



# **Mini Hydraulic Tiller**

For

**Mini Skid Steer Loaders**

And

**Mini Track Loaders**

**Operator's Manual**

**Maintenance**

**Parts Information**



**Read this Manual Before Use**

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**REFERENCE INFORMATION**

Write the correct information for your attachment in the spaces below. Always refer to this serial number when calling for service or parts.

Serial Number.....

**YOUR ATTACHMENTS DEALER**

ADDRESS:

PHONE:

CONTACT:

**NOTE:** *Erskine Attachments LLC reserves the right to make improvements in design or changes in specifications at any time without notice and without incurring any obligations to install them on units previously sold.*

# SAFETY

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**DO NOT** use or perform maintenance on this machine until this manual has been read and understood. In addition, read the Operation and Maintenance Manual(s) pertaining to the attachment and the attachment carrier (“Loader”).

The user is responsible for inspecting the machine daily, and for having parts repaired or replaced when continued use of the machine would cause damage, excessive wear to other parts or make the machine unsafe for continued operation.

If an operating procedure, tool device, maintenance or work method not specifically recommended is used; you must satisfy yourself that it is safe for you and others. You must also ensure that the attachment will not be damaged or made unsafe by the procedures you choose.

Erskine Attachments LLC cannot anticipate every possible circumstance that might involve potential hazard. The safety messages found in this manual and on the machine are therefore not all inclusive.

## Call Before You Dig

### 1-888-258-0808



The signal words **CAUTION**, **WARNING**, or **DANGER** are used to indicate hazards.

**⚠ CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**⚠ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ DANGER** Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

The word **IMPORTANT** is used in the text when immediate damage will occur due to improper technique or operation.

The word **NOTE** is used to convey information that is out of context with the manual text; special information such as specifications, techniques, reference information, and other information of a supplementary nature.

## Improper operation can cause serious injury or death.

### Pre-operation

- This attachment is designed for tilling topsoil on loaders with a Rated Operating Capacity (ROC) of 1000 pounds or less only. **NEVER** use this machine for any other purpose.
- Read the operators manual for the "Skid Steer Loader". **NEVER** allow untrained people to operate.
- Operating instructions must be given to everyone before operating this attachment and at least once a year thereafter in accordance with OSHA regulations.
- **NEVER** exceed the maximum recommended input power or speed specifications for the attachment. Over-powering or over-speeding the attachment may cause personal injury and/or machine damage.
- Keep all shields, guards, and covers in place.
- Do not modify equipment or add attachments that are not approved by Erskine Attachments LLC.
- Use adequate safety warning lights and devices as required by local regulations. Obey all local laws and regulations regarding machine operation on public property. Always call before you dig (1-888-258-0808). When you call, you will be directed to a location in your state/city for information about buried lines (electric, telephone, cable TV, water, sewer, gas, etc.).

### Operation

- Always wear eye protection that meets ANSI z87.1 or use with an enclosure that provides similar protection.
- Hydraulic connections may be hot after use. Use gloves if connecting or disconnecting after use.
- Check and be sure all operating controls are in neutral before starting the engine.
- Always stay in the operator position when using the attachment.

### Operation

- Keep people away from loader, attachment and discharge when in use. This attachment sends objects flying and has rotating parts. **NEVER** direct discharge toward people – rocks and debris can be thrown.
- **NEVER** operate near embankments or terrain that is so steep that rollover could occur.
- Before leaving the operators position, disengage hydraulic drive, lower the attachment to rest flat on the ground, stop engine, set park brake, and wait for all motion to stop.
- **NEVER** place hands in the discharge area or clear debris while engine is running.

### Avoid High Pressure Fluids Hazard



- Escaping fluid under pressure can penetrate the skin causing serious injury.
- Avoid the hazard by relieving the pressure before disconnecting hydraulic lines.
- Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks. Wear protective gloves and safety glasses or goggles when servicing or performing maintenance on hydraulic systems.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

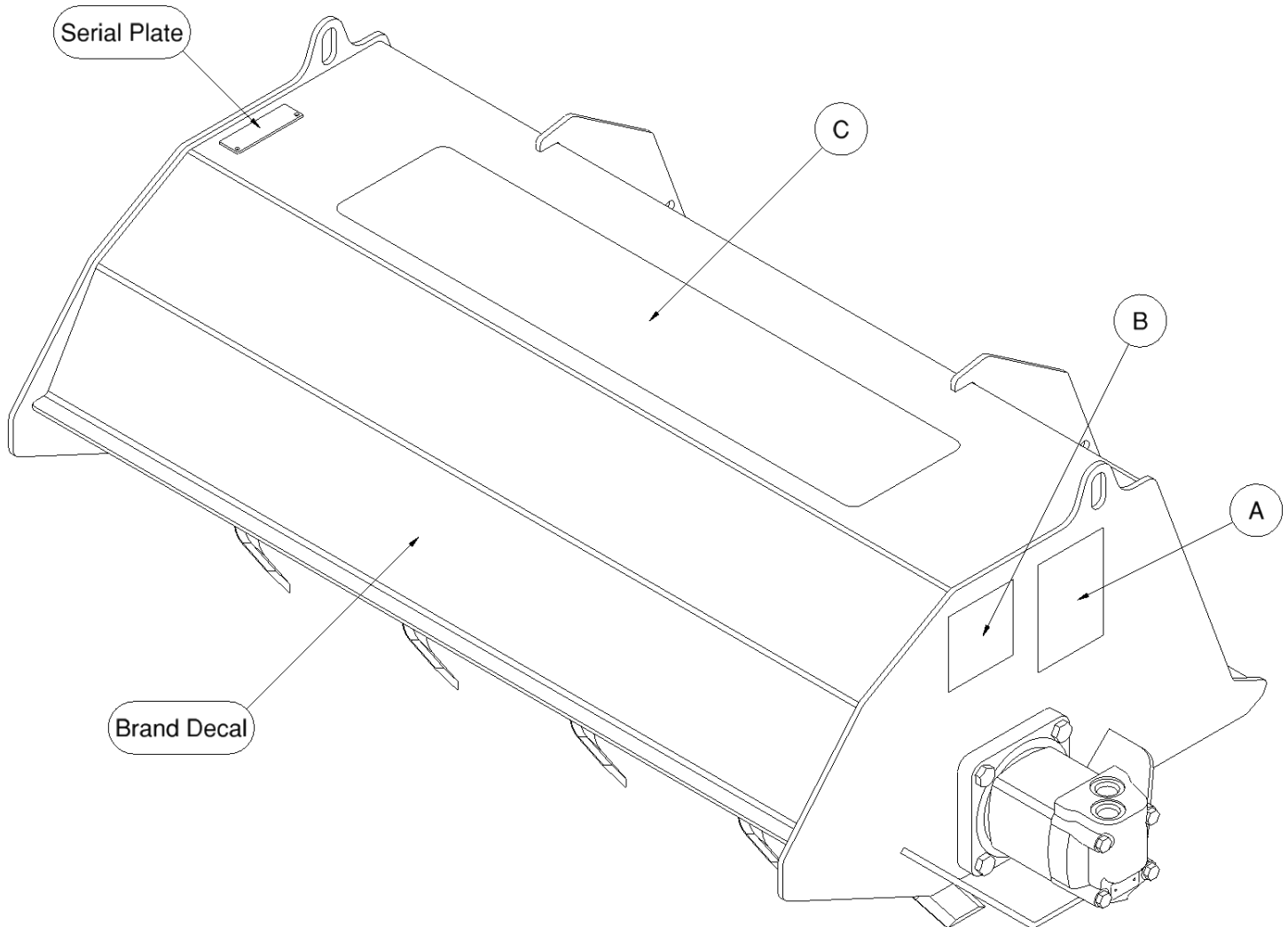
### Maintenance

- **NEVER** make adjustments, lubricate, clean, or perform any service on the machine while it is in operation.
- Make sure the attachment is serviced on a daily basis. Improper maintenance can cause serious injury or death in addition to damage to the attachment and/or your equipment.
- Before working underneath the attachment, securely support attachment.

# SERIAL NUMBER AND SAFETY DECAL LOCATIONS

## Serial Number Location:

It is important to refer to the serial number of your attachment when making repairs or ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use different procedures in doing a specific operation.



## SERIAL NUMBER AND SAFETY DECAL LOCATIONS



**Part number: 200001**

**Location:** On left endplate near motor

**Quantity: 1**



**Part Number: 320025**

**Location:** On each endplate

**Quantity: 2**

(C)

**Anti-Skid Tape 6" x 28"**

**Part Number: 314096**

**Location:** Centered on top

**Quantity: 1**

**Large Brand Decal**

**Location:** Centered on front

**Quantity: 1**

### **Safety Decal Locations:**

The locations of the safety decals are shown. If these decals are missing, damaged, or painted over they must be replaced. Call Erskine Attachments LLC (218-435-4045) for replacement decals.

# MOUNTING INSTRUCTIONS

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After initial set-up assembly is complete, use the following instructions to mount the attachment to the loader for user operation.

**⚠ WARNING** Coupler wedges or pins must extend through the holes in the attachment mounting plate. Levers must be fully down and locked. Failure to secure wedges or pins can allow attachment to come off and cause injury or death.

**IMPORTANT:** This attachment is not designed to be used on loaders with a Rated Operating Capacity (ROC) of more than 1000 pounds.

## Instructions for mounting to a ride-on mini skid steer:

1. Use the step, safety treads, and grab handles to get on and off the loader and attachment.
2. Sitting in the operator's seat, lower the seat bar, fasten the seat belt, make sure all controls are in neutral, and start the engine.
3. Drive the loader to the rear of the attachment. Put the loader quick attach coupler into the attachment mounting bracket.
4. Tilt the loader coupler back a small amount until it is fully engaged with the attachment mounting bracket.
5. Stop the engine and engage the park brake.
6. Exit the loader and secure the coupler locking mechanism that locks the attachment to the loader.

## Instructions for mounting to a walk-behind mini skid steer:

1. Standing at the operator's station, make sure all controls are in neutral, and start the engine.
2. Drive the loader to the rear of the attachment. Put the loader quick attach coupler into the attachment mounting bracket.
3. Tilt the loader coupler back a small amount until it is fully engaged with the attachment mounting bracket.
4. Stop the engine and engage the park brake.
5. Walk to the front of the loader and secure the coupler locking mechanism that locks the attachment to the loader.

# MOUNTING INSTRUCTIONS

## Connecting Hydraulics:

1. Connect the hydraulic quick couplers from the attachment to the loader.

**IMPORTANT:** Wipe the ends of the hydraulic quick couplers (both lead and loader) with a rag to remove any possible contamination. Contamination can cause hydraulic components to fail and is not covered under warranty.

**IMPORTANT:** Make sure the quick couplers are fully engaged. If the quick couplers do not fully engage, check to see that the couplers are the same size and brand. Do not force the quick couplers together.

**NOTE:** See the loader's operator's manual for auxiliary hydraulic specifications and connection instructions.

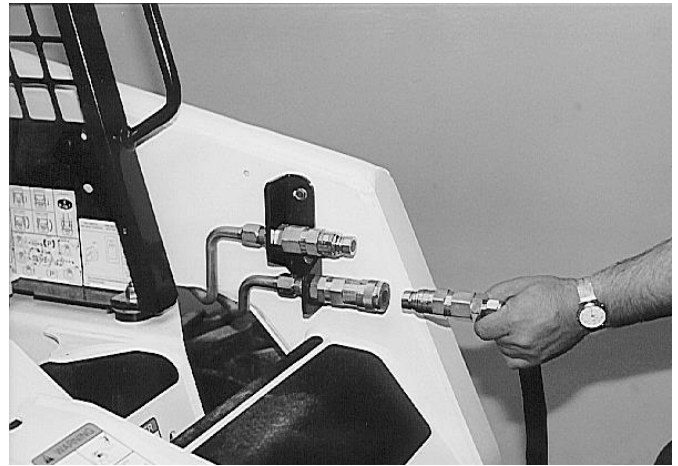
**NOTE:** Attachment is shipped with 12FJX (1-1/16" Female JIC Swivel) fittings on the ends of the lead hoses.

2. Make sure the hoses are properly routed to fit your specific loader. If the hoses are not routed correctly, hoses may get pinched or rub on tires. Be sure to check the hose routing through the full range of intended motion of the attachment before operating it.

More than one routing may be acceptable depending on the loader. Pick the routing that best suits your specific loader.

**IMPORTANT:** Proper hose routing is the responsibility of the owner and/or operator. Pinched or stretched hoses are not covered under warranty.

Mounting is now complete and the attachment is ready for operation. Use the above instructions in the reverse order to dismount the attachment from the loader.





# OPERATING INSTRUCTIONS

**⚠ WARNING** Contact with underground gas or electric utilities can cause serious injury or death.

## Call Before You Dig

1-888-258-0808



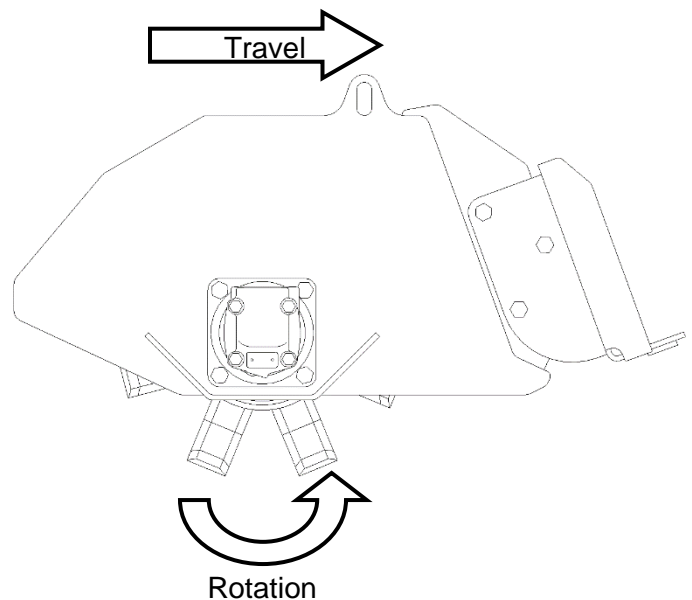
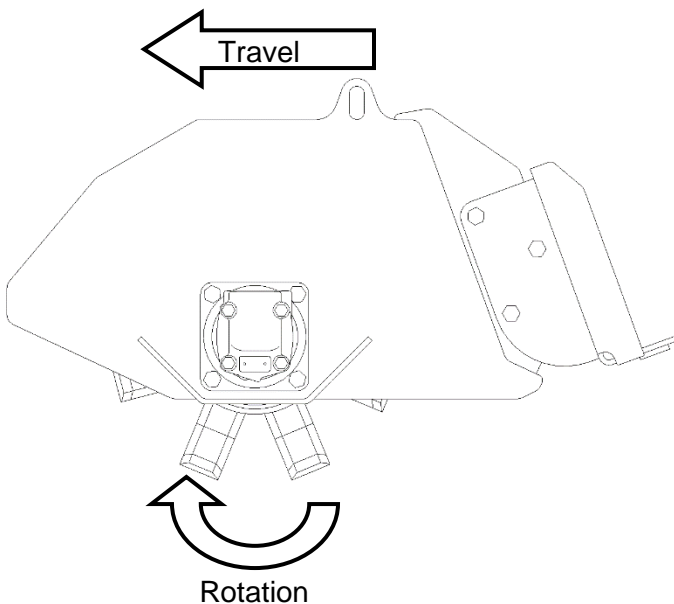
1. With the operator in the seat of the loader, the seat belt fastened, and the seat bar lowered (if so equipped), start the engine.
2. Activate the auxiliary hydraulic system to start the tiller rotation. Make sure the tiller tines are moving in the correct direction for the intended direction of travel while tilling.

**IMPORTANT:** Loader engine must be at idle speed when starting, stopping, or changing flow direction of the auxiliary hydraulic system.

**IMPORTANT:** Do not exceed rated operating flow and pressure for the attachment. This can cause serious damage to the attachment and will void all warranties.

**NOTE:** The mini tiller may be operated forward or backward by reversing the hydraulic flow to the attachment.

3. With the loader boom fully lowered and the auxiliary hydraulics engaged, slowly tilt the loader coupler forward until the desired tilling depth is reached.
4. Begin to slowly drive the loader forward or backward (depending on tilling direction), allowing the tiller tines to mulch the material into a properly cultivated soil.
5. If desired, the loader boom can be put in the float position (see the loader's operator's manual for boom float instructions).







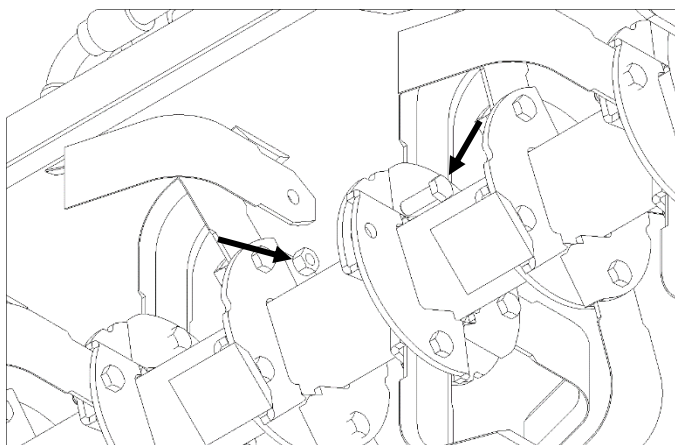
# ROUTINE MAINTENANCE

**⚠ WARNING** Lower the attachment to rest on the ground, shut down the engine, set the park brake, relieve the hydraulic pressure to the attachment, and wait for all motion to stop before leaving the operator's seat to perform service of any kind.

It is the operator's responsibility to make daily inspections of the attachment and loader for damage, loose bolts, fluid leaks, or anything else that could cause a potential service or safety problem. Preventive maintenance is the easiest and least expensive type of maintenance.

**IMPORTANT:** Bolts and set screws can loosen after initial usage. After first hour of operation check all bolts and set screws.

<b>Lubrication Legend</b>	 Multipurpose spray lube	 No. 2 Lithium base gun grease	 Multipurpose oil lube	 <b>50</b> Intervals at which lubrication is required
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Check tiller tines after every **8 hours** of operation.

- Make sure none of the tine bolts are loose, broken, or missing.
- Make sure none of the tines are cracked, bent, broken, or missing.
- Make sure none of the tines are excessively worn.

## Tiller Tine Replacement

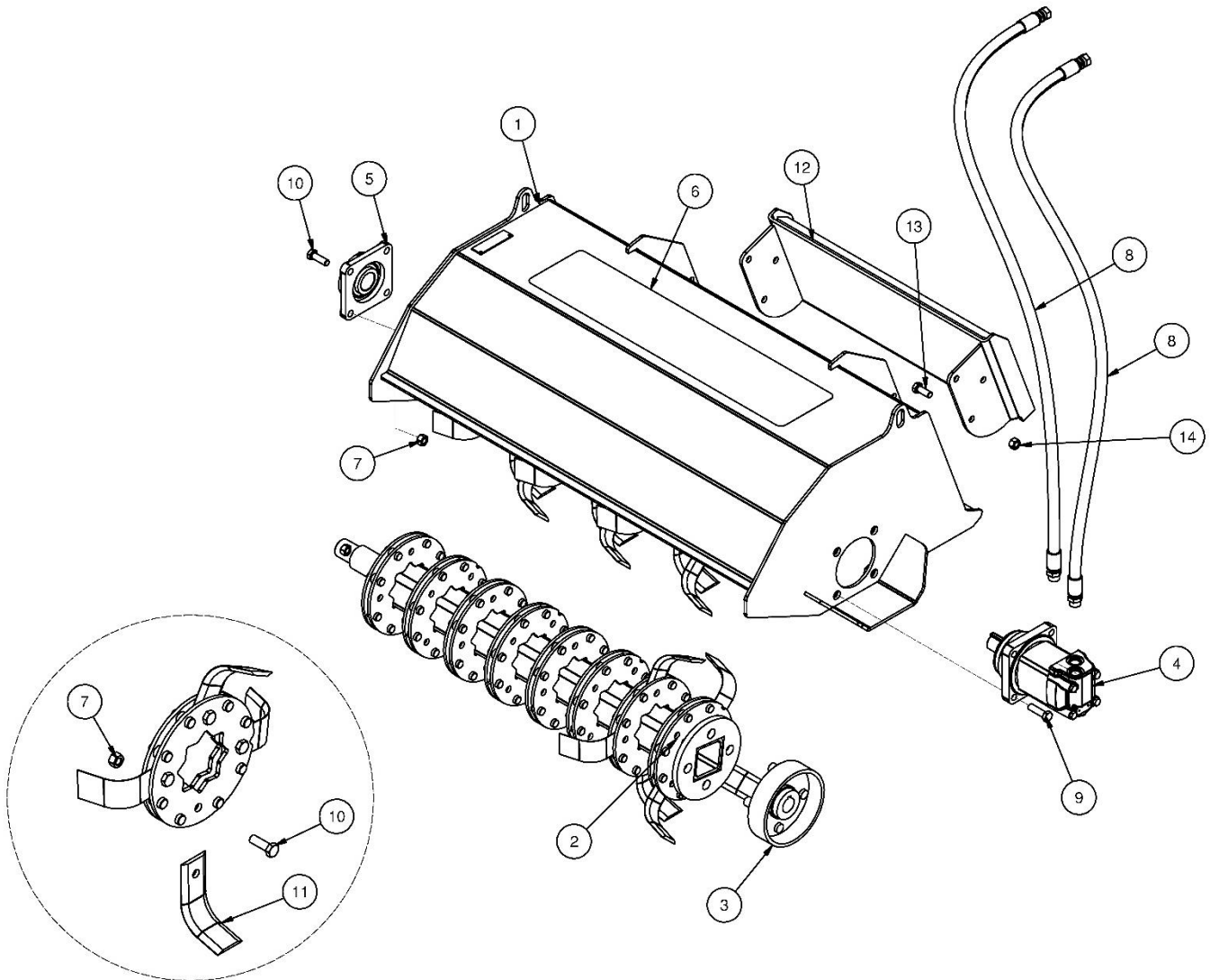
1. Remove the lock nut and bolt securing the worn or damaged tine to the tiller arbor.
2. Remove the tine from the arbor.
3. Install the new tine between the arbor plates where the old tine was removed.

**IMPORTANT:** Install the new tine in the same direction (right hand or left hand) as the tine that was removed.

4. Install the bolt and a new lock nut to secure the tine in place. Tighten to the proper torque (see "Bolt Torque Information" on page 16).

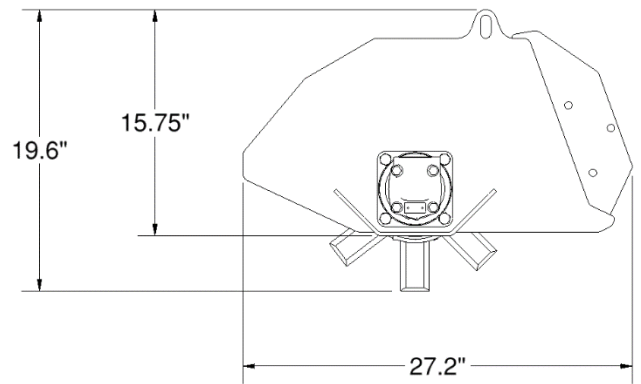
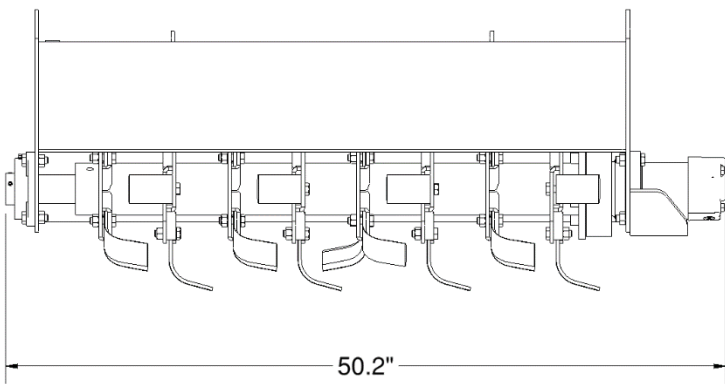
## PARTS INFORMATION

ITEM	QTY	PART NO.	DESCRIPTION	STOCK NO.
1	1	317505	BODY TILLER 38 W/A	
2	1	317507	ARBOR TILLER 38 W/A	
3	1	317502	HUB ARBOR W/A	
4	1	317537	MOTOR HYD 14.9 CID WHEEL	
5	1	319085	BRG 1 1/2 4-B FLG B-TYPE	
6	1	314096	TAPE ANTI-SKID 6 X 28 DIE CUT	
7	36	37214	NUT HEX LOCK	1/2 NC
8	2	317549	HOSE 1/2 X 60 8FJX-10MB	
9	4	13210	BOLT HEX	1/2 X 1-3/4 NC GR 5
10	36	13209	BOLT HEX	1/2 X 1-1/2 NC GR 5
11	32	317544	TINE TILLER MINI	
12	1	400000	MOUNT FRAME TORO MINI W/A	OPTIONAL MOUNT PACKAGE
	1	400001	MOUNT FRAME ASV MINI W/A	OPTIONAL MOUNT PACKAGE
	1	400002	MOUNT FRAME BC MINI W/A	OPTIONAL MOUNT PACKAGE
	1	300283	MOUNT FRAME UNIV MINI W/A	OPTIONAL MOUNT PACKAGE
	1	330622	MOUNT FRAME AVANT MINI W/A	AVANT ADPT MNT PKG 330753
13	6	15209	BOLT HEX 1/2 X 1-1/2 NC GR 8	MOUNTING PACKAGES
14	6	0167011	NUT FLG TOP LOCK 1/2 NC GR 8YZ	MOUNTING PACKAGES



## GENERAL SPECIFICATIONS

Model	Mini Tiller
Working Width	37"
Operating Weight (without mount)	275 lbs.
Overall Width	50.2"
Overall Height	19.6"
Overall Length	27.2"
Tilling Depth	Up to 4"
Minimum Operating Pressure	2500 PSI
Rated Flow	7-14 GPM
Tines	32



All dimensions are in INCHES.

# BOLT TORQUE INFORMATION

## Torque-Tension Relationships for SAE J429 Grade Bolts

Nominal Thread Size	SAE J429 Grade 2			SAE J429 Grade 5			SAE J429 Grade 8		
	Clamp Load (lbs)	Tightening Torque		Clamp Load (lbs)	Tightening Torque		Clamp Load (lbs)	Tightening Torque	
		K = .15	K = .20		K = .15	K = .20		K = .15	K = .20
Unified Coarse Thread Series									
1/4-20	1,300	49 in-lbs	65 in-lbs	2,000	75 in-lbs	100 in-lbs	2,850	107 in-lbs	143 in-lbs
5/16-18	2,150	101	134	3,350	157	210	4,700	220	305
3/8-16	3,200	15 ft-lbs	20 ft-lbs	4,950	23 ft-lbs	31 ft-lbs	6,950	32.5 ft-lbs	44 ft-lbs
7/16-14	4,400	24	30	6,800	37	50	9,600	53	70
1/2-13	5,850	36.5	49	9,050	57	75	12,800	80	107
9/16-12	7,500	53	70	11,600	82	109	16,400	115	154
5/8-11	9,300	73	97	14,500	113	151	20,300	159	211
3/4-10	13,800	129	173	21,300	200	266	30,100	282	376
7/8-9	11,425	125	166	29,435	321	430	41,550	454	606
1-8	15,000	187.5	250	38,600	482.5	640	54,540	680	900
Unified Fine Thread Series									
1/4-28	1,500	55 in-lbs	75 in-lbs	2,300	85 in-lbs	115 in-lbs	3,250	120 in-lbs	163 in-lbs
5/16-24	2,400	112	150	3,700	173	230	5,200	245	325
3/8-24	3,600	17 ft-lbs	22.5 ft-lbs	5,600	26 ft-lbs	35 ft-lbs	7,900	37 ft-lbs	50 ft-lbs
7/16-20	4,900	27	36	7,550	42	55	10,700	59	78
1/2-20	6,600	41	55	10,200	64	85	14,400	90	120
9/16-18	8,400	59	79	13,000	92	122	18,300	129	172
5/8-18	10,600	83	110	16,300	128	170	23,000	180	240
3/4-16	15,400	144	193	23,800	223	298	33,600	315	420
7/8-14	12,610	138	184	32,480	355	473	45,855	500	668
1-12	16,410	205	273	42,270	528	704	59,670	745	995

Clamp load estimated as 75% of proof load for specified bolts.

Torque values for 1/4 and 5/16 inch series are in inch-pounds. All other torque values are in foot-pounds.

Torque values calculated from formula  $T = KDF$

where:  $K=0.15$  for "lubricated" conditions

$K=0.20$  for "dry" conditions

[illegible]

## **LIMITED WARRANTY**

Erskine Attachments LLC warrants each new machine manufactured by us to be free from defects in material and workmanship for a period of twenty-four (24) months from date of delivery to the original purchaser.

Our obligation under this warranty is to replace free of charge, at our factory or authorized dealership, any part proven defective within the stated warranty time limit.

All parts must be returned freight prepaid and adequately packaged to prevent damage in transit.

This warranty does not cover:

1. New products which have been operated in excess of rated capacities or negligence
2. Misuse, abuse, accidents or damage due to improperly routed hoses
3. Machines which have been altered, modified or repaired in any manner not authorized by our company
4. Previously owned equipment
5. Any ground engaging tools in which natural wear is involved, i.e. tooth tips, cutting teeth, etc.
6. Normal maintenance
7. Fork tines
8. Hydraulic motors that have been disassembled in any manor

In no event will the Sales Representative, Dealership, Erskine Attachments LLC, or any other company affiliated with it or them be liable for incidental or consequential damages or injuries, including but not limited to the loss of profit, rental or substitute equipment or other commercial loss. Purchaser's sole and exclusive remedy being as provided here in above.

Erskine Attachments LLC must receive immediate notification of defect and no allowance will be made for repairs without our consent or approval.

This warranty is in lieu of all other warranties, express or implied by law or otherwise, and there is no warranty of merchantability or fitness purpose.

No agent, employee, or representative of Erskine Attachments LLC has any authority to bind Erskine Attachments LLC to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms apply.

This warranty may not be enlarged or modified in any manner except in writing signed by an executive officer of Erskine Attachments LLC to improve its products whenever it is possible and practical to do so. Erskine Attachments LLC reserves the right to make changes and or add improvements at any time without incurring any obligation to make such changes or add such improvements to products previously sold.

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**P/N 317550**  
Erskine Attachments LLC

**Date Printed: 2/22/2021**

Printed in U.S.A.