THE

BARRETO

MODEL 1324TK - 1624TK

HYDRAULIC TRACK TRENCHER OWNER'S MANUAL

CONGRATULATIONS!

You are now the proud owner of the 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 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

BARRETO Customer number _____

Machine model number _____

Machine serial number _____

Engine manufacturer _____

Engine model number _____

Engine serial number _____

TABLE OF CONTENTS

TRENCHER ASSEMBLY INSTRUCTIONS

Upon delivery, check for freight damage and any missing items. If any damage is found, notify the carrier and Barreto Manufacturing immediately. Remove trencher 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 handlebars.

Install cushion pad, boom cushion, and boom. **CAUTION!!** The boom is heavy. You may want help to lift it into place. See the exploded view drawing 00368 R1. Push boom on as far as it will go onto the boom mount (part of the chain motor housing weldment). Be sure adjuster screw is backed out.

SERVICE INFORMATION

HYDRAULIC SYSTEM:

- Your trencher 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 trencher 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 trencher without hydraulic fluid will cause serious damage to the hydraulic pump. INSURE THAT THE RESERVOIR FLUID LEVEL IS TO THE SIGHT GAUGE BEFORE STARTING THE MACHINE.

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.

IMPORTANT - The engine on the Barreto trencher 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.

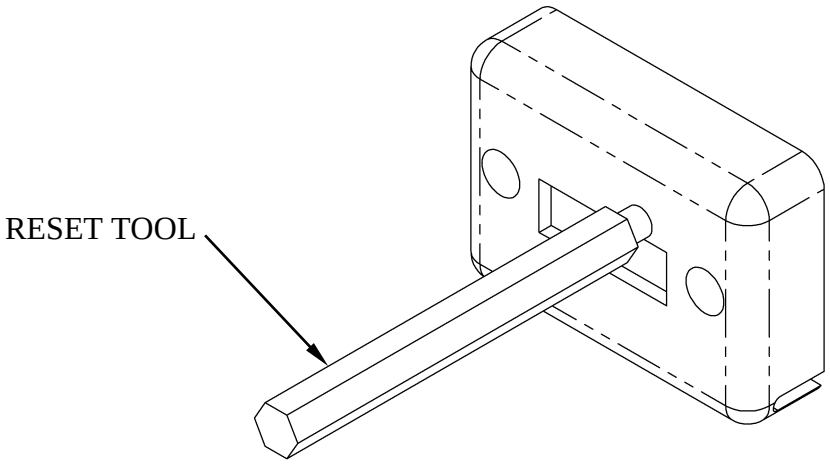
HOUR METER

The **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.

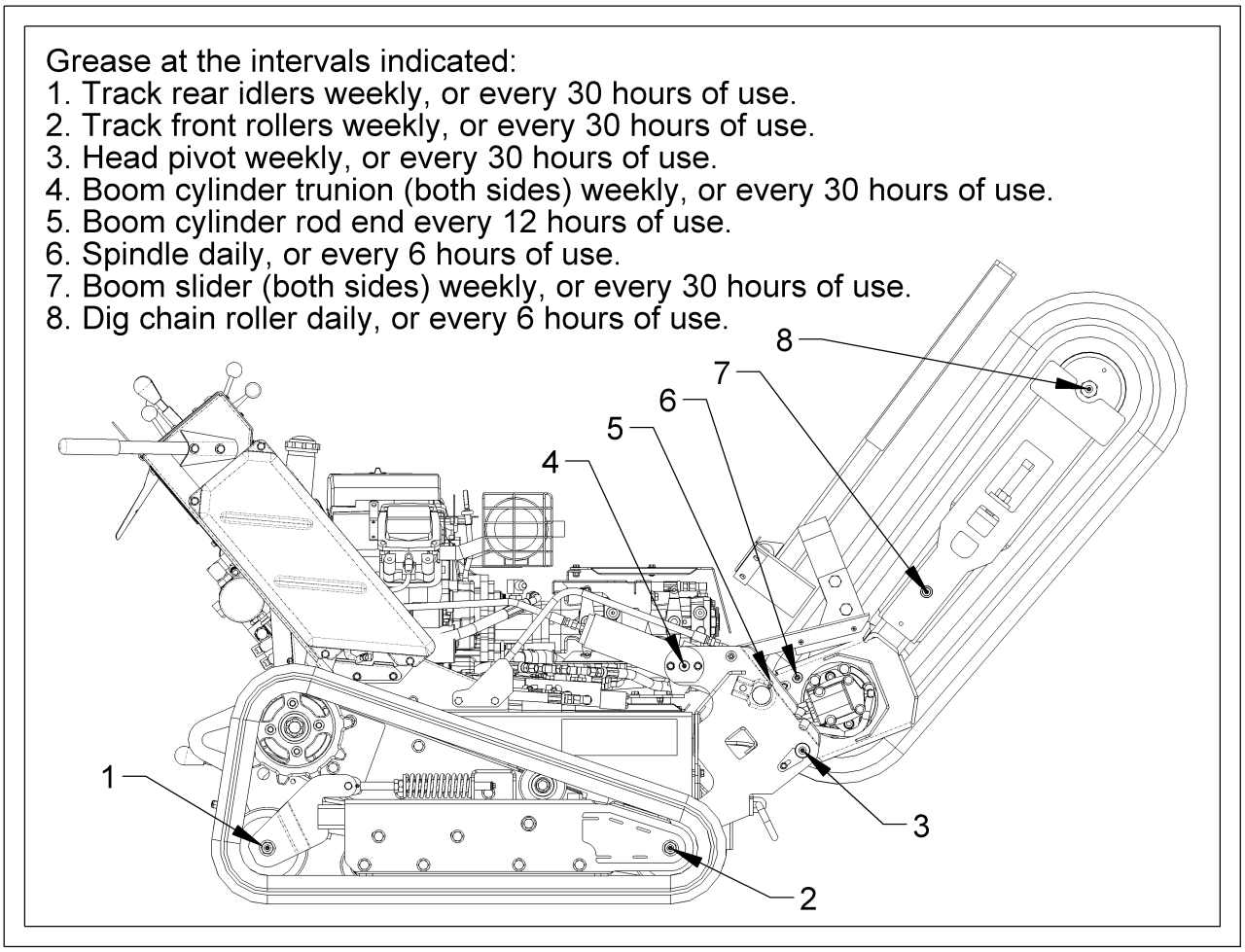


TRENCHER INTENDED USE

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.

LUBRICATION REQUIREMENTS

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



CHAIN INSTALLATION

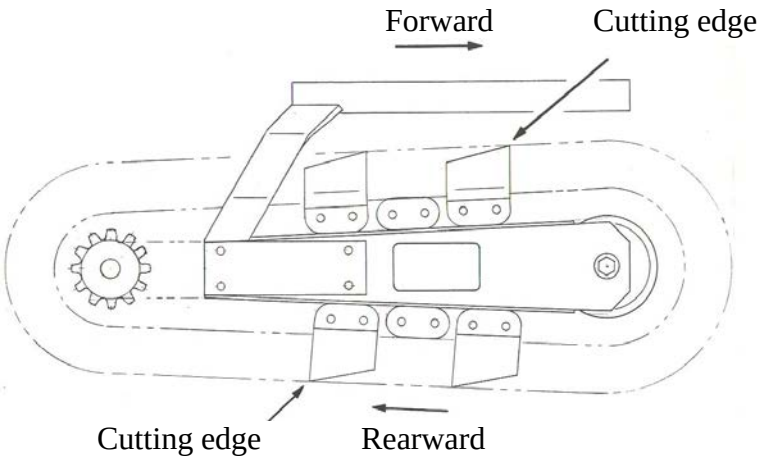
CAUTION!! The chain is quite heavy. You may want help to lift it.

1. Slide chain under 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 engine and push digging boom control lever forward to lower boom onto the chain. Stop engine.

3. Wrap chain around boom and sprocket. Install chain master link or link pin and cotter.

4. Use boom adjuster screw to tighten chain. Chain should have enough slack to allow approximately 2" (5cm) of space between middle of boom and chain when boom and chain are straight out in a horizontal position. Tighten adjuster screw locknut.



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.

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, dating from delivery to the original user.

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

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.)

Time for pick-up and/or delivery, transportation or service calls by dealers is excluded. Manufacturer reserves the right to determine reasonable time required for repair. Warranty does not apply to damage caused by abuse or neglect. Time and materials required for normal maintenance and service are also excluded from warranty coverage.

Engines, engine accessories, batteries and tires are warranted by the original manufacturers and are not covered by the Barreto Equipment Warranty. Wear parts such as tiller tines, sprockets, bearings, trencher chain parts including teeth, stump grinder cutting teeth & holders, 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 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.

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.

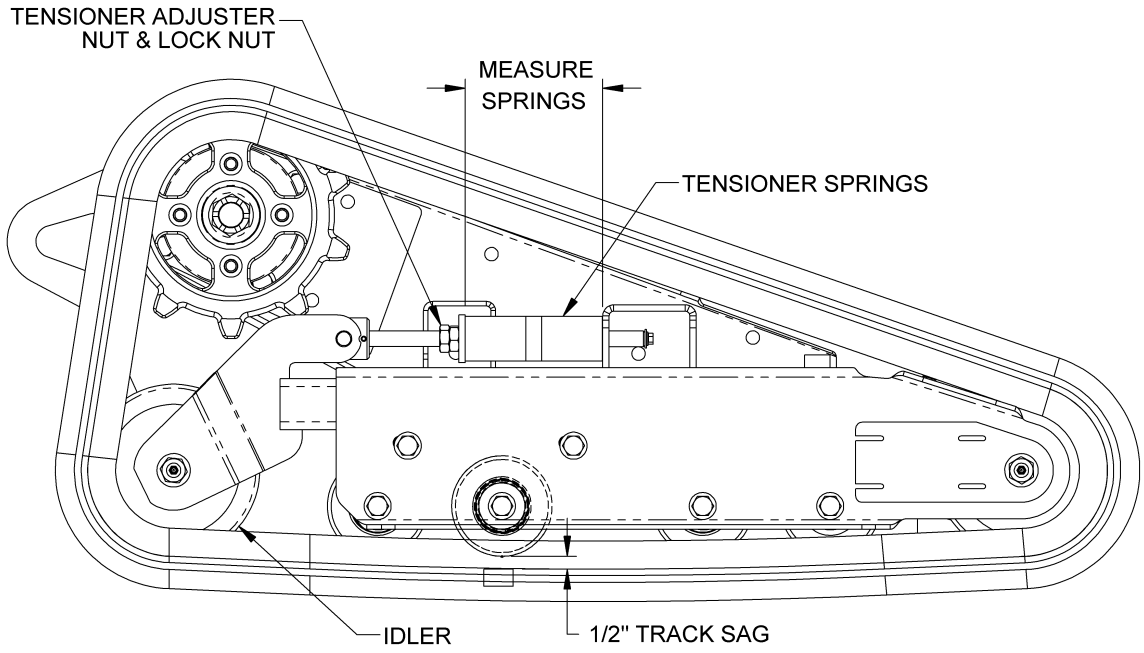
Off-season long-term storage of the trencher can be at any ambient temperature.

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:

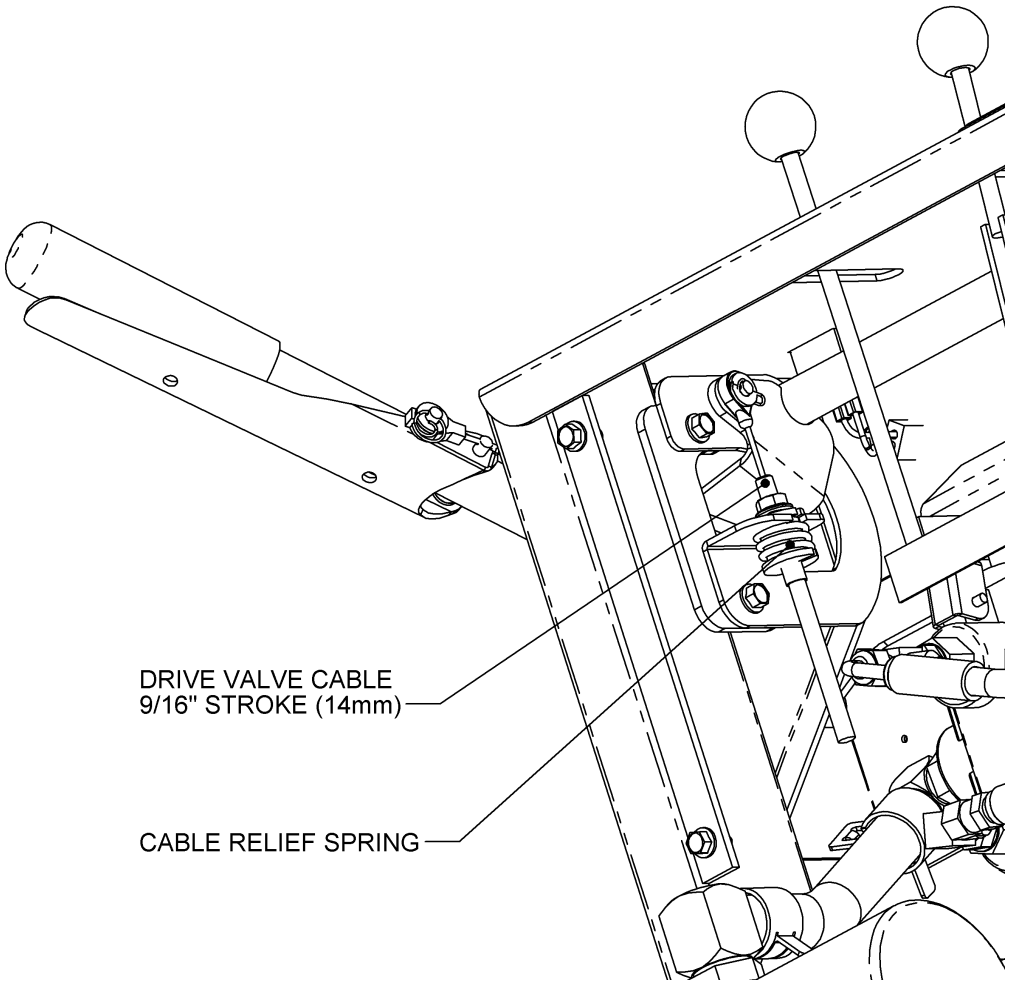
1. Completely loosen tensioner nuts.
2. Retract idler completely.
3. Remove track from idler first, sprocket second and front roller last.
4. Reverse procedure to replace track.

Adjust track tension per instructions and illustration.

TRACK DRIVE VALVE CABLE ADJUSTMENT

The drive valve cable and lever may wear. The cable stroke should be checked monthly and adjustment made as needed. An insufficient cable / valve stroke will cause the track drive to become weak.

1. Remove cover from back side of control panel.
2. Pull the clutch lever all the way up until it touches the handle bar grip. Measure the valve cable stroke – it should be 9/16” (14mm).
3. Adjust the cable housing nuts to get 9/16” (14mm) cable stroke. Do not include any cable free play in the measurements. The cable relief spring should compress 1/16” to 1/8” (1.6mm to 3.2mm) as the valve and cable reach the end of the stroke. The lower end of the cable may be adjusted if there is not enough adjustment at the upper end (shown).
4. Tighten cable nuts and replace back cover.
5. To see a video on how to do this adjustment, enter the following address into your browser URL window: https://www.youtube.com/watch?v=34B8phRm8m0



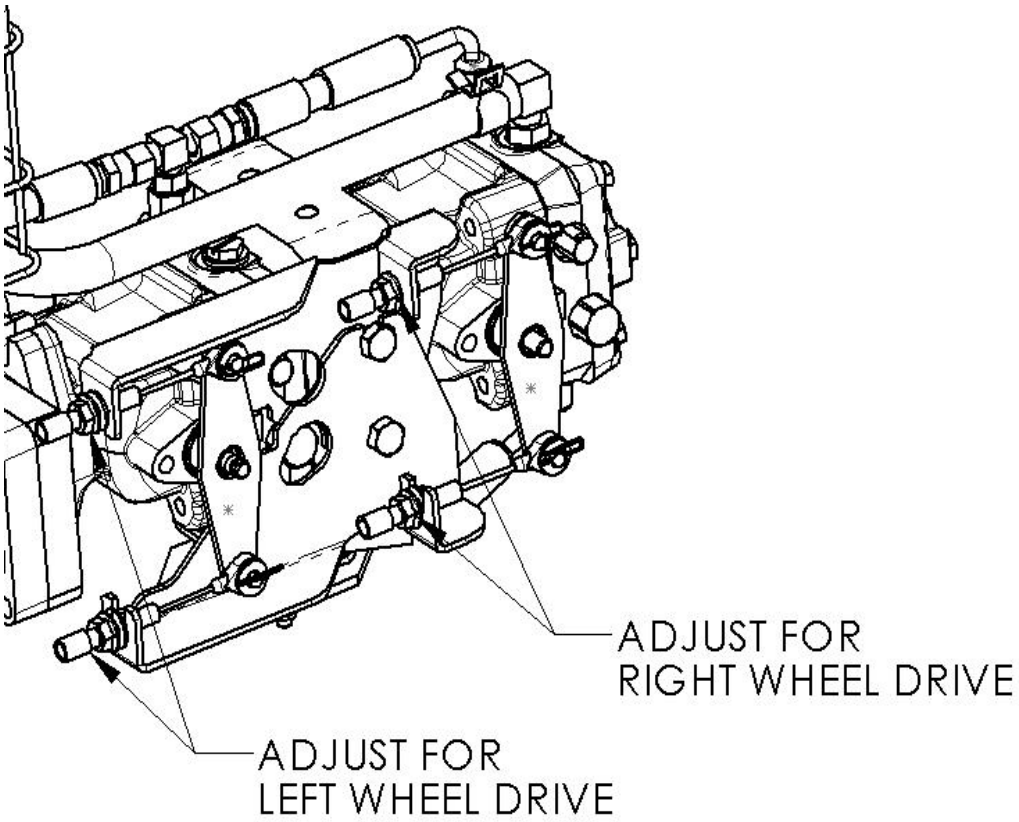
TRACK DRIVE NEUTRAL ADJUSTMENT

The speed control cables may need to be adjusted after some use. If the machine creeps while the T-handle control is in neutral, or if the left and right tracks move at different speeds, the speed cables will need adjustment.

Adjust the cables to bring the pump cable arms to the neutral position (vertical) when the T-handle control is in neutral.

Adjust the cables to eliminate slack, but do not over tighten them so they are extremely tight against each other. The front pump drives the right track, and rear pump drives left track.

The control cables should be adjusted so both tracks are in neutral or move at same speed. Check by starting engine and activating clutch lever with T-handle control in neutral. Adjust cables so both tracks are stationary or creep at same speed.



CHAIN VALVE ADJUSTMENT

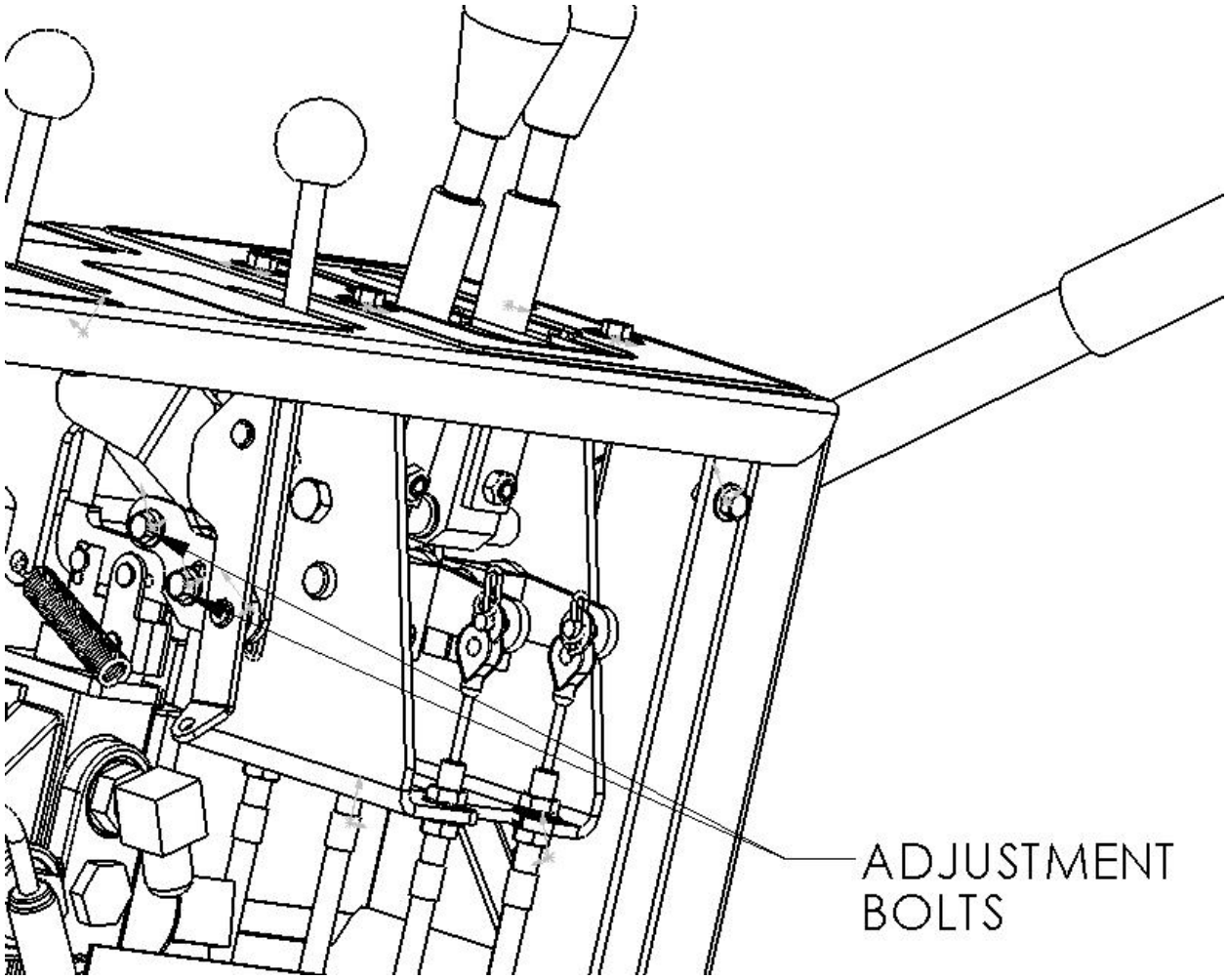
The chain valve control should be adjusted to completely activate the chain valve when the dig chain control is in 'ON' position. To check this adjustment:

1. Put the chain on/off control in ON position (with engine stopped).
2. Pull the clutch lever on left handlebar up until it touches the handgrip.
3. 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 make this adjustment:

1. Remove back cover from the control panel.
2. Loosen the 2 bolts on valve lever and rotate the lever plate down about 1/16" (1.6mm).
3. Re-tighten the bolts and check the lever stroke.

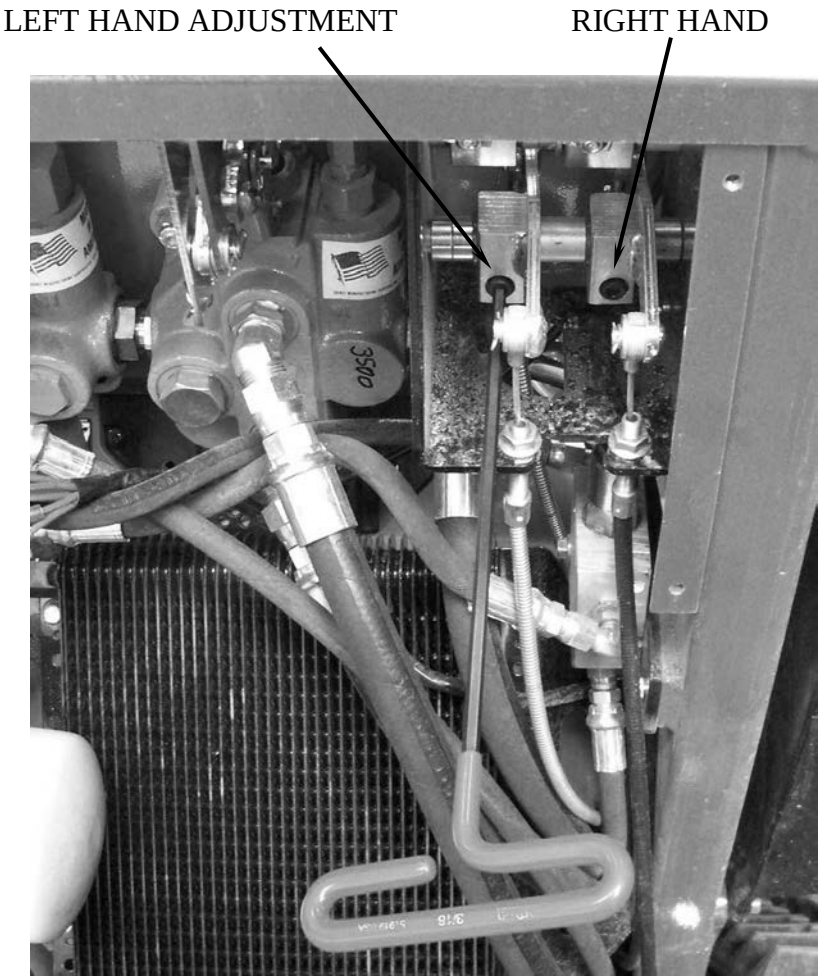
Adjust so the valve lever comes to the end of its stroke just as the clutch lever touches the handgrip when chain valve control is in ON position.



T-HANDLE CONTROL TENSION ADJUSTMENT

To adjust the T-handle control tension, follow these simple instructions.

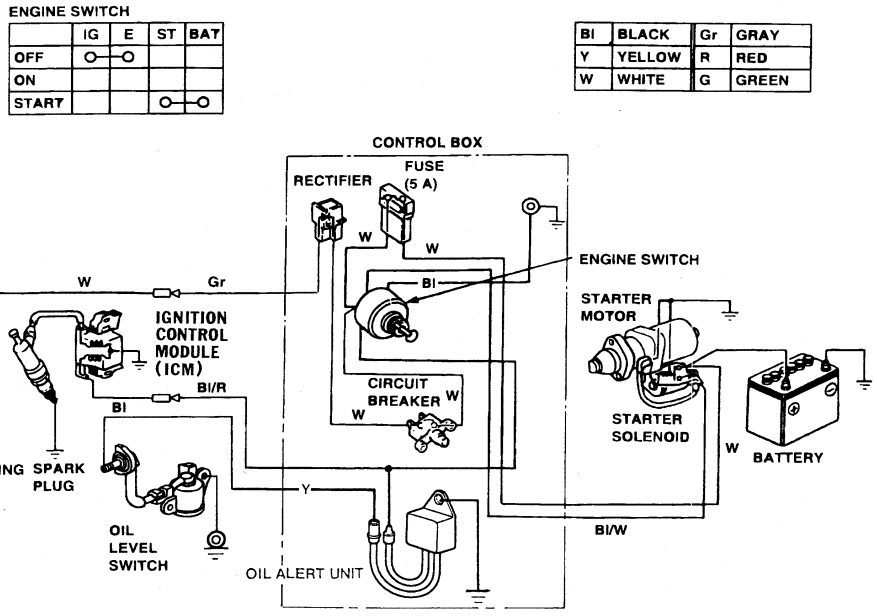
First take off the back cover.
Look under the T-handle control and you will see a socket head bolt threaded into each cable clamp (see picture). These are the tension clamps.
The socket head bolt is adjusted with a 3/16” hex key.
If you tighten the socket head bolt (turn clockwise), the tension will increase.
If you loosen the socket head bolt (counter-clockwise), the tension will decrease.



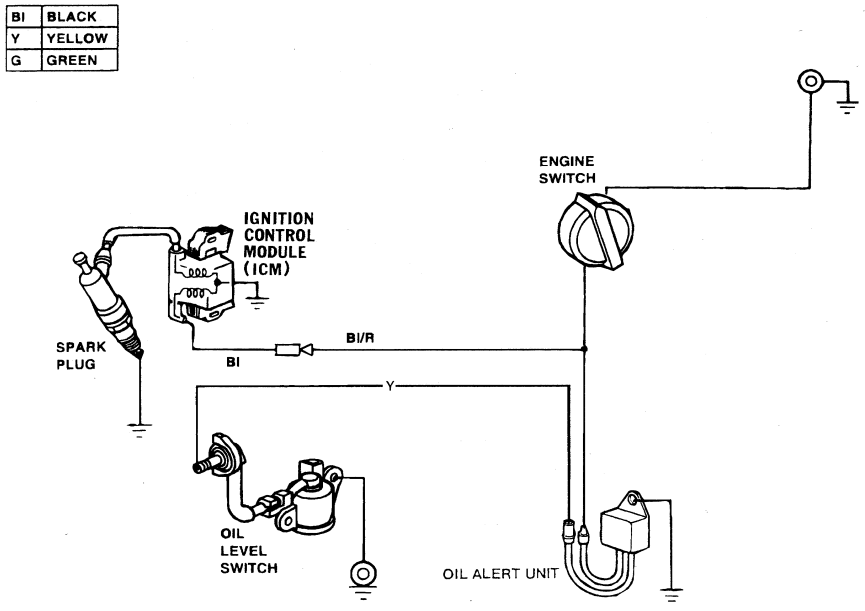
TECHNICAL & CONSUMER INFORMATION

Wiring Diagrams

Oil Alert® and Electric Starter Types



Engine Types With Oil Alert® and Without Electric Starter



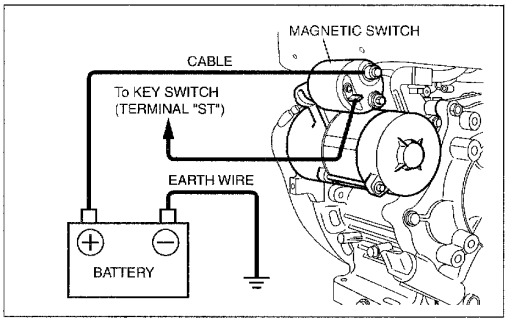
3. KEY SWITCH CABLE

If a remote key switch is used, select wires of proper gauge to connect it and magnetic switch of the engine.

Cable length	Cable dia.	Wire gauge		
		AWG (BS)	BWG	JIS
Less than 1.5 m	1.5 mm	14	16	AV1.25
1.5 m to 3 m	1.9 mm	12	14	AV2
3 m to 5 m	2.4 mm	10	13	AV3

4. WIRING

US



(1) Connect positive (+) terminal of the magnetic switch and positive (+) terminal of the battery with battery cable.

⚠ CAUTION

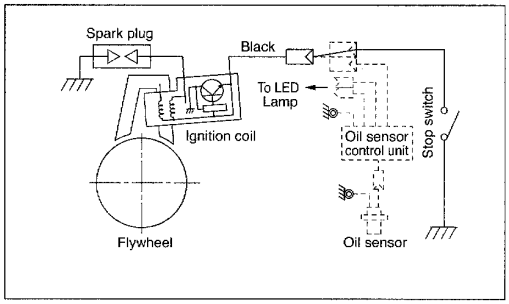
Make sure the polarity of battery terminals. Never connect the battery cable with the battery negative (-) terminal.
When connecting the battery cable with the battery negative (-) terminal, diode rectifier chips will be burned out or damaged in a moment.

(2) Ground negative terminal of the battery to the engine body or machine with ground wire.

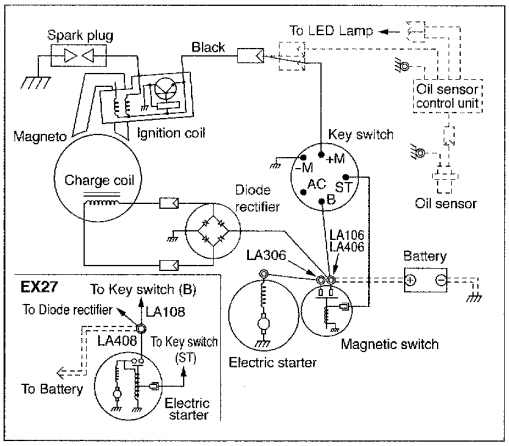
(3) When installing the key switch on the machine, install with its drain hole at the bottom.

NOTE
Tighten bolts and nuts on terminals securely so that they will not be loosened by vibration.

5. WIRING DIAGRAM (RECOIL STARTER MODELS)



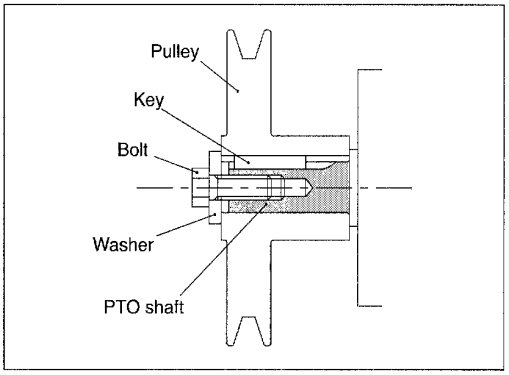
WIRING DIAGRAM (ELECTRIC STARTER MODELS)



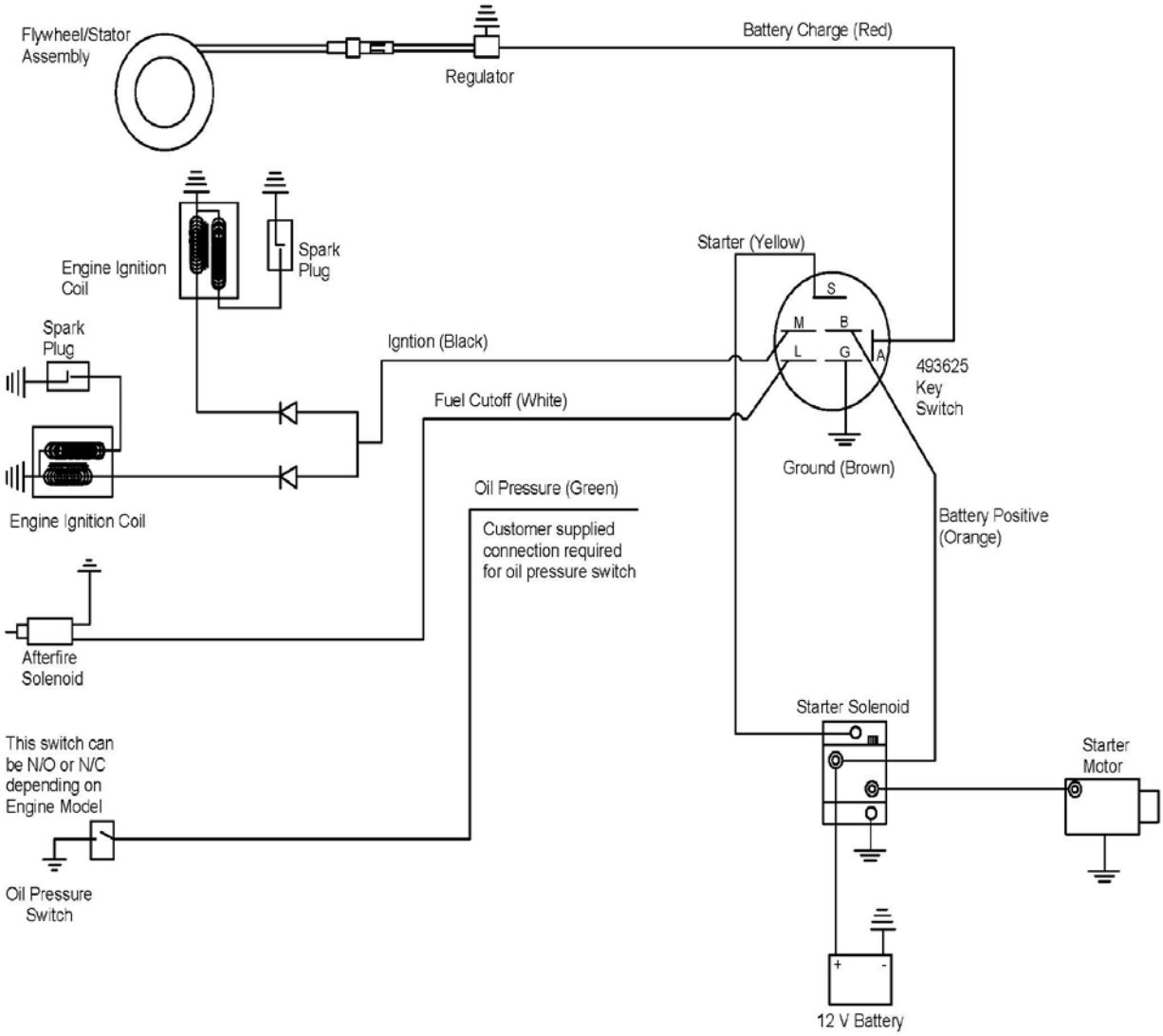
Optional hardware shown by dotted lines.

5. BELT PULLEY INSTALLATION ONTO KEYWAY-TYPE CRANKSHAFT

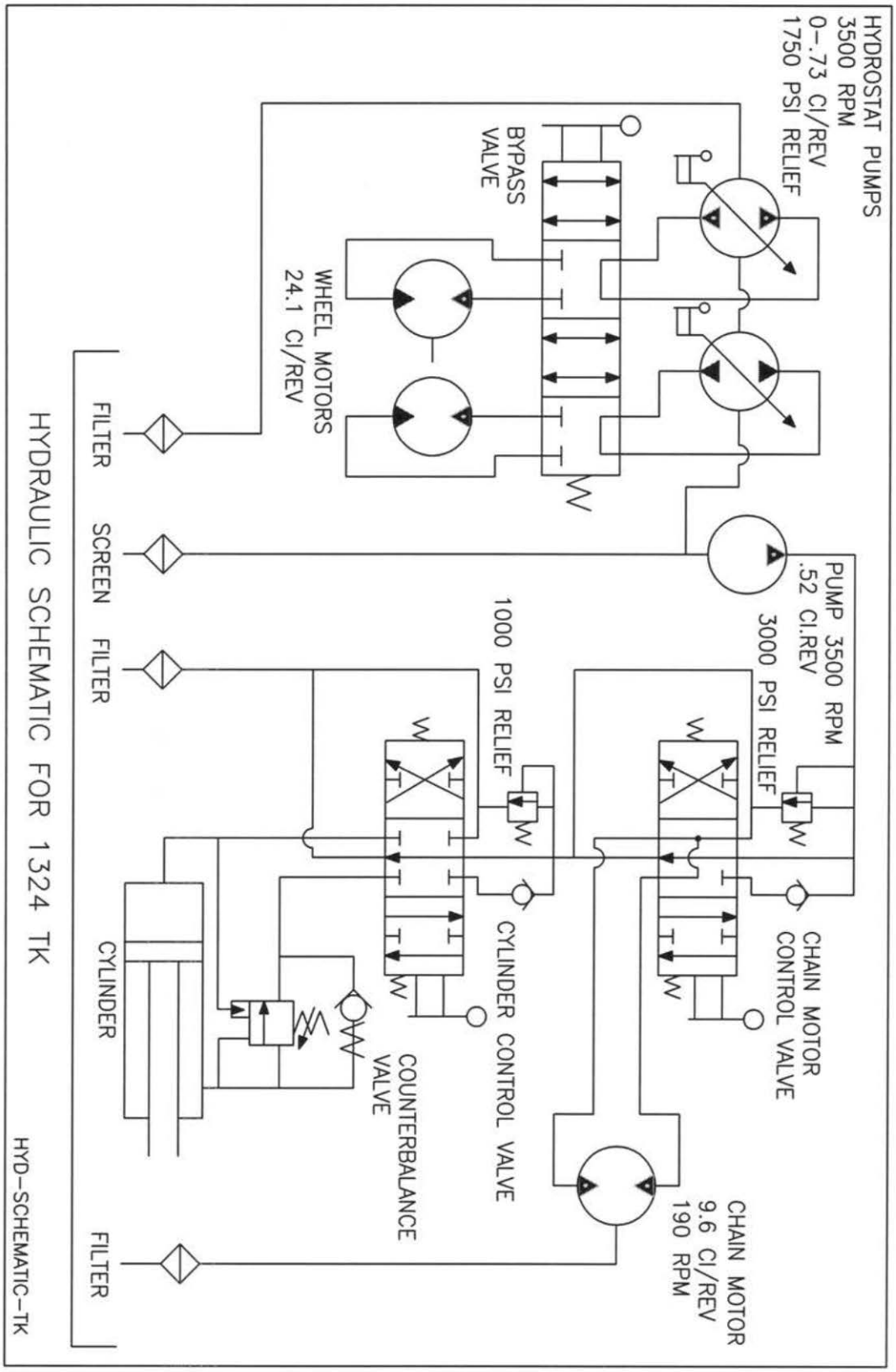
When installing the belt pulley and/or clutch onto keyway-type crankshaft (PTO shaft), proper and correct arrangements are needed. The following illustration shows the correct installation of the applicable component parts.



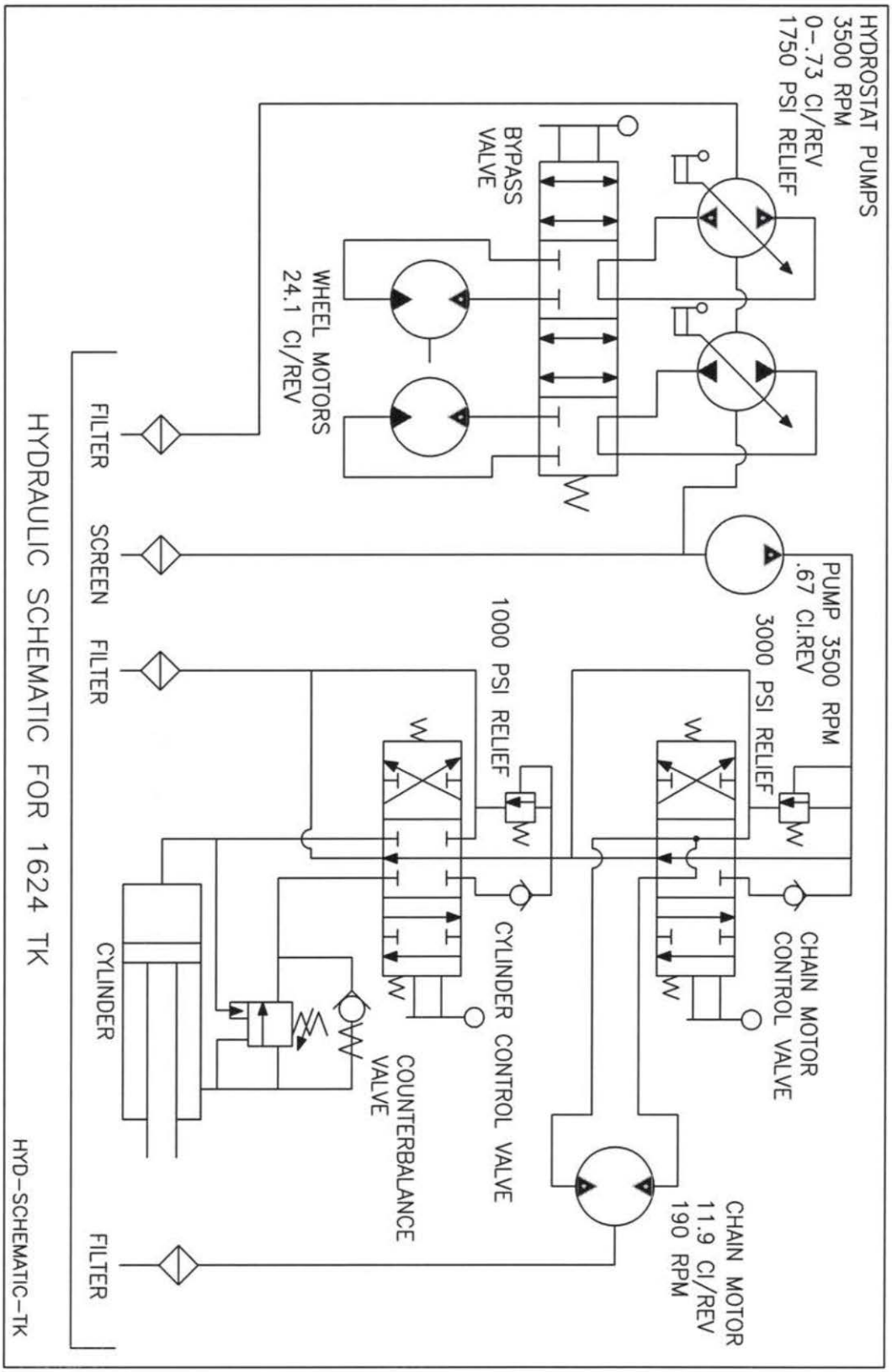
ELECTRICAL SCHEMATIC – BRIGGS VANGUARD 16HP



HYDRAULIC SCHEMATIC 1324TK



HYDRAULIC SCHEMATIC 1624TK



TRACK TRENCHER TROUBLESHOOTING GUIDE

CAUTION!! Always use extreme care when troubleshooting 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. 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 chain do not turn.

1. Rocks or other obstructions stopping chain.	Reverse chain momentarily to free it from obstruction. Raise boom and stop chain. See if obstruction can be removed from trench.
2. Trenching depth or speed too great for soil conditions.	Decrease ground speed or trenching 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 trenching on hills. Level trencher, check oil and allow oil alert to reset.
5. Engine losing power due to wear.	See engine manual.

C. Chain fails to rotate, but track drive works.

1. Chain motor worn.	Rebuild or replace motor. New motors are available from Barreto Manufacturing.
2. Chain Control Relief Valve malfunctioning.	Adjust Relief Valve to 3500 PSI or replace relief spring if needed.
3. Chain drive pump worn.	Replace pump.
4. Chain valve lever maladjusted.	Adjust as shown in illustration elsewhere in this manual.

TRACK TRENCHER TROUBLESHOOTING GUIDE (continued)

D. Tracks fail to turn, but chain rotates

1. Sprocket key sheared	Replace key and other parts as needed.
2. Track Drive Valve not fully activated.	Adjust valve cable as shown elsewhere in this manual.
3. Speed cable broken or disconnected.	Replace or re-connect cable.
4. Pump cable lever loose on shaft.	Tighten setscrew on pump lever.

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 chain motor or shaft.	Inspect motor for leaking shaft seal. Rebuild or replace motor.

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. Boom does not lift, or does not lower into ground.

1. Boom lift relief valve malfunctioning.	Adjust relief to 1000 PSI. This may require a replacement spring in valve.
2. Boom cylinder piston seal damaged or rod bent.	Disassemble & replace parts as required.
3. Boom pivot bushing seized.	Disassemble, inspect, clean & replace parts as required.

SPECIFICATIONS

MODEL NUMBERS	**1324TK/1424TK**	**1624TK**
DIMENSIONS		
Weight	1425 lb. (647.7 kg)	1425 lb. (647.7 kg)
Height	52.2” (1.32 m)	52.2” (1.32 m)
Length	92.5” (2.35 m)	92.5” (2.35 m)
Width	35.5” (901.7 mm)	35.5” (901.7 mm)
ENGINE		
Engine Options	Honda GX390 Subaru EX40	Briggs Vanguard 16 hp V-Twin
Fuel	Gasoline	Gasoline
Power: hp (kW) at 3600 RPM	H-11.7 hp (8.73 kW) S-14 hp (10.3 kW)	16 hp (11.93 kW)
Fuel Capacity	H-1.72 U.S. gallons (6.5 liters) S-1.85 U.S. gallons (7 liters)	1.75 U.S. gallons (6.6 liters)
Engine Oil Capacity	H-1.16 quarts (1.1 liters) S-1.27 quarts (1.2 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)
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	190 feet per minute (57.9 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)
BOOM / CHAIN OPTIONS		
Depths	24”, 30” (61 cm, 76 cm)	24”, 30” (61 cm, 76 cm)
Widths	4” (102 mm) or 6” (152 mm)	4” (102 mm) or 6” (152 mm)
Chain Types	Skip Cup, Double Cup, Rock, Rock Combo, Shark Combo Bolt on Shark, Welded Shark	Skip Cup, Double Cup, Rock, Rock Combo, Shark Combo Bolt on Shark, Welded Shark

ACCESSORIES

A1570 - Lift eye: for hoisting the trencher
A1575 - Auxiliary Auger: extends removal of dirt to farther from the side of the trench
A1580 - Backfill blade: to fill in trenches

INDEX