

# OPERATION MANUAL



***Mikasa* SERIES**

**MODEL MT77HFR**

**TAMPING RAMMER**

**(HONDA GXR120RT-KRB6 GASOLINE ENGINE)**

Revision # 1 (07/08/20)

To find the latest revision of this publication or  
associated parts manual, visit our website at:

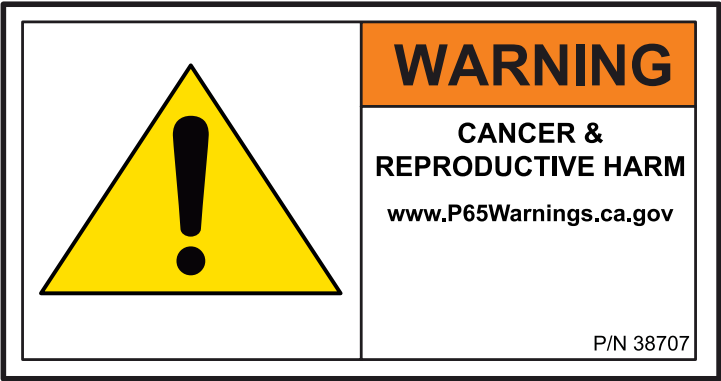
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**THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.**

**PROPOSITION 65 WARNING**

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## MT77HFR Rammer

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### **NOTICE**

Specifications and part numbers are subject to change without notice.

## SAFETY INFORMATION

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.









### SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: **DANGER**, **WARNING**, **CAUTION** or **NOTICE**.

### SAFETY SYMBOLS

 <b>DANGER</b>
Indicates a hazardous situation which, if not avoided, <b>WILL</b> result in <b>DEATH</b> or <b>SERIOUS INJURY</b> .
 <b>WARNING</b>
Indicates a hazardous situation which, if not avoided, <b>COULD</b> result in <b>DEATH</b> or <b>SERIOUS INJURY</b> .
 <b>CAUTION</b>
Indicates a hazardous situation which, if not avoided, <b>COULD</b> result in <b>MINOR</b> or <b>MODERATE INJURY</b> .
<b>NOTICE</b>
Addresses practices not related to personal injury.

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety messages.

Symbol	Safety Hazard
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazards
	Respiratory hazards
	Accidental starting hazards
	Eye and hearing hazards

# SAFETY INFORMATION

## GENERAL SAFETY

### CAUTION

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.



- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.
- **NEVER** operate this equipment under the influence of drugs or alcohol.



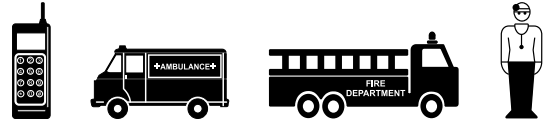
- **ALWAYS** check the equipment for loosened threads or bolts before starting.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

### NOTICE

- This equipment should only be operated by trained and qualified personnel 18 years of age and older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- **ALWAYS** know the location of the nearest fire extinguisher.
- **ALWAYS** know the location of the nearest first aid kit.



- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site**. Also, know the phone numbers of the nearest **ambulance**, **doctor** and **fire department**. This information will be invaluable in the case of an emergency.



## RAMMER SAFETY

### DANGER

- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death**.



### WARNING

- **NEVER** disconnect any **emergency or safety devices**. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.
- **DO NOT** use this machine on ground that is harder than the machine can handle, or for driving pilings or tamping rock beds. Furthermore, use of the machine on sloping ground, such as the side of an embankment, may make the machine unstable and can cause an accident. It can also result in premature machine wear due to uneven loads on the machine.

Use the machine with confidence for tamping earth and sand, soil, gravel, and asphalt. **DO NOT** use the machine for other types of jobs.

### CAUTION

- **NEVER** lubricate components or attempt service on a running machine.

### NOTICE

- **ALWAYS** keep the machine in proper running condition.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.

# SAFETY INFORMATION

## ENGINE SAFETY

### DANGER

- The engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- The engine of this equipment requires an adequate free flow of cooling air. **NEVER** operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine.



### WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the rammer.



### CAUTION

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



### NOTICE

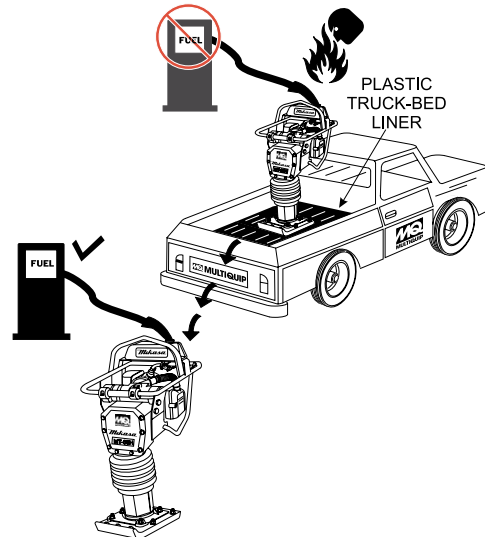
- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.



## FUEL SAFETY

### DANGER

- **DO NOT** add fuel to equipment if it is placed inside truck bed with plastic liner. Possibility exists of explosion or fire due to static electricity.



- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** liquids.
- **DO NOT** fill the fuel tank while the engine is running or hot.
- **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system.
- Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine.



## TRANSPORTING SAFETY

### CAUTION

- NEVER allow any person or animal to stand underneath the equipment while lifting.

### NOTICE

- Before lifting, make sure that the equipment parts (hook and vibration insulator) are not damaged and screws are not loose or missing.
- Always make sure crane or lifting device has been properly secured to the lifting bail (hook) of the equipment.
- **ALWAYS** shutdown engine before transporting.
- **NEVER** lift the equipment while the engine is running.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Use adequate lifting cable (wire or rope) of sufficient strength.
- Use one point suspension hook and lift straight upwards.
- **DO NOT** lift machine to unnecessary heights.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.
- Never allow any person or animal to stand underneath the equipment while lifting.

## ENVIRONMENTAL SAFETY

### NOTICE

- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.



## SPECIFICATIONS

**Table 1. Rammer Specifications**

Overall Height	42.12 in. (1070 mm)
Overall Width	14.76 in. (375 mm)
Over Length	29.13 in. (740 mm)
Shoe Size (L x W)	13.4 x 11.2 in. (340 x 285 mm)
Fuel Tank Capacity	2.11 qt. (2.0 liters)
Lubrication Oil Capacity	0.8 qt. (0.75 liter)
No. of Blows Per Minute	644 - 695
Impact Force	2,653 - 3,080 lbf (11.8 - 13.7 kN)
Impact Plate Stroke	2 - 3.15 in. (50 - 80 mm)
Operating Weight	169.8 lbs. (77 kg)

**Table 2. Engine Specifications**

Model	Honda GXR120RT-KRB6 Engine
Type	Air-Cooled 4 Stroke, single cylinder gasoline engine
Piston Displacement	7.38 cu.in. (121 cc)
Max. Output	3.6 hp/3,600 rpm (2.7 KW)
Max. Governed Speed, No Load	3,800 - 4,100 rpm
Cooling System	Air-Cooled
Engine Oil Capacity	0.3 qt. (0.28 liters)
Fuel	Unleaded gasoline
Lubricant for Engine	Automobile Oil; Class SE or higher
Starting System	Recoil Starter
Spark Plug Type	NGK CR5HSB



## NOISE AND VIBRATION EMISSIONS

**Table 3. Noise and Vibration Emissions**

Measured Sound Power Level in dB(A)	104
Guaranteed Sound Power Level in dB(A)	107
Guaranteed Sound Pressure Level at Operator Station in dB(A)	94
Hand-Arm Vibration in m/s <sup>2</sup>	7.8

### NOTES:

1. *Products are tested for sound pressure level in accordance with European Directives 2000/14/EC and 2005/88/EC, relating to Noise Emission in the Environment by equipment for use outdoors.*
2. *Products are tested for hand/arm vibration (HAV) level in accordance with European Directives 2002/44/EC and EN500-4 and ISO 5349-1:2001, ISO 5349-2:2001.*

## GENERAL INFORMATION

The Multiquip MT77HFR tamping rammer is a powerful compacting tool capable of applying a tremendous force in consecutive impacts to a soil surface. Its applications include soil compacting for road, embankments and reservoirs as well as backfilling for gas pipelines, water pipelines and cable installation work.

The impact force of the MT77HFR levels and uniformly compacts voids between soil particles to increase dry density.

Circular motion is converted to create impact force. The MT77HFR tamping rammer develops a powerful compacting force at the foot of the rammer. To maintain optimum performance, proper operation and service are essential.

The MT77HFR is equipped with an air cooled, four- cycle gasoline engine. Transmission of the power takes place by increasing the engine speed to engage the centrifugal clutch.

The MT77HFR uses an oil bath lubrication system. Always check the oil level through the oil level sight glass at the rear of the tamper foot.

Before starting the MT77HFR Tamping Rammer identify and understand the function of the controls.

### CAUTION



Before starting operation check the lifting handle to:

1. Make sure that there is no damage on the bolts.
2. Make sure that there is no crack or breakage on handle.
3. Make sure that there is no fissure on the surface. If there is any abnormality or damage, replace with new one.

For operation:

This handle is to be used to lift up the shoe part of the machine with the body laid down on the ground or truck bed.

1. Use proper lifting techniques to avoid back injury. This handle is for manual lifting only.
2. Do not use this handle as a rammer lift point. Use the lifting point on the top of the machine.
3. Do not move the rammer with the lifting handle and the front rollers more than 16 feet (5 meters).

[illegible]

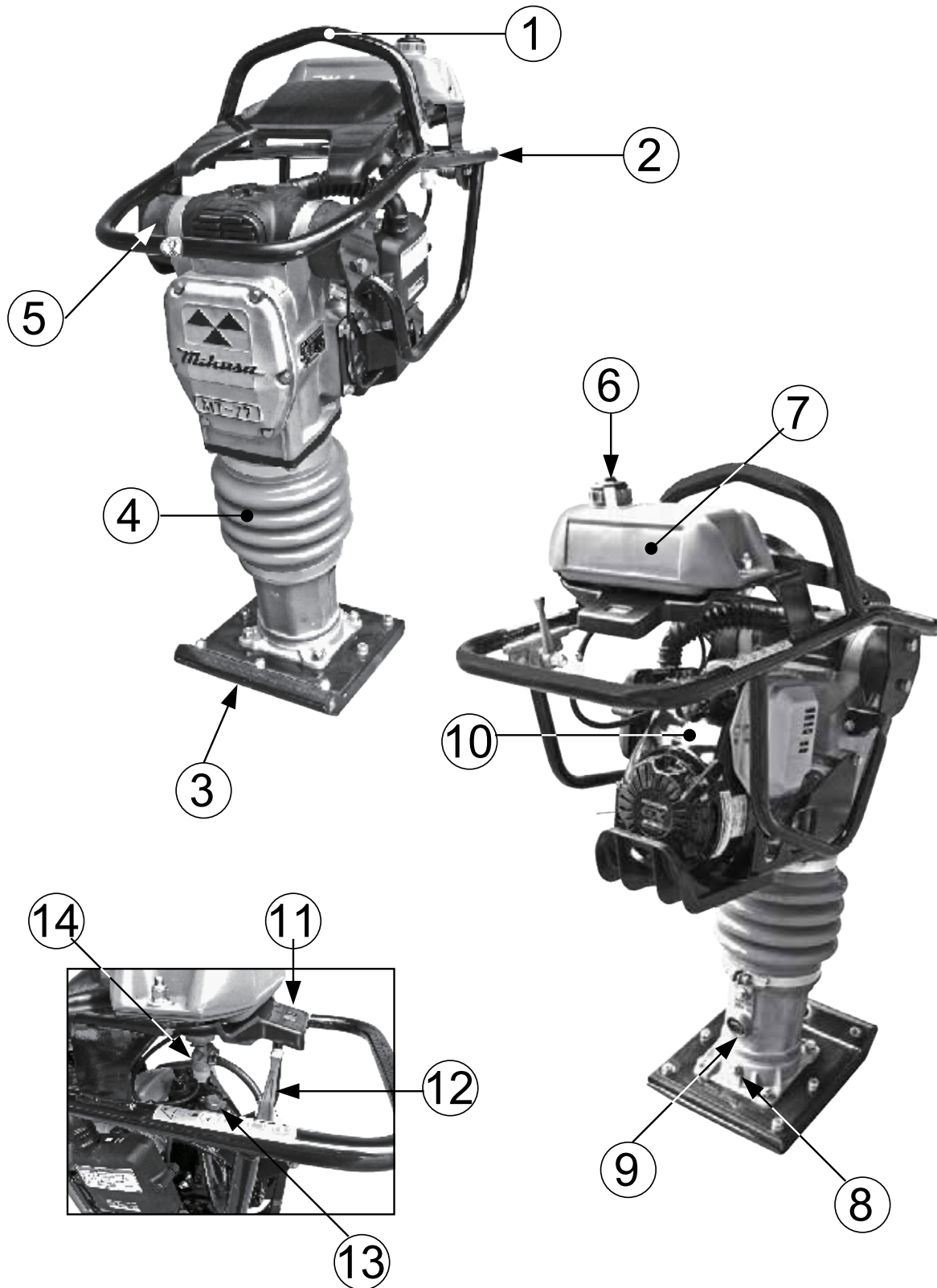


Figure 1. MT77HFR Rammer

## COMPONENTS

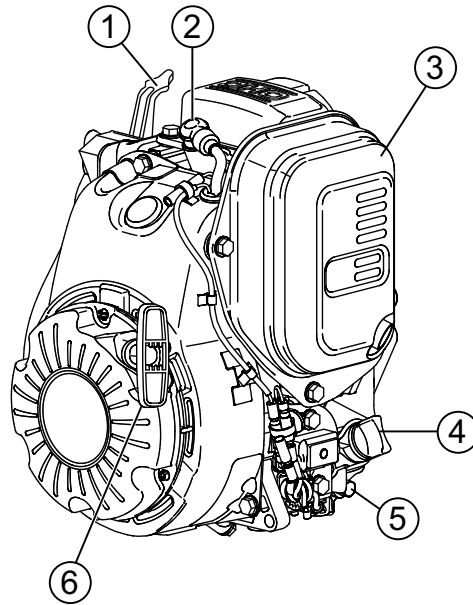
Figure 1 shows the location of the controls and components for the MT77HFR Tamping Rammer. The functions of each control is described below:

1. **Hook** — Used to lift rammer for transporting.
2. **Handle** — To operate rammer, **GRIP** handle assembly firmly on both sides.
3. **Foot** — Laminated wood with tempered steel plate for superior shock absorption.
4. **Bellows** — Reservoir for oil bath.
5. **Shock Absorber** — Protects rammer from damage by absorbing vibration during operation.
6. **Fuel Tank Cap** — Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.
7. **Fuel Tank** — Holds the fuel for the unit (up to 3.2 quarts).
8. **Drain Valve** — Open this valve to remove oil from the bellows.
9. **Oil Gauge (Sight Glass)** — Indicates the level of oil in the oil bath reservoir.
10. **Engine** — This unit uses a Honda GXR120RTKRB6 gasoline engine.
11. **Hour and Tacho Meter** — Measures run time and engine RPM.
12. **Throttle Lever** — Used to adjust engine speed (rpm). Move lever forward (**SLOW**) to reduce engine speed. Move lever back toward operator (**FAST**) to increase speed. Always operate the rammer at full speed (rpm).
13. **Engine Stop Switch** — Controls the starting and stopping of the engine. Switch must be in the "ON" position when starting the engine.
14. **Fuel Shut-Off Valve** — Supplies fuel from the fuel tank to the engine. To begin fuel flow move the fuel shut-off valve lever downward.

### **WARNING**



Adding fuel to the tank should be accomplished only when the engine is stopped and has had an opportunity to cool down. In the event of a fuel spill, **DO NOT** attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry.



**Figure 2. Honda GXR120RT-KRBF Engine**

The engine (Figure 2) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the engine manufacturer's manual for detailed operation and service information.

1. **Choke Lever** — Normally used in starting the engine in cold weather conditions. In cold weather, turn the choke lever to the fully closed position. In warm weather, set the choke lever halfway or completely open.
2. **Spark Plug** — Provides spark to the ignition system. Set spark plug gap to 0.024 - 0.028 inch (0.6 - 0.7 mm). Clean spark plug once a week.
3. **Muffler** — Used to reduce noise and emissions.
4. **Dipstick/Oil Filler Cap** — Remove this cap to determine if the engine oil is low. Add oil through this filler port as recommended in Table 3.
5. **Oil Drain Plug** — Remove this plug to remove oil from the engine's crankcase.

6. **Recoil Starter (pull rope)** — Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.

### NOTICE

Operating the engine without an air filter, with a damaged air filter, or a filter in need of replacement will allow dirt to enter the engine, causing rapid engine wear.

### WARNING

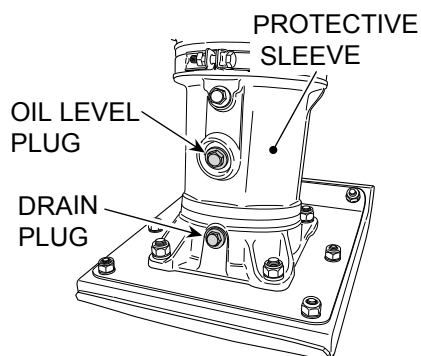


Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operating. **NEVER** operate the engine with the muffler removed.

It is extremely important that this section be read carefully before attempting to operate the rammer. **DO NOT** use your rammer until this section is thoroughly understood.

## OIL CHECK

1. Check the oil level through the oil gauge on the protective sleeve (Figure 3) at the right side of the tamper foot.

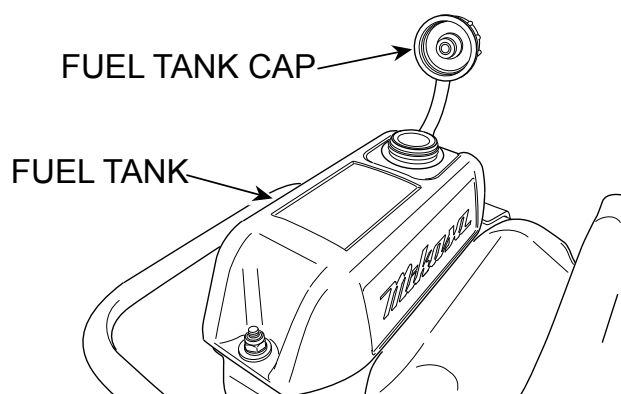


**Figure 3. Oil Check**

2. If not enough oil, add 10W-30 SE, SF or higher grade motor oil into the oil fill plug opening. The tank contains approximately 0.8 qt. (0.75 liter).

## FUEL CHECK

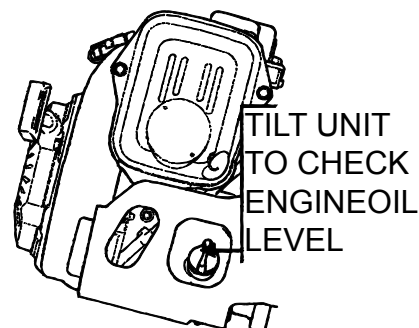
1. Fill the fuel tank (Figure 4) with unleaded gasoline. At the same time, check the engine oil and make it a habit to replenish it often (Figure 6).



**Figure 4. Fuel Tank**

## ENGINE OIL CHECK

2. Place the machine on a level surface and then tilt it forward (Figure 5).

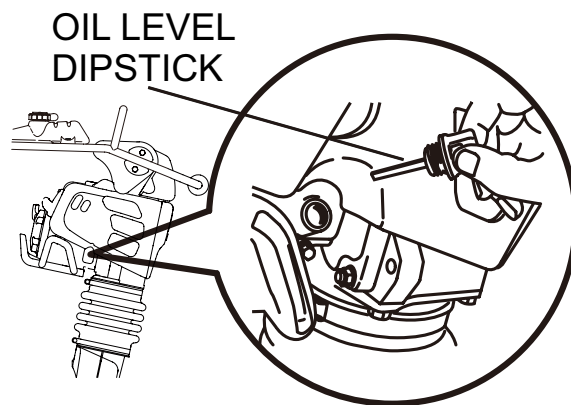


**Figure 5. Tilting Machine**

### NOTICE

Low levels of oil may result in engine seizure due to high levels of consumption during operation.

3. Check the engine oil level and if the engine oil level is low, it should be refilled (Figure 6). Use the proper motor oil as suggested in the Table 4 below.



**Figure 6. Engine Oil Dipstick**

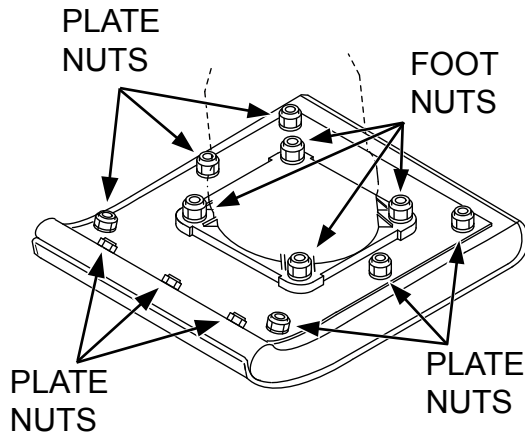
**Table 4. Motor Oil Grade**

Season or Temperature	Grade of motor oil (higher than MS class)
Spring, Summer or Autumn +120° F to +15° F	SAE 30
Winter +40° F to +15° F	SAE 30
Below +15° F	SAE 10W-30

## GENERAL INSPECTION

1. Check all nuts, bolts fasteners for tightness. Retighten nuts (Figure 7) as necessary with the following torques:

- Nut M10 — 21.6 ft·lbf (29.4 N·m)
- Nut M12 — 78.4 ft·lbf (57.9 N·m)



**Figure 7. Tightening Nuts**

2. Clean any dirt from the recoil starter and foot pedestal. Wipe the entire unit clean before operating.
3. Replace any missing or damaged Safety Operation decals.
4. Adjust height of handle. Adjust handle by loosening nuts and moving handle to suit operation. Retighten nuts.



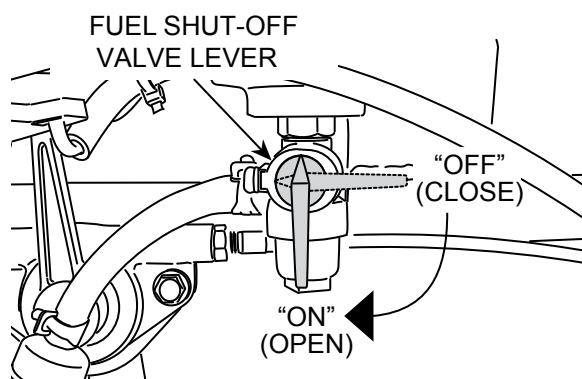
## **CAUTION**

Failure to understand the operation of the rammer could result in severe damage to the unit or personal injury.

### INITIAL STARTUP

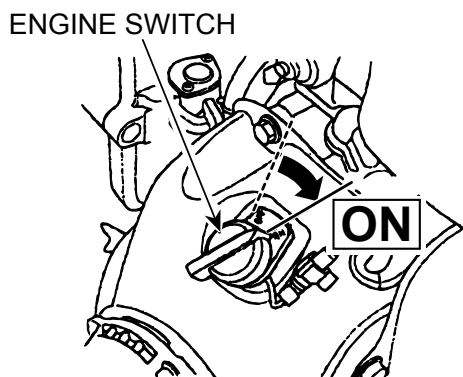
When starting the MT77HFR rammer perform the following:

1. Open the fuel shut-off valve by moving the lever to the **ON** (open) position (Figure 8).



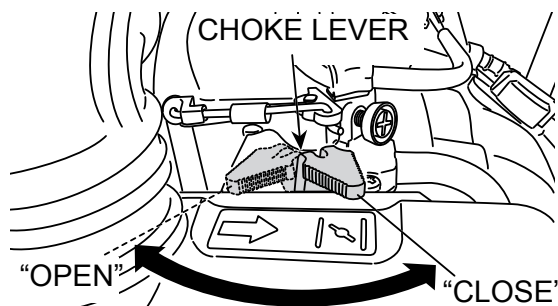
**Figure 8. Fuel Shut-Off Valve**

2. Set the engine **ON/OFF** switch to the **ON** (start) position (Figure 9).



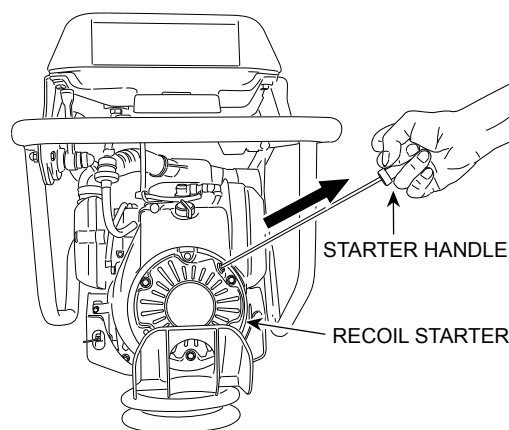
**Figure 9. Engine Switch**

3. Close the choke lever (Figure 10) and move the throttle lever to the "Full Open" position. Turning the choke lever 90° clockwise closes the choke. In cold weather, start the unit with choke fully closed. In warm weather or when the engine is warm, the unit can be started with choke halfway or completely open.



**Figure 10. Choke Lever**

4. Grip the starter rope handle (Figure 11) and pull it until you feel a slight resistance. Then pull sharply and quickly. Return the handle to the starter case before releasing.

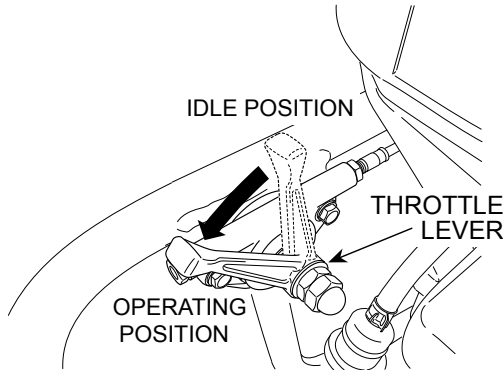


**Figure 11. Recoil Starter**

5. If engine fails to start, move the choke lever (Figure 10) to the half open position to avoid flooding.
6. Repeat steps 1 thru 5.
7. If the engine does not start after repeated attempts, check the spark plug for excess fuel. Clean and replace the spark plug as needed.

## OPERATION

1. To start the rammer tamping action, move the throttle lever (Figure 12) **quickly** from idle to the operating position. The rammer will start up and down motion. **DO NOT** move the throttle lever slowly as this may cause damage to the clutch or spring.

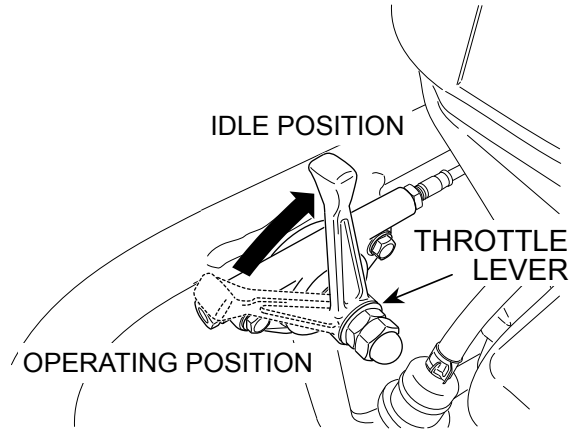


**Figure 12. Throttle Lever (Operating Position)**

### CAUTION

If the rammer is used on sloping ground, make sure that the surroundings are safe and take extra caution in preventing the machine from falling over.

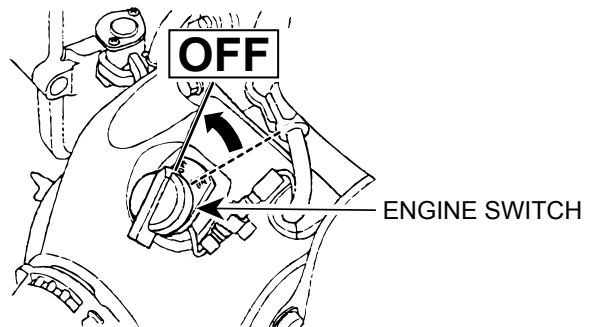
2. In cold weather, the oil in the machine will be thicker and the resistance of the components will be higher. This can cause irregular motion. Shift the throttle lever for the operating position to idle several time and allow machine to warm up before starting actual work.
3. The metal surface of the foot in contact with the ground has excellent wear resistance. However, if the ground contains large stones (size of a fist), place some fill soil over the ground for even tamping.
4. The machine will advance as it jumps up and down. For faster advance, push the handle slightly forward to make the machine lean a little forward.
5. To stop the tamping action, move throttle lever quickly from operating to idle position (Figure 13). **DO NOT** move the throttle lever slowly.



**Figure 13. Throttle Lever (Idle Position)**

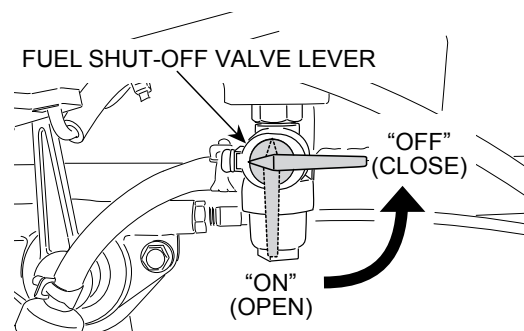
## STOPPING THE ENGINE

1. Move throttle lever quickly from the operating to idle position (Figure 13) and run the engine for three minutes at low speed. After the engine **cools**, move the engine stop switch to the OFF position (Figure 14).



**Figure 14. Engine Stop Switch (OFF)**

2. Move the fuel shut-off valve lever to the OFF (Closed) position (Figure 15).



**Figure 15. Fuel Shut-off Lever (OFF)**

## DAILY

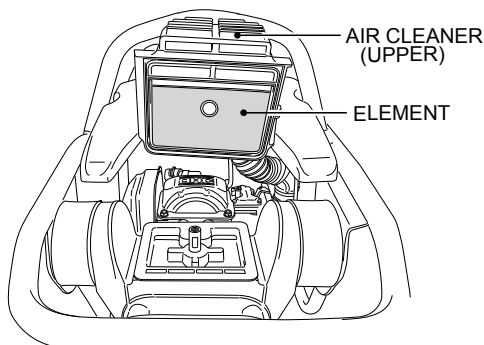
- Thoroughly remove dirt and oil from the engine and control area.
- Clean or replace the air cleaner elements as necessary. Check and retighten all fasteners as necessary.
- Check the spring box and bellows for oil leaks. Repair or replace as needed.

## EVERY 50 HOURS

- Clean the fuel shut-off valve.
- Remove and clean the spark plug, then adjust the spark gap to 0.024~0.028 inch (0.6~0.7 mm).

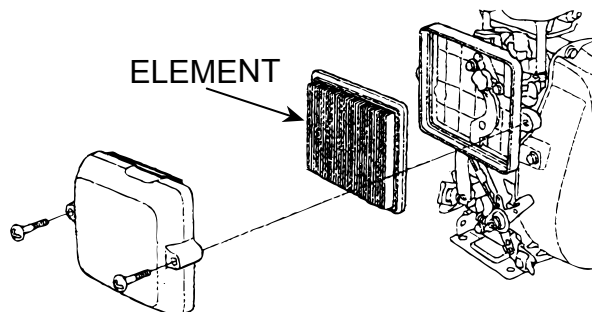
## EVERY 150 HOURS

- Remove the element from the air cleaner cover - upper part (Figure 16) and wash it with gasoline or kerosene. Then dip it in engine oil (SAE10W-30) and squeeze lightly. Reinstall the element.



**Figure 16. Air Cleaner (Upper)**

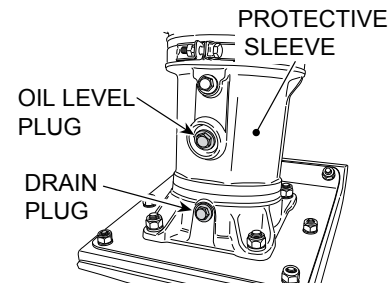
- Remove the element from the air cleaner - engine (Figure 17) and wash it with gasoline or kerosene. Reinstall the element.



**Figure 17. Air Cleaner (Engine)**

## EVERY 200 HOURS

- Remove the oil drain plug on foot housing (Figure 18) and drain the oil. Refill with approximately 0.8 qt. (0.75 liter) of 10W-30 SE, SF or higher grade motor oil. Check oil gauge on the protective sleeve from the right side if oil is at specified level.



**Figure 18. Oil Replacement**

## EVERY 2 YEARS

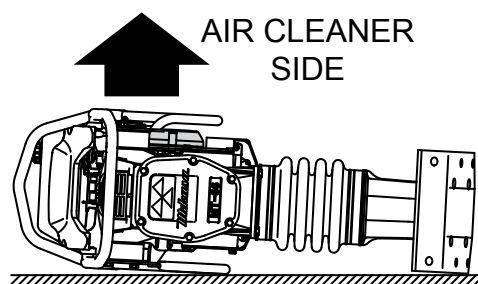
- Replace the fuel line every 2 years even if there is no visible damage.

## STORAGE

- Wash off any dirt or mud on the machine with clean water. After the engine and main body have cooled down, store the rammer on a level location.
- Secure the machine body so that it can not fall down. If you have to lay the machine down, close the fuel tank cap securely and tighten engine oil drain plug.
- After the engine and machine body have cooled down, lay the machine so that the carburetor is facing up. Once the machine has been laid down, make sure that there is no fuel or lubrication oil leaks. If the fuel leaks, drain the fuel from the fuel tank.
- Put a cover on the machine body to protect it from dust and dirt. Store the machine in a location that is not exposed to direct sunlight and which has low humidity.

## TRANSPORTING

- Transport the rammer in a secure and level upright position.
- If you must lay the machine down to transport it, drain any fuel from the fuel tank and carburetor. Then close the fuel tank cap and oil fill plug securely. Next, position the machine so that the air cleaner will be facing up (Figure 19).



**Figure 19. Transporting Rammer**

## LONG TERM STORAGE

- Slide the throttle lever to the **STOP** position.
- Drain any fuel including in the fuel hose.
- Replace lubrication oil and apply grease to lubrication points.
- Cover the air intake on the air cleaner and the exhaust outlet on the muffler.
- Store unit indoors covered with plastic sheet in moisture free and dust free location out of direct sunlight.

# TROUBLESHOOTING

Troubleshooting (Engine)		
Symptom	Possible Problem	Solution
Difficult to start, fuel is available, but no spark at spark plug.	Combo lever in incorrect position?	Make sure combo lever is in start position.
	Spark plug bridging?	Check gap, insulation or replace spark plug.
	Carbon deposit on spark plug?	Clean or replace spark plug.
	Short circuit due to deficient spark plug insulation?	Check spark plug insulation, replace if worn.
	Improper spark plug gap?	Set to proper gap.
	Fuel reaching carburetor?	Check fuel line.
	Water in fuel tank?	Flush or replace fuel tank.
	Fuel filter clogged?	Replace fuel filter.
	Stuck carburetor?	Check float mechanism.
	Spark plug is red?	Check transistor ignition unit.
	Spark plug is bluish white?	If insufficient compression, repair or replace engine. If injected air leaking, correct leak. If carburetor jets clogged, clean carburetor.
	No spark present at tip of spark plug?	Check transistor ignition unit is broken, and replace defective unit. Check if voltage cord cracked or broken and replace. Check if spark plug if fouled and replace.
Difficult to start, fuel is available, and spark is present at the spark plug.	No oil?	Add oil as required.
	ON/OFF switch is shorted?	Check switch wiring, replace switch.
	Ignition coil defective?	Replace ignition coil.
	Improper spark gap, points dirty?	Set correct spark gap and clean points.
	Condenser insulation worn or short circuiting?	Replace condenser.
Difficult to start, fuel is available, spark is present and compression is normal.	Spark plug wire broken or short circuiting?	Replace defective spark plug wiring.
	Wrong fuel type?	Flush fuel system, replace with correct type of fuel.
	Water or dust in fuel system?	Flush fuel system.
	Air cleaner dirty?	Clean or replace air cleaner.
Difficult to start, fuel is available, spark is present and compression is low.	Choke open?	Close choke.
	Suction/exhaust valve stuck or protruded?	Reseat valves.
	Piston ring and/or cylinder worn?	Replace piston rings and/or piston.
	Cylinder head and/or spark plug not tightened properly?	Torque cylinder head bolts and spark plug.
No fuel present at carburetor.	Head gasket and/or spark plug gasket damaged?	Replace head and spark plug gaskets.
	No fuel in fuel tank?	Fill with correct type of fuel.
	Fuel cock does not open properly?	Apply lubricant to loosen fuel cock lever, replace if necessary.
	Fuel filter/lines clogged?	Replace fuel filter.
	Fuel tank cap breather hole clogged?	Clean or replace fuel tank cap.
	Air in fuel line?	Bleed fuel line.

# TROUBLESHOOTING

Troubleshooting (Engine) - continued		
Symptom	Possible Problem	Solution
Weak in power, compression is proper and does not misfire.	Air cleaner dirty?	Clean or replace air cleaner.
	Improper level in carburetor?	Check float adjustment, rebuild carburetor.
	Defective spark plug?	Clean or replace spark plug.
	Improper spark plug?	Set to proper gap.
Weak in power, compression is proper but misfires.	Water in fuel system?	Flush fuel system and replace with correct type of fuel.
	Dirty spark plug?	Clean or replace spark plug.
	Ignition coil defective?	Replace ignition coil.
Engine overheats.	Spark plug heat value incorrect?	Replace with correct type of spark plug.
	Wrong type of fuel?	Replace with correct type of fuel.
	Cooling fins dirty?	Clean cooling fins.
	Intake air restricted?	Clear intake of dirt and debris. Replace air cleaner elements as necessary.
	Oil level too low or too high?	Adjust oil to proper level.
Rotational speed fluctuates.	Governor adjusted incorrectly?	Adjust governor.
	Governor spring defective?	Replace governor spring.
	Fuel flow restricted?	Check entire fuel system for leaks or clogs.
Recoil starter malfunctions. (if applicable)	Recoil mechanism clogged with dust and dirt?	Clean recoil assembly with soap and water.
	Spiral spring loose?	Replace spiral spring.
Starter malfunctions.	Loose, damaged wiring?	Ensure tight, clean connections on battery and starter.
	Battery insufficiently charged?	Recharge or replace battery.
	Starter damaged or internally shorted?	Replace starter.
Burns too much fuel.	Over-accumulation of exhaust products?	Check and clean valves. Check muffler and replace if necessary.
	Wrong spark plug?	Replace spark plug with manufacturer's suggested type.
Exhaust color is continuously "white".	Lubricating oil is wrong viscosity?	Replace lubricating oil with correct viscosity.
	Worn rings?	Replace rings.
Exhaust color is continuously "black".	Air cleaner clogged?	Clean or replace air cleaner.
	Choke valve set to incorrect position?	Adjust choke valve to correct position.
	Carburetor defective, seal on carburetor broken?	Replace carburetor or seal.
	Poor carburetor adjustment, engine runs too rich?	Adjust carburetor.
Will not start, no power with key "ON". (if applicable)	ON/OFF device not activated ON?	Turn on ON/OFF device.
	Battery disconnected or discharged?	Check cable connections. Charge or replace battery.
	Ignition switch/wiring defective?	Replace ignition switch. Check wiring.

## TROUBLESHOOTING

Troubleshooting (Rammer)		
Symptom	Possible Problem	Solution
Engine runs but rammer jumps erratically or not at all.	Operating speed of throttle lever is incorrectly set?	Set throttle lever to correct position.
	Oil in excess?	Drain excess oil. Bring to correct level.
	Clutch slips?	Replace or adjust clutch.
	Spring Failure?	Replace spiral spring.
	Speed of engine improper?	Adjust engine speed to correct operating RPM setting.
	Soil over-compacted?	Shut down machine and test soil.

# OPERATION MANUAL

## HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL  
NUMBER ON-HAND WHEN CALLING

### UNITED STATES

#### ***Multiquip Inc.***

(310) 537- 3700  
6141 Katella Avenue Suite 200  
Cypress, CA 90630  
E-MAIL: [mq@multiquip.com](mailto:mq@multiquip.com)  
WEBSITE: [www.multiquip.com](http://www.multiquip.com)

### CANADA

#### ***Multiquip***

(450) 625-2244  
4110 Industriel Boul.  
Laval, Quebec, Canada H7L 6V3  
E-MAIL: [infocanada@multiquip.com](mailto:infocanada@multiquip.com)

### UNITED KINGDOM

#### ***Multiquip (UK) Limited Head Office***

0161 339 2223  
Unit 2, Northpoint Industrial Estate,  
Globe Lane,  
Dukinfield, Cheshire SK16 4UJ  
E-MAIL: [sales@multiquip.co.uk](mailto:sales@multiquip.co.uk)

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