

Features of Virnig Mfg. Inc. Power Rake include:

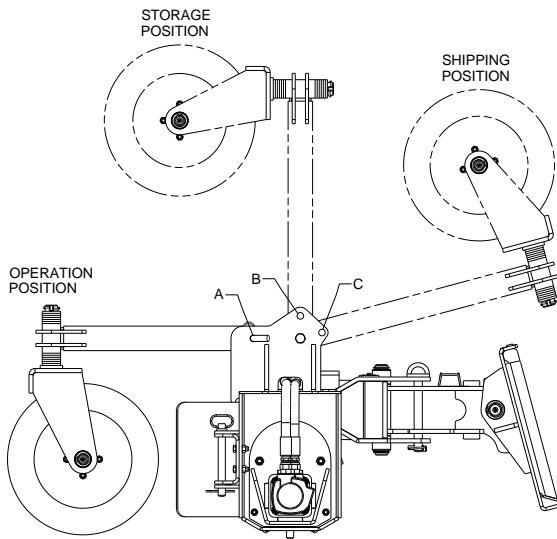
- Floating design produces a smooth finish while still allowing down pressure to be applied when necessary.
- Bi-directional operation allows the Power Rake to be operated either forward or backward.
- Left or right angling of 25°.
- Standard carbide tipped teeth work in many soil conditions.
- Solid urethane filled tires eliminate down time due to flats.
- Optional Hydraulic Angle with Electric Control utilizes either the machines electrical package or an add-on control box.
- 15-25 gpm operating flow rate range and 2000 – 3500 psi operating pressure range.
- Direct drive design with replaceable drive components.
- Recommended for loaders with an operating capacity greater than 1500 lb.

Initial Use

- Read and understand all warning information in this manual before operating this attachment.
- Check that quick-tach on frame fits onto loader properly. Pins must engage through 3/8" plates at bottom of quick-tach.
- Slowly roll back attachment. Make sure there is no interference between attachment and loader.
- Do not connect this attachment to high flow hydraulics.
- Make sure hoses do not pinch during roll back.
- Never exceed the maximum attachment operating pressure of 3500 psi.
- With the Power Rake off of the ground, engage the auxiliary hydraulics using the "detent" position on the machine. Check the rotation of the drum (drum should be rotating clockwise as viewed from the motor side.) If this rotation does not match the "detent" position of your machine, switch the couplers on the lead hoses.
- If Power Rake is equipped with manual angle, swing the power rake head through its cycle to check that the lead hoses do not bind or catch anywhere. Make sure the Power Rake is not operating and the machine is shut off when changing the Power Rake angle manually.
- If the Power Rake is equipped with hydraulic angle, with the Power Rake drum spinning (drum rotating clockwise viewed from motor side), engage the electrical controls and cycle the Power Rake head from side to side and check that the lead hoses do not bind or catch anywhere. The Power Rake will not angle when the drum is rotating in the reverse direction.

Initial Use (cont)

- The Power Rake is shipped with the caster wheels in the “Shipping Position”. Remove the bent leg pin (Location “C”) and flip the caster wheels to the “Operation Position” and secure with the bent leg pin (Location “A”). (Take care when repositioning the caster wheels since they are heavy. Assistance may be needed.) The caster wheels can be put in the “Storage Position” when not being used or when storing the unit to take up less room.

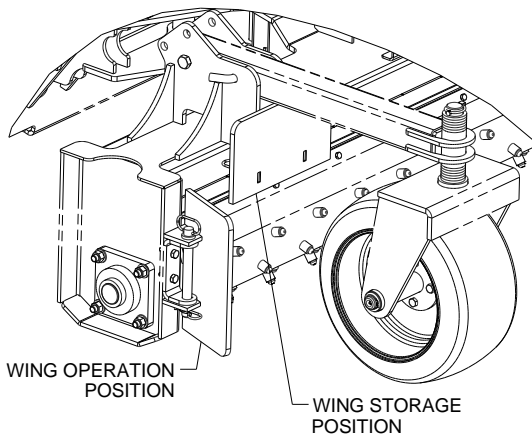


Operation

- Always follow safety and operating information in this manual.
- Always follow all safety and operating instructions of the loader.
- Never remove material deflectors or warning labels.
- Never operate Power Rake unless you have been properly trained.
- Make sure all safety labels are in place, look in “Power Rake Labels” section in this manual for their locations.
- Do not operate throwing debris toward people, buildings, etc. that may be injured or damaged by flying debris.
- Always relieve pressure before connecting or disconnecting hydraulic hoses.
- Clean any debris from attachment. Pay special attention to any debris in quick-tach area.

Operation (cont.)

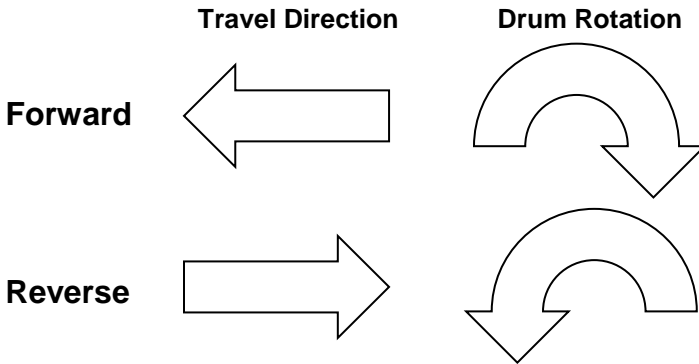
- Before raking an area, thoroughly check for obstructions such as pipes, fence posts, wire/cable, rocks, etc. Remove obstructions if possible, flag any obstructions too large to move.
- Engage hydraulics with the engine idling and Power Rake above the ground. Bring the engine speed to the desired rpm and lower the machine boom to engage the Power Rake into the ground.
- Before disengaging hydraulics, remove the Power Rake from the ground and idle down the engine to minimize potential hydraulic motor damage.
- The Power Rake is equipped with pin on wings that can be used if desired. The wings will aid in moving material and filling in low areas. The wings can be pinned in their storage location when not being used.



- The Power Rake is designed to be operated so that the drum operates in both directions depending on the desired landscaping result. Allow the drum to stop completely before changing rotation direction to prevent damage to the hydraulic motor.
- The height of the Power Rake caster wheels can be adjusted for various machines and working depths. To adjust, remove the lynch pin at the top of the caster wheel. Remove the spacers and caster wheel. Place the desired number of spacers on the caster wheel, reinstall the caster wheel to the arm and place remaining spacers on top and reinstall lynch pin. Make sure both caster wheels are adjusted the same.

Raking Recommendations

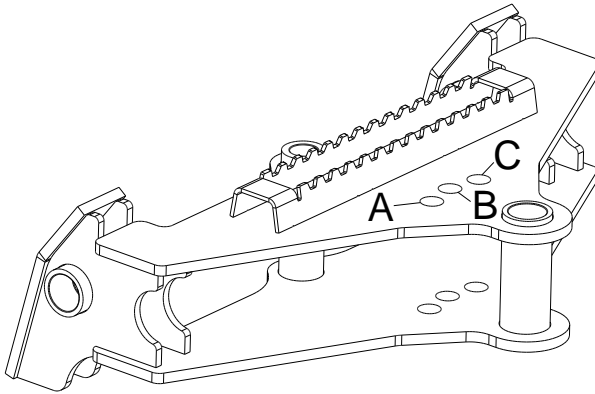
- When raking, it is recommended that the drum rotate in the opposite direction of travel.



- If the Power Rake drum stalls, the travel speed is too fast or the drum depth is too deep. Slow down travel speed or decrease drum depth by raising the boom.
- Raking under wet conditions is not recommended as the soil will stick to the drum and teeth and result in decreased performance.
- When working in sod or compacted soils, multiple passes may be required to achieve desired results.
- Mowing and removing tall grass and weeds before raking an area will improve Power Rake performance since this will minimize wrapping of the grass and weeds around the drum.

Manual Angle Operation

- Manual angle operation is achieved with a pin located near the head pivot pin. Angles that are available are straight, 25° right or 25° left.
- To change the angle of the Power Rake head, lift Power Rake off of the ground, remove the pin, swing the head in the desired direction and reinstall pin. Make sure drum is not rotating and machine is shut off when changing the angle manually.



Pin location for various discharge directions:

- Left side discharge: Pin location A.
- Straight discharge: Pin location B.
- Right Side discharge: Pin location C.

Optional Hydraulic Angle with Electric Control Operation


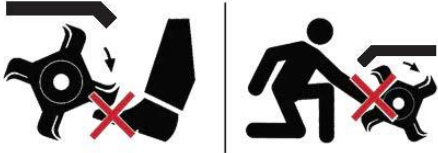
- If the machine has the electrical package (7 pin, 8 pin or 14 pin connector for skid loaders), connect the attachment electrical plug to the plug on the boom arm of the loader when hooking up the attachment to the loader. The angle of the Power Rake should now be controlled by an electrical switch located in the operator station of the machine.
- If the machine does not have an electrical package, there are 2 options to make the Hydraulic Angle with Electric Control work. If the machine has a 12 volt accessory plug (cigarette lighter), you can use the optional control box for power. If the machine does not have a 12 volt accessory plug, a 12 volt accessory outlet is available from Virnig Manufacturing to connect to the battery of the machine and then utilize the optional control box.
- In either of the above scenarios, the Power Rake needs to be running, drum rotating clockwise viewed from the motor side, before the electro-hydraulic angle will function. The hydraulic angle will not work if the drum is running in the reverse direction.

Maintenance

*Before each use and after every 10 hours of operation

- Grease hinge pins, linkage pins, casters and bearing (11 fittings on Manual Angle, 13 fittings on Hydraulic Angle with Electric Control).
- Make sure all safety labels are in place, look in the “Power Rake Labels” section in this manual for locations.
- Check for loose, worn, or missing parts, repair or replace as needed.
- Remove any foreign debris such as string, wire, etc. that may have wrapped around the drum.
- Inspect motor, manifold (if equipped), hydraulic fittings, and hoses for leaks and damage. Replace as needed. Make sure machine is shut off and hydraulic pressure is relieved before checking for leaks. Never use hands to check for high pressure hydraulic leaks.
- Contact your dealer for any required replacement parts.

Power Rake Labels

⚠ DANGER	
 <p>FLYING OBJECT HAZARD</p> <ul style="list-style-type: none">• Keep bystanders 50 feet away during operation.• Avoid or remove objects that could be thrown.• Do not operate without all guards properly installed.• Failure to follow these instructions could result in injury or death.	 <p style="text-align: center;">ROTATIONAL HAZARD</p> <ul style="list-style-type: none">• Keep hands and feet away from Power Rake while in operation or with engine running.• Stop engine and wait for all movement to stop before cleaning or maintaining.• See additional safety and operational instructions in Owner's Manual.• Failure to follow these instructions could result in injury or death. <p style="text-align: right;">10359PP</p>

10359PP – POWER RAKE DANGER LABEL

This label has several important instructions for safe operation regarding flying object hazards and rotational hazards.

⚠ WARNING
<ul style="list-style-type: none">• NEVER use hands to check for oil leaks.• ALWAYS relieve pressure before disconnecting hoses.• ALWAYS disconnect hoses before performing any maintenance on Power Rake.• Attachment must be securely latched to loader.• Before leaving operator's seat, lower lift arms to stops, disengage hydraulics, stop engine, engage parking brake and make sure all rotation has stopped.• Check for loose or broken parts before operating, repair as needed.• Avoid stalling Power Rake. Continued stalling will overheat hydraulic system.• ALWAYS follow loader safety and operating instructions.• Stay back 50 feet during operation.• See additional safety and operational instructions in Owner's Manual.• Read and understand all operating and safety instructions in Owner's Manual before operating.• Failure to follow these instructions could result in injury or death. <p style="text-align: right;">10358PP</p>

10358PP – POWER RAKE WARNING LABEL

All bystanders must stay clear during operation.

This label has several important instructions that must be followed for safe operation of this attachment.

Power Rake Labels (cont.)



5264PP – CRUSH HAZARD WARNING LABEL

This label has several important instructions that must be followed for safe operation of this attachment.



5263PP – PINCH POINT WARNING LABEL

Always keep hands clear of linkages when loader hydraulic system is operational.



7490PP – 25 GPM MAX LABEL

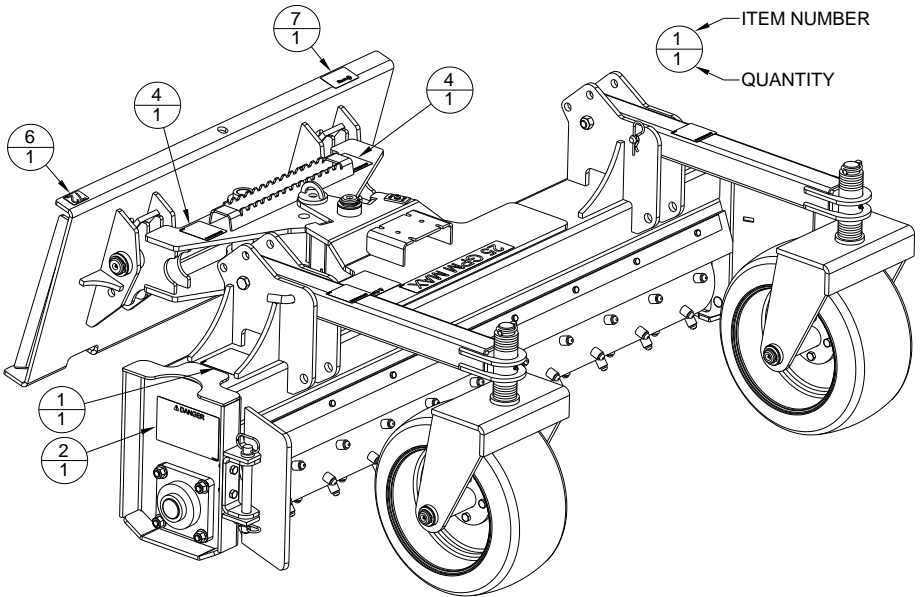
This label indicates the maximum flow rate for this attachment.

Power Rake Labels Parts List

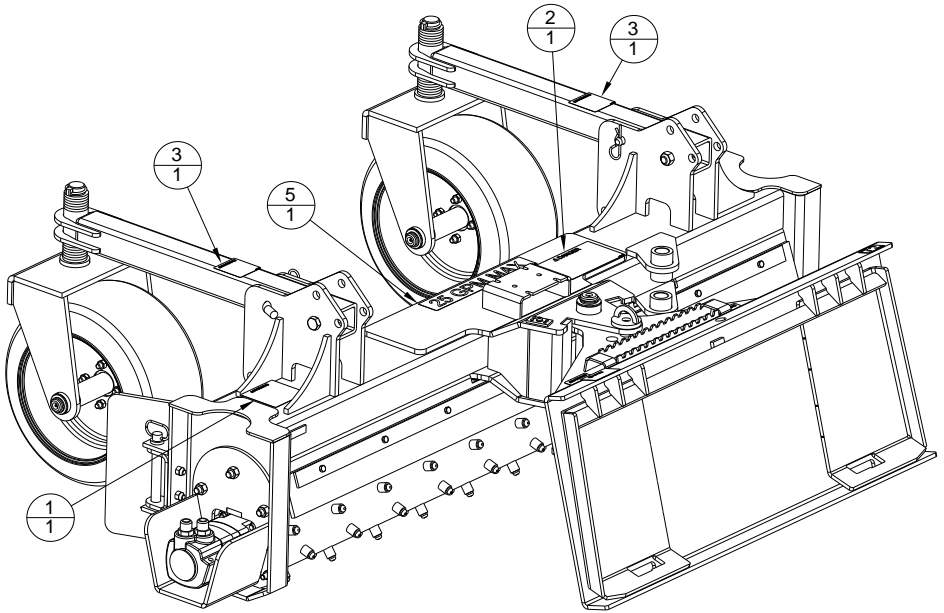
ITEM	PART NO.	QTY	DESCRIPTION
1	10358PP	2	POWER RAKE WARNING LABEL
2	10359PP	2	POWER RAKE DANGER LABEL
3	5263PP	2	PINCH POINT WARNING LABEL
4	5264PP	2	CRUSH HAZARD WARNING LABEL
5	7490PP	1	25 GPM MAX LABEL
A 6	9397PP	1	72 WIDTH LABEL
	9400PP		90 WIDTH LABEL
7	SERIALTAG	1	SERIAL NUMBER TAG

A – Power Rake supplied with one of each, depending on width.

Power Rake Labels Illustration



Power Rake Labels Illustration (cont.)



Power Rake (PWR) Parts List

ITEM	PART NO.	QTY	DESCRIPTION
1	1003PP	6	1/2"-13 REVERSE LOCK NUT
2	1008PP	7	5/8"-11 TOP LOCK NUT
3	1011PP	2	3/4"-10 TOP LOCK NUT
4	10684PP	1	5/16"-18 X 3 1/4" LG HHCS
5	1034PP	10	1/4"-28 STRAIGHT GREASE ZERK
6	1075PP	1	3/8" LOCK WASHER
7	1094PP	4	1 1/4" X 10GA MACH BUSHING
8	1095PP	4	1 1/4" EXTERNAL SNAP RING
9	1097PP	6	1 9/16" X 10GA MACH BUSHING
10	1098PP	6	1 9/16" EXTERNAL SNAP RING
11	1111PP	8	1 1/4" DIA X 1 9/16" LG BUSH
12	5194VP	2	CLAM PIVOT PIN
13	8866PP	8	1/2"-13 X 1 3/4" LG HHCS GR 8
14	5226PP	4	1/2"-13 X 1 1/2" LG HHCS
15	5586PP	16	1 9/16" DIA X 1 9/16" LG BUSH
A 16	6140PP	--	3/8"-16 TOP LOCK FLANGE NUT
17	6716PP	4	9/16"-12 X 2 1/4" LG HHCS GR8
18	6717PP	4	9/16" HI-ALLOY LOCK WASHER
19	6863PP	3	7/16" X 1 3/4" LG LYNCH PIN
20	6970PP	1	3/8"-16 X 3 1/2" LG HHCS
21	7311VP	1	BALE GRAPPLE HINGE PIN
22	7790PP	4	5/8"-11 X 2" LG CB
A 23	7335PP	--	3/8"-16 X 1 1/2" LG HHCS
24	8697PP	1	CLAMP HOSE ASSEMBLY 3/4" HOSE
25	7773PP	1	2" BEARING W/4 HOLE FLANGE
26	7908VW	1	HYD MOTOR DRIVE ADAPTER WDT
27	7931VW	1	ANGLE BROOM ADAPTER FLANGE WDT
28	7957PP	4	5/8" SAE FLAT WASHER
29	7968PP	2	7/8" X 8" LG HITCH PIN
30	8263PP	2	ADAPTER 12MJ TO 12MB
31	8276PP	2	HYD HOSE 3/4" X 78" LG 12MB TO 12FJX
32	8460PP	2	ELBOW 90 12MJ TO 12MJ
33	12040PP	8	1/2" DELTA PROTEKT WASHER
34	8734PP	1	COUPLER FEMALE 12FB CUP
35	8735PP	1	COUPLER MALE 12FB CUP
36	8949PP	3	5/8"-11 X 1 3/4" LG HHCS GR8
37	10745PP	1	MOTOR PWR/TLR 24.0 CID 4K
38	8986PP	2	1/2"-13 X 1 3/4" LG CB

Power Rake (PWR) Parts List (cont.)

ITEM	PART NO.	QTY	DESCRIPTION	
	39	9052VW	1	POWER RAKE QT WELDMENT
	40	9053VW	1	POWER RAKE A-FRAME WELDMENT
	41	9056VW	1	POWER RAKE MOTOR HOUSING WDT
	42	9057VW	2	POWER RAKE CASTER ARM WELDMENT
A	43	-----	1	POWER RAKE FRAME WELDMENT
A	44	-----	2	DEFLECTOR RUBBER
A	45	-----	2	DEFLECTOR HOLDING STRIP
A	46	-----	1	DRUM WELDMENT
	47	9066VW	2	POWER RAKE CASTER WELDMENT
	48	9067VW	2	POWER RAKE CASTER HUB WDT
	49	9070VP	24	CASTER SPACER WASHER
	50	9107VW	1	DRUM ENGAGEMENT PLATE WDT
	51	9124VP	2	CASTER HUB PIN
	52	9129VW	1	POWER RAKE ANGLE PIN WELDMENT
	53	9142VP	2	POWER RAKE WING MOUNT
	54	9143VW	2	POWER RAKE WING WELDMENT
	55	9717PP	4	9/16"-12 TOP LOCK NUT
A	56	-----	2	HYD HOSE 3/4" 12FJX TO 12FJX
	57	9990PP	2	3/4" X 4 1/2" LG BENT LEG PIN
	58	9991PP	2	3/4"-10 X 5" LG HHCS
	59	9992PP	2	CASTER WHEEL
	60	9998PP	8	1/2"-20 X 1 1/2" LG HHCS GR8
	61	9999PP	8	1/2"-20 WHEEL NUT
	62	7672PP	1	5/16"-18 TOP LOCK FLANGE NUT

A – See Table 1.

Power Rake (PWR) Parts List (cont.)

Table 1

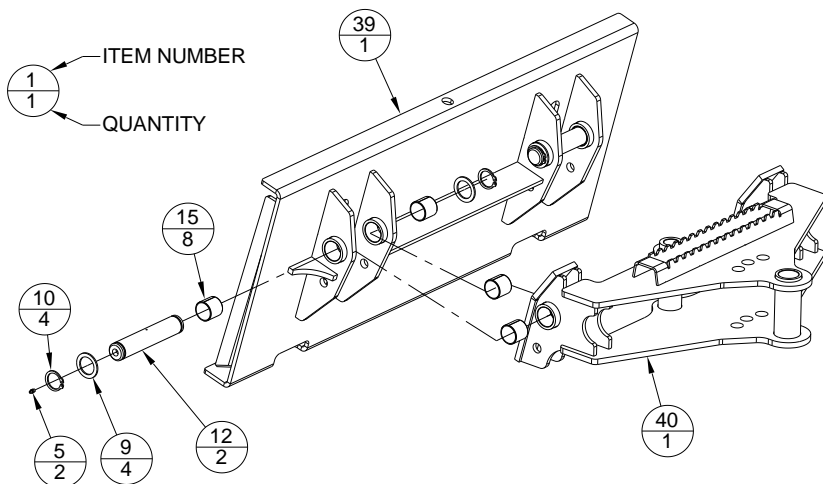
MODEL	PWR72	PWR90
POWER RAKE FRAME WELDMENT	11198VW	11199VW
DEFLECTOR RUBBER	9061VP	10067VP
DEFLECTOR HOLDING STRIP	9062VP	10068VP
DRUM WELDMENT	11200VW	11201VW
3/8"-16 TOP LOCK FLANGE NUT	16	20
3/8"-16 X 1 1/2" LG HHCS	16	20
HYD HOSE 3/4" 12FJX TO 12FJX	9989PP 54"	10087PP 62"
WEIGHT (lb)	1335	1440

Power Rake Drum Speed

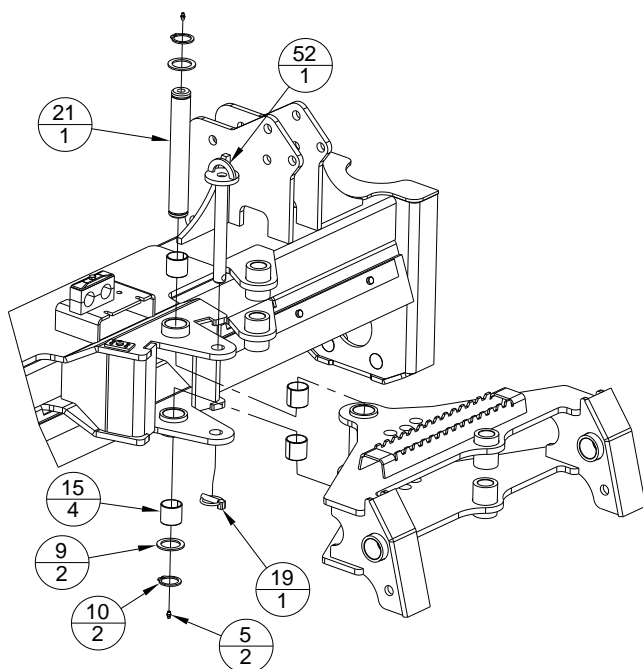
FLOW RATE (gpm)	SPEED (rpm)
16	154
18	173
20	193
22	212
24	231

Speeds are the same for all widths.

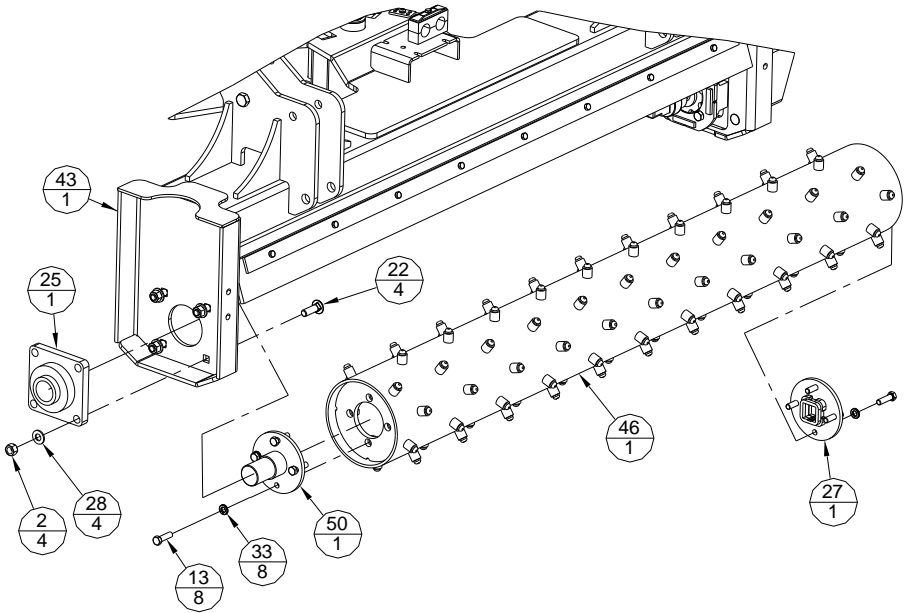
Power Rake Quick Tach Assembly



Power Rake A-Frame Assembly

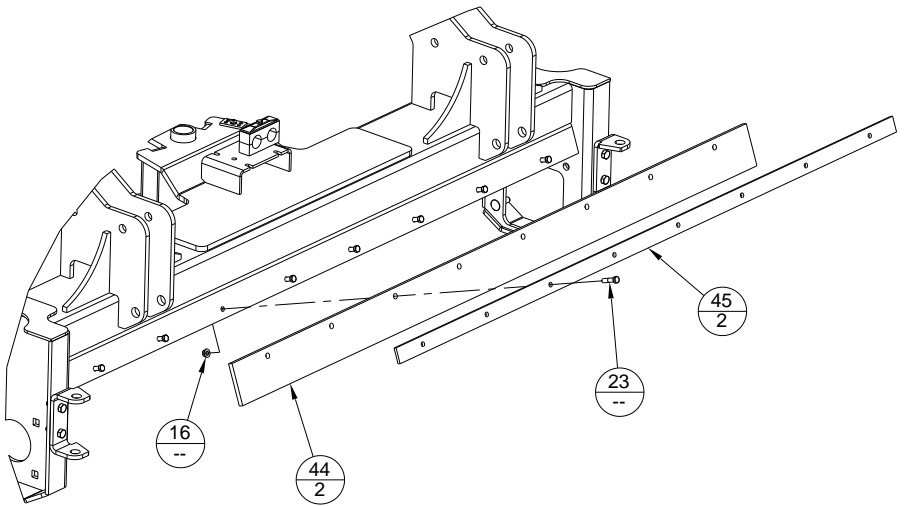


Power Rake Drum Installation

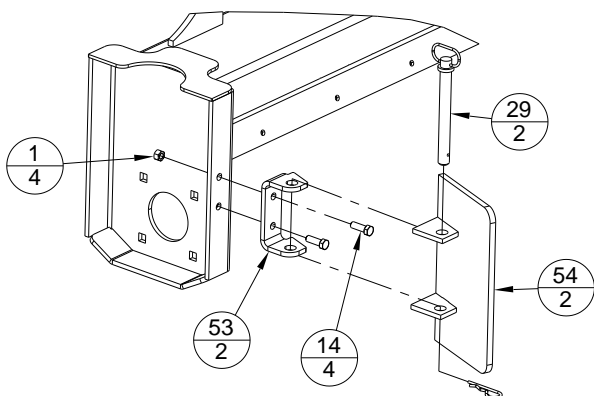


Torque item 13 to 64 Ft.-Lb.

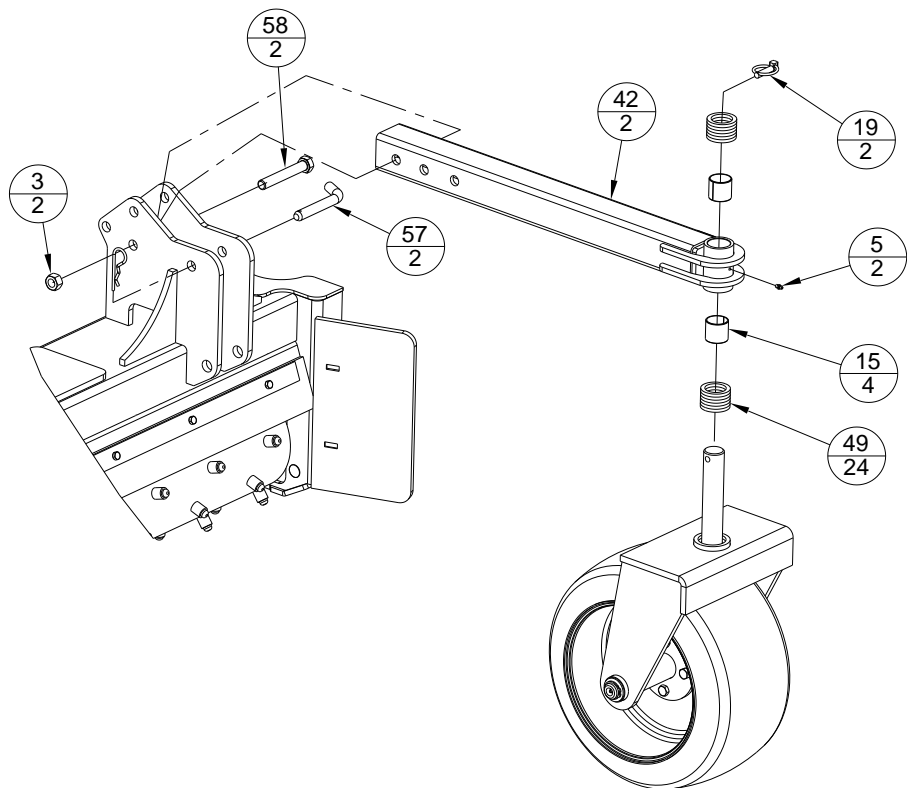
Power Rake Rubber Deflector Installation



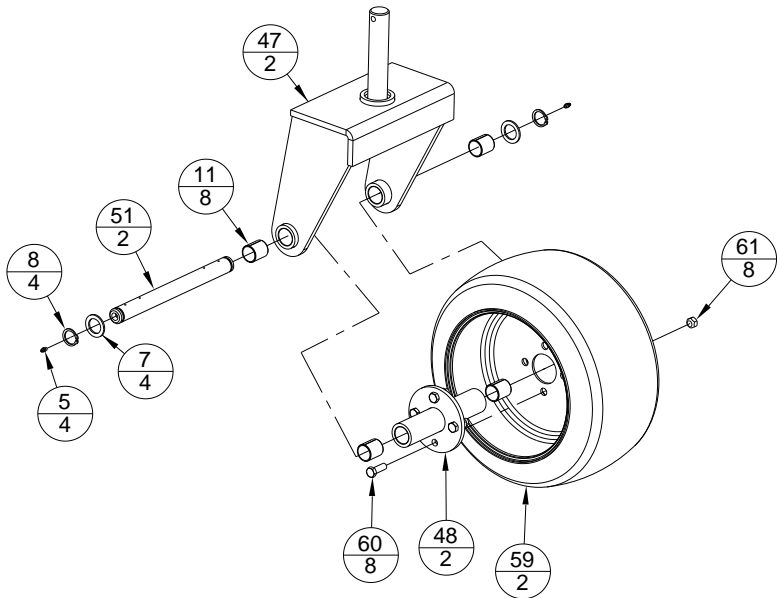
Power Rake Wing Installation



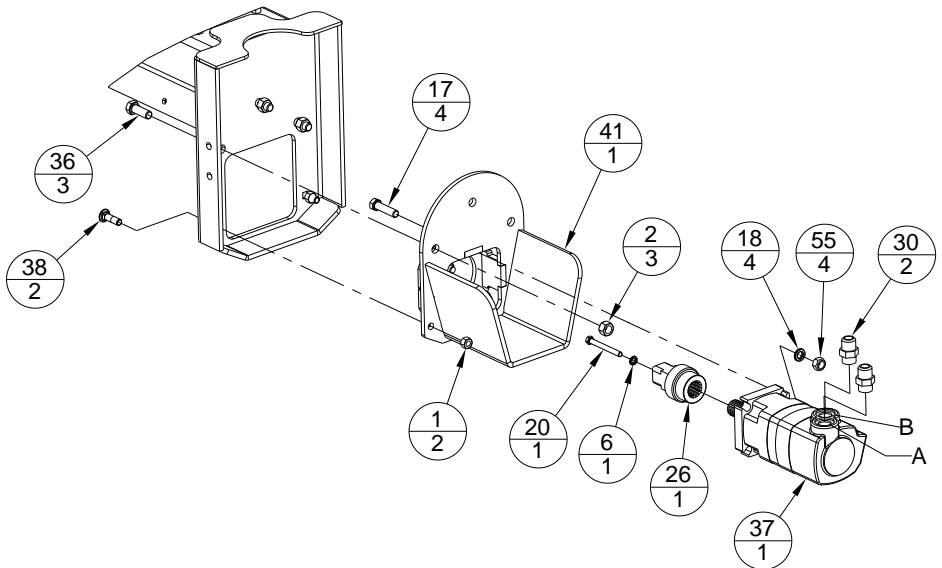
Power Rake Caster Arm Installation



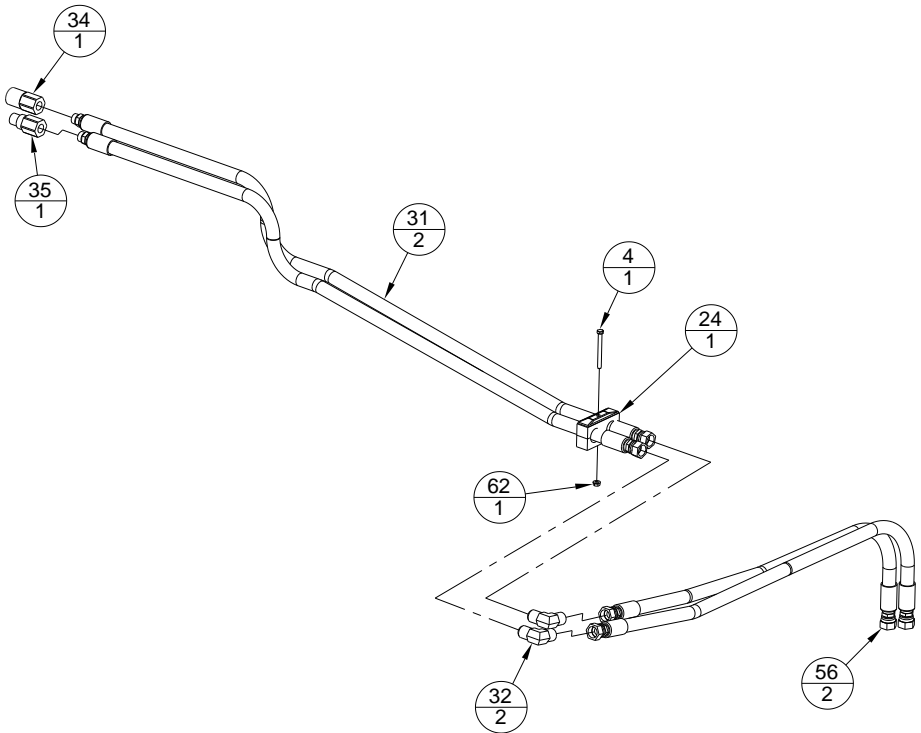
Power Rake Caster Wheel Installation



Power Rake Motor Installation



Power Rake Hydraulic Installation



Standard Coupler Assembly

- Connect female coupler to motor port B (inner port).
- Connect male coupler to motor port A (outer port).

Optional Hydraulic Angle with Electric Control Parts List

ITEM	PART NO.	QTY	DESCRIPTION	
1	6998PP	2	ELBOW 90 LONG 6MJ TO 6MB	
2	1034PP	2	1/4"-28 STRAIGHT GREASE ZERK	
3	1067PP	1	HOSE CLAMP FOR 1/4" HOSES	
4	1075PP	3	3/8" LOCK WASHER	
5	1083PP	3	3/8" USS FLAT WASHER	
6	1094PP	4	1 1/4" X 10GA MACH BUSHING	
7	1095PP	4	1 1/4" EXTERNAL SNAP RING	
8	1117PP	1	5/16"-18 X 1 1/2" LG HHCS	
9	1137PP	1	HYD HOSE 1/4" X 47 1/2" LG 6FJX TO 6FJX	
10	1139PP	1	HYD HOSE 1/4" X 53 1/2" LG 6FJX TO 6FJX	
11	2137VP	2	CYLINDER PIN	
12	6682PP	1	ANGLE BROOM CYLINDER	
13	6997PP	2	ELBOW 90 6MJ TO 6MB	
14				
15	7849PP	3	3/8"-16 X 1" LG HHCS	
16	8263PP	4	ADAPTER 12MJ TO 12MB	
17	8264PP	2	ELBOW 90 12MJ TO 12FJX	
18	12520PP	1	PWR/VAB MANIFOLD UPDATED	
B	19	9602VA	1	BROOM WIRE HARNESS
A, B	20	9601PP	2	BROOM COIL W/ DEUTSCH PLUG

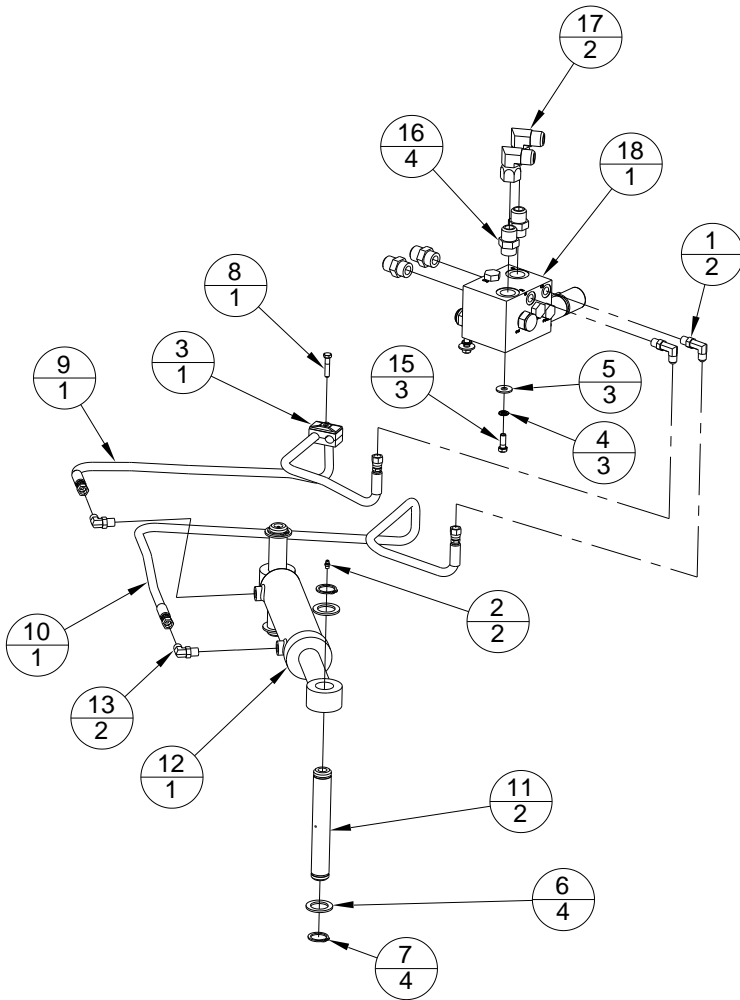
A – Broom Coil, Replacement Part Only.

B - Item not shown.

If Power Rake is equipped with the Optional Hydraulic Angle, the following parts from the Power Rake Parts List will not be used:

- Item #4-10684PP (Qty:1)
- Item #62-7672PP (Qty:1)
- Item #24-8697PP (Qty:1)
- Item #32-8460PP (Qty:2)
- Item #52-9129VW (Qty:1)
- Item #19-6863PP (Qty:1)

Optional Hydraulic Angle Installation



Standard Hydraulic Angle Connections

- Manifold port M1, inner motor port.
- Manifold port M2, outer motor port.
- Manifold port FWD, female coupler.
- Manifold port REV, male coupler.
- Manifold port C1, barrel end of cylinder.
- Manifold port C2, rod end of cylinder.

Electrical Harness Connections

