THE

BARRETO

MODEL 30SG

HYDRAULIC TRACK STUMP GRINDER
OPERATOR'S MANUAL – ORIGINAL INSTRUCTIONS

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.

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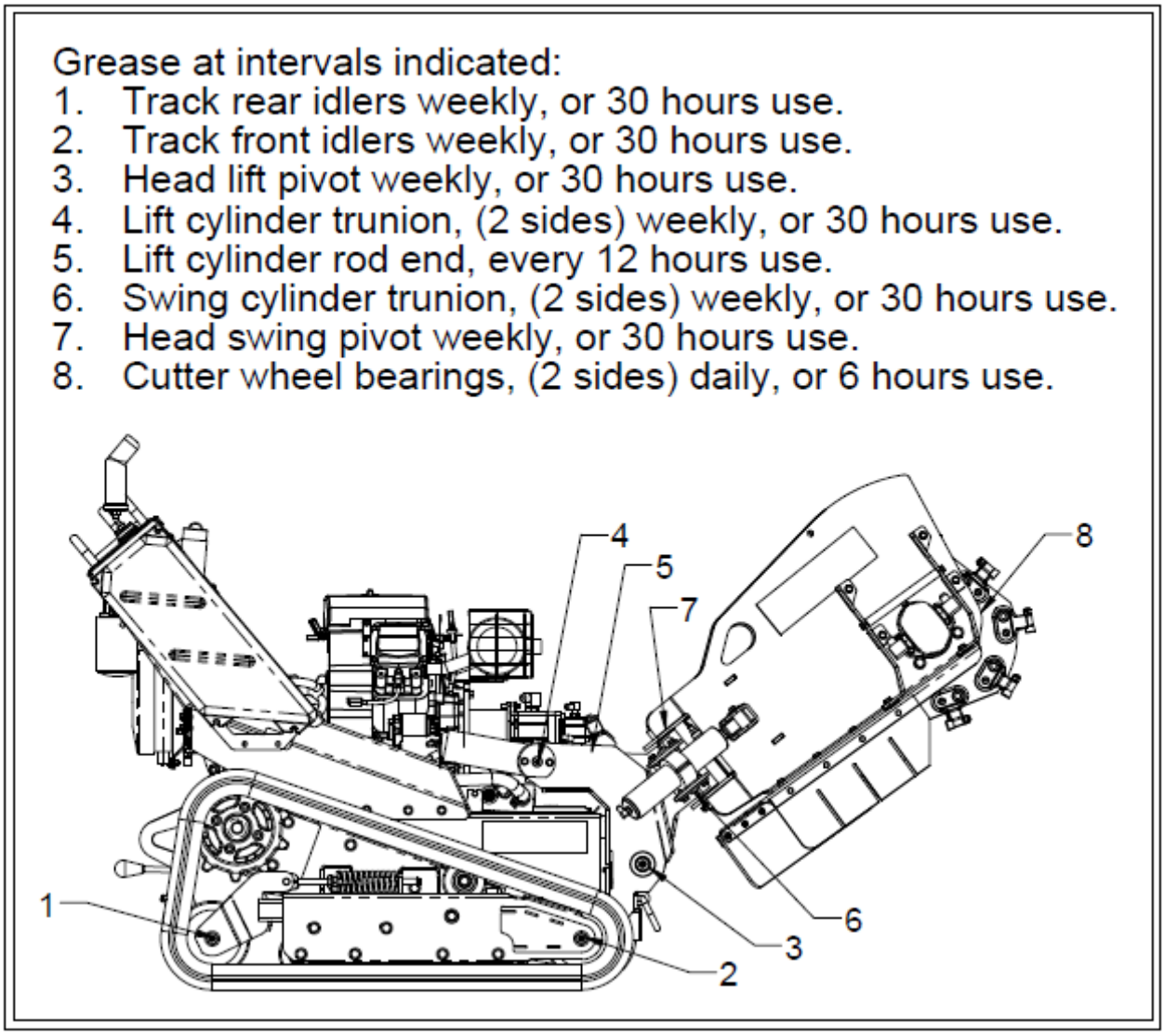
LUBRICATION REQUIREMENTS

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



SAFETY MESSAGES

General safety messages are listed in this Safety Messages section. Specific safety messages appear as appropriate in this manual where a potential hazard may occur if procedures or instructions are not followed correctly and completely.

SAFETY SYMBOL


This is the international safety alert symbol. This symbol is used in combination with a signal word and written message to warn you of a potential for bodily injury or death.

A signal word "DANGER", "WARNING", or "CAUTION" is used with the safety alert symbol.


DANGER: Imminent hazards, that if not avoided, will result in serious personal injury or death.


WARNING: Potential hazards or unsafe practices, that if not avoided, could result in serious personal injury or death:


CAUTION: Potential hazards or unsafe practices, that if not avoided, could result in minor personal injury, product damage, or property damage.

Safety decals with a signal word "DANGER", "WARNING", or "CAUTION" are affixed to the stump grinder near specific hazards.

This machine shall always be used in accordance with this manual. Study it and ALL decals on the stump grinder before operating the stump grinder.

ALWAYS make sure the engine is turned off before performing maintenance, cleaning, or transport by means other than under its own power.

Before using, always visually inspect to see that the tools are not worn or damaged. Replace worn or damaged elements and bolts in sets to preserve balance.

Use extreme caution when reversing the machine towards you.

Do not change the engine governor settings or overspeed the engine.

SAFETY INSTRUCTIONS OVERVIEW

READ SAFETY AND OPERATING INSTRUCTIONS BEFORE OPERATING!

USE COMMON SENSE AND PLENTY OF IT!

Call before you cut. If you do not call, you may cause an accident; suffer injuries or death; cause interruption of services; damage the environment; and/or incur project delays. Expect to be held liable for any damages caused, if you fail to call.

DANGER: Buried electric cables or gas lines can cause serious injury or death if struck with cutter wheel. Always determine location of utilities before cutting.

WARNING: Fiber optic cables convey laser light that can injure your eyesight.

STAY CLEAR of moving parts on the stump grinder.

DANGER: Cutter wheel and other moving parts can cut off arms, legs, or fingers. Contact with the cutter wheel while in operation will cause serious injury or even death. Stay in the operator's position at the controls when the cutter wheel is operating. Keep all observers and helpers at a safe distance from the machine. Stop the cutter wheel immediately if anyone gets too close to the operating machine.

Wear a face safety shield and hard hat while operating or observing!

WARNING: The cutter wheel may throw chips, rocks and debris into the area around the machine. Keep all bystanders at a safe distance from the machine. Always wear eye protection when operating or observing the machine in operation.

Wear adequate hearing protection while operating or observing.

WARNING: The machine and cutter wheel are loud when in operation. Wear ear protection when operating the machine. Exposure to loud noise is cumulative and may permanently damage your hearing.

Wear safety boots and gloves. Wear close-fitting clothing. Contain long hair. Do not wear jewelry. Wear reflective clothing if working near traffic.

Only operate outdoors and avoid breathing engine exhaust and fumes.

WARNING: Engine exhaust contains carbon monoxide gas that is toxic. Breathing it can cause unconsciousness and death.

Adequate lighting is required, daylight or artificial, for safe operation of the stump grinder. Allow adequate side and overhead clearances between machine and buildings, fences, and trees.

WARNING: Contact with the cutter wheel while in operation will cause serious injury or even death. The teeth of the cutter wheel are sharp. Avoid contact even when the wheel is not moving.

Avoid inclines if at all possible.

WARNING: Navigating on any incline increases the danger of the machine losing traction or rolling over, especially if the surface is wet. If you lose control, get out of the way immediately to avoid personal injury. Navigation on inclines should be especially slow and turns very gradual. Refer to the incline diagram in the section, "GROUND TRANSPORT".

Avoid operating adjacent to drop-offs or embankments.

Keep away from tracks to avoid being crushed.

WARNING: Being run over by the machine will cause injury.

Always leave machine parked on a level surface.

WARNING: Do not park on incline. Move the machine to a level surface and set the parking brake located behind the left hand track motor. Move the handle down to engage the brake.

Do not leave machine unattended with the engine running.

Do not operate machine near any source of flammable dust or vapors.

WARNING: Sparks from the engine exhaust can cause an explosion or fire in a flammable or explosive atmosphere. Fuel fumes can catch fire or explode.

Do not operate machine near flames or sparks.

WARNING: Fuel fumes can catch fire or explode. If fuel is spilled, do not attempt to start engine but move the machine away from the area of spillage and avoid creating any source of ignition until the vapors have dissipated.

Shut off engine and allow it to cool before refueling.

WARNING: Fuel fumes can catch fire or explode. Refuel outdoors and do not smoke when refueling. Do not refuel near a source flames or sparks. Always store fuel in containers specifically designed for this purpose. Add fuel before starting engine. Never remove the cap on the fuel tank or add fuel while the engine is running or when the engine is hot.

WARNING: Replace all fuel tank and container caps securely.

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.

WARNING: Stay clear of the articulation area while the engine is running.

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.

WARNING: Keep safety guards and shields in place while the engine is running and keep all operator protection systems in place and in operational condition.

WARNING: Never store the equipment with petrol in the tank inside a building where fumes can reach an open flame or spark. Allow the engine to cool before storing in an enclosure. To reduce fire hazard, keep the engine, muffler, battery compartment and fuel storage area free of any vegetative material and excessive grease.

Keep others away. If the job site is near a road or pedestrian path, warn and divert both motorized traffic and pedestrians. As appropriate, use traffic flag personnel, signs, cones, and lighting devices to insure safety.

Never allow anybody to ride on the machine.

Never lift machine over any person at any time.

WARNING: If machine should fall, it would crush anybody under it.

We recommend having a fire extinguisher suitable for petrol fires in the operating area.

BATTERY & ELECTRIC STARTER SAFETY INSTRUCTIONS

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.

BATTERY MAINTENANCE is in the OWNER'S MANUAL.

STUMP GRINDER OPERATING INSTRUCTIONS

READ SAFETY INSTRUCTIONS BEFORE OPERATING! Both the SAFETY INSTRUCTIONS and OPERATING INSTRUCTIONS are in this manual.

Be sure that the engine oil and fuel, and the machine hydraulic fluid are all at proper levels before starting the engine.

STUDY AND UNDERSTAND CONTROLS BEFORE BEGINNING OPERATION.

CONTROLS

1. KEYED IGNITION SWITCH: This remote switch is located with the other grinder controls for your convenience. Use it to start and stop the engine equipped with an electric starter. Refer to the ENGINE START UP PROCEDURE.

2. ENGINE: This is the throttle - controls engine speed. Operate at full throttle (all the way forward).

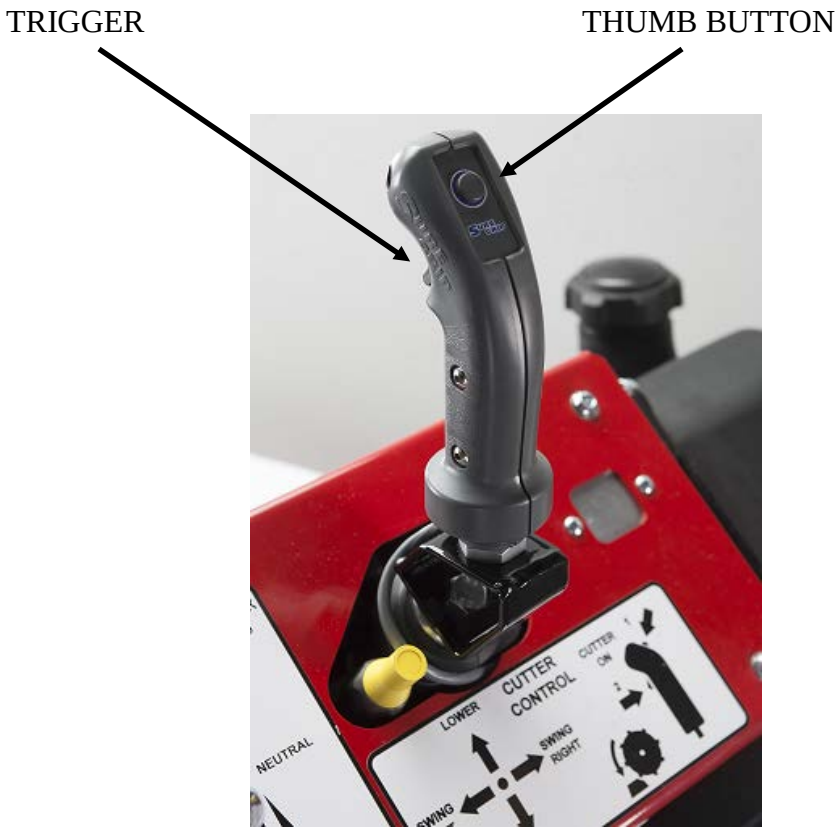
3. TRACK CONTROL: Controls the travel direction and speed.

- Track controls are designed to be operated with two hands.
- Pushing the control handles forward from neutral position causes the machine to move forward.
- Pulling the control handles back from neutral position causes the machine to move backward.
- Moving the track control handles farther from the neutral position increases the speed.
- Steer the machine by moving one track control handle farther than the other handle. This causes the track on one side to rotate at a different speed than the opposite track. Pivot turns can be made by moving one control forward and the other control back.

THROTTLE CABLE

LEFT TRACK RIGHT TRACK

4. CUTTER WHEEL CONTROL: To start the cutter wheel, hold down the thumb button on the control handle. Then pull the trigger back. After the wheel is started, **the thumb button can be released**, but the trigger must be held to keep the cutter wheel turned on. To raise the cutter head, pull the control handle back. Push the control handle forward to lower the cutter head. The cutter head is moved to the left and right by leaning the control lever left or right.



5. PARKING BRAKE: It is located behind the left hand track motor. Move the handle down to engage the brake, and up to disengage it.

ENGINE CONTROLS

FUEL SHUTOFF VALVE: Must be in OPEN position for engine to run.

CHOKE: Use to aid starting the Vanguard engine only when it is cold.

KEYED IGNITION SWITCH: This remote switch is located with the engine controls for your convenience. Use it to start and stop the engine equipped with an electric starter. Refer to the ENGINE START UP PROCEDURE.

ENGINE: This is the throttle lever. It controls the engine speed. Operate stump grinder at full throttle (all the way forward).

VANGUARD CHOKE VANGUARD KEYED IGNITION SWITCH

KOHLER KEYED IGNITION SWITCH

ENGINE START UP PROCEDURE

Only operate machine outdoors and avoid breathing engine exhaust and fumes.

WARNING: Engine exhaust contains carbon monoxide gas that is toxic. Breathing it can cause unconsciousness and death. Avoid any areas or actions that expose you to carbon monoxide.

1. Check engine oil level.
2. Check hydraulic oil level.

HYDRAULIC OIL LEVEL

3. Check fuel level.
4. Open the FUEL SHUTOFF VALVE.
5. If the engine is cold, close the CHOKE. Turn choke off (open) after engine warms up enough. To restart a warm engine, leave the choke in the open position. (Briggs/Vanguard engine only).
6. Move the ENGINE THROTTLE to about 1/3 of the way forward.
7. ELECTRIC STARTER: Turn the ignition key to the START position, and hold it there until the engine starts. If the engine fails to start within 10 seconds, release the key, and wait at least 10 seconds before operating the starter again.

NOTICE - *Using the electric starter for more than* 10 *seconds at a time will overheat the starter motor and can damage it.*

When the engine starts, release the key, allowing it to return to the ON position.
Open the CHOKE (turn choke off) after the engine warms up enough. (Briggs/Vanguard engine only).

COLD WEATHER OPERATIONS: Before operating in cold weather, refer to the Engine Owner's Manual for recommended engine oil. Do not spray starting fluid into the air cleaner as engine damage could result. If the machine is operated at temperatures below +32°F (0°C) then changing the hydraulic fluid to ISO 46 is recommended. If you do not want to change the hydraulic fluid but want to operate the machine at temperatures below +32°F (0°C), then do the following:

- Warm up engine at a low speed.
- Gradually increase engine speed, allowing **30 minutes for the hydraulic fluid to warm up**.

Reduce the engine speed if the hydraulic pump whines. Pump noise may indicate a lack of hydraulic fluid flow that could damage the pump.
For frequent starts below 18°F consult your Barreto Manufacturing, Inc. dealer.

KOHLER START UP PROCEDURE

1. Check the oil level. Add oil if low. Do not overfill.

2. Check the fuel level. Add fuel if low. Check the fuel system components and lines for leaks.

3. Check and clean the cooling areas, air intake areas and external surfaces of the engine (particularly after storage).

4. Check that the air cleaner components and all shrouds, equipment covers, and guards are in place and securely fastened.

5. Check the spark arrestor (if equipped).

6. Place the throttle control midway between slow and fast positions.

7. Turn the key switch to the START position. Release the switch as soon as engine starts. If the starter does not turn the engine over, shut off the key switch immediately. Do not make further attempts to start engine until condition is corrected. Do not jump start. See your Kohler authorized dealer for trouble analysis.

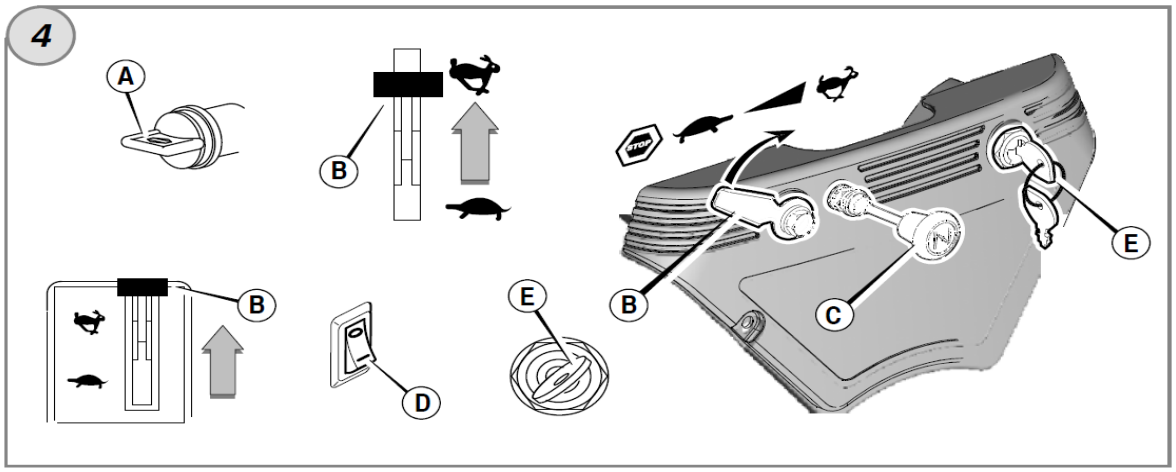
NOTE: To prime a dry fuel system, turn the key switch to ON position for one minute. Allow fuel pump to cycle and prime system. Turn the key switch OFF.

NOTE: Do not crank the engine continuously for more than 10 seconds. Allow a 60 second cool down period between starting attempts. Failure to follow these guidelines can burn out the starter motor.

NOTE: Upon start-up, a metallic ticking may occur. Run the engine for 5 minutes. If noise continues, run the engine at mid throttle for 20 minutes. If noise persists, take the engine to your local Kohler authorized dealer.

Only operate the stump grinder outdoors and avoid breathing engine exhaust and fumes.

WARNING: Engine exhaust contains carbon monoxide gas that is toxic. Breathing it can cause unconsciousness and death. Avoid any areas or actions that expose you to carbon monoxide.



STARTING THE ENGINE

Note: Some engines and equipment have remote controls. See the equipment manual for location and operation of remote controls.

1. Check the oil level. See the How To Check/Add Oil section in the engine owner's manual.

2. Make sure equipment drive controls, if equipped, are disengaged.

3. Turn the fuel shut-off valve (A), if equipped, to the on position (Figure 4).

4. Move the throttle control (B) to the fast position. Operate the engine in the fast position.

5. Pull out the choke control (C), if equipped, to the choke position.

Note: To start the engine with a dry fuel system (first time starting or after running out of fuel), additional cranking time in the choke position will be required. This will give the fuel pump time to prime the fuel system.

6. Push the stop switch (D), if equipped, to the on position.

7. Turn the electric start switch (E) to the on/start position (Figure 4).

8. If the engine fires but will not continue to run, move the choke control (C) to the run position to start the engine.

NOTICE: To extend the life of the starter, use short starting cycles (five seconds maximum). Wait one minute between starting cycles. **Note**: If the engine does not start after repeated attempts, go to VanguardEngines.com or call 1-800-999-9333 (in USA).

9. As the engine warms up, move the choke control (C) to the run position.

Only operate the stump grinder outdoors and avoid breathing engine exhaust and fumes.

WARNING: Engine exhaust contains carbon monoxide gas that is toxic. Breathing it can cause unconsciousness and death. Avoid any areas or actions that expose you to carbon monoxide.

OPERATOR PREPARATION

Each operator must:

- Become familiar with the controls and operation of the stump grinder, preferably under the supervision of an experienced operator.
- Be at least 18 yrs. of age and be mentally and physically capable of operating the stump grinder safely.
- Have studied the SAFETY AND OPERATING INSTRUCTIONS in this manual.

PERSONAL PROTECTION: For safety, stump grinder operator should wear personal protection equipment. Keep observers at a safe distance and do not operate if people are near, especially children and pets.

Wear a face safety shield and hard hat while operating or observing!

WARNING: The cutter wheel may throw wood chips, stones and debris.

Wear safety boots and gloves. Wear close-fitting clothing. Contain long hair. Do not wear jewelry. Wear reflective clothing if working near traffic.

Wearing adequate hearing (ear) protection while operating or observing is recommended.

WARNING: Exposure to loud noise is cumulative Hearing protection devices do not all provide the same level of protection. Those that completely surround each ear are better than earplugs. It is important to select a device that is adequate and appropriate for your specific work environment since the peak noise level varies. A local environmental noise specialist may help you to determine the level of hearing protection required.

NOISE EMISSION DATA

Machinery Directive declaration

DECLARED DUAL-NUMBER NOISE EMISSION VALUES in accordance with ISO 4871	
	Normal Operation
Measured A-weighted sound power level, L_{WA} (ref. 1pW) in decibels	104
Uncertainty, K_{WA}, in decibels	3
Measured A-weighted sound pressure level, L_{pA} (ref. 20µPa) at the operator's position in decibels	85
Uncertainty, K_{pA}, in decibels	4
Values determined according to noise test code given in BS EN ISO 4254-1 Annex B using the basic standard ISO 3744: 1994 NOTE 1 - The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values, which is likely to occur in measurements.	

Values listed above are rounded to the nearest decibel according to ISO 4871

Noise Emissions Directive result.

Guaranteed sound power level	**107 dB**

NOTE - The guaranteed sound power level is calculated from unrounded values, and may differ from the values above

VIBRATION EMISSION DATA

Declared vibration emission value in accordance with EN 12096: the average measured vibration emission value is 2.0 m/s². The uncertainty in the measurement is 2.4 m/s². Safety gloves help to isolate the hands from the vibration, keep them warm and dry, maintain blood circulation, and make operators less susceptible to vibration induced injury.

The Barreto Stump Grinder, Model E30SG when operated in accordance with its instructions, and tested in accordance with EN 1033:1995, results in the following vibration emission declared in accordance with EN 12096:1996.

Average measured vibration emission value	**a_{hv}**	**2.0**	**m/s²**
Uncertainty	**K**	**2.4**	**m/s²**

These values are suitable for comparison with the vibration emission levels of other tools that have been obtained using the same test method.

Note: these figures represent the average value over 5 tests, with the figures in the x, y, and z axes combined in a vector sum ($a_{hv} = \sqrt{a_{hwx}^2 + a_{hwy}^2 + a_{hwz}^2}$). It is this sum that is averaged over all tests.

Since the value stated above is an average of several tests, and is based on data from all three exes, we consider it to be a reasonable approximation of the true value, particularly considering the uncertainty in the results (K).

This machine is unlikely to cause hand-arm vibration syndrome, as the average emission level is equal to or less than 2.5 m/s²

STUMP GRINDING PROCEDURE

1. Raise the cutter head and move the machine into position to cut. Position the machine so the cut head can swing across near the edge of the stump.
2. Have engine at full throttle (lever forward).
3. Start cutter wheel.
4. Using the cutter head control lever, slowly swing the cutter wheel across the edge of the stump. Adjust cut depth and swing speed to prevent the engine from bogging and to prevent cutter wheel stall.
5. After the swing is complete, move the machine forward a few inches, then repeat the cutter wheel swing.
6. Continue making a series of cuts across the top of the stump. Depending on the height of the stump, it may be necessary to back the machine up and then begin making another series of cuts until the stump is cut to below ground level.

GRINDING TIPS

Clear the work area of debris, branches and rocks.

Operate the cutter with engine at full throttle.

Listen to engine speed and watch cutter wheel speed. Adjust swing speed and cut depth to maintain high engine and cutter speed. Avoid bogging the engine and stalling cutter wheel.

It is more efficient to cut the edge of the stump, rather than cutting a wide area. Once the teeth are cutting at a depth below half the wheel radius, lift the cutter and move the machine forward to begin cutting a new edge.

SHUT DOWN PROCEDURE

1. Always leave machine parked on a level surface.

WARNING: Do not park on incline. Move the machine to a level surface and set the parking brake located behind the left hand track motor, near decal shown. Move the handle down to engage the brake.

2. Unless loaded on a trailer, lower the cutter head to the ground.
3. Reduce the ENGINE THROTTLE to idle.
4. Move the IGNITION KEYED SWITCH to the OFF position to stop the engine, and remove the key.
5. Close the FUEL SHUTOFF VALVE.

Shut off engine and allow it to cool before refueling.

WARNING: Fuel fumes can catch fire or explode. Do not smoke or allow flames or sparks in the area.

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.

JUMP STARTING ENGINE WITH ELECTRIC STARTER

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 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.

Do not jump-start or charge a battery that is frozen or low on electrolyte.

IMPORTANT: Use only a 12-volt system for jump-starting. Never allow the vehicle used to jump-start to contact the disabled machine. If the vehicles contact, a spark may occur when the positive jumper cable is connected or disconnected. If equipped with battery caps, they must be in place and tight to reduce risk of battery explosion.

JUMP STARTING PROCEDURE:

1. Turn ignition switch to OFF.
2. Connect jumper cables in the following order:
   a) Clamp one RED cable end to the discharged battery POSITIVE (+) terminal.
   b) Clamp the other end of the RED cable to the booster battery POSITIVE (+) terminal.
   c) Clamp one BLACK cable end to the booster battery NEGATIVE (-) terminal.
   d) Clamp the other end of the BLACK cable to the frame of machine with the discharged battery, away from battery.
3. Start the engine.
4. Disconnect the cables in reverse order of connection and cover each jumper cable terminal. To avoid sparks near the battery, never disconnect the red jumper cable without first disconnecting the black jumper cable.

GROUND TRANSPORT OF THE STUMP GRINDER

Raise the cutter head.

WARNING: Contact with the cutter wheel while in operation will cause serious injury or even death. The teeth of the cutter are sharp. Avoid contact even when the cutter is not moving.

TRACK CONTROL: Controls the travel direction and speed.

- Track controls are designed to be operated with two hands.
- Pushing the control handles forward from neutral position causes the machine to move forward.
- Pulling the control handles back from neutral position causes the machine to move backward.
- Moving the track control handles farther from the neutral position increases the speed.
- Steer the machine by moving one track control handle farther than the other handle. This causes the track on one side to rotate at a different speed than the opposite track. Pivot turns can be made by moving one control forward and the other control back.

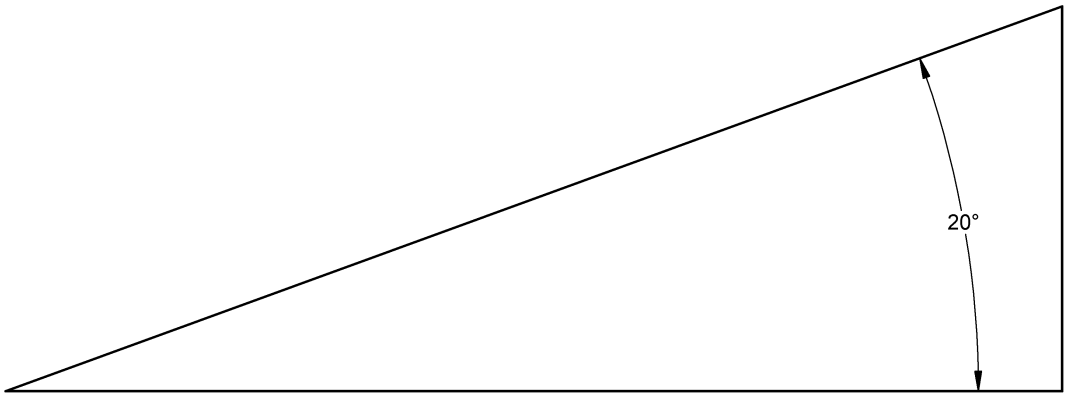
Keep away from tracks to avoid being crushed.

WARNING: Being run over by the stump grinder will cause injury.

Never allow anybody to ride on the machine.
Never make sudden changes in speed or direction.
Use extra caution on soft or uneven ground.
Avoid operating adjacent to drop-offs or embankments.
Avoid inclines if at all possible. Never use on any incline exceeding the angles shown below.

WARNING: Navigating on any incline increases the danger of the machine losing traction or rolling over, especially if the surface is wet. If you lose control get out of the way immediately to avoid personal injury. Navigation on inclines should be especially slow and turns very gradual.

A 20° maximum incline is allowed.



EMERGENCY TOWING

In case of engine failure there is a provision that allows the machine to be towed a short distance.

The drive tracks are driven by a set of tandem pumps. The front pump drives right track, and the other pump drives left track. The drive pump by-pass valves located on the side of the pump may be opened to allow the machine to be towed.

- Set the parking brake if on a slope to prevent rolling. It is located behind the left hand track motor. Move the handle down to engage the brake.

⚠ **WARNING**: Navigating on any slope increases the danger of the machine losing traction or rolling over, especially if the surface is wet. Stay out of the way to avoid personal injury.

- Loosen **(do not remove)** the by-pass plugs two complete turns counterclockwise.
- Disengage the parking brake by moving the handle up.
- The machine may be towed short distance (1/8 mile or 1/4km) at slow speed, 2 mph or 200 feet per minute maximum (3kph or 60m per min).
- After towing, close both by-pass valves by closing the plugs with 10 foot-pounds torque.
- Use a trailer or truck for road transport.

If you need to raise the cutter head without power, do the following:

1. Use straps or chains to support the cutter head.
2. Loosen the hose at the back port of the lift cylinder and raise the cutter head end with a hoist or forklift if available.
3. If it still will not lift, then also loosen the hose at the front port of the lift cylinder.

⚠ **WARNING**: The cutter head is heavy. Manpower alone is not recommended, but if necessary, use a team of two strong workers to raise the head, and a third worker to tighten the hose(s) after the head is up.

4. Secure the head in the up position with a strap or chain on the cut head housing.

ROAD TRANSPORT OF THE STUMP GRINDER

The BEST way to transport the stump grinder over roads is with the **BARRETO E4X6 TILT BED TRAILER**.

Refer to the following checklist before towing:

- Towing vehicle should have a 2" (5cm) ball. Be sure it is in good repair and securely fastened to the vehicle.
- Securely fasten the hitch to the ball by tightening the hitch nut.
- Cross the chains under the trailer tongue to prevent the tongue from dropping to the ground if the trailer comes loose.
- Allow only enough slack in the chains to permit proper turning of the vehicle. Do not let the chains drag on the ground or be drawn up too tight. Slack strength should hold the tongue and coupler off the ground with the trailer loose.
- Attach the safety chain to the towing vehicle in such a way that it cannot come off accidentally.
- Check the hitch-to-ball connection after driving a few blocks and re-tighten if necessary.

Always exercise extreme caution and allow extra clearance while towing a trailer. **DRIVE SAFELY!**

LOADING PROCEDURE of the stump grinder onto the **Barreto E4X6 tilt bed trailer**:

1. Position the tow vehicle and attached trailer on level ground.
2. Unlatch the trailer tilt bed latch pin to tip up the trailer bed. Leave the latch pin where the spring-loaded action will engage the pin with the latch when the bed is leveled again.
3. Line up the stump grinder with the rear of the trailer. The cut head should be toward the trailer.
4. Drive the stump grinder slowly forward onto the trailer bed. As the weight of the stump grinder reaches the balance point the bed will level itself.

WARNING: Navigating on the inclined trailer bed increases the danger of the tracks losing traction, especially if the bed surface is wet. Stay out of the way to avoid personal injury if you lose control.

5. The chains of the 00340 TIE-DOWN KIT are long enough to adjust for desired trailer tongue weight.
6. Loop front chain through D-ring on front of stump grinder and into keyhole slot in mount.
7. Back up stump grinder until front chain is tight.
8. Throttle down and shut off the engine, then close the fuel shutoff valve. Refer to the SHUT DOWN PROCEDURE for details.
9. Loop rear chain through chain loops on rear of stump grinder and D-rings on trailer.
10. Hook to ratchet load binder and tighten.

The quick link is provided to prevent losing the chain when not in use. Attach it between chain links next to one of the trailer D-rings. Never apply the tie-down load to it.

Check that the trailer tilt bed latch pin is engaged with the latch.

UNLOADING PROCEDURE of the stump grinder from the **Barreto E4X6 tilt bed trailer**:

1. Position the tow vehicle and attached trailer on level ground.
2. Remove all chains or straps connecting the stump grinder to the trailer D-rings
3. Start the engine using the ENGINE START UP PROCEDURE.
4. Unlatch the trailer tilt bed latch pin and rotate the latch pin handle to lock it open.
5. Drive the stump grinder slowly backward. As the weight of the stump grinder reaches the balance point the trailer bed will tilt up. Continue backward until tracks are completely on the ground.

ROAD TRANSPORT OF THE STUMP GRINDER (continued)

WARNING: Navigating on the inclined trailer bed increases the danger of the tracks losing traction, especially if the bed surface is wet. If you lose control, get out of the way to avoid personal injury.

Move the trailer tilt bed latch pin handle so that the spring-loaded action will engage the pin with the latch when the bed is leveled.

LOADING PROCEDURE of the stump grinder onto a truck bed using ramps:

1. Position the truck and stump grinder on level ground.
2. Set up suitable ramps, insuring that they are **secure to the back of the truck bed**.
3. Line up the stump grinder with the ramps with the cutter head pointing away from the back of the truck. Drive the stump grinder slowly backward up the ramps onto the truck bed.

WARNING: Navigating on the ramps increases the danger of the stump grinder tracks losing traction, especially if the surface is wet. Stay out of the way to avoid personal injury if you lose control.

4. Throttle down and shut off the engine, then close the fuel shutoff valve. Refer to the SHUT DOWN PROCEDURE for details.
5. Chain or strap the stump grinder to the truck using the two chain loops at the rear of the stump grinder lower body and D-ring on front of stump grinder.

UNLOADING PROCEDURE of the stump grinder from a truck bed using ramps:

1. Position the truck on level ground.
2. Set up suitable ramps, insuring that they are **secure to the back of the truck bed**.
3. Remove all chains or straps connecting the stump grinder to the truck.
4. Start the engine using the ENGINE START UP PROCEDURE.
5. Drive the stump grinder slowly down the ramps onto the ground.

WARNING: Navigating on the ramps increases the danger of the stump grinder tracks losing traction, especially if the surface is wet. Stay out of the way to avoid personal injury if you lose control.

LOADING PROCEDURE of the stump grinder onto a truck bed using a hoist:
Never attempt to hoist the stump grinder unless suitable equipment is available to lift and lower machine onto the truck. If using a sling, the minimum required working load limit per sling leg is 1000 lb (450 kg). Minimum sling leg length is 6 ft (2 m).

1. Position the truck and stump grinder on level ground.
2. Follow the stump grinder SHUT DOWN PROCEDURE.
3. Attach lifting sling legs around both rear tie down loops and around the chain motor housing. Ensure machine weight is evenly distributed, then hoist onto the truck bed.

Never lift stump grinder over any person at any time.

WARNING: If stump grinder should fall it would crush anybody under it.

4. Chain or strap the stump grinder to the truck using the two chain loops at the rear of the stump grinder lower body and D-ring on front of the stump grinder.

INDEX

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.

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

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.

ENGINE:

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.

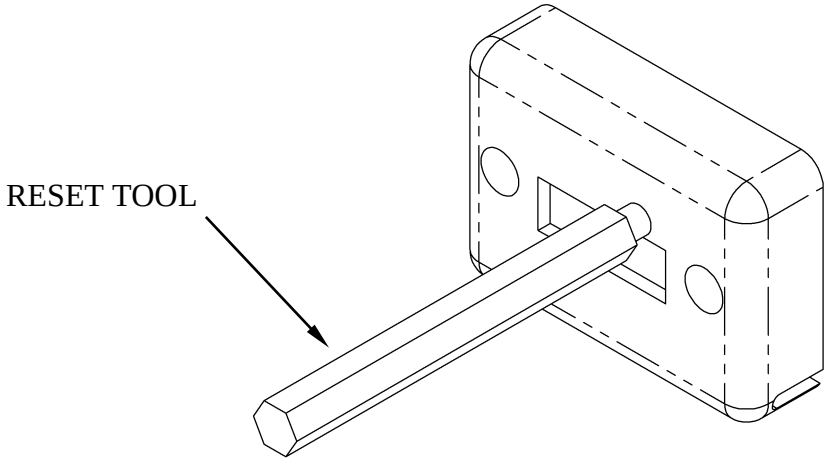
HOUR METER

The **SenDEC® TACH/HOUR** hour meter helps you to track hours of machine operation so that routine maintenance can be performed on a timely basis.

Your **SenDEC®** hour meter is pre-set at the **SenDEC®** factory to go into the ***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, trencher and stump grinder use, Barreto Manufacturing strongly recommends more 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.

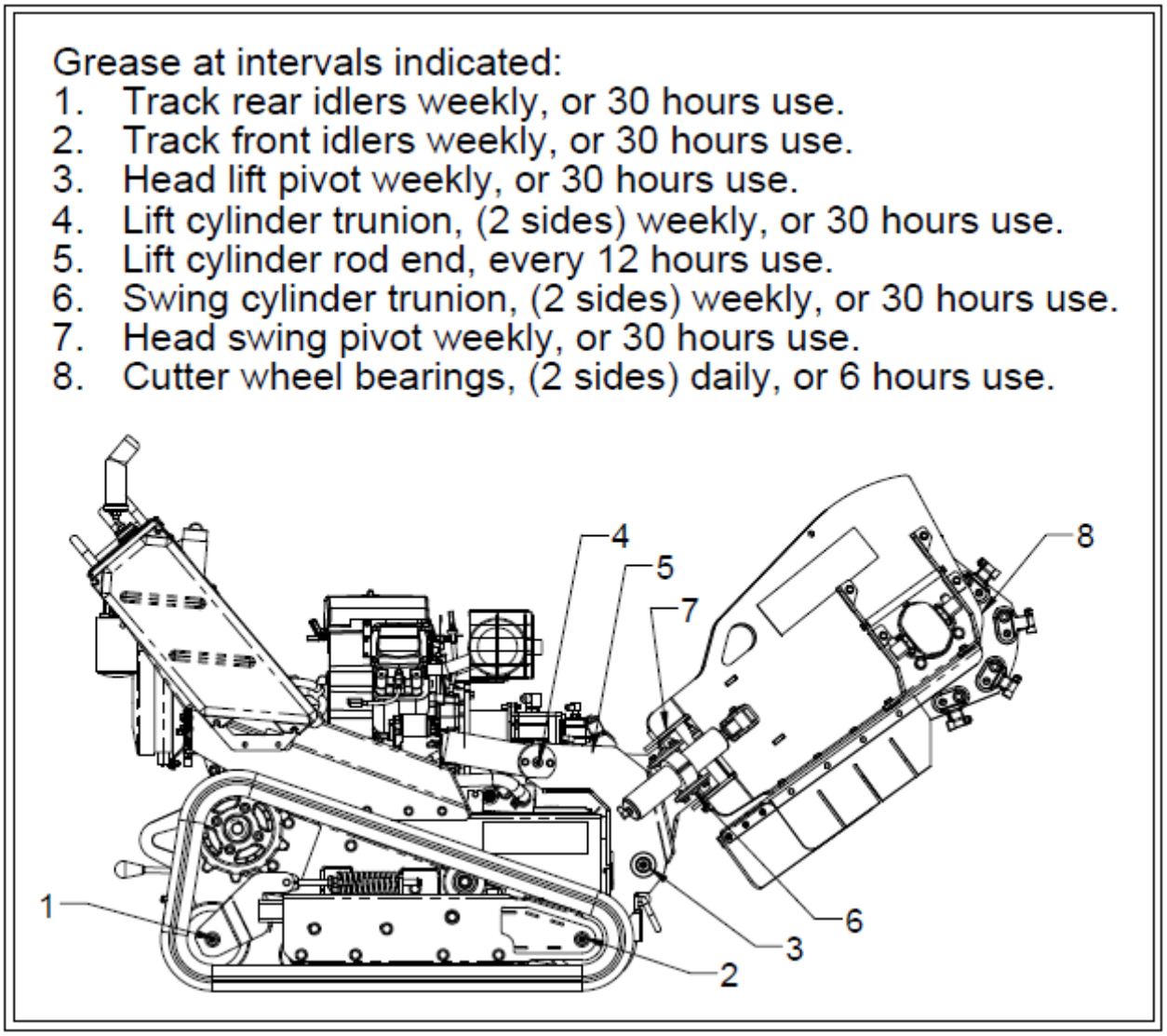


STUMP GRINDER INTENDED USE

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.



OPERATOR TRAINING

Rental companies should demonstrate all of 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 free of defects in material and workmanship for a period of one (1) year, dating from the 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 accessories and tires are warranted by the original manufacturers and are not covered by the Barreto Equipment Warranty. Wear parts such as cutter teeth, bearings, etc. are also 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:

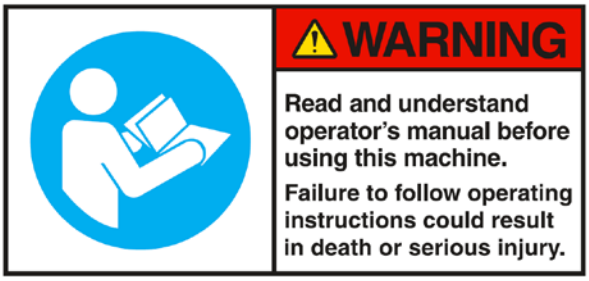
- Muffler guard
- Hydraulic hoses and fittings
- Fuel lines
- Fasteners
- Safety decals

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. 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.

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

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” Allen wrench and allow to drain.
- Replace drain plug.
- Remove the fill plug using a 9/16” Allen 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

First 5 Hours
• Change oil
Every 8 Hours or Daily
• Check engine oil level • Clean area around muffler and controls
Every 100 Hours or Annually
• Clean or change air filter * ▲ • Change engine oil and filter • Clean pre-cleaner (if equipped) * • Replace spark plug • Check muffler and spark arrester
Every 250 Hours or Annually
• Check valve clearance. Adjust if necessary.
Every 400 Hours or Annually
• Change air filter ▲ • Replace fuel filter • Clean air cooling system * • Clean oil cooler fins *
Every 600 Hours or Annually
• Change safety filter (if equipped)

* 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.

KOHLER MAINTENANCE SCHEDULE

Maintenance Instructions

⚠ WARNING

Accidental Starts can cause severe injury or death.

Disconnect and ground spark plug lead(s) before servicing.

Before working on engine or equipment, disable engine as follows: 1) Disconnect spark plug lead(s). 2) Disconnect negative (–) battery cable from battery.

Normal maintenance, replacement or repair of emission control devices and systems may be performed by any repair establishment or individual; however, warranty repairs must be performed by a Kohler authorized dealer found at KohlerEngines.com or 1-800-544-2444 (U.S. and Canada).

Maintenance Schedule
Every 25 Hours or Annually[1]
• Service/replace low-profile precleaner (if equipped).
Every 100 Hours or Annually[1]
• Change oil.
• Replace low-profile air cleaner element.
• Remove and clean shrouds and cooling areas.
• Check oil cooler fins, clean as necessary (if equipped).
Every 150 Hours
• Check heavy-duty filter minder.
• Inspect heavy-duty air filter paper element and inlet screen area.
Every 200 Hours[1]
• Replace unique Electronic Fuel Injection (EFI) fuel filter.
Every 200 Hours
• Change oil filter.
• Replace spark plugs and set gap.
Every 300 Hours[1]
• Replace heavy-duty air cleaner element and check inner element.
Every 600 Hours[1]
• Replace heavy-duty air cleaner inner element.
[1] Perform these procedures more frequently under severe, dusty, dirty conditions.

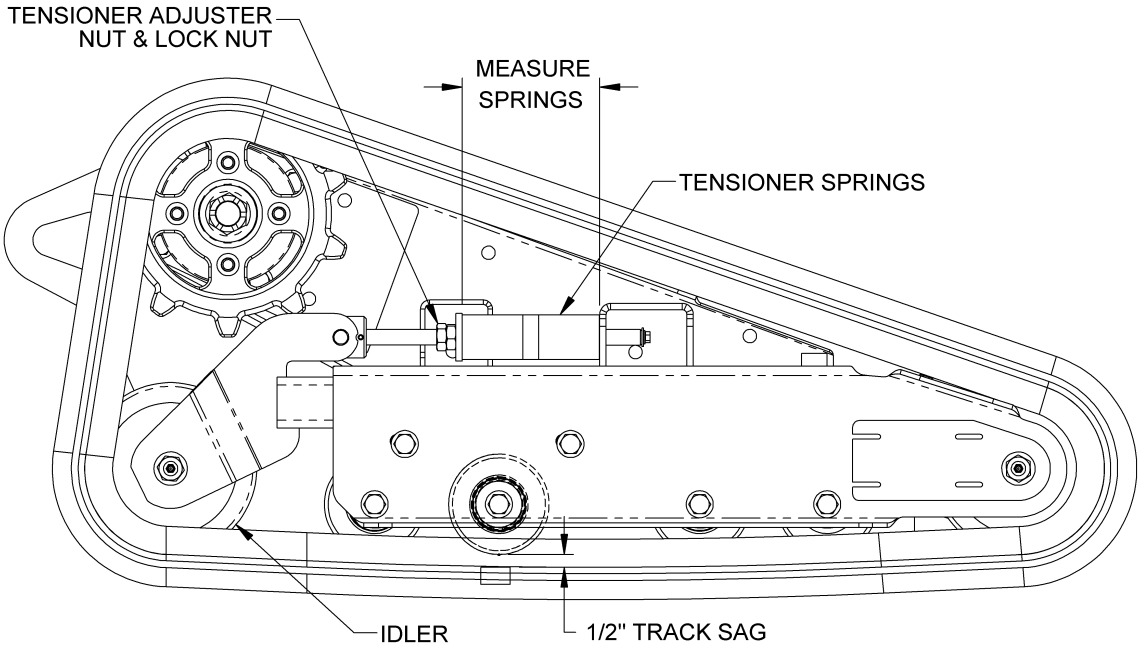
Please see your engine owner's manual for specific procedures and products to use for proper maintenance of your engine, as well as proper disposal of used parts/fluids.

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 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 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. Apply a light coating of grease to the battery terminals to help prevent corrosion.
6. Remove the battery caps.
7. 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.
8. Reinstall the battery caps tightly in place.
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:

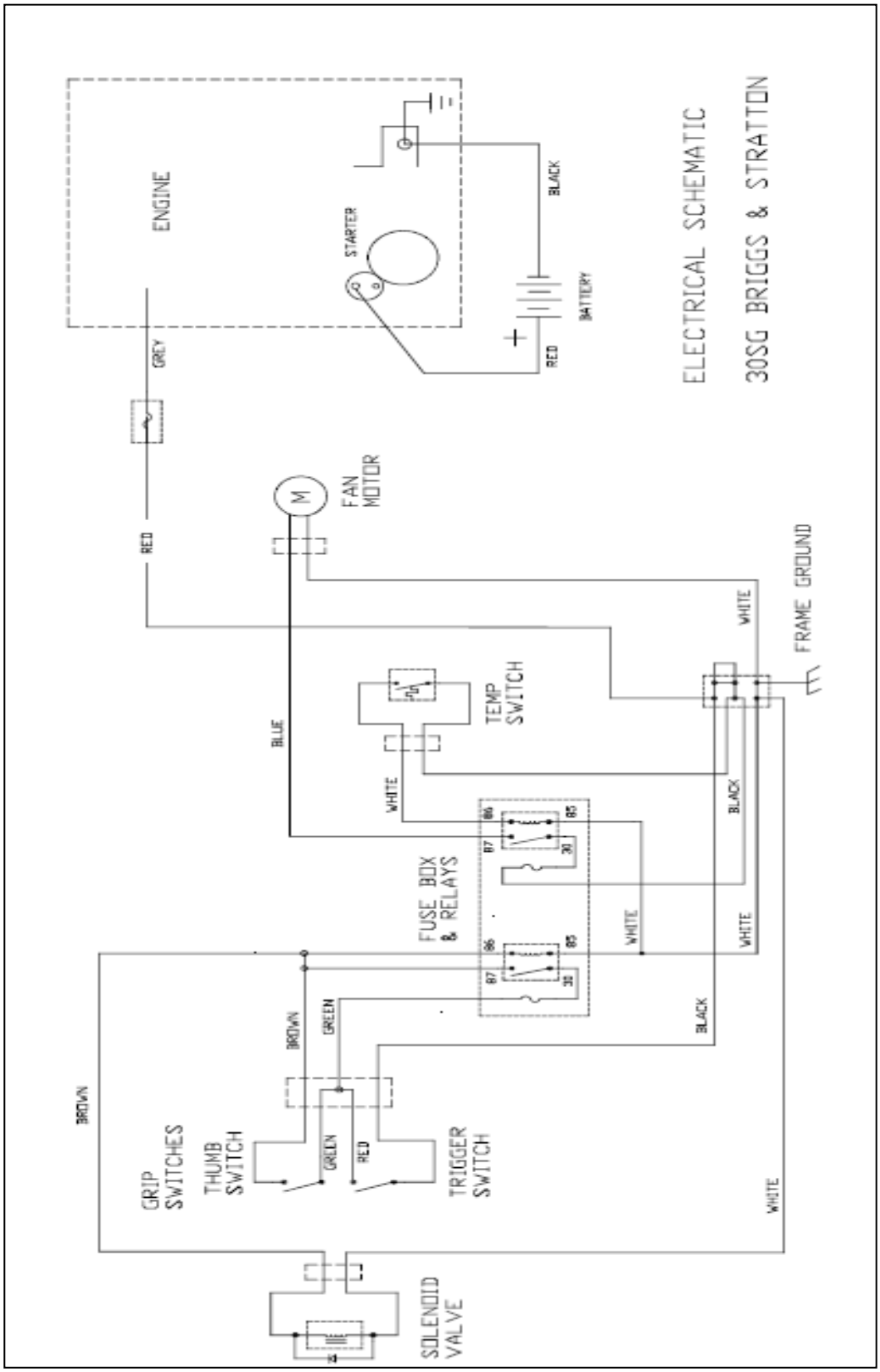
1. Disconnect the battery cables, removing the negative cable first.
2. Remove the battery from the machine.
3. Clean the battery exterior with paper towels.
4. If the battery posts and cable terminals are corroded, clean them with a wire brush cleaner tool. A solution of four parts water and one part 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.

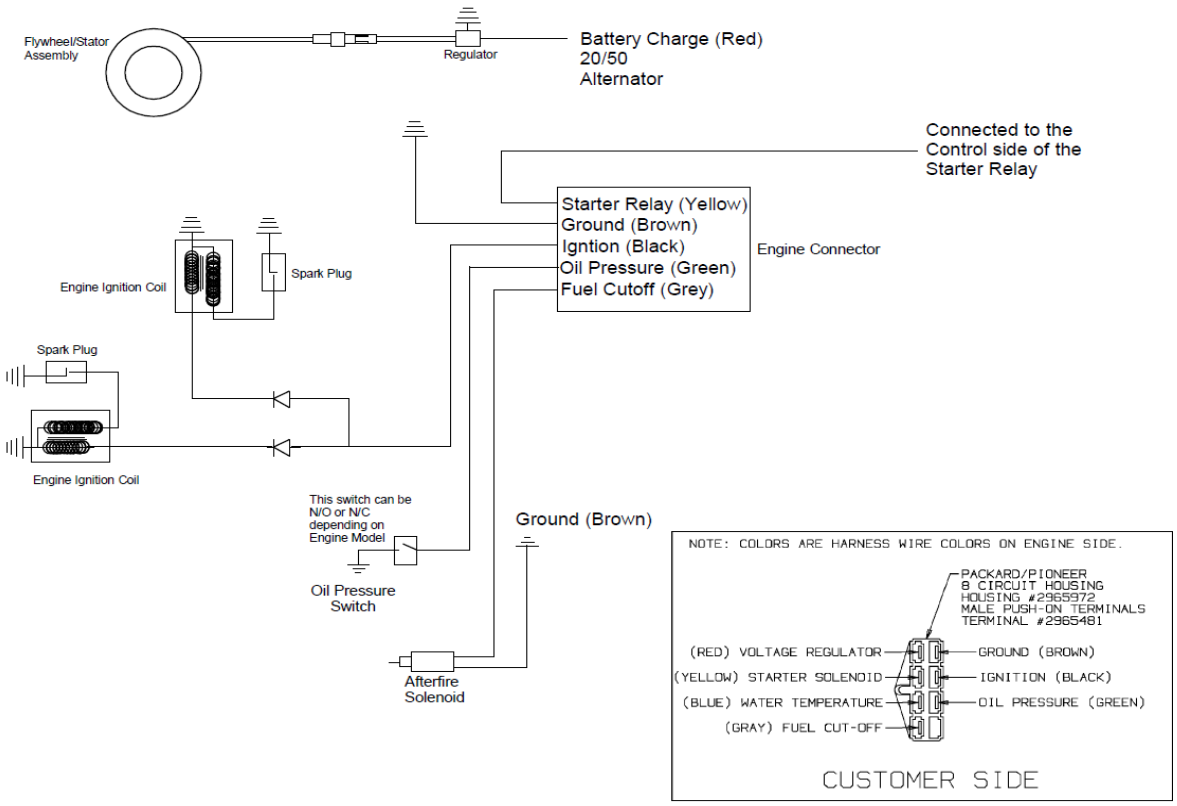
WARNING: Battery fumes are flammable and explosive. Avoid explosion hazard that could blind and burn. Tools and jumper cable clamps can make sparks, so use them with care. Shield eyes and face, and wear rubber gloves.

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.

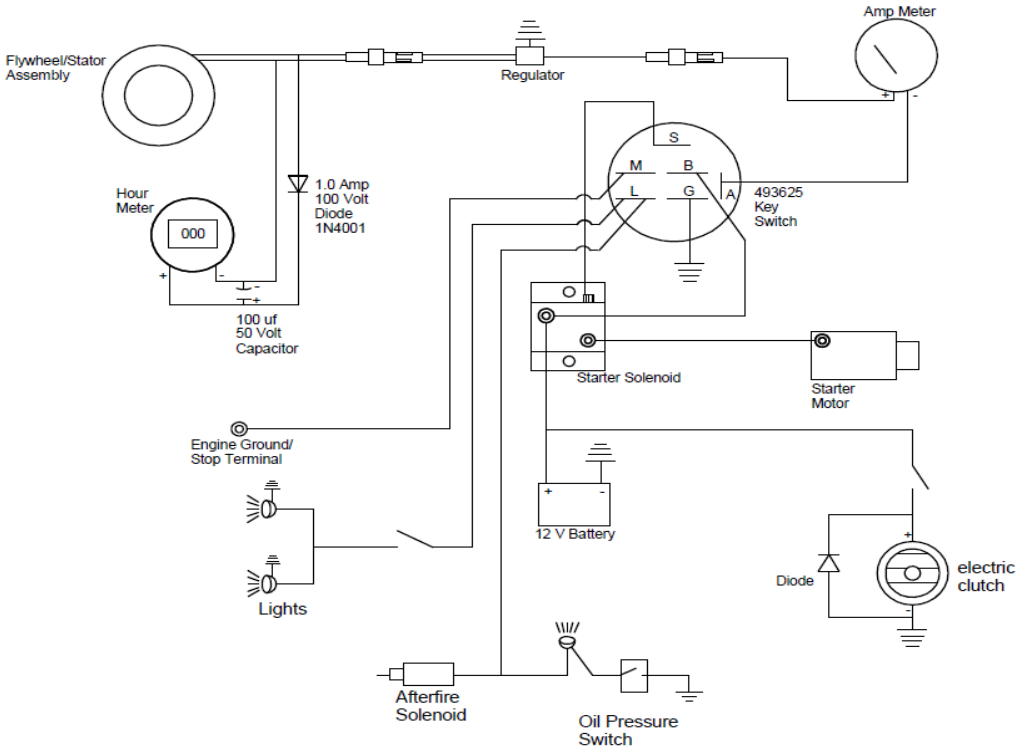
STUMP GRINDER ELECTRICAL SCHEMATIC WITH BRIGGS ENGINE



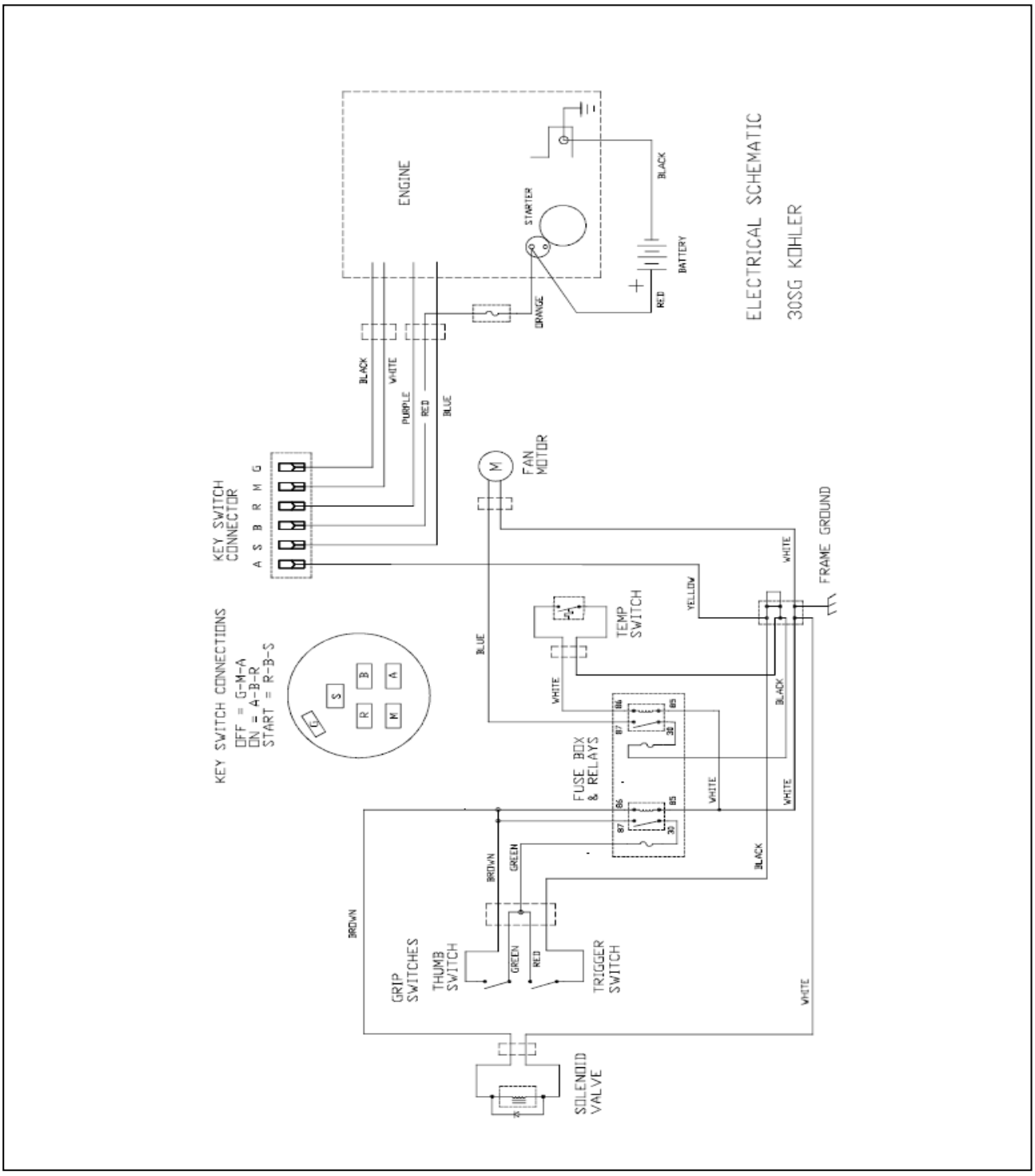
31 HP BRIGGS/VANGUARD ELECTRICAL SCHEMATIC



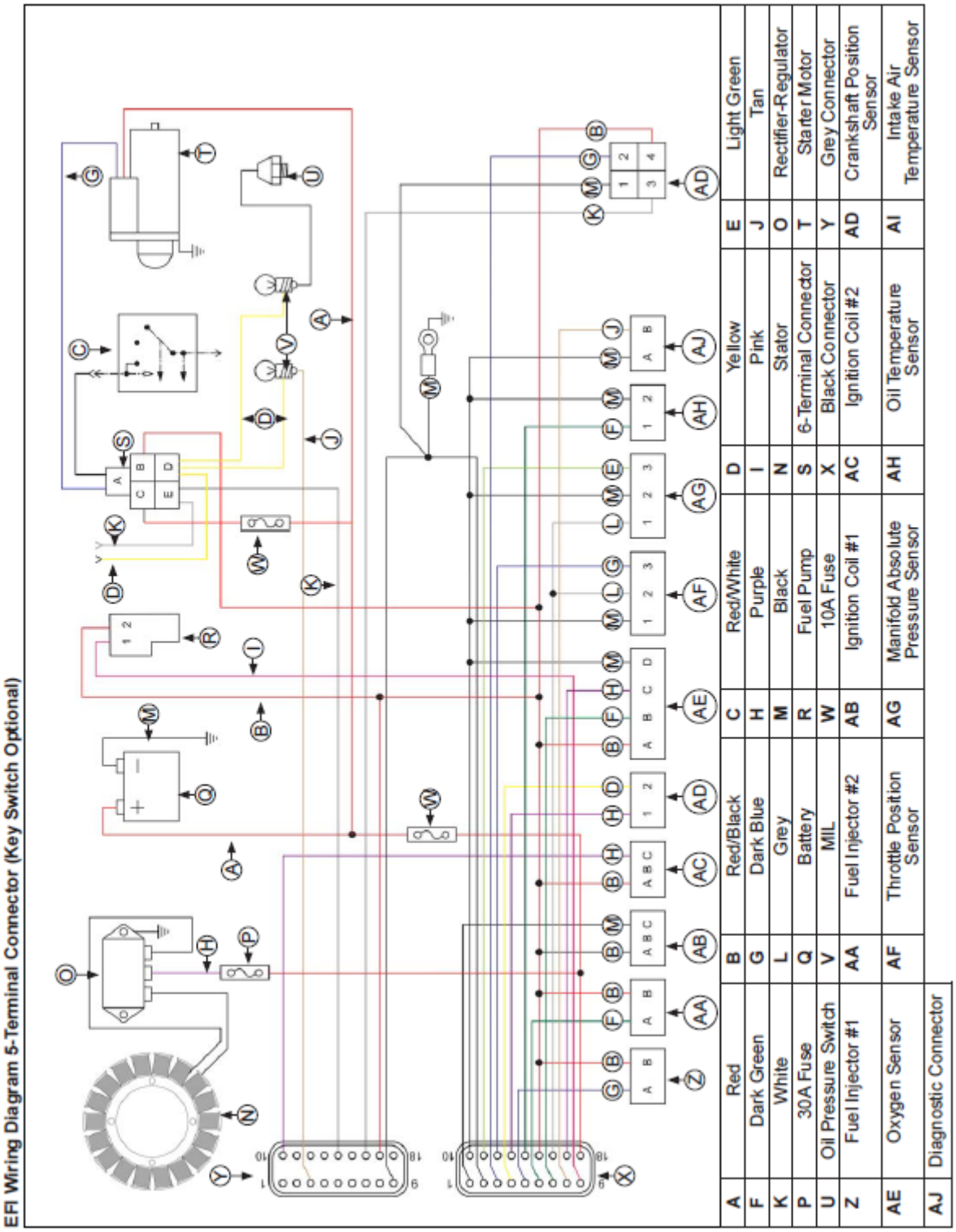
Typical Regulated Wiring Diagram

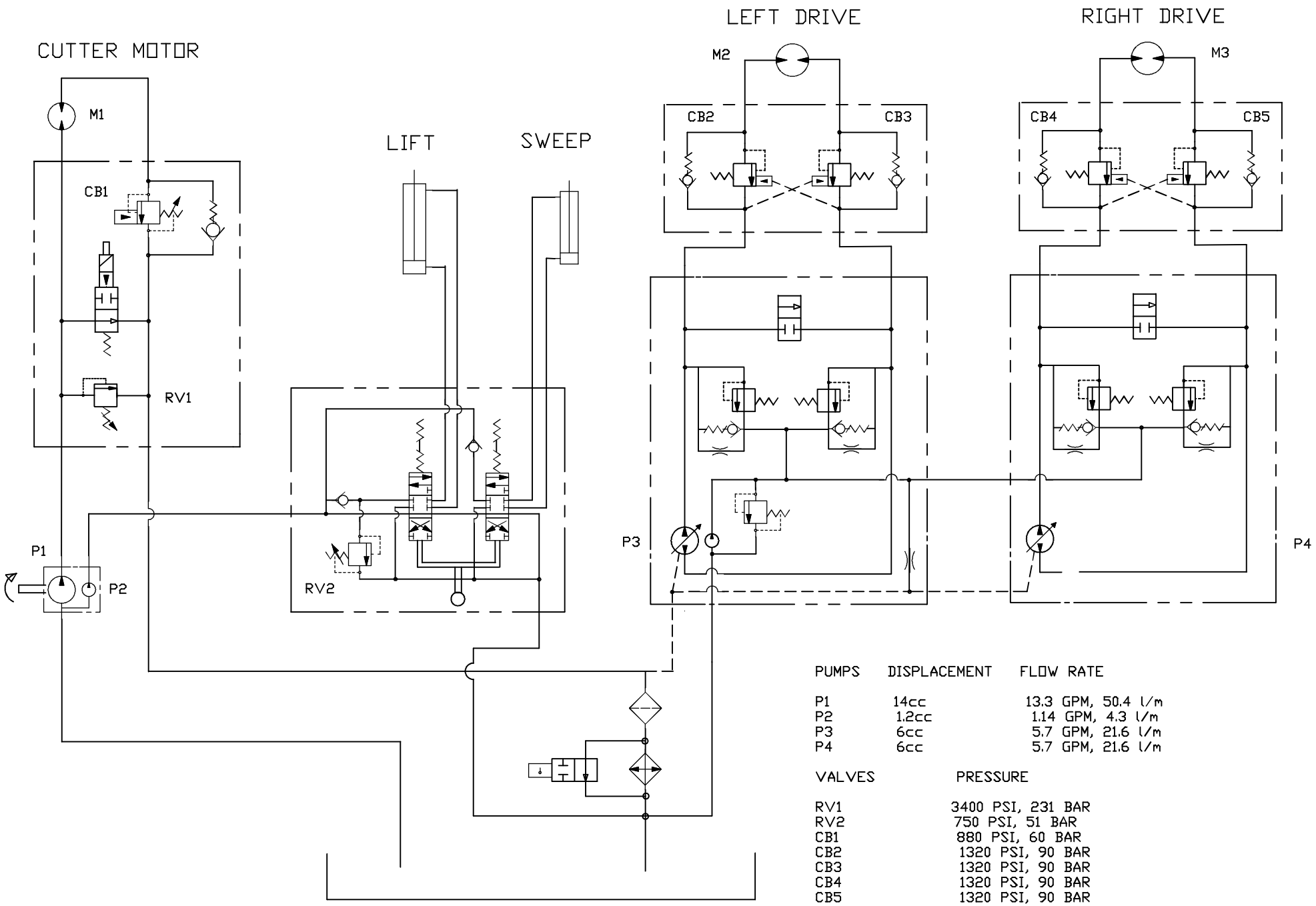


STUMP GRINDER ELECTRICAL SCHEMATIC WITH KOHLER



KOHLER EFI ELECTRICAL SCHEMATIC





PUMPS	DISPLACEMENT	FLOW RATE
P1	14cc	13.3 GPM, 50.4 l/m
P2	1.2cc	1.14 GPM, 4.3 l/m
P3	6cc	5.7 GPM, 21.6 l/m
P4	6cc	5.7 GPM, 21.6 l/m

VALVES	PRESSURE
RV1	3400 PSI, 231 BAR
RV2	750 PSI, 51 BAR
CB1	880 PSI, 60 BAR
CB2	1320 PSI, 90 BAR
CB3	1320 PSI, 90 BAR
CB4	1320 PSI, 90 BAR
CB5	1320 PSI, 90 BAR

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.

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

MODEL NUMBER	**E30SGK**	**E30SGB**
DIMENSIONS	**KOHLER**	**BRIGGS/VANGUARD**
Weight	1623 lb (736.18 kg)	1686 lb (764.76 kg)
Height	48” (1.23 m)	52.2” (1.32 m)
Length	94.5” (2.4 m)	92.5” (2.35 mm)
Width	35.5” (901.7 mm)	35.5” (901.7 mm)
ENGINE		
Engines	Kohler ECH749	Briggs/Vanguard
Fuel	Gasoline	Gasoline
Power: hp (kW) at 3600 RPM	29 hp (21.6 kW)	31 hp (23.1 kW)
Fuel Capacity	3.2 U.S. gallons (12.1 liters)	3.2 U.S. gallons (12.1 liters)
Engine Oil Capacity	1.8 quarts (1.7 liters)	1.8 quarts (1.7 liters)
Electric Start	Standard	Standard
Hour Meter	Standard	Standard
HYDRAULIC SYSTEM		
Reservoir Capacity	14 U.S. gallons (53 liters)	14 U.S. gallons (53 liters)
Oil Cooler	Standard	Standard
TRACK SYSTEM		
Track Width	7.1” (180 mm)	7.1” (180 mm)
Total Ground Contact	482.8” (.312 sq/m)	482.8” (.312 sq/m)
OPERATIONS		
Ground Drive, Forward	210 feet per minute (64.0 m/m)	190 feet per minute (57.9 m/m)
Ground Drive, Reverse	90 feet per minute (27.4 m/m)	90 feet per minute (27.4 m/m)

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