U.S.SAWS™

U.S. English

PC3000 TAMPING RAMMER OPERATING MANUAL

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U.S.SAWS™ WATERWORKS DIVISION

866- 987-7297
Visit us at www.ussaws.com
sales@ussaws.com

INTRODUCTION & SPECIFICATIONS

1.0 INSTRUCTIONS FOR USE OF MANUAL SECTIONS

Foreword/Introduction

The owner's manual is intended to point out some of the basic safety situations that maybe encountered during the normal operation & maintenance of the PC3000 & to instruct you in safety practices for dealing with these conditions. Keep all manuals provided with your machine in a safe place at all times.

The information and specifications included in this publication were in effect at the time of approval for printing. U.S.SAWS reserves the right, however, to discontinue or change specifications or design at any time without notice and without incurring any obligation.

The PC3000 is a standard tamping rammer and is perfect for general compaction applications. Unlike most 'jumping jacks' in its category, the PC3000 is equipped with a more powerful GX120 engine to provide more compaction force and power when you need it.

Read this entire operations and maintenance manual before using your new tool. Pay close attention to the rules for safer operation.

Dangers, Warnings and Cautions.

The purpose of safety symbols and explanations are to attract your attention to possible hazards and how to avoid them. The safety symbols and explanations do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

DANGER

DANGER: Indicates an imminently hazardous situation that if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

WARNING

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

CAUTION: Indicates a potentially hazardous situation that, if not avoided may result in minor or moderate injury. It may also be used to alert against unsafe practices that may cause property damage.

2.0 SPECIFICATIONS

PC3000	
Engine	Honda GX120
Power Output	3.5hp (2.6kW)
RPM	3600
Fuel Capacity	0.7 GAL (2.65L)
Starting System	Recoil
Jumping Stroke	2.8" (70mm)
Compaction Force	3080lbf / 13.7kN (1400kgf)
Length/ Width/ Height	28" x 16" x 41"
Weight	164 lbs
Plate Size	11" x 12"
Part Number	USPC3000

3.0 SYMBOLS & DECALS

For Safe Operation

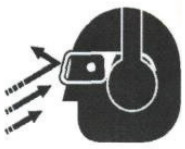
You must be qualified for safe operation of the U.S.SAWS PC3000 machine. You must clearly understand the written instructions supplied by U.S.SAWS, be trained - including actual operation - & know the safety rules & regulations for the job site. It is a safety practice to point out & explain safety signs & practices to others & to make sure they understand the importance of following these instructions.

Be Safe

Human error is the result of many factors: carelessness, fatigue, sensory overload, preoccupation, unfamiliarity with the machine or attachments, or drugs or alcohol, to name a few. You can avoid serious injury or death caused by these & other unsafe work practices. Be safe and never assume accidents cannot happen to you.

For your safety and the safety of others, act safely and encourage your fellow workers to act safely as well.

Read and understand operator's manual before using this machine. Failure to follow operating Instructions could result in injury or damage to equipment.



Flying debris and loud noise hazards. Wear ear and eye protection

Engine exhaust contains poisonous carbon monoxide gas. Breathing it could cause death. Operate machine in well ventilated area.

Rotating chain hazard.
Keep hands and feet away.

Wear safety boots when operating this machine

Wear appropriate clothing

Wear Head Protection, breathing protection, and the use of hearing protection is mandatory

Wear hand protection

Wear proper electrostatic grounding equipment at all times.

4.0 SAFETY INSTRUCTIONS

4.1 KNOW THE RULES & YOUR EQUIPMENT.

Most job sites have rules governing equipment use & maintenance. Before starting at a new work location, check with the supervisor or safety coordinator. Ask about any rules or regulations you need to abide.

OSHA enforces federal laws within the United States that apply to the safe operation, application, & maintenance of equipment on job sites. It is the employer's responsibility to comply with these laws.

Do not operate this machine unless you have read the operations and maintenance manual carefully.

4.2 RECEIVE PROPER TRAINING.

Do not operate this machine unless you have received operational and maintenance training from a U.S.SAWS representative or from an authorized distributor for U.S.SAWS.

4.3 PROTECT YOUR FEET.

Observe all applicable local, state and federal safety regulations. Wear OSHA approved foot protection.

4.4 PROTECT YOUR EYES.

Observe all applicable local, state and federal safety regulations. Wear OSHA approved safety glasses.

4.5 PROTECT YOUR LUNGS.

Breathable silica may be generated by use of this product. Silica can cause severe and permanent lung damage, cancer, and other serious diseases. Do not breath the dust. Do not rely on your sight or smell to determine if the dust is in the air. Silica may be in the air without a visible dust cloud. If air monitoring equipment for silica is not provided by your employer at your work site, you MUST wear appropriate respiratory protection when using or servicing the machine. Consult your employer and OSHA regarding the appropriate respiratory protection.

4.6 PROTECT YOUR HEARING.

Observe all applicable local, state and federal safety regulations. Wear OSHA approved hearing protection.

4.7 DRESS PROPERLY.

Do not wear loose clothing or jewelry that can be caught in moving parts. Wear protective hair covering to contain long hair. Keep hair away from motor air vent. Rubber gloves and non-skid footwear are recommended when working outdoors.

4.8 AVOID A DANGEROUS ENVIRONMENT.

Do not expose machine to rain. Do not use machine in wet conditions. Water entering a power tool will increase the risk of electric shock. Keep work area well lit. When working at an elevated location, pay attention to articles and persons below. If operating the power tool in damp locations is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply. Use of an GFCI reduce the risk of electric shock.

4.9 AVOID ANY AREAS OR ACTIONS THAT EXPOSE YOU TO CARBON MONOXIDE.

Do not operate in areas where exhaust fumes could accumulate without wearing appropriate respiratory protection. Consult your employer and OSHA regarding use of appropriate respirator for dangerous carbon monoxide gases.

4.10 KEEP WORK AREA CLEAN. DO NOT RUN OVER ANYTHING.

Loose objects could be thrown from crack. Make sure area to be cut is clear from people and any loose objects, nuts, bolts, etc. Never run over any loose objects.

4.11 KEEP CHILDREN AND VISITORS AWAY.

Do not allow anyone to stand in line with the cut path. Do not let children or visitors contact machine or extension cord. Keep children and visitors away from the work area.

4.12 KEEP FIRM GRIP ON MACHINE.

During normal operation as instructed in Section 6.0, keep a firm hold on the handle grips and maintain control of the machine until the chain completely stops.

4.13 SHUT OFF MACHINE.

When not in use, before servicing and when changing accessories shut off motor. Release the lever switch and move the on/off switch to the OFF position. Move the fuel valve lever to the OFF position.

4.14 STORE IDLE EQUIPMENT.

The machine and tools should be stored in a dry and secure location when not in use. Keep equipment out of reach of children.

4.15 OBTAIN MATERIAL SAFETY DATA SHEET (MSDS) FOR ALL WORK SURFACE MATERIALS.

This includes primers, all coatings, adhesives, tile and crack filling materials, etc. Do not attempt to cut, clean out or remove material without MSDS information. Consult MSDS sheet for hazards information. Be aware that some materials are explosive as a dust.

4.16 DO NOT OVERREACH.

Keep proper footing and balance at all times.

4.17 MAINTAIN MACHINE WITH CARE.

Keep machine clean and follow maintenance procedures for better and safer performance. Keep handles dry, clean, and free from oil and grease. Follow instructions for lubricating and changing accessories.

4.18 REMOVE ADJUSTING TOOLS.

Form a habit of checking to see that tools such as adjusting wrenches are removed from the machine and properly stored before starting the motor.

4.19 STAY ALERT.

Watch what you are doing. Use common sense. Do not operate machine when you are tired or fatigued.

4.20 DO NOT USE DRUGS, ALCOHOL, MEDICATION.
Do not operate machine while under the influence of drugs, alcohol, or any medication.

4.21 KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS.
Do not operate machine with parts missing or improperly mounted.

4.22 CHECK DAMAGED PARTS.
Verify all parts are in good condition and will function properly before using the machine. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect machine operation. Do not operate machine if lever or motor on/off switch does not function properly.

4.23 SECURELY MOUNT ACCESSORIES TO THE MACHINE.
Extra care must be taken on elevated location to prevent injury to someone on a lower level in the event the tool or accessory should drop. Do not operate without fall protection for operator and debris protection for public.

4.24 NEVER TOUCH THE MOVING PARTS.
Never touch moving parts such as chains, belts and others.

4.25 STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.
Stop using machine immediately if any abnormalities are observed during operation. Examples of abnormalities include unusual noise and vibration.

4.26 WHEN REPLACING A PART, USE THE SAME TYPE AND QUALITY.
When replacing a component part with a new one, use only the same type and quality of new part. Never attempt to repair a machine if you are unfamiliar with proper procedures and techniques required.

4.27 LOAD AND UNLOAD SAFELY.
Use proper heavy lifting procedures. Read & understand manuals before loading & unloading.

4.28 SAVE THESE INSTRUCTIONS.
Refer to this operations and maintenance manual as well as any additional instructions included from other manufacturers and organizations such as the Masonry and Concrete Saw Manufacturers Institute®. Never permit anyone to operate the machine without proper instructions.

DUST WARNING

Cutting, especially when DRY cutting, generates dust that comes from the material being cut, which frequently contains silica.

Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Exposure to excessive amount of such dust can cause:

- Respiratory diseases (affecting your ability to breath), including chronic bronchitis, silicosis and pulmonary fibrosis from exposure to silica. These diseases may be fatal;
- Skin irritation and rash; and
- Cancer according to NTP* and IARC*

* National Toxicology Program, International Agency for Research on Cancer

Take precautionary steps

- Avoid inhalation of and skin contact with dust, mist and fumes;
- Wet cut when feasible, to minimize dust;
- Wear and ensure that all bystanders wear appropriate respiratory protection such as dust masks designed to filter out microscopic particles. (See OSHA 29 CFR Part 1910.1200)

California Prop 65 Warning: Use of this product can cause exposure to materials known to the State of California to cause cancer and/or birth defects or other reproductive harm.

OPERATION CHECKLIST

5.0 PRE-OPERATION CHECKLIST

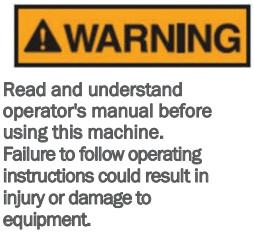


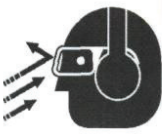
Figure 3 - Warning label - read and understand manual

5.1 Start by reading the entire PC3000 operations and maintenance manual. Get familiar with the machine's parts.

TO PREVENT SERIOUS INJURY DO NOT OPERATE PC3000 WITHOUT PROPER TRAINING AND. UNDERSTANDING OF THE OWNERS MANUAL WHEN OPERATING THIS MACHINE

Rotating chain hazard. Keep hands and feet away.

Wear Head Protection, breathing protection, and the use of hearing protection is mandatory



Flying debris and loud noise hazards. Wear ear and eye protection

Wear hand protection

Wear proper electrostatic grounding equipment at all times.

WARNING FOR INCORRECT APPLICATIONS AND ABUSE

Please do not use the rammer in the following cases. Using the machine while unbalanced may injure the user or cause damage to the machine or environment.
A. Pile foundation
B. Hard soil, excessively compacted over normal conditions
C. Steep banked slope

YOUR WARRANTY IS VOIDED if you do not put engine oil in the Engine's crankcase prior to its first use.
- Never run the Engine with low or no engine oil.
- Running the Engine with low or no engine oil WILL permanently damage the Engine.

SPECIFIC SAFETY RULES

1. Using an engine indoors CAN KILL YOU IN MINUTES. Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell. NEVER use inside a home or garage, EVEN IF doors and windows are open. Only use OUTSIDE and far away from windows, doors, and vents.
2. Fire and explosion HAZARD! Do not fill while engine running or hot, while smoking, or if damaged. Do not overfill.
3. Hold securely with both hands on proper handle locations. Creates strong forces during operation. Pregnant women or infirm persons should consult physician before use.
4. Keep children away during use. Store out of reach of children with engine switch and fuel lever turned off.
5. Wear steel-toed work boots, ANSI-approved safety goggles, dust mask, ear protection, and heavy-duty work gloves during use.
6. Keep out from under base.
7. Move carefully and securely in upright position. Refer to manual for details. Rammer extremely top heavy.
8. Maintain labels and nameplates on the tool. These carry important safety information.
9. The Spring Retaining Base Plate retains heavy springs under compression. When removing the Base Plate, follow the instructions in the "Maintenance" section of this manual carefully to avoid serious personal injury.
10. Never perform service or repairs on the Rammer while it is running. Always stop the engine and remove the spark plug to prevent accidental starting.
11. Make sure all safety guards are in place and in proper working condition.
12. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. In addition, people with pacemakers should adhere to the following: Caution is necessary when near the magneto, spark plug, and park plug wire or a running engine. The engine should always be off if adjustments are to be made.
13. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

OPERATION CHECKLIST

OPERATOR QUALIFICATIONS

Carefully read and understand this entire manual before operating machine. Inexperience in operating any machine or attachment can be hazardous and may cause injury or even death in some cases. Trial and error is not the way to become familiar with a piece of equipment and this can be dangerous, expensive, shorten equipment life and create machine downtime. Whenever possible, an experienced operator should be the best person to operate this machine. It is best that new operators of this machine be trained by an experienced user before operating it on his/her own.

STARTING SAFETY

Start and operate only in well-ventilated environments. Exhaust fumes contain poisonous gas that can cause loss of consciousness, injury, or death if inhaled in excessive amounts.

OPERATING SAFETY

This machine must be handled with precaution to ensure the safety of the user, the environment, and surrounding people. Extra care must be exercised to ensure safety and high quality work.

Safety Recommendations

- Know how to stop the engine quickly and understand how to operate all of the controls. Never permit anyone to operate the machine without proper instruction.
- Do not operate under the influence of alcohol and/or medication that can cause drowsiness.
- Keep children and pets away from the machine when it is in operation.
- Stay away from rotating and moving parts while the engine is running.
- A spark arrester is provided as an optional part for this engine. It is illegal in some areas to operate the engine without a spark arrester. Check local law and regulations before operating the engine.
- Work according to the rules and regulation of the work area.
- Work at a safe and comfortable distance from the foot plate.

SERVICING SAFETY

It is necessary to service and maintain your machine regularly so as to ensure safe usage of the machine. Regular service maintenance can help to prolong machine lifespan, reducing machine cost in your project and increasing profit from your investment.

Preventing Fires

- Never add fuel to the fuel tank while the engine is running.
- Wipe away all fuel spills with a clean cloth. Keep gasoline, kerosene, matches, and other explosive inflammables away from the engine, because the temperature around the exhaust muffler is very high during operation.
- Operate the engine on as level a surface as possible. The allowable inclination of the engine for continuous use is 20 degrees. There may be fuel spillage and/or lube oil pressure problems if the engine is tilted beyond that limit.
- Do not put the engine or the engine-mounted machinery indoors while the engine is still hot.

Preventing Burns

- Never touch the muffler, muffler cover or engine body while engine is running or hot.

Preventing Injury

- Use the correct tools and equipment.
- Adopt correct posture while carrying heavy load or lifting the machine.
- Adopt correct position to service the machine.
- Dispose or contain the waste engine and rammer lube properly. Wipe clean the work area if lube is spilled on the ground. A slippery work area is dangerous.

ENGINE SAFETY

Please refer to the engine's operation manual.

SHUTDOWN SAFETY

Emergency Shutdown:

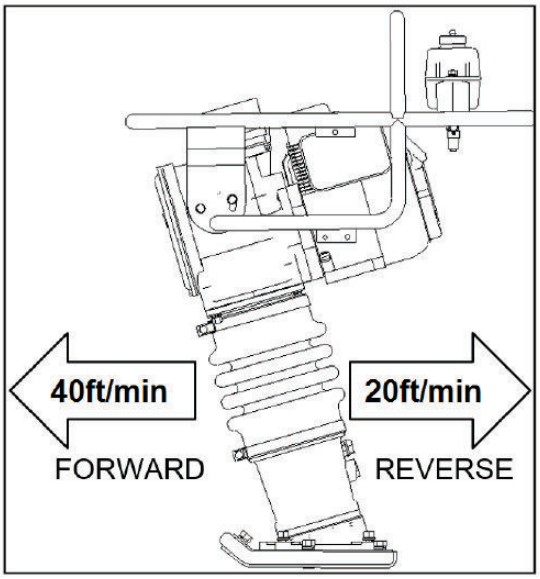
An "ON" "OFF" switch can be found on the engine. To stop the machine immediately, toggle the switch from the "ON" position to the "OFF" position.

Normal Shutdown:

Move throttle quickly from OPERATING position to IDLE position and run engine for 3 to 5 minutes at low speed to allow it to cool. After the engine is cool, it can be turned off in one of two ways:

1. Toggle the switch on the engine to the "OFF" position.
2. Close the fuel valve.

OPERATION CHECKLIST



The recommended speed of advance and reverse while using this machine is 12m/min (40 ft/min) and 6m/min (20 ft/min) respectively.

⚠CAUTION

Exercise caution while handling machine. Advancing or reversing too fast may result in foot injury.

IMPORTANT: This product requires oil and fuel to be added before starting. Attempting to start engine without oil WILL ruin the engine and void the warranty.

NOTE: The engine's carburetor may need to be adjusted by a qualified mechanic for high-altitude use.

OPERATING INSTRUCTIONS

⚠WARNING

Risk of accidental starting; resulting in serious personal injury. Turn the Fuel Valve of the tool to its "OFF" position and remove the spark plug before making any adjustments to the tool.

Note: For additional information regarding the parts listed in the following pages,refer to the Assembly Diagram near the end of this manual.

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text subheadings therein before set-up or use of this product.

RAMMER OPERATING PROCEDURE

It is necessary to be familiar with the operating procedure before handling the rammer. The procedure is as follows:

1. Pre-Check
2. Starting
3. Operating
4. Stopping

Below is a diagram that gives a general introduction to the machine parts.

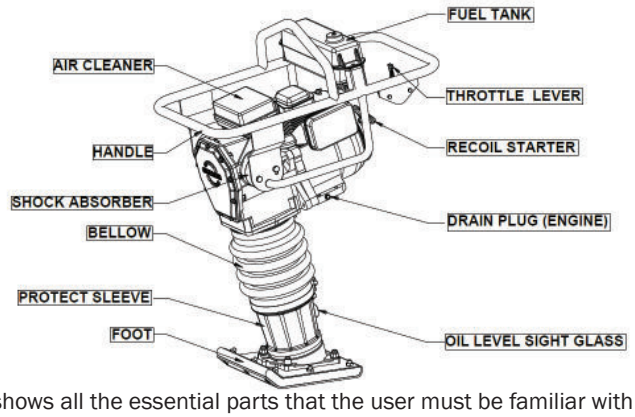


Figure A shows all the essential parts that the user must be familiar with before operating the rammer.

PRE-CHECK

Before starting up the rammer, it is necessary to check over the machine. Below is a list of items to check before starting:

1. Rammer Gearbox and Spring Cylinder

A. Gearbox and spring cylinder use oil bath lubrication system. Check the oil level sight-gauge at the rear of the foot. If oil is not visible, add SAE 10W-30 oil (SAE 20W-50)

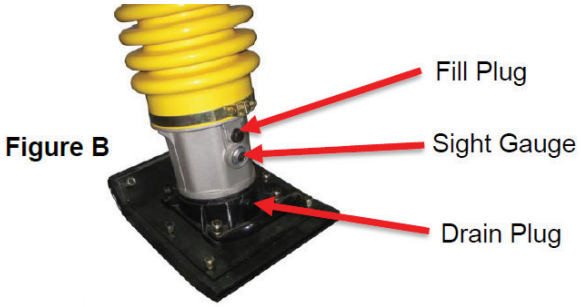


Figure B

2. Engine and Fuel Tank

A. Use only automobile gasoline fuel. For first time usage of the machine, ensure that the fuel pipeline is filled with fuel and it passes through the carburetor to have a smooth start of the engine. Ensure cap is closed tight after filling fuel tank.

I. To fill the fuel tank, unscrew and remove the fuel tank cap. (Figure C)
II. Fill the fuel tank with 3/4 gallon of unleaded gasoline. Avoid fuel spills.
III. Wipe off any spilled fuel.
IV. Replace the fuel tank cap.

Figure C

U.S.SAWS™ Waterworks Division
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Visit us at www.ussaws.com
sales@ussaws.com

B. Check the engine oil regularly before starting the engine. Move the engine to a vertical position and check the oil level from the oil level gauge (engine). Make sure that the oil level is about 800cc (0.8 L, 27 fl. oz.). Use only 10W-30 grade oil or higher.
I. To add engine oil, unscrew and remove the oil dipstick.
II. Pour approximately 20 ounces (0.6 L) of engine oil into the oil receptacle. Do not overfill.
III. Screw the oil dipstick back into the oil receptacle.

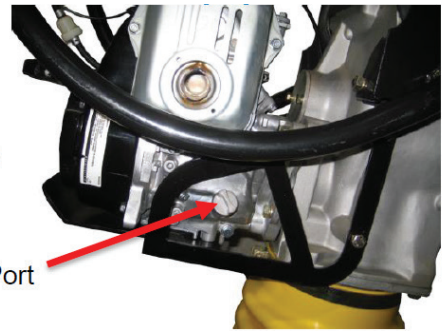


Figure D

⚠CAUTION

• NEVER ATTEMPT TO FILL THE FUEL TANK WHEN THE ENGINE IS RUNNING OR HOT.
• DO NOT SMOKE OR ALLOW FLAMES OR SPARKS IN THE AREA WHERE ENGINE IS REFUELED OR WHERE FUEL IS STORED.
• DO NOT OVERFILL THE FUEL TANK. IF ANY FUEL IS SPILLED, MAKE SURE THAT THE AREA IS DRY BEFORE STARTING THE ENGINE.
• THE ENGINE MAY BE DAMAGED IF OPERATED WITH INSUFFICIENT OIL. IT IS ALSO DANGEROUS TO SUPPLY TOO MUCH OIL TO THE ENGINE BECAUSE A SUDDEN INCREASE IN ENGINE RPM MAY OCCUR AND THE OIL TEMPERATURE WILL BECOME DANGEROUSLY HIGH. ALWAYS CHECK THE OIL LEVEL BEFORE STARTING THE ENGINE AND REFILL IF NECESSARY.

3. Fasteners
a. Check all nuts, bolts and fasteners for tightness. Retighten if necessary. Operating a damage to part(s), consequently shortening the lifespan of the machine.
4. Cleanliness
a. Check for leakage of lube oil from the engine and protective sleeve. If there is leakage, wipe clean and start running for a few minutes. If the problem persists, refer to troubleshooting section.
b. Clean the recoil starter and foot so that it is dirt free.
c. Wipe the entire unit clean before operating.
5. Missing Parts
a. Check for and replace missing parts. If parts are excessively worn, replace with new ones. Replace any missing or damaged Safety/Operation decals.

⚠CAUTION

• Engine parts are hot after operation.
• If the machine needs to be restarted immediately after stopping, gloves should be worn to prevent burns.

STARTING
To start the rammer, follow the procedure below.

1. Open the fuel valve. (Figure E)

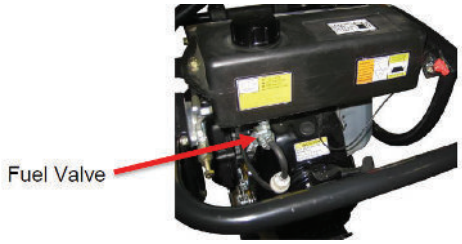


Figure E

2. Set throttle lever to START position. In cold weather, choke should be closed fully. In warm weather or if the engine is warm, choke should be half or fully open. In case the engine fails to start, set the choke lever to the half open position.

3. Grip the recoil starter and pull gently until you feel a slight resistance, then allow the starter rope to rewind slowly. Then pull the starter handle with a rapid, full-arm stroke. Allow the starter rope to rewind slowly. If the engine fails to start, repeat the action.

⚠CAUTION

Once the engine starts, do not let go of the handle immediately as this will cause it to snap back and damage the starter coil case. Release the handle slowly as the cord retracts into the starter case.

4. Once the engine has started, set the throttle lever to idle and slowly open the choke lever while listening to the sound of the engine. Be sure to perform a warm-up run for a period of 3 to 5 minutes at a low speed, while paying attention for fuel leakage or abnormal sounds.

5. If it is difficult to start the engine, remove the ignition plug and check the sparking performance. If the plug is soiled, or wet due to excessive fuel intake, clean it or replace the plug. With the ignition plug removed, pull the recoil starter handle two or three times to discharge excessive blended gas.

⚠CAUTION

• When operating the Upright Rammer make sure to keep your feet clear from the Bottom Plate to avoid personal injury.
• Always use both hands when operating the Upright Rammer.
• Never operate the Upright Rammer on hard, unyielding surfaces to avoid damage to the machine.

OPERATION CHECKLIST

OPERATING
Follow the steps below while operating the rammer.

1. Move the throttle lever quickly from IDLE to OPERATING position to start the tamping action.

⚠CAUTION

DO NOT move the throttle lever slowly as this may cause damage to the clutch or spring and unstable performance of the Rammer may result.

2. After starting tamping action, adjust the jumping stroke motion to suit the soil conditions by lightly controlling the throttle lever. When the engine speed falls between the set values shown on the engine, your work can be carried out at the best efficiency and effectiveness.

3. When operating, guide the Rammer with both hands, but allow the machine to do the work. Bearing down on the handle is unnecessary and limits the bottom plate ramming action.

4. The tamping rammer is designed to tamp the ground at 600 to 695 times per minute (640 to 680 times per minute for diesel engine) at an engine speed of 3600 rpm. Increasing the speed above the recommended rpm will not increase rammer effectiveness. Impact force will actually decrease because a resonance is created rather than increasing the tamping effect. This resonance may damage the unit.

5. In cold weather, the oil in the machine becomes viscous and may cause greater resistance at the reciprocating part, resulting in irregular movement. Therefore, it is recommended to perform a warm-up run by moving the throttle lever from OPERATING to IDLE position quickly and continuously for several minutes before entering the work.

6. The soil-contacting surface of the foot is lined with a heat-treated metal sheet for extra strength. For compacting cobblestone, use soil to fill cracks so that the foot hits the surface uniformly.

7. Always guide the rammer so that the entire bottom plate, and not just the front or back edge, does the impacting.

8. The machine is designed to travel forward while tamping. To increase the travel speed, a slight back-pull to the handle is necessary so that the rear of the foot contacts the soil first, giving extra forward thrust to the rammer. On uneven surfaces or inclines, rocking the handle slightly may assist the rammer in moving forward.

9. As the soil becomes compacted, the jump height of the rammer will increase.

10. To stop tamping action, quickly move the throttle lever from OPERATING to IDLE position. Do not move the lever slowly as this can result in irregular motion and damage to the unit.

⚠CAUTION

Wear gloves while operating machine to reduce fatigue caused by vibration.

STOPPING
1. Let the engine run for three minutes at idle speed to allow proper cooling before shutting down. This will allow proper cylinder lubrication.

2. After the engine is cooled down, close the fuel valve.

3. Pull the starter handle slowly and return the handle to its original position when resistance is felt. This action is necessary to prevent outside moist air from entering the carburetor chamber.

⚠CAUTION

MAINTENANCE AND SERVICE

• Flammable liquid is used for this machine. No naked flames are allowed within a 6 m (20 ft) radius of the machine. Fire or explosion could result from flame, sparks, or if fuel is spilled on a hot engine.

• Moving parts are hazardous. Shut down the engine before performing any service or maintenance to the machine. Contact with moving parts can cause serious injury.

• High temperature of machine after operation. Allow machine and engine to cool before performing service or maintenance. Contact with hot component can cause serious burns.

• Risk of serious personal injury from accidental starting. Remove the sparkplug before performing any inspection, maintenance, or cleaning procedures. Damaged equipment can fail, causing serious personal injury.

• Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

It is essential to do regular machine maintenance for safe usage and prolonged lifespan. Below is the breakdown of the service and maintenance procedure.

MAINTENANCE

DAILY

• Remove oil and dirt thoroughly from the engine and control area.

• Clean or replace air filter as necessary.

• Check and retighten all fasteners as necessary.

• Check protective sleeve, bellow, and engine for oil leaks. Repair as needed.

• Remove element from pre-filter at the top of crankcase and clean it with air.

SERVICE

Refer to the engine owner's manual for engine maintenance and service procedures.

REPLACEMENT OF LUBRICANT (BODY)

• Remove the drain plug at the rear of the rammer foot and drain dirty oil.

• The oil change interval is 50 hours after first operation. After that, oil should be changed following every 200 hours of use.

CLEANING THE AIR FILTER ELEMENT

• Air filter should be cleaned after every 200 to 300 hours of use.

• Remove the air filter element from the top of the crankcase.

• Use detergent solution to wash the element.

• Shake out excess moisture and dry the element.

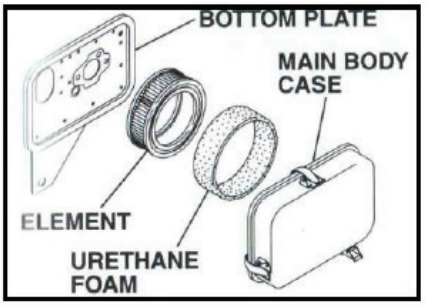


Table 2: Service Chart

		First Use	Each Use	After two weeks or 25 hours	Each 3 months or 100 hours	Each 6 months or 200 hours
GENERAL INSPECTION:						
Warning Stickers	Check		•			
Test Run	Check operation			•	•	•
ENGINE						
Air filter[1]	Check/Clean		•	•		
	Replace				•	•
Engine Oil[12]	Check level		•			
	Change				•	•
Sparkplug[12]	Check Gap/Clean			•	•	•
	Change					•
Muffler[12]	Clean					•
Engine Fasteners	Check/Tighten	•		•		
RAMMER BODY						
Lube Oil	Check level		•			
	Change					•
Foot Plate Fasteners	Check/Tighten	•		•		
FUEL						
Fuel Tank	Check level		•			
Fuel Line and Accessories	Check		•			

1. Service more frequently in dusty conditions.

2. Refer to the engine owner's manual for servicing instructions and a detailed maintenance schedule. Some items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.

⚠CAUTION

All maintenance, service, and repairs not mentioned in this manual must only be performed by a qualified service technician.

TRANSPORTATION, STORAGE & TROUBLESHOOTING

TRANSPORTATION

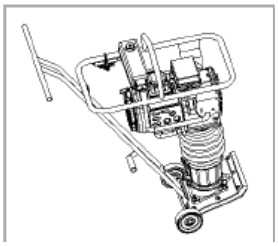
Transport rammer in the upright position. If machine must be laid down for transportation, fuel tank must be drained. Machine lays with muffler side down.

⚠ CAUTION

The fuel filter is installed at the bottom of the fuel tank. Should the rammer be laid down, dirt from the fuel filter may enter the injection nozzle and fuel pump, causing damage.

A transport dolly is an additional accessory that is used to transport the rammer short distances.

1. Hook the handle to the dolly's top hook.



2. Push the dolly forward and place the Rammer's footplate onto the dolly base plate.

3. With additional assistance, strap the Rammer to the dolly. Then carefully move the Rammer to the work location. (See Figure A).

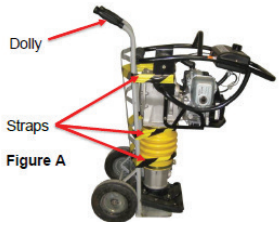


Figure A

Note: Straps and Dolly not included with Rammer

⚠ CAUTION

The upright rammer is extremely top-heavy. Move carefully and securely in an upright position.

STORAGE

SHORT TERM (2 TO 3 DAYS)

Rammer should be stored on level ground. After the engine and machine have been cooled down, be sure to secure the rammer to avoid knocking it down. If the rammer has to be laid down, tighten the fuel tank cap and engine oil plug securely. After lying down, ensure there is no leak of fuel or oil. If fuel does leak, drain the tank.

LONG TERM (OVER 3 DAYS)

Drain the fuel from the tank, fuel line, and carburetor. Remove the spark-plug and pour a few drops of motor oil into the cylinder. Crank the engine three or four times so that the oil reaches all internal parts. Clean the exterior with a cloth soaked in clean oil. Cover the unit with a plastic sheet and store in a moisture and dust free location out of direct sunlight.

TROUBLESHOOTING

A. Difficult to start

Fuel is available but plug does not ignite.	Power available at high tension code	Improper spark gap
		Ignition plug being bridged
		Carbon deposit at ignition plug
		Short circuit due to defective insulation
	Power NOT available at high tension code	Ignition coil defective
		Short circuit at stop button
	Compression normal	Air filter clogged
		Water or dust in fuel
		Inadequate fuel quality
		Inadequate mixed fuel quality
		Muffler clogged with carbon deposit
	Compression insufficient	Cylinder worn
		Piston ring stuck
		Roughened valve seat
		Insufficient tightening of ignition plug

Fuel not available at carburetor	Fuel filter clogged
	Air in the fuel pipe
	No fuel in tank
	Fuel valve not properly opened
	Tank cap air breather clogged

Recoil starter does not operate smoothly	Dust in rotating part
	Spiral spring failure

B. Operation not satisfactory

Not enough power available	Compression insufficient	Cylinder worn
		Piston ring stuck
		Roughened valve seat
		Insufficient tightening of ignition plug
	Compression normal, no misfire	Air in fuel pipe
		Air filter clogged
		Carbon deposit in cylinder
		Improper fuel level in carburetor float chamber
	Compression normal, misfire	Inadequate fuel
		Defective ignition coil
		Short circuits at ignition coil
		Ignition plug needs cleaning

Smoke coming out of muffler	Blue smoke	Compression is not available	Cylinder piston ring worn
			Piston ring damaged
		Compression is available	Mixed oil entered
			Oil too high
			Engine oil leaked into air filter (laid down in wrong position)
	Dark smoke	Choke lever not pushed back	
		Chamber needle worn	
	White smoke*	Moisture in fuel	*In cold weather, it is normal to see white smoke after starting up.
		Air filter contains water	

Rotational speed fluctuates	Improper governor adjustment
	Governor spring is defective
	Defective fuel flow
	Air entering suction line

Engine overheating	Inadequate fuel mixing ratio or insufficient blending
	Excessive carbon in combustion chamber
	Exhaust or muffler clogged with carbon
	Improper ignition plug heat value

Engine rotates erratically or does not start	Clutch slip
	Excess oil
	Spring failure
	Improper engine speed setting
	Throttle lever is being adjusted to slowly

8.0 WARRANTY AND SERVICE

8.1.1 Warranty

This document is to be used as a guide in determining warranty policies and procedures for U.S.SAWS and its U.S.SAWS products. It is to be used in determining whether a warranty is justified and as a procedural guide in completing a U.S.SAWS warranty claim form.

8.1.2 Warranty Responsibility

The distributor or the end user must prepare a Machine Warranty Information Card when the machine is delivered. Failure to comply will make any and all warranties on this equipment null and void. Credit for warranty repairs will be given only after receipt of the WARRANTY CLAIM FORM, properly completed with all the required details. Submittal details are described later in this document.

8.1.3 Warranty Policy

8.1.3.1 U.S.SAWS warrants its U.S.SAWS products against defects in material and workmanship under normal and proper use for a period of one year (365) days from the date of delivery; in the case of Rental Fleet Machines, date of assignment to Rental Fleet. Such warranty is extended only to the buyer who purchases the equipment directly from U.S.SAWS or its authorized distributor. This warranty does not include expendable parts such as, but not limited to, plugs, cutters, blades, blast wheel, wear parts, liners and seals.

8.1.3.2 The obligation under this warranty is strictly limited to the replacement or repair, at US SAWS's option, of machines and does not include the cost of transportation, loss of operating time, or normal maintenance services.

8.1.3.3 This warranty does not apply to failure occurring as a result of abuse, misuse, negligence, corrosion, erosion, normal wear and tear, alterations or modifications made to the machine without express written consent of U.S.SAWS .

8.1.3.4 Warranty request must be submitted in writing within thirty (30) days after failure.

8.1.3.5 Written authorization to return merchandise under warranty must first be obtained from U.S.SAWS .

8.1.3.6 U.S.SAWS reserves the right to inspect and make the final decision on any merchandise returned under warranty.

8.1.3.7 U.S.SAWS offers no warranty with respect to accessories, including but not limited to, engines, motors, batteries, electrical boards, tires and any other parts not manufactured by us but which the original manufacturer warrants.

8.1.3.8 U.S.SAWS reserves the right to make product changes or improvements without prior notice and without imposing any obligation upon itself to install the same on its products previously sold.

8.1.3.9 The above warranty conditions can only be altered by US SAWS. US SAWS must confirm alterations in writing for each specific transaction.

8.1.3.10 U.S.SAWS reserves the right to establish specific warranty terms for used or demo machines on an individual transaction basis. Invoices covering such merchandise will clearly state the provisions of the applicable warranty for each specific transaction.

8.1.3.11 WE DO NOT AUTHORIZE ANY PERSON, REPRESENTATIVE OR SERVICE OR SALES ORGANIZATION TO MAKE ANY OTHER WARRANTY OR TO ASSUME FOR US ANY LIABILITY IN CONNECTION WITH THE SALE OF OUR PRODUCTS OTHER THAN THOSE CONTAINED HEREIN.

8.1.3.12 UNDER NO CIRCUMSTANCES SHALL US SAWS BE LIABLE TO CUSTOMER OR ANY OTHER PERSON FOR ANY DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF ANY WARRANTY OR FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER, INCLUDING WITHOUT LIMITATIONS, DAMAGES FOR ANY LOSS OF GOODWILL, WORK STOPPAGE, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES.

8.1.3.13 U.S.SAWS MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE US SAWS PRODUCTS SOLD PURSUANT THERETO.

WARRANTY AND SERVICE

TO ENSURE THE PROPER WARRANTY COVERAGE IS EXTENDED TO THE OWNER OF THIS MACHINE, FILL OUT THE ATTACHED CARD COMPLETELY AND ACCURATELY.

WARRANTY REGISTRATION CARD

IMPORTANT! To ensure that your U.S.SAWS machine is covered under warranty, please fill in the following information and mail or fax it to U.S.SAWS, 8004B E. Broadway Ave. Tampa, FL 33619, Fax No. 714-434-7299

COMPANY
NAME
ADDRESS
INTENDED USE
DATE OF PURCHASE
INTENDED USE
SERIAL NUMBER

If you are not the owner of record as shown on the manual copy of the warranty registration card, do not operate this machine before contacting U.S.SAWS at 1-866-987-7297 Verify the following before operating the equipment:

CHANGE OF OWNER OR NEW ADDRESS REGISTRATION CARD

IMPORTANT! To ensure that your U.S.SAWS machine is covered under warranty, please fill in the following information and mail or fax it to U.S. SAWS, 8004B E. Broadway Ave. Tampa, FL 33619, Fax No. 714-434-7299

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