



Bolo Tine Kit
OEM-290-253 / 290-253-081
for HORSE™, ECONO HORSE™, and PONY® Tillers

Installation Instructions

**THANK
YOU!**

Thanks for buying new bolo tines. These tines were designed for your model tiller and will handle all of your tilling needs including sod busting, seedbed preparation, cultivating, and turning under crop residue.

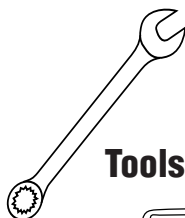


How To Use These Instructions

These instructions apply only to owners of the following tillers:

- ☐ HORSE™ Model
- ☐ ECONO HORSE™ Model
- ☐ PONY® Model

First, read the general information given for all model tillers on Pages 1 through 4. You will then be directed to installation instructions for your particular model tiller. Carefully look at the adjacent figures while following the step-by-step instructions. Finally, see the Bolo Tines Maintenance Section on Page 16.



Tools Needed

- ☐ Wrenches (two 9/16 inch)
- ☐ Screwdriver (medium-sized)
- ☐ Soft Rubber Mallet
- ☐ Penetrating Oil
- ☐ Metal File (needed only if tine holders are also removed)



How To Reach Us

If you have any questions about removing or installing tines, please refer to the "Customer Assistance" information on the back cover.

Attention! **HORSE Model Owners**

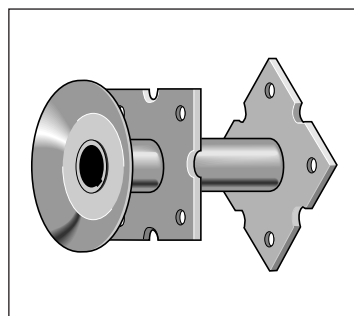
Horse Model tillers have two different style tine holders as shown in figures to the right:

- ☐ Welded steel

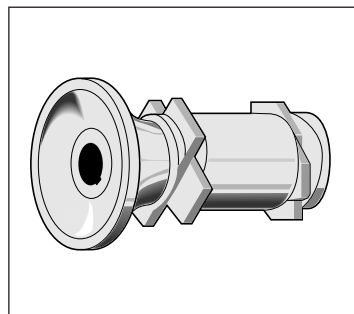
Note: Welded steel holders may be secured to tine shaft either with two bolts and nuts or with single mounting bolt (illustrated in these instructions).

- ☐ Cast iron

Owners of HORSE Model tillers with **cast iron** tine holders should purchase Bolo Tine Kit 1901118A.



Welded Steel Tine Holder



Cast Iron Tine Holder

PRE-INSTALLATION STEPS

Step 1: Check Your Parts

Remove the tines and hardware package and check that you received all of the parts listed below for your model tiller. If any parts are missing or damaged, contact our Technical Service Department and we will arrange for replacements.

Item	Qty	Part #	Description
Horse, Econo Horse, and Pony Standard Tines	8	742-04223	Left-curved Tines
	8	742-04224	Right-curved Tines
Hardware for Standard Tines (All Models)	16	1100043	3/8"-16 x 1-1/4" Hex Head Bolts (Grade 5)
	16	1733398	3/8"-16 Hex Locknuts
Custom Tines (All Models)	8	GW-2475-1	Left-curved Custom Tines
	8	GW-2475-2	Right-curved Custom Tines
	16	710-0514	3/8"-16 x 1-1/4" Hex Head Bolts (Grade 5)
	16	712-0798	3/8"-16 Hex Nuts
	16	736-0169	3/8" Lock Washers



WARNING

To prevent serious personal injury when removing or installing your bolo tines:

- Stop the engine, and remove the electric start key (if your tiller features electric start).
- Let the engine and muffler area cool.
- Disconnect the spark plug wire, and position the wire away from the plug to prevent accidental starting.



CAUTION

Tine edges can be sharp and can have slivers that could cause personal injury. Use care at all times when handling tines. The tine hood edges may also be sharp. To prevent personal injury, wear thick gloves when touching the edges of the hood.

Step 2: Tine Removal

A. Carefully tilt the tiller forward until the engine is resting on the ground. (On some models it may be necessary to prop up the rear of the tiller or to add additional weight to the engine to stabilize the tiller in this position.)

B. Raise the tiller hood flap and secure it out of the way with a rubber band, string or, in the case of the PONY tiller, with the depth regulator adjustment bar knob.

C. Use two 9/16-inch wrenches to remove the bolts which attach the tines to the holders. (**Tines are not attached to cast iron holders with bolts. In the case of cast iron holders, remove each gang [set of four tines] from a holder by removing only one bolt, and then loosening the other three bolts on the same gang.**)

D. Always discard old hardware and tines. Use only the hardware which came with your new tines.

If You Ordered Custom Tines...

Custom tines (special, hard-faced tines which last up to 2-1/2 times longer than standard tines) are perfect for tilling sandy, gritty soil, or for custom tilling or market gardening.

If you received Custom tines, read this General Information and then follow the standard tine installation instructions which apply to your particular model tiller.

If you have any difficulty installing your Custom tines, contact our Service Department (Refer to the back cover of this manual.)

Bolt Removal Tips

- ☐ **Loosen** all four nuts on a holder plate or tine gang before trying to **remove** any of the nuts and bolts.
- ☐ If necessary, use penetrating oil to loosen stubborn nuts.
- ☐ If necessary, place the closed (boxed) end of a wrench on the **nut** and sharply tap the wrench with the rubber mallet until the nut is loose.

Step 3: Tine Identification

Separate the sixteen new tines into two groups: **eight left-curved tines** and **eight right-curved tines**. Tines can be identified as either left-curved or right-curved tines in two ways:

A. Letters and numbers may be stamped on the side of each tine with factory code marks which contain either an "L" (on left-curved tines) or an "R" (on right-curved tines). See Figure 1.

B. Or, hold the tine with the **blunt** edge toward you. If the **tip** curves toward the left, the tine is a left-curved tine. If the **tip** curves toward the right, the tine is a right-curved tine. See Figures 2 and 3 which show the two types of tines.

Step 4: Bolt Installation

A. Place the sixteen bolts through the holes in the tine holders with the threaded ends of the bolts pointing outward toward each side of the tiller as shown below in Figure 4. (**The installation of tines on holders is described later in these instructions.**)

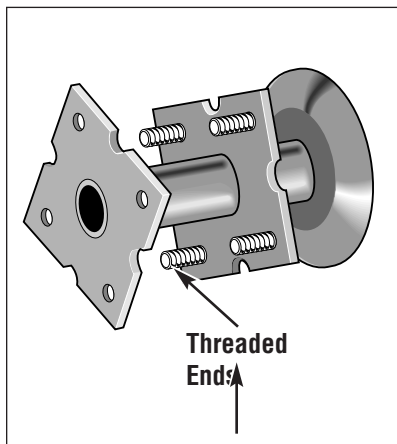


Figure 4: Insertion of bolts.

B. Sort lock washers and nuts into four groups of four each.

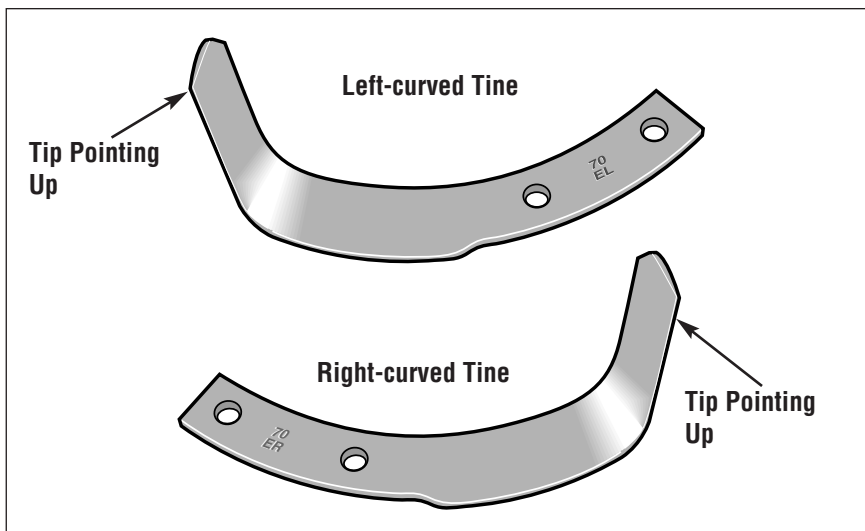


Figure 1: Left-curved tines and right-curved tines.

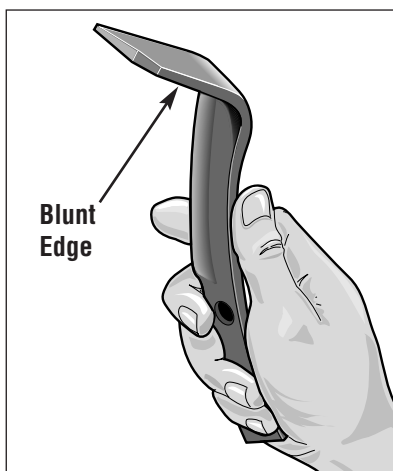


Figure 2: Left-curved tine.

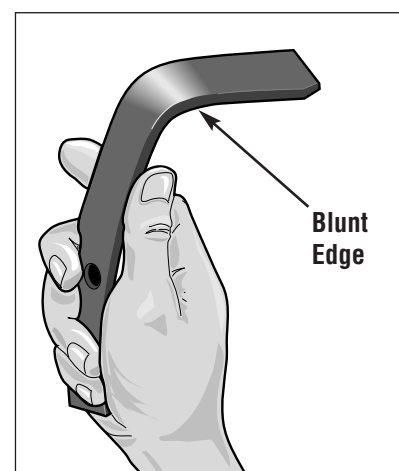


Figure 3: Right-curved tine.

IMPORTANT: Tines rotate in the same direction as the wheels. During the installation steps, place tines on holders so cutting edges (not the blunt, wider edges) will enter the soil first when the tiller moves forward. See Figure 5.

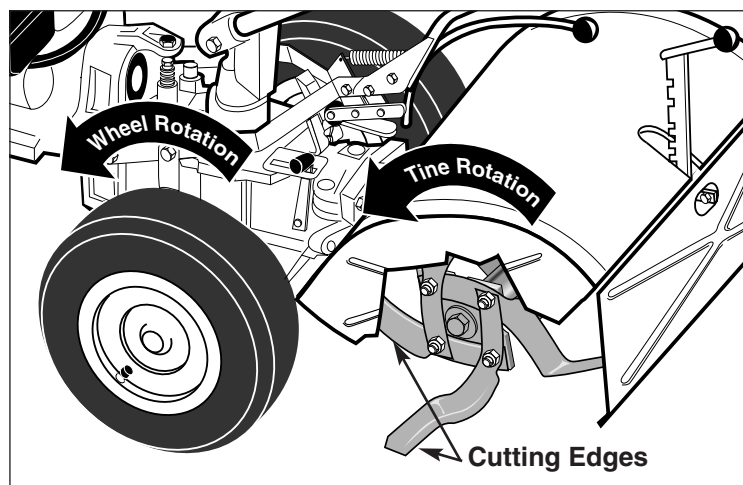


Figure 5: Cutting edges of tines must enter the soil first when the tiller moves forward.

Step 5: Find the Installation Instructions for Your Model

Each tiller's distinctive tine pattern provides the optimum in tilling performance for that model. Be sure to install tines in the pattern described for your tiller. *Find your tiller in the following list and go to the indicated page to continue with tine installation.*

- ❑ HORSE (Welded Steel Tine Holders), see the instructions at the bottom of this page.
- ❑ PONY, see **Page 8**.
- ❑ ECONO HORSE, see **Page 10**.

Order of Installation

On all models, tines will be installed in the following order (see Figure 6):

- A. Left Inner Holder
- B. Right Inner Holder
- C. Left Outer Holder
- D. Right Outer Holder

NOTE: When installing the tines you will be directed to perform a two step procedure and then check to ensure that the installation is correct before going on to the next step.

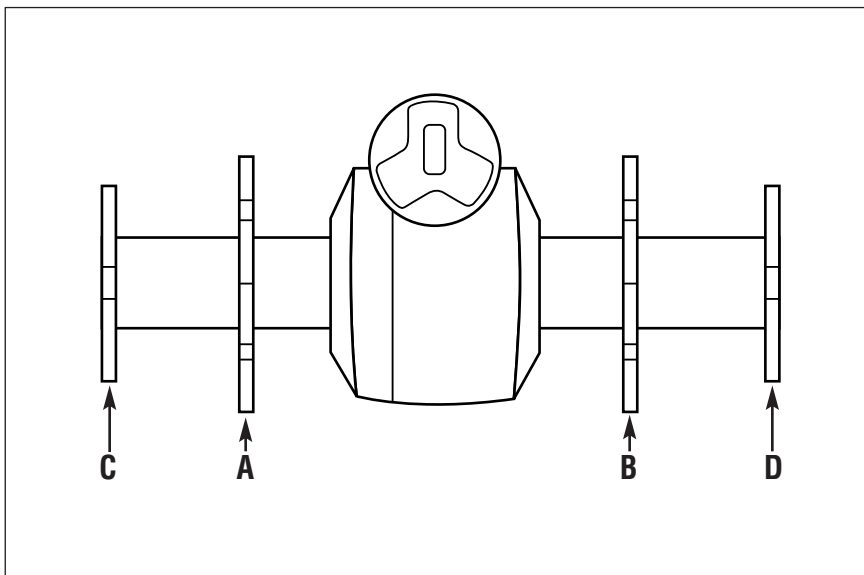


Figure 6: Order of installation on holders (welded steel holders shown).

HORSE MODEL TINE INSTALLATION (WELDED STEEL HOLDERS)

Use this procedure to install tines only if your tine holders are shaped as shown below in Figure 7.

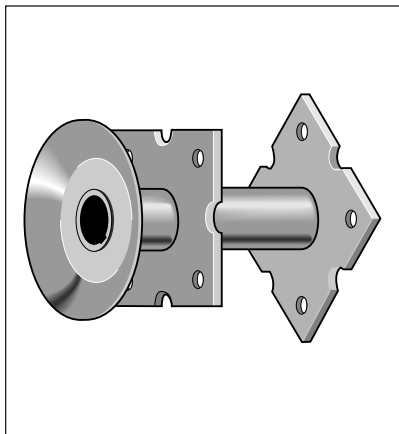


Figure 7: Welded steel tine holder.

NOTE: Be sure to use the specific tines (left or right curved) called for in each installation step.

Step 1: Position Holders Before Starting Tine Installation

On PTO Models, disengage the PTO Lever. On non-PTO Models, place the Forward/Reverse Lever in Neutral.

Rotate the tine holders and shaft (by hand) until any one of the semi-circles on the **outer** mounting plates of the holders is at the 12 o'clock position in relation to the ground. See Figure 8 on Page 5.

Step 2: Install Tines on Left Inner Holder

Tines used in this step:



two **right-curved** tines

followed by



two **left-curved** tines

A. Place two **right-curved** tines (shown shaded in Figure 8) **opposite** each other on the previously installed bolts. Make sure that the tines are positioned as follows:

- ✓ Tines are **across from** each other.
- ✓ Tines are against the **outer** surface of the left inner holder plate.

- ✓ Tips point *inward* toward the transmission housing.
- ✓ The *cutting edges* will enter the soil first when the tiller moves forward.

B. Place two *left-curved* tines (unshaded in Figure 8) *opposite* each other on the bolts, overlapping the tines installed in Step 2-A. Make sure that the tines are positioned as follows:

- ✓ These tines are also *across from* each other.
- ✓ Tips point *outward* toward the sides of the tiller.
- ✓ The *cutting edges* will enter the soil first when the tiller moves forward.

C. Add lock washers and nuts to all four bolts and tighten securely.

Step 3: Install Tines on Right Inner Holder

Tines used in this step:



two **left-curved** tines

followed by



two **right-curved** tines

A. Place two *left-curved* tines (shown shaded in Figure 8) *opposite* each other on the previously installed bolts. Make sure that the tines are positioned as follows:

- ✓ The tips of these two tines should be directly opposite the tips of the two right-curved tines installed on the left inner holder in Step 2-A (see Figure 8).

- ✓ Tines are against the *outer* surface of the right inner holder plate.
- ✓ Tips point *inward* toward the transmission housing.
- ✓ The *cutting edges* will enter the soil first when the tiller moves forward.

B. Place two *right-curved* tines (unshaded in Figure 8) *opposite* each other on the bolts, overlapping the tines installed in Step 3-A. Make sure that the tines are positioned as follows:

- ✓ These tines are also *across from* each other.
- ✓ Tips point *outward* toward the sides of the tiller.
- ✓ The *cutting edges* will enter the soil first when the tiller moves forward.

C. Add lock washers and nuts to all four bolts and tighten securely.

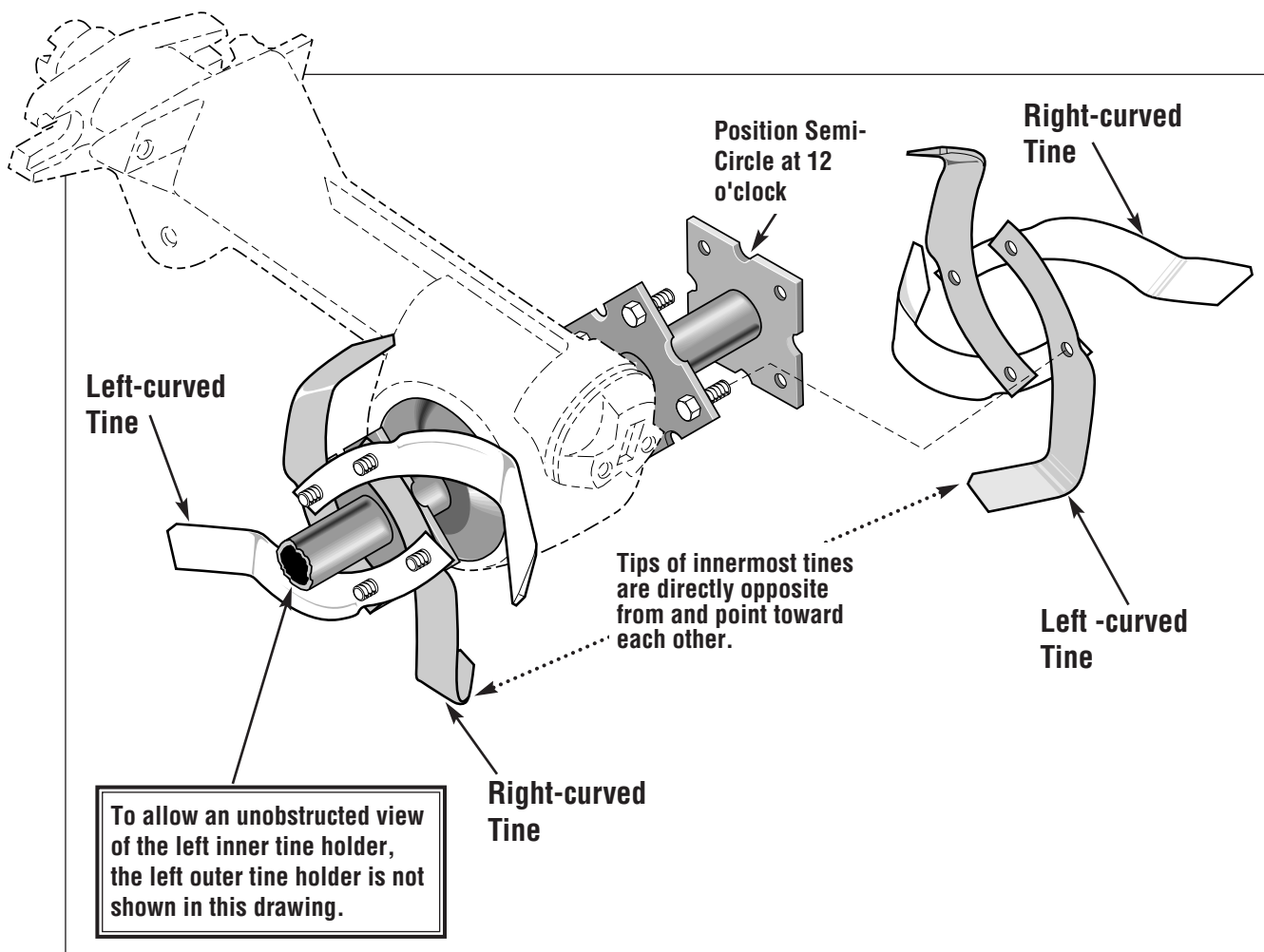


Figure 8: Installing tines on inner holders.

Step 4: Check the Installation

This completes the installation of the tines on the two inner holders. To ensure that the installation is correct, check for the following:

A. Make sure that the tips of the four **innermost** tines (those nearest the transmission housing) are directly opposite each other, pointing toward each other and toward the transmission housing. See Figure 9.

B. Make sure that the cutting edges of all tines will enter the soil first when the tiller moves forward.

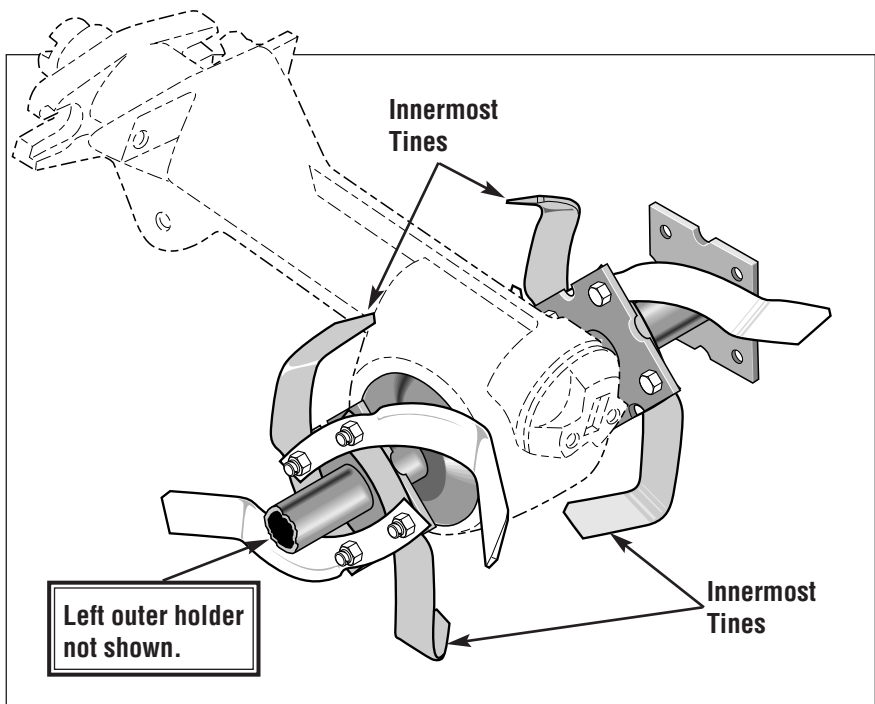


Figure 9: Innermost tines on inner holders.

Step 5: Install Tines on Left Outer Holder

Tines used in this step:



Two **right-curved** tines followed two **left-curved** tines

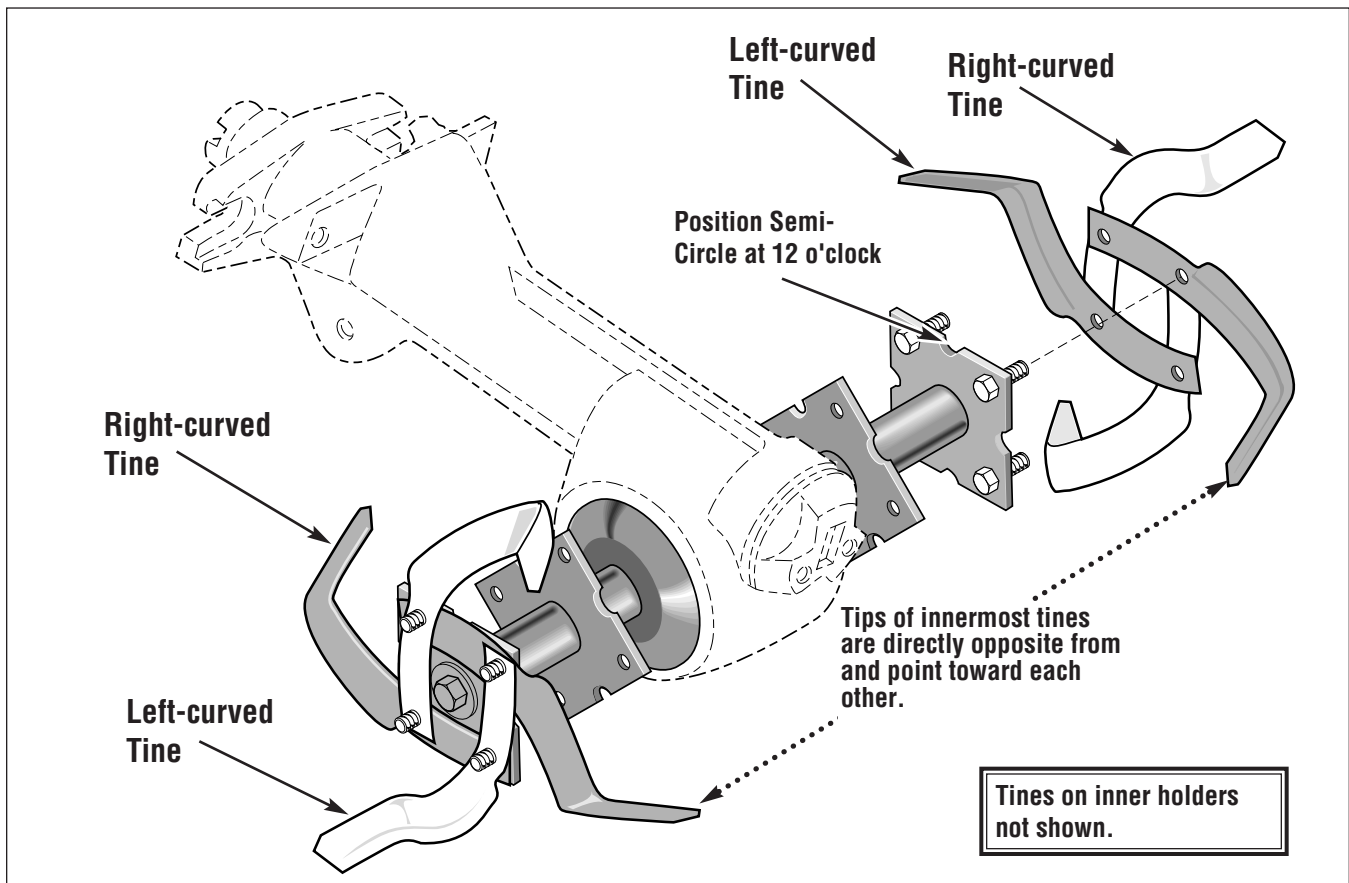


Figure 10: Installing tines on outer holders.

A. Place two **right-curved** tines (shown shaded in Figure 10) **opposite** each other on the previously installed bolts. Make sure that the tines are positioned as follows:

- ✓ Tines are **across from** each other.
- ✓ Tines are against the **outer** surface of the left holder outer plate.

- ✓ Tips point **inward** toward the transmission housing.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

B. Place two **left-curved** tines (unshaded in Figure 10) **opposite** each other on the bolts, overlapping the tines installed in Step 5-A. Make sure that the tines are positioned as follows:

- ✓ Tines are **across from** each other.
- ✓ Tips point **outward** toward the sides of the tiller.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

C. Add lock washers and nuts to all four bolts and tighten securely

Step 6: Install Tines on Right Outer Holder

Tines used in this step:



two **left-curved** tines

followed by



two **right-curved** tines

A. Place two **left-curved** tines (shown shaded in Figure 10) **opposite** each other on the previously installed bolts. Make sure that the tines are positioned as follows:

- ✓ The tips of these tines are directly opposite the tips of the two tines installed in Step 5-A.
- ✓ Tines are against the **outer** surface of the right holder outer plate.
- ✓ Tips point **inward** toward the transmission housing.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

B. Place two **right-curved** tines (shown unshaded in Figure 10) **opposite** each other on the bolts, overlapping the tines positioned in Step 6-A. Make sure that the tines are positioned as follows:

- ✓ Tines are **across from** each other.
- ✓ Tips point **outward** toward the sides of the tiller.
- ✓ The **cutting edges** will enter the soil when the tiller moves forward.

C. Add lock washers and nuts to all four bolts and tighten securely

Step 7: Check the Installation

This completes the installation of the tines on the two **outer** holders. To ensure that the installation is correct, check for the following:

A. Make sure that the tips of the four **innermost** tines on the **outer** holder (those nearest the transmission) are directly **opposite** each other and pointing inward, toward each other. See Figure 11.

B. Make sure that the **cutting edges** of all tines will enter the soil first when the tiller is moving forward.

This completes the installation steps for HORSE Models with welded steel tine holders. Also read and follow the instructions given in the Bolo Tines Maintenance Section on Page 12.

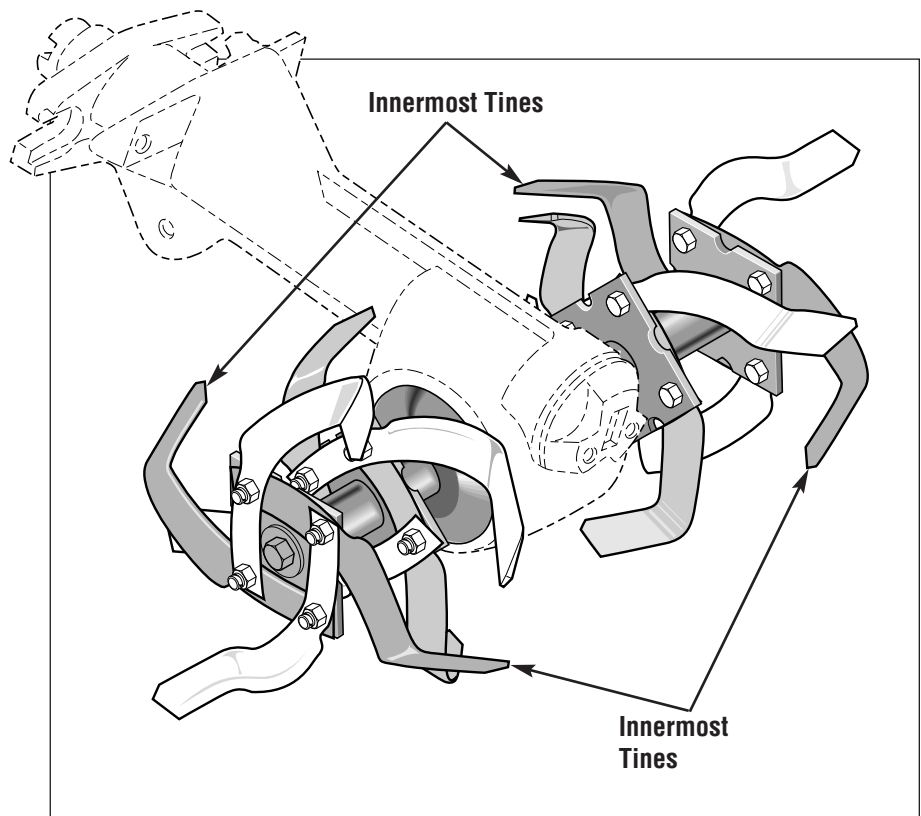


Figure 11: Outermost tines on outer holders.

PONY MODEL BOLO TINE INSTALLATION

Follow these installation steps if you own a PONY Tiller.

ECONO HORSE owners follow only Steps 1 and 2 below.

Step 1: Install Tines on Left Inner Holder

Tines used in this step:



four *right-curved* tines

A. Begin installing new tines on the left inner holder. See Figure 12.

B. Carefully place two *right-curved* tines (shown shaded in Figure 12) *opposite* each other on the previously installed bolts. Make sure that tines are positioned as follows:

- ✓ Tines are *across from* each other.
- ✓ Tines are against the *outer* surface of the left holder inner plate.
- ✓ The tips point *inward* toward the transmission housing.
- ✓ The *cutting edges* will enter the soil first when the tiller moves forward.

C. Place two more *right-curved* tines (shown partially shaded in Figure 12) *opposite* each other on the bolts, overlapping the tines installed above in Step 1-B. Make sure that the tines are positioned as follows:

- ✓ Tines are *across from* each other.
- ✓ The tips point *inward* toward the transmission housing.
- ✓ The *cutting edges* will enter the soil first when the tiller moves forward.

D. Add lock washers and nuts to all four bolts and tighten securely.

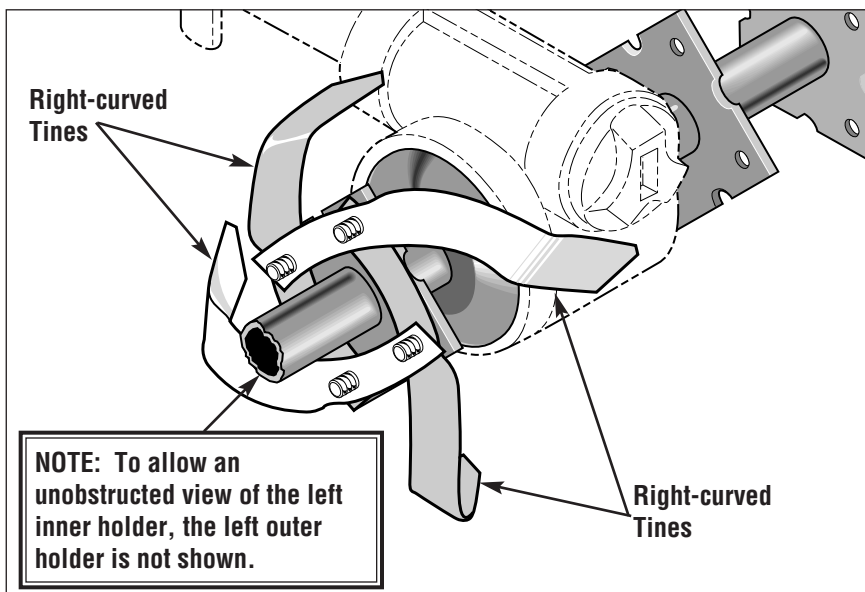


Figure 12: Installing tines on left inner tine holder.

Step 2: Install Tines on Right Inner Holder

Tines used in this step:



four *left-curved* tines

Install the four *left-curved* tines on the *outer* surface of the *right* inner holder (see Figure 13) using the procedure given

in Step 1 for the left inner holder. (The tips of the first two tines installed in this step should be directly *opposite* and *point toward* the tips of the first two tines installed in Step 1-B.) Make sure that the tips of all tines point *inward*, and that all cutting edges face forward.

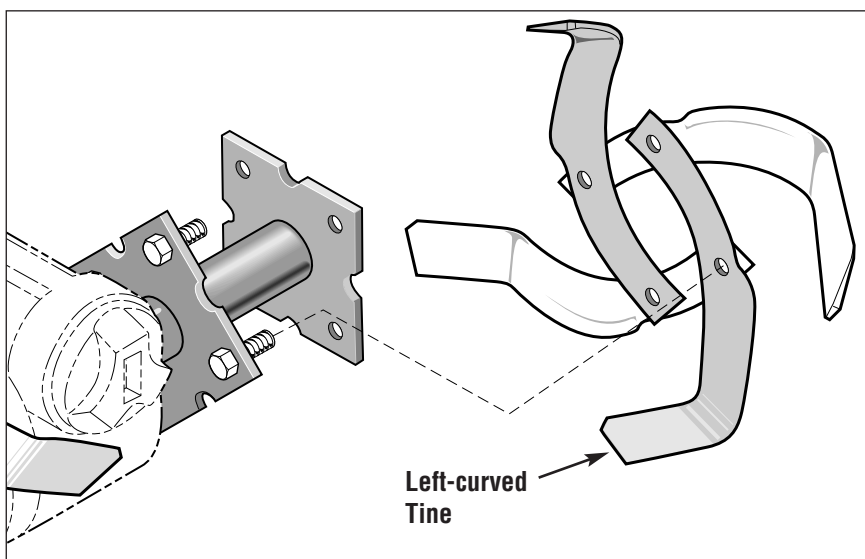


Figure 13: Installing tines on right inner tine holder.

ECONO HORSE owners should now go to the instructions for the Left Outer Holder on Page 10 to complete tine installation.

Step 3: Install Tines on Left Outer Holder

Tines used in this step:



four **right-curved** tines

Follow Steps 1-A through 1-D on Page 8 to install **right-curved** tines on the left outer holder. Make sure that the tines are installed against the **outer** surface of the holder. Make sure that all tips point **inward**, and all cutting edges face forward. See Figure 14.

Step 4: Install Tines on Right Outer Holder

Tines used in this step:



four **left-curved** tines

Follow Step 2 on Page 8 to install **left-curved** tines on the right outer holder. Make sure that the tines are installed against the **outer** surface of the holder. All tips point **inward**. See Figure 14 which shows PONY tines completely installed.

Step 5: Check the Installation

This completes the installation of the tines on your PONY Tiller. To ensure that the installation is correct, check for the following:

- ❑ Make sure that the tips of all tines are pointing **inward** (toward the transmission housing).
- ❑ Make sure that the **cutting edges** of all tines will enter the soil first when the tiller is moving forward.

Also read and follow the instructions provided in the Bolo Tines Maintenance Section on Page 12.

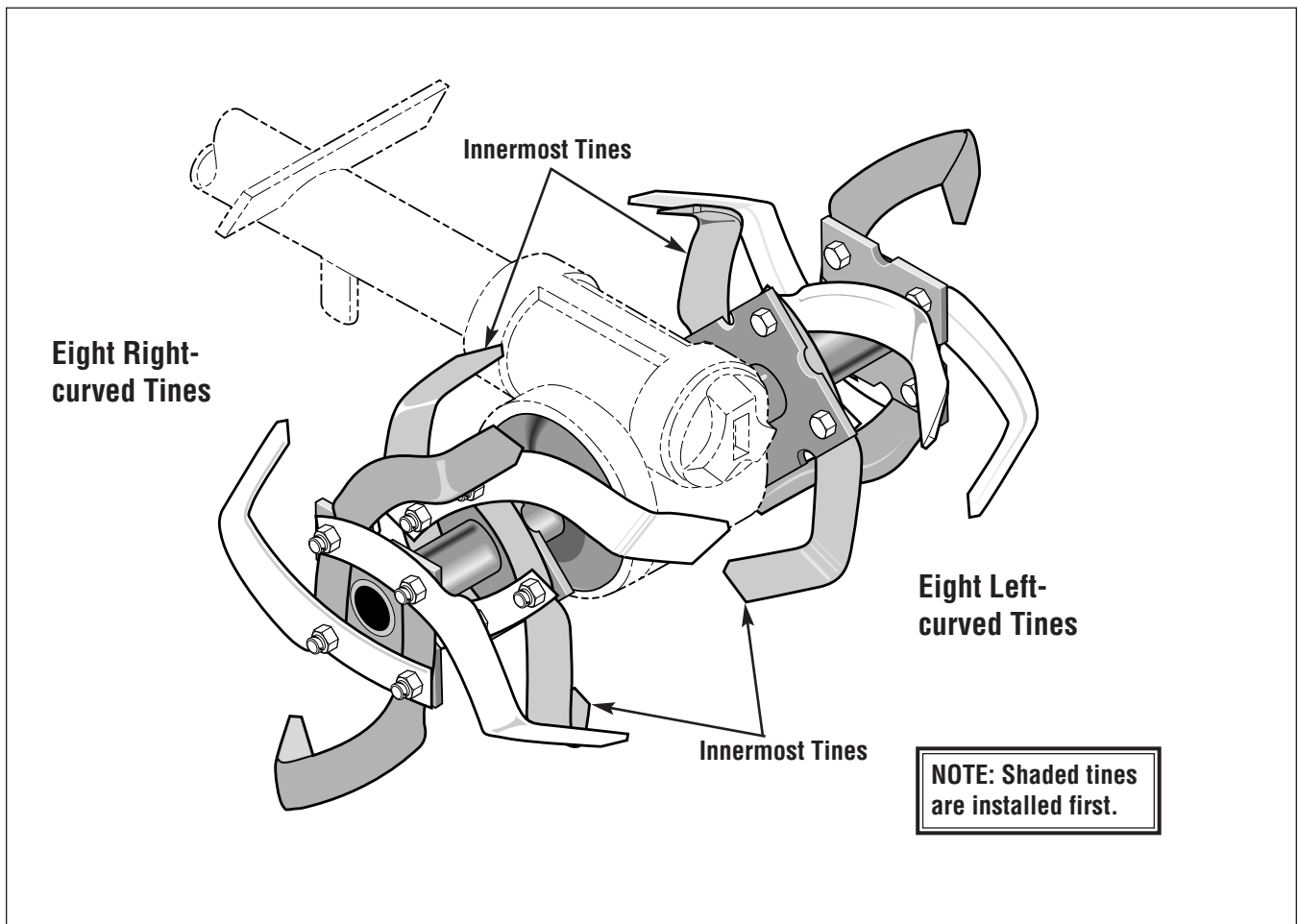


Figure 14: PONY tines installed.

ECONO HORSE MODEL BOLO TINE INSTALLATION

Follow these installation steps only if you own an **ECONO HORSE** Tiller.

NOTE: Tines on *inner holders* are installed the same for both PONY and ECONO HORSE Tillers. However, tines on the outer holders of the ECONO HORSE have a different installation pattern as explained in the following instructions.

ECONO HORSE Tiller owners should first follow Steps 1 and 2 of the instructions given on Page 8 for installing tines on the PONY Model. Then, return to Step 1 below to continue tine installation on your ECONO HORSE Model.

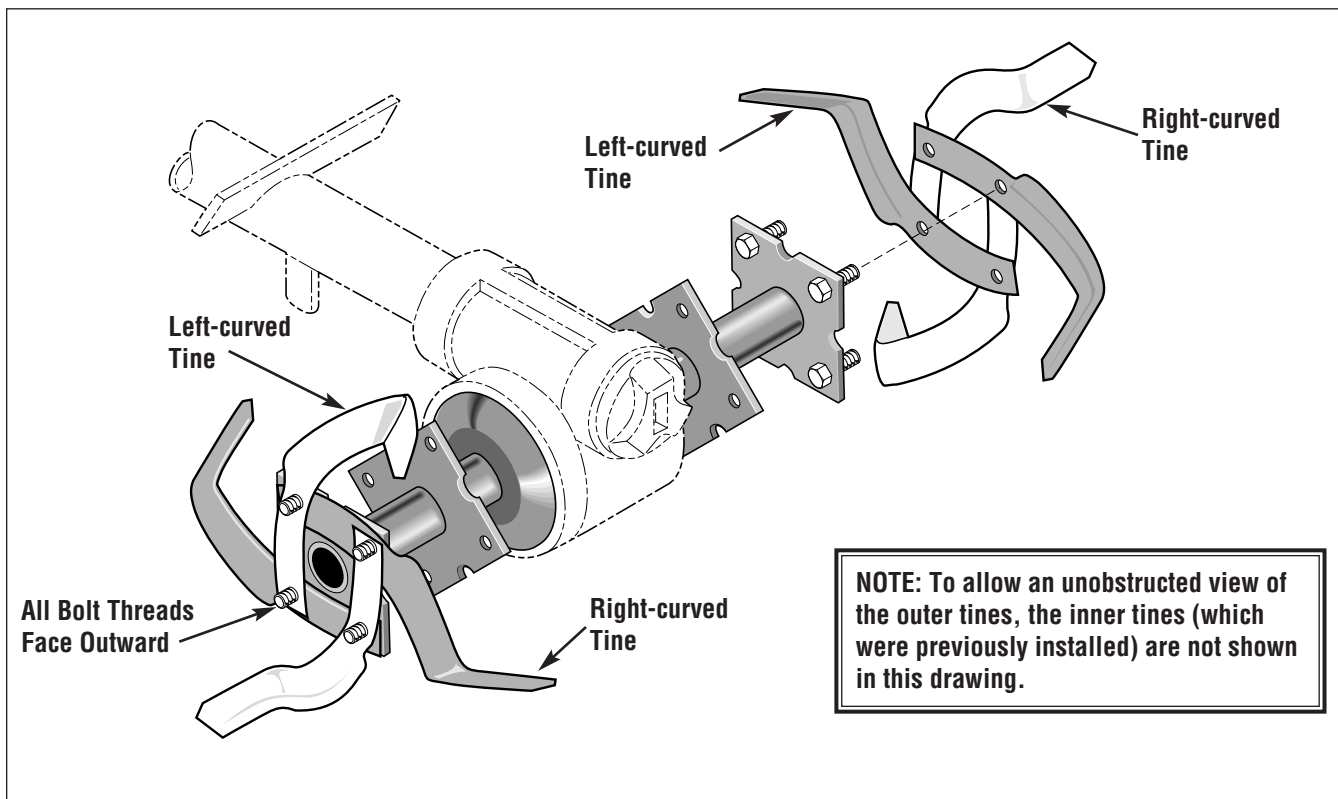


Figure 15: Installing tines on ECONO HORSE outer holders.

Step 1: Install Tines on Left Outer Holder

Tines used in this step:



two **right-curved** tines

followed by



two **left-curved** tines

A. Place two **right-curved** tines (shown shaded in Figure 15) **opposite** each other on the previously installed bolts. Make sure that the tines are positioned as follows:

- ✓ Tines are **across** from each other.
- ✓ Tines are against the **outer** surface of the left holder outer plate.
- ✓ Tips point **inward** toward the transmission housing.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

B. Place two **left-curved** tines (unshaded in Figure 15) **opposite** each other, overlapping the tines positioned in Step 1-A. Make sure that these tines are positioned as follows:

- ✓ Tines are **across from** each other.
- ✓ Tips point **outward** toward the sides of the tiller.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

C. Add lock washers and nuts to all four bolts and tighten securely.

Step 2: Install Tines on Right Outer Holder

Tines used in this step:



two **left-curved** tines

followed by



two **right-curved** tines.

A. Place two **left-curved** tines (shown shaded in Figure 15) **opposite** each other on the bolts which were previously installed. Make sure that the tines are positioned as follows:

- ✓ The tips of these two tines should be directly opposite and point toward the tips of the two tines installed in Step 1-A. See Figure 16.
- ✓ Tines are **across from** each other.

- ✓ Tines are against the **outer** surface of the right holder outer plate.
- ✓ Tips point **inward** toward the transmission housing.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

B. Place two **right-curved** tines (shown unshaded in Figure 15) **opposite** each other, overlapping the tines positioned in Step 2-A. Make sure that the tines are positioned as follows:

- ✓ Tines are **across from** each other.
- ✓ Tips point **outward** toward the sides of the tiller.
- ✓ The **cutting edges** will enter the soil first when the tiller moves forward.

C. Add lock washers and nuts to all four bolts and tighten securely.

Check the Installation

This completes the tine installation of tines on the ECONO HORSE Model. To ensure that the installation is correct, check for the following:

- ❑ Make sure that the tips of the four **innermost** tines on the outer holders are pointing toward each other and inward (toward the transmission housing). See Figure 16.
- ❑ Make sure that the **cutting edges** of all tines will enter the soil first when the tiller is moving forward.

Also read and follow the instructions provided in the Bolo Tines Maintenance Section on Page 12.

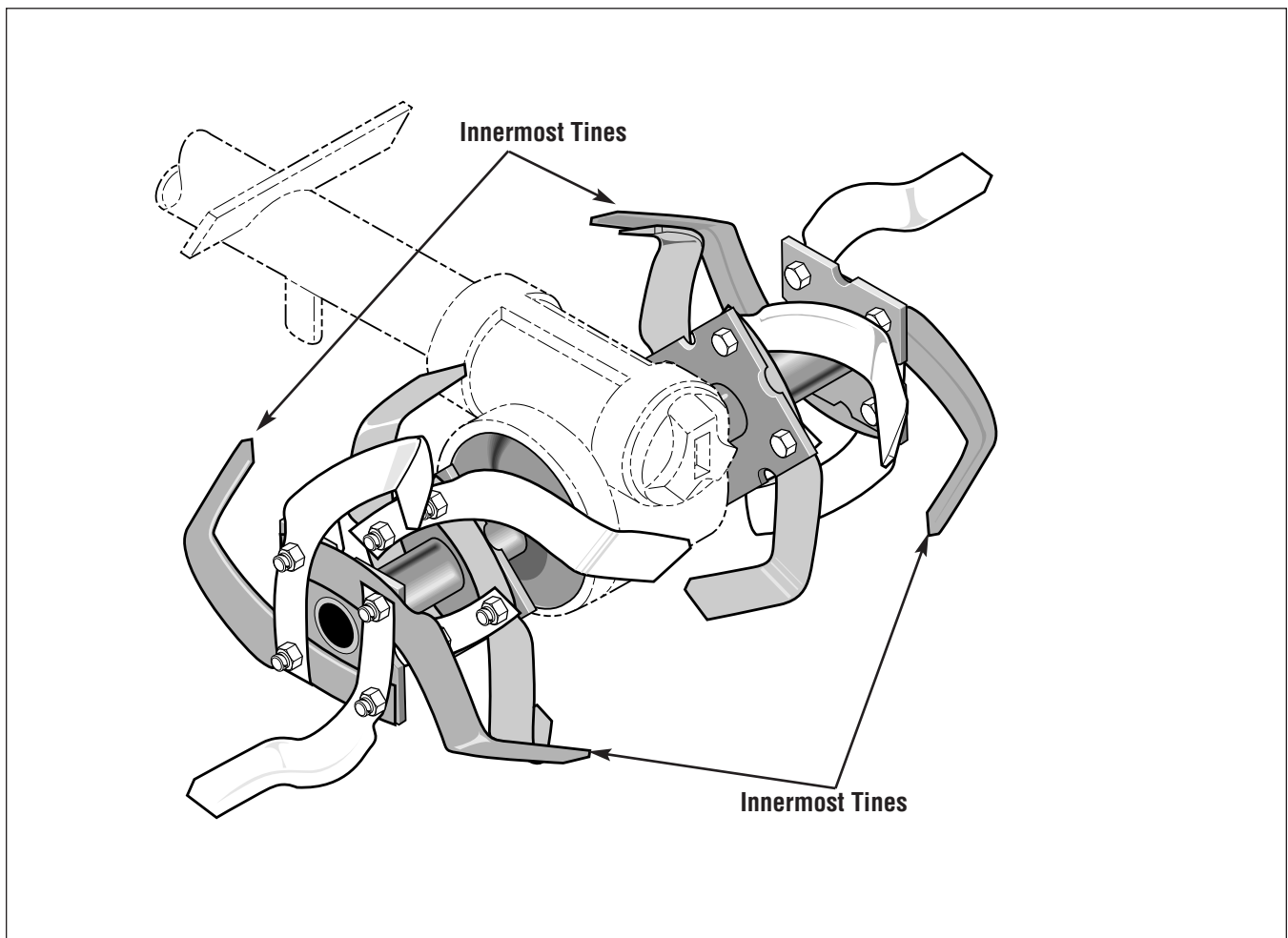


Figure 16: ECONO HORSE tines installed.

BOLO TINES MAINTENANCE

Check Bolts and Nuts

Check all tine attachment bolts and nuts for tightness **every 10 hours** of tiller operation.

Inspect Tines for Wear

Inspect tines after the **first 10 to 15 hours** of tiller operation and then after **every 10 hours**. See Figure 17.

Compare your tines to those shown in Figure 17 to decide whether your tines need replacement. Your tines should be replaced when the following conditions occur:

- ☐ Tines are worn beyond the line shown in Figure 17.
- ☐ Tines do not dig more than 3 to 5 inches and do not perform well for burying crop residue and for sod busting.
- ☐ Tines leave a wide, untilled gap in the middle of a tilled row, so that overlapping becomes very time-consuming.

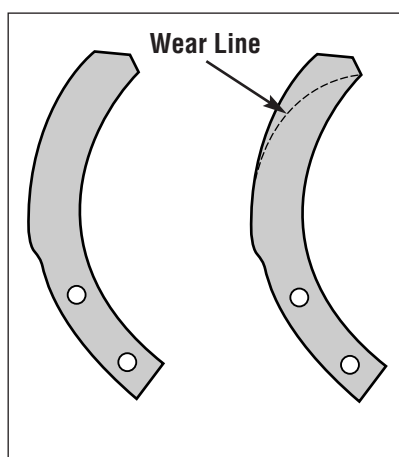


Figure 17: New and worn tines.

Rotate HORSE and ECONO HORSE Tines for Longer Tine Life

HORSE and ECONO HORSE bolo tines can be rotated to obtain a longer life. PONY tines are subject to equal wear because the tine pattern is the same for all tines on a holder. Therefore, rotating tines is not effective for that model.

- ☐ Rotate tines once during their life cycle to increase tine life up to 40%.
- ☐ Rotate tines to equalize wear among the tines.
- ☐ Rotate tines before they wear beyond the line shown in Figure 26.

Horse Model Tine Rotation (Welded Steel Holders)

Tines shown shaded in Figure 18 are in high wear positions. When rotating tines, these tines are moved from high wear to low wear positions.

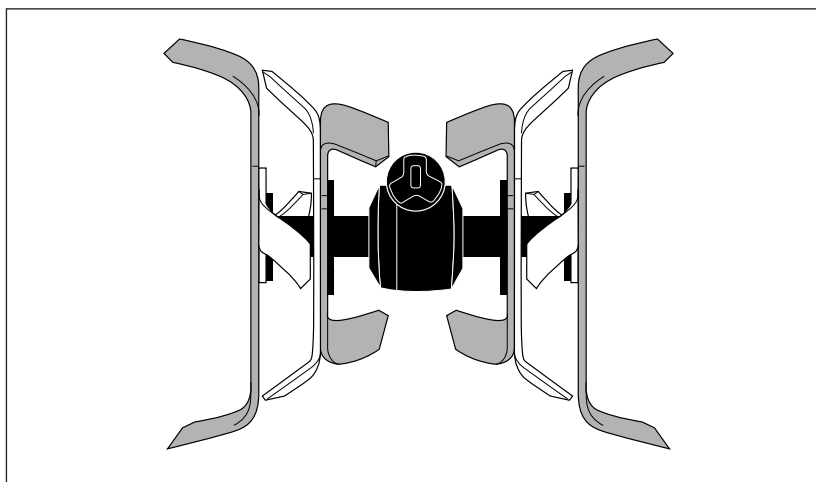


Figure 18: Shaded tines are in high wear positions.

Step 1: Move the two *left-curved* tines (labelled "A" in Figure 19) from the left outer holder to the "B" position on the right outer holder. Move the two *left-curved* tines which were at the "B" position to "A."

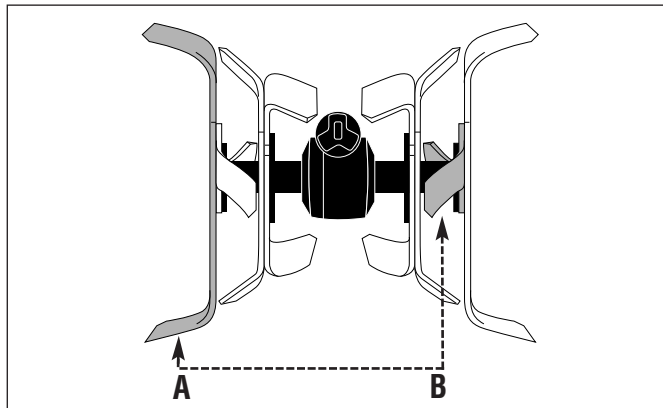


Figure 19: Exchanging position of tines at "A" and "B."

Step 2: Move the two *right-curved* tines from position "C" on the left inner holder to the "D" position on the right inner holder. Move the two right-curved tines which were at the "D" position to "C." See Figure 20.

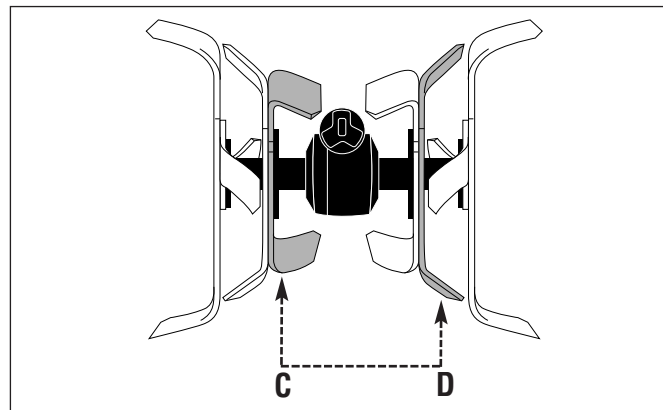


Figure 20: Exchanging position of tines at "C" and "D."

Step 3: Move the two *left-curved* tines from the "E" position on the left inner holder to the "F" position on the right inner holder. Move the two *left-curved* tines which were at the "F" position to "E." See Figure 21.

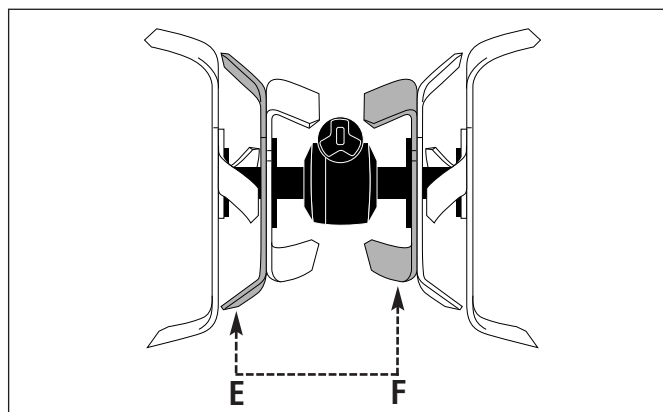


Figure 21: Exchanging position of tines at "E" and "F."

Step 4: Move the two *right-curved* tines from position "G" on the left outer holder to the "H" position on the right outer holder. Move the two *right-curved* tines which were at the "H" position to "G." See Figure 22.

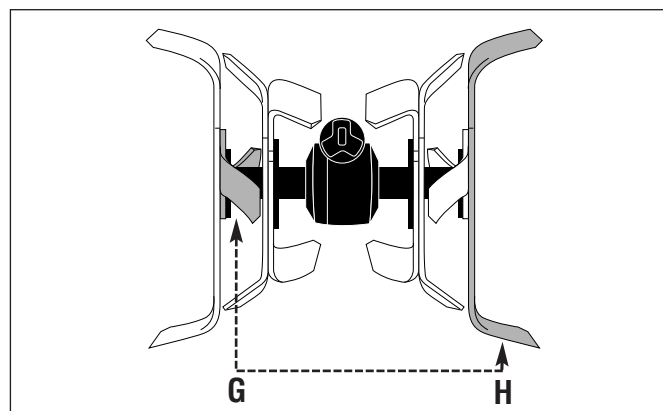


Figure 22: Exchanging position of tines at "G" and "H."

IMPORTANT: Make sure that the cutting edges on all tines will enter the soil first when the tiller is moving forward.

Econo Horse Model Tine Rotation

Rotate only the four tines on the *outer* holders as indicated below.

Step 1: Move the tines labelled "A" in Figure 23 (on the left outer holder) to the "B" position (on the right outer holder). Move the tines which were at the "B" position to "A."

IMPORTANT: Make sure that the cutting edges on all tines will enter the soil first when the tiller is moving forward.

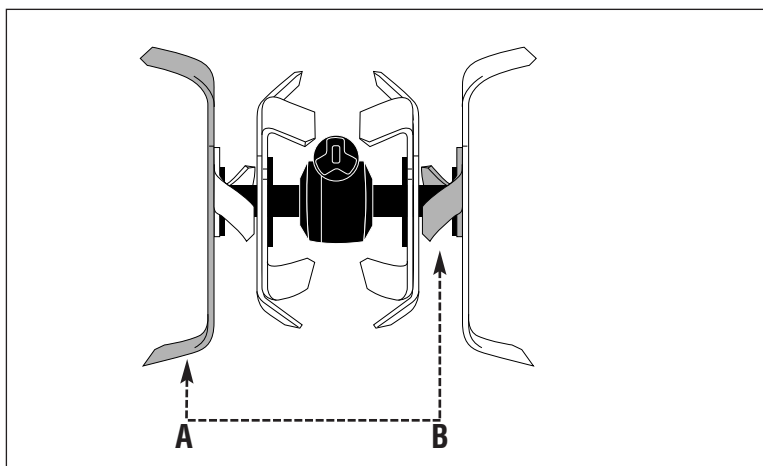


Figure 23: Rotating tines on ECONO HORSE outer holders.



For customer assistance, visit www.troybilt.com, contact your nearest authorized dealer or:

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