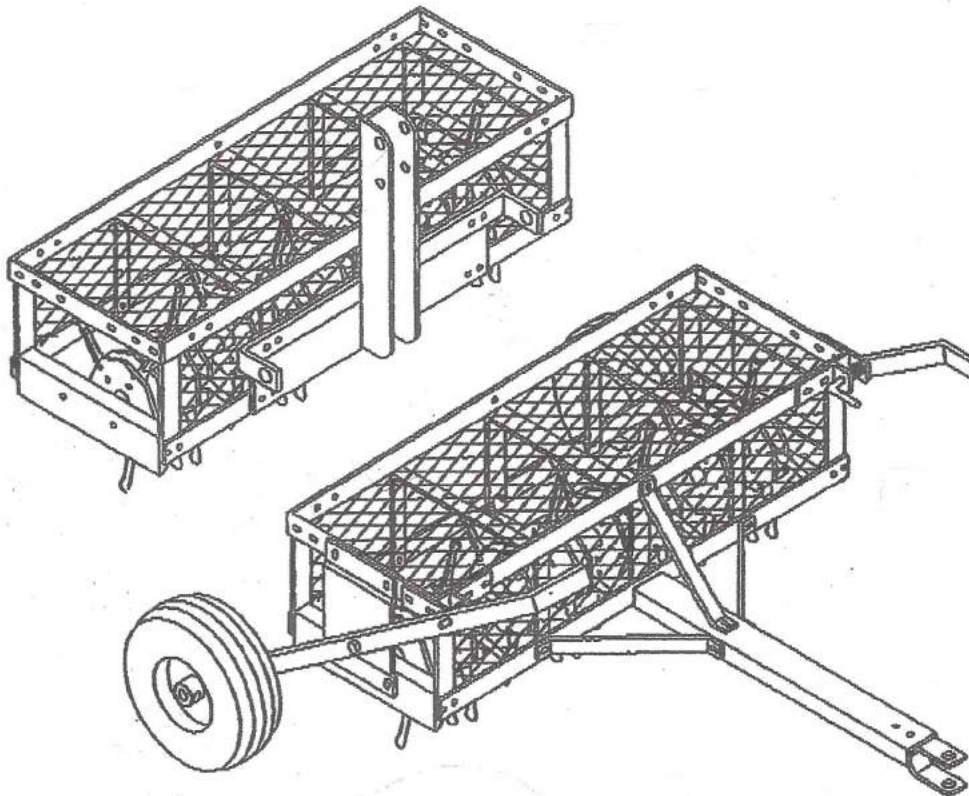


# PRO AERATOR

## OPERATOR'S MANUAL Economy Aerators



1-86321

PUBLICATION DATE: 12/03/09

PRO AERATOR PART #43808



**Precision Welding**

Welding & Fabricating  
800 N. Railroad Avenue  
New Holland, PA 17557

Phone: 717-354-2362 / Fax: 717-354-8521



**WARNING: DO NOT assemble, operate, or maintain this equipment without first reading and understanding the information provided in this manual. Failure to follow all safety precautions as stated in the manual may result in serious personal injury or death.**

## **WARRANTY INFORMATION**

Precision Welding (hereinafter called the Company) warranty to the original Purchaser, the equipment, manufactured by the Company, to be free from defects in material and workmanship under normal use and service. The Company obligation under this Warranty shall be limited to replacement or repair of any parts thereof, free of charge, to the original Purchaser, at their place of business, provided, however, that the part(s) to be replaced or repaired, shall, within one year after delivery to the original Purchaser, be demonstrated to be defective; which determination shall be made by the Company. The said components or parts must be returned through the Selling Dealer or Distributor directly to the Seller and to the agent through whom the machinery was purchased, disclosing in full all known defects and failure in operation and use. Reasonable time shall be given to the Seller to remedy any such defects and failures.

This Warranty does not cover, under any circumstances, any parts, components, or materials which, in the opinion of the Seller and the Company, have been subjected to neglect, misuse, alteration, accident, or repaired with parts other than those manufactured by and obtained from Precision Welding.

This Warranty does not cover components which are already covered by a separate warranty provided by the supplier of said parts or components.

This Warranty is made in lieu of all other warranties, expressed or implied, including any warranty of merchantability and fitness for use and purpose and of all other obligations or liabilities on the Company part and any implied warranty. The Company neither assumes nor authorizes any other person to assume for it, any other liability in connection with the sale of this equipment. This Warranty shall not apply to this equipment or to any part thereof which has been subjected to accident, negligence, alteration, abuse, or misuse.

The Company makes no warranty whatsoever in respect to accessories or parts not supplied by the Company. The term "original Purchaser," as used in this Warranty, shall be deemed to mean that person for whom the equipment is originally supplied. This Warranty shall apply only within the boundaries of the continental United States.

Under this Warranty, the Company cannot guarantee that conditions existing beyond its control will not affect the Company's ability to obtain materials or manufacture necessary replacement parts.

The Company reserves the right to make design changes, or changes in specifications at any time, without any contingent obligation on the part of the Company to purchasers of machines and parts previously sold.

The Company warrants the construction of the equipment sold herein and will replace at the Company's expense for a period of one year from the date hereof, any parts which prove defective as determined under the terms of this Limited Warranty.

## **TRADEMARKS**

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# TABLE OF CONTENTS

<b>SECTION 1: INTRODUCTION</b>	<b>1-1</b>
Guide to this Manual	1-1
For Your Safety	1-1
<b>SECTION 2: UNPACKING &amp; ASSEMBLY</b>	<b>2-1</b>
Unpacking and Inspecting All Components	2-2
Assembling the Aerator Hitch	2-2
Attaching the 3-Point Hitch	2-2
Attaching the Tow-Behind Hitch	2-2
Connecting the Aerator to the Tractor	2-3
Standard 3-Point Hitch Hook-up	2-3
Tow-Behind Hook-up (Optional)	2-3
Warranty Registration	2-4
<b>SECTION 3: OPERATION</b>	<b>3-1</b>
Understanding Aerator Operation	3-1
Aerator Operating Conditions	3-1
Aerator Operating Guidelines	3-1
Special Operating Guidelines for Tow-Behind Models	3-1
<b>SECTION 4: MAINTENANCE</b>	<b>4-1</b>
Guidelines for Regular Maintenance	4-1
<b>APPENDIX A: PARTS REFERENCE</b>	<b>A-1</b>
General Aerator Specifications	A-1
Ordering Information	A-1
Economy Aerator Component Parts Detail	A-2
Economy Aerator: Slicing Blades Option	A-4
Economy Aerator: Hitch Options	A-5

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# SECTION 1: INTRODUCTION

## Guide to this Manual

This manual contains all the information necessary to safely assemble and operate the Economy Aerator. Consult the Table of Contents for a detailed list of topics covered. You'll find this manual's step-by-step procedures easy to follow and understand. Should questions arise, please contact your Millcreek dealer before starting any of the procedures in this manual.

**NOTE:** Assembly and Operation procedures provided in this manual apply to *all* Economy Aerator models, unless specifically noted otherwise.

Regarding the information presented in this manual:

- All safety, operating, and servicing information reflects current production models at the time of publication of this manual.
- References made to left, right, front, and rear are those directions viewed when facing the unit from the rear.

Please read all sections in the manual carefully- including the important safety information found in this section- before beginning any assembly / operation procedures; doing so ensures your safety and the optional performance of your Economy Aerator.

## For Your Safety...

For your safety, Precision Welding documentation contains the following types of safety statements (listed here in order of increasing intensity):

- **NOTE:** A clarification of previous information or additional pertinent information.
- **ATTENTION:** A safety statement indicating that potential equipment damage may occur if instructions are not followed.



**CAUTION:** A safety statement that reminds of safety practices or directs attention to unsafe practices which could result in personal injury if proper precautions are not taken.



**WARNING:** A *strong* safety statement indicating that a hazard exists which can result in injury or death if proper precautions are not taken.



**DANGER!** *The utmost levels of safety must be observed;* an extreme hazard exists which would result in high probability of death or irreparable serious personal injury if proper precautions are not taken.

*The best operator is a careful operator.* By using common sense, observing general safety rules, and adhering to the precautions specific to the aerator, you, the operator, can promote safe equipment operation.



## For Your Safety... (continued)

In addition to observing the specific precautions listed throughout the manual, the following general precautions apply and *must be heeded* to ensure proper, safe operation.



**WARNING:** Keep hands and feet away from the aerator at all times. Ensure that you are safely distanced from any other persons and pets before operating the aerator.



**WARNING:** DO NOT attempt to operate the aerator in areas with steep inclines, ditches, large rocks, stumps, or holes which may endanger the operator by upsetting the tractor or cause damage to the aerator.



**CAUTION:** To prevent injury and to promote safe equipment operation, keep all shields in place during operation. Ensure that all mounting hardware is properly tightened.



**WARNING:** Never clean, adjust, or repair the aerator while the tractor is moving.



**WARNING:** Never get off the tractor while it is in motion and/or while the aerator is in operation.



**WARNING:** Never wear loose clothing when operating the aerator as it may become caught in the moving parts of the machine.



**WARNING:** Never allow anyone to ride on the aerator or tractor.

**ATTENTION:** To ensure proper and safe operation of the aerator, periodically inspect all parts for excessive wear. Replace worn components with factory-authorized parts.

The following safety decals have been placed on your equipment to remind you of critical safety precautions which must be heeded to ensure the personal safety of you, the operator, and any persons in the vicinity of the equipment while it is in operation. Be sure to keep the safety decals clean and readable. If the decals ever become damaged or illegible, contact your Pro Aerator dealer for replacements.



### WARNING

Keep hands and feet clear of rotating tines and from under protective cage.  
Never attempt to clear debris or unclog tines while unit is in motion; never insert any object through cage to clear debris.  
Never allow anyone to stand or ride on aerator for any purpose.  
Always shut down tractor engine and put on protective gloves before attempting to unclog tines or remove debris from unit.



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### WARNING

**FAILURE TO OBEY ANY OF THE FOLLOWING OPERATING GUIDELINES  
COULD RESULT IN  
SERIOUS INJURY**

1. DO NOT operate aerator until: you have read and understand all safety labels and you can apply accepted Safety Practices in promoting safe operation of the unit.
2. This unit is equipped with sharpened tines. Contact with tines could cause lacerations, puncture wounds, etc., whether the unit is in motion or stationary.
3. The safety cage is a permanent part of the unit. Removal of cage, or any part of, for any reason, will void Warranty and absolve manufacturer of any and all liability.
4. Inspect cage, tines, and drawbar/hitch for damage and loose or missing parts, before each use.

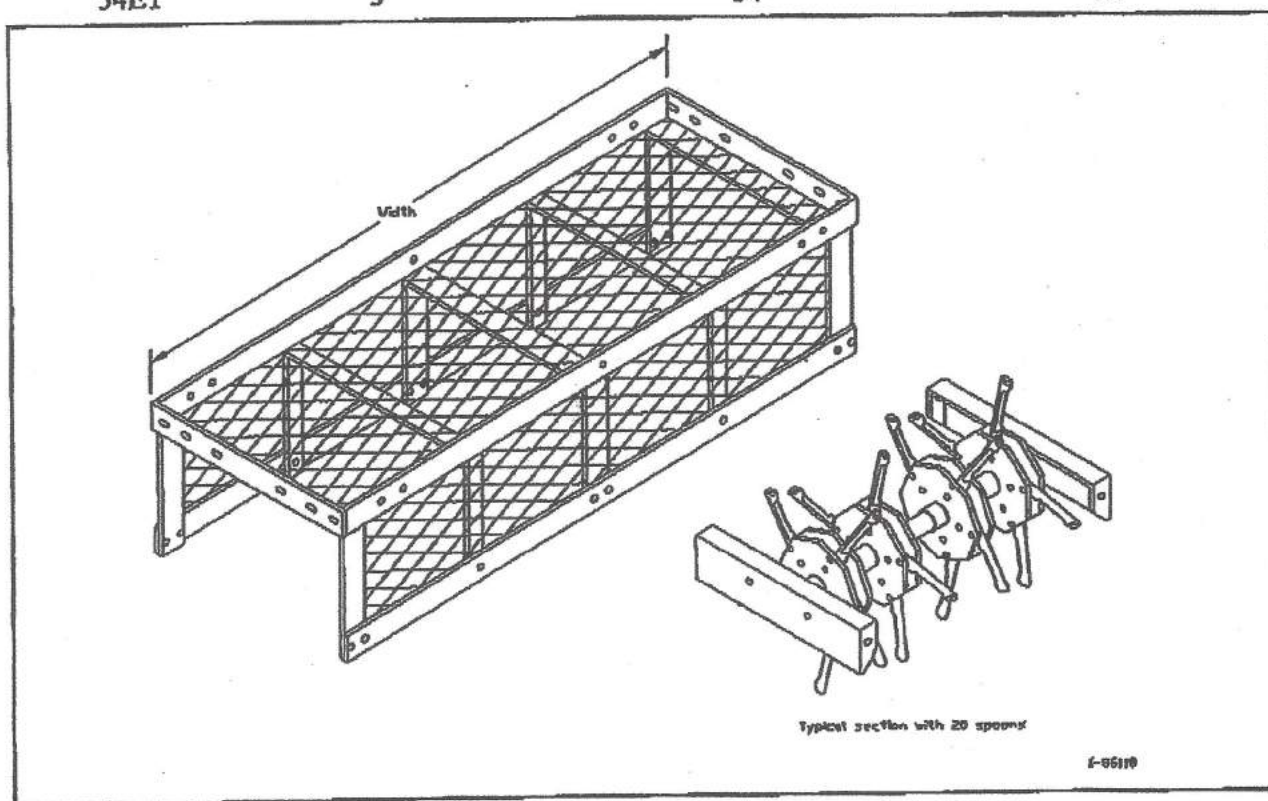
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## SECTION 2: UNPACKING & ASSEMBLY

Unpacking involves removing the aerator tine sections and welded frame from the shipping crate and inspecting the shipment. You may then assemble the aerator and hook it up to the tractor according to the procedures provided in this section. Detailed parts drawings are provided in the Appendixes at the back of this manual (for reference as needed).

**NOTE:** Depending upon the Pro Aerator Economy Model ordered, you may have received two or three sections of tines as outlined in the following chart. The Model Number for each aerator also specifies the frame width. Figure 2A shows a typical welded frame and coring section.

<u>Model #</u>	<u>Number of Sections</u>	<u>Welded Frame Width</u>	<u>Coring Width</u>
36E	2	36"	33"
36ET	2	36"	33"
54E	3	54"	51"
54ET	3	54"	51"



**Figure 2A - Aerator Welded Frame and Tine Section**

The following optional components may have also been included with your shipment (if ordered):

- Slicing Blades
- Weights

**Be sure to complete the warranty registration for the aerator following assembly/hook-up of the unit.**



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## Unpacking and Inspecting All Components

1. The Pro Aerator is shipped in a large cardboard carton. The aerator tines are bolted to the frame (pre-assembled at the factory). Be sure to locate the bag of hardware (for hitch assembly) which is also packed in the shipping carton.

**WARNING:** To prevent serious personal injury, wear heavy work gloves to protect your hands from the sharp coring spoons.

**ATTENTION:** It is recommended that you place the aerator on a mat or cardboard to protect it from scratches / damage.

2. With the assistance of another person, carefully lift the aerator out of the shipping carton and set on the ground (protective mat/cardboard) with the tines down.

**NOTE:** The approximate weight of the aerator is: 120 lbs for Models 36E/36ET and 155 lbs. for Models 54E/54ET.

3. Inspect the aerator to ensure that everything has been shipped to you in a satisfactory manner. Ensure that you have received the proper model and any options ordered. Immediately notify the freight company and your Pro Aerator dealer in case of shipping damage, shortage(s), and/or errors.

4. Locate all decals and review their content.

---

## Assembling the Aerator Hitch



**WARNING:** To prevent serious personal injury when working around the aerator, wear heavy work gloves to protect your hands from the sharp coring spoons.

**NOTE:** Depending on the hitch option ordered with your aerator, be sure to follow the appropriate procedure for attaching the hitch to the aerator.

### Attaching the 3-Point Hitch

1. Refer to the **Economy Aerator Hitch Options** parts drawing in Appendix A (page A-5) at the back of the manual.
2. Attach the hitch plate, hitch bracket, and hitch channel to the front of the aerator as depicted in the drawing.

### Attaching the Tow-Behind Hitch

1. Refer to the **Economy Aerator Hitch Options** parts drawing in Appendix A (page A-5) at the back of the manual.
2. Attach the hitch to the aerator as depicted in the drawing.
3. Assemble the long and short hitch brace pieces onto the hitch.
4. Attach the wheel arm to the wheel arm bracket.
5. Assemble the wheel onto the wheel arm bracket assembly using the hardware specified in the drawing.

---

## Connecting the Aerator to the Tractor

### Standard 3-Point Hitch Hook-up

1. Back the tractor within a few inches of the aerator hitch.
2. Adjust the height of the hitch with the jack so the tractor drawbar matches the height of the aerator hitch.
3. Back the tractor into the hitch until the pins of the aerator hitch and tractor arms are lined up.
4. Fasten the two tractor arms to the aerator pins and secure properly.



**WARNING:** Damage to the aerator or other vehicle, as well as injury to the operator, may occur if a properly-sized hitch pin is not installed as recommended.

5. Adjust the top three-point hitch arm and fasten the top link so that the aerator frame is sitting level on the ground.
6. Raise the aerator with the three-point hitch of the tractor.

### Tow-Behind Hook-up (Optional)

1. Back the tractor drawbar into the aerator drawbar hitch until the pin holes line up.  
**NOTE:** Depending upon the comparative heights of the aerator drawbar hitch and the tractor drawbar, it may be helpful to back the tractor so that its drawbar is positioned directly beside the aerator drawbar hitch. Then, as necessary, lift up and/or swing the aerator drawbar hitch over the tractor drawbar to align the pin holes.
2. Install the hitch pin to hold the hitch securely.

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**IMPORTANT NOTE:** *Following assembly of all aerator components (including any optional components), check for proper assembly and adjustment at all points. Make sure that all bolts are tightened securely. Be aware that it may be necessary to re-tighten bolts after a few hours of initial operation; doing so helps to ensure safe and proper operation of the aerator.*



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## Warranty Registration

For proper warranty registration Precision Welding requires that you fill out the provided warranty registration card and return it *within 30 days* to:

Precision Welding  
800 N. Railroad Ave  
New Holland, PA 17557

**IMPORTANT NOTE:** The Model Number and Serial Number of the aerator are located on the back of the aerator frame. When calling for warranty or service, please provide the Model Number and Serial Number.

---

## SECTION 3: OPERATION

### Understanding Aerator Operation

Proper and safe operation of the Pro Aerator requires: (1) understanding the conditions necessary for optimal aerator operation and (2) heeding all safety precautions as stated in this manual, as well as operating guidelines provided in this section.

#### Aerator Operating Conditions

Normal (and desired) operating conditions should allow the 1/2" diameter coring spoons to penetrate the soil and pull soil cores approximately three inches long. Factors contributing directly to this function (i.e. penetration of the coring spoons) include: **WEIGHT** of the aerator, **MOISTURE** of the soil, and **SOIL TYPE**. Obviously, when the soil has a high concentration of moisture, the penetration of the spoons will be easy and effective. But, when the soil is hard-packed and/or dry, weight will need to be added to achieve sufficient penetration.

Precision Welding provides 1/2" thick steel plates (6" wide x 12" long) that can be mounted into the aerator frame to provide additional weight when needed. The optional Weight Packages for each aerator model are detailed in the following chart.

<u>Model</u>	<u>Total Weight</u>	<u>Number of Plates</u>	<u>Weight Per Plate</u>
36E	105 lbs.	12	10 lbs.
36ET	120 lbs.	12	10 lbs.
54E	135 lbs.	12	10 lbs.
54ET	155 lbs.	12	10 lbs.

#### Aerator Operating Guidelines

- Make sure the tractor three-point hitch lift arms are positioned low enough to allow the aerator to penetrate the soil properly.
- Lower the aerator into the ground while traveling forward.  
**NOTE:** Recommended operating speed for optimal ground penetration is 3-6 mph.
- Sharp turns should be avoided to prevent excessive slicing of the ground/lawn surface.

#### Special Operating Guidelines for Tow-Behind Models

Tow-behind aerator models are supplied with manual lever arms for use in raising and lowering the aerator as needed for operation. (Refer to Appendix A for a detailed parts drawing of the Tow-Behind model.)

**To Raise the Aerator:** Manually lift the lever arms (one on each side) until the spring pin locks into the matching hole.

**To Lower the Aerator:** Manually lift the lever arms to release the pressure on the spring pin. Disengage the spring pin from the hole, and lower the lever arms until the aerator is resting on the ground.



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## SECTION 4: MAINTENANCE

### Guidelines for Regular Maintenance



**WARNING:** All shields must be replaced after maintenance procedures are performed. Failure to do so could result in serious personal injury or death.



**CAUTION:** When performing maintenance procedures on the aerator, be aware that the aerator coring spoons are extremely sharp. Wearing heavy work gloves is strongly recommended.

Performing regular maintenance on your Economy Aerator will help ensure optimal performance. Please follow these guidelines for maintaining your aerator:

- Clean the aerator after each use. Removing mud and thatch from the spoons after each use will help ensure optimal performance. Plugged spoons may not function properly.
- Check the aerator each time it is used for loose, bent, broken or missing parts.  
**ATTENTION:** During operation, listen for abnormal sounds which might indicate loose parts or other equipment damage. Correct any parts problems immediately; expanded parts views of all aerator assemblies are provided in the Appendixes at the back of this manual.
- Check the spoons after each use to ensure that no foreign objects (e.g. wire, weeds, etc.) are wrapped around them.

## APPENDIX A: PARTS REFERENCE

The following information is provided for your reference in understanding how the Economy Aerator is assembled and how spare parts can be identified and ordered properly.

### General Aerator Specifications

Construction	1/4" x 1-12" flat bar steel, reinforced with heavy steel mesh
Available Hitches	Category 1, three-point (standard) Tow-behind drawbar (optional)
Main Shaft	3/4" diameter
Aerating Wheels	All-steel construction, temper-hardened spoons
Spoon Wheel Bearings	Oil-impregnated for longer life
Coring Spoons	1/2" closed standard; 5 spoons per wheel
Coring Depth	Up to 2-1/2", depending on soil conditions
Protector Shield	Heavy steel mesh, standard on all models

### Specifications Per Model

	3-Point Hitch		Tow-Behind	
	Model 36E	Model 54E	Model 36ET	Model 54ET
Height	16"	16"	16"	16"
Length	19"	19"	45"	45"
Width	36"	54"	48"	66"
Weight	100 lbs.	135 lbs.	120 lbs.	155 lbs.
Coring Width	33"	51"	33"	51"
Number of Spoon Wheels (per model)	8	12	8	12
Number of Spoons (per model)	40	60	40	60
Coring Pattern	4-5/8" x 8"	4-5/8" x 8"	4-5/8" x 8"	4-5/8" x 8"

### Ordering Information

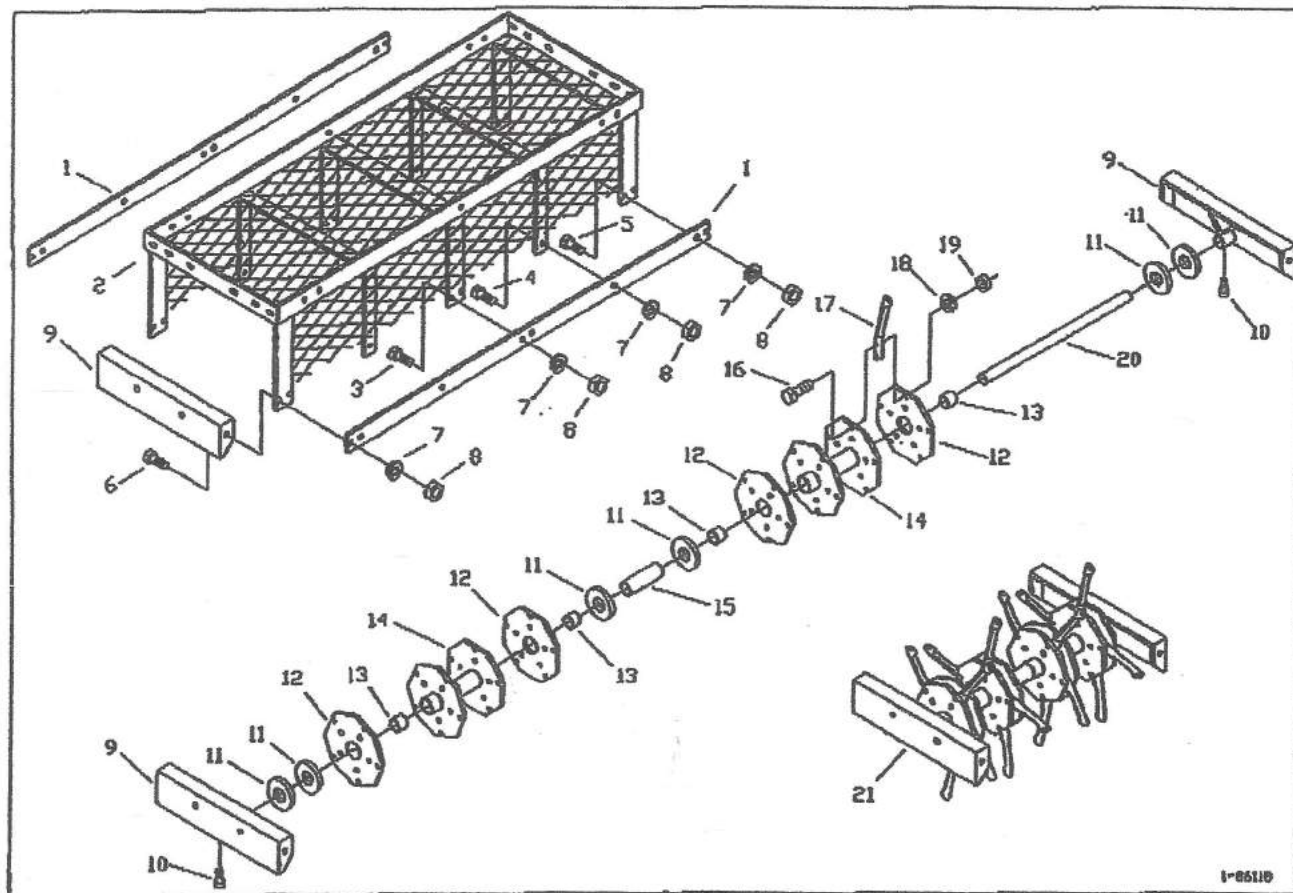
When ordering replacement parts, please provide the following information to your local dealer:

- Model and Serial Number of the unit
- Part Number and Description as it appears on the following drawings/parts lists.



## Economy Aerator Component Parts Detail (Standard Three-Point Hitch Models)

**NOTE:** Coring spoons are supplied as standard. Slicing blades (Figure A2) may be ordered as an option.



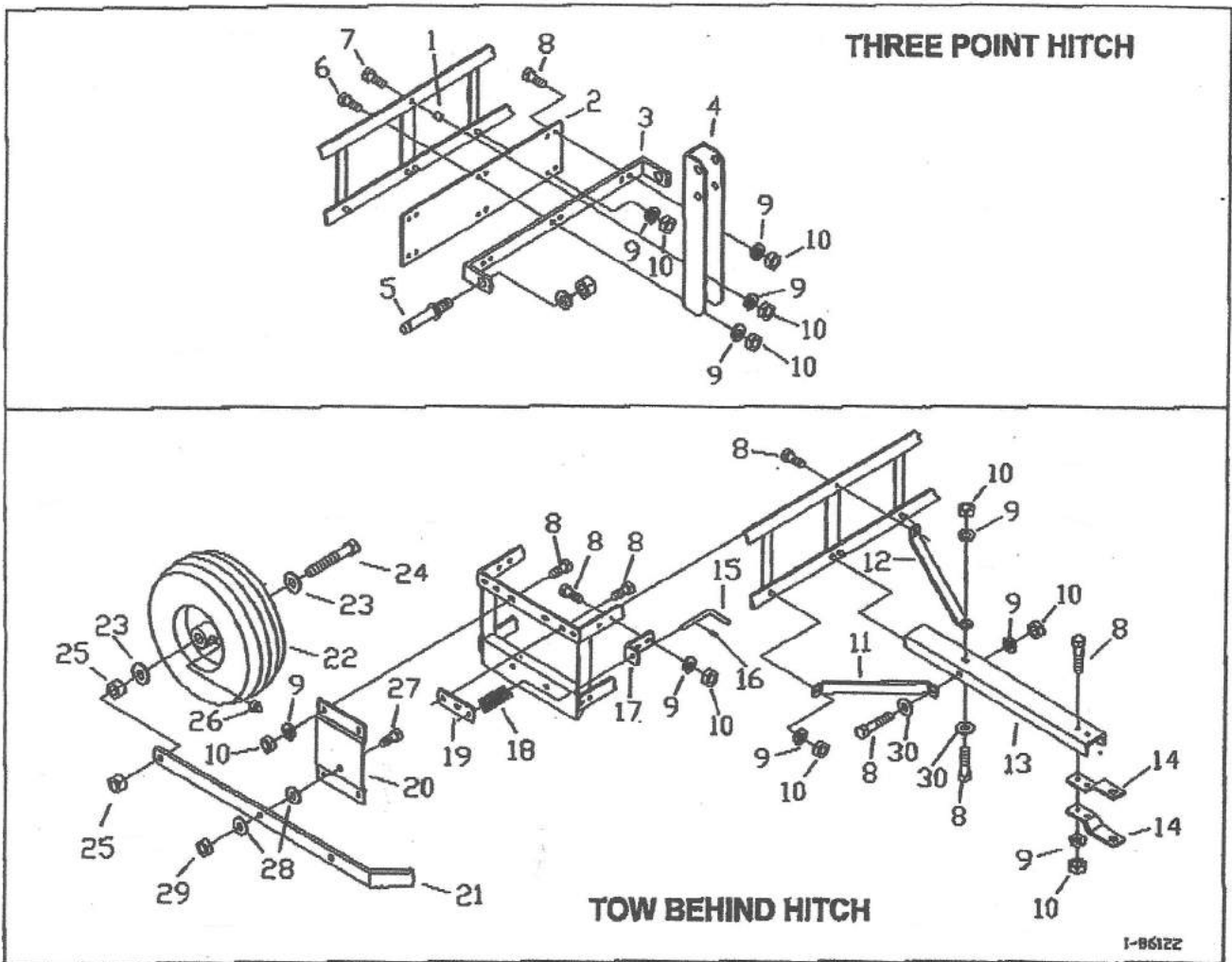
**Figure A1 - Economy Aerator Component Parts Detail**

## Economy Aerator Component Parts (continued)

ITEM #	PART #	QTY. PER MODEL		PART DESCRIPTION
		36	54	
1	280113	2	—	36 Frame Bottom
	280121	—	2	54 Frame Bottom
2	280144	1	—	36 Cage
	280149	—	1	54 Cage
3	34249	2	—	5/16 x 1-3/4 Bolt
4	34257	2	6	5/16 x 1-1/2 Bolt
5	34221	6	10	5/16 x 1 Bolt
6	34222	6	8	5/16 x 1-1/4 Bolt
7	34203	16	24	5/16 Lock Washer
8	34020	16	24	5/16 Nut
9	280108	4	6	End Bracket
10	34208	4	6	3/8 x 1 Set Screw
11	34201	12	18	3/4 Washer
12	280138	8	12	Spoon Support
13	210173	8	12	Bushing
14	280141	4	6	Spool (includes Item #13)
15	280101	2	3	Spacer Tube
16	34251	80	120	1/4 x 1-1/2 Bolt
17	220125	40	60	Spoon
18	34235	80	120	1/4 Lock Washer
19	34003	80	120	1/4 Nut
20	280100	2	3	Shaft
21	280148	2	3	Section Complete Assembly (includes Item # 9-20)



## Economy Aerator: *Hitch Options*



## Economy Aerator: Slicing Blades Option

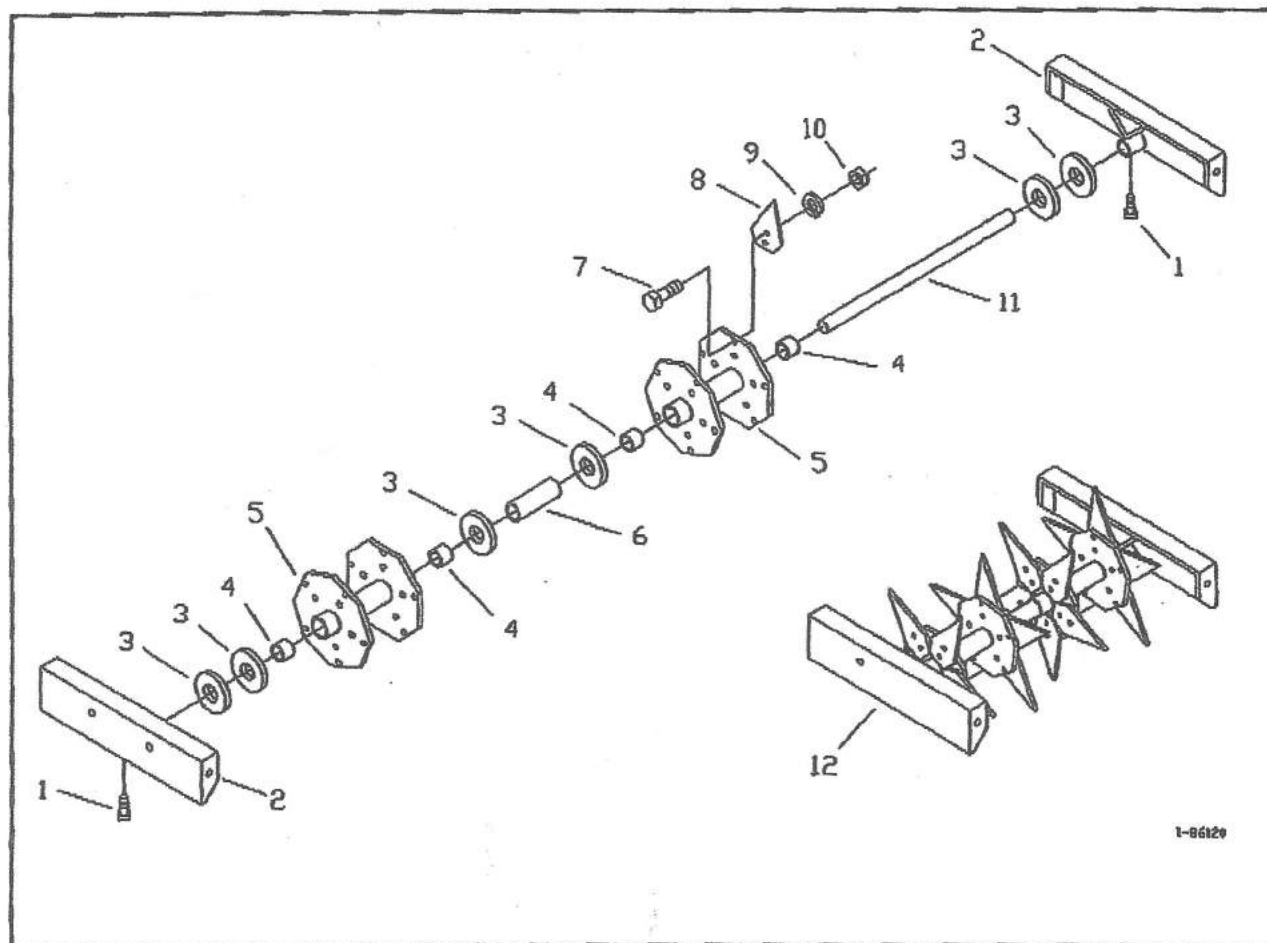


Figure A2 - Economy Aerator Slicing Blades Parts Detail

<u>Item#</u>	<u>Millcreek Part#</u>	<u>Qty. (per section)</u>	<u>Component Description</u>
1	34208	2	3/8 x 1 Set Screw
2	280106	2	End Bracket
3	34201	6	3/4 Washer
4	210173	4	Bushing
5	280141	2	Spool (includes item #4)
6	280101	1	Spacer Tube
7	34234	40	1/4 x 3/4 Bolt
8	220134	20	Slicer Blade
9	34235	40	1/4 Lock Washer
10	34003	40	1/4 Nut
11	280100	1	Shaft
12	280275	1	Section Assembly (Complete)

## Economy Aerator: *Hitch Options*

ITEM #	PART #	QTY. PER MODEL		PART DESCRIPTION
		Tow Behind	Three-point Hitch	
1	280262	--	1	Spacer
2	280261	--	1	Hitch Plate
3	280112	--	1	Hitch Bracket
4	280111	--	1	Hitch Channel
5	215117	--	2	7/8 Pin
6	34222	--	3	5/16 x 1-1/4 Bolt
7	34249	--	1	5/16 x 1-3/4 Bolt
8	34221	22	4	5/16 x 1 Bolt
9	34203	22	8	5/16 Lock Washer
10	34020	22	8	5/16 Nut
11	280166	2	--	Long Hitch Brace
12	280165	1	--	Short Hitch Brace
13	280163	1	--	Hitch
14	280164	2	--	Hitch Clevis
15	280171	2	--	Latch Pin
16	220122	2	--	1/8 x 3/4 Roll Pin
17	280170	2	--	Latch Bracket
18	220121	2	--	Latch Spring
19	280169	2	--	Latch Bracket
20	280168	2	--	Wheel Arm Bracket
21	280167	2	--	Wheel Arm
22	215118	2	--	Wheel
23	34016	4	--	5/8 Washer
24	34258	2	--	5/8 x 4 Bolt
25	34132	4	--	5/8 Nut
26	220101	2	--	Lube Fitting
27	34226	2	--	1/2 x 1-1/2 Bolt
28	34094	4	--	1/2 Washer
29	34034	2	--	1/2 Nut
30	34057	3	--	5/16 Washer



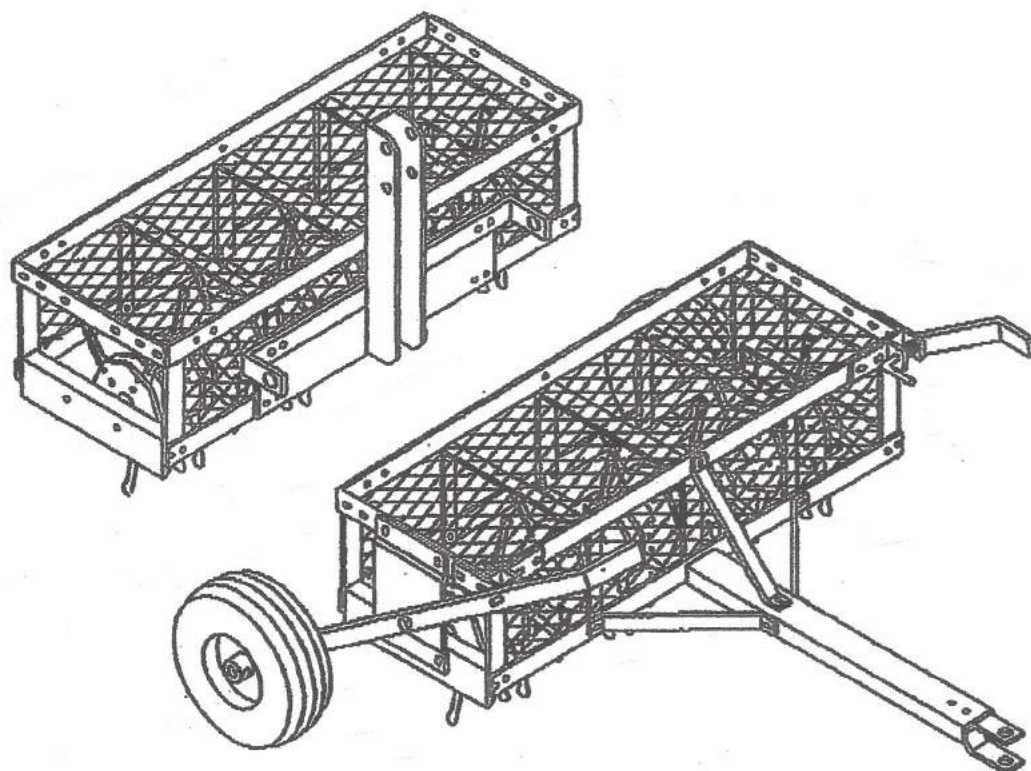
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## General Aerator Specifications

<b>Construction</b>	1/4" x 1-12" flat bar steel, reinforced with heavy steel mesh
<b>Available Hitches</b>	Category 1, three-point (standard) Tow-behind drawbar (optional)
<b>Main Shaft</b>	3/4" diameter
<b>Aerating Wheels</b>	All-steel construction, temper-hardened spoons
<b>Spoon Wheel Bearings</b>	Oil-impregnated for longer life
<b>Coring Spoons</b>	1/2" closed standard; 5 spoons per wheel
<b>Coring Depth</b>	Up to 2-1/2", depending on soil conditions
<b>Protector Shield</b>	Heavy steel mesh, standard on all models

## Specifications Per Model

	3-Point Hitch		Tow-Behind	
	Model 36E	Model 54E	Model 36ET	Model 54ET
<b>Height</b>	16"	16"	16"	16"
<b>Length</b>	19"	19"	45"	45"
<b>Width</b>	36"	54"	48"	66"
<b>Weight</b>	100 lbs.	135 lbs.	120 lbs.	155 lbs.
<b>Coring Width</b>	33"	51"	33"	51"
<b>Number of Spoon Wheels (per model)</b>	4	6	4	6
<b>Number of Spoons (per model)</b>	32	48	32	48
<b>Coring Pattern</b>	4-5/8" x 8"	4-5/8" x 8"	4-5/8" x 8"	4-5/8" x 8"



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