

THE
BARRETO
MODELS 1324D – 1624D
HYDRAULIC TRENCHER OWNER'S MANUAL

CONGRATULATIONS!

You are now the proud owner of a BARRETO trencher. The OPERATOR'S MANUAL is attached to the machine. Please study it and this manual to become familiar with the trencher, its characteristics, and method of operation. Pay particular attention to the safety and operating instructions to prevent personal injury or equipment damage.

If you have any questions or need 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.

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Machine Identification Record

Machine model number _____

Machine serial number _____

Engine manufacturer _____

Engine model number _____

Engine serial number _____

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ASSEMBLY INSTRUCTIONS

1. Upon delivery, check for freight damage and any missing items. Notify the carrier and Barreto Manufacturing immediately of any damage so a claim can be filed. Remove trencher from shipping crate.
2. When documentation refers to “right side” or “left side”, it is relative to the operator’s position with both hands on the handlebars.
3. Install the boom onto boom pivot/mount with the 7/8" wide wear strip on the bottom side of the boom. Push the boom on as far as it will go. Be sure the adjuster screw is backed out.

SERVICE INFORMATION

- Check reservoir level using sight glass on the left side of the tank. If required, add to reservoir tractor transmission / hydraulic fluid. For machine use in ambient temperatures between +32°F (0°C) and +90°F (32°C) hydraulic fluid ISO 68 is recommended. If the machine is operated at temperatures below +32°F (0°C) then hydraulic fluid ISO 46 is recommended. The tank holds approximately 14 gallons of hydraulic oil. Recheck oil level after the trencher has been run and oil has been circulated through the wheel and chain motors. Routinely check level thereafter. **DO NOT OVERFILL THE TANK.**
- Change the hydraulic oil filter after the first 50 hours of use. Change it every 200 hours thereafter.
- Add 1 quart of hydraulic oil to the reservoir with each filter change.
- Discard the old filter according to environmental standards in your geographic area.
- Check all hydraulic fittings for leaks and tighten if necessary.
- Grease per the following schedule:
 - a. Boom Pivot – Daily
 - b. Outboard Bearings – Daily
 - c. Wheel Hubs, 1 zerk for each hub – Monthly
 - d. Cylinder Pins (2) – Daily
 - e. Cylinder Rod End (thru hole in motor cover) – Daily
 - f. Sprocket Hub Bearing – Daily
 - g. Front Wheel Axle – Weekly
 - h. Chain Roller – Daily

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.

IMPORTANT: If the couplers between the engine and the pump are moved or removed for any reason, it is **CRITICAL** that they have a 1/16" gap between them when reinstalled. Failure to have this gap will result in rapid wear and failure of your pump!

NOTE: It is very important to move the fuel shutoff lever to the closed position after stopping the engine. Failure to do so could cause fuel to leak down into the cylinder and crankcase. Damage resulting from this will void your engine warranty and not be covered.

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

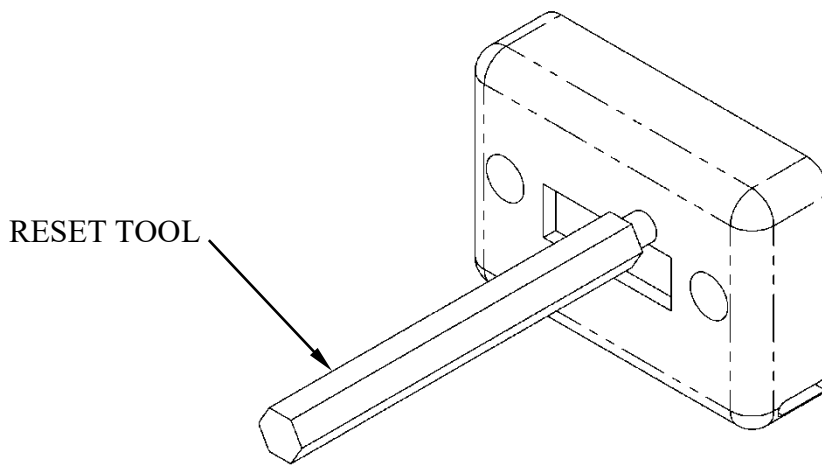
HOUR METER

The **DGI® TACH/HOUR** hour meter tracks the hours of machine operation in order for routine maintenance to be performed on a timely basis.

Your **DGI®** hour meter is pre-set at the **DGI®** factory to go into **Flash Alert** mode at 25-hour intervals. Although the engine manufacturer does not require changing engine oil this often, **due to heavy-duty use and extreme conditions inherent to tiller use, Barreto Manufacturing strongly recommends frequent oil changes.**

Refer to this manual for equipment service requirements and to the **Engine Manual** for other engine service requirements.

While **Flash Alert** is active, hold the tip of the RESET TOOL (Key Kancel Wand) against the meter as shown. Within several seconds, the display will stop flashing indicating the Service Interval has been reset. If the wand gets lost, a small mechanic's pick-up magnet will work.

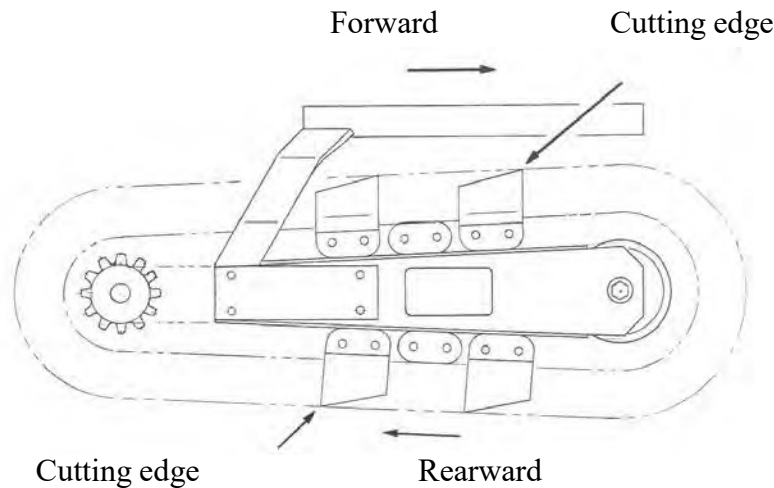


TRENCHER INTENDED USE

This machine is designed for digging trenches in “normal” ground of reasonably soft dirt and stones up to 6” (15cm) in diameter. Ground with larger stones, high clay content, very hard packed, very dry, or in a frozen condition may be unsuitable for normal trenching. Consider using a backhoe or other heavier equipment for such conditions.

DIGGING CHAIN INSTALLATION

1. Slide the digging chain under the sprocket, with teeth in the correct cutting direction. Properly installed, the cutting edges of the chain will face forward on the top of the boom and rearward on the bottom of the boom (see diagram below).
2. Start the engine. Push digging boom control lever forward to lower boom onto the chain. Shut off the engine.
3. Wrap the chain around boom and sprocket. Install chain master link or link pin.
4. Use the boom adjuster screw to tighten the chain. The chain should have enough slack to allow approximately 2" of space between middle of boom and chain when the boom and chain are straight out in a horizontal position.
5. Tighten adjuster screw locknut and 4 boom mounting bolts.



OPERATOR TRAINING

Rental companies should demonstrate all of the machine operations to each rental customer including:

- Starting up the engine.
- Loading the trencher onto the trailer and securing it for road transport.
- Unloading the trencher from the trailer.
- Trenching procedure - Operation of the trencher.

MAINTENANCE PREPARATION

Only trained & qualified personnel should perform maintenance or repairs of the trencher. Before performing any service, maintenance, adjustments, repairs, or off-season long-term storage, follow the SHUT DOWN PROCEDURE in the OPERATOR'S MANUAL.

Do not touch the engine, muffler, or any of the hydraulic components until cool.



WARNING: Muffler and engine get hot enough to cause serious burns. For the safety of yourself and others, allow enough time for the engine, muffler, and the hydraulic fluid to cool completely before performing any cleaning or maintenance.



Avoid contact with hydraulic fluid.



WARNING: When machine is operating, hydraulic fluid is under extreme pressure and can get under skin and burn or poison.

If you need to lower the dig chain boom without power, do the following:

1. Position a pan under the trencher to catch hydraulic fluid.
2. Support the boom front end with a hoist or forklift.



WARNING: The boom with dig chain is heavy. Manpower alone is not recommended, but if necessary, use a team of two strong workers to support the boom, and a third worker to loosen the hose.

3. Loosen the hose at the rod end (front) port of the boom cylinder and lower the boom.
4. If it still will not lower, then loosen the hose at the back end port of the boom cylinder.

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. All **BARRETO** fuel components, fuel tank, cap, lines & fittings are warranted for two (2) years. Warranty period begins on date of 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 of 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 attached fuel tanks, engine accessories, batteries and tires are warranted by the original manufacturer and are not covered by the Barreto Equipment Warranty.

Wear parts such as dig chains, dig teeth, sprockets, chain rollers, bearings, bushings etc. are excluded unless it can be determined that a defect has contributed to premature wear.

ROUTINE MAINTENANCE

Routinely check the condition, clean, tighten, repair, or replace as necessary the following:

- Dig chain boom guard
- Muffler guard
- Hydraulic hoses and fittings
- Fuel lines
- Fasteners
- Safety decals

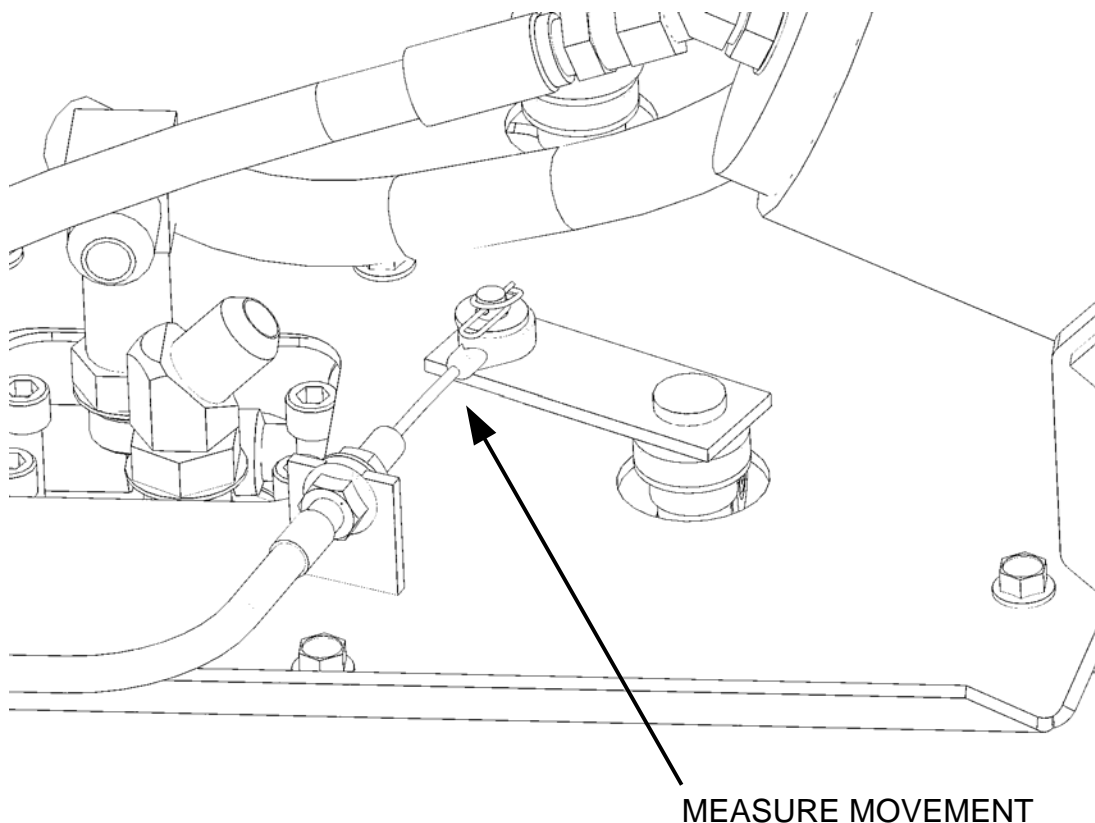
Clean safety decals often using soap and water. **Do not use** abrasive cleaners or solvents such as mineral spirits that may damage the decals. Replace any damaged (unreadable) or missing decals. If you replace a machine part that has one or more decals affixed to it, replace the decals also. Replacement parts and decals can be purchased from Barreto Manufacturing, Inc. When attaching decals, the temperature of the mounting surface must be at least 40°F (5°C) and must be clean and dry.

Service the engine according to the engine owner's manual. Follow the directions for all aspects of service including air filter change, oil level checking, filling, draining, disposal of engine oil, disposal of petrol/gasoline, and off-season long-term storage.

Off-season long-term storage of the trencher can be at any ambient temperature.



WHEEL DRIVE VALVE CABLE ADJUSTMENT

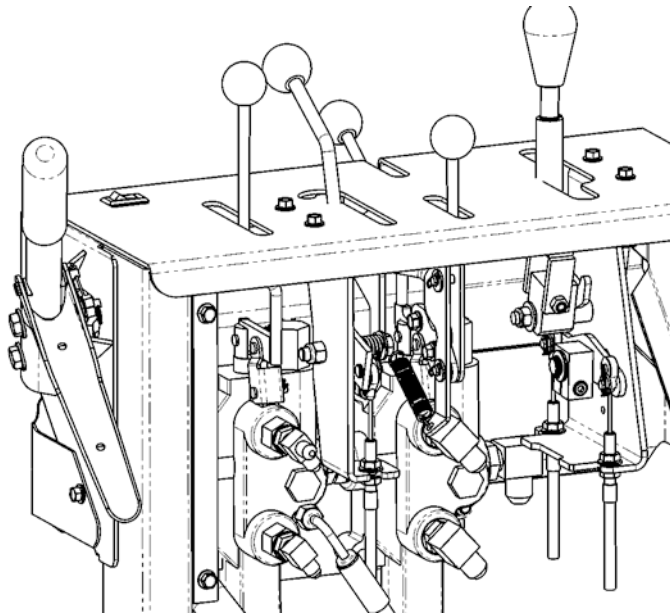


The clutch cable and lever must have some free play. The cable will stretch and occasionally needs adjustment. Two hoses are hidden in the illustration.

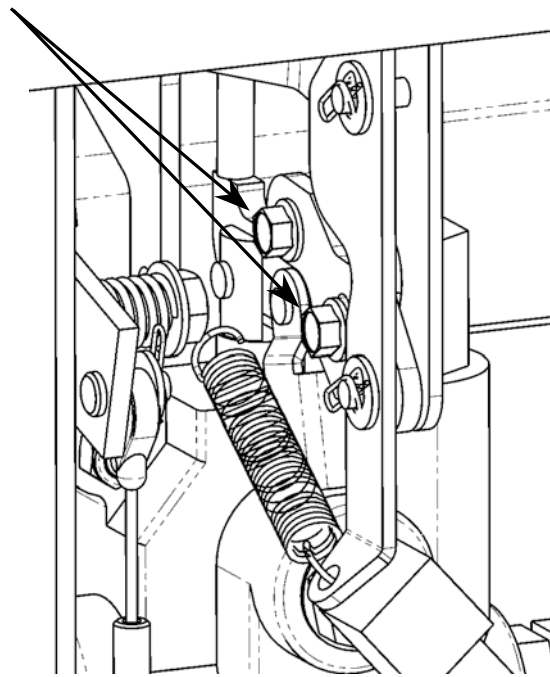
1. Rotate the actuator arm clockwise, by hand, to take up any free play. Measure the distance from the pin of the actuator arm to the end of the cable housing.
2. Pull the clutch lever all the way up until it touches the handle bar grip. With the lever pulled up, again measure the distance from the pin of the lever to the cable housing. Calculate the difference.
3. Adjust the cable for 7/16" to 1/2" movement of the actuator arm at the pin. Do not include any lever free play in the measurements.
4. To see a video on how to do this adjustment, enter the following address in your browser URL window: <https://www.youtube.com/watch?v=utUdozpYBcg&feature=youtu.be>

DIGGING CHAIN VALVE LEVER ADJUSTMENT

ADJUSTMENT BOLTS



SEE DETAIL VIEW



DETAIL VIEW

The chain valve control should be adjusted to completely activate the chain valve when the dig chain control is in 'ON' position. To check this adjustment, put the chain on/off control in ON position (with engine stopped). Pull the clutch lever on left handlebar up until it touches the handgrip. While holding clutch lever up, push on the chain forward/neutral/reverse lever. It should be at the end of its stroke, thus not move down any more. If the chain F/N/R lever can be pushed down more, the valve spool lever should be adjusted. To adjust, remove back cover from the control panel. Loosen the 2 bolts on valve lever and rotate the lever plate down about 1/16". Re-tighten the bolts and check the lever stroke. Adjust so the valve lever comes to the end of its stroke just as the clutch lever touches the handgrip when chain valve control is in ON position.

AXLE LOCK ADJUSTMENT

Cable should be adjusted so there is no slack in cable when upper lock lever is in the unlock position. There should also be no tension on lock spring at lower lever.

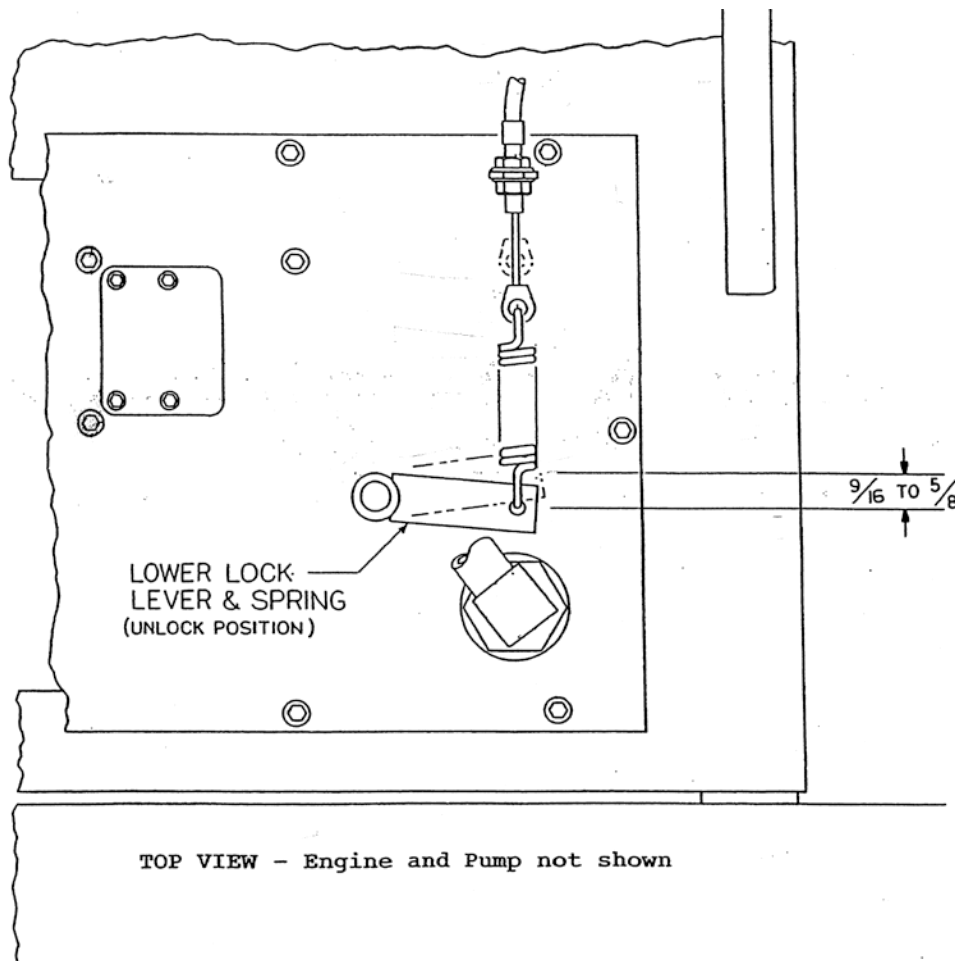
Measure the position of the lower lock lever. Measure at the tip of the lever.

Put Axle lock lever in LOCK position.

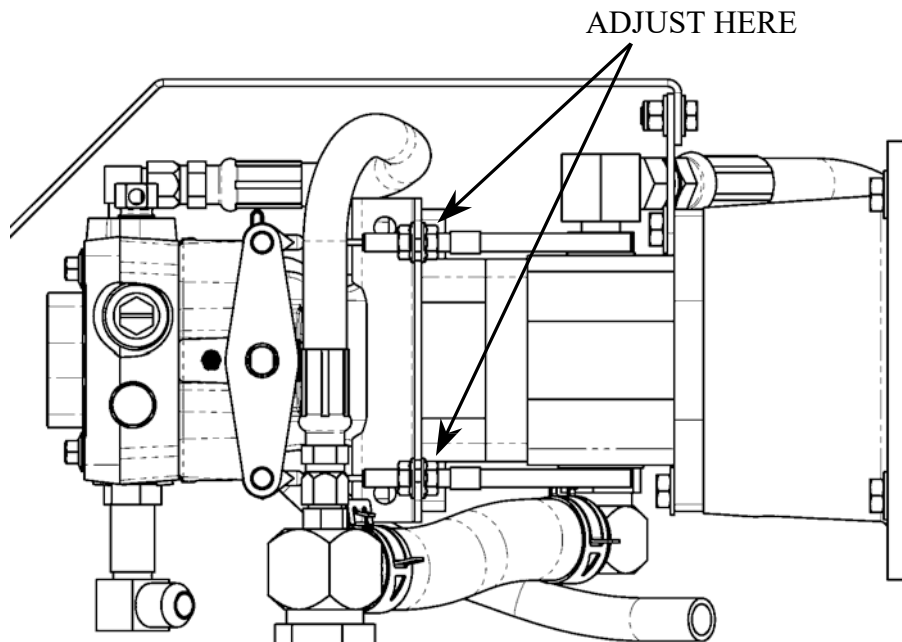
Push down on handlebars and rotate trencher side-to-side to align the axle gears. The lower lock lever should snap into its lock position.

Measure the position of the lower lock lever.

The movement of the lower lock lever should be $\frac{9}{16}$ " to $\frac{5}{8}$ " from the LOCK position to the UNLOCK position.



SPEED CABLE ADJUSTMENT



Speed cables should be adjusted so trencher is stationary when clutch lever is pulled up and speed lever is in neutral.

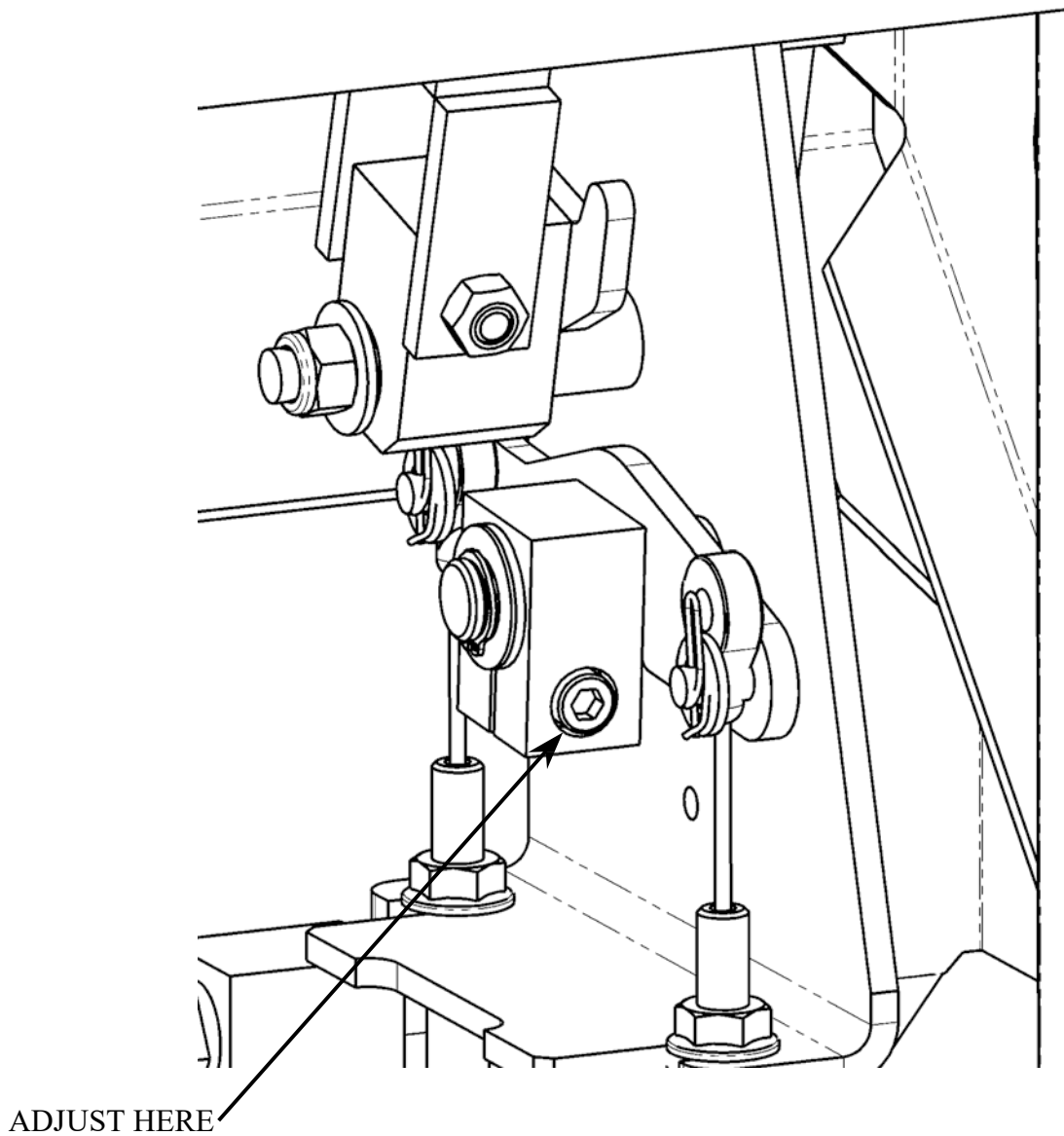
Speed cables should be adjusted if trencher creeps when in neutral. Adjust the cables to bring the pump cable arms to the neutral position (vertical) when the wheel control levers are in neutral. Adjust the cables to eliminate slack, but do not over tighten them so they are extremely tight against each other.

Loosen locknuts and adjust as needed. Adjustment may be made at both ends of cable housing.

SPEED CONTROL TENSION ADJUSTMENT

To adjust the Speed Control handle tension, follow these simple instructions.

1. Take off the back cover.
2. Look under the speed control and you will see a socket head bolt threaded into the speed cable clamp (See diagram). This is the tension clamp.
3. The socket head bolt is adjusted with a 3/16" hex wrench.
4. If you tighten the socket head bolt (turn clockwise), the tension of the speed lever will increase.
5. If you loosen the socket head bolt (counter-clockwise), the tension will decrease.

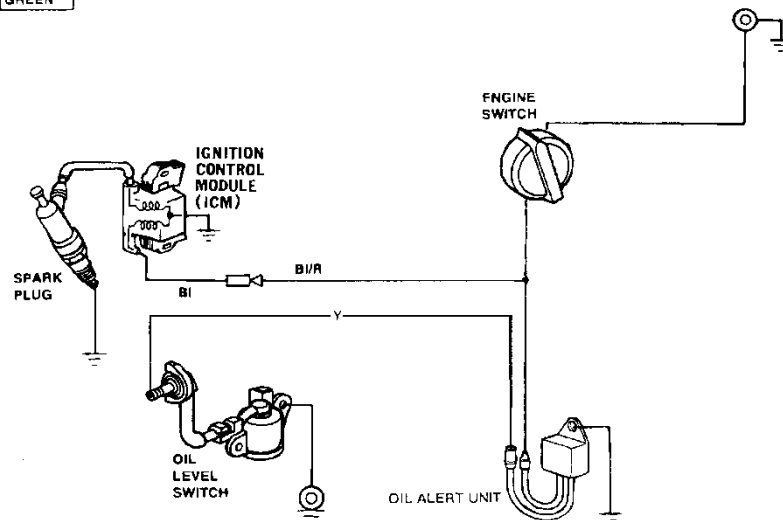


ELECTRICAL SCHEMATIC - HONDA GX390

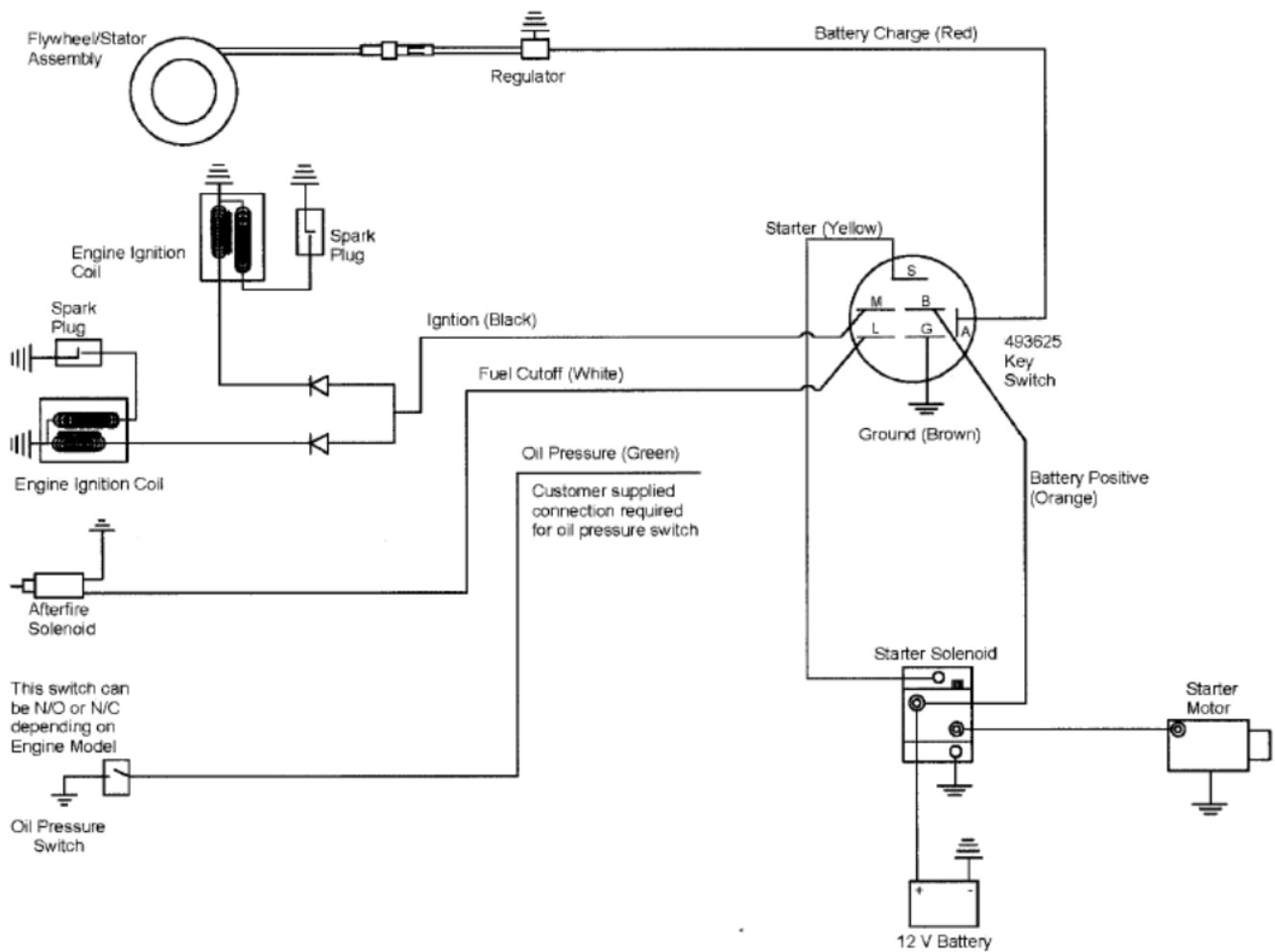
TECHNICAL & CONSUMER INFORMATION

Engine Types With Oil Alert® and Without Electric Starter

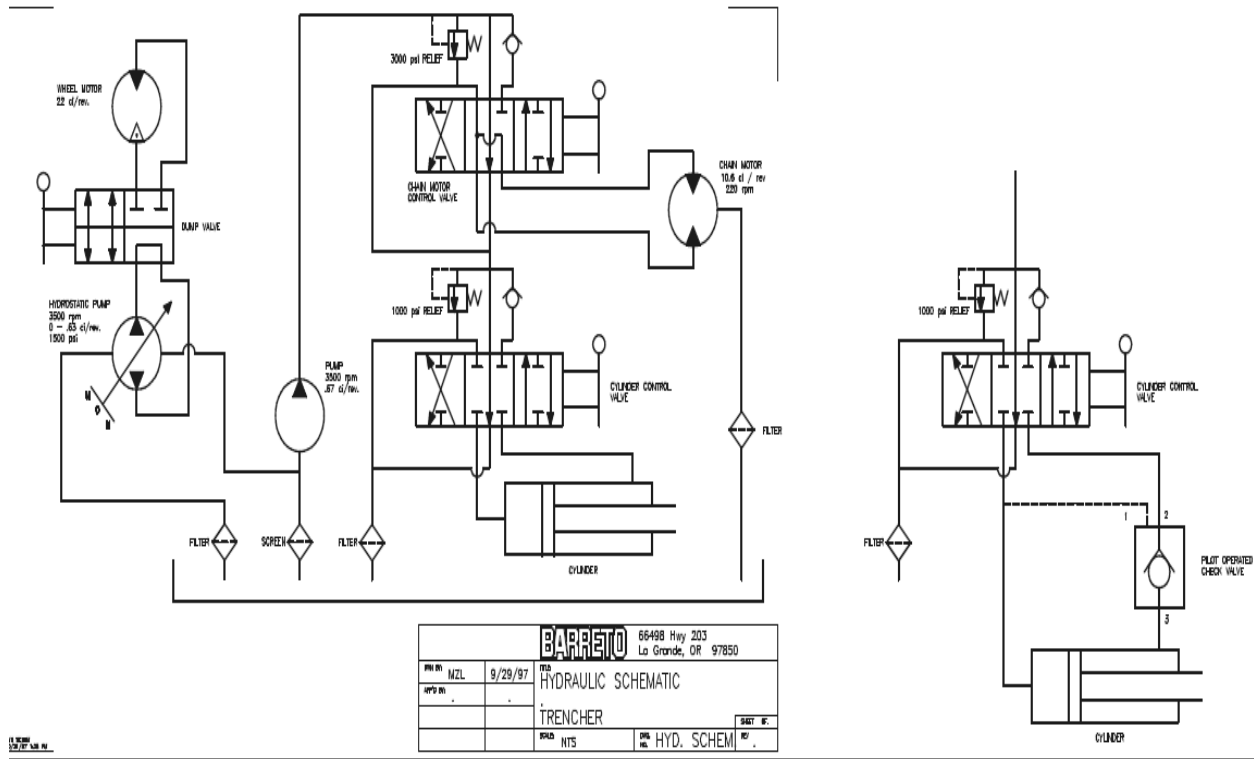
B/	BLACK
Y	YELLOW
G	GREEN



ELECTRICAL SCHEMATIC – 16HP BRIGGS/VANGUARD



HYDRAULIC SCHEMATIC



SPECIFICATIONS

MODEL NUMBERS	1324D	1624D
DIMENSIONS		
Weight	900 lb. (408.23 kg)	900 lb. (408.23 kg)
Height	45.25" (1.17 m)	45.25" (1.17 m)
Length	83" (2.11 m)	83" (2.11 m)
Width	35" (889 mm)	35" (889 mm)
Wheel Base	35" (889 mm)	35" (889 mm)
ENGINE		
Engine Options	Honda GX390	Briggs Vanguard 16 hp V-Twin
Fuel	Gasoline	Gasoline
Power: hp (kW) at 3600 RPM	11.7 hp (8.73 kW)	16 hp (11.93 kW)
Fuel Capacity	1.72 U.S. gallons (6.5 liters)	1.75 U.S. gallons (6.6 liters)
Engine Oil Capacity	1.16 quarts (1.1 liters)	1.38 quarts (1.36 liters)
Electric Start	May or may not have	May or may not have
Hour Meter	Standard	Standard
HYDRAULIC SYSTEM		
Reservoir Capacity	14 U.S. gallons (53 liters)	14 U.S. gallons (53 liters)
OPERATIONS		
Ground Drive, Forward	180 feet per minute (54.86 m/m)	180 feet per minute (54.86 m/m)
Ground Drive, Reverse	90 feet per minute (27.43 m/m)	90 feet per minute (27.43 m/m)
Digging Chain Speed	260 feet per minute (79.24 m/m)	260 feet per minute (79.24 m/m)
BOOM / CHAIN OPTIONS		
Depths	24", 30", 36" (61 cm, 76 cm, 91 cm)	24", 30", 36" (61 cm, 76 cm, 91 cm)
Widths	4" (102 mm) or 6" (152 mm)	4" (102 mm) or 6" (152 mm)
Chain Types	Skip Cup Double Cup Shark Combo Bolt on Shark Welded Shark	Skip Cup Double Cup Shark Combo Bolt on Shark Welded Shark
OPTIONAL ACCESSORIES		
A1550 - Lift eye: for hoisting the trencher		
A1580 - Backfill blade: to fill in trenches		
A1390 - Crumber: provides more effective removal of dirt from trench		

TROUBLESHOOTING GUIDE

CAUTION!

Always use extreme care when trouble shooting or making adjustments on trencher. Stay clear of chain and auger when engine is running. Stop engine before disassembling any component.

A. Entire hydraulic system does not operate and the engine is not under load

1. Broken or improperly adjusted drive valve cable.	See wheel drive valve cable adjustment and adjust or replace cable.
2. Low hydraulic oil in tank.	Add oil until it shows in sight gauge.
3. Hydrostatic pump not primed	Prime the pump.
4. Hydraulic pump-to-engine coupler has slipped.	Check for wear and replace both coupler halves and rubber spider, as needed.

B. Chain fails to rotate, but wheels drive.

1. Chain valve controls or push rod adjusted improperly.	See digging chain valve adjustment and adjust controls or push rod.
2. Chain motor worn.	Rebuild or replace with new motor.
3. Sheared key on chain shaft.	Replace parts as needed.
4. Chain valve relief valve not functioning properly.	Check relief valve spring for breakage. To set relief valve, remove to hose from chain control valve. Install a 4000 psi pressure gauge on the valve port. Start the engine and manually put the chain valve lever in the "FORWARD" position. Adjust the relief valve (on top of the chain valve) so relief is activated at 3000 psi, or engine stops.

TROUBLESHOOTING GUIDE continued

C. Wheels fail to turn but chain rotates.

1. Wheel hub pins have been removed.	Install pins and secure with lock nuts.
2. Wheel drive valve not adjusted properly.	See wheel drive valve adjustment and adjust cable accordingly.
3. Air leaking into hydraulic pump intake.	Inspect and tighten fittings on pump intake.
4. Wheel drive relief valve malfunction.	Remove tank lid and remove valve. Inspect, test, and/or replace as needed.
5. Wheel drive key or gear broken.	Drain hydraulic oil, remove tank lid and inspect. Repair as needed. Remove all debris.
6. Speed cable or linkage broken.	Inspect and repair as needed.

D. Engine lugs down or dies and wheels and chain do not turn.

1. Rocks or other obstructions stopping chain.	Reverse chain momentarily to free it from obstruction. Raise boom and stop chain. Remove obstruction from trench.
2. Trenching depth or speed too great for soil conditions.	Decrease ground speed or trenching depth.
3. Chain shaft support bearing binding.	Lubricate or replace as needed.
4. Engine improperly tuned or maintained.	See engine manual and correct as needed.
5. Low oil causing engine to shut down.	This may occur when trenching on hills. Level trencher, check oil and allow oil alert to reset. See engine manual.
6. Engine losing power due to wear	See engine manuals.

TROUBLESHOOTING GUIDE continued

E. Oil leaks in hydraulic system.

1. Fittings are loose.	Tighten fittings on hoses and piping.
2. Worn or broken hoses.	Inspect hoses for breaks and abrasions. Replace as needed.
3. Oil around chain motor or shaft.	Inspect motor for leaking shaft seal. Order seal kit or replace with new motor.

F. Foaming hydraulic oil coming from breather hose.

1. Improper oil used.	Verify that hydraulic oil used has anti-wear and anti-foaming additives.
2. Pump intake leaking air into oil.	Inspect and tighten fittings on intake side of pump.
3. Hydraulic pump is faulty.	To test pump pressure output, remove top hose from the chain control valve. Install a 4000 psi pressure gauge and start the engine. Manually put the chain valve lever in the "FORWARD" position. The output pressure should be about 3000 psi.