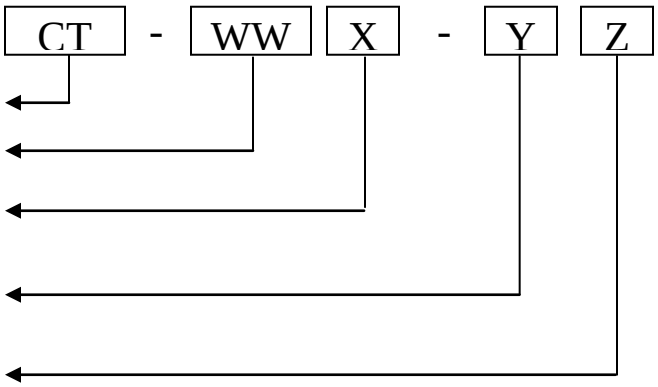
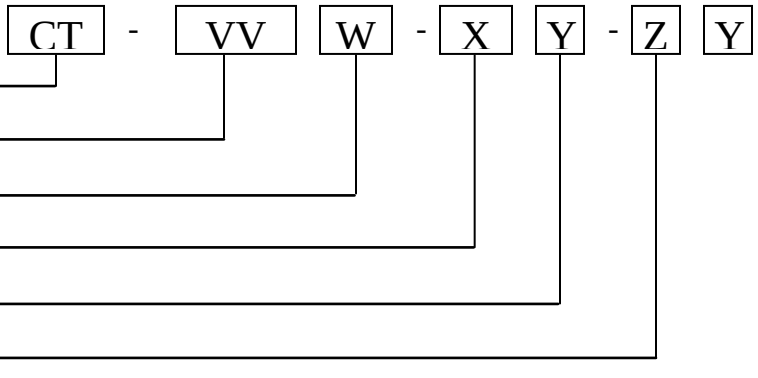
HOW TO READ PRODUCT CALL NUMBER AND PART NUMBER

The product model number definition is as follow



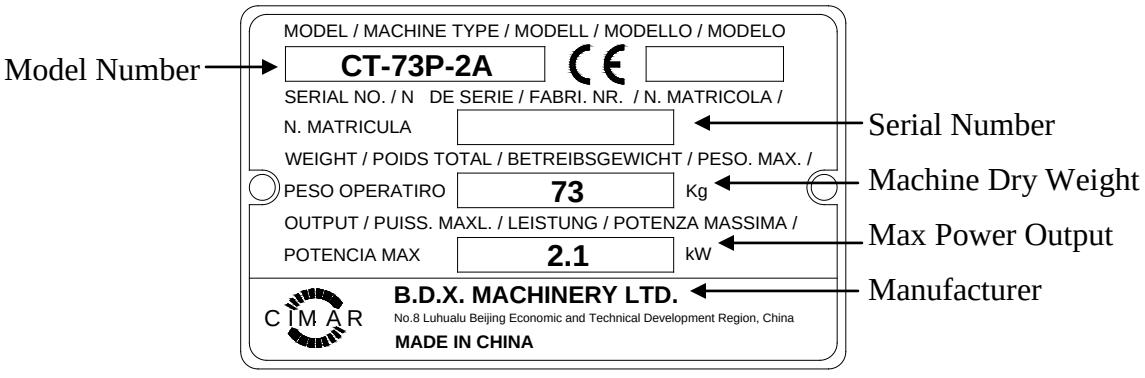
CT = product type
WW = dry weight (kg)
X = type of fuel
Y = number of filtering system
Z = filtered element

The part number definition is as follow



CT = product type
VV = model no.
W = type of fuel
X = part no.
Y = section
Z (opt) = sub-part no.

NAMEPLATE



ENVIRONMENTAL PROTECTION

Note: Proper disposal of engine oil and rammer lube oil is necessary to prevent pollution. Please handle them with due care and follow the laws and regulations of your country while disposing them.

Note: Disposal of machine after its useful lifespan shall follow the local laws and regulations of your country

WORKING ENVIRONMENT

Note: It shall follow the local standard code of practice.

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1.0 INTRODUCTION

CIMAR tamping rammer is design to give strong impact power despite its compact and lightweight class. It is used to compact various type of soil. This little gadget serve as the first front line in giving the loose soil a good pounding so as to achieve the required compact density ratio for further constructing work.

1.1 DEFINITION OF TAMPING RAMMER

It is a compaction machine that moves in at a regulated frequency in a predominantly vertical direction by an explosion pressure so as to produce a high impact force to achieve high-density ratio of the compacted material.

1.2 STRUCTURE

This machine can be split into two distinct components, the upper body and lower body. The upper component consists of the Power source, Clutch, Connecting Rod, Operating Handle and Fuel Tank that connect through the Shock Absorbing Rubber to the body. The bottom component consists of Spring Cylinder (Sliding part), Foot Plate that ramps body, Foot and Bellows that covers the sliding part.

1.3 POWER TRANSMISSION

An air-cooled 4-stroke single cylinder engine is used as the power source for these machines. The engine produces a rotary motion to the shaft that is copulated to the centrifugal clutch.

The centrifugal clutch engages by running up the engine. Once it is engage, power is transmitted to the pinion, which in turn causes the gear to rotate. Henceforth, the reduction in rpm is achieved. The gear is connected to a crankshaft, which converts the rotary motion into a back and forth linear motion for the connecting rod. This action causes a compressive force to the pairs of strong coil-springs between the ground and the connecting rod. Hence, the tamping action begins. Weight of machine and strong compressive spring force synergistically produce powerful impact force at foot.

1.4 APPLICATION

With the advantages of small and lightweight yet able to deliver multiple strong impact force, the machine usage can be categorized into three major categories. They are:

a. Construction
    - Compaction of backfill around foundation and forms
    - Compaction of sub-grades underneath footings
    - Base preparation for concrete work such as slabs, curbs and gutters.

b. Utilities
    - Base preparation for pipelines
    - Compaction around and over pipelines
    - Compaction of cable and pipe trenches and around utilities poles

c. Municipalities
    - Base preparation for repair work on streets, highway and sidewalk

1.5 WARNING FOR INCORRECT APPLICATION AND ABUSE

Please do not use the rammer in the following cases. It may cause damages to the machine and or injury to the user or environment because machine is likely to be unbalanced.

a. Pile foundation
b. Hard soil excessively compacted over normal condition
c. Steep bank slope

1.6 SPECIFICATION

Table 1: Tamping Rammer Specification

Model	CT-60P-2A	CT-66P-2A	CT-73P-2A	CT-78P-2A	CT-78D
Overall Dimension (mm)	680L x 650B x 1030H	720L x 412B x 1043H	720L x 412B x 1043H	720L x 412B x 1043H	720L x 412B x 1043H
Shoe Size (mm)	250 x 300	280 x 330	280 x 330	280 x 330	280 x 330
Blows/Minute	600~695	640~680	640~680	640~680	640~680
Impact Force (kg)	Up to 1,000~1,200	Up to 1,200~1,400	Up to 1,400~1,600	Up to 1,600~1,800	Up to 1,600~1,800
Jump Stroke (mm)	30 to 80	55 to 85	55 to 85	55 to 85	55 to 85
Travel speed(m/min)	12	12	12	12	12
Fuel Tank Capacity (L)	2.0	2.0	2.0	2.0	2.5
Clutch	Automatic Centrifugal	Automatic Centrifugal	Automatic Centrifugal	Automatic Centrifugal	Automatic Centrifugal
Weight (kg)	60	66	73	78	80

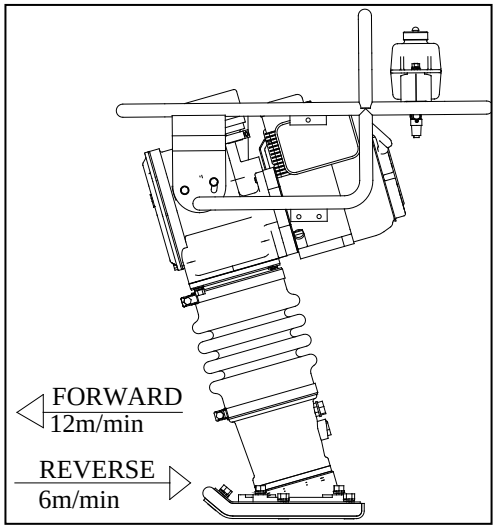
Table 2: Engine Specification

Model	Honda GX100	Robin EH12-2D	Yanmar L48AE
Type	Air-cooled, 4 stroke (OHV) single cylinder, gasoline engine	Air-cooled, 4 stroke (OHV) single cylinder, gasoline engine	Air-cooled, 4 stroke (OHV) single cylinder, diesel engine
Piston Displacement	121cm^3	121cm^3	121cm^3
Continuous Output	1.8kW/3600min^{-1} (2.4HP/3600rpm)	2.1kW/3600min^{-1} (2.8HP/3600rpm)	2.5kW/3600min^{-1} (3.4HP/3600rpm)
Maximum Output	2.1kW/3600min^{-1} (3.0HP/3600rpm)	2.6kW/3600min^{-1} (3.5HP/3600rpm)	3.1kW/3600min^{-1} (4.2HP/3600rpm)
Direction of Rotation	Counterclockwise, facing P.T.O. Shaft	Counterclockwise, facing P.T.O. Shaft	Counterclockwise, facing P.T.O. Shaft
Lubricant	Class SE, SF or higher grade, SAE #20, #30, #40 or multi-grade engine oil	Class SE, SF or higher grade, SAE #20, #30, #40 or multi-grade engine oil	Class SE, SF or higher grade, SAE #20, #30, #40 or multi-grade engine oil
Fuel	Automobile Gasoline (unleaded)	Automobile Gasoline (unleaded)	Automobile Gasoline (unleaded)
Spark Plug	NGK B6ES (CHAMPION N4C)	NGK B6ES (CHAMPION N4C)	NGK B6ES (CHAMPION N4C)
Starting System	Recoil Starter	Recoil Starter	Recoil Starter
Dry Weight	15.9kg	15.9kg	15.9kg
Dimension Length x Width x Height	283mm x 330mm x 334mm	283mm x 330mm x 334mm	283mm x 330mm x 334mm
Spark Plug Max Output	2.6kw(3.5PS)	2.6kw(3.5PS)	2.6kw(3.5PS)

Table 3: Sound Power Level

Model	Power source	Measured sound power level (dB)	Guaranteed sound power level (dB)	Max. Sound Pressure level (dB)
CT-60P-2A	Honda GX100	109.4	109	98.5
CT-66P-2A	Robin ER12	109.4	109	98.5
CT-73P-2A	Robin EH12-2D	109.4	109	98.5
CT-78P-2A	Robin EH12-2D	109.4	109	98.5
CT-78D	Yanma L48AE	109.4	109	98.5

Note: - The test for sound power is conducted in conformance to prEN 500-4:2001
- The test for vibration is conducted in conformance to prEN 500-4:2001 with the test complying with BS EN 1033:1996



The recommended speed of advance or reverse while using this machine is 12m/min and 6m/min respectively

CAUTION

Do exercise caution while handling the machine as too fast in advancing or reversing the machine might result in injury to foot.

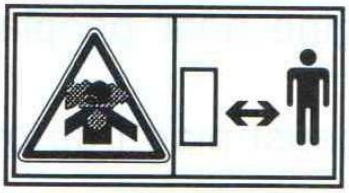
2.0 SAFETY INSTRUCTION

This section outlines the basic things to take note when CIMAR tamping rammer is to be used for work. It is a powerful and productive machine, henceforth safety and care must be taken seriously while handling it or serious injury (which in some case might cause death), property damage, or both may result.

This safety alert symbol identifies important safety message throughout this manual. Please read carefully and follow instruction when symbol appear in any of the paragraph.

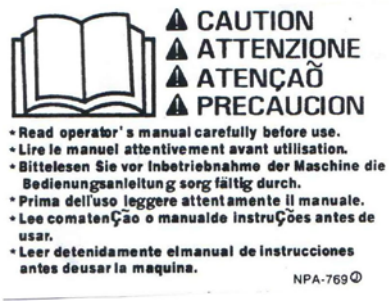
2.1 SAFETY SYMBOL FOUND ON MACHINE

Decal can be found on the machine itself. All decal indicate important safety instruction and reminder that the user must follow before handling the machine. But following the safety instruction of the decal is not sufficient, it is still necessary for the user to read through the user manual and go through proper training before handling the machine. Below are the safety symbols that one can find on the machine itself.



CAUTION

- **READ OWNER'S SERVICE MANUAL BEFORE OPERATING OR SERVICING THIS MACHINE**
- **ALWAYS KEEP UNAUTHORIZED, INEXPERIENCED, UNTRAINED PEOPLE AWAY FROM THIS MACHINE**
- **MAKE SURE ALL SAFETY DEVICES ARE OPERATIONAL BEFORE THIS MACHINE IS STARTED. MAKE SURE ENGINE IS TURNED OFF AND SPARK PLUG WIRE DISCONNECTED BEFORE SERVICING THE MACHINE OR COMING IN CONTACT WITH ANY MOVING PART. IF EQUIPMENT IS POWERED BY AN ELECTRIC MOTOR. DISCONNECT ELECTRICAL PLUG.**
- **NEVER LEAVE MACHINE UNATTENDED WHEN OPERATING. ALWAYS STOP ENGINE AND ALLOW ENGINE TO COOL BEFORE ADDING FUEL OR OIL.**



2.2 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, reduce equipment life and create machine downtime. Whenever possible, an experience operator should be the best person to operate this machine. If new operator is to handle this machine, it is best that training and supervision is to be given by experience user before letting new operator to operate it on his/her own.

2.3 GENERAL SAFETY

CAUTION:

Protection is required while handling equipment. Wear a hardhat, shatterproof glass; steel toed boots (non skid sole), earplug, gloves and other protective devices as required by job conditions. Avoid wearing jewelry or loose fitting clothing that may snag on controls or moving parts and cause serious injury. It is best that operator keep his/her hair short or tie and bun up if possible.

2.4 STARTING SAFETY

Start and operate only in well-ventilated environment as exhaust fumes contain poisonous gas e.g. carbon monoxide that can cause loss of consciousness, injury or death if excessive of it is inhaled.

2.5 OPERATION SAFETY

It is essential that the user take extra precaution in handling the machine because he is not only responsible for his own safety but also to the surrounding people and environment. Extra care need to be exercise in-order to ensure safe and quality work is achieve at ease. Here is some safety tips:

Safety Tips in Handling Machine

- 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 influence of alcohol and or on medication that 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 behind a safety and comfortable distance from the Foot Plate.

2.6 SERVICING SAFETY

It is necessary to service and maintain your machine regularly so as to ensure safe usage of the machine. Regular service and maintenance can help to prolong machine lifespan so that you can reduce the machine cost in your project and profit from your investment. Below are points to take note while servicing the machine:


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 and inflammables away from the engine, because the temperature around the exhaust muffler is very high during operation.
- Operate the engine on a level surface as much 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 spill on the ground. Slippery work area is dangerous.

2.7 ENGINE

Please refer to Honda GX100 engine, Robin EH12-2D Robin engine or Yanmar L48AE operation manual.

2.8 SHUTDOWN

EMERGENCY SHUTDOWN:

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

NORMAL SHUTDOWN:

Move throttle quickly from OPERATION position to IDLE position and run engine for 3 to 5 minute at low speed to allow it to cool. After engine cool, the user can exercise 2 ways to off the engine and they are

a. Toggle the switch of the engine to 'OFF' position
b. Close the fuel cock.

3.0 RAMMER OPERATING PROCEDURE

It is necessary to familiar with the procedure of operating CIMAR tamping rammer before handling the machine. The procedure is as follows:

i. Pre-Check
ii. Starting
iii. Operating
iv. Stopping
v.

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

The diagram shows all the essential parts that the user must be familiar with before operating the rammer. Identify the controls of the rammer. The throttle lever, engine lubrication oil, oil fill plug, oil lever sight glass and recoil starter handle.

3.1 PRE-CHECK

Before starting up the rammer, it is necessary to do a pre-check of the machine. Below is a list of items place in order to check before starting:

i. Rammer Gearbox and Spring Cylinder

Gearbox and spring cylinder uses oil bath lubrication system. Check the oil level through oil level sight gauge at the rear of the foot. If oil is not visible, add SAE CF class or higher 10W40

ii. Engine and Fuel Tank

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

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. Use only SE, SF (API classification or higher grade oil) for engine oil. Please refer to section 1.6 Table 2.


CAUTION:

- Do not smoke or allow flames or sparks in the area where engine is refueled or where gasoline 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 lube oil. It is also dangerous to supply too much lube oil to the engine because a sudden increase in engine rpm could be caused by its combustion and the oil temperature will become dangerously high. Always check the lube oil level before starting the engine and refill, if necessary

iii. Fasteners

Check all nuts, bolts and fasteners for tightness. Retighten if necessary. Operating such high impact machine with loose joint can cause oil leakage, excessive wear, damage part(s) and hence shorten life span of the machine.

iv. Cleanliness

Check for leakage of lube oil from the engine and protective sleeve. Wipe clean and start running for a few minute. If problem persist refer to troubleshooting section. Clean the recoil starter and foot so that it is dirt free. Wipe the entire unit clean before operating.

v. Missing part

Check for missing part(s) and replace it. If part(s) are excessive worn replace it with a new one. Replace any missing or damage Safety/Operation decals.

3.2 STARTING

Starting the rammer require a few simple step. To start the rammer, read the below procedure;

> ⚠ CAUTION
>
> - Engine parts are hot after operation. If need to restart the machine immediately after stopping, do wear glove to turn on the switch to prevent burn.

a. Lower the fuel cock lever to let fuel flow. To start, switch must be in the “ON” position. (Diagram 1 and Diagram 2)

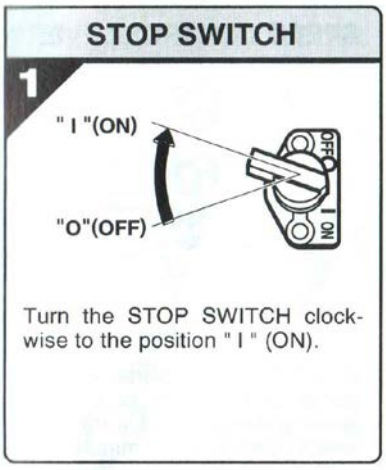
b. With carburetor choke lever closed, set throttle lever (Speed Control Lever) to IDEL position. In cold weather, choke should be closed fully, while in summer season or if engine is warm, make it half open or full open. In case the engine failed to start, leaving the choke lever fully closed causes excessive fuel intake. Therefore, it should be returned to the half open position. (Diagram 3)

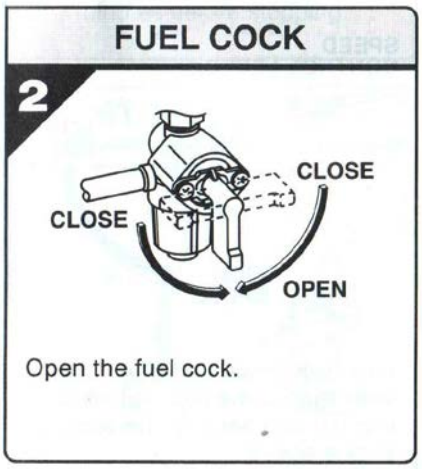
c. Grip the recoil starter and pull it a little to feel a slight resistance. Then pull it powerfully from there. If engine fail to start, repeat the action. Once engine start, don not release the handle immediately as this will cause the handle to have a

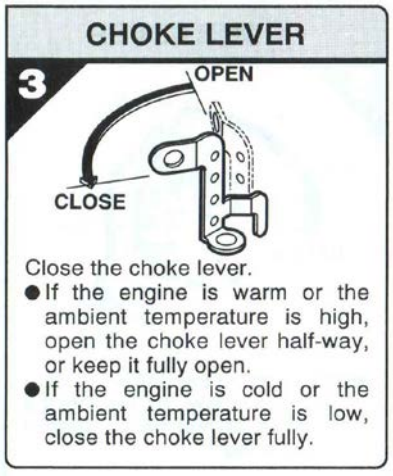
snap back action and damage the starter coil case. Release the handle slowly to the starter case. (Diagram 4)

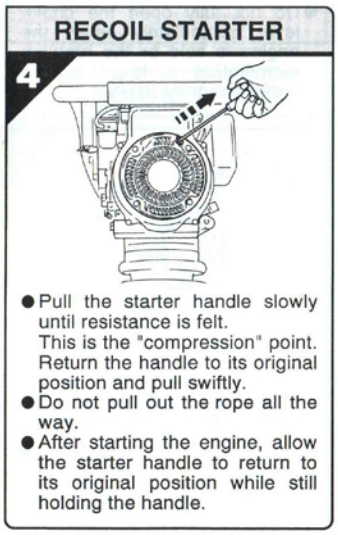
d. If the engine has started, while listening to explosion sounds, return the choke lever slowly to full open position. Be sure to perform a warm up run for a period of 3 to 5 minutes at low speed, while paying attention to gas leakage or abnormal sound.

e. If it is difficult to start the engine by repeatedly pulling the starter rope, remove ignition plug and check the sparking performance. If the plug is wet due excessive fuel intake or soiled, replace the plug or clean sufficiently to its internals. With the ignition plug removed, pull the recoil starter handle 2 to 3 times to discharge excessive blended gas.

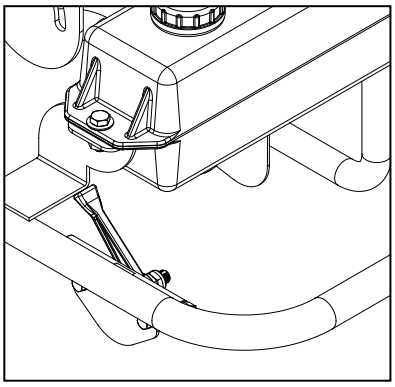




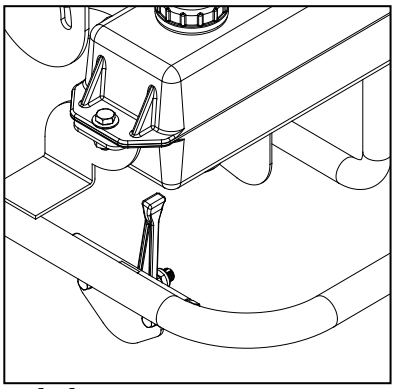




3.3 OPERATING



Throttle lever in idle position



Throttle lever in operating position

Safety tips

- Do wear a pair of gloves while operating machine to reduce fatigue cause by vibration

Follow the below steps while operating the rammer and refer to Diagram 5.

a. Move the throttle lever quickly from IDLE to Operation position to start tamping action. **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.

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

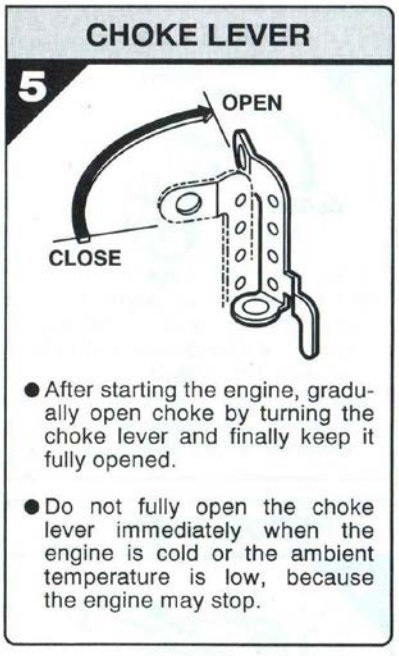
c. The tamping rammer is design to tamp the ground at 600 to 700 times per minute for tamping rammer at an engine speed of 3250rpm~3350rpm. Increasing the speed above the recommended rpm will not increase the rammer effectiveness. Impact will actually decrease because a resonance is create rather than increasing the tamping effect, thus damage to the unit can result.

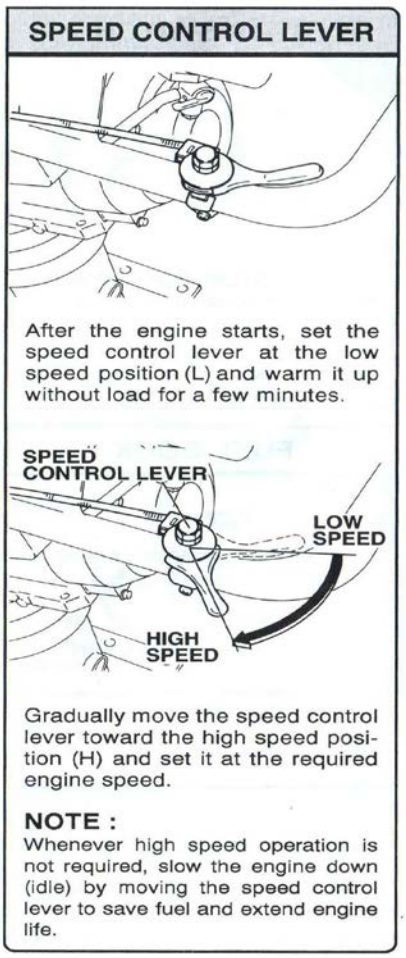
d. Under cold weather, the oil in the machine being viscous, resistance at reciprocating part is greater causing tamping rammer to perform somewhat irregular movement. Therefore, it is recommended to perform a warm up run by moving the throttle lever from OPERATION to IDLE position quickly and continuously for several times before entering the work.

e. Soil contacting surface of the foot is lined with heat-treated metal sheet for extra strength. However, for compacting cobblestone, use the filling-up soil for example so that the foot hits the soil uniformly.

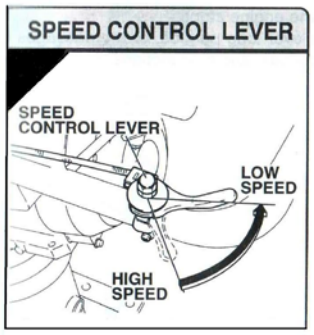
f. The machine is design to travel forward while tamping. To increase the travel speed, a slight back pull to the handle is necessary so that the rear of the foot shall contact the soil first, thus giving the extra forward trust to the rammer.

g. To stop tamping action, quickly move the throttle lever from OPERATION to IDLE position. Do not move the lever slowly as irregular action and damage may result.

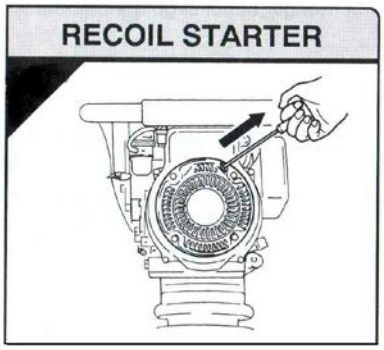




3.4 STOPPING



a. Let the engine run for three minute at idle speed to allow proper cool down of the engine. This will prevent improper cylinder lubrication, which can be caused by overheated engine.
b. After the engine is cooled down, toggle the switch to OFF position or close the Fuel Cock.
c. 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 intruding into the carburetor chamber.



4.0 SERVICE TRANSPORT & STORAGE

⚠ CAUTION:

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

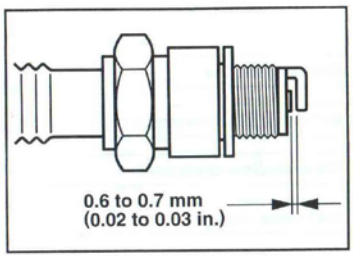
Moving parts is hazardous. Shut down the engine before performing any service or maintenance to the machine. Contact with moving parts can cause unwanted and serious injury.

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

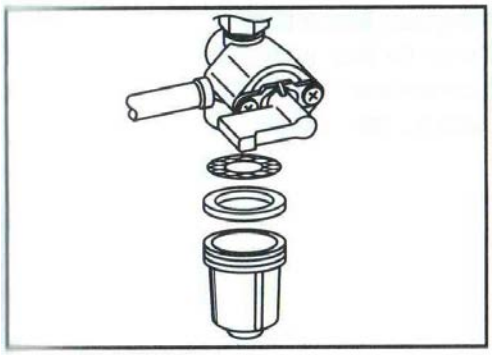
It is essential to do regular maintenance to the machine for safe usage and prolong its life span of the machine. Even the world best machine will fail or shorten life span if it is not serviced and maintained regularly and properly. Below is the breakdown of the service and maintenance procedure:

a. Daily
   - Remove oil and dirt thoroughly from the engine and control area.
   - Clean or replace cleaner 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-cleaner at the top of crankcase and clean it by air.

b. Weekly (every 25 hours)
   - Clean air cleaner cover.
   - Clean off carbon deposits on the spark plug electrode using a plug cleaner or wire brush
   - Adjust spark plug gap to 0.02-0.3 inch (0.6-0.7mm).



c. Monthly (every 200 hours)
   - Remove fuel filter cap and inspect for rough particle. Clean fuel tank and fuel filter.
   - Inspect fuel strainer for water and dirt. Close the fuel cock and remove strainer cup to remove water and dirt. Clean it with gasoline and reinstall securely to prevent leakage

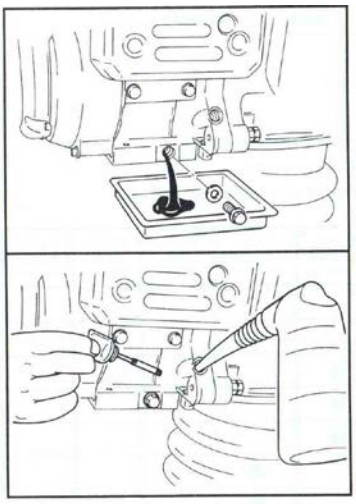


d. Replacement of lubricant (BODY)
   - Remove the drain plug at the rear of the rammer foot and drain dirty oil. Refill with clean oil to the middle of the sight glass. Oil bath contains approx 800cc for CS 73. Oil should be midway in sight glass.
   - The interval oil change is 50hours after first operation and subsequent 200hours after each and every operation of rammer.

e. Replacement of lubricant (ENGINE)
   - For quick discharging, remove the drain plug while engine is still warm. It

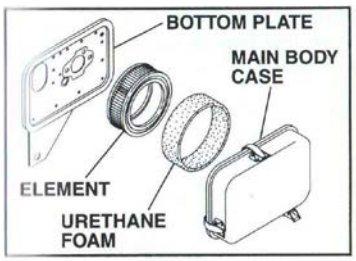
is advisable to take off the oil gauge. Replace the drain plug and refill lubricant thru engine crankcase.

- The interval of oil change is 20hours after first operation and subsequent 50hours after each and every operation of engine.



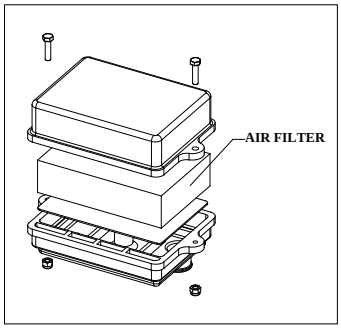
f. Cleaning Robin Engine Air Cleaner

- Clean the urethane foam using gasoline.
- Wash the element in kerosene or diesel fuel. Saturate it in a mixture of 3 parts of kerosene or diesel fuel and 1 part of engine oil. Shake off excessive oil and reinstall
- If an oil bath or special air cleaner with pre-cleaner is used, clean the oil pan, fill oil to the required level or clean the dust pan



g. Cleaning the Rammer Air Cleaner Element

- Perform cleaning of air cleaner as needed.
- Remove air filter element from the top of crankcase
- Wash the element in detergent solution.
- Shake out excess moisture and dry the element.



h. Cleaning the Oil Filter

- Drain oil filter every 100 hours of operation. Replace it after every 1000 hours of operation.

i. Fuel Pipe & Oil Pipe

- Check fuel line regularly for damage. Ensure clamp is tightly fit and hold to the attached parts.
- Replace fuel line every two years to maintain original performance.

Below is added on table showing the necessary service of the product

Table 4: Service Chart (Petrol Rammer)

Duration / Service area	Daily before starting	After First 5 hours	Every week or 25 hours	Every month or 100 hours	Every 3 months or 300 hours	Every Year
Check Fuel level	√					
Check Engine oil level	√					
Check air filter indicator. Replace as needed	√					
Check ramming system oil level in sightglass	√					
Check fuel line and fittings for cracks or leaks. Replace as needed	●					
Tighten ramming shoe hardware		●	●			
Check engine cylinder screws		●	●			
Check external hardware		√	√			
Clean engine cooling fins			√			
Clean and check spark plug gap			●			
Replace spark plug				●		
Clean recoil starter					√	
Change ramming system oil*					●	
Clean engine muffler and exhaust port					●	
Inspect lifting cable for wear, damage, or abuse					●	
Inspect fuel filter						√

* Perform initially after first 50 hours of operation.

Note: If engine performance is poor, check, clean, and replace air filter elements as needed.

Table 5: Service Chart (Diesel Rammer)

Duration / Service area	Daily before starting	After First 5 hours	Every week or 25 hours	Every month or 100 hours	Every 3 months or 300 hours	Every Year
Check Fuel level	√					
Check Engine oil level	√					
Check air filter indicator. Replace as needed	√					
Check ramming system oil level in sightglass	√					
Check fuel line and fittings for cracks or leaks. Replace as needed	√					
Check bellows for damage and fit.	√					
Tighten ramming shoe hardware		●	●			
Check external hardware		√	√			
Clean engine cooling fins			√			
Change engine oil*				●		
Change engine oil filter*					●	
Clean recoil starter					●	
Change ramming system oil*					●	
Inspect lifting cable for wear, damage, or abuse					●	
Check and adjust valve clearance**			●			●
Replace engine oil filter						●
Check fuel filter, clean or replace						●

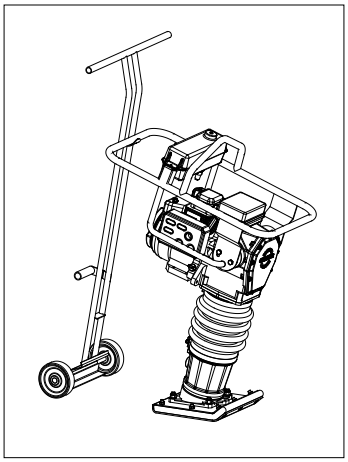
* Perform initially after first 50 hours of operation.
Note: If engine performance is poor, check, clean, and replace air filter elements as needed.
** Perform initially after first 25 hours of operations.

4.1 TRANSPORTATION

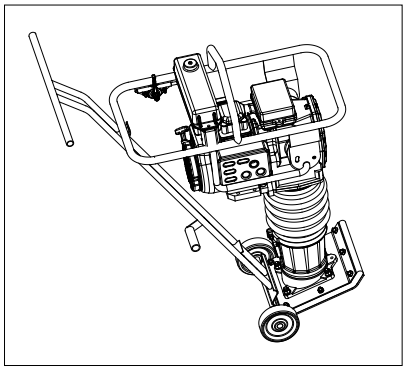
Transport rammer in upright position. If machine must be laid down for transportation, gasoline fuel must be drained out of the fuel tank and machine shall be lay with the side where muffler is placed.

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

A transport dolly is an additional accessory that is use to transport the rammer for a short distance.



Hook the handle to the dolly's top hook.



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

4.2 STORAGE

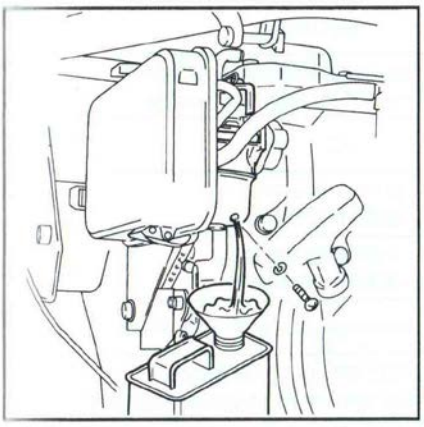
Storage of rammer is distinct into two types, the short term and the long term. The method of storage is described below:

Short Term (2 to 3 days)

Rammer should be store in such position as it is placed on a level ground. After engine and machine have been cooled down, be sure to secure the rammer as and when necessary to avoid accidental knocking down. If rammer has to be laid down inevitably, tighten fuel tank cap and engine oil plug securely and wait until engine and machine are cooled down. After lying down, make sure that there is no leak of fuel or oil. (If fuel leak, drain the tank)

Long term (above 3 days)

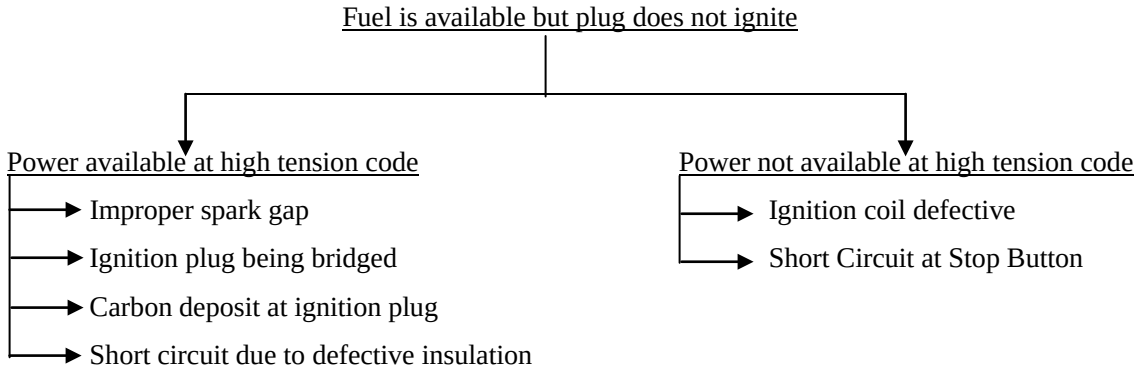
Long term storage: Drain fuel from tank, fuel line and carburetor. Remove spark plug and pour a few drops of motor oil into cylinder. Crank engine 3 or 4 times so that oil reaches all internal parts. Clean exterior with a cloth soaked in clean oil. Store unit cover with plastic sheet in a moisture free and dust free location out of direct sunlight.

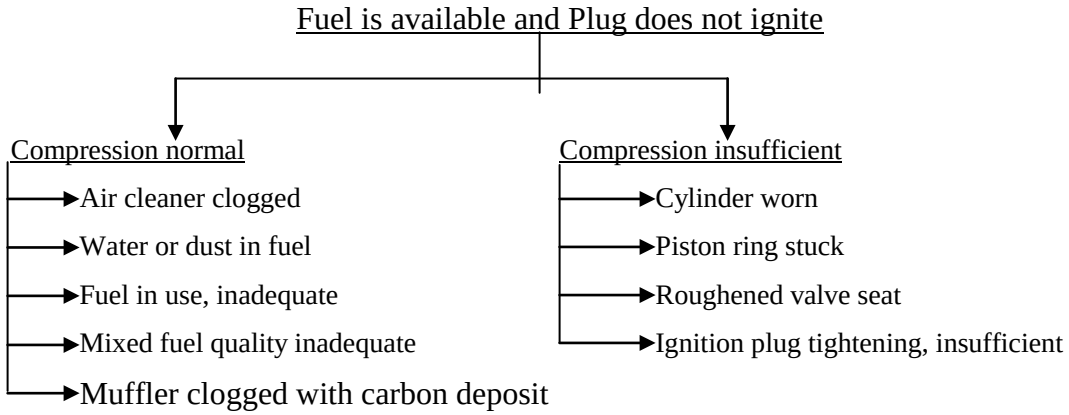


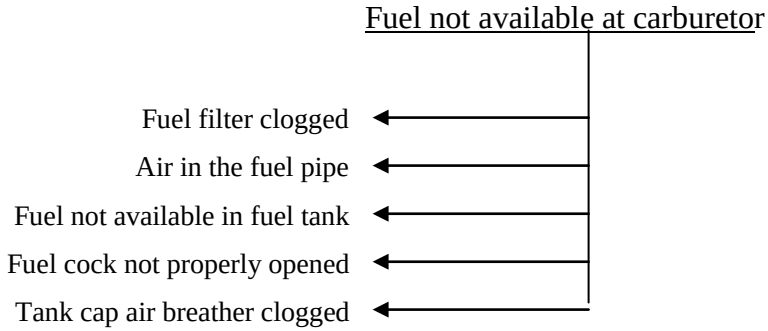
5.0 TROUBLESHOOTING

b. Engine

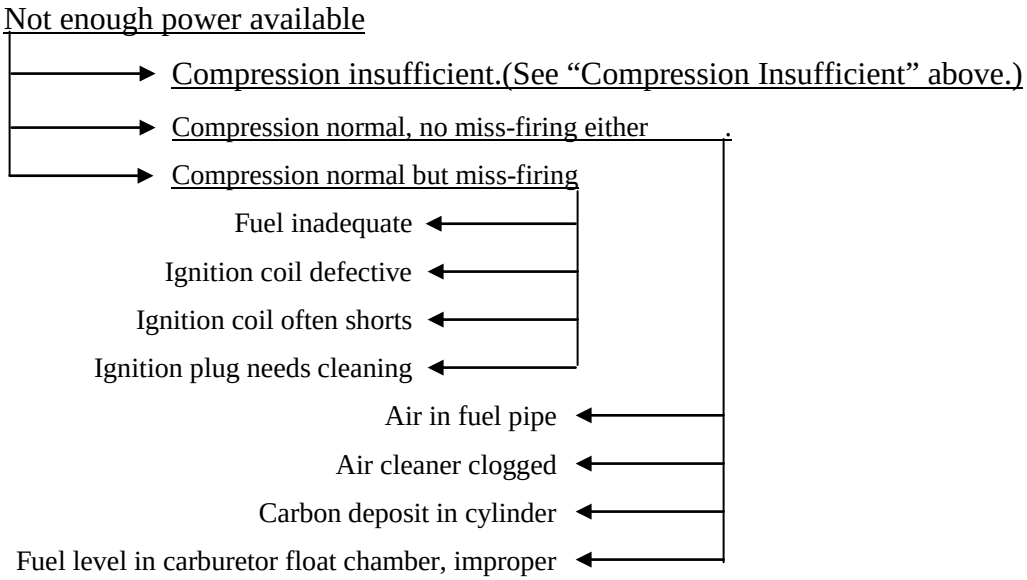
i. Difficult to start

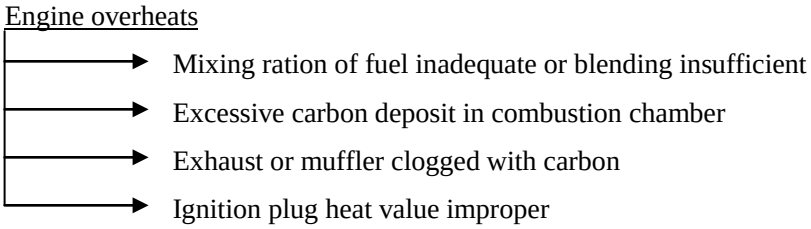


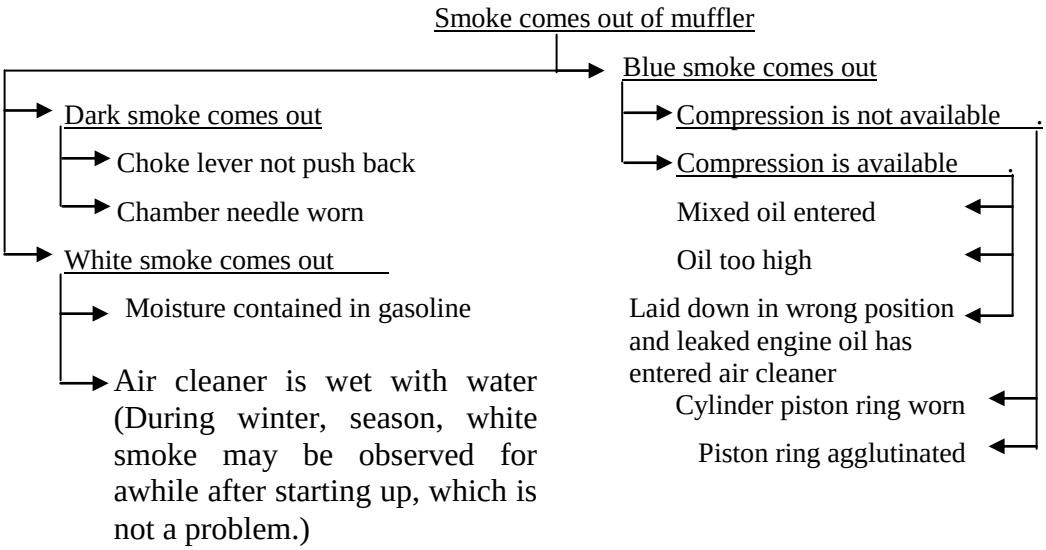




ii. Operation not satisfactory







Rotational speed fluctuates

- Governor adjustment improper
- Governor spring defective
- Fuel flow defective
- Air taken in through suction line

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

b. Rammer itself

Engine rotate but amplitude not uniform, or does not strike

- Clutch slip
- Oil in excess
- Spring failure
- Set speed of engine improper
- Operating speed throttle lever too slow