

THE
BARRETO
MODELS 1320H & 1620B
HYDRAULIC REAR TINE TILLERS

CONGRATULATIONS!

You are now the proud owner of the BARRETO Model 1320 or 1620 tiller. Please take a moment of your time to look over the following information. Familiarize yourself with the tiller, its characteristics, and method of operation. Pay particular attention to the safety and operating instructions.

If you have any questions or need any replacement parts in the future, please contact us at your convenience. Our toll-free phone number, fax and email are listed below.

THANK YOU for your patronage and confidence in BARRETO equipment.

Barreto Manufacturing, Inc.
Innovative Equipment Engineered to Last
66498 Hwy 203, La Grande, OR 97850
(800) 525-7348 (541) 963-7348
FAX (541) 963-6755
E-Mail: info@barretomfg.com
Web Site: <http://www.barretomfg.com>

ASSEMBLY INSTRUCTIONS

1. Remove tiller from shipping crate.
2. Screw the handle bar adjustment crank into the lower handle bar adjuster pin.
3. Fasten handle bar to tiller using the 1/2" x 3" bolt supplied.
4. Adjust clutch cable by removing all slack in lever.
5. Check reservoir according to instructions in service information on the following page.
6. Fill engine with fuel and oil according to the engine manual.
7. Free wheel hubs: Pull one free wheeling pin slightly, using the split ring. Rotate the pin until the 1/8" diameter roll pin aligns with the slot in the mounting plate. Allow the pin to slide through the slot. Repeat for the other wheel. Roll the tiller until each pin drops into a hole in the hub. The hubs are now locked.
8. Uncoil the wire for the remote engine on/off switch. Route the wire along the clutch cable to the engine and secure with the cable ties provided. Splice this wire to the kill switch wire on the engine with the electrical splice provided.

SERVICE INFORMATION

1. Check reservoir level using sight glass on the left side of the tank. If required, add to reservoir with tractor transmission hydraulic oil (Shell DONAX TD FLUID or comparable). Recheck oil level after the tiller has been run and oil has been circulated through the wheel and tine motors. Routinely check level thereafter. **DO NOT OVERFILL THE TANK.**
2. Change the hydraulic oil filter after the first 50 hours of use. Change it after every 200 hours thereafter.
3. Add 1 quart of hydraulic oil to the reservoir with each oil filter change.
4. Check the tine bolts after each use and tighten as needed. Check all hydraulic fittings for leaks and tighten if necessary.
5. Tines should be changed as often as needed for the machine to do a satisfactory and efficient tilling job. Use Loctite 271 (red) on tine bolt threads to prevent loosening.
6. The grease zerk on the outboard end of the tine shaft flange bearing should be greased after every 4 to 8 hours of use.
7. Grease zerks on the axle ends (to lube wheel hubs) should be greased once a week or so, depending upon freewheel use.

IMPORTANT: The engine is normally serviced prior to shipping. However, shipping regulations may prohibit this. Check levels and add oil and fuel as required before starting. Service according to the engine manual before starting.

WARNING: Running the tiller without hydraulic oil will cause serious damage to the hydraulic pump. **CHECK RESERVOIR LEVEL BEFORE STARTING THE MACHINE.**

BREAK IN PROCEDURE

KEEP ALL PERSONNEL CLEAR OF MACHINE DURING BREAK IN TO PREVENT INJURY!!

Before using tiller, lower the depth bar to raise the tines off the ground. Tape clutch handle in closed position and let the machine run for 30 minutes at half throttle with tines in motion.

OPERATING INSTRUCTIONS

1. **READ SAFETY INSTRUCTIONS BEFORE OPERATING!**
2. Be sure engine oil and hydraulic oil are at proper levels before starting tiller.
3. **STUDY AND UNDERSTAND CONTROLS BEFORE BEGINNING OPERATION.**
4. **NEVER RUN MACHINE IN REVERSE WHILE TINES ARE ROTATING.**
5. Always move the tine control lever to "OFF" before reversing wheels.
6. Tine control lever should be set at "OFF" when moving tiller from place to place while not tilling.
7. **CLUTCH (ACTUATOR) LEVER:** (At left handle grip) Activates Wheel Drive and Tine Rotation controls when squeezed. Stops all motion when released.
8. **WHEEL DRIVE LEVER:** The wheel speed is variable both in forward and reverse. Moving WHEEL DRIVE lever to the right causes the tiller to go forward; move to the left to back up. The farther the control lever is moved away from center, the faster the tiller will travel. When the lever is centered, the wheels are locked in a neutral or park position.
9. **TINE DRIVE LEVER:** The tines operate at a constant speed. The TINE DRIVE lever must be moved all the way over to the forward "ON" position when tilling. If an object becomes lodged in the tines, put the WHEEL DRIVE lever in neutral and reverse the tines to dislodge it.
10. **OPERATE TILLER ON LEVEL GROUND ONLY!**
11. **TILLING OPERATION:** In most soil and sod conditions, the depth bar can be set with the pin in the third hole from the top.

When starting to till, move the TINE DRIVE lever to the ON (forward) position. Squeeze the CLUTCH LEVER completely to engage tines.

Move the WHEEL DRIVE lever to the right until desired wheel speed is reached.

Under most conditions, at least two passes must be made. For deeper tillage, move the depth bar up one hole at a time.

SAFETY INSTRUCTIONS

1. READ SAFETY AND OPERATING INSTRUCTIONS BEFORE OPERATING!
2. DO NOT LEAVE TILLER UNATTENDED WITH ENGINE RUNNING.
3. Always park on level surface, never on an incline.
4. USE EXTREME CAUTION IF TRANSPORTING TILLER DOWN ANY INCLINE, **ESPECIALLY IF USING RAMPS OFF A PICK-UP TRUCK.**
5. The SAFETY CLUTCH (ACTUATOR) lever on the left handle bar is for operator protection. DO NOT TAPE DOWN OR OTHERWISE BY-PASS THIS CLUTCH.
6. Objects may become airborne while operating tiller. Wear safety goggles, hard hat, protective footwear and hearing protection while operating or observing!
7. Rotating tines can cause serious injury. KEEP HANDS AND FEET CLEAR!
8. KEEP TINE COVER CLOSED and MACHINE LEVEL while tines are operating.
9. Buried cables or gas lines can cause serious injury or death. Contact local agencies for location.
10. Fuel exhaust and fuel fumes can cause illness or death. Operate outdoors and avoid breathing exhaust and fumes.
11. Fuel-fumes can catch fire or explode. Do not smoke or operate near flames or sparks.
12. Hydraulic oil is under extreme pressure and can get under skin and burn or poison. Check for leaks with cardboard.
13. Muffler and engine get hot enough to cause serious burns. Do not touch until cool.

BARRETO MANUFACTURING, INC. EQUIPMENT WARRANTY

Barreto Manufacturing, Inc. warrants all BARRETO equipment to be free of defects in material and workmanship for a period of one (1) year, dating from delivery to the original user.

This Warranty is in lieu of all other warranties, whether written or implied, and is limited to:

1. Replacement of parts returned to the dealer and/or factory and determined defective upon inspection. (Replacement for parts to dealers shall be at dealer cost plus shipping charges.)
2. Time for pick-up and/or delivery, transportation or service calls by dealers is excluded. Manufacturer reserves the right to determine reasonable time required for repair.

Warranty does not apply to damage caused by abuse or neglect. Time and materials required for normal maintenance and service are also excluded from warranty coverage.

Engines, engine accessories and tires are warranted by the original manufacturers and are not covered by the Barreto Equipment Warranty.

1320H & 1620B TILLER TROUBLE SHOOTING GUIDE

CAUTION: ALWAYS USE EXTREME CARE WHEN TROUBLE SHOOTING OR MAKING ADJUSTMENTS ON THE TILLER. STAY CLEAR OF TINES WHEN ENGINE IS RUNNING. ALWAYS SHUT THE ENGINE OFF BEFORE DISASSEMBLING ANY COMPONENT.

A. ENTIRE HYDRAULIC SYSTEM DOES NOT OPERATE AND THE ENGINE IS NOT UNDER LOAD

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| 1. Broken or improperly adjusted clutch (actuator) cable. | If broken, replace. Remove slack then adjust for 7/16" to 1/2" movement at actuator lever pin. |
| 2. Low hydraulic oil in tank. | Fill to center of sight glass. |
| 3. Hydraulic pump-to-engine coupler has slipped. | Check for wear and replace both coupler halves and rubber spider as needed. |
| 4. Hydraulic pump worn or tine motor relief valve not functioning properly. | Follow the series of tests described below |

Remove the tank end (at the tee fitting) of the hose that goes from the pump to the tank. Start the engine and with the tines and wheels in neutral, pump off about four gallons of hydraulic oil into a clean bucket. (The .52 CID pump, @ 1000 PSI & 3000 RPM, should pump at the rate of 6.5 GPM.) Replace the hose and remove the tank lid. Block the tines with a short 4 X 4 and stand to the side.

With tines selected to ON (forward) rotation, squeeze the clutch lever and check to see where the oil enters the tank. If the pump is good, the oil will enter through the relief valve or the return line from the filter. If the oil returns only through the filter return, the tine-drive motor is bad.

If the oil returns through the relief valve but does not kill the engine, check the out-put pressure of the pump. To do this, "T" a 4000 pound gauge into the line at the tank. **DO NOT BLOCK THE LINE OR DEAD-HEAD THE GAUGE INTO THE LINE.** With the tines in forward and blocked, activate the system as before. The relief valve for the 1320H is set at 3000 pounds, and 3500 pounds for the 1620B. If the gauge reaches the specified pressure, the relief valve is OK. If not, the relief valve is bad and needs to be replaced.

If the pressure reaches 3000 pounds but there is only a small amount of oil returning, the pump is worn and should be replaced.

1320H & 1620B TILLER TROUBLE SHOOTING GUIDE (CONTINUED)

B. TINES FAIL TO ROTATE BUT WHEELS DRIVE.

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| 1. Clutch cable stretched so needs adjustment | Remove cable slack then adjust for 7/16" to 1/2" movement at actuator lever pin. |
| 2. Tine motor worn. | Rebuild or replace motor. New motors are available from Barreto Mfg. |

C. WHEELS FAIL TO TURN BUT TINES ROTATE

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| 1. Wheel axle keys have been sheared or removed. | Replace keys. |
| 2. Wheel relief valve bad | Replace relief valve. |

D. ENGINE LUGS DOWN OR DIES AND WHEELS AND TINES DO NOT TURN.

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| 1. Rocks or other obstruction blocking tines. | Shut OFF engine and remove obstruction. |
| 2. Tine shaft bound with wire, vines, or grass. | Shut OFF engine and remove debris, especially at the ends. |
| 3. Tilling depth too great for soil conditions. | Shut OFF engine and lower depth bar to raise the tines, decreasing tilling depth. |
| 4. Outboard tine shaft bearings binding. | Lubricate or replace bearings as needed. |
| 5. Engine improperly tuned or maintained. | See engine manual and correct as needed. |
| 6. Low oil alert causes engine to shut down. | This may occur if tilling on hills, (not advised). Level the tiller and check engine oil level. Fill if required. Oil alert should reset. See engine manual. |
| 7. Engine losing power due to wear. | See engine manual. |

1320H & 1620B TILLER TROUBLE SHOOTING GUIDE (CONTINUED)

E. OIL LEAKS IN HYDRAULIC SYSTEM.

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| 1. Fittings are loose. | Tighten as required |
| 2. Worn or broken hoses. | Replace as necessary |
| 3. Oil around tine motor shaft | Inspect tine motor for leaking shaft seal.
Rebuild per instructions in Hydraulic Motor manual or replace with a new motor. |

F. EXCESSIVE FOAMING OF HYDRAULIC OIL FROM VENT HOSE.

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| 1. Improper oil used. | Verify that hydraulic oil used has anti-foaming additives. * |
| 2. Pump sucking air. | Inspect and tighten fittings on intake side of pump |
| 3. Hydraulic pump is faulty | Test using procedure in section A4 above |

* Recommended oil is Shell DONAX TD FLUID or equivalent hydraulic oil with anti-foaming and anti-wear additives

REMOVAL OF TINE DRIVE HYDRAULIC MOTOR, HUB, AND MOTOR MOUNT

1. Remove tine cover #1008 (twelve 5/16 X 1 bolts).
2. Remove left bank of tines (4 tines closest to hydraulic motor).
3. Remove the 3 bolts (3/8 X 1) that hold the right side plate (#1007) in place.
4. Remove the tine shaft (#1011), bearing (#3043), and side plate (#1007) from the tine motor hub (#1010). If it does not slip off easily, use a lead shot hammer on the center flange of the tine shaft.
5. CAUTION: DO NOT PRY BETWEEN HUB AND TINE SHAFT FLANGE.
6. To remove the tine motor hub from the motor shaft: with pulling collar (#2019) in place, insert snap ring (#3041) in the hub groove and remove with puller. The hub may be very tight and require heat or penetration oil to free it from the motor shaft. Extreme cases may need to be removed with a cutting torch.
7. Remove hydraulic hoses from motor.
8. Remove tine motor guard (4 bolts) and motor mount bracket (remaining 4 bolts) and slip motor out. Then, remove motor from mount bracket (four 1/2 X 1 1/2 bolts).
9. On older motors, remove dirt shield from face of motor. To remove screws, first heat screw heads with torch to melt the Loctite. Remove screws with 1/8" Allen wrench.
10. Motor is now ready to be serviced. Follow steps outlined in Char-Lynn repair manual for 2000 series motor.

REINSTALLATION OF TINE DRIVE HYDRAULIC MOTOR

1. After motor is assembled, slip felt washer over the shaft. Slide steel dirt shield over and line up holes. Place a drop of Loctite 271 (red) on each screw and tighten. Newer motors have a seal guard and do not require a felt washer nor dirt shield.
2. Bolt motor mount frame to the motor with bolts.
3. Place key in shaft slot and slide on new tine motor hub.
4. Tap hub in place with lead-shot hammer or block of wood. Place 2 drops of Loctite on bolt and tighten.
5. Check hub with dial indicator for run out. Run out should be less than .003" on outer diameter of hub face. With tine shaft bolted to hub, run out on shaft at outboard bearing should be .015" or less.