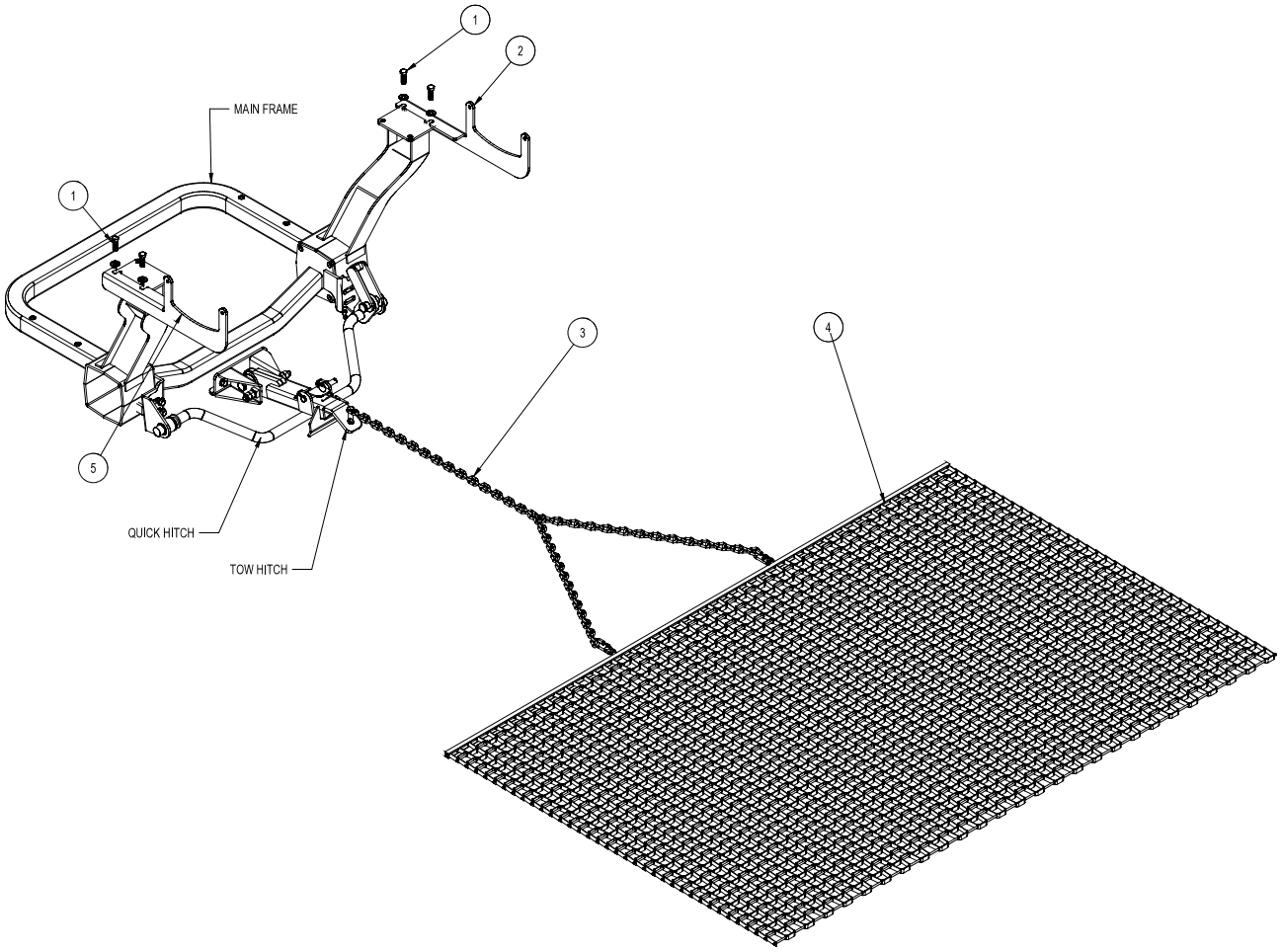
43-043 FINISHING BRUSH KIT PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	13-682	Brush, 77 x 11	1
2	13-683	Brush Track	1
3	HB-14-20-075	Bolt, 1/4 - 20 x 3/4	8
	HNFL-14-20	Flange Whiz-Lock Nut, 1/4 - 20	8
4	13-688	Brush Channel	1
5	43-041	Mount Bracket	2
6	HB-14-20-250	Bolt, 1/4 - 20 x 2 1/2	4
	HNFL-14-20	Flange Whiz-Lock Nut, 1/4 - 20	4

INSTALLATION INSTRUCTIONS

1. Remove the mesh finisher from your unit, it will not be used with the brush.
2. Place the brush (Ref 1) into the brush track (Ref 2). Place the brush channel (Ref 4) between the brush track and the mounting brackets (Ref 5). Now bolt the mounting brackets (Ref 5) to the brush track using the 1/4 - 20 x 3/4" bolts and 1/4 - 20 flange whiz-lock nuts (Ref 3).
3. Four holes need to be drilled into the frame of the Flex Action Finisher to mount the brush. Drill two Ø9/32 holes 23" in from each end and 3" apart (see Reference drawing).
4. Mount the brush assembly to the frame using the four 1/4 - 20 x 2 1/2" bolts and 1/4 - 20 flange whiz-lock nuts (Ref 5).

43-008 DRAG MAT DRAWING



43-008 DRAG MAT PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-716-14-125	Bolt, 7/16 - 14 x 1-1/4	4
	HW-716	Washer, 7/16	4
	HNTL-716-14	Lock Nut, 7/16-14	4
2	13-751	Right Carrier Mount	1
3	19-605	Drag Mat Chain	1
	HHP-18	Bridge Pin, 1/8	1
4	19-601	Steel Drag Mat	1
5	13-752	Left Carrier Mount	1

INSTRUCTIONS

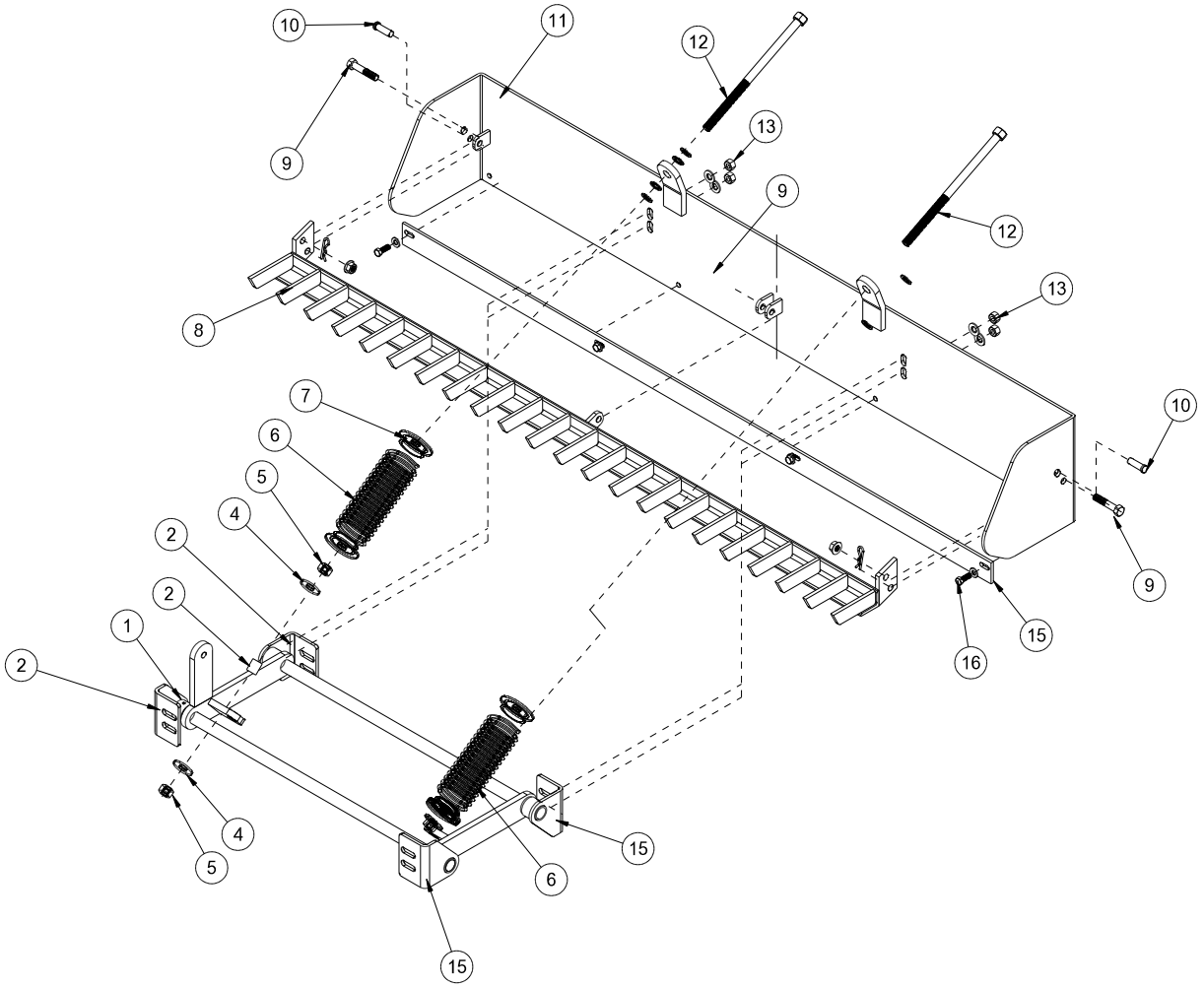
1. The Drag Mat Kit can be installed on all Super Star with or without the optional Roll Bars.

2. **WITH ROLL BARS:** If your machine is equipped with Roll Bars, remove the outside two bolts from the roll bar mounts. Install the flat washers and secure right and left carrier mounts (see picture. Tighten all hardware.

3. **WITHOUT ROLL BARS:** If your machine is not equipped with a roll bar the carrier brackets will bolt directly onto the roll bar support plates (see picture). Using the hardware provided, tighten the right and left carrier mounts to roll bar plates.

4. Install the tow hitch insert into the quick hitch. This is where the tow chain on the drag mat attaches to the machine.

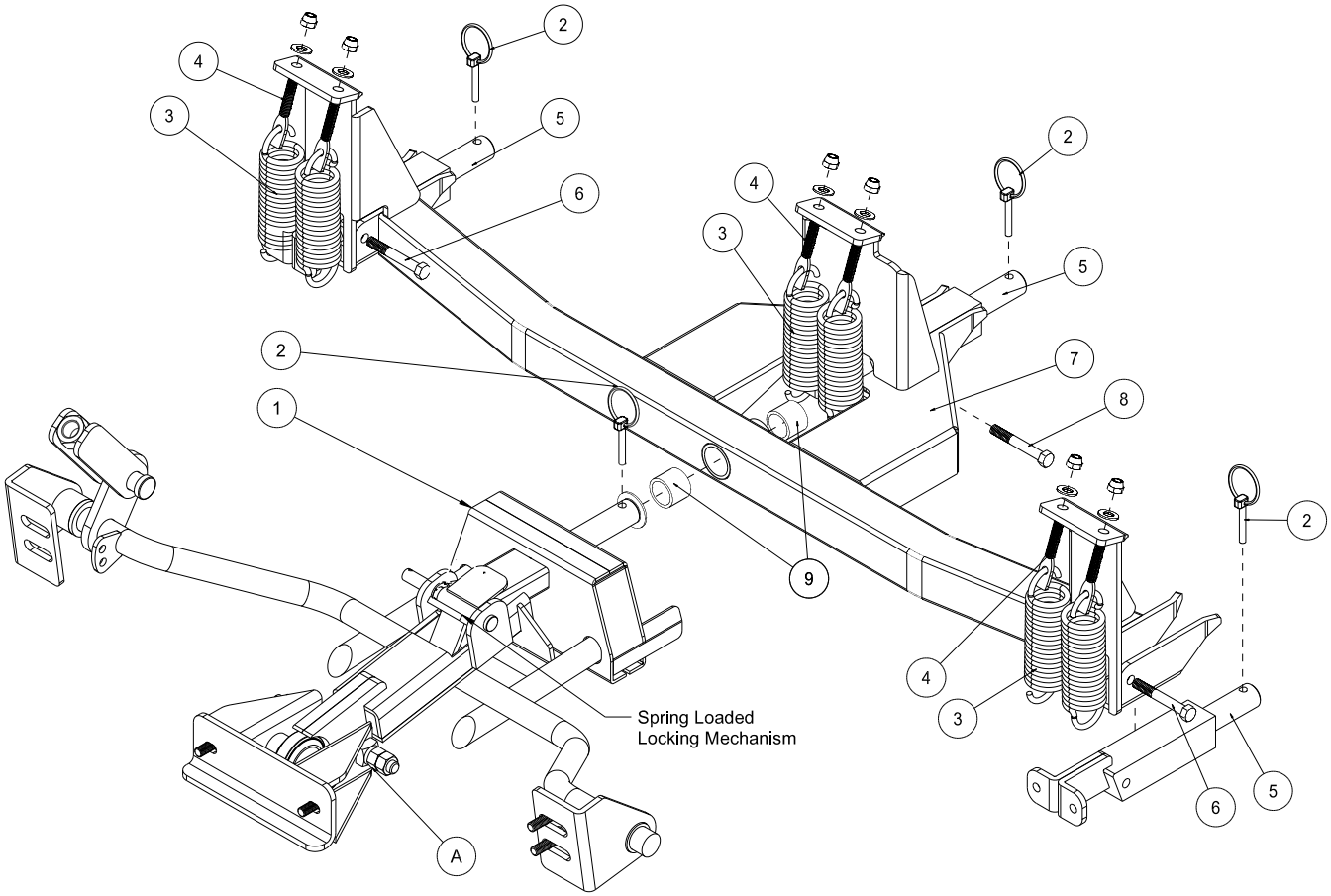
34-191 BOX GRADER DRAWING



34-191 BOX GRADER PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	34-221	Lift Assembly	1
2	34-220	Right Pivot Bracket	2
	33-086	Bushing	2
3	34-217	Break Up Bar	1
4	HB-38-16-125	Bolt, 3/8 - 16 x 1 1/4	4
	HW-38	Washer 3/8	4
	HNTL-38-16	Lock Nut 3/8 - 16	4
5	34-218	Cutter Blade	1
6	HB-12-13-200	Bolt 1/2 -13 x 2	2
	HNTL-12-13	Lock Nut 1/2 - 13	2
7	HCP-12-150	Clevis Pin 1/2 x 1 1/2	2
	HHP-18	Bridge Pin 1/8	2
8	34-216	Blade Assembly	1
9	13-276	Compression Spring	2
10	34-214	Spring Rod	2
11	HB-12-13-125	Bolt 1/2 - 13 x 1 1/4	4
	HW-12	Washer 1/2	4
	HWL-12	Lockwasher 1/2	4
	HN-12-13	Nut 1/2 -13	4
12	HB-12-13-125	Bolt 1/2 - 13 x 1 1/4	1
	HNTL-12-13	Lock Nut 1/2 - 13	1
13	HMB-58-14	Machine Bushing 5/8 - 14GA	4
14	13-277	Spring Pad	4
15	34-219	Left Pivot Bracket	2
	33-086	Bushing	2
16	34-215	Spacer	2
17	HNTL-58-11	Lock Nut 5/8 - 11	6
	HW-58	Washer 5/8	4

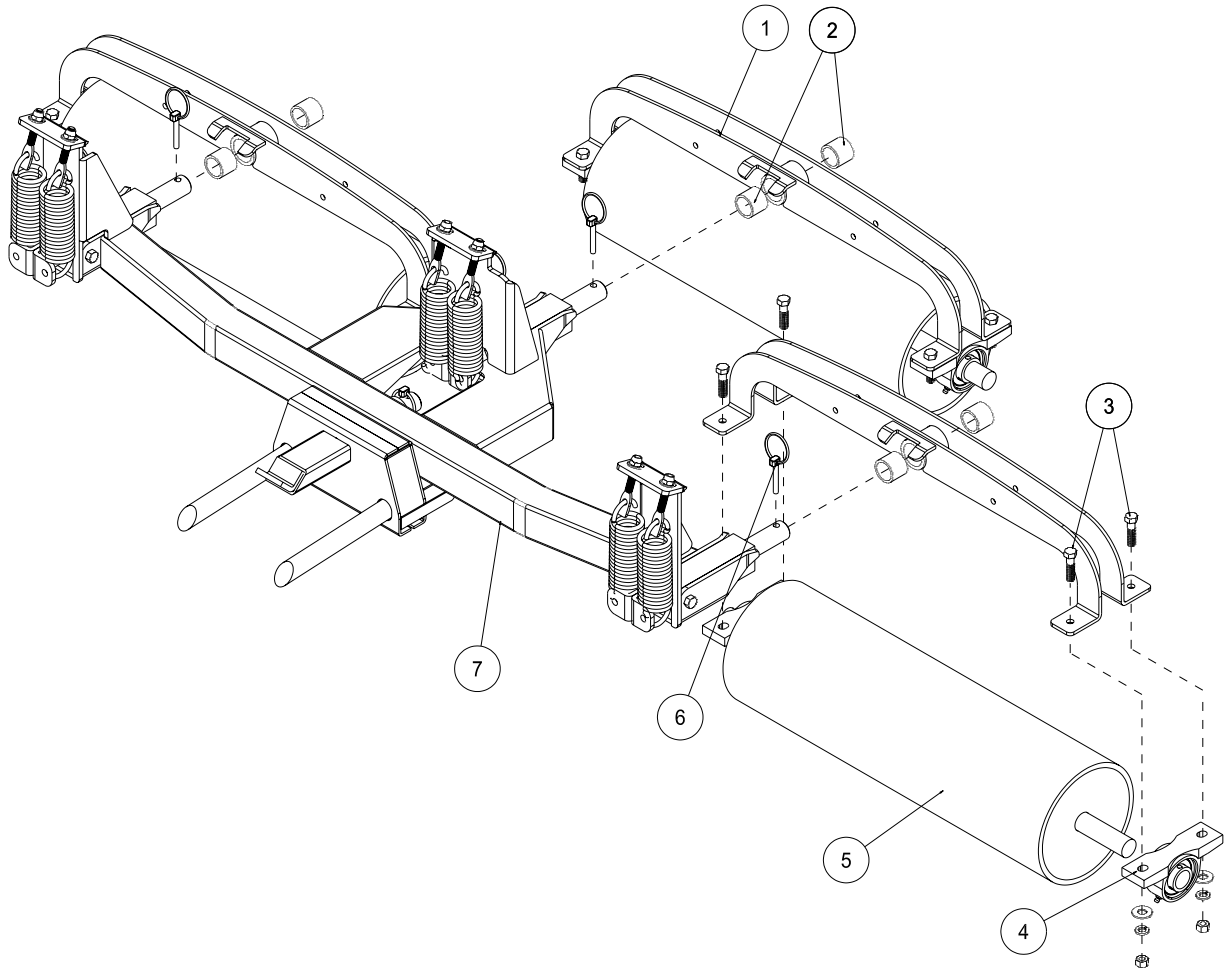
42-586Q GREEN STAR RBS MAIN FRAME DRAWING



42-586Q GREEN STAR RBS MAIN FRAME PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	43-155	Hitch	1
2	42-539	Lynch Pin 5/16	4
3	42-536	Spring	6
4	42-537	Spade Bolt	6
	HNTL-38-16	Lock Nut 3/8 - 16	6
5	42-576	Spring Tower	3
6	HB-38-16-275	Bolt 3/8 - 16 x 2 3/4	2
	HNTL-38-16	Lock Nut 3/8 - 16	2
7	42-577	Frame	1
8	HB-38-16-250	Bolt 3/8 - 16 x 2 1/2	1
	HNCL-38-16	Center Lock Nut 3/8 - 16	1
9	18-295	Oilite Bushing (part of 42-577)	2

42-581 GREEN STAR RBS ROLLER SET (3) DRAWING



42-581 GREEN STAR RBS ROLLER SET (3) PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-574	Fork	3
2	18-295	Oilite Bushing (part of 42-574)	6
3	HB-38-16-150	Bolt $^{3}/_{8}$ - 16 x $1^{1}/_{2}$	12
	HWL-38	Lock Washer $^{3}/_{8}$	12
	HW-38	Washer $^{3}/_{8}$	12
	HN-38-16	Nut $^{3}/_{8}$ - 16	12
4	11-094	Pillow Block	6
5	42-584	Roller	3
6	42-539	Lynch Pin $^{5}/_{16}$ (part of main frame)	3
7	42-586Q	Green Star RBS Main Frame	1

ADJUSTMENTS AND OPERATION INSTRUCTIONS

ADJUSTMENT

The springs are preset for maximum down pressure, and should not need to be adjusted. If you feel the need to adjust the springs please call for further instructions. The unit comes pre-adjusted for most models. The four adjustment holes on the hitch are for making sure all three rollers are touching the ground at the same pressure. When installing roller system start with the lower mounting holes on hitch.

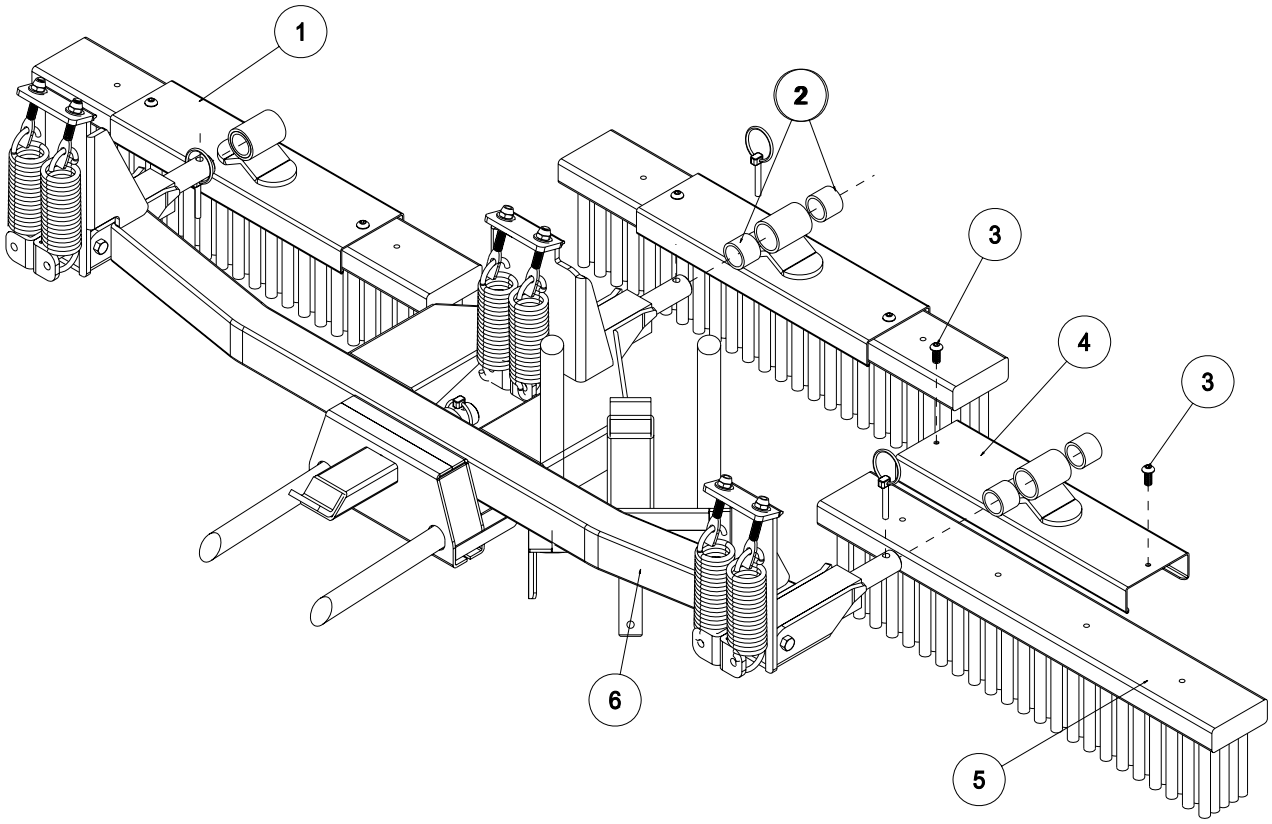
Tire pressure should be 4 psi in the front and 7 psi in the rear tire for best traction.

OPERATION

Make sure the rolling system has been installed and adjusted properly for your model of bunker rake. Always transport in fully raised position. Always remove flag pole before rolling green. Do not stop on green while rolling. Do not roll up steep slopes or loss of traction may result. Do not turn while rolling.

To begin rolling, lower unit all the way down as you come across collar and continue straight across green until reaching other collar and raise as you come off of green. Overlap stripes the same as if you were mowing.

42-585 GREEN STAR RBS BRUSH SET (3) DRAWING



42-585 GREEN STAR RBS BRUSH SET (3) PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	42-539	Lynch Pin $^{5}/_{16}$ (part of main frame)	4
2	18-295	Oilite Bushing (part of 42-579)	6
3	HSPP-516-18-075	Phillip Head Screw $^{5}/_{16}$ - 18 x $^{3}/_{4}$	6
4	42-579	Brush Bracket	3
5	42-545	Brush Head	3
6	42-586Q	Green Star RBS Main Frame	1

ADJUSTMENTS AND OPERATION INSTRUCTIONS

ADJUSTMENT

The springs are preset for maximum down pressure, and should not need to be adjusted. If you feel the need to adjust the springs please call for further instructions. The unit comes pre-adjusted for most models.The four adjustment holes on the hitch are for making sure all three brushes are touching the ground at the same pressure. When installing brush system start with the lower mounting holes on hitch.

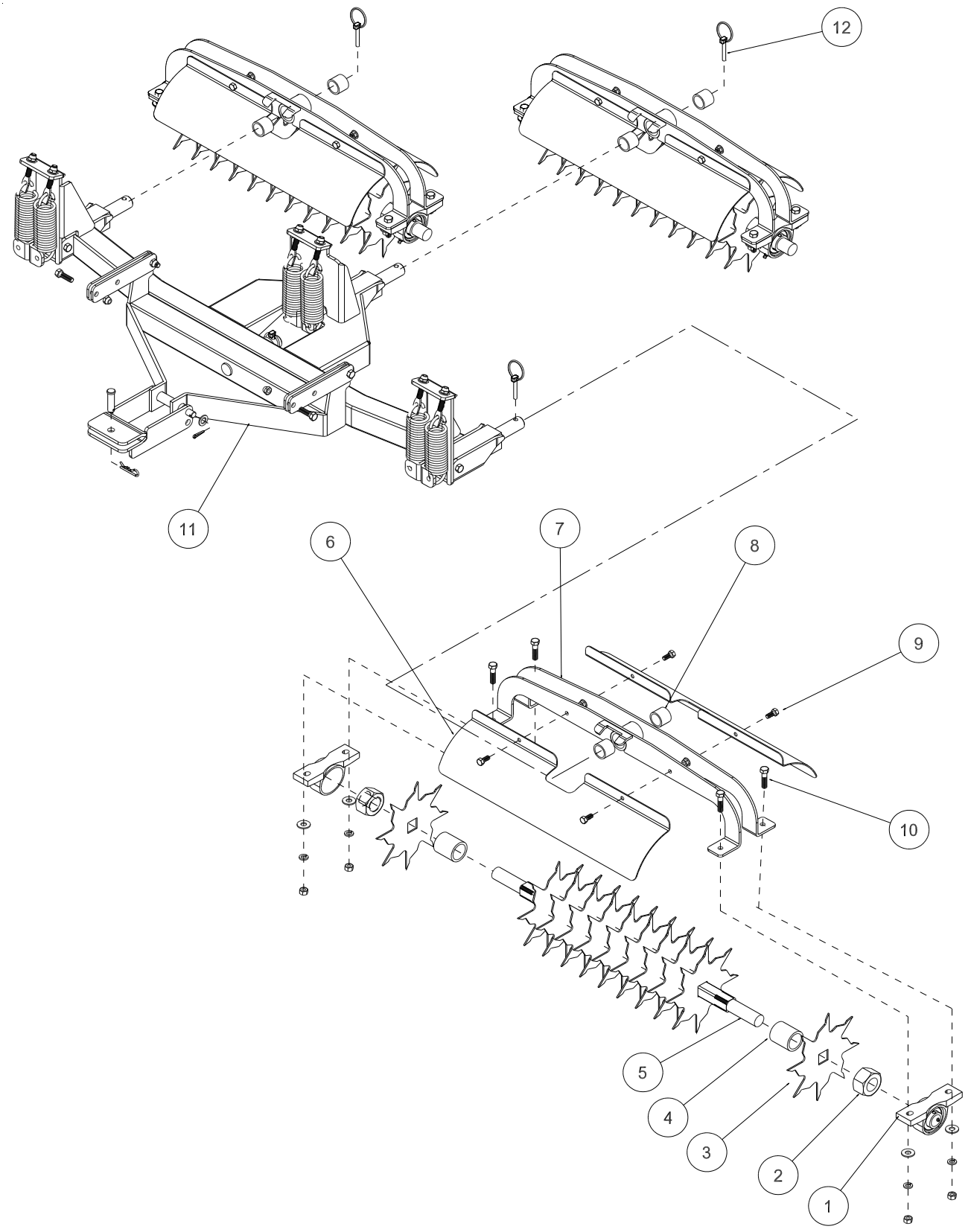
Tire pressure should be 4 psi in the front and 7 psi in the rear tire for best traction.

OPERATION

Make sure the brush system has been installed and adjusted properly for your model of bunker rake. Always transport in fully raised position. Always remove flag pole before brushing green. Do not stop on green while brushing. Do not brush up steep slopes or loss of traction may result. Do not turn while brushing.

For drag brushes use hydraulics to control the amount of down pressure required to move your top dressing material. We recommend reversing drag brushes after each use for even wear. To begin brushing, lower unit as you come across collar and continue straight across green until reaching other collar and raise as you come off of green. Overlap stripes the same as if you were mowing.

42-582 GREEN STAR RBS SPIKER SET (3) DRAWING



42-582 GREEN STAR RBS SPIKER SET (3) DRAWING

REF#	PART#	DESCRIPTION	QUANTITY
1	11-094	Pillow Block	6
2	HNJ-114-12	Jam Nut 1 1/4 - 12	6
3	42-583	Spiker Blade	33
4	8965-1.875	Spiker Blade Spacer (1.875")	30
5	42-554	Spiker Shaft	3
6	42-578	Spiker Cover	6
7	42-574	Fork	3
8	18-295	Oilite Bushing (part of 42-574)	6
9	HB-516-18-075	Bolt 5/16 - 18 x 3/4	12
	HNTL-516-18	Lock Nut 5/16 - 18	12
10	HB-38-16-150	Bolt 3/8 - 16 x 1 1/2	12
	HWL-38	Lock Washer 3/8	12
	HW-38	Washer 3/8	12
	HN-38-16	Nut 3/8 - 16	12
11	42-586Q	Green Star RBS Main Frame	1
12	42-539	Lynch Pin 5/16 (part of main frame)	3

ADJUSTMENTS AND OPERATION INSTRUCTIONS

ADJUSTMENT

The springs are preset for maximum down pressure, and should not need to be adjusted. If you feel the need to adjust the springs please call for further instructions. The unit comes pre-adjusted for most models. The four adjustment holes on the hitch are for making sure all three spikers are touching the ground at the same pressure.When installing spiker system start with the lower mounting holes on hitch.

Tire pressure should be 4 psi in the front and 7 psi in the rear tire for best traction.

OPERATION

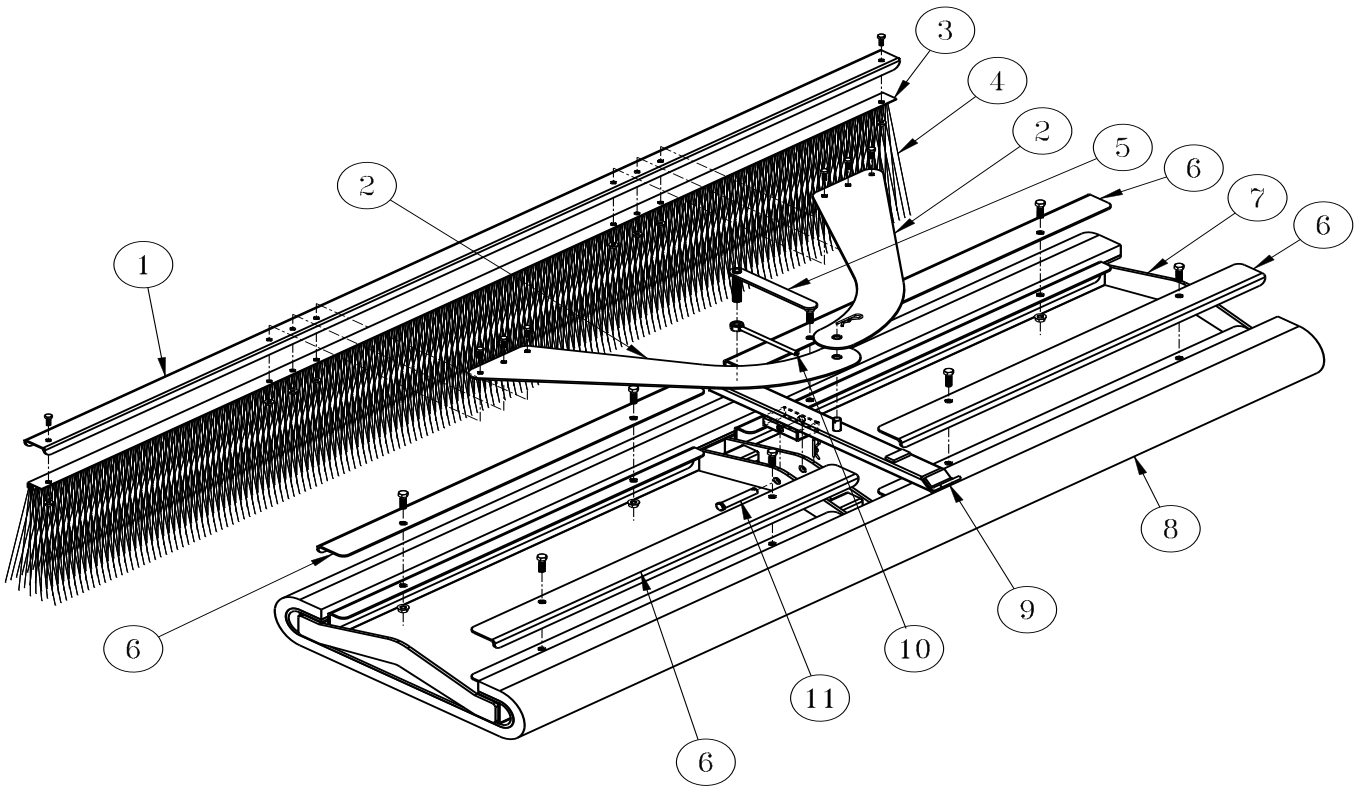
Make sure the spiker system has been installed and adjusted properly for your model of bunker rake. Always transport in fully raised position. Always remove flag pole before spiking green. Do not stop on green while spiking. Do not spike up steep slopes or loss of traction may result. Do not turn while spiking.

To begin spiking, lower unit all the way down as you come across collar and continue straight across green until reaching other collar and raise as you come off of green. Overlap stripes the same as if you were mowing.

INSTALLATION

Spiker blades must be installed so that the jagged side of the tooth cuts into the turf first. This allows only a piercing of the turf, whereas if the straight edge of the spiker blades enters first it will act more as a cutting effect.

43-009 72" COCO MAT FINISHER DRAWING



72" COCO MAT FINISHER PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	13-688	Brush Channel	1
	HB-14-20-075	Hex Bolt, 1/4 - 20 x 3/4	2
	HNFL-14-20	Flange Lock Nut, 1/4 - 20	2
2	43-168	Brush Mount Arm	2
	HB-14-20-075	Hex Bolt, 1/4 - 20 x 3/4	6
	HNFL-14-20	Flange Lock Nut, 1/4 - 20	6
3	13-683	Brush Track	1
4	13-682	Brush, 77 x 11	1
5	43-164	Adjustment Handle	1
6	43-166	Mat Clamp	4
	HB-38-16-125	Hex Bolt, 3/8 - 16 x 1 1/4	8
	HNFL-38-16	Flange Lock Nut, 3/8 - 16 x 1 1/4	8
7	43-165	Frame	1
8	43-167	CoCo Mat, 27 x 72	1
9	43-162	Draw Bar	1
	HHP-18	Bridge Pin, 1/8	1
10	43-163	Lock Handle	1
11	HCP-12-300	Clevis Pin, 1/2 x 3	1
	HHP-18	Bridge Pin, 1/8	1

Some components of your ***CoCo Mat Finisher*** have been assembled at the factory for your convenience.

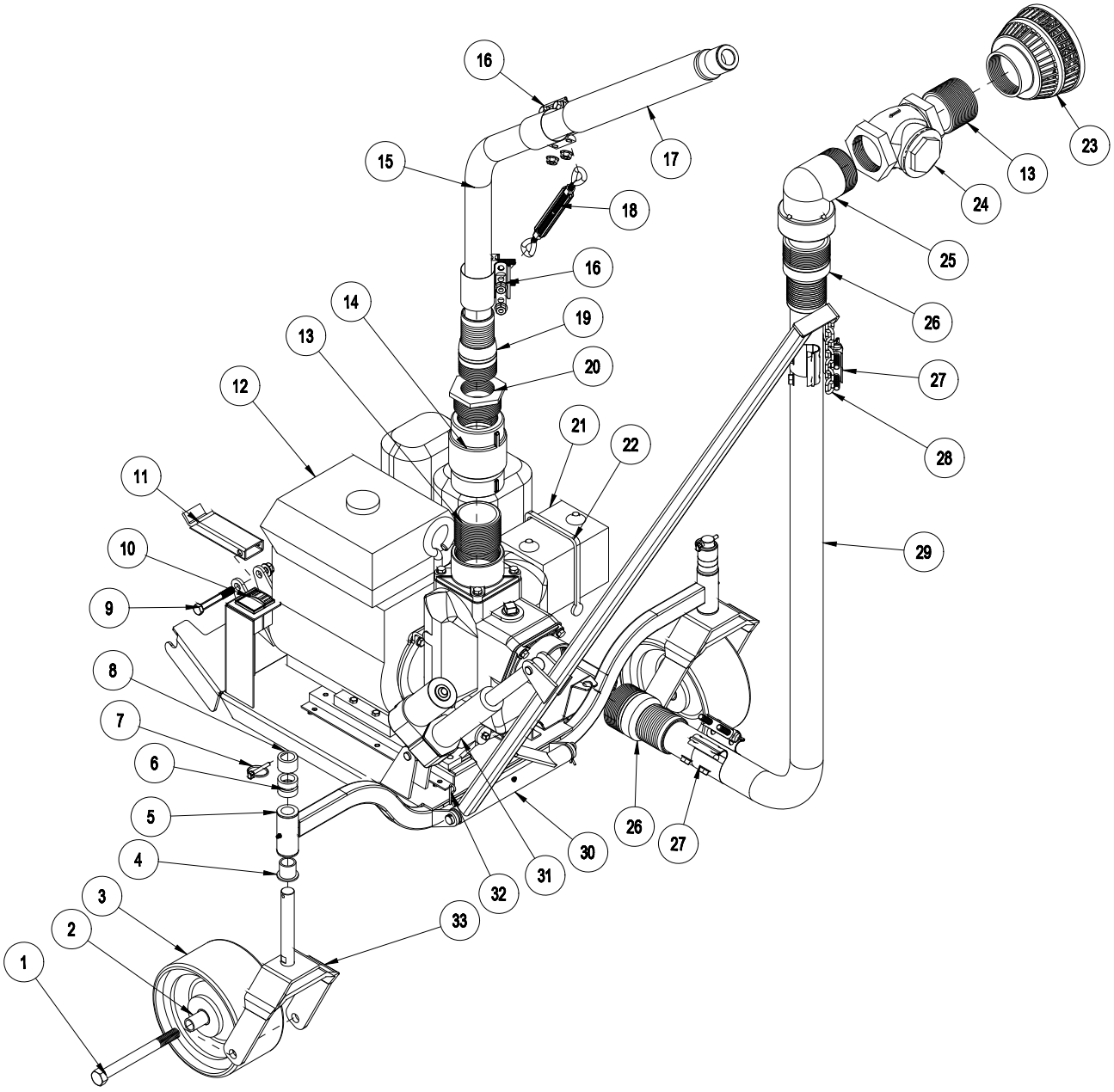
1. Start by mounting the Drawbar (Ref 9) to the Frame (Ref 7) using the Clevis Pin and Bridge Pin (Ref 11). Position the Drawbar, using either set of holes, as illustrated.
2. Next, mount the Brush assembly (Ref 1, 3 & 4) to the Brush Mount Arms (Ref 2), as illustrated, using the (6) 1/4 - 20 x 3/4 Hex Bolts and 1/4 - 20 Flange Lock Nuts. Secure fasteners tight.
3. The holes on each of the Brush Mount Arms will line up. Mount to the pin on the Drawbar (Ref 9) and secure using the remaining Bridge Pin.
4. Thread the Lock Handle (Ref 10) on to the Adjustment Handle (Ref 5). Thread the Adjustment Handle into the nut on top of the Drawbar (Ref 9), continuing until the threaded rod is through the Drawbar tube. Turn the Lock Handle clockwise (↻) to lock the Adjustment handle in place.

Adjusting the ***CoCo Mat Finisher***.

Adjusting the leading edge (front) will affect the performance of the ***Finisher***. Various field compositions and conditions can benefit from fine tuning of the ***Finisher's*** leading edge angle.

1. Release the Lock Handle (Ref 10) by holding the Adjustment Handle (Ref 5) and turning the Lock Handle counter-clockwise (↺).
2. To raise the leading edge (front) of the ***Finisher***, turn the Adjustment Handle clockwise (↻). When you obtain your desired position, turn the Lock Handle clockwise (↻) to lock the Adjustment handle in place.
3. To lower the leading edge (front) of the ***Finisher***, turn the Adjustment Handle counter-clockwise (↺). When you obtain your desired position, turn the Lock Handle clockwise (↻) to lock the Adjustment handle in place.

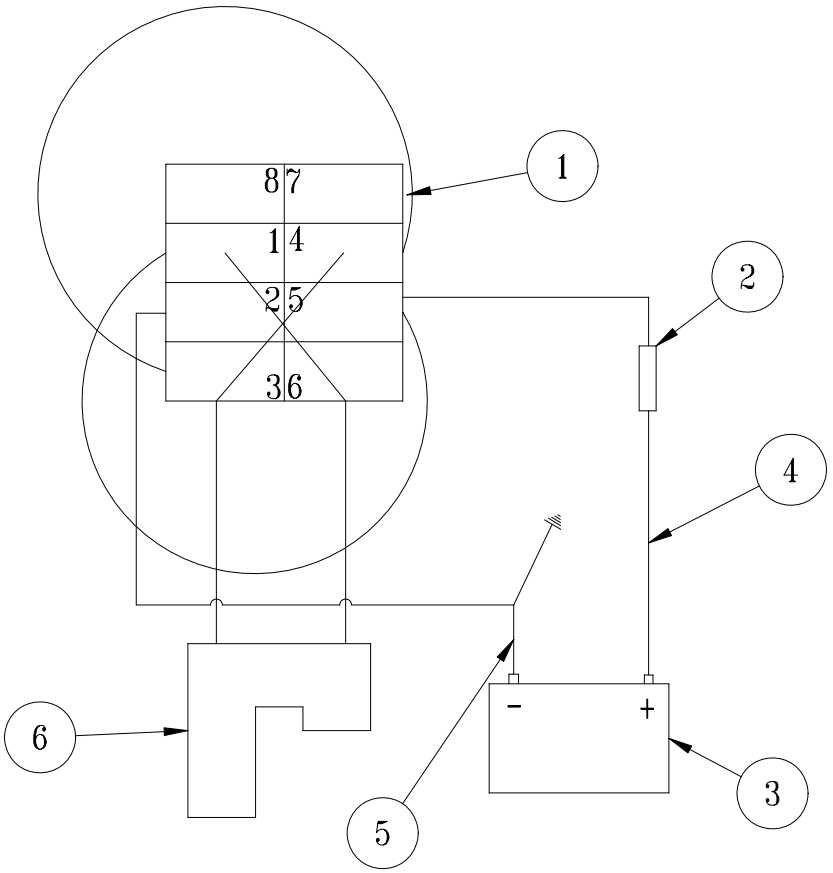
41-501 TYPHOON DRAWING



41-501 TYPHOON PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-34-10-800	Bolt, 3/4 - 10 x 8	2
	HNTL-34-10	Lock Nut, 3/4 -10	2
2	72-135	Castor Wheel Spacer	4
3	78-012	Tire and Wheel	2
4	18-223	Flange Bushing (part of 41-520)	4
5	41-520	Frame	1
6	29-584	Adjustment Spacer 1/2"	4
7	42-539	Lynch Pin	2
8	29-585	Adjustment Spacer, 1"	2
9	HB-12-13-350	Bolt, 1/2 -13 x 3 1/2	1
	HNTL-12-13	Lock Nut, 1/2 - 13	1
10	15-725	Mount Panel End	2
	15-727	Switch Actuator, no light	1
	15-728	Switch Body, On-Off-On	1
	15-730	Mount Panel Plug	1
11	41-522	Quick Hitch Bar	1
12	41-532	Pump with 11 HP Honda Engine	1
	41-532-01	Impeller, Wear Palte, Gasket and Seal	1
	41-532-02	Gasket	1
	41-532-03	Seal	1
13	18-376	Close Nipple, 3"	2
14	41-530	Swivel Joint, 3"	1
15	18-382	2.5" Suction Hose	1
16	41-527	Band Clamp, 2.5"	2
17	41-529	Discharge Tube	1
18	41-525	Turnbuckle	1
19	18-375	King Nipple, 2.5"	1
20	18-378	Bushing, 3" x 2.5"	1
21		U-1 300 Amp Battery (not supplied)	1
22	8-603	Battery Strap	1
23	41-531	3" Basket Strainer	1
24	18-380	Check Valve, 3"	1
25	18-379	Plastic Elbow	1
26	18-374	King Nipple, 3"	1
27	41-526	Band Clamp, 3"	2
28	8820-8	Machine Chain, 8 links	1
29	18-381	3" Suction Hose	1
30	41-521	Hose Boom	1
	HG-14-28-180	Grease Fitting, 1/4 - 28 x 180°	1
31	16-754	Actuator with 8" Stroke	1
	HCP-12-225	Clevis Pin, 1/2 x 2 1/4	2
	HP-18-100	Cotter Pin, 1/8 x 1	2
32	41-523	Pivot Rod	1
	HHP-18	Bridge Pin, 1/8	2
33	72-134	Castor Fork	2

41-501 TYPHOON WIRING



WIRING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	15-727	Switch Actuator, no light	1
	15-728	Switch Body, On-Off-On	1
2	77-261	Circuit Breaker, 40 amp	1
	8977	Circuit Breaker Boot	1
3		U-1 300 Amp Battery (not supplied)	1
4	22-056	Cable	1
	12-031	Battery Boot	1
5	22-065	Starter Cable	1
6	16-754	Actuator	1
	41-524	Wire Harness	1
	16-088	Decal, Moving Parts Hot	1
	25-286	Decal, Pinch Points	2
	25-298	Decal, Warning, Hot	1

WARNING

READ ENGINE MANUAL PRIOR TO STARTING THIS MACHINE.
Machine is shipped with NO OIL in engine.
Fill Engine with oil as suggested in Engine Manual.

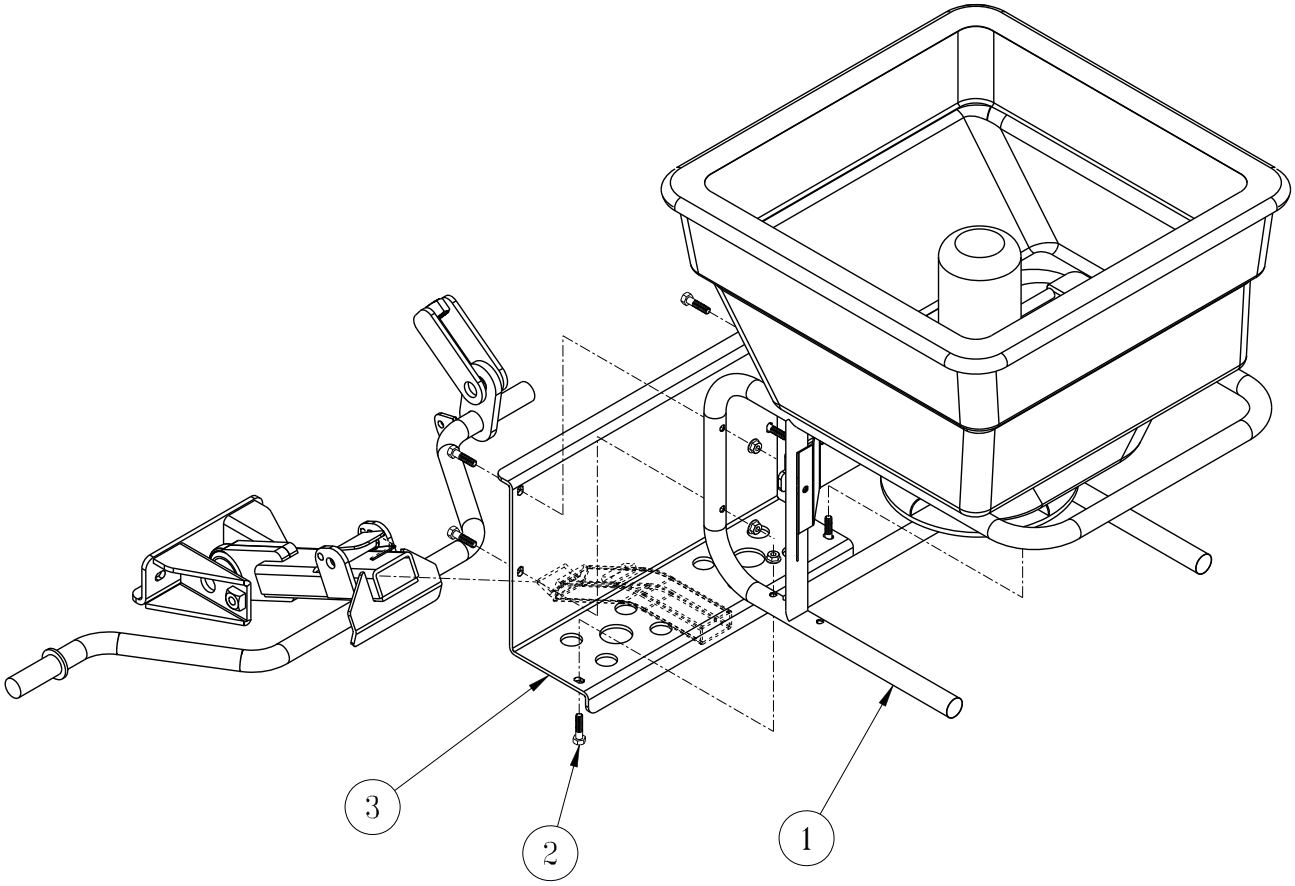
1. You must prime pump before starting the engine. To do so, insert garden hose in Discharge Tube and fill system to full. Full is when you see water in both suction hoses.
2. Fill engine up with 4-stroke motor oil as advised in the engine manual.
3. Install a U-1 300 Amp Battery into the battery box on the right side of the engine. Connect battery cables and strap battery into place.
4. Make yourself familiar with engine controls located on the engine by reading the Engine Owner's Manual.
5. Once the pump is primed, battery installed, and the engine oil is filled you may hook the Typhoon up to the Super Star Bunker Rake.
6. The Typhoon is equipped with a quick hitch attachment. Insert quick hitch bar into hitch on Super Star and lock in place with lock pin.
7. There are 1/2" and 1" spacers on the castor wheels that can be arranged in any combination to achieve the desired height. Please keep both side adjusted the same.
8. Transport the Typhoon to the water hole that needs to be siphoned. Back Typhoon to edge of water.
9. Using the rocker switch on the left side of the engine, lower the boom and suction screen into the water.
10. Stand clear of the discharge tube. Make sure the discharge tube is pointing in a direction that is free of bystanders and buildings.
11. Start engine. There will be immediate water discharge from the discharge tube. There is a swivel tube that allows you to turn the discharge in any direction you desire. There is also a turnbuckle that can be lengthened to give a longer flow or shortened for a closer distance. For best performance keep hand on discharge tube to prevent it from straying.
12. When water is siphoned, shut off engine, leaving water in the pump and discharge hose, so you do not run the pump dry.

WARNING

DO NOT RUN THE PUMP DRY!

13. Using the rocker switch, raise boom out of the water hole.

41-502 12V BROADCAST SPREADER DRAWING



41-502 12V BROADCAST SPREADER PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	41-533	12V Earthway Spreader, Model M40	1
2	HB-516-18-125	Hex Bolt, $^{5}/_{16}$ - 18 x $1^{1}/_{4}$	6
	HNFL-516-18	Flange Whiz-Loc Nut, $^{5}/_{16}$ - 18	6
3	41-534	Spreader Mount	1

INSTALLATION INSTRUCTIONS

The 12 Volt Broadcast Spreader is great option for your seeding and fertilizing needs.

1. Using the six(6) $^{5}/_{16}$ - 18 x $1^{1}/_{4}$ Hex Bolts and Whiz-Loc nuts (Ref 2) mount the Spreader (Ref 1) to the Spreader Mount (Ref 3). Tighten all hardware.
2. Connect to the Quick Hitch Receiver on your ***SMITHCO*** machine.
3. Connect the wires to the battery according to the directions given in the Earthway Spreader manual.
4. Refer to the manual that came with the Earthway Spreader for operation instructions and to determine your desire spreading rate.

For replacement parts for the Spreader, refer to the Earthway Spreader manual.