

Roto-Tiller Installation, Operation, and Service Manual

Part No. 999-838

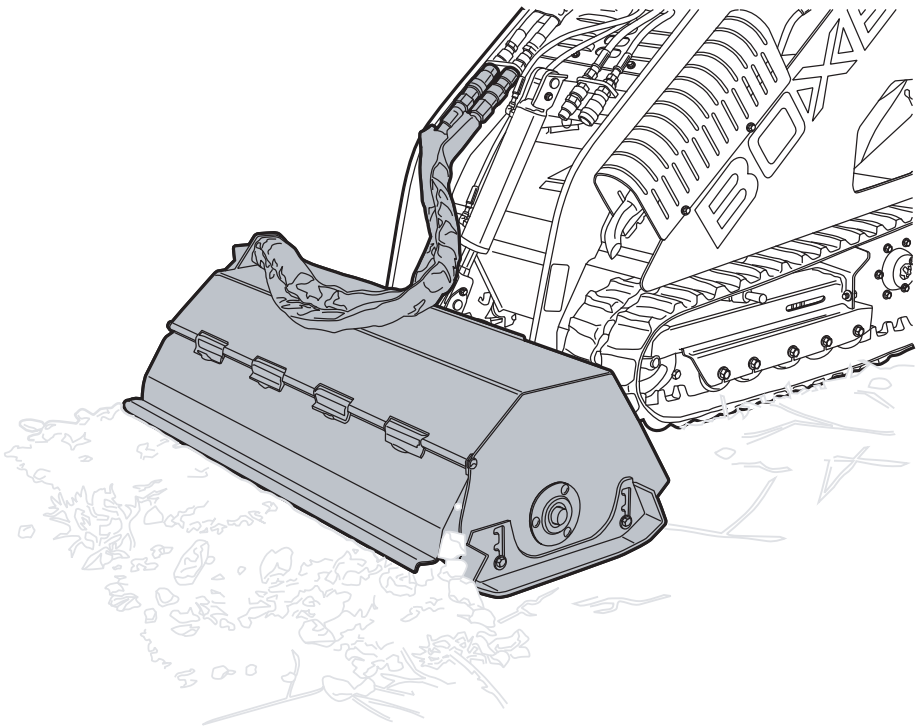


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Section 1 – Safety Precautions



CAUTION

Before installing the Roto-Tiller or any other powered attachment, be sure to refer to the “Safety”, “Pre-Start Inspection” and “Machine Start-up” sections of the power units Operator's Manual.

Since Mertz Manufacturing LLC has no direct control over machine application or operation, following the proper safety practices is the responsibility of the owner and/or operator. Remember that this unit is only as safe as those who operate it. Safety tips shown throughout this Operator’s Manual must be followed at all times.

Attachment Installation and Removal

NOTICE: The following instructions are based on the installation of the Roto-Tiller on a Mertz Manufacturing LLC power unit. Other types of machines, while comparable in design, may have slightly different installation and removal procedures.

Attachment Lock Pins

⚠ CAUTION

Before installing any attachment to the machine, make sure that the attachment is in a secure position or is positioned on flat ground.

The mounting plate located at the front of the machine provides for the easy installation and safe use of the wide variety of available attachments. This system is very easy to use, but requires the proper use of the attachment lock pins. There are two positions for the attachment lock pins (Item 1, Figure 1), the unlocked position and the locked position. Once the machine has picked up an attachment, shut off the engine and rotate the attachment locks into the “locked” position. As you rotate the lock pin, it will drop downwards, securing the attachment to the machine. If the lock pin does not drop into the locked position, start the engine and tilt the attachment slightly forwards or backwards until the lock pins snap into place.

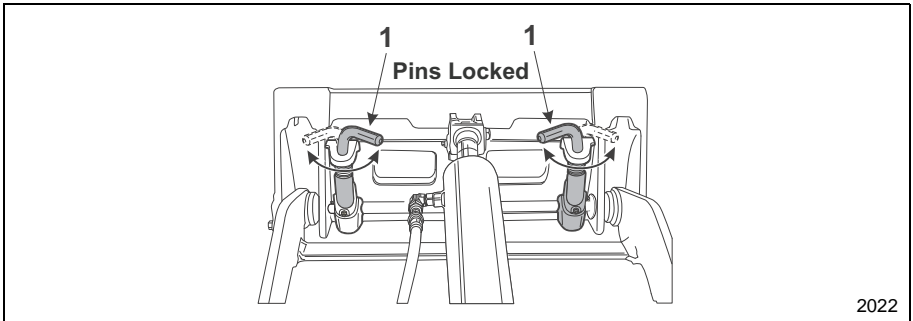


Figure 1 Attachment Locks in Locked Position

⚠ CAUTION

Until the attachment lock pins are fully in the locked position, the attachment has not been safely secured to the machine. Do not stand near the attachment until it is fully secured to the machine.

To release an attachment, rotate the attachment locks to the “unlocked” position (Item 1, Figure 1). The lock pins will automatically rise, releasing the attachment from the machine. If the pins do not release the attachment or are very hard to rotate, start the engine and tilt the attachment slightly forwards or backwards until the pins can be rotated.

⚠ CAUTION

Make sure to keep your hands and feet away from the attachment during the unlocking process. As the attachment becomes free from the machine, it may move.

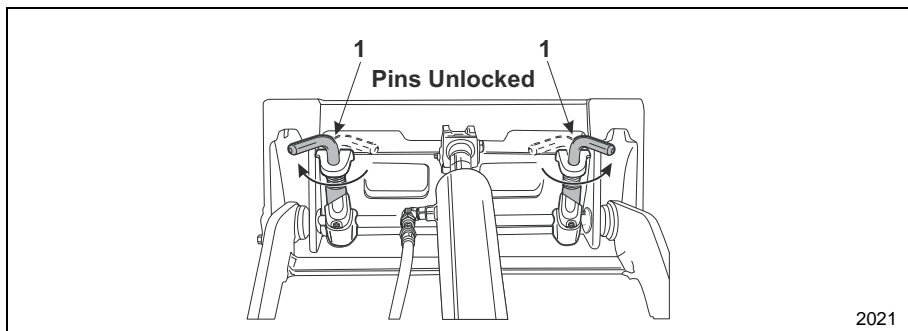


Figure 2 Attachment Locks in Unlocked Position

Installation of Roto-Tiller Attachment

To install the trencher:

1. Position the attachment on a solid, level surface.

NOTICE: Clean the lower edge of the female attachment mounting plate to remove any debris that might interfere with the attachment installation.

2. Start the machine engine, lower the loader arm and tilt the mounting plate forwards.

NOTICE: Make sure that both of the attachment lock pins (Item 1, [Figure 2](#) and Item 3, [Figure 3](#)) are in the “unlocked” position.

3. Slowly drive towards the attachment and align the top edge of the male mounting plate (Item 1, [Figure 3](#)) and the upper lip of the female attachment mounting plate (Item 2, [Figure 3](#)).

NOTICE: Make sure to position the attachments hydraulic hoses (Item 4, [Figure 3](#)) so that they are not damaged during the installation process. Tuck the upper edge of the male mounting plate into the upper lip of the female attachment mounting plate.

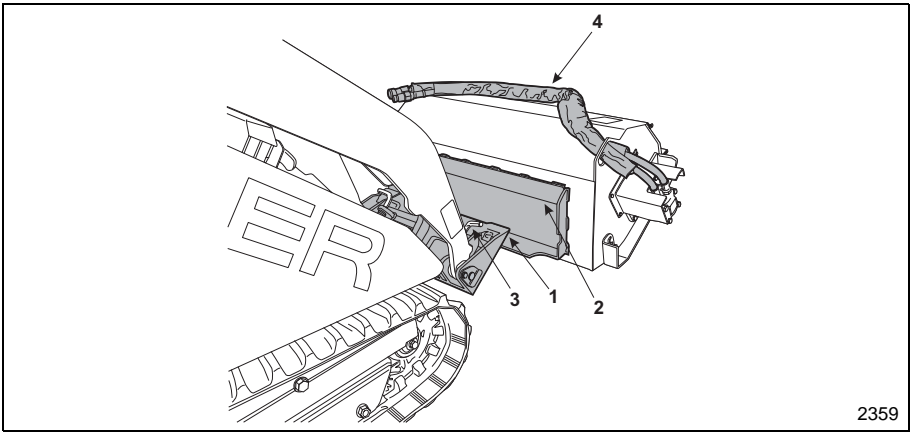


Figure 3 Hydraulically Powered Attachment Installation

4. When the machine's mounting plate top edge is seated in the attachment mounting plate, curl the machine's mounting plate backwards slightly to allow the lower edge of the machine's mounting plate to slide into position. See [Figure 4](#).

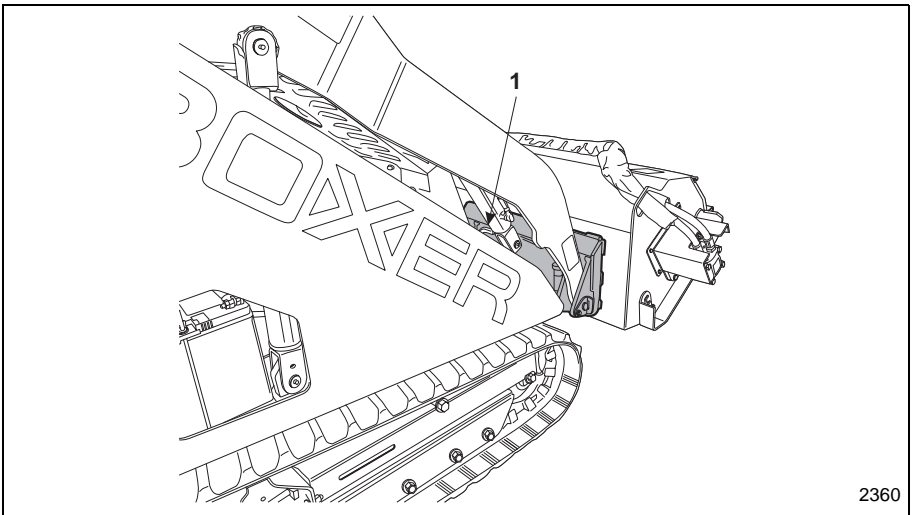


Figure 4 Hydraulically Powered Attachment Installed

5. Shut the engine off.
6. Rotate the attachment lock pins (Item 1, [Figure 4](#)) into the locked position securing the attachment to the machine.

7. Start the engine and raise the attachment off the ground. Visually inspect the bottom edge of the attachments mounting plate to make sure that both of the attachment lock pins are securely holding the attachment in position.

CAUTION

DO NOT go underneath the attachment when it is raised.

8. Lower the trencher to the ground and shut off the engine.
9. Move any of the main hydraulic controls forward and backward to release any stored hydraulic pressure.
10. Attach the hydraulic hoses to the quick connects.
11. Lower the trencher to the ground and shut off the engine.
 - There are two hydraulic hoses that need to be connected. The quick connect system prevents you from incorrectly connecting the hydraulic hoses, but both hoses need to be connected for the attachment to operate.
 - Make sure that the engine has been shut off before beginning this procedure.
 - a. Move the AUXILIARY control levers (Items 1, **Figure 5**) either towards the hand grip or backwards into the REVERSE detent position. This will release the hydraulic pressure locked in the auxiliary hydraulic lines. Leave the control lever in the detent position.

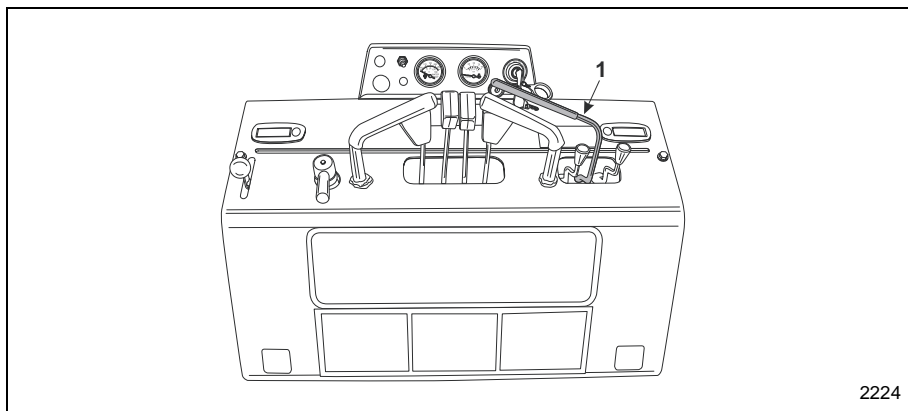
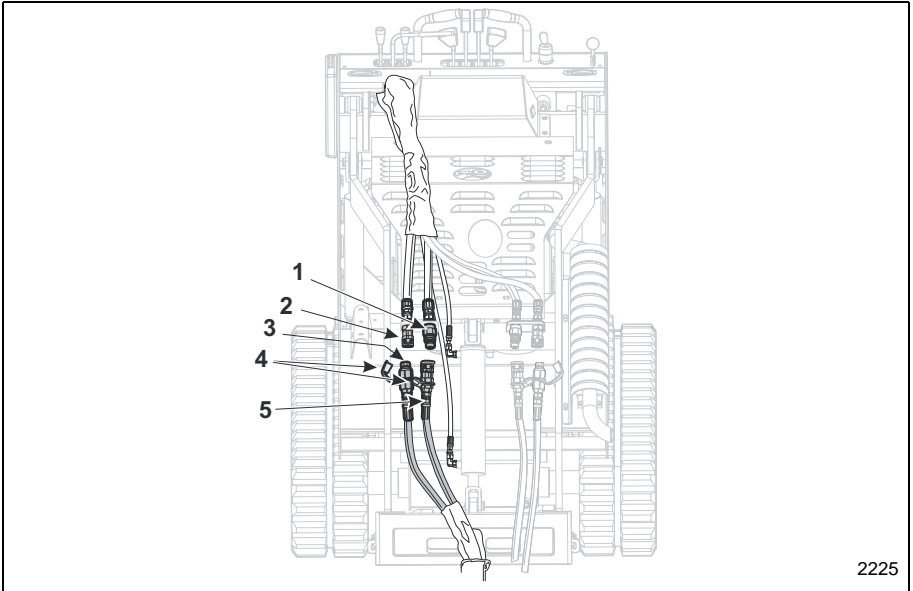


Figure 5 Auxiliary Control Lever

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- b. Remove the protective covers (Items 4, **Figure 6**) from the attachment quick connectors.
- c. Wipe off the end of each of the connectors (Items 1, 2, 3, 4, **Figure 6**) to remove any dirt or debris.
- d. Insert the attachments' male coupling (Item 3, **Figure 6**) into the female bulkhead quick connect coupling (Item 2, **Figure 6**) on the machine and push until the connector locks into position.
- e. Repeat the above process to connect the attachments' female quick connect (Item 5, **Figure 6**) on the other hose to the male bulkhead connector (Item 1, **Figure 6**) on the machine.
- f. Check the security of both connections by gently tugging on the attachment hoses to make sure that the quick connects are seated properly.



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Figure 6 Auxiliary Hydraulic Quick Connects

12. Make sure that the hydraulic hoses are routed so that they will not be in the way or damaged during machine operation. **Figure 7** shows how the hoses might be routed to keep them out of the way during operation and prevent them from being damaged.

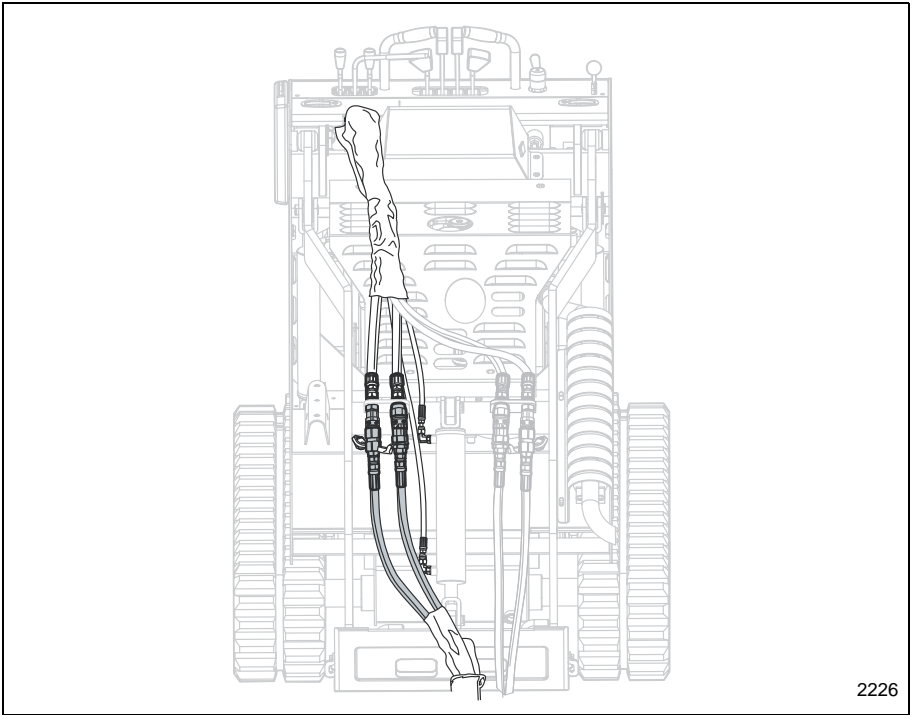


Figure 7 Attachment Hydraulic Hose Routing

13. The attachment is now ready to use.

Operating Instructions for the Roto-Tiller Hydraulic Attachment

WARNING

Before beginning any tilling, make sure that the work area has been inspected and marked for underground utilities or potential obstructions. Any contact with underground utilities can potentially cause injury or death. Contact Diggers Hotline (1-800-242-8511) to have the work area inspected and marked.

CAUTION

- Before starting the engine, make sure that the Auxiliary Hydraulic control lever is in the NEUTRAL position. If this control is left in either the forward or reverse position and the engine is started, the attachment will begin to function.
 - The instructions in this manual refer to a power unit that has an operator presence control that when released, automatically shuts off the attachment, but allows the engine to continue to operate. Other operator presence systems may have an electrical interface designed into the operator's platform. This type of system will shut off the engine if the operator leaves the control position. Make sure that you know which system is installed on the power unit to which the accessory will be attached.
-
1. Move the engine throttle to the full speed setting and set the High/Low speed selector switch (if equipped) to the High position..
 2. Raise the attachment off the ground and position it for use.
-

CAUTION

- Make sure that you are standing on the operator's platform.
 - DO NOT step off of the platform when the auxiliary attachment's power is engaged.
 - If you release the AUXILIARY hand control/operator presence control, the attachment will automatically stop all motion, but the engine will continue to run.
-
3. With your right hand, squeeze the AUXILIARY/OPERATOR PRESENCE control lever (Item 1, [Figure 8](#)) towards the hand hold to activate the attachment in the FORWARD motion.
NOTICE: The AUXILIARY/OPERATOR PRESENCE lever is spring loaded and when released, will automatically move from the FORWARD motion position to NEUTRAL, stopping the attachments motion. The engine will continue to run.

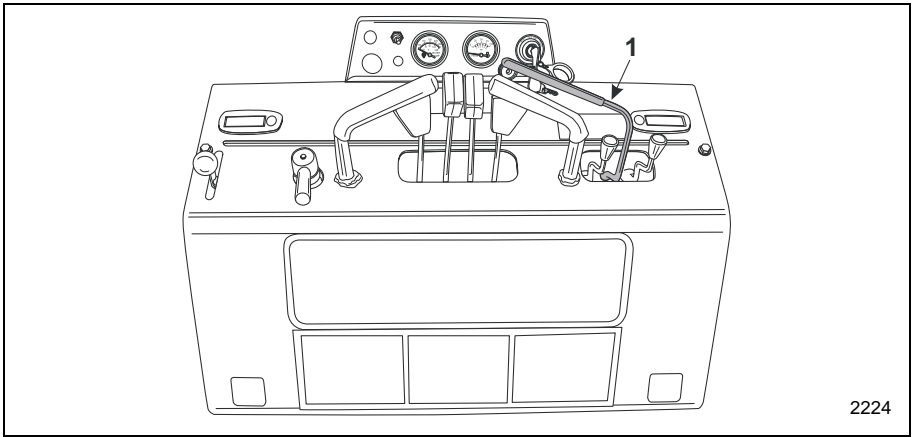


Figure 8 Auxiliary Attachment Controls

4. Using the tilt control lever, rotate the roto-tiller upwards so that the front edge is slightly elevated and the roto-tiller tines (Item 2, **Figure 9**) are not contacting the ground.

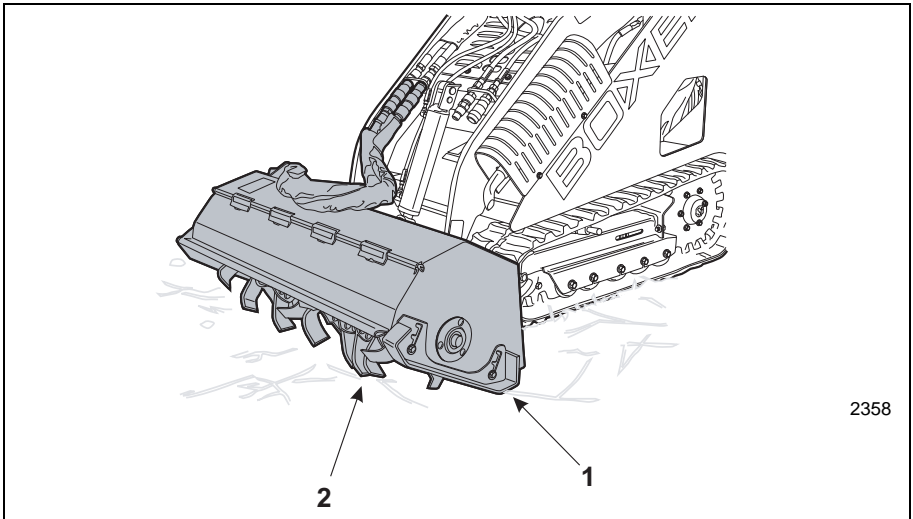


Figure 9 Initial Roto-Tiller Work Position

5. Lower the attachment to the ground, making sure that the skid shoe (Item 1, **Figure 9**) is in contact with the ground and the tines are still elevated.

- Using the tilt control, slowly rotate the roto-tiller downwards into the ground until the skid shoe (Item 1, Figure 10) is in full contact with the ground. Make sure that the skid shoes (Item 1, Figure 10) remain in contact with the ground.

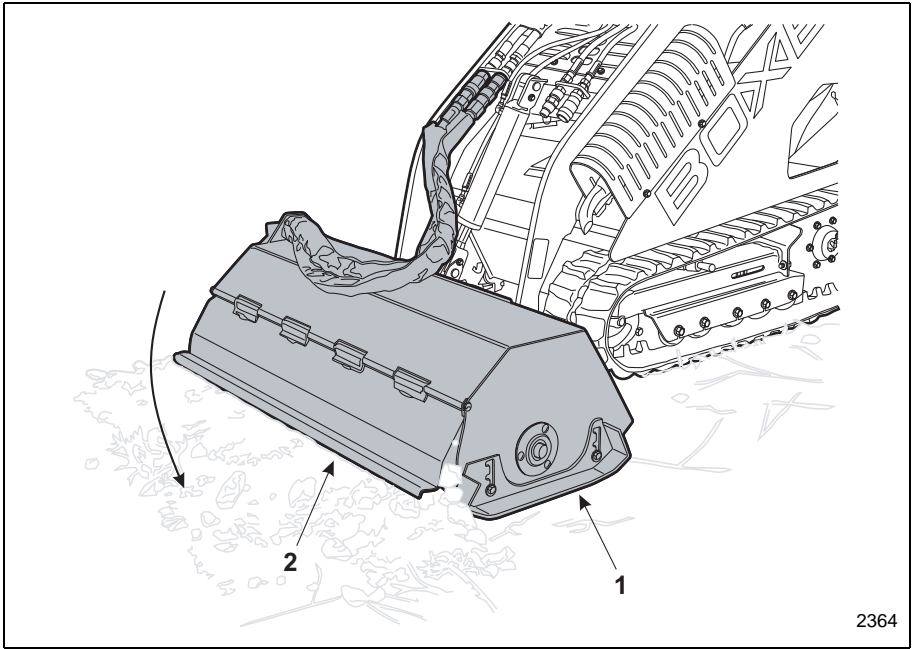


Figure 10 Roto-Tiller in Work Position

- If you want to reverse the operation of the attachment, move the auxiliary control lever (Item 1, Figure 8) to the REVERSE position. The control lever will remain in the REVERSE position detent until it is moved to the NEUTRAL position.

NOTICE: If a rock or other solid object are encountered, the roto-tiller may kick it out through the hinged discharge panel (Item 2, Figure 10).

WARNING

In some situations, the rock or object may lodge in the roto-tiller causing the tines to stop rotating. Raise the roto-tiller upwards, securely support the roto-tiller and shut off the engine. Clear the jam and then restart the engine.

Roto-Tiller Depth Adjustment

The skid shoes on the roto-tiller serve two functions, to guide the tiller along the ground and to establish a consistent tilling depth. To adjust the tilling depth:

1. Raise the roto-tiller until the skid shoes are off the ground and insert an appropriate support device, supporting the roto-tiller in the raised position.
 - Shut off the engine after the roto-tiller has been properly positioned and before reaching under the roto-tiller.
 - Make sure that the roto-tiller is securely supported before reaching underneath the unit.
2. Loosen the nuts (Item 1, Figure 11) securing the two carriage bolts, but do not remove the nuts or carriage bolts.
3. Slide the skid shoe (Item 2, Figure 11) along the "E" shaped guide slot to the appropriate depth setting.

A	1" tilling depth
B	2 1/2" tilling depth
C	4" tilling depth

NOTICE: Make sure that the skid shoe is positioned at the end of the "E" shaped slot before tightening the carriage bolt nuts.

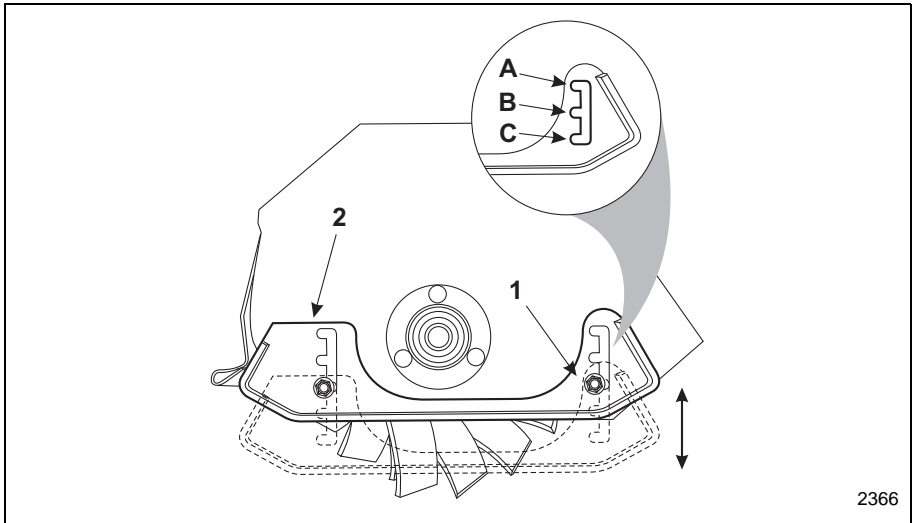


Figure 11 Tiller Depth Adjustment

4. Tighten the two nuts, securing the carriage bolts and skid shoe.
5. Repeat Steps 2 - 4 on the second skid shoe. Make sure to set each shoe at the same level.

Travel Crawl Control

⚠ CAUTION

The instructions in this manual refer to a power unit that has a Travel Creep control that allows the operator to adjust the travel speed when the attachment is engaged, and a High/Low control switch. If the power unit is not equipped with either of these controls, refer to the machines Operator's Manual for specific user instructions.

The travel system on the machine can be adjusted to make the attachment more effective in tough tilling situations. The travel “crawl” control allows the travel speed to be adjusted from full speed forward or reverse to no movement at all. To adjust the travel speed using the crawl control, set the High/Low travel speed switch is in the HIGH position, move the engine throttle lever to the maximum engine speed and:

1. With the attachment raised off the ground, move the AUXILIARY/OPERATOR PRESENCE control lever (Items 1, **Figure 12**) to either the FORWARD or REVERSE position to activate the trencher.n..

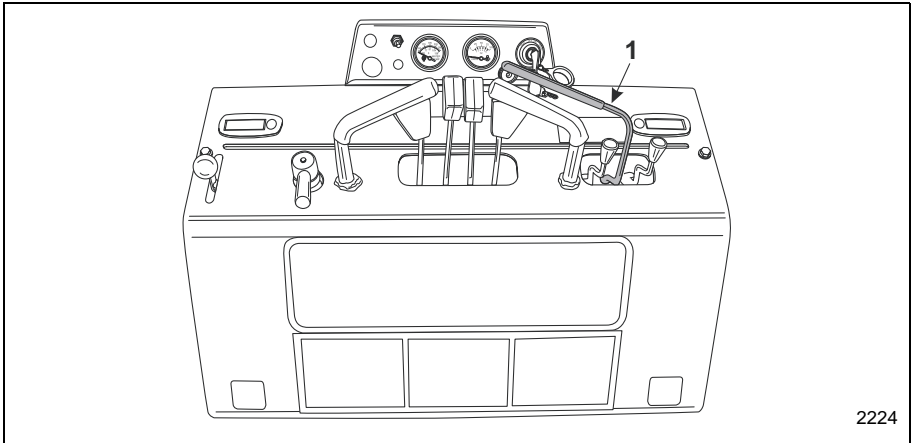


Figure 12 Auxiliary Control

2. Lower and position the trencher to the work position as stated in the Operating Instructions above.

3. Rotate the CRAWL control lever (Item 1, **Figure 13**) to adjust the travel speed as needed.

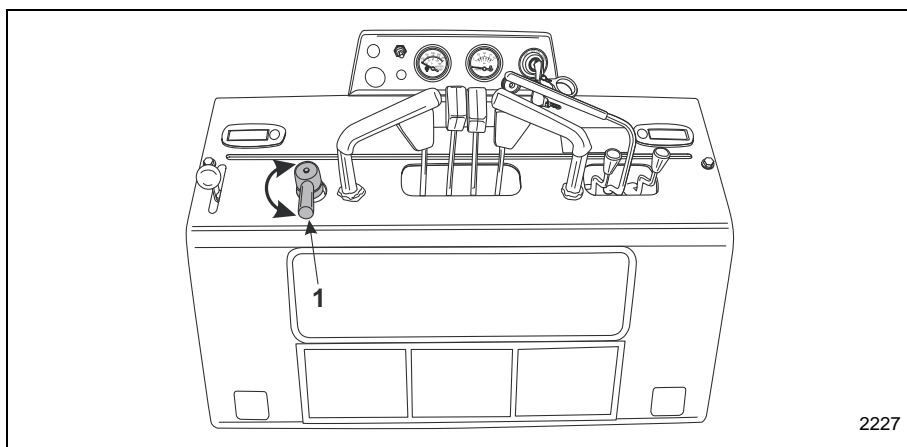


Figure 13 Crawl Speed Adjust Control

4. Rotate the CRAWL control lever fully clockwise to the turtle, or NO TRAVEL position.
5. Full hydraulic power will be directed to the roto-tiller and the machine will not move.
6. Move both travel control levers to the full reverse travel position.
7. While holding both of the control levers in the reverse position and with the trencher operating, rotate the CRAWL control lever counter-clockwise until you set the proper travel speed for the attachment being used.

NOTICE: Rotating the crawl control lever counter-clockwise increases the travel speed from very slow to full operating speed. The faster the machine travels, the less hydraulic power will be directed to the attachment. The slower the machine travels, more hydraulic power will be directed to the hydraulic attachment.

8. When the crawl travel speed has been set properly, steering and direction control can be adjusted by using either or both of the travel control levers.

CAUTION

When using CREEP VALVE control and the travel controls together with an attachment activated, DO NOT release the AUXILIARY/OPERATOR PRESENCE control until the travel controls are in the NEUTRAL position.

9. To return to full operating speed, release both travel control levers and rotate the CRAWL control lever counter-clockwise past the highest speed setting into the “detent” OFF position.
10. Full speed range will be returned to the main travel control levers.

Removal of Hydraulically Powered Attachments

After use, the quick couples and hydraulic fluid will be very hot. Wear gloves when disconnecting the auxiliary hydraulic lines.

1. Lower the attachment to the ground and shut off the engine.
2. Move the hydraulic control levers forward or backward to release any stored hydraulic pressure.
3. Some of the female couplings will have a lock button preventing accidental disconnection. To release this type of quick connect, rotate the collar on the female quick connect (Item 1, Figure 14) to align the notch on the collar with the lock button (Item 2, Figure 14).
4. Slide the collar backwards on the female quick connect (Item 4, Figure 14) until it stops against the lock button. The male connector will be released.
5. Move the attachment hose away from the bulkhead fitting.
6. If the female connector does not have the lock pin type collar, just slide the collar backwards until the male connector is released.

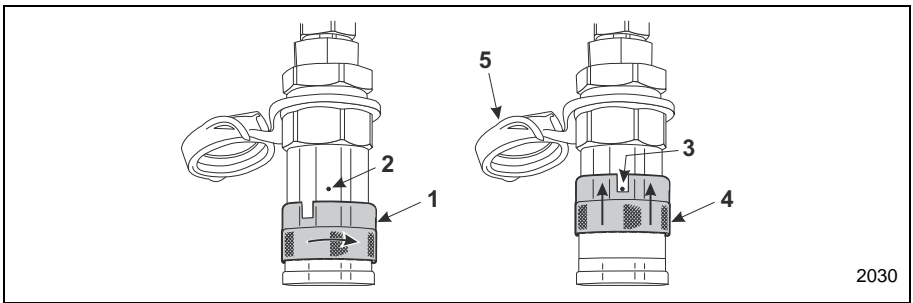


Figure 14 Quick Connect Locking Collar

7. Repeat this procedure on the other hydraulic line.
8. Cover the hose connections with the dust caps (Item 5, Figure 15) and store the hydraulic hoses to prevent damage.
9. Rotate the attachment lock pins to the UNLOCKED position (Item 1, Figure 15).

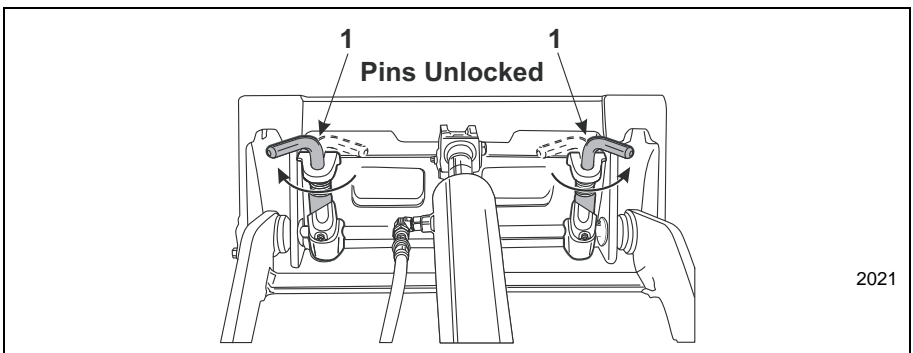


Figure 15 Attachment Locks in Unlocked Position

10. Start the engine and rotate the mounting plate downwards.
11. Back away from the attachment.

NOTICE: It may be necessary to lower the loader arm assembly slightly to fully disengage from the attachment.

Troubleshooting

WARNING

Hydraulic oil under pressure can penetrate body tissue causing serious injury and possible death. When troubleshooting a hydraulic system for leaks, always use cardboard or wood as a detector. DO NOT USE YOUR BARE HANDS. If you are injected with hydraulic oil or any other fluids, immediately seek treatment by a doctor trained in the treatment of penetrating fluid injuries.

Problem	Cause	Remedy
Roto-tiller does not turn	<ul style="list-style-type: none"> a. Auxiliary hydraulic lines not connected. b. Power unit has more than one set of auxiliary hydraulic lines. c. High/Low switch not in proper setting. d. Engine not at rated speed. e. Auxiliary control lever not in the proper position. f. Power unit is low on hydraulic fluid. g. Roto-tiller drive motor is leaking hydraulic fluid. 	<ul style="list-style-type: none"> a. Connect auxiliary hydraulic lines. b. Connect roto-tiller hydraulic lines to the correct auxiliary hydraulic lines. c. Set High/Low switch to the High position. d. Move throttle to maximum RPM setting. e. Hold Auxiliary control lever in the activation position. f. Refer to power units Operator's Manual g. Replace hydraulic roto-tiller drive motor.
Engine does not start with roto-tiller attached.	<ul style="list-style-type: none"> a. Auxiliary control lever in activation position. 	<ul style="list-style-type: none"> a. Move control lever to Neutral position.
Roto-tiller rotates, but not smoothly or stops and starts.	<ul style="list-style-type: none"> a. Soil may contain rocks or other items that are preventing smooth operation. 	<ul style="list-style-type: none"> a. Raise roto-tiller from the work area to clear contact with the obstruction. b. Refer to power units Operator's Manual. c. Replace hydraulic drive motor.
Roto-tiller rotates in reverse direction when auxiliary control is activated.	<ul style="list-style-type: none"> a. Soil may contain rocks or other items that are preventing smooth operation. b. Power unit is low on hydraulic fluid. c. Roto-tiller hydraulic drive motor is failing. 	<ul style="list-style-type: none"> a. Raise roto-tiller from the work area to clear contact with the obstruction. b. Refer to power units Operator's Manual. c. Replace hydraulic drive motor.

Problem	Cause	Remedy
Roto-tiller rotates in reverse direction when auxiliary control is activated.	a. Auxiliary hydraulic lines are reversed.	a. Auxiliary hydraulic lines are reversed. a.Reverse hydraulic lines. CAUTION - make sure to shut off the engine and release pressure in the hydraulic lines before removing the hydraulic lines from the quick connects.
Hydraulic drive motor is turning but the roto-tiller does not move	a. Roto-tiller drive shaft key not installed. b. Roto-tiller key has sheared off.	a. Install drive shaft key b. Install drive shaft key. Inspect keyway for damage.
Hydraulic fluid is leaking from roto-tiller drive motor.	a. Hydraulic fitting loose. b. Internal hydraulic motor seals leaking.	a. Tighten hydraulic fittings. b. Replace hydraulic drive motor.
Engine starts but does not continue to run when using auxiliary attachment.	a. Too much downward force is being applied to attachment, stalling engine. b. Power unit low on fuel.	a. Raise attachment slightly. b. Refuel power unit.
Poor roto-tiller performance, does not penetrate soil easily.	a. Worn roto-tiller blades. b. Not enough down pressure on roto-tiller. c. Skid shoes not set for the proper depth.	a. Replace worn blades b. Increase downward pressure on the roto-tiller. c. Reset skid shoes.

Maintenance

Recommended Maintenance Schedule

Maintenance Service Interval	Maintenance Procedure
8 hours*	• Check the roto-tiller tines and replace any that are worn or damaged.
	• Check and replace any damaged or missing safety and operating decals.
	• Check to make sure that all of the tine mounting bolts are tight.
	• Inspect tiller shaft to make sure that none of the tines are missing.
25 hours	• Check the condition of the non-drive side bearing.
Long Term Storage Service	• Paint chipped surfaces

*If you are working in very hard or rocky soil, the 8 hour service cycle may need to be performed more frequently.

 **CAUTION**

If you leave the key in the ignition switch, someone could accidentally start the engine and seriously injure you or other technician. Remove the key from the ignition and disconnect the wire from the spark plug before you do any maintenance. Set the wire aside so that it does not accidentally contact the spark plug.

Tine Replacement

To replace the tiller tines:

1. Remove the tiller from the machine. See “**Removal of Hydraulically Powered Attachments**” earlier in this manual.
2. Securely position the tiller to allow for complete access to the tiller shaft.
3. Remove the two nuts (Item 4, **Figure 16**), lock washers (Item 3, **Figure 16**) and carriage bolts (Item 1, **Figure 16**) securing the tiller tine to the tiller shaft.

NOTICE: The tines are either right or left handed. Match the cutting edge of the new tine to the location of the cutting edge on the old tine.

4. Remove the old tine (Items.2 and 5, **Figure 16**)
5. Position the new tine, making sure that the cutting edge is facing the proper direction.
6. Secure the tine with both of the carriage bolts and nuts.
7. Repeat with all other tines needing replacement.

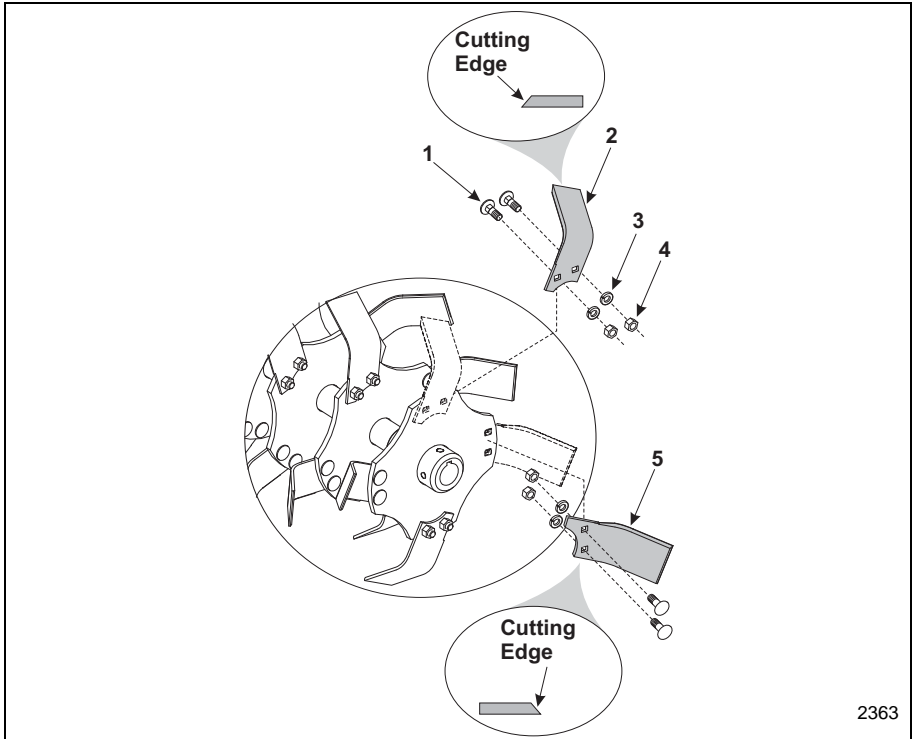


Figure 16 Tine Replacement

Replace Hydraulic Motor

To replace the hydraulic drive motor:

1. Securely position the tiller on firm, level ground.
2. Remove the tiller from the machine. See “Removal of Hydraulically Powered Attachments” earlier in this manual.
3. Mark the hydraulic hoses (Items 1 and 2, **Figure 17**) to make sure that the correct hose is reinstalled on the proper port on the new hydraulic motor.
4. Remove both hydraulic lines.
5. Remove the protective motor shield (Item 5, **Figure 17**) by removing the three mounting bolts (Item 3, **Figure 16**).
6. Remove the four mounting bolts (Item 6, **Figure 17**) and nuts securing the hydraulic drive motor (Item 7, **Figure 16**) to the tiller body.
7. Loosen the two set screws (Item 10, **Figure 17**) holding the drive motor to the tiller shaft.
8. Remove the hydraulic drive motor and drive shaft woodruff key (Item 8, **Figure 17**).
NOTICE: Inspect the woodruff key for signs of damage or wear. Replace as needed.
9. Install the woodruff key (Item 8, **Figure 17**) onto the new hydraulic motor's drive shaft and install the hydraulic drive motor onto the tiller shaft (Item 9, **Figure 16**).
10. Secure the hydraulic drive motor (Item 7, **Figure 17**) to the tiller body with the four mounting bolts (Item 6, **Figure 16**) and nuts.
11. Tighten the two set screws (Item 10, **Figure 17**) to secure the hydraulic motor to the tiller shaft.
12. Install the hydraulic motor shield (Item 5, **Figure 17**) with the three mounting bolts (Item 3, **Figure 17**).
13. Inspect the O-ring (Item 3, **Figure 17**) on each of the hydraulic hoses for signs of wear or damage. Replace as needed.
14. Install the hydraulic lines (Items 1 and 2, **Figure 17**) to the proper ports as marked when the hydraulic lines were removed from the old drive motor.
15. Attach the tiller to the machine according to the “Attachment of Hydraulically Powered Attachments” earlier in this manual.



DO NOT touch the tiller blades or reach under the tiller when the tiller has been activated. Severe injury will occur.

16. Lift the tiller off the ground and pressurize the hydraulic lines and inspect for leaks. Make sure that the hydraulic lines have been installed properly allowing the tiller to turn in the correct direction.

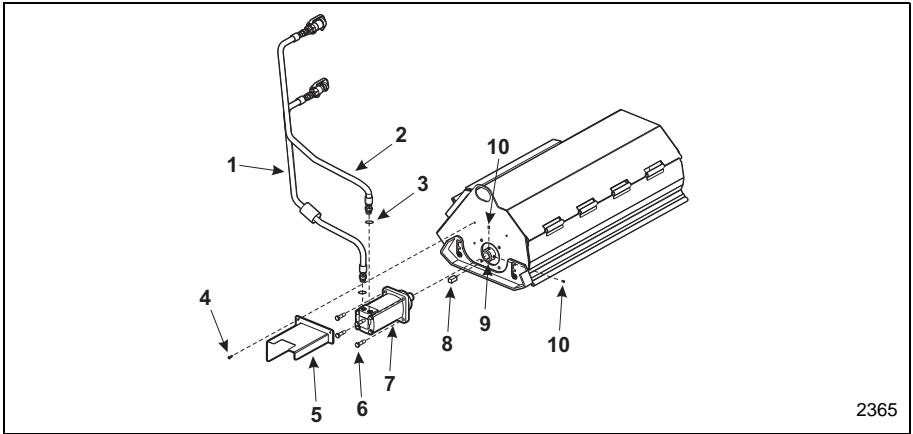


Figure 17 Hydraulic Drive Motor Replacement

Tiller Shaft Bearing and Tiller Shaft Replacement

To replace the tiller shaft:

1. Securely position the tiller to allow for complete access to the tiller shaft.
2. Remove the tiller from the machine. See “**Removal of Hydraulically Powered Attachments**” earlier in this manual.
3. Remove the hydraulic motor shield (Item 10, **Figure 18**). See “**Replace Hydraulic Motor**” earlier in this manual.
4. Remove the hydraulic drive motor (Item 9, **Figure 18**). See “**Replace Hydraulic Motor**” earlier in this manual.
5. Remove the two set screws (Item 5, **Figure 18**) securing the tiller shaft (Item 8, **Figure 18**) to the bearing assembly.
6. Remove the three carriage bolts and nuts (Items 4 and 7, **Figure 18**) holding the bearing mounting flange (Items 1 and 3, **Figure 18**) to the tiller body.

NOTICE: The bearing mounting flange is a split flange that sandwiches the bearing assembly.

7. Remove the outer half of the split mounting flange (Item 3, **Figure 18**).
8. Remove the tiller shaft (Item 8, **Figure 18**) from the tiller assembly (Item 6, **Figure 18**).
9. Mark the tiller shaft along the inner edge of the bearing (Item 2, **Figure 18**) and remove the old bearing from the tiller shaft, but leave the inner half of the split mounting flange (Item 1, **Figure 18**) on the tiller shaft.

NOTICE: It may be necessary to use a gear puller to remove the old bearing.

10. Replace the new bearing on the tiller shaft and position it so that the inner edge of the bearing lines up with the mark on the tiller shaft.
11. Reinstall the tiller shaft (Item 8, **Figure 18**), inner split flange (Item 1, **Figure 18**) and bearing (Item 2, **Figure 18**) into the tiller body.
12. Align the outer half of the split flange (Item 3, **Figure 18**) with the inner half of the flange and the mounting bolt holes in the tiller body.

13. Install the three carriage bolts and nuts (Items 4 and 7, **Figure 18**) through the mounting flanges and tiller body and fully tighten.
14. Reinstall the hydraulic drive motor (Item 9, **Figure 18**). See “**Replace Hydraulic Motor**” earlier in this manual.
15. Reinstall the hydraulic motor shield (Item 10, **Figure 18**). See “**Replace Hydraulic Motor**” earlier in this manual.

CAUTION

DO NOT touch the tiller blades or reach under the tiller when the tiller has been activated. Severe injury will occur.

16. Lift the tiller off the ground and pressurize the hydraulic lines and inspect to make sure that the tiller is running properly.

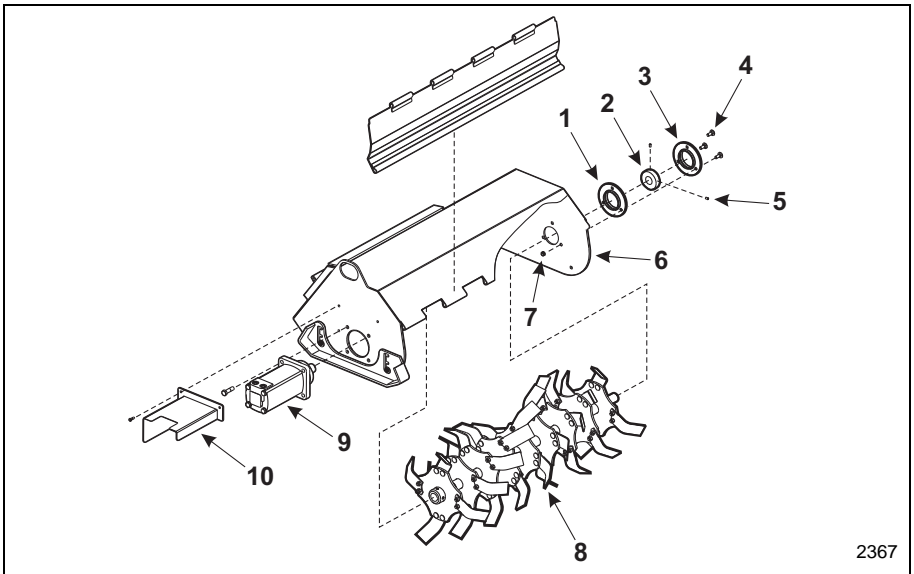
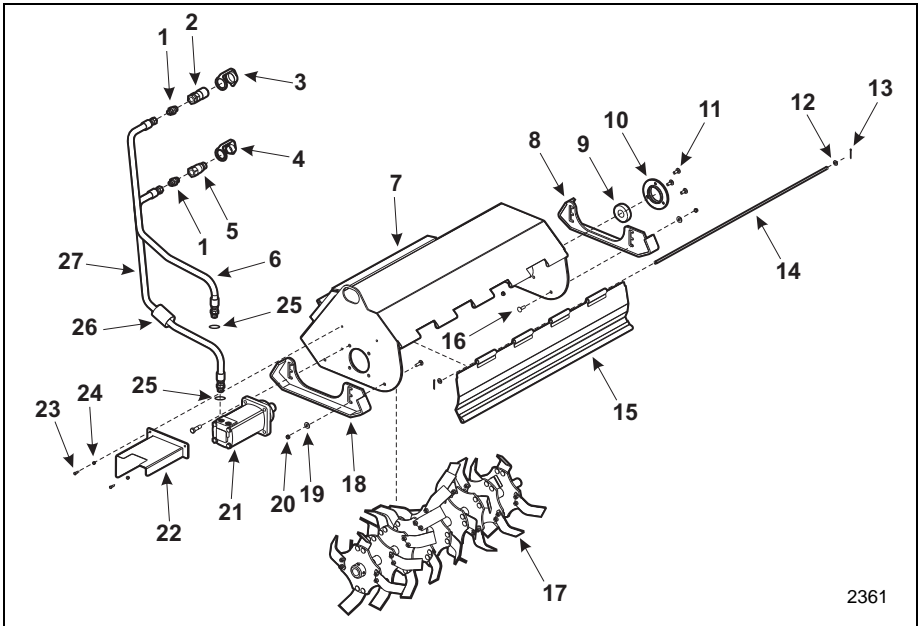


Figure 18 Tiller Shaft Bearing Replacement

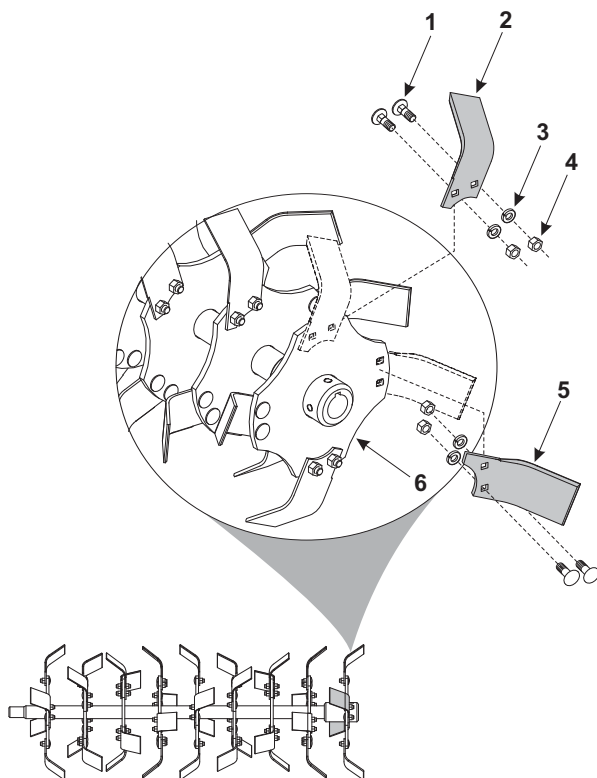
Section 2 – Parts List



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Roto Tiller Parts

Item No	Description	Quantity	Part No.
1	FITTING	2	2290143
2	QUICK CONNECT FITTING - FEMALE	1	2416626
3	DUST COVER - FEMALE FITTING	1	2410353
4	DUST COVER - MALE FITTING	1	2410354
5	QUICK CONNECT FITTING - MALE	1	2416627
6	HYDRAULIC HOSE	1	3500132-075.92-01B
7	TILLER HOUSING	1	3011121
8	RIGHT HAND SKID SHOE	1	3011134
9	BERING INSERT	1	2416212
10	SPLIT FLANGE BEARING HOUSING	1	2400872
11	CARRIAGE BOLT	3	2413200
12	FLAT WASHER	2	2303144
13	COTTER PIN	2	1630425
14	SAFETY SHIELD HINGE ROD	1	3011141
15	SAFETY SHIELD	1	3011142
16	CARRIAGE BOLT	4	2393201
17	TINE SHAFT ASSEMBLY	1	3011126
18	LEFT HAND SKID SHOE	1	3011135
19	FLAT WASHER	4	2292371
20	NUT	4	1470404C
21	HYDRAULIC DRIVE MOTOR	1	2391382
22	HYDRAULIC MOTOR PROTECTIVE SHIELD	1	3011140
23	BOLT	3	1913307C
24	NUT	3	1470402C
25	O-RING - #8	2	2291818
26	PROTECTIVE NYLON SLEEVE	2	2414914.001
27	HYDRAULIC HOSE	1	3500132-075.92-01B



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Tiller Parts

Item No	Description	Quantity	Part No.
1	CARRIAGE BOLT	72	2413200
2	TILLER TINE - LEFT HAND	18	2412005
3	LOCK WASHER	72	2303415
4	NUT	72	147006
5	TILLER TINE - RIGHT	18	241006
6	TILLER SHAFT WELDMENT	1	3011127



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Part Number 999-838