

# BANNERMAN



**BA-4 AIR-JECT AERATOR**  
**Model No.: BA-4**  
**Operation & Parts Manual**

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## Air-Ject Aerator Model no.: BA-4

Dear Owner,

Welcome to Bannerman, the Home of Sports Turf Magic.

Your new **BA-4 Air-Ject Aerator** is designed to improve your total grooming performance. The ease of operation and low maintenance will give you many trouble free years of use. 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 your dealer or Bannerman Ltd. for clarification prior to using the unit.

When in need of replacement parts, specify the model and the serial number of your new **BA-4 Air-Ject Aerator**. The serial plate that identifies your model number and the serial number is located on the right side at the rear of the main frame. 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

**GORDON BANNERMAN LIMITED**

41 Kelfield Street, Rexdale, ON M9W 5A3 Canada

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## Air-Ject Aerator (BA-4)

# E C Declaration of Conformity



Gordon Bannerman Ltd., 41 Kelfield Street, Rexdale, Ontario, Canada M9W 5A3  
As manufacturer certifies that the machinery stipulated below complies with all  
the relevant provisions of the:

### EC Machinery Directive

98/37/EC and other relevant directives  
and the National Laws and Regulations adopting this directive.

Manufacturer: Gordon Bannerman Ltd  
Machine Description: Lawn Aerator  
Type: BA-4M Air-Ject Aerator

Serial No.: \_\_\_\_\_

Harmonized standards applied: (including parts/clauses of):

EN 292 pt 1, EN 292 pt 2, EN 294 1992, BSEN 563;1994

Together with all the relevant National Technical Standards and Specifications as applicable:  
(including parts/clauses of):

"Responsible "Person empowered to sign George Bannerman Mr. George Bannerman  
Position in Company: Corporate Secretary

Date: Oct. 15/2002

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## Warranty Statement

**Bannerman Ltd** warrants all **Bannerman BA-4 Air-Ject Aerators**, when appropriately applied and installed, to be free from defects in material and workmanship under normal use and service, for 90 days from date of use. We must receive the Warranty Card and Declaration or Delivery Card filled out in its entirety, via mail, fax, or email within 15 days of the 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 responsibility for the **Bannerman BA-4 Air-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 expenses incurred for 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 the event of proximate, incidental, consequential, special or other damages. This includes, but is not limited to, damages for loss of production, loss of profit, loss of opportunity, or injury to persons arising out of any breach of 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.**

### **GORDON BANNERMAN LIMITED**

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Ontario, Canada, M9W 5A3

#### **CONTACT US:**

**CAN 1-800-325-4871**

**USA 1-800-665-2696**

[info@sportsturfmagic.com](mailto:info@sportsturfmagic.com)

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# Work Safely - Follow These Rules!

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

**Be sure to observe and follow these safety instructions**

**Warning: Before handling any equipment, read this operation manual**

1. Do not wear loose fitting clothing that may catch on 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 properly supported



**Warning: Gasoline/Petrol is highly flammable**

- Do not smoke while refueling the engine
- Do not refuel while the engine is running
- Do not touch a hot exhaust
- Do not operate near children or animals
- Do not allow persons under the age of 16 years to operate this machine
- Do not operate this machine while under the influence of alcohol or drugs
- Do not operate this machine pm a steep gradient
- Never operate this machine without the safety guards in place
- Keep hands and feet clear of the moving tines at all times
- Take care when adding or removing weights.
- Wear protective safety clothing: safety footwear, ear protectors, gloves, goggles, etc.
- Always start this machine at idle speed
- Before beginning to aerate, check the ground for obstructions such as underground cables, pipes, bricks, tree roots, etc.

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## Air-Ject Aerator (BA-4) Specifications

<b>Power Supply</b>	OVH Four Stroke Honda Gasoline/Petrol Engine	
<b>Transmission</b>	Engine Reduction Box Ratio – 6:1	
<b>Fuel</b>	Unleaded	
<b>Engine Oil</b>	10W40	
<b>Weight:</b>	250 lbs.	109 Kg
<b>Working Width:</b>	18 Inches	45 cm.
<b>Vibration:</b>	Dominant Axis 8.7m/sec <sup>2</sup>	
<b>Recommended tire pressure</b>	8 PSI	

<b>Noise Reading at Operator Station</b>	
( A )Weighted sound pressure	84.9 dB ( A )
( C ) Peak Weighted Sound Pressure	117.7 dB ( C )
<b>GUARANTEED sound power level: Lwa 96dB (A)</b>	

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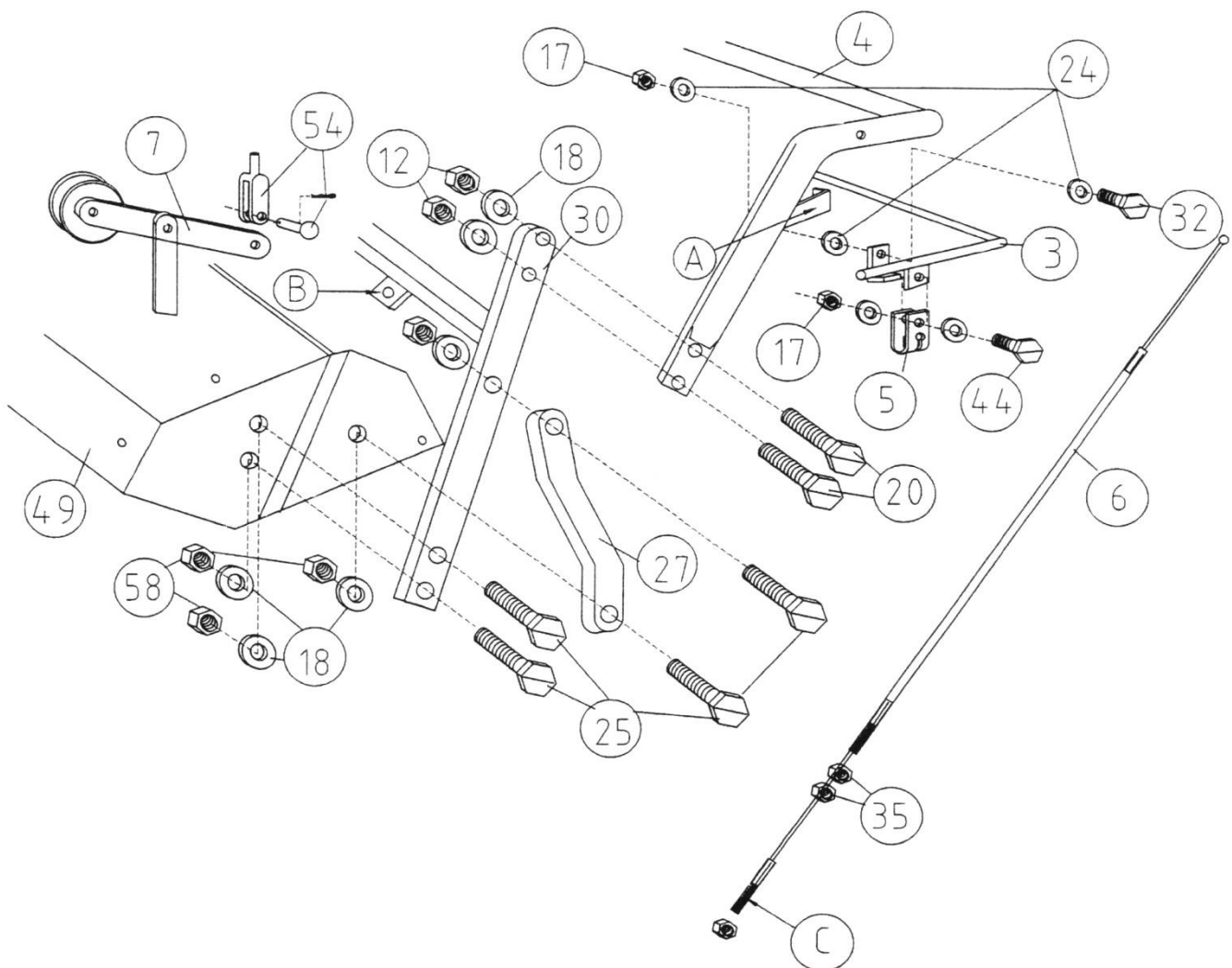
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## Assembly

1. Install the lower handle to the main frame using 8 of the 3/8" X 1" bolts, 8 of the 3/8" nuts, and 16 of the 3/8" flat washers, which are provided. Tighten later.
2. Install the lower handle support bars – tighten fasteners on either side of the handle. Tighten all nuts and bolts securely.
3. Install the upper handle using 4 of the 5/6" bolts, 4 of the 5/16" locknuts, and 8 of the 5/16" flat washers.
4. Assemble clutch handle bar on to the upper handle using 2 of the 1/4" X 1-3/4" bolts, 6 of the 1/4" flat washers and 2 of the 1/4" lock nuts. Next install the ball clevis #5 to the clutch handle bar using 1 of the 1/4" X 1" bolts, 1 or the 1/4" lock nuts. All pieces must move freely. Attach the clutch cable #6 to the clevis #53 and #5.



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## Clutch Adjustment

The **BA-4 Aerator** is equipped with a belt-tightening clutch.

Squeeze the clutch control bar up towards the handle as far as possible. This causes the idler pulley to press down and tighten the V-belt. Proper tension is obtained when the belt does not slip when the tines are placed in the ground. If the V-belt slips under load, release the clutch cable and turn the threaded cable stud clockwise two or three rotations to shorten the clutch cable.

**Note:** Over-tightening of the V-belt may cause damage to other components including the belt itself. It may become necessary to back the clutch cable all the way off (see fig. 3) and loosen the engine mounting bolts and slide the engine back 1/4" and tighten the bolts securely.

Figure #1

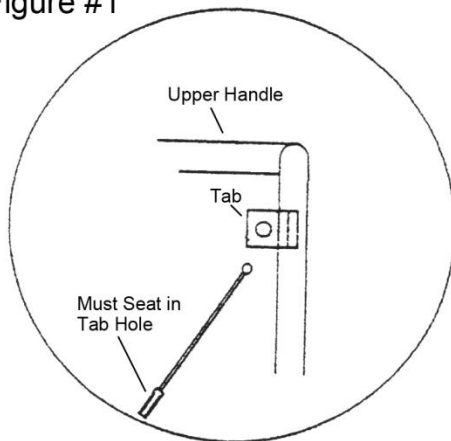


Figure #2

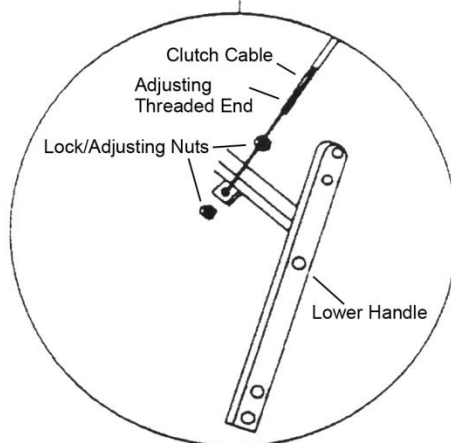
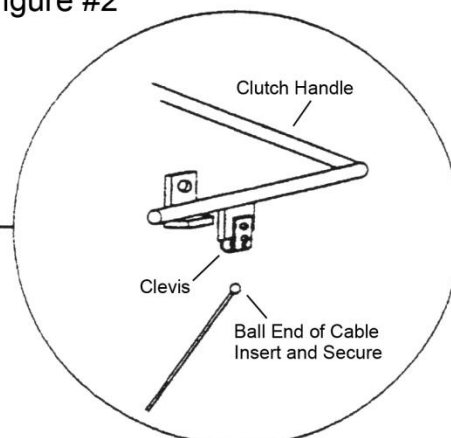


Figure #3

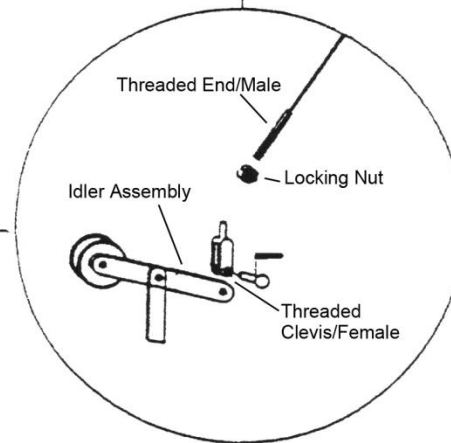


Figure #4

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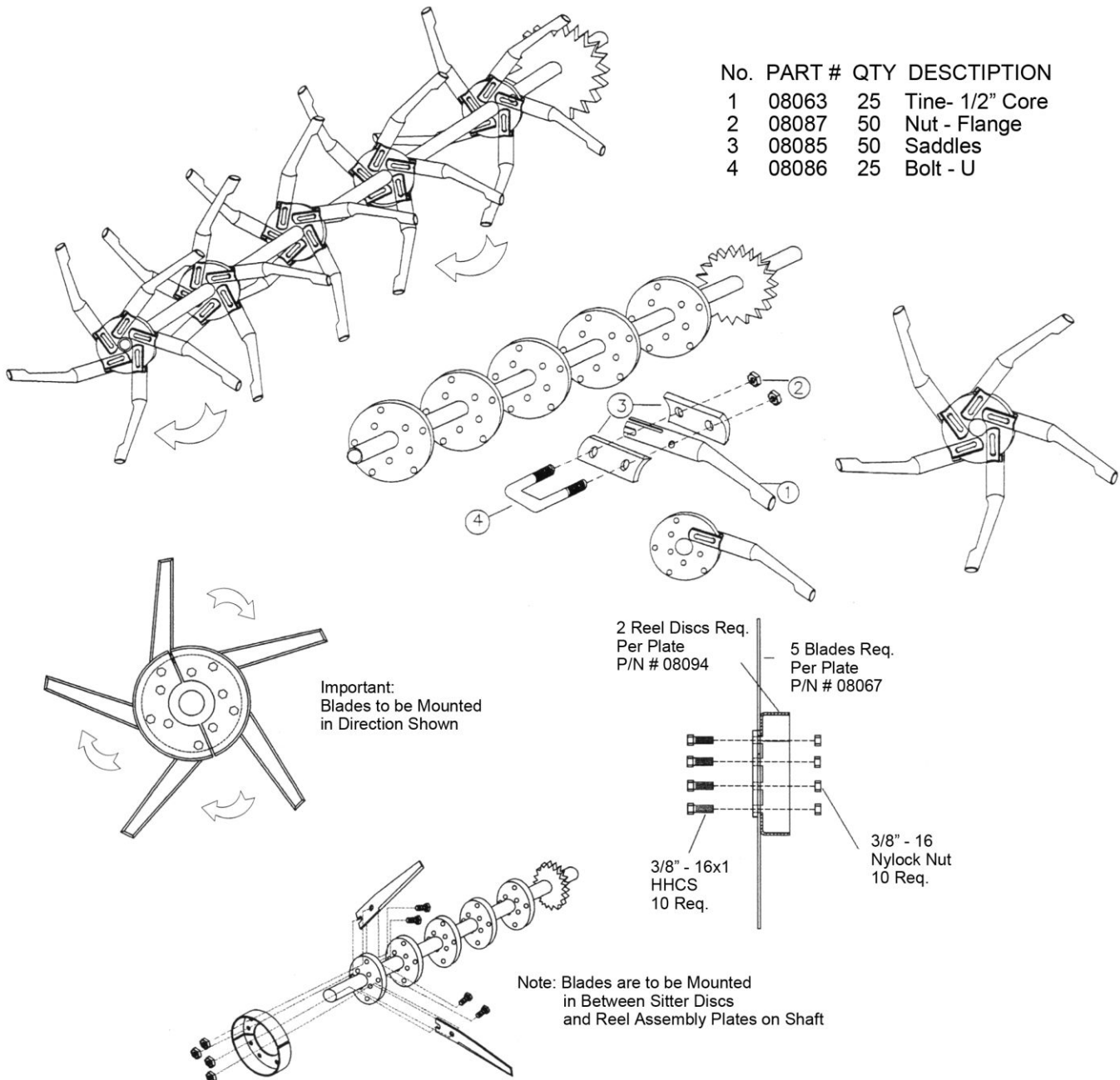
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# Tine Installation

Tines are supplied in the carton (25 Core Tines, 25 Slitter Slicer, or 18 Fracture Tines). These are attached to the 5 disc reel as follows:

Attach the tines to the reel using the bolts and nuts provided – check direction of tines, and tighten securely. The open side of the core tine faces toward the back of the machine when in the ground.



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## Engine

Proper engine operation and maintenance instructions have been provided with this unit by the engine manufacturer. It is important to read and maintain this manual. Engine difficulty, if any, should be reported to an authorized engine manufacturers' service centre. Warranty of this engine and engine accessories are also provided by the engine manufacturer.

## Operation

**Read these instructions carefully.**

1. Check the fuel and oil levels before starting the engine
2. Switch on the fuel supply and ignition
3. Start the engine by pulling the recoil starter on the engine, if necessary use the choke located under the air filter
4. Tilt the machine backward (toward the operator) until the aerator tines are free of the ground
5. Engage the operator presence control clutch
6. Tilt machine forward (away from the operator) until aeration tines make contact with the ground.
7. The rear wheels of the aerator are not powered; however, the rotating action of the tine reel will pull the machine forward.
8. Add or remove weights from the front of the machine to obtain the desired depth of penetration.
9. At the end of the strip of turf to be aerated, disengage the clutch and tilt the machine back onto the wheels lifting the aeration tines out of the ground, turn the machine, reengage the operator presence control clutch, tilt the machine forward and continue.

### Please Note

- **It is recommended to lift the wheels of the unit off the ground when in operation to ensure total weight on the tines to reach the maximum depth of aeration.**
- The tines are not to be in contact with the turf during a turn. Damage sustained by turning in the turf is not covered by warranty.
- It is not advisable to use the aerator in dry conditions.
- Use only for aerating turf.
- After every use always clean the machine, ensuring that the core tines are free of soil, and lightly oil the inside and outside of the core tines with a vegetable oil.

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## Service



Before attempting any maintenance or removal of the guards, stop the engine, switch off the fuel supply and remove the spark plug lead from the spark plug. Two 5/16 nuts and bolts hold the metal belt guard in place.

Fit only genuine components to this machine.

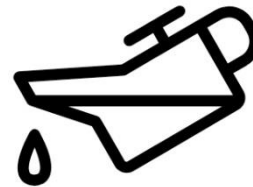
After every use always clean the machine, ensuring that the core tines are free of soil, and lightly oil the inside and outside of the core tines with a vegetable oil. This ensures the cores are ejected easily when operated the next time, resulting in better penetration of the turf.

Check that the tine fixing u-bolt and nuts are tightened correctly.

To replace tines, loosen and remove the flange nuts, remove the saddles and the u-bolt from the tine, slide the tine forward. To install new tines reverse this operation.

## Lubrication

1. There are 3 grease fittings on this aerator; one near the centre of the tine reel, and one on each wheel, we suggest that these points be lubricated after each day's operation.
2. Oil the chain and check its tension.
3. Grease wheel bearings.
4. Oil clutch lever and belt-tightening pivot bar.



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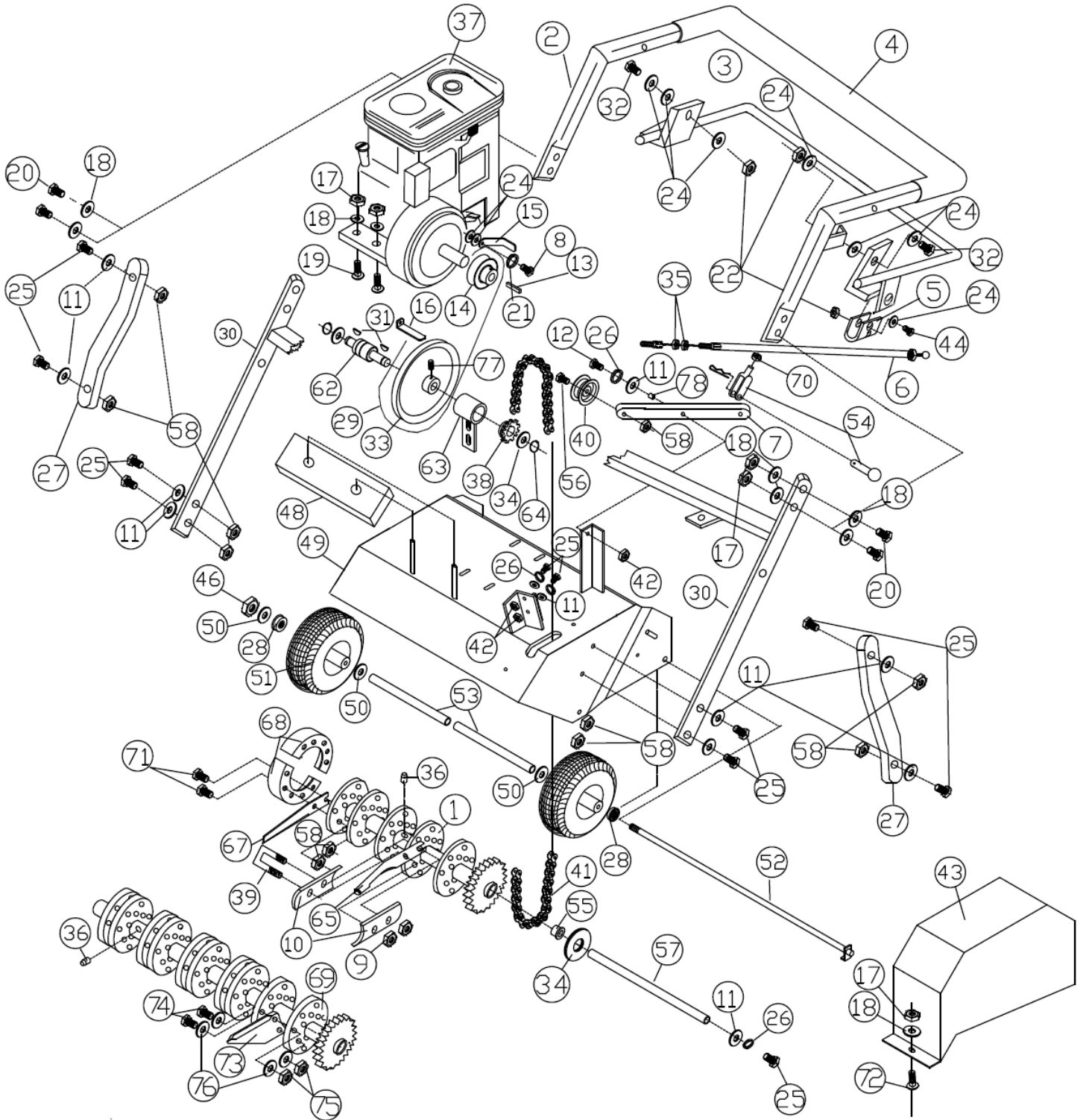
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# BA-4 Air-Ject Aerator

## Parts Illustration



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## BA-4 Air-Ject Aerator Parts List

Ref. #	Part No.	Description	Qty
1	08069	Tine Reel Assembly (CT & S/S)	1
2	08089	Handle - Upper	1
3	08090	Bar - Handle Clutch	1
4	02082	Grip - Upper Handle	1
5	08096	Clevis - Ball End	1
6	08091	Cable - Clutch	1
-	08093	"E" Span Ring – For Clutch Cable	1
7	08010	Lever - Idler Arm	1
8	02032	Screw HHC 1/4 - 20 X 1-1/4	1
9	08087	Nut - Flange	50
10	08085	Saddles	50
11	02024	Washer 3/8	12
12	03083	Screw HHC 3/8 - 16 X 1-1/4	1
13	03045	Key - Square	1
14	08014	Pulley - Engine	1
15	08015	Guide – Belt Upper	1
16	08016	Guide - Belt Lower	1
17	02004	Nut, Nylock Insert 5/16 - 18	10
18	02005	Washer - 5/16 Flat	14
19	03057	Screw HHC 5/16 - 18 X 1-3/4	4
20	02002	Screw HHC 5/16 - 18 X 1	4
21	02056	Washer - 1/4 Lock	2
22	02066	Nut, Nylock Insert 1/4 - 20	5
24	03007	Washer, Flat 3/4	10
25	03016	Screw HHC 3/8 - 16 X 1	10
26	03049	Washer, Lock 3/8	3
27	08092	Support - Lower Handle	2
28	02026	Bearing - Wheel	4
29	08029	Belt (Notched) Engine	1
30	08088	Handle - Lower	1
31	08031	Woodruff Key (Bearing)	2
32	08077	Screw 1/4 - 20 X 1-3/4 HHVC	2
33	08033	Pully - Jackshaft	1
34	08034	Washer - Special	3
35	08078	Nut - 5/16 - 18 Hex	2
36	08036	Grease Fitting	1

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Ref. #	Part No.	Description	Qty
37	08075	Engine - Honda	1
38	08038	Sprocket	1
39	08086	U-Bolt - 3/8 - 16	20
40	08040	Pulley - Idler	1
41	08068	Chain Assembly with Connecting Link	1
42	02033	Nut, Hex 3/8 - 16	3
43	08097	Cover - Safety Chain	1
-	08046	Rubber Shield – For Chain	1
44	03013	Screw 1/4 - 20 X 3/4 Hex Head Cap	3
46	03024	Nut, Nylock Insert 1/2 - 13	1
48	08048	Weight Bar	4
49	08049	Frame Assembly - Welded	1
50	03032	Washer - 1/2 SAE Flat	4
51	08065	Tire Pneumatic 350/4:10	2
52	08064	Axle - Shaft	1
53	08053	Spacer - Axle Long	2
54	08095	Clevis Threaded	1
55	08055	Bearing - Flange	2
56	08056	Screw - 3/8 - 16 X 2	1
57	08057	Shaft - Reel	1
58	03022	Nut - 3/8 - 16 Nylon Insert Hex	9
59	03022	Nut - 3/8 - 16 Nylon Insert Hex – For Slitter Slicer Option	50
62	08061	Bearing - Jackshaft	1
63	08062	Housing - Jackshaft Bearing	1
64	11284	Ring - Snap 3/4"	2
65	08063	Tine - Coring Tine 1/2"	25
	08115	Tine - Coring Tine 3/4"	25
67	08067	Blade - Slitter Slicer 3mm	25
	08131	Blade - Slitter Slicer 5mm	25
68	08094	Disc - Slicing Blade (Pair)	5
69	08111	Tine Reel Assembly – For Fracture Tine Option	1
70	08076	Nut - 1/4 - 28	1
71	03016	Screw 3/8 - 16 X 1 (SS Option)	50
72	08098	Carriage Bolts	2
73	08112	Tine - Fracture Tine	20
74	11234	Bolt - 1/2 - 13 X 2 (FT Option)	40
75	08546	Nut - Stover (FT Option)	40
76	03032	Washer - Flat 1/2 (FT Option)	80

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