

THE  
**BARRETO**  
MODEL E30SG  
HYDRAULIC TRACK STUMP GRINDER  
OWNER'S MANUAL – ORIGINAL INSTRUCTIONS

CONGRATULATIONS!

You are now the proud owner of the BARRETO stump grinder. The OPERATOR'S MANUAL is attached to the machine. Please study it and this manual to become familiar with the stump grinder, 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 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.

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U.S. Patent No. 10,260,567

Machine Identification Record

Machine model number	_____
Machine serial number	_____
Engine manufacturer	_____
Engine model number	_____
Engine serial number	_____

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# STUMP GRINDER INSTRUCTIONS UPON DELIVERY

Upon delivery, check for freight damage and any missing items. If there is damage, notify the carrier and Barreto Manufacturing immediately **and make sure to document there was damage on the delivery receipt**. Please take pictures of any damage immediately if possible before unpacking crate. Remove machine from shipping crate.

When documentation refers to “right side” or “left side”, it is relative to the operator’s position with both hands on the controls.

## SERVICE INFORMATION

### HYDRAULIC SYSTEM:

- Your stump grinder should arrive with approximately 14 U.S. gallons (53 liters) of tractor transmission / hydraulic fluid in the tank. Shipping regulations may prohibit shipping with the hydraulic fluid. Check the reservoir level using the sight gauge on the side of the tank. If required, add tractor transmission / hydraulic fluid to the reservoir. 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.
- Recheck oil level after stump grinder has been run and oil has circulated through the components. Routinely check level thereafter.
- Change hydraulic fluid filter after the first 50 hours of use. Change it every 200 hours thereafter.
- Add approximately one quart (1 liter) of hydraulic fluid to 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.

**WARNING** - Running the stump grinder without hydraulic fluid will cause serious damage to the hydraulic pump. **INSURE THAT THE RESERVOIR FLUID LEVEL IS VISIBLE IN THE SIGHT GAUGE BEFORE STARTING THE MACHINE.**

**\*\*\*IMPORTANT:** If the couplers between the engine and the cutter head pump are moved or removed for any reason, it is **CRITICAL** that they have a 1/8<sup>th</sup> inch 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.

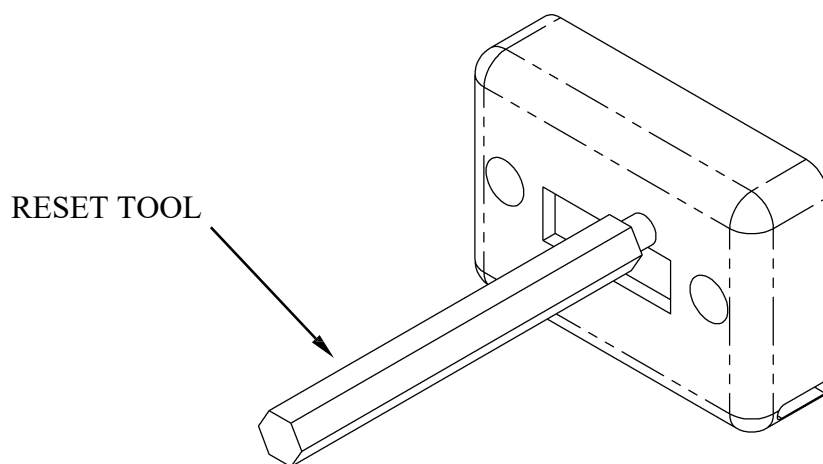
**IMPORTANT** - The engine on the Barreto stump grinder may or may not have been serviced prior to shipping. Shipping regulations may prohibit shipping with fuel or oil in the engine. Check levels and add oil and fuel as required before starting engine. Service the engine according to the engine owner’s manual before starting.

**NOTE:** We recommend that the cutter teeth be tightened to 25 ft. lbs. after every use.

## HOUR METER

The **DGI® TACH/HOUR** hour meter tracks the hours of machine operation for routine maintenance to be performed on a timely basis. It can also show your engine RPM's by using the wand magnet to toggle the display. If the wand gets lost, a small mechanic's pick-up magnet will work.

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



## STUMP GRINDER INTENDED USE

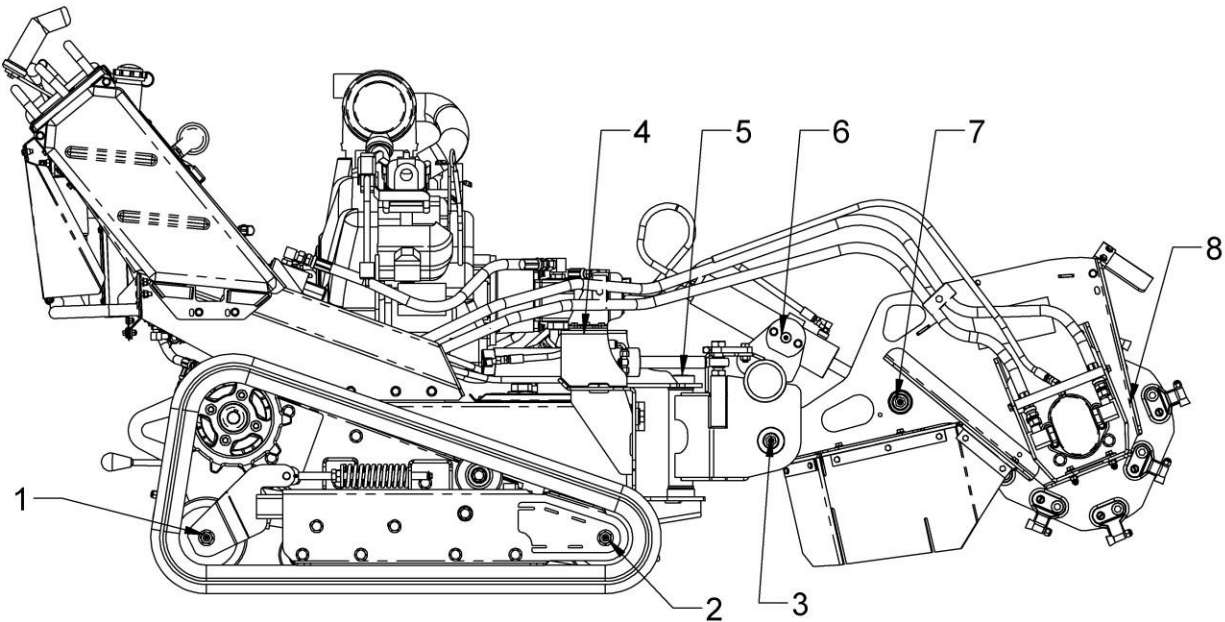
The Barreto Stump Grinder is designed to remove in-ground tree stumps and exposed roots. It should not be used to cut any material other than wood stumps and the surface soil around the stumps or exposed roots.

## LUBRICATION REQUIREMENTS

Grease at the intervals indicated per the illustration of grease lubrication points. There is also a grease diagram decal on the machine.

### GREASE AT INTERVALS INDICATED

1. TRACK REAR IDLERS: WEEKLY, OR 30 HOURS USE.
2. TRACK FRONT IDLERS: WEEKLY, OR 30 HOURS USE.
3. HEAD LIFT PIN: WEEKLY, OR 30 HOURS USE.
4. SWING CYLINDER TRUNION: (2 SIDES) WEEKLY OR 30 HOURS USE.
5. HEAD SWING PIN: WEEKLY OR 30 HOURS USE.
6. LIFT CYLINDER TRUNION: ( 2 SIDES) WEEKLY OR 30 HOURS USE.
7. LIFT ROD PIN: WEEKLY OR 30 HOURS USE.
8. CUTTER WHEEL BEARINGS: (2 SIDES) DAILY OR 6 HOURS USE.



## OPERATOR TRAINING

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

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

## WARRANTY OF BARRETO MANUFACTURING EQUIPMENT

Barreto Manufacturing, Inc. warrants all **BARRETO** equipment to be free of defects in material and workmanship for a period of one (1) year. 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 cutter wheels and teeth, holders and bolts, 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.**

## MAINTENANCE PREPARATION

Only trained & qualified personnel should perform maintenance or repairs of the stump grinder. 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.

Read the BATTERY & ELECTRIC STARTER SAFETY INSTRUCTIONS. Disconnect the battery, removing the negative terminal first by loosening the wing nut where the cable end is secured to a post on the stump grinder frame. When ready to reattach the cables, reconnect the positive terminal first.

## ROUTINE MAINTENANCE

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

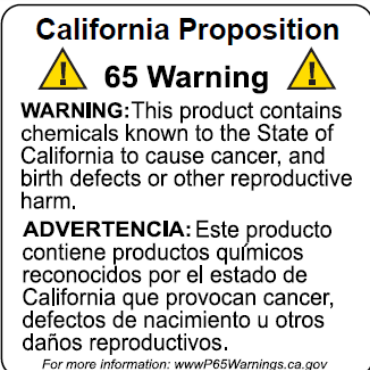
- Muffler guard
- Hydraulic hoses and fittings
- Fuel lines
- Fasteners
- Safety decals

Barreto recommends using genuine Barreto spare parts to ensure not only quality but also the health and safety of the operator.

Clean safety decals often using soap and water. **Do not use** abrasive cleaners or solvents such as mineral spirits that may damage the decals. **NOTE: Avoid using a power washer directly on the decals as this may loosen the adhesive and cause the decals to peel off.** 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 stump grinder can be at any ambient temperature.



## HYDRAULIC HOSE REPLACEMENT

- Make sure stump grinder is turned off and cooled down.
- Ensure the stump grinder is on a level and stable surface/ground.
- Identify the size of the tool needed for hose removal.
- Have shop rags/towels handy to absorb any fluid in the line.
- Make sure your replacement hose is the correct one.
- Once hose is replaced, make sure the fittings are tightened back up.
- Start machine and run all functions.
- Inspect hose(s) for leaks.
- Tighten fittings to spec as illustrated below.
- Make sure hydraulic fluid is filled to the top of the sight glass. (If low see page 3)

<b>Thread Size</b>	<b>Assembly Torque (in-lb)</b>	<b>Assembly Torque (ft-lb)</b>	<b>Tube Connection FFFT</b>	<b>Swivel Nut or Hose FFFT</b>
<b>2</b>	<b>35 - 45</b>	<b>2 - 4</b>	<b>N/A</b>	<b>N/A</b>
<b>3</b>	<b>65 - 75</b>	<b>5 - 7</b>	<b>N/A</b>	<b>N/A</b>
<b>4</b>	<b>130 - 150</b>	<b>11 - 13</b>	<b>2</b>	<b>2</b>
<b>5</b>	<b>165 - 195</b>	<b>14 - 16</b>	<b>2</b>	<b>2</b>
<b>6</b>	<b>235 - 265</b>	<b>20 - 22</b>	<b>1.5</b>	<b>1.25</b>
<b>8</b>	<b>525 - 575</b>	<b>43 - 47</b>	<b>1.5</b>	<b>1</b>
<b>10</b>	<b>650 - 750</b>	<b>55 - 65</b>	<b>1.5</b>	<b>1</b>
<b>12</b>	<b>950 - 1050</b>	<b>80 - 90</b>	<b>1.25</b>	<b>1</b>
<b>14</b>	<b>1200 - 1300</b>	<b>100 - 110</b>	<b>1</b>	<b>1</b>
<b>16</b>	<b>1400 - 1500</b>	<b>115 - 125</b>	<b>1</b>	<b>1</b>
<b>20</b>	<b>1900 - 2100</b>	<b>160 - 180</b>	<b>1</b>	<b>1</b>
<b>24</b>	<b>2250 - 2550</b>	<b>185 - 215</b>	<b>1</b>	<b>1</b>
<b>32</b>	<b>3000 - 3400</b>	<b>250 - 290</b>	<b>1</b>	<b>1</b>

## CHANGING THE HYDRAULIC FLUID

- Lift machine high enough to place a container large enough to hold at least 15 gallons.
- Remove the drain plug using a 5/16" hex key wrench and allow to drain.
- Replace drain plug.
- Remove the fill plug using a 9/16" hex key wrench.
- Fill to the top of the sight glass using a suitable hydraulic fluid. (See page 3)
- Replace fill plug.
- Dispose of the used fluid according to your local laws and regulations.



# BRIGGS/VANGUARD MAINTENANCE SCHEDULE

## Maintenance Chart

<b>First 5 Hours</b>
<ul style="list-style-type: none"><li>• Change oil</li></ul>
<b>Every 8 Hours or Daily</b>
<ul style="list-style-type: none"><li>• Check engine oil level</li><li>• Clean area around muffler and controls</li></ul>
<b>Every 100 Hours or Annually</b>
<ul style="list-style-type: none"><li>• Clean or change air filter * ▲</li><li>• Change engine oil and filter</li><li>• Clean pre-cleaner (if equipped) *</li><li>• Replace spark plug</li><li>• Check muffler and spark arrester</li></ul>
<b>Every 250 Hours or Annually</b>
<ul style="list-style-type: none"><li>• Check valve clearance. Adjust if necessary.</li></ul>
<b>Every 400 Hours or Annually</b>
<ul style="list-style-type: none"><li>• Change air filter ▲</li><li>• Replace fuel filter</li><li>• Clean air cooling system *</li><li>• Clean oil cooler fins *</li></ul>
<b>Every 600 Hours or Annually</b>
<ul style="list-style-type: none"><li>• Change safety filter (if equipped)</li></ul>

\* In dusty conditions or when airborne debris is present, clean more often.

▲ Every third air filter change, replace the inner safety filter (if equipped).

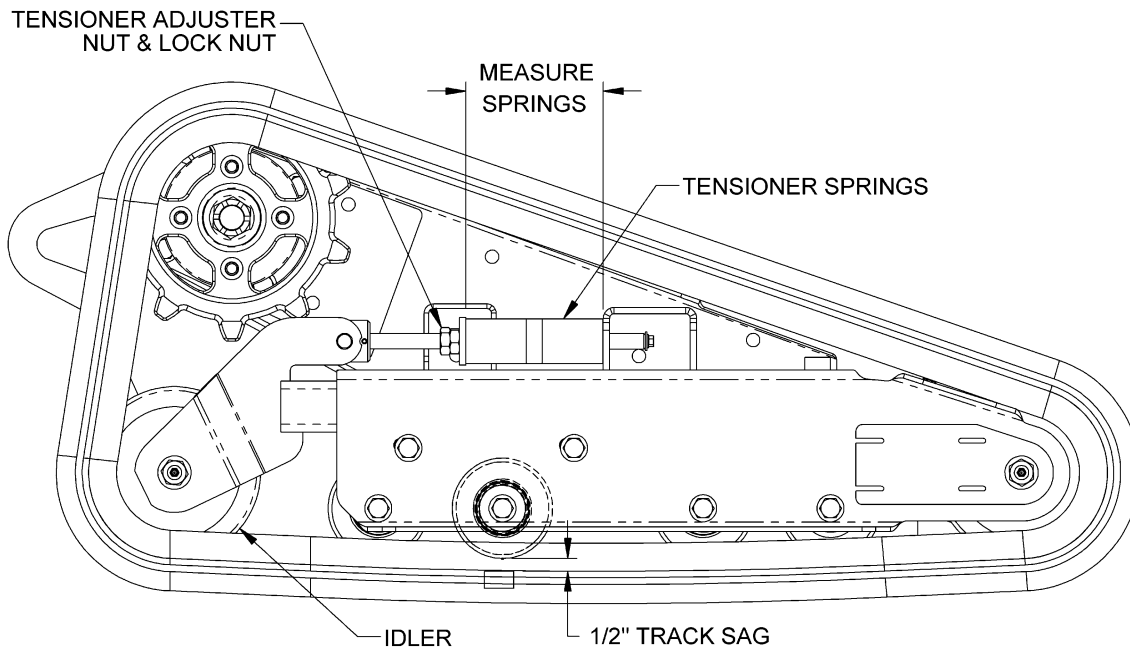
Please see your engine owner's manual for specific procedures and products to use for proper maintenance of your engine, as well as proper disposal of used parts/fluids.

## TRACK TENSION ADJUSTMENT

Track must be tensioned enough to prevent de-tracking. Too much tension will cause increased wear on roller, sprockets and drive motor bearings. There are two methods of measuring correct tension: Measure the compression of the springs, or measure track sag.

To measure spring compression:

Loosen tension adjuster nut and lock nut completely. Measure free length of springs. Then tighten adjuster nut to compress tension spring pair to a length of  $\frac{5}{8}$ " (16mm) less than free length. Tighten lock nut.



To measure track sag:

Lift the machine and raise the track off the ground. Measure the distance between either one of the central rollers and track metal core bars and adjust track tension to get  $\frac{1}{2}$ " (13mm) track sag.

To remove/replace track:

1. Completely loosen tensioner nuts.
  2. Retract idler completely.
  3. Remove track from idler first, sprocket second and front roller last.
  4. Reverse procedure to replace track.
- Adjust track tension per instructions and illustration.

## BATTERY MAINTENANCE

Follow the SHUT DOWN PROCEDURE in the OPERATOR'S MANUAL before doing any battery maintenance. For your safety always abide by the following:

Shield entire face, especially your eyes, and wear rubber gloves to avoid acid burns whenever doing anything with the battery. Battery caps must be tightly in place if the battery has removable caps.



**WARNING:** The battery contains sulfuric acid that can cause blindness and severe burns. Avoid contact with eyes, skin, and clothing. If acid contacts eyes, call 911 immediately and flush eyes with water for 15 minutes or until emergency medical help arrives. If acid contacts skin, flush area with plenty of water. If acid is ingested, drink large quantities of water or milk then follow with milk of magnesia, beaten egg, or vegetable oil, and get medical attention immediately.

Avoid contact with battery components. Wear rubber gloves and wash hands after handling any battery components.



**WARNING:** Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to cause cancer and reproductive harm. Acid can cause blindness and severe burns if leaked from the battery.

Do not charge or jump-start the battery near flames or sparks, or while smoking.



**WARNING:** Battery fumes are flammable and explosive. Avoid explosion hazard that could blind and burn. Tools and jumper cable clamps can make sparks, so use them with care. Shield eyes and face, and wear rubber gloves.

**ELECTROLYTE LEVEL:** Check the battery electrolyte level every 25 hours of machine use and if necessary, add distilled water following this procedure:

1. Disconnect the battery cables, removing the negative cable first.
2. Remove the battery from the machine.
3. Clean the battery exterior with paper towels.
4. If the battery posts and cable terminals are corroded, clean them with a wire brush cleaner tool. A solution of four parts water and one part baking soda is helpful.
5. Remove the battery caps.
6. Slowly pour distilled water into each battery cell until the electrolyte level is up to the full line indicated for each cell on the battery. **Do not overfill.** Overflow of electrolyte, which contains sulfuric acid, can cause severe corrosion to the stump grinder.
7. Reinstall the battery caps tightly in place.
8. Apply a light coating of grease to the battery terminals to help prevent corrosion.
9. Reinstall the battery securely into the stump grinder.
10. Reconnect the cables. Attach the positive cable first, then the negative one.

## BATTERY MAINTENANCE (continued)

**BATTERY VOLTAGE LEVEL:** Check the voltage level using an appropriate meter. Always keep the battery fully charged and clean to help prolong battery life expectancy, especially when the temperature is below 32°F (0°C). For off-season long-term storage, we recommend removing the battery from the stump grinder and storing where the ambient temperature remains above freezing.

**TO CHARGE THE BATTERY** follow this procedure:

1. Disconnect the battery cables, removing the negative cable first.
2. Remove the battery from the machine.
3. Clean the battery exterior with paper towels.
4. If the battery posts and cable terminals are corroded, clean them with a wire brush cleaner tool. A solution of four parts water and one part baking soda is helpful.
5. Apply a light coating of grease to the battery terminals to prevent corrosion.
6. Check the battery electrolyte level (see procedure above).
7. Insure that the battery caps tightly in place.

Do not charge the battery near flames or sparks, or while smoking.



**WARNING:** Battery fumes are flammable and explosive. Avoid explosion hazard that could blind and burn. Tools and jumper cable clamps can make sparks, so use them with care. Shield eyes and face and wear rubber gloves.

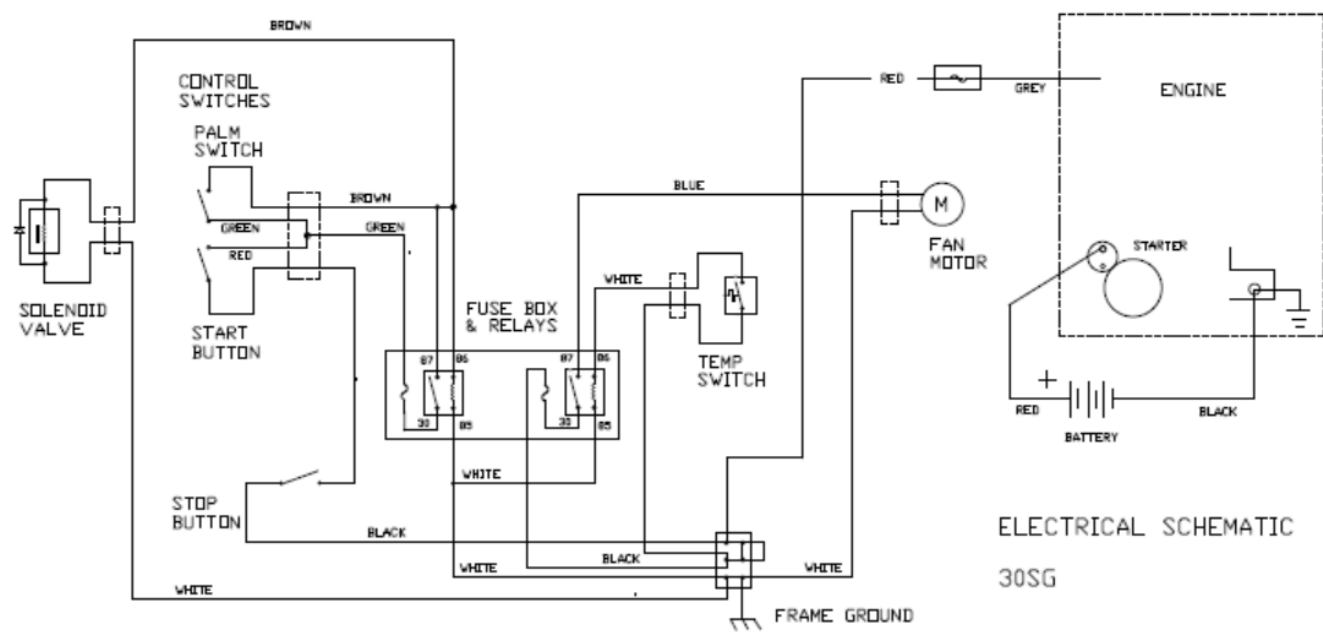
8. Connect a 12-volt DC battery charger and charge at 3 to 4 amperes for 4 to 8 hours. Do not overcharge.
9. When the battery is fully charged, turn off and unplug the charger from the electrical outlet, then disconnect the charger leads from the battery posts.
10. Reinstall the battery securely into the stump grinder.
11. Reconnect the cables. Attach the positive cable first, then the negative one.

## CUTTER WHEEL TORQUE SPECS

**We recommend that the teeth and holders be inspected after every use to maximize the usable life of these high wear items.**

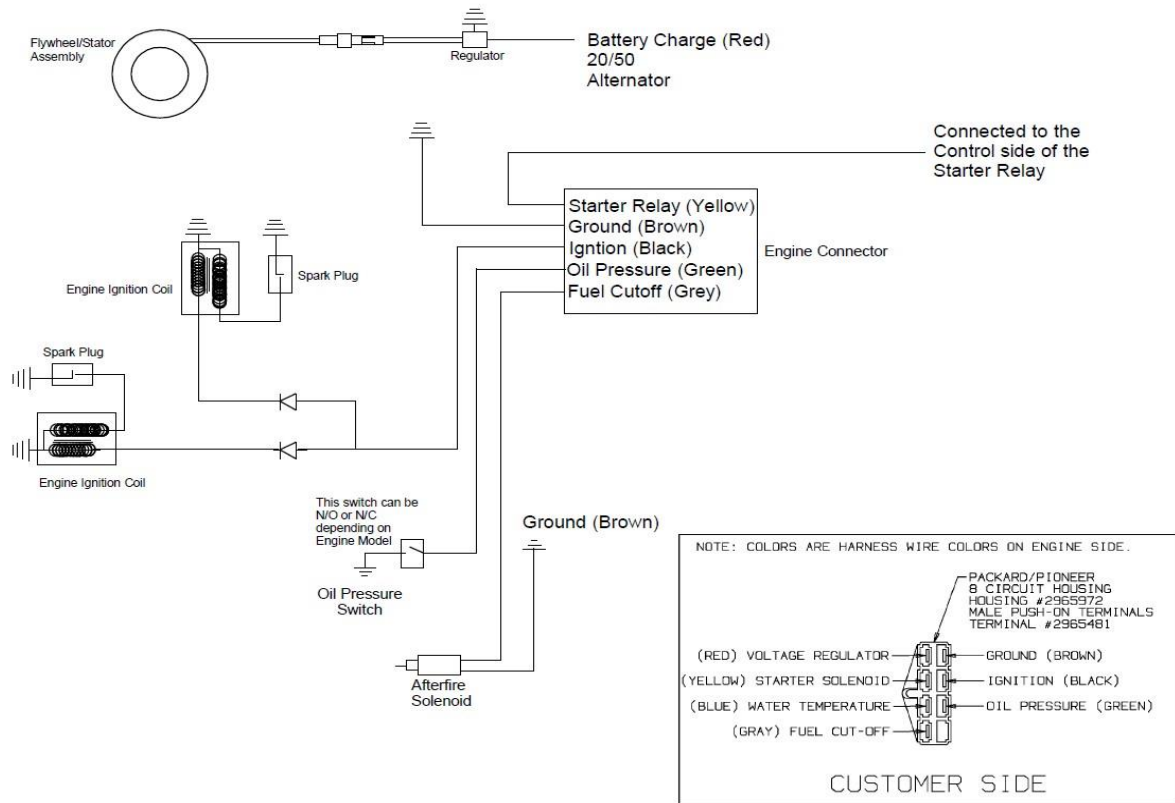
- Cutter teeth have three sides, and we recommend rotating them frequently to keep the cutting edges sharp. A torque wrench should be used to torque these down to 25 ft. lbs. A worn and unsharpened tooth will cause the holders to wear prematurely, resulting in poorer performance and increased maintenance costs.
- The holders should be inspected and torqued to 180 ft. lbs. using a torque wrench as well.
- The nuts that fasten the axle and drive stubs on the cutter wheel together should be torqued to 55 ft. lbs. using a torque wrench.

# STUMP GRINDER ELECTRICAL SCHEMATIC

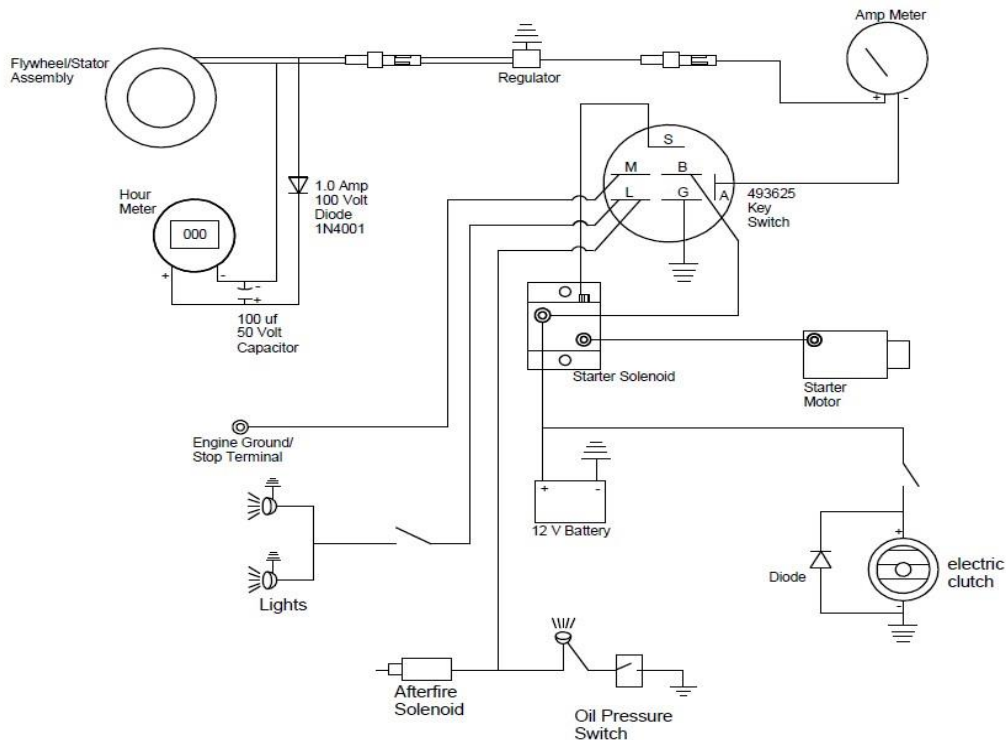


ELECTRICAL SCHEMATIC  
30SG

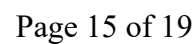
# 31 HP BRIGGS/VANGUARD ELECTRICAL SCHEMATIC



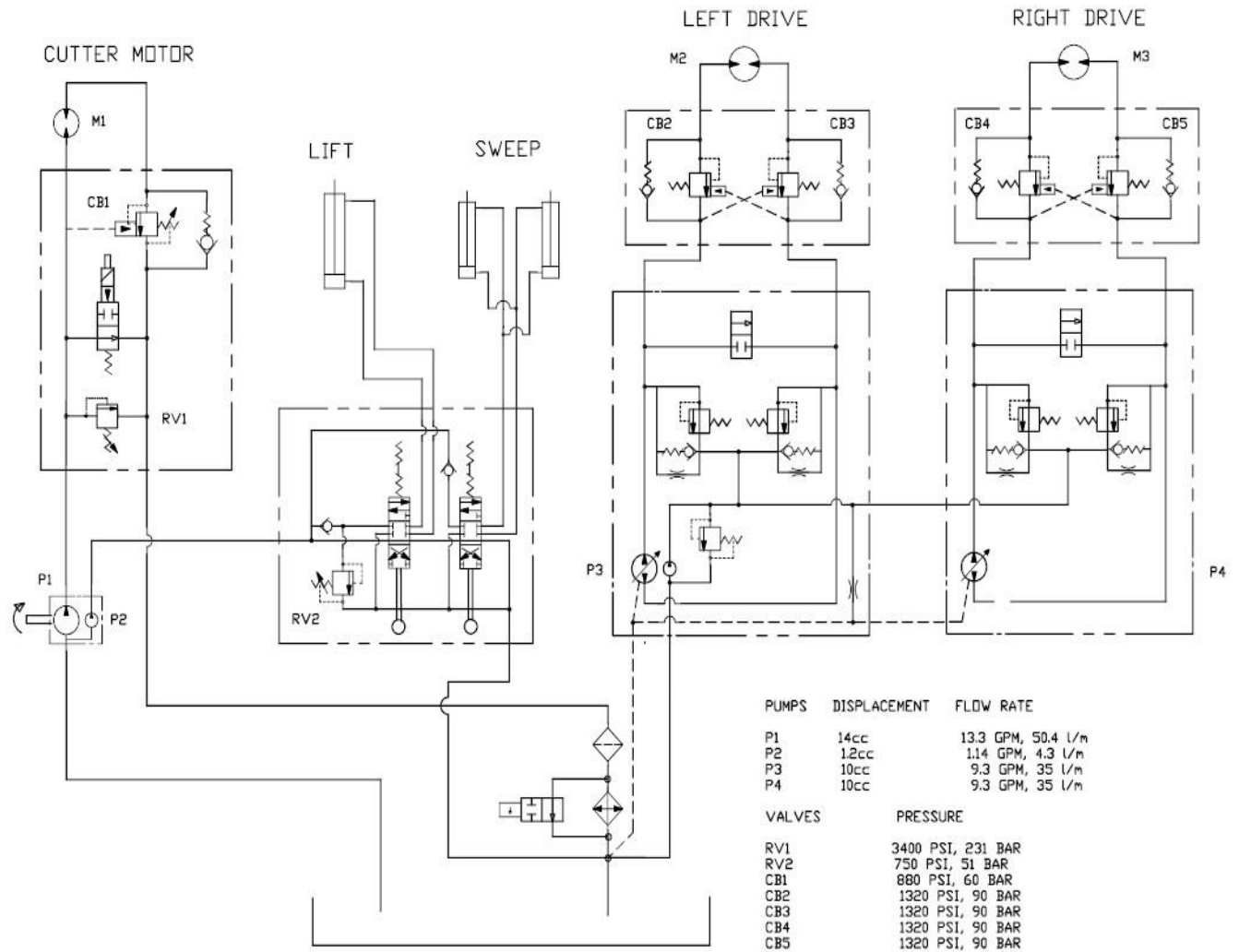
Typical Regulated Wiring Diagram



### CONTROL BOX TYPE



# HYDRAULIC SCHEMATIC





# STUMP GRINDER TROUBLESHOOTING GUIDE

**CAUTION!!** Always use extreme care when troubleshooting or making adjustments on stump grinder. Stay clear of cutter wheel 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. Low hydraulic fluid in tank.                    | Add hydraulic fluid until it shows in sight gauge.                           |
| 2. Hydraulic pump-to-engine coupler has slipped.   | Check for wear and replace both coupler halves and rubber spider, as needed. |
| 3. Main pump suction leaking air into pump intake. | Check main suction hoses and fittings for leaks and tighten fitting nuts     |

## **B. Engine lugs down or dies and tracks and cutter wheel do not turn.**

- |                                                                |                                                                                               |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1. Rocks or other obstructions jammed in cutter wheel housing. | Raise cutter head. See if obstruction can be removed from cutter housing.                     |
| 2. Cut depth or swing speed too great.                         | Decrease sweep speed or cutting depth.                                                        |
| 3. Engine improperly tuned or maintained.                      | See engine manual and correct as needed.                                                      |
| 4. Low oil alert causes engine to shut down.                   | This may occur when grinding on hills. Level grinder, check oil and allow oil alert to reset. |
| 5. Engine losing power due to wear.                            | See engine manual.                                                                            |

## **C. Cutter fails to rotate, but track drive works.**

- |                                        |                                                                                |
|----------------------------------------|--------------------------------------------------------------------------------|
| 1. Cutter motor worn.                  | Rebuild or replace motor. New motors are available from Barreto Manufacturing. |
| 2. Cutter Relief Valve malfunctioning. | Adjust Relief Valve to 3500 PSI or replace relief spring if needed.            |
| 3. Cutter drive pump worn.             | Replace pump.                                                                  |

## STUMP GRINDER TROUBLESHOOTING GUIDE (continued)

### **D. Tracks fail to turn, but cutter rotates.**

- |                                |                                        |
|--------------------------------|----------------------------------------|
| 1. Sprocket key sheared.       | Replace key and other parts as needed. |
| 2. Pump control linkage loose. | Tighten or replace bolts.              |

### **E. Hydraulic fluid leaks in hydraulic system.**

- |                                                  |                                                                                                                      |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1. Fittings are loose.                           | Tighten fittings on hoses and adapters.                                                                              |
| 2. Worn or broken hoses.                         | Replace damaged hoses.                                                                                               |
| 3. Hydraulic fluid around cutter motor or shaft. | Inspect motor for leaking shaft seal. Rebuild or replace motor. New motors are available from Barreto Manufacturing. |

### **F. Foaming hydraulic fluid coming from breather hose.**

- |                            |                                                                                                                                                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Improper fluid used.    | Verify that hydraulic fluid used had antifoaming additives. Tractor transmission / hydraulic fluid ISO 68 is recommended for use in temperatures above +32°F. |
| 2. Air leaking into fluid. | Inspect and tighten fittings and clamps on pump intake hoses.                                                                                                 |

### **G. Cutter does not lift.**

- |                                                   |                                                                            |
|---------------------------------------------------|----------------------------------------------------------------------------|
| 1. Lift relief valve malfunctioning.              | Adjust relief to 1000 PSI. This may require a replacement spring in valve. |
| 2. Lift cylinder piston seal damaged or rod bent. | Disassemble & replace parts as required.                                   |

## SPECIFICATIONS

<b>MODEL NUMBER</b>	<b>E30SGB</b>
<b>DIMENSIONS</b>	<b>BRIGGS/VANGUARD</b>
Weight	1686 lb. (764.76 kg)
Height	52.2" (1.32 m)
Length	92.5" (2.35 mm)
Width	35.5" (901.7 mm)
<b>ENGINE</b>	
Engines	Briggs/Vanguard
Fuel	Gasoline
Power: hp (kW) at 3600 RPM	31 hp (23.1 kW)
Fuel Capacity	5 U.S. gallons (18.93 liters)
Engine Oil Capacity	1.8 quarts (1.7 liters)
Electric Start	Standard
Hour Meter	Standard
<b>HYDRAULIC SYSTEM</b>	
Reservoir Capacity	14 U.S. gallons (53 liters)
Oil Cooler	Standard
<b>TRACK SYSTEM</b>	
Track Width	7.1" (180 mm)
Total Ground Contact	482.8" (.312 sq/m)
<b>OPERATIONS</b>	
Ground Drive, Forward	190 feet per minute (57.9 m/m)
Ground Drive, Reverse	90 feet per minute (27.4 m/m)

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