



Multi-Ject Aerator

Model no.: BA-400

Operation & Parts Manual

GORDON BANNERMAN LIMITED
41 Kelfield Street, Rexdale, ON M9W 5A3 Canada
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www.sportsturfmagic.com

Table of Contents

Cover Page	1
Table of Contents	2
Welcome to Bannerman	3
Warranty	4
Work Safety	5
Three Point Hitch Attachment Procedure	6
Operating Instructions	6
Parts List	8
Parts Diagram: CT/SS/ST Models	10
Three Point Hitch Kit	11
Tag-Along Kit	12
Roller Kit	13
Core Tine Installation	14
Slitter/Slicer Tine Installation	15
Hydraulic Top Link	17
Contact Information	18

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Multi-Ject Aerator (BA-400)

Dear Owner,

Welcome to Bannerman, the Home of Sports Turf Magic.

Your new Bannerman **BA-400 Multi-Ject Aerator** is designed to meet your aeration requirement. The ease of operation and low maintenance will give you many trouble free hours of operation. Please make certain that you read and understand the important instructions for the assembly, adjustment, operations, safety, and maintenance contained in this manual. If there are any instructions which you do not fully understand, contact either your dealer, of Bannerman Ltd. for clarification prior to using the unit.

When in need of replacement parts, specify the model and serial number of your equipment. The serial plate that identifies your model number and the serial number is located on the three point hitch mast or the underside of the weight tray. To give you many years of service, regular preventative maintenance is required. Should you require further assistance, please feel free to contact your local Bannerman dealer or Bannerman directly.

Regards,



George Bannerman
Corporate Secretary

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Warranty

Bannerman Ltd warranties all **Bannerman BA-400 Multi-Ject Aerators**, when applied and installed, to be free from defects in material and workmanship under normal use and service for a period of 1 year from date of use. We must receive the Warranty Card and Declaration or Delivery Card filled out in its entirety, via post, fax, or email within 15 days of date of sale. It is the responsibility of the end user to make sure that the Warranty Card has been filled out and submitted to Bannerman Ltd. This warranty does not guarantee a particular service life of the products. Service life will vary with application, operating environment, level of maintenance and other factors beyond our control.

Bannerman Ltd's sole responsibilities for the **Bannerman BA-400 Multi-Ject Aerator** or parts determined to be defective and covered by this warranty is limited to repairing the product or part. *An allowance is to be applied to the labour cost for the removal and replacement.*

Prior authorization from **Bannerman Ltd** must be obtained before replacing or returning any part (s), or incurring any cost of labour. No charges for expense incurred in parts, labour or transportation by unauthorized persons will be allowed under this warranty. **Bannerman Ltd** reserves the right of any part or Bannerman assembly (with transportation prepaid) claimed to be covered under this warranty.

Bannerman Ltd shall not be liable, in event, for proximate, incidental, consequential, special or other damages. This includes, but it not limited to, damages for loss of production, loss of profit, loss of opportunity, or injury to persons arising out of any breach in this warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR PARTICULAR PURPOSE, OR ANY OTHER WARRANTY EXTENDING BEYOND THAT SET FORTH ABOVE.

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Work Safely - Follow These Rules!

-A careful operator is the best insurance against an accident-

Be sure to pay proper attention to these instructions concerning your personal safety. Be sure to observe and follow these instructions

Warning: Before handling any equipment, read this operation manual

1. Do not wear loose fitting clothing that may catch in moving parts
2. Use extreme care when making adjustments
3. Always use the proper tools or equipment for the job at hand
4. When working under or around the tines, the frame must be supported
5. When not in use the **BA-400 Multi-Ject** three point hitch model attachment should have the jack leg extended down and the safety pins engaged. This will prevent the implement from tipping when detached from the tractor
6. Prior to lowering, and unhitching the **BA-400 Multi-Ject Aerator**, lower the jack leg(s) and insert the jack safety pin(s)
7. Remove all tools, parts and maintenance equipment from the weight tray after servicing the **BA-400 Multi-Ject Aerator**
8. Before and during operation the area should be checked to assure that it is clear of obstacles, hazards and personnel. **Know where and how deep your gas, water, and electrical lines are buried**
9. Extreme caution should be exercised when the operating close to ditches, fences, or on hill sides
10. Do not over-ballast the weight box. This will result in the loss of front steering and the tractors stability. In extreme cases front counter-balancing may be required
11. No riders other than the tractor operator. Never allow anyone to ride on the **BA-400 Multi-Ject Aerator** frame at any time.
12. Do not attempt to remove obstructions while the aerator is in motion
13. Hands, feet, clothing, and other objects must be kept away from all moving parts
14. Always place **the BA-400 Multi-Ject** in the "transport position" when moving extended distances
15. The tractor used for the proper transportation of the unit should be equal to the size and horsepower to the tractor used for field operations
16. Drive at a reasonable speed. This will allow the operator to maintain complete control of the tractor and the implement at all times. Do not exceed 24km/h (15mi/h)
17. Aerator transporters are not intended for highway operation
18. **Gasoline/Petrol is highly flammable.** Do not smoke while refueling the engine

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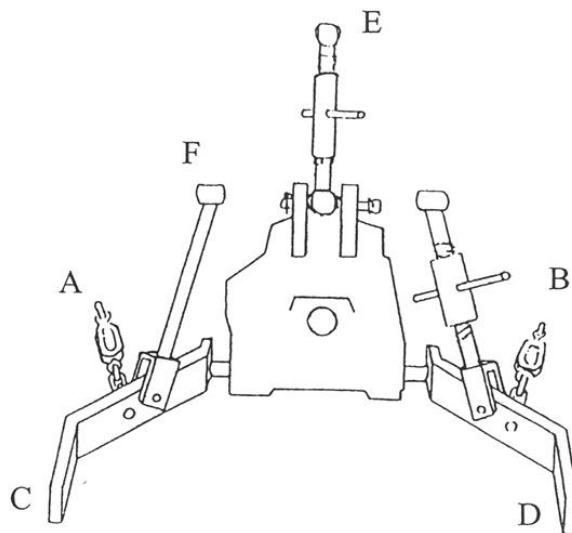
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Three Point Hitch Attachment Procedure

1. Prior to hitching to the **BA-400 Multi-Ject Aerator**, it must be held in an upright, level position by jack legs
2. Back the tractor up until the lower arm ball joint is inside the aerator double lugs
3. Install the proper class of link pins supplied to retain both lower link arms
4. Attach the upper link (turnbuckle or hydraulic top link) between the aerator double lugs, using the proper class of link pin and lynch pin
5. Once the **BA-400 Multi-Ject Aerator** is attached, adjust the “lateral limiters” (or sway chains using turnbuckles) slack in the lower link arms. Make sure the unit is square to the tractor
6. Lift the **BA-400 Multi-Ject Aerator** hydraulically; completely retract the jack legs.
Warning: Tines are sharp. To avoid injury, keep hands and feet away from the tine shafts
7. Lower the **BA-400 Multi-Ject Aerator** to the ground, adjust the top link turnbuckle or hydraulic top link until the aerator’s mast is perpendicular to the ground
Note: This adjustment will ensure that the aerator will be in the correct position, both vertical and level when operating
8. From the rear of the **BA-400 Multi-Ject Aerator**, add ballast to the weight box until full depth tine penetration into the ground is achieved. The amount of the ballast weight required will be determined by soil type, moisture content and the amount of compaction present. **Warning: Maximum ballast weight is 300lbs/ft.**

Three Point Hitch Diagram



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Operating Instructions

Danger: Contact with buried gas, electrical cable, or irrigation pipes can result in serious injury or death. Know the locations of these underground obstructions prior to aerating an area.

1. Lower the aerator into the ground with the tines at full depth penetration (or partial penetration if so desired by the operator)
2. Drive the tractor at speeds which are safe (tractor stability and steering ability is maintained) and comfortable for operator. Caution: Excessive tractor speed or radical operation when turning can endanger vehicle operation and operator safety.
3. Do not make sharp turns with the tines in the ground. The tines must be lifted out of the ground when making turns.
4. Severely compacted traffic areas may have to be aerated several times in 30 degrees across section patterns.
5. When the **BA-400 Multi-Ject Aerator** is not in use, remove the jack retaining pin, extend the leg to the maximum extension, re-insert the jack pin. Always use the extended jack legs for safe storage.
6. **Please Note:** In excessively stony conditions, reduce ballast, operating speed, and ensure hitch arms are in “float” slots on hitch or aerator.

Warning: Never operate the tractor if the front steering is inadequate or light in the front end.

Warning: If the combined weight of the aerator and the ballast exceeds the hydraulic lift capabilities of the tractors Three Point Hitch, then a tow behind unit is to be used.

Warning: Excessive ballast in the weight box will result in loss of tractor stability and the loss of steering ability. In these extreme instances, front counter balancing is required.

Warning: Insure that all weights used as either ballast, or counter-balancing is properly secured.

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BA-400 CT/SS/ST/RK/TA/3PT Models

1	02004	Nut, Nylon Insert 5/16"-18	2
2	02005	Washer, 5/16" Flat SAE	4
3	02024	Washer, 3/8" Flat SAE	4
4	02026	Bearing, Heavy Duty 1/2"	4
5	02060	Pin - Hitch	3
6	03016	Bolt, 3/8"-16X1" HHC	102
7	03022	Nut, Nylon Insert 3/8"-16	4
8	03024	Nut, Nylon Insert 1/2"-13	4
9	03032	Washer, 1/2 Flat SAE	164
10	03049	Washer, 3/8" Lock	4
11	03057	Bolt, 5/16"-18 X 1.5"HHC	5
12	03083	Bolt, 3/8"-16 X 1.25" HHC	2
13	04017	Bolt 1/2"-13 X 3.5"HHC	2
14	08055	Bushing, Brass Tine Assembly	4
15	08065	Wheel & Tire Assembly	2
16	08067	Slitter Slicer Tine	50
17	08085	Saddles	100
18	08086	"U" Bolt 3/8"	50
19	08087	Nut, Stover 3/8"	100
20	08094	Disc, Slitter/Slicer(Pair)	10
21	08101	Main Frame	1
22	08102	Tow Tongue	1
23	08103	Shaft - Tine	1
24	08104	Shoe - Skid	2
25	08106	Axle - Wheel	2
26	08107	Fork - Wheel	2
27	08108	Mast - 3 point Hitch	1
28	08109	Stands	4
29	08111	Tine Reel Assembly, FT (Bolt-On)	2
30	08115	Coring Tine 3/4"	50
31	08130	Tine Reel Assembly, CT & SS	2
32	08150	Frame - Mounting	1
33	08151	Frame - Trailing	1
34	08152	Pin - Clevis	4
35	08153	Stud - Hub	8
36	08154	Hub	2
37	08155	Bearing - Cup	2
38	08156	Bearing - Cone	2
39	08157	Cap - Wheel Hub	2
40	08159	Seal - Hub	2

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BA-400 CT/SS/ST/RK/TA/3PT Models (Continued)

41	08160	Frame - Roller	1
42	08161	Pivot - Roller Arm LH	1
43	08162	Pivot Hanger - LH	1
44	08163	Pivot Hanger - RH	1
45	08164	Shaft Roller	1
46	08165	Roller	1
47	08166	Bracket - Scraper	1
48	08167	Scraper - Clamp	1
49	08168	Rubber - Scraper	1
50	08170	Hose - Hydraulic 3/8" NPT	2
51	08171	Chain - Connector	4
52	08172	Chain - Suspension	2
53	08173	Pin - Adjusting Link	1
54	08174	Pin - Hitch	1
55	08175	Link - Adjusting	1
56	08176	Bolt - Eye	2
57	08175	Link - Adjusting	1
58	11210	Bolt, 3/8"-16 X 2.5" HHC	6
59	15046	Bolt, 3/8"-16 X 2.75" HHC	4
60	11234	Bolt, 1/2"-13 X 2" HHC	2
61	15027	Bearing, Roller	2
62	15041	Bolt, 3/4"-10 X 2" HHC	2
63	15042	Washer, 3/4" Lock	2
64	15116	Pin, Tow	2
65	15045	Pin, Lynch	2
66	15049	Pin - Pull, 3/8" X 3.5"	3
67	15150	Cylinder - Hydraulic	1
68	15152	Fitting - Cylinder	2
69	R10525	Wheel & Tire Assembly	2
70		Spacer, Wheel 1/2" X 1"	2
71	08112	Tine, Fracture	40
72	11222	Bolt, 1/2"-20 X 2" HHC	80
73	08549	Nut, 1/2"-20 Stover	80
74	08169	Lockout Assembly	1
75	08556	Jack, Screw	1
76	11212	Bolt, 3/8"-16 X 3.25" HHC	2
77	08177	Pigtail	1

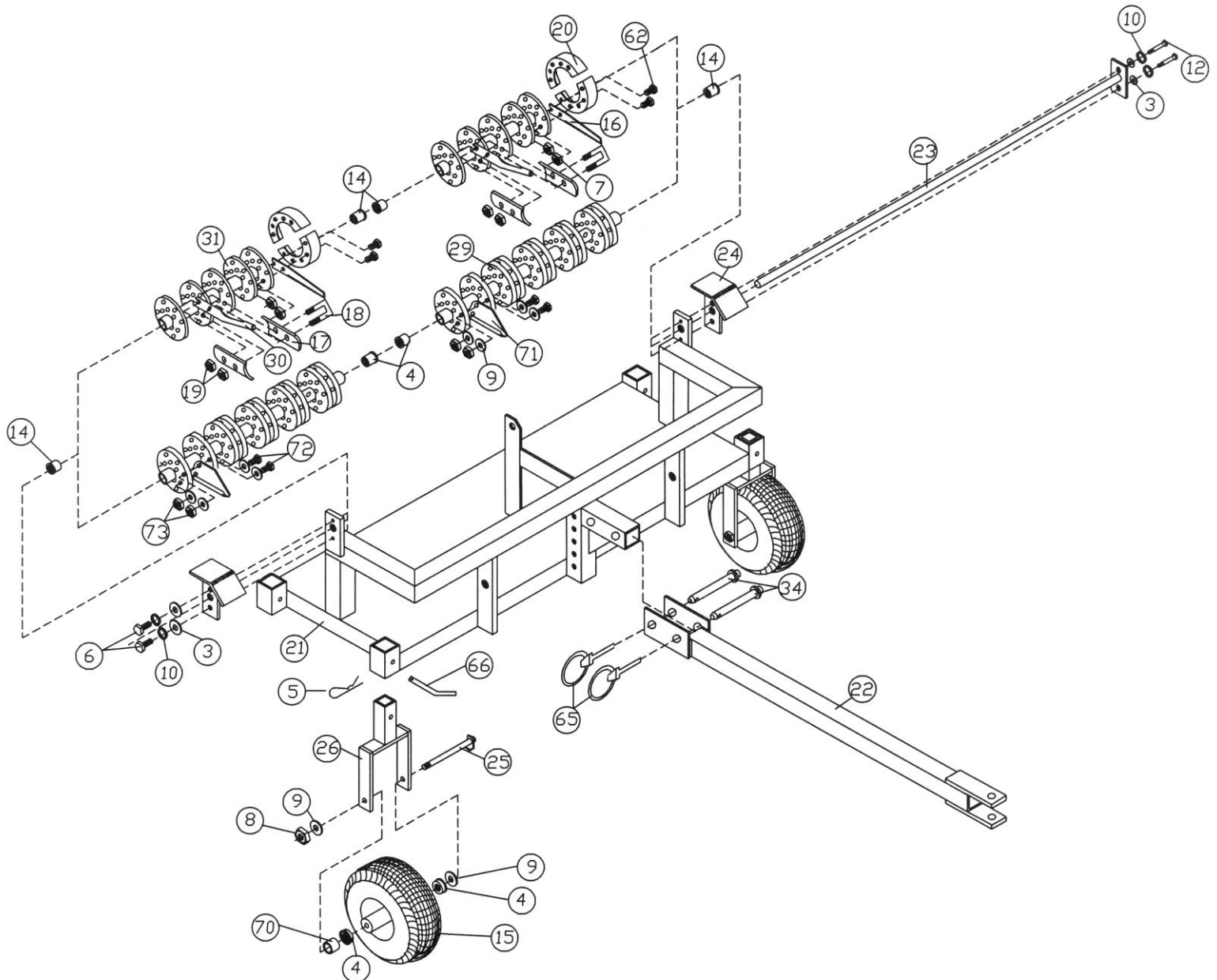
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Multi-Ject Aerator (BA-400) CT/SS/ST



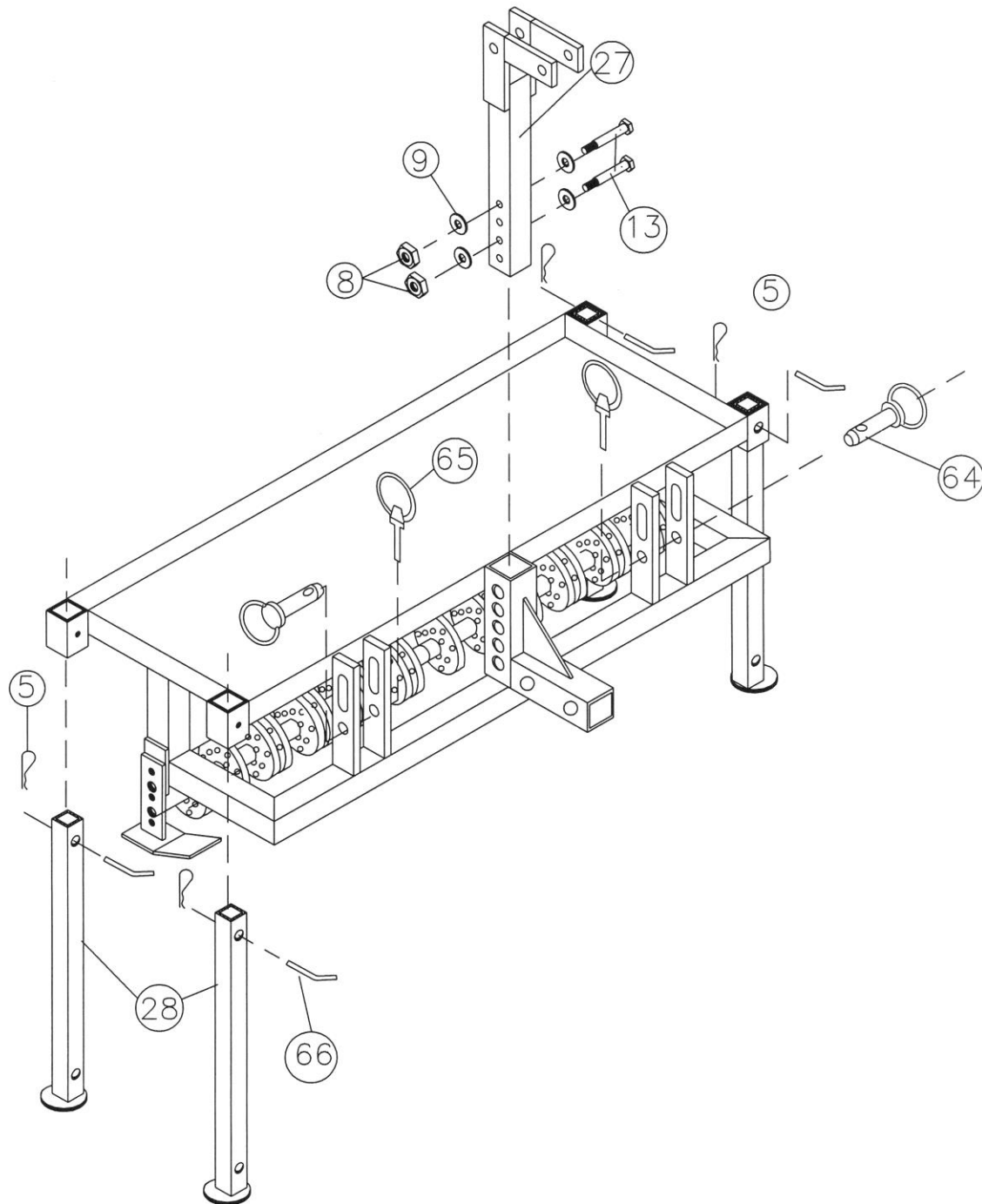
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Multi-Ject Aerator (BA-400) Three Point Hitch



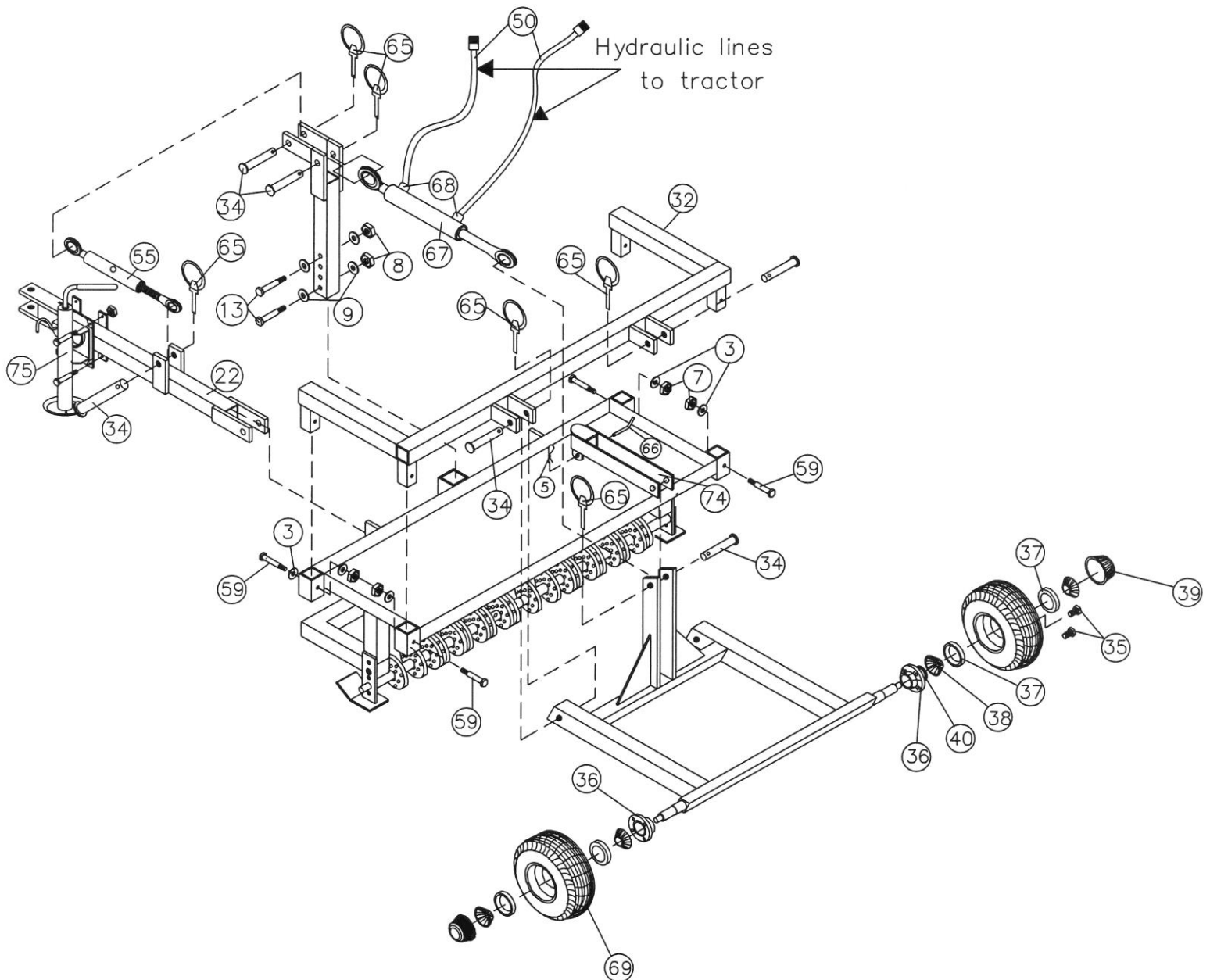
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Multi-Ject Aerator (BA-400) Tag-Along Kit



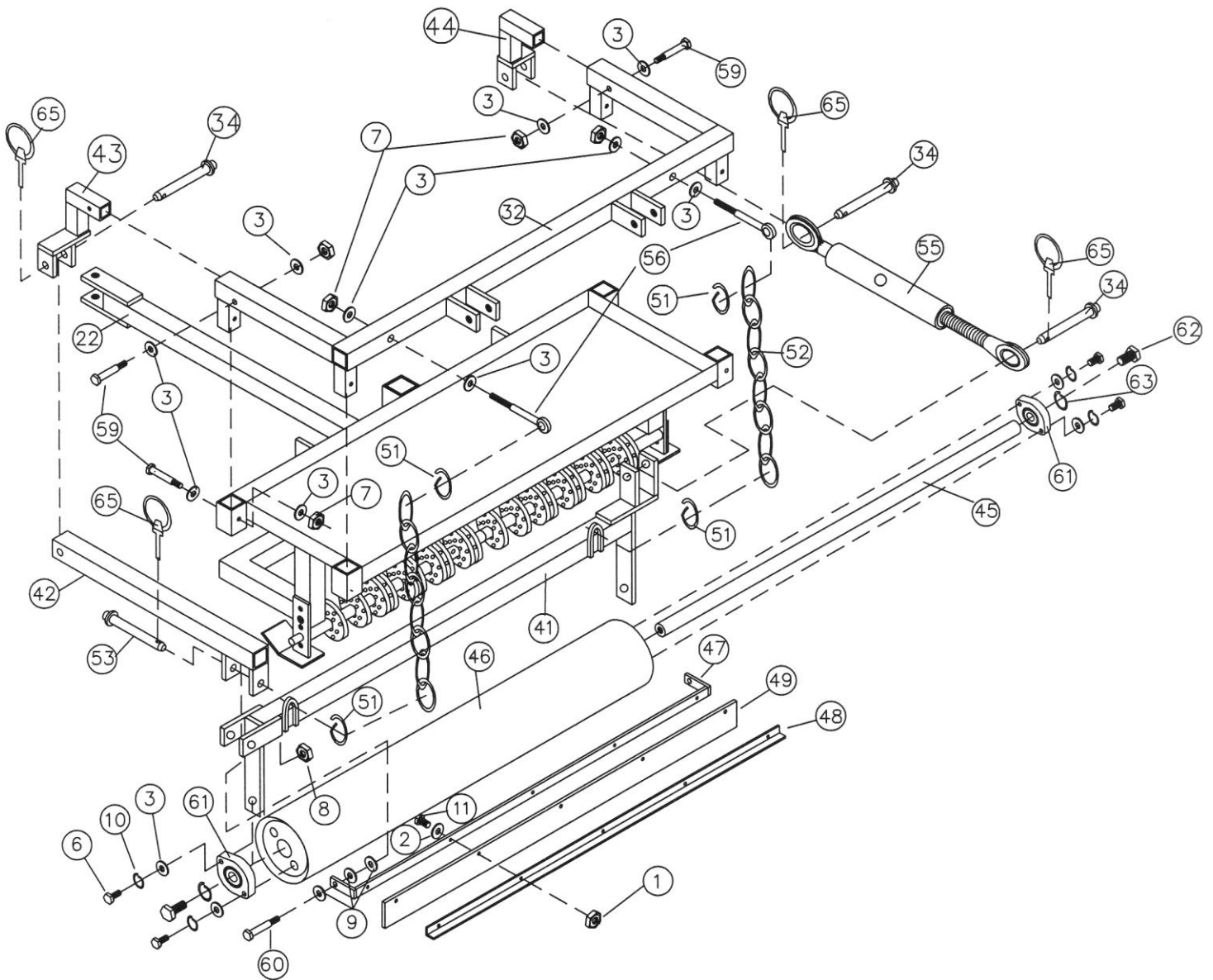
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Multi-Ject Aerator (BA-400) Roller Kit



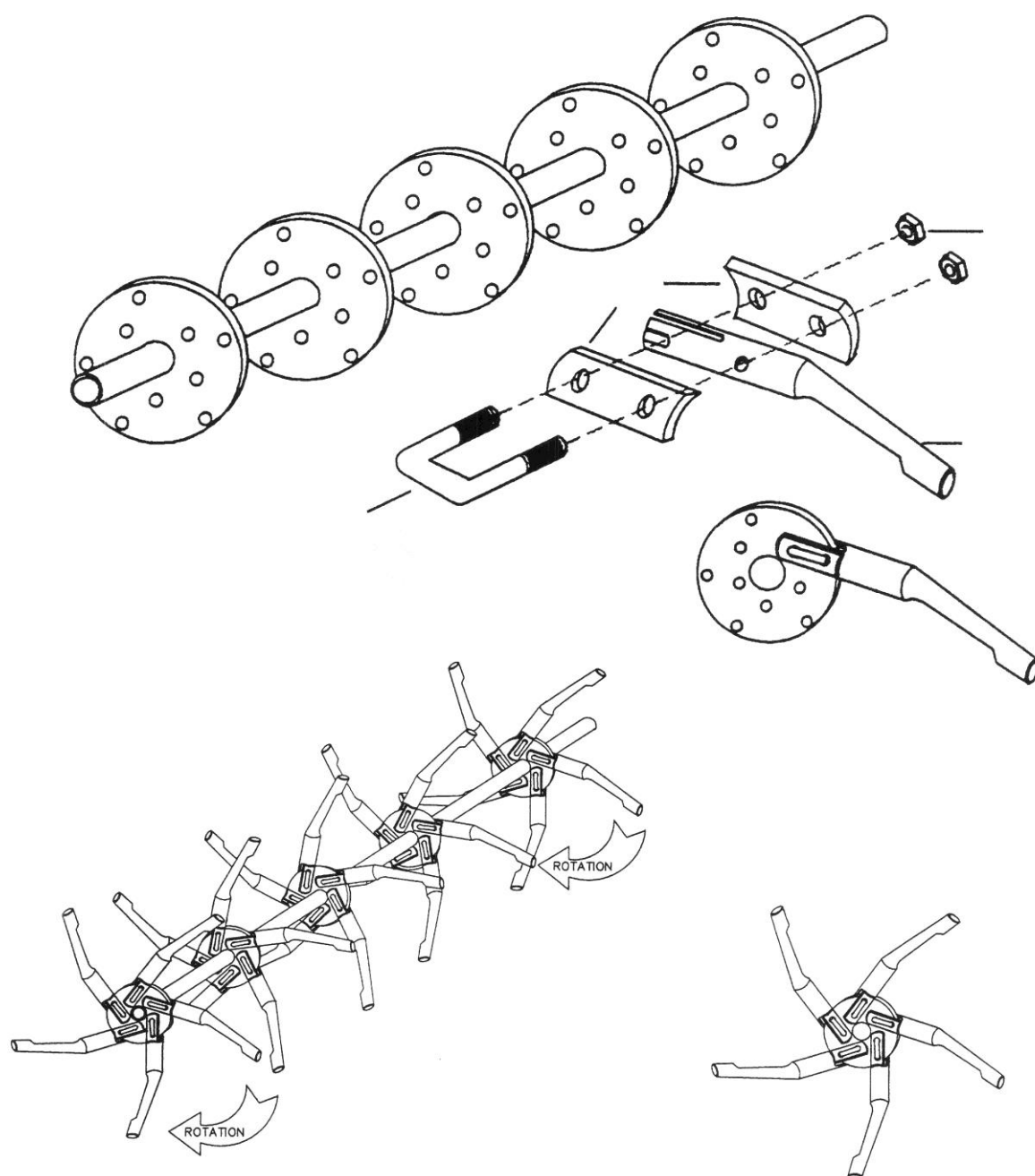
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Multi-Ject Aerator (BA-400) Core Tine Installation



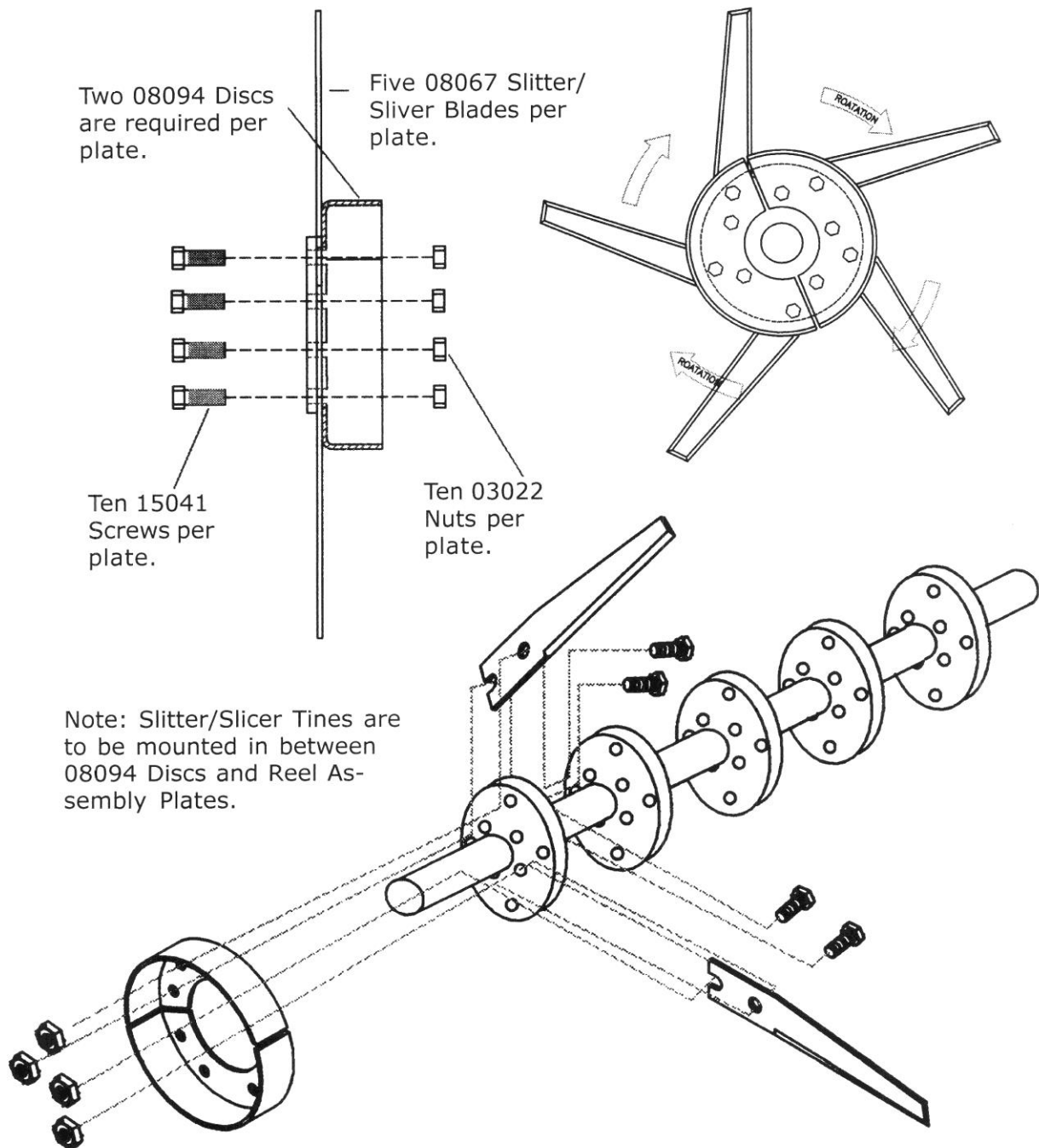
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Multi-Ject Aerator (BA-400) Slitter/Slicer Tine Installation



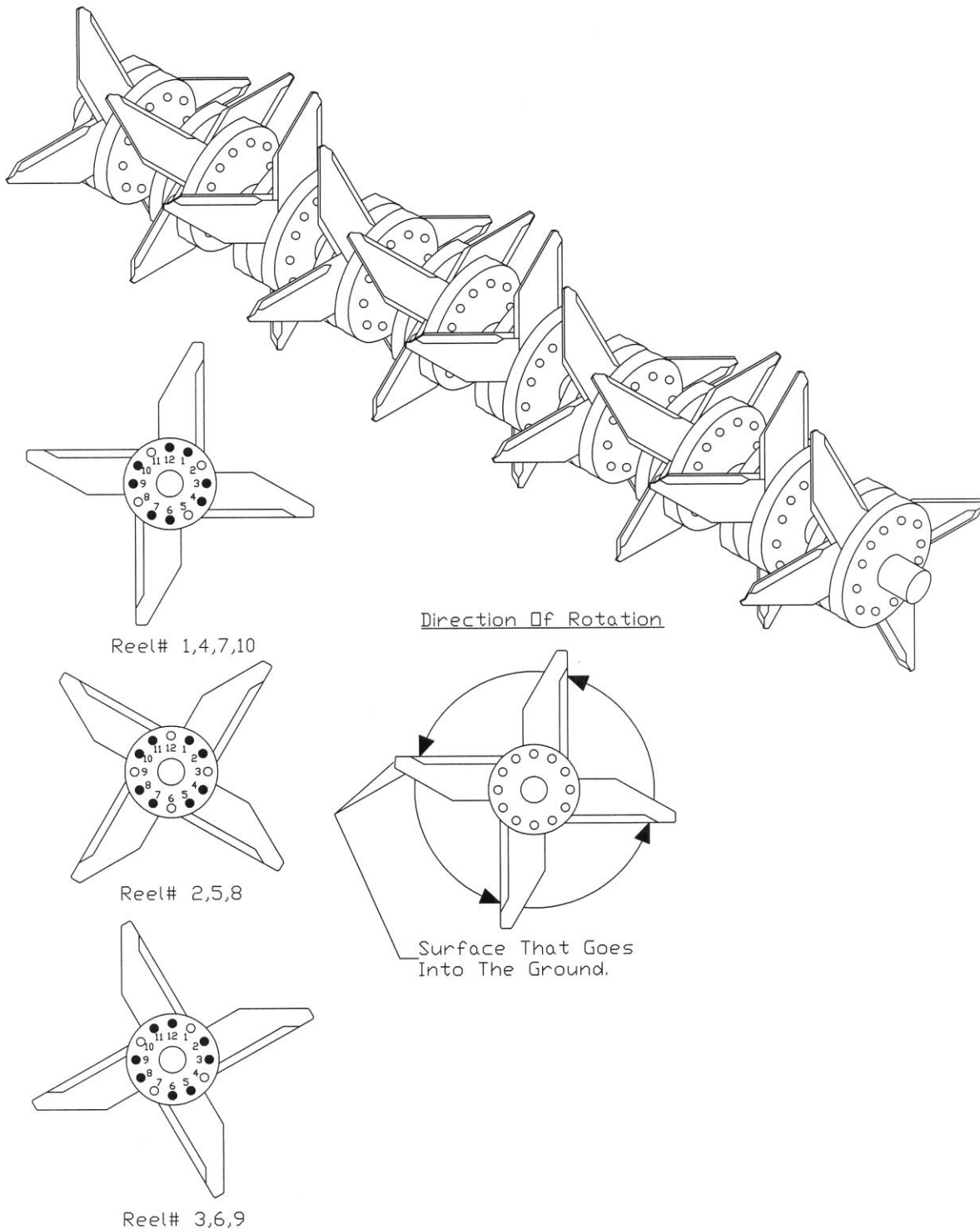
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Multi-Ject Aerator (BA-400) Slitter/Slicer Tine Installation



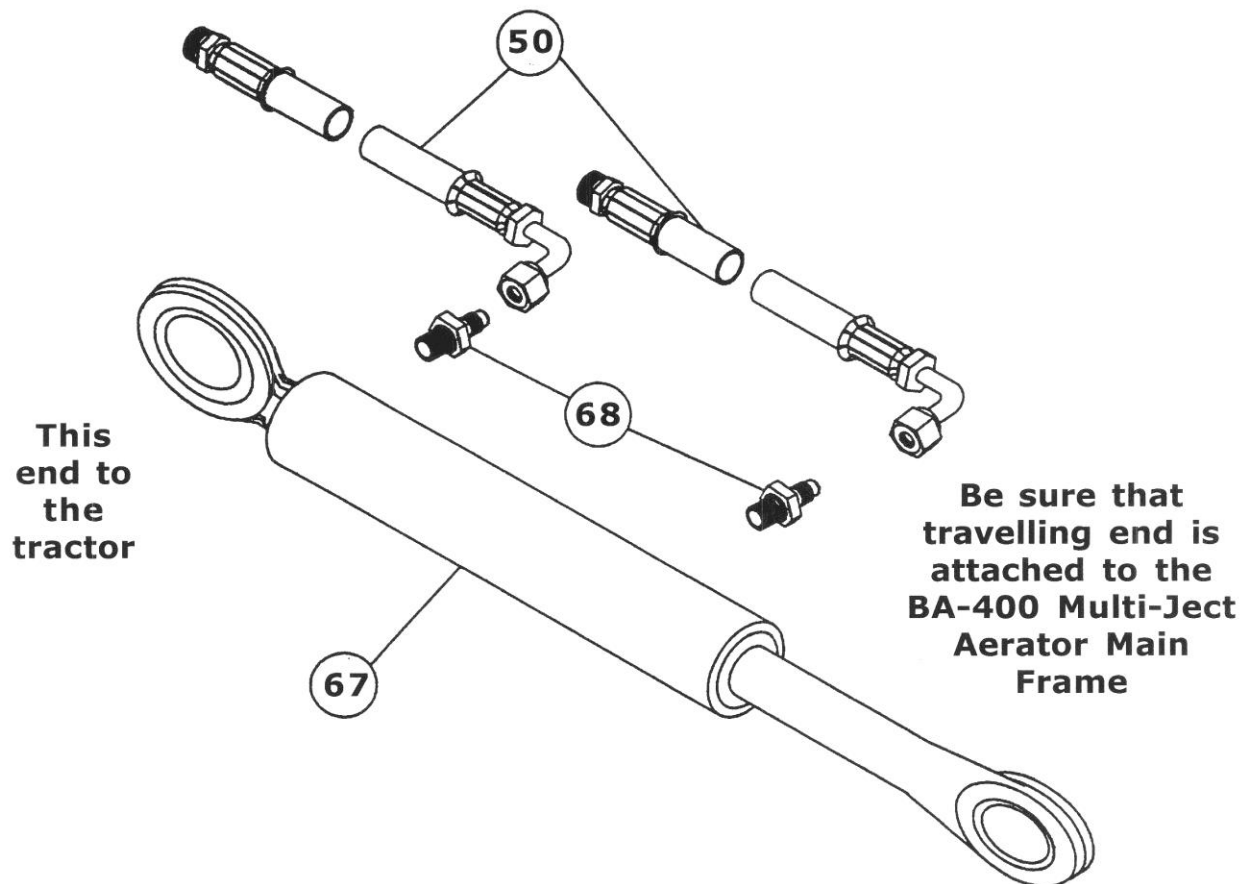
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Multi-Ject Aerator (BA-400) Hydraulic Top Link



**08170 Hoses are 108" long.
Hose ends are 3/8" NPT for No. 3 Quick Connectors.
Hoses are rated at 4000 PSI capacity.
Cylinders are rated at 2500 PSI Capacity.**

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