OPERATION MANUAL

MULTIQUIP®

Mikasa SERIES

MODEL MVH408GV

REVERSIBLE PLATE COMPACTOR

(BRIGGS & STRATTON VANGUARD 400 GASOLINE ENGINE)

Revision #0 (05/01/2023)

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

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.


WARNING
CANCER &
REPRODUCTIVE HARM
www.P65Warnings.ca.gov
P/N 38707

MVH408GV Reversible Plate Compactor

NOTICE

Equipment specifications and features are subject to change without notice.

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

DANGER

Indicates a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY.**

WARNING

Indicates a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY.**

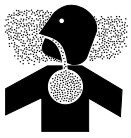
CAUTION

Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY.**

NOTICE

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
	Rotating parts hazards

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.

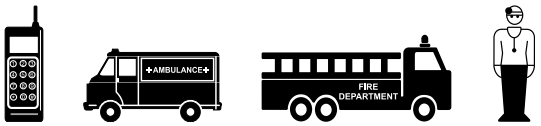
- **ALWAYS** check the equipment for loosened threads or bolts before starting.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.
- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.

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.



COMPACTOR 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.

⚠ CAUTION

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

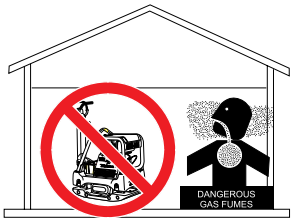
NOTICE

- **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.

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.
- Keep fingers, hands hair and clothing away from all moving parts to prevent injury.

- **DO NOT** remove the radiator cap while the engine is hot. High pressure boiling water will gush out of the radiator and severely scald any persons in the general area of the compactor.
- **DO NOT** remove the coolant drain plug while the engine is hot. Hot coolant will gush out of the coolant tank and severely scald any persons in the general area of the compactor.

- **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 compactor.

⚠ CAUTION

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

NOTICE

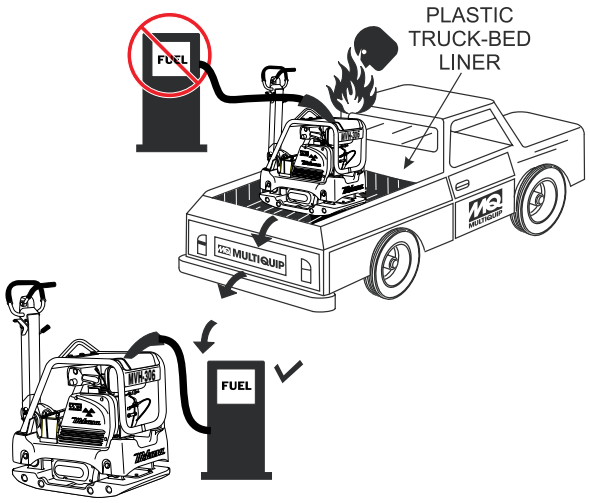
- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating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

- **NEVER** tip the engine to extreme angles during lifting as it may cause oil to gravitate into the cylinder head, making the engine start difficult.

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. Diesel 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.

BATTERY SAFETY (ELECTRIC START ONLY)

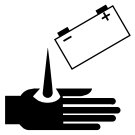
DANGER

- **DO NOT** drop the battery. There is a possibility that the battery will explode.
- **DO NOT** expose the battery to open flames, sparks, cigarettes, etc. The battery contains combustible gases and liquids. If these gases and liquids come into contact with a flame or spark, an explosion could occur.

WARNING

- **ALWAYS** wear safety glasses when handling the battery to avoid eye irritation. The battery contains acids that can cause injury to the eyes and skin.

- Use well-insulated gloves when picking up the battery.
- **ALWAYS** keep the battery charged. If the battery is not charged, combustible gas will build up.
- **DO NOT** charge battery if frozen. Battery can explode. When frozen, warm the battery to at least 61°F (16°C).
- **ALWAYS** recharge the battery in a well-ventilated environment to avoid the risk of a dangerous concentration of combustible gases.
- If the battery liquid (dilute sulfuric acid) comes into contact with **clothing or skin**, rinse skin or clothing immediately with plenty of water.



- If the battery liquid (dilute sulfuric acid) comes into contact with **eyes**, rinse eyes immediately with plenty of water and contact the nearest doctor or hospital to seek medical attention.

CAUTION

- **ALWAYS** disconnect the **NEGATIVE battery terminal** before performing service on the equipment.
- **ALWAYS** keep battery cables in good working condition. Repair or replace all worn cables.

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 lifitng 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.

ENVIRONMENTAL SAFETY/DECOMMISSIONING

NOTICE

Decommissioning is a controlled process used to safely retire a piece of equipment that is no longer serviceable. If the equipment poses an unacceptable and unrepairable safety risk due to wear or damage or is no longer cost effective to maintain (beyond life-cycle reliability) and is to be decommissioned (demolition and dismantlement),be sure to follow rules below:

- **DO NOT** pour waste or oil directly onto the ground, down a drain or into any water source.
- Contact your country's Department of Public Works or recycling agency in your area and arrange for proper disposal of any electrical components, waste or oil associated with this equipment.

- When the life cycle of this equipment is over, remove battery and bring to appropriate facility for lead reclamation. Use safety precautions when handling batteries that contain sulfuric acid.
- When the life cycle of this equipment is over, it is recommended that the trowel frame and all other metal parts be sent to a recycling center.

  Metal recycling involves the collection of metal from discarded products and its transformation into raw materials to use in manufacturing a new product.

  Recyclers and manufacturers alike promote the process of recycling metal. Using a metal recycling center promotes energy cost savings.

Table 1. MVH408GV Specifications	
Centrifugal Force	12,364 lbf (55 kN)
Vibration Frequency	4,400 vpm (73 Hz)
Maximum Traveling Speed	92 ft/min (28 m/min)
Plate Size (W x L)	19.7 x 35.4 in (500 x 900 mm)
Plate Size (W x L) with extension plates	25.6 x 35.4 in (650 x 900 mm)
Operating Weight	802 lbs. (364 kg.)
Operating Weight with extension plates	836 lbs. (379 kg.)

Table 2. Engine Specifications	
Engine Make	BRIGGS & STRATTON
Engine Model	VANGUARD 400, 25V332 0066F1
Engine Type	Air-cooled, 4 stroke Gasoline Engine
Maximum Ouput	14 HP (10.4 kW) @ 3600 RPM
Fuel Tank Capacity	Approx. 1.52 gallons (5.74 liters)
Oil Capacity	1.0 qt (0.95 liters)
Oil Grade	API SF or higher SAE5W-30 Synthetic Oil
Starting Method	Recoil Start

Table 3. Noise and Vibration Emissions	
Measured Sound Power Level in dB(A)	106
Guaranteed Sound Power Level in dB(A)	107
Hand-Arm Vibration in m/s^2	3.7

NOTES:

1. *Products are tested for sound pressure level in accordance with European Directives and Standards 2000/14/EC and 2006/42/EC, 2014/30 /EU, EN 500-1:2006 +A1:2009 , EN 500-4:2011 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.*

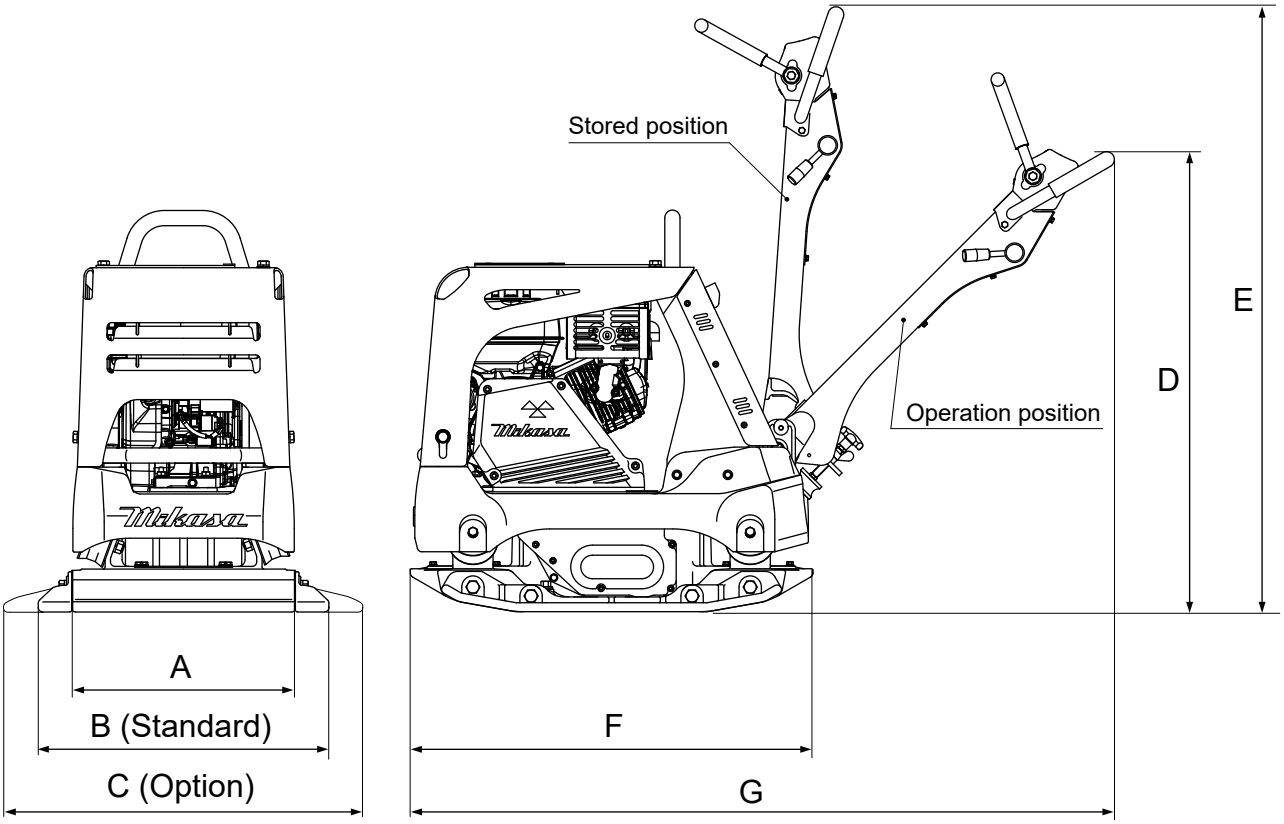


Figure 1. Dimensions

Table 4. Dimensions		
REFERENCE DESIGNATOR	**DESCRIPTION**	**MEASUREMENT**
A	Plate Width (without extension plate)	19.7 inches (500 mm)
B	Plate Width (Standard: with extension plate)	25.6 inches (650 mm)
C	Plate Width (Option: with wide extension plate)	31.5 inches (800 mm)
D	Height (Operating Position)	40.6 inches (1030 mm)
E	Height (Stored position)	53.5 inches (1360 mm)
F	Plate Length	35.4 inches (900 mm)
G	Length (Operation position)	61.8 inches (1570 mm)

DEFINITION OF PLATE COMPACTOR

The Mikasa MVH408GV is a reversible plate compactor designed for efficient compaction of sand, graveland cohesive soils. This plate compactor is a powerful compacting tool capable of applying a tremendous force in consecutive high frequency vibrations to a soil surface. Its applications include compacting for road, embankments and reservoirs as well as backfilling for gas pipelines, water pipelines and cable installation work.

VIBRATORY PLATES

The vibratory plates of the compactor produce low-amplitude high-frequency vibrations, designed to compact granular soils and asphalt.

The resulting vibrations cause forward motion. The engine and handle are vibration isolated from the vibrating plate.

FREQUENCY/SPEED

The compactor's vibrating plate produces a vibration frequency of 4,400 VPM (vibrations per minute). The travel speed of the compactor is approximately 92 ft/minute (28 meters/minute).

ENGINE

This plate compactor is equipped with a Briggs & Stratton Vanguard 400, 14 HP air cooled, 4-cycle gasoline engine. The engine drives an eccentric weight at a high speed to develop a compaction force. Reference Table 2 for detailed specifications.

CONTROLS

Before starting the plate compactor identify and understand the function of all the controls and components.

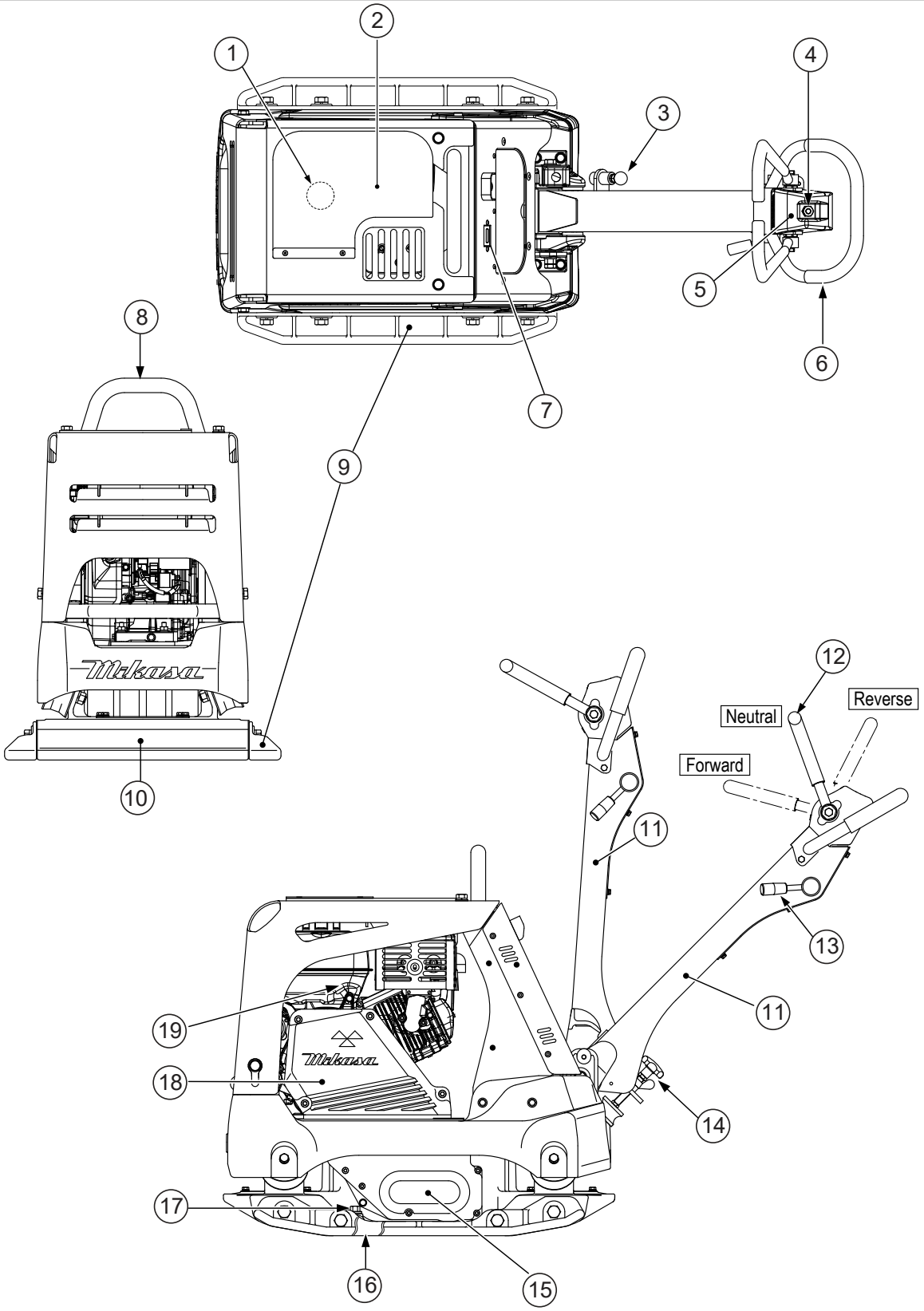


Figure 2. Plate Compactor Components

Figure 2 shows the location of the basic controls and components of the MVH408GV Plate Compactor. The function of each control is described below:

1. **Fuel Cap** — Remove this cap to add unleaded gasoline to the fuel tank. Fill with unleaded gasoline.
2. **Rubber Cover** — Lift this rubber cover to gain access to the fuel tank.
3. **Handle Lock** — Locks handle in stored position.
4. **Breather Plug** — Allow pressure to escape to the air in the form of a gas from heat.
5. **Hydraulic Pump (Oil Reservoir)** — Regulates hydraulic oil flow produced by the direction of the control lever.
6. **Hand Grip** — When operating the compactor use this hand grip to maneuver the compactor.
7. **Hour/Tachometer** — Displays the cumulative time that the machine has been in use. During operation it displays the rpm reading.
8. **Lifting Bale** — When lifting of the compactor is required either by forklift, crane etc., tie rope or chain around this lifting point.
9. **Extension Plate** — Provides additional area of vibration to the vibrating plate.
10. **Vibrating Plate** — A flat, open plate made of durable cast iron construction used in the compacting of soil.
11. **Handle Bar** — When operating the compactor, this handle is to be in the downward position. When the compactor is to be stored, move the handle bar to the upright position.
12. **Direction Control Lever** — **Push** the lever forward to move compactor in a forward direction. **Pull** the lever backwards to move compactor in backwards direction. Placing the lever in the middle (midway) will cause the compactor not to move (neutral).
13. **Throttle Lever** — Controls speed of the plate compactor. Place straight vertically to start, **push** fully counterclockwise for full throttle and fully clockwise to stop plate compactor.
14. **Handle Bar Height Adjuster** — Adjusts the the handle bar to the desired height by loosening the wing nut and turning the grip clockwise to raise the handle bar and counterclockwise to lower the handle bar.
15. **Belt Cover (Lower)** — Used to gain access to lower belt.
16. **Vibrator Oil Drain Plug** — Used to drain vibrator oil from the machine.
17. **Vibration Case Oil Filler** — Used to add oil to the vibration case.
18. **Belt Cover (Upper)** — Used to gain access to upper belt.
19. **Engine** — This plate compactor uses a Briggs & Stratton Vanguard 400,14.0 HP gasoline engine. Refer to the engine manual for more information.

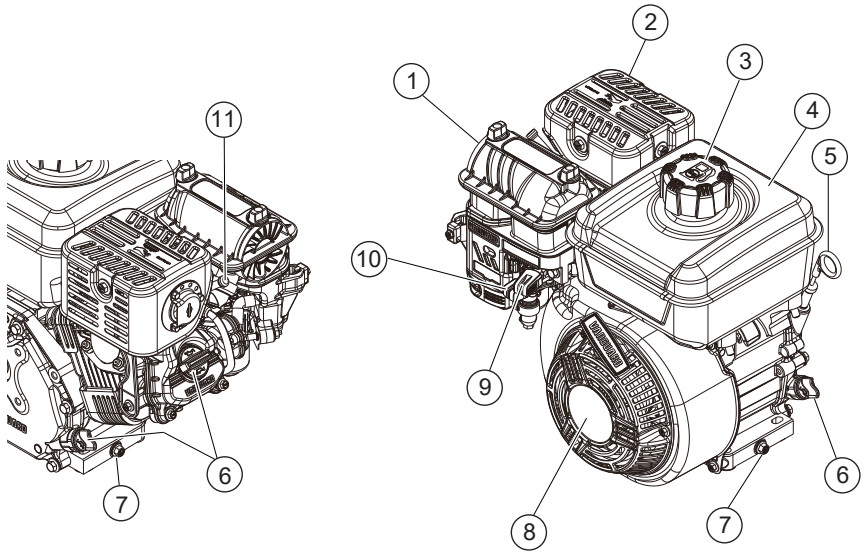


Figure 3. Engine Controls and Components

INITIAL SERVICING

The engine (Figure 3) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for instructions and details of operation and servicing.

1. **Air Cleaner** — Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cover to gain access to filter element. Reference the maintenance section in this manual for servicing.
2. **Muffler** — Used to reduce noise and emissions. NEVER touch when **hot!**
3. **Fuel Cap** — Remove this cap to add unleaded gasoline to the fuel tank. Fill with unleaded gasoline.
4. **Fuel Tank** — Refer to Table 2 for fuel tank capacity. Make sure cap is tightened securely. **DO NOT** over fill. For additional information refer to engine owner's manual.
5. **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 5).
6. **Oil Fill Plug** — Remove this plug to add oil to the engine crankcase.
7. **Oil Drain Plug** — Remove this plug to remove oil from the engine crankcase.
8. **Recoil Starter (Pull Rope)** — Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.

DANGER

Add fuel to the tank 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.

9. **3-in-1 Control Lever** — Used as engine switch, fuel valve lever, and throttle lever.
10. **Choke Lever** — Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.
11. **Spark Plug** — Provides spark to the ignition system. Set spark plug gap according to engine manufacturer's instructions. Clean spark plug once a week.

BEFORE STARTING

1. Read all safety instructions at the beginning of manual.
2. Clean the compactor, removing dirt and dust, particularly the engine cooling air inlet, carburetor and air cleaner.
3. Check the air filter for dirt and dust. If air filter is dirty, replace air filter with a new one as required.
4. Check carburetor for external dirt and dust. Clean with dry compressed air.
5. Check fastening nuts and bolts for tightness.

ENGINE OIL CHECK

6. To check the engine oil level, place the compactor on secure level ground with the engine stopped.
7. Remove the dipstick from the holder (Figure 4) and wipe clean.

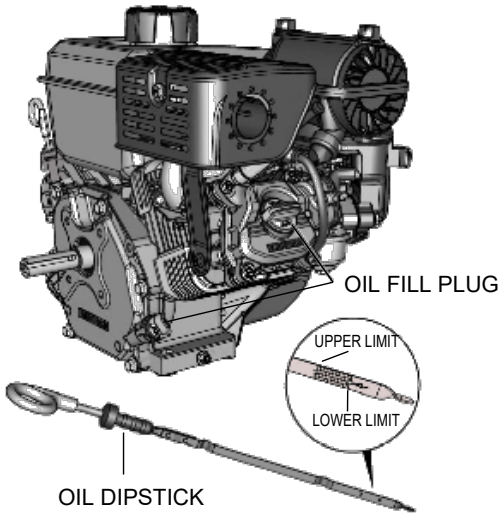


Figure 4. Engine Oil Check

8. Remove plug from oil filler. Insert dipstick into the oil filler then remove. Check the oil level shown on the dipstick.
9. If the oil level is low (Figure 4), fill to the edge of the oil filler hole with the recommended oil type as listed in Table 5. Refer to Table 2 for maximum engine oil capacity.

Table 5. Oil Type

Season	Temperature	Oil Type
Summer	25°C or Higher	SAE 10W-30
Spring/Fall	25°C~10°C	SAE 10W-30/20
Winter	0°C or Lower	SAE 10W-10

⚠ DANGER

EXPLOSIVE FUEL!

Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. **DO NOT** attempt to refuel the compactor if the engine is hot! or running.

FUEL CHECK

1. Visually inspect (Figure 5) to see if fuel level is low. If fuel is low, replenish with unleaded fuel.

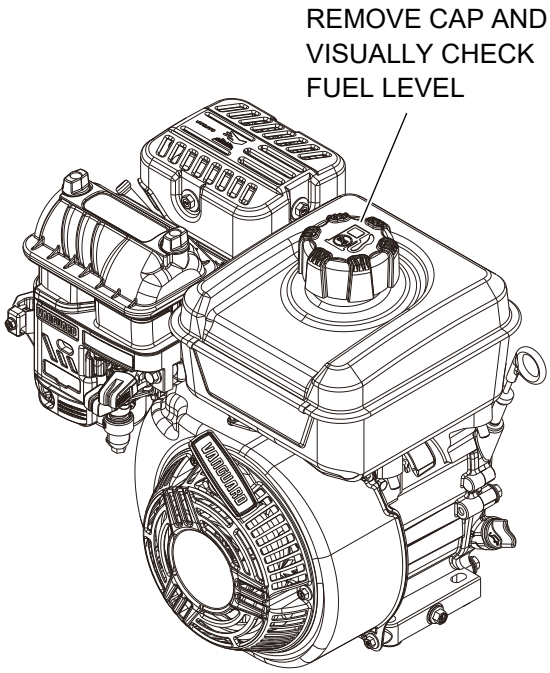


Figure 5. Fuel Check

2. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel immediately.

V-BELT INSPECTION

Visually examine the V-belt (Figure 6) and determine if it is full of tiny cracks, frayed, has pieces of rubber missing, is peeling or otherwise damaged.

Also, examine the belt and determine if it is **oil soaked** or "**glazed** " (hard shiny appearance on the sides of the belt). Either of these two conditions can cause the belt to run hot, which can weaken it and increase the danger of it breaking.

If the V-belt exhibits any of the referenced wear conditions replace the V-belt immediately.

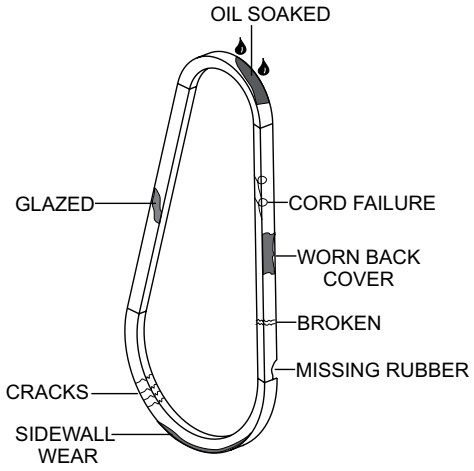


Figure 6. Drive Belt Inspection

V-BELT TENSION

The V-belt tension is proper if the V-belt bends 10 to 15 mm (Figure 7) when depressed with finger at midway between the clutch and vibrator pulleys.

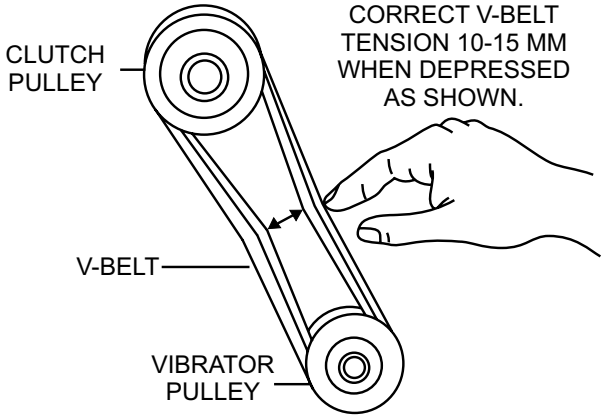


Figure 7. V-Belt Tension

VIBRATOR OIL CHECK

1. Place the plate compactor horizontally on a flat surface. Make sure the compactor is level when checking the oil in the vibrator assembly.
2. Check vibrator oil level by removing the oil plug (vibrator oil gauge) as shown in Figure 8. Clean the oil gauge and re-thread back in. Remove the oil gauge again and confirm oil level does not exceed the cross hash of the oil plug. **DO NOT OVERFILL**.
3. The vibrator holds approximately 20.3 oz. (600 cc). **IMPORTANT**, if oil is required, replace using only SAE 10W-30 motor oil.

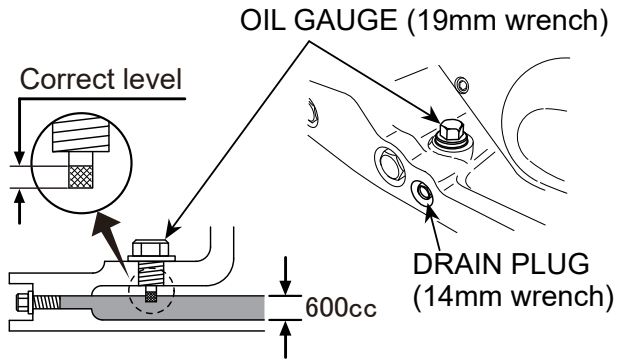


Figure 8. Vibrator Oil Check

HANDLE BAR

The height of the handle bar can be adjusted for ease of use. Adjust the handle height as follows. Refer to Figure 9.

1. Loosen the wing nut.
2. Turn the grip clockwise to raise the handle or counterclockwise to lower the handle.
3. When the handle bar is raised to the desired height, tighten the wing nut.

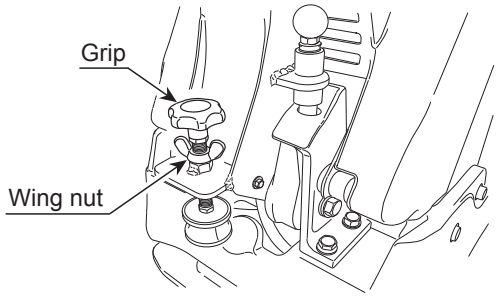


Figure 9. Handle Height Adjustment

⚠ CAUTION

DO NOT attempt to operate the compactor until the Safety, General Information and Inspection sections of this manual have been **read and thoroughly understood.**

This section is intended to assist the operator with the initial startup of the compactor. It is extremely important that this section be read carefully before attempting to use the compactor in the field.

STARTING THE ENGINE

1. When the engine is stopped, the hour tachometer always shows "operation time" (Figure 10).

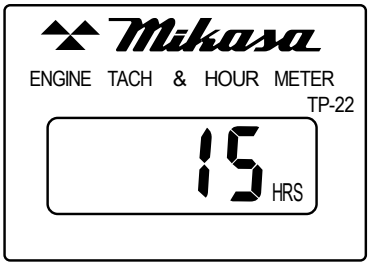


Figure 10. Hour Tachometer (Cumulative Time)

2. Place the 3-in 1 control lever (Figure 11) to the "**ON**" position.The "ON" position means:
   - Engine Switch is ON
   - Fuel Valve is ON
   - Engine Speed is Idle

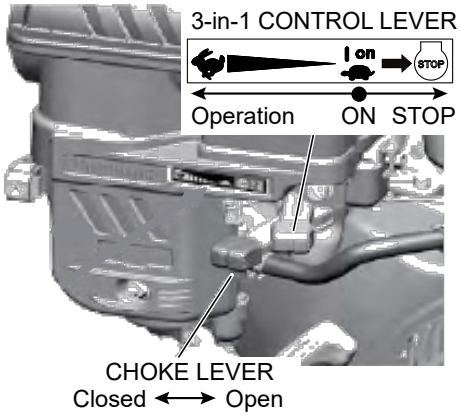


Figure 11. Engine 3-in-1Control Lever (ON)

3. Move the choke lever (Figure 11) to the **"CLOSED"** position if starting a cold engine. To restart a warm engine, leave the choke lever in the **"OPEN"**.
4. Grasp the starter grip until you feel some resistance. Then pull it briskly in the direction shown by the arrow in Figure 12.

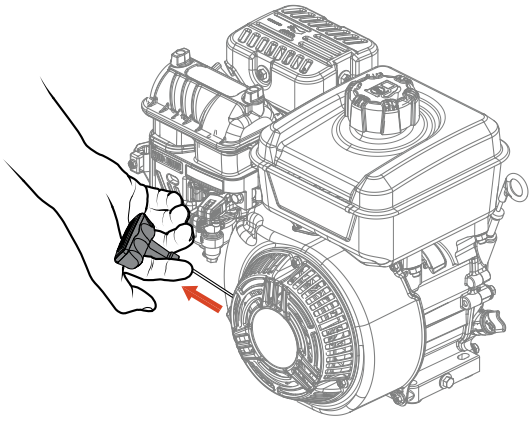


Figure 12. Starter Grip

NOTICE

DO NOT pull the starter rope all the way to the end.

DO NOT release the starter rope after pulling. Allow it to rewind as soon as possible.

5. When engine starts, release the starter grip and allow the rope to recoil.
6. If the choke lever was moved to the **"CLOSED"** position to start the engine, gradually move it to the **"OPEN"** position (Figure 11) as the engine warms up.
7. Before the compactor is placed in to operation, run the engine for several minutes. Check for fuel leaks, and noises that would associate with a loose component.
8. After the engine has started, warm up the engine at idle speed for 2 to 3 minutes. This is especially important in cold weather.

CAUTION

When starting the cold engine, if the throttle lever is moved from the idle position about 1/3 of the way to the operation position (Figure 13), the centrifugal clutch may slip as soon as the engine has started. This may cause a failure of the centrifugal clutch, abnormal vibration of the machine, which is very dangerous. So, as soon as the engine has started, return the throttle lever to the idle position.

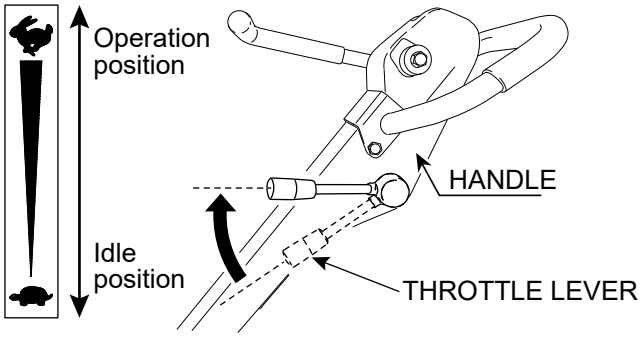


Figure 13. Throttle (1/3 from Idle Position)

9. During operation, the hour tachometer displays "rotation number" (Figure 14).

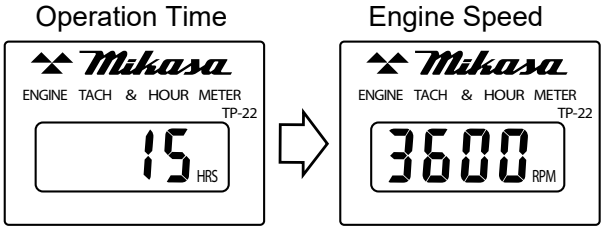


Figure 14. Hour Tachometer (Engine Speed))

OPERATION

CAUTION

ALWAYS follow all safety rules in the safety section of this manual before operating compactor. Keep work area clear of debris and other objects that could cause bodily injury or damage to the compactor.

1. Once the engine has started, move the engine throttle lever quickly to the **operation** position (Figure 15).

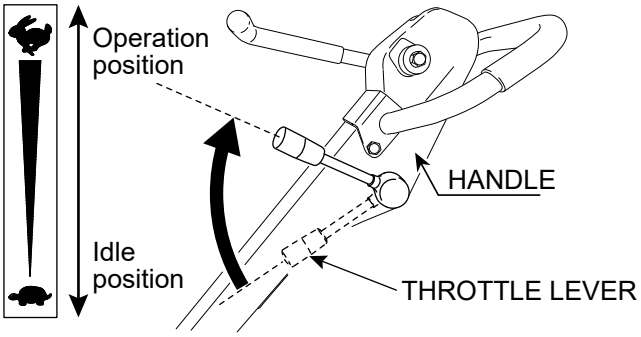


Figure 15. Throttle Lever (Operation Position)

2. With the throttle lever in the operation position, the machine starts vibrating.

NOTICE

ALWAYS move the throttle lever quickly without hesitation, because increasing the engine speed slowly causes the clutch to slip.

3. The direction control lever allows the machine to be moved either backward or forward (Figure 16). When the direction control lever is pushed forward, the machine moves forward. When pulled backward, the machine moves backward.

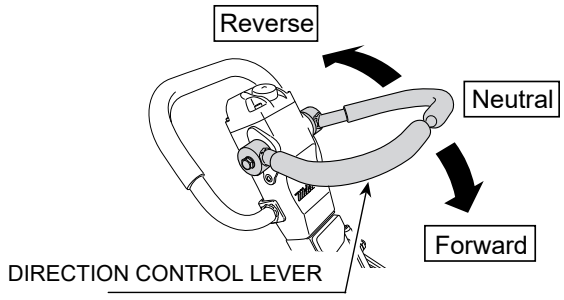


Figure 16. Direction Control Lever

4. When the direction control lever is the neutral position, the machine vibrates staying at the same location.

NOTICE

NEVER stop the engine suddenly while working at high speeds.

5. Compactor traveling speed may drop on soils which contain clay, however there may be cases where traveling speed drops because the compaction plate does not leave the ground surface easily due to the composition of the soil. To rectify this problem do the following:

   - Check the bottom plate to see if clay or equivalent material has been lodged in the plate mechanism. If so, wash with water and remove.
   - Remember the compactor does not work as efficiently on clay or soils that have a high moisture content level.
   - If the soil has a high moisture level, dry soil to appropriate moisture content level or carry out compaction twice.

6. If you want to suspend work, return the throttle lever to the idle position quickly (Figure 17).

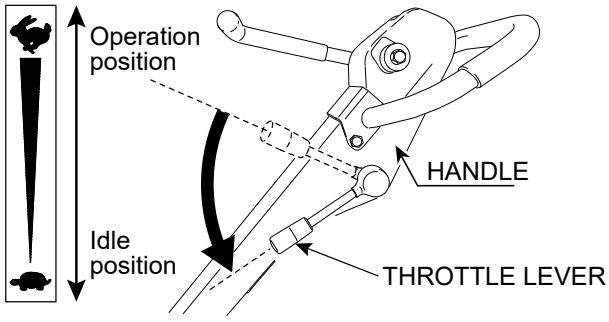


Figure 17. Throttle Lever (Idle Position)

STOPPING THE ENGINE

Normal Shutdown

7. Move the throttle lever to the idle position. Cool down the engine for 3 to 5 minutes at idle speed before stopping.
8. Move the 3-in-1 control lever to the Stop position. (Figure 18).

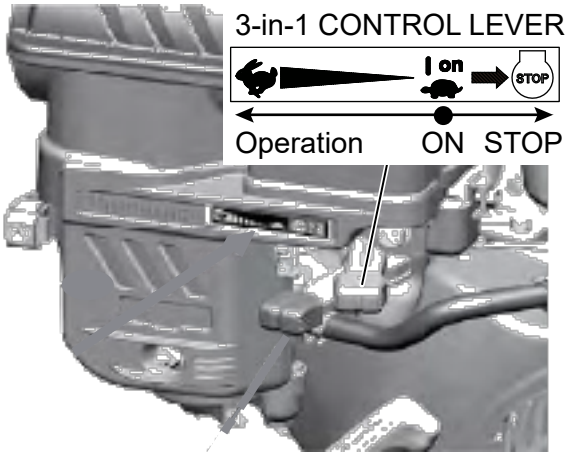


Figure 18. Fuel Valve Lever (OFF)

Emergency Shutdown

1. Move the throttle lever quickly to the idle position, and place the 3-in-1 control lever to the Stop position.

GENERAL MAINTENANCE

General maintenance practices are crucial to the performance and longevity of your compactor. This equipment requires routine cleaning, inspection and lubrication. Refer to Table 6 for scheduled engine and compactor maintenance.

The following maintenance procedures can prevent serious compactor damage or malfunctioning.

NOTICE

Refer to engine manual for more detailed engine maintenance and troubleshooting.

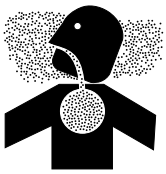
⚠ CAUTION

ALWAYS allow the engine to cool before servicing. **NEVER** attempt any maintenance work on a hot engine.

⚠ CAUTION

ALWAYS disconnect the spark plug wire from the spark plug and secure away from the engine before performing maintenance or adjustments on the machine.

⚠ WARNING



Some maintenance procedures may require the engine to be run. Ensure that the maintenance area is well ventilated. Gasoline engine exhaust contains poisonous carbon monoxide gas that can cause unconsciousness and may result in **DEATH.**

General Cleanliness

Clean the compactor daily. Remove all dust and debris buildup (mud, clay etc.). If the compactor is steam-cleaned, ensure that lubrication is accomplished **AFTER** steam cleaning.

NOTICE

Inspection and other services should always be carried out on hard and level ground with the engine shut down.

NOTICE

The inspection intervals listed in the maintenance table are for operation under normal conditions. Adjust your inspection intervals based on the number hours plate compactor is in use, and particular working conditions.

MACHINE INSPECTION

Perform machine inspection as listed in Table 6.

Table 6. Machine Inspection

Interval	Check	Solution
Daily Before Starting	Machine	Clean if necessary.
	Fuel Tank For Leaks	Repair fuel leaks.
	Fuel System for Leaks	Repair fuel leaks.
	Engine Oil	Add oil if necessary.
	Vibrator Oil	Add oil if necessary.
	Air Cleaner Element	Clean/Replace
	Guard Frame	Inspect/deformations
	Shock Absorber	Replace if damaged.
	Hydraulic pump	Check/Repair Leaks
	Hydraulic Pipe System	Check/Repair leaks, Inspect for wear
	Direction Control Lever	Check bolts/nuts, Inspect for wear
	Duct Hose	Check for crack/ damage
Every 20 Hours	Engine Oil/Oil Filter	Replace only after first 20 hrs.
Every 100 Hours	Engine Oil	Change
	Engine Oil Filter	Wash
	Vibrator Oil	Check oil level. Check for leaks/dirt.
	Hydraulic Oil	Check oil level. Check for leaks.
Every 200 hours	V-Belt	Inspect, replace if damaged or worn.
	Clutch	Inspect, replace if not working properly.
	Engine Bolts	Replace bolts if deformed or elongated.
Every 300 hours	Vibrator Oil	Change
	Fuel Filter	Change
	Hydraulic Oil	Change
	Engine Oil Filter	Change
Every 2 years	Fuel Lines	Replace

TIGHTENING TORQUE

Reference Table 7 below (Tightening Torque), for retightening of nuts and bolts.

Table 7. Tightening Torque (in. kg/cm)

Material	6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
4T	70	150	300	500	750	1,100	1,400	2,000
6-8T	100	250	500	800	1,300	2,000	2,700	3,800
11T	150	400	800	1,200	2,000	2,900	4,200	5,600
	100 (6mm) 300 ~ 350 (8mm) 650 ~ 700 (10mm)*							
*	In case material is aluminum							
Bolt threads used with this machine are all right handed								
Material and quality of material is marked on each bolt, and screw.								

FRONT COVER OPENING

For ease of inspection and maintenance, perform the following:

1. Remove the bolts (M14 x 45) on the front cover. Loosen the bolts (M14 x 45) on the side of front cover without removing them

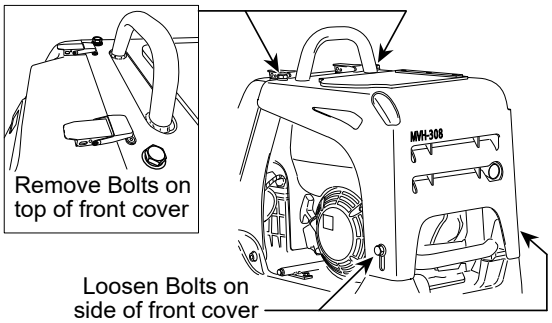


Figure 19. Removing/Loosening Bolts

2. Hold the side of the front cover and pull up to open position (Figure 20).

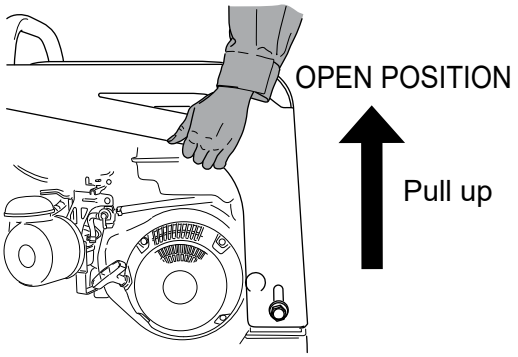


Figure 20. Pulling Up Front Cover

3. Open the front cover slowly (Figure 21).

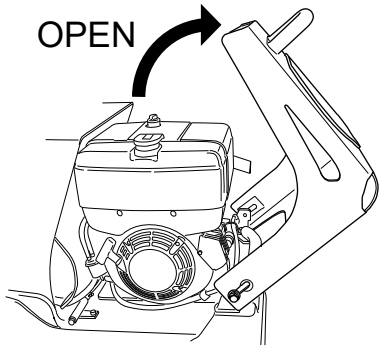


Figure 21. Opening the Front Cover

4. When maintenance is done, return the front cover to its original position slowly. Tighten the bolts to 176.6 Nm (130.2 ft lb) torque.

NOTICE

Do not start engine with the front cover open.

Tighten bolts firmly.

AIR CLEANER

DANGER

DO NOT use gasoline or low flash point solvents for cleaning the air cleaner. The possibility exists of fire or explosion which can cause damage to the equipment and severe bodily harm or even **DEATH!**

CAUTION

Wear protective equipment such as approved safety glasses or face shields and dust masks or respirators when cleaning air filters with compressed air.

1. Remove the air cleaner cover and then remove the paper filter element (Figure 22).
2. Tap the paper filter element several times on a hard surface to remove dirt, or blow compressed air not exceeding 30 psi (207 kPa, 2.1 kgf/cm^2) through the filter element from the inside out. **NEVER** brush off dirt. Brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.

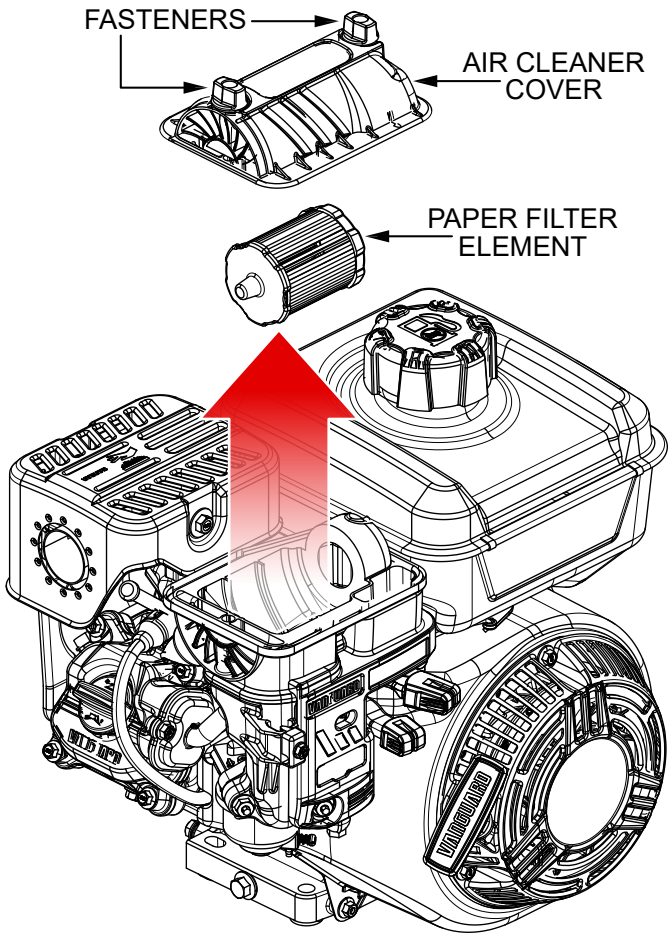


Figure 22. Engine Air Cleaner

NOTICE

Operating the engine with loose or damaged air cleaner components could allow unfiltered air into the engine causing premature wear and failure.

ENGINE OIL

NOTICE

Drain the engine oil when the oil is warm.

1. Remove the oil drain bolt (Figure 23). and allow the oil to drain into a suitable container.

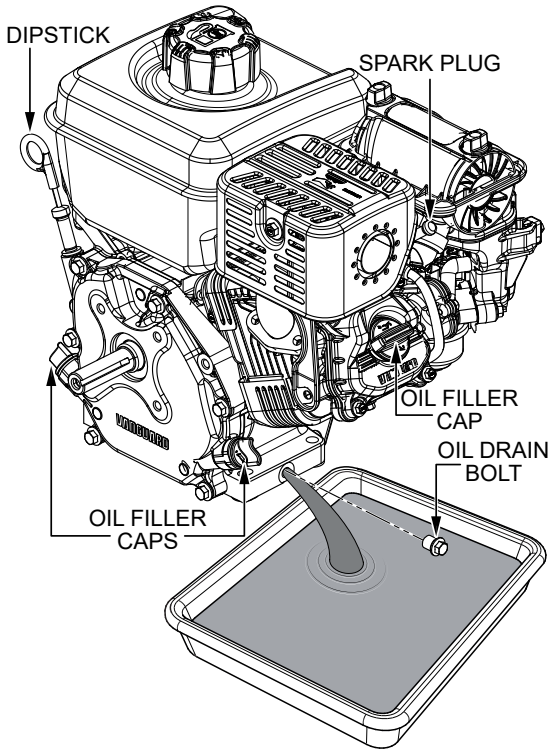


Figure 23. Draining Engine Oil

2. Replace engine oil with recommended type oil as listed in Table 5. For engine oil capacity, see Table 2 (Engine Specifications). **DO NOT** overfill.
3. Reinstall drain bolt and tighten securely.

HYDRAULIC OIL

1. With the handle in the operating position, remove the plug cap from the hydraulic pump (Figure 24).

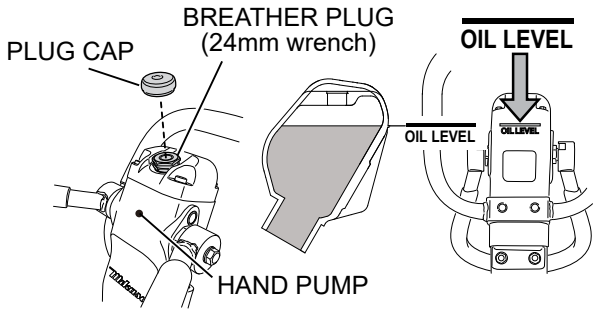


Figure 24. Removing Plug/Breather Cap

2. Remove the breather plug with a 24 mm wrench at the top of the hydraulic pump.
3. Remove the hydraulic hose connected to the cylinder on the vibrator side (Figure 25).

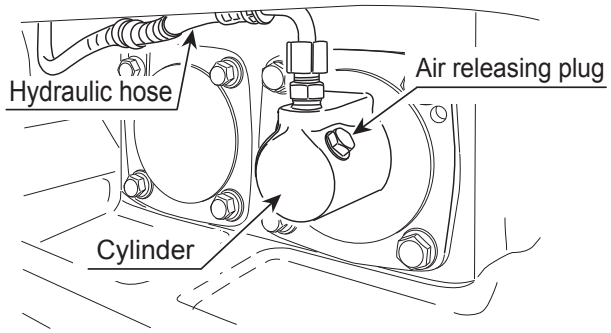


Figure 25. Removing Hydraulic Hose

4. With the direction control lever at the forwardmost position, secure the guard frame with a rope to immobilize (Figure 26).

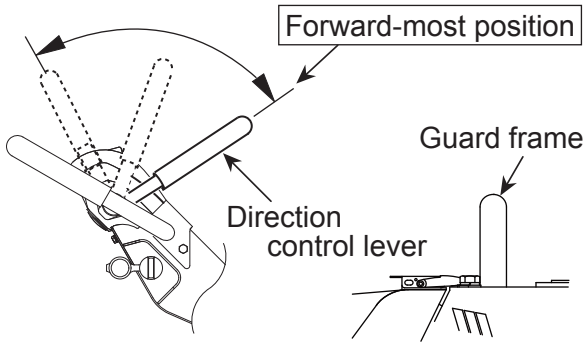


Figure 26. Direction Control Lever (Forward Position)

5. Drain the hydraulic oil from the pump.
6. After the oil is drained, attach the hydraulic hose again to the cylinder on the vibrator side.
7. Pour hydraulic oil (550 cc) to the hydraulic pump breather plug hole (Figure 24).
8. Remove the air releasing plug of vibrator cylinder. Oil will then come out from the air releasing plug. After air bubbles stop coming out, reattach the plug. Tighten securely (Figure 25).
9. Release the direction control lever and move the lever forward and reverse several times (until no air bubbles are seen). Keep the lever at the forward position for 10 seconds every time. (Because the check valve is opened at the maximum forward position and air bubble will come out from the oil tank of the hydraulic pump).
10. Air bleeding is completed when the accumulator cylinder of the hand pump moves 2 - 3 cm as shown in Figure 27.

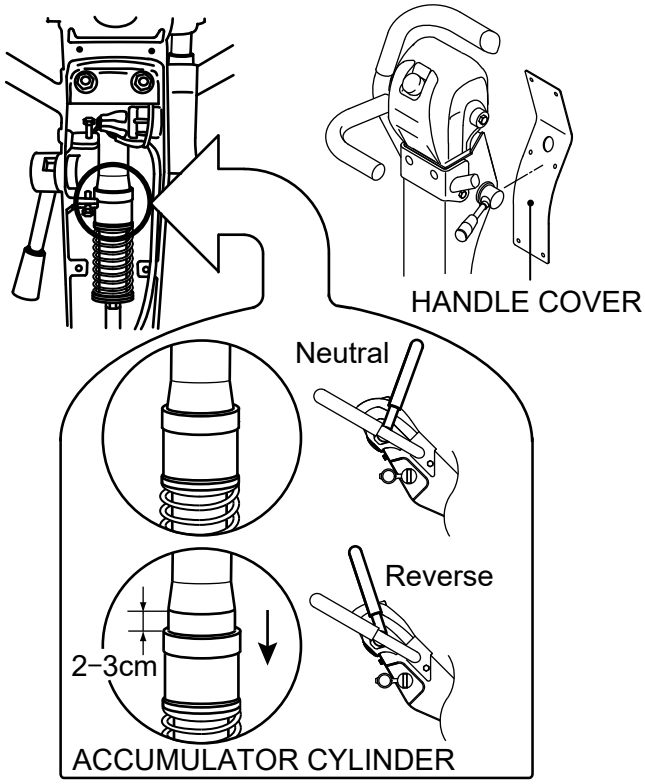


Figure 27. Air Bleeding Complete

11. Attach the hydraulic pump breather plug and put on the plug cap. After making sure the hydraulic oil in the pump is at OIL LEVEL, attach the breather plug.

⚠ CAUTION

DO NOT exceed OIL LEVEL of hydraulic oil. If the level is higher, oil will burst out from the breather plug.

SPARK PLUG

NOTICE

NEVER use a spark plug of incorrect heat range.

1. Remove and clean spark plug (Figure 28) with a wire brush if it is to be reused. Discard spark plug if the insulator is cracked or chipped.
2. Using a feeler gauge adjust spark plug gap to 0.028 ~0.031 inch (0.7~0.8 mm).
3. Thread spark plug into cylinder hole by hand to prevent cross-threading, then tighten securely.

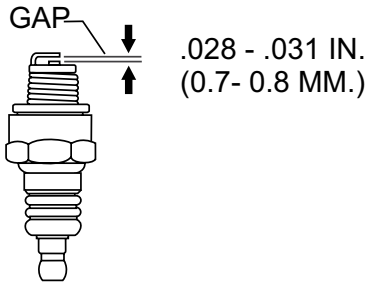


Figure 28. Spark Plug Gap

CHECKING V-BELT

Visually examine the V-belt (Figure 29) and determine if it is full of tiny cracks, frayed, has pieces of rubber missing, is peeling or otherwise damaged.

Also, examine the belt and determine if it is **oil soaked** or **"glazed "** (hard shiny appearance on the sides of the belt). Either of these two conditions can cause the belt to run hot, which can weaken it and increase the danger of it breaking.

If the V-belt exhibits any of the above wear conditions replace the V-belt immediately.

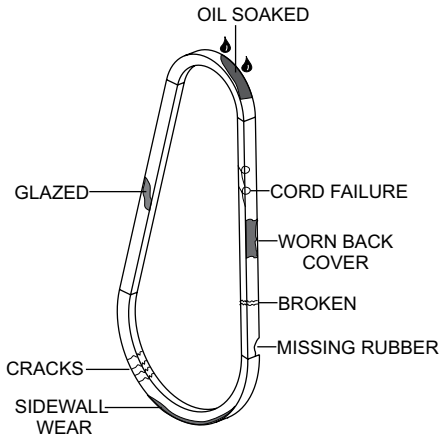


Figure 29. V-Belt Inspection

CHANGING BELT

Removing the V-belt

1. Remove the upper and lower belt covers.
2. Engage the wrench to the tightening bolt of the vibrator pulley (lower side).
3. Engage waste cloth or the like at the midway of the V-belt on the left side. Then, while pulling it back strongly, rotate the wrench clockwise so that the V-belt will come off.

Installing the V-belt.

1. Engage the V-belt to the lower vibrator pulley and push the V-belt to the left side of the upper clutch pulley.
2. Rotate the tightening bolt of lower vibrator pulley clockwise with the wrench so that the V-belt moves onto the clutch pulley.

⚠ CAUTION

Be careful not to get caught your hand or clothes between the V-belt and the clutch. Always wear work gloves.

CHECK / CHANGE THE CLUTCH

1. Check the clutch concurrently with the checking the V-belt.
2. Visually check for burning of the clutch shoes, wearing of the clutch linings and condition of the V-groove pulley.
3. If the clutch linings wear, the clutch slips and the transmission of power is not performed properly. Replace the clutch with a new one as required.

SPARK ARRESTER CLEANING

Clean the spark arrester every year or 100 hours.

1. Remove the spark plug wire from the spark plug terminal. Secure the spark plug wire to prevent contact with the spark plug terminal.

NOTICE

Note the orientation of the muffler deflector before removal.

2. Remove and retain the three M4 hex flange screws securing the muffler deflector and spark arrester to the muffler guard (Figure 30).

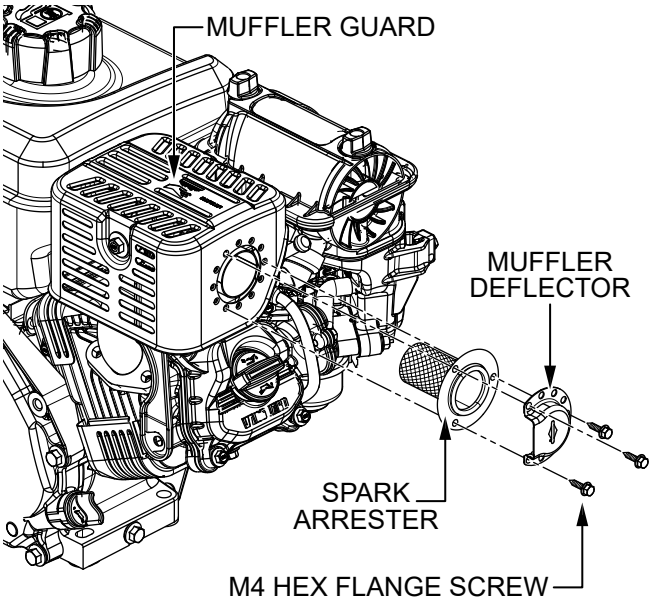


Figure 30. Spark Arrester Removal

3. Clean the spark arrester screen with a stiff bristle brush (Figure 31). If carbon buildup is present, soak or spray the spark arrester screen with carburetor cleaner

and blow dry from the inside out with low-pressure compressed air.

NOTICE

Be careful to avoid bending or puncturing the spark arrester screen.

4. Replace the spark arrester if the screen cannot be adequately cleaned or if any damage is observed.
5. Secure the spark arrester and muffler deflector to the muffler guard using the three M4 hex flange screws that were removed in step 2.

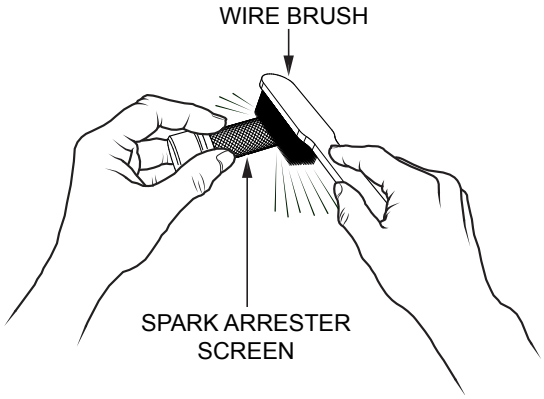


Figure 31. Cleaning The Spark Arrester

STORAGE

1. Wash off dirt and soil from every part with water. While washing, be careful not to let the water splash on the electric components such as the engine muffler.
2. Cover the machine to prevent dust and dirt buildup.
3. Store the machine in a dry area away from direct sunlight.
4. Do not leave the machine outdoors. Keep it indoors.
5. When not used for a long period of time, drain the fuel from the fuel tank.
6. When the machine is used after a long storage period, check the level of engine oil before using.

Troubleshooting (Compactor)		
Symptom	**Possible Problem**	**Solution**
Travel speed low and vibration weak.	Clutch slips?	Adjust or replace clutch.
	V-belt slips?	Adjust or replace V-belt.
	Excessive oil in vibrator?	Fill to correct level.
	Trouble in vibrator internals?	Check vibrator assembly for any worn or defective parts, replace any defective parts.
	Aeration in hydraulic oil for for travel reversing system?	Purge air in hydraulic oil. (Bleed plug)
	Engine speed incorrect?	Set engine speed to correct RPM.
Travels forward or backward but unable to switch direction.	Hydraulic pump problems?	Check hydraulic pump.
	Direction Control Lever installation wrong?	Correct installation of IDirection Control Lever.
	Broken or defective oil hose?	Replace oil hose.
	Aeration in hydraulic oil?	Purge air in hydraulic oil. (Bleed plug)
	Excessive oil in reversing system?	Fill to correct level.
	Hydraulic pump clogged with trash?	Clean valve inside hydraulic pump.
	Cylinder piston bearing failure?	Check piston bearing in cylinder for leakage.
Does not travel in forward or reverse	V-belt disengaged or slips?	Engage V-belt, adjust or replace.
	Clutch slips?	Adjust clutch, replace if necessary.
	Vibrator locks?	Check vibrator and correct problem.
	Cylinder piston bearing failure?	Check piston bearing in cylinder for leakage at USH packing.
Direction Control Lever operating resistance for reverse is high.	Piston inside hydraulic pump not moving smoothly?	Adjust or replace.
	Vibrator cylinder piston does not move smoothly	Adjust or replace.

Troubleshooting (Engine)		
Symptom	**Possible Problem**	**Solution**
Difficult to start, fuel is available, but no spark at spark plug.	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.
	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 if transistor ignition unit is broken, and replace defective unit. Check if voltage cord cracked or broken and replace. Check if spark plug is fouled and replace.
	No oil?	Add oil as required.
	Oil pressure alarm lamp blinks upon starting? (if applicable)	Check automatic shutdown circuit, oil sensor. (if applicable)
Difficult to start, fuel is available, and spark is present at the spark plug.	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.
	Spark plug wire broken or short circuiting?	Replace defective spark plug wiring.
Difficult to start, fuel is available, spark is present and compression is normal.	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.
	Choke open?	Close choke.
Difficult to start, fuel is available, spark is present and compression is low.	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.
	Head gasket and/or spark plug gasket damaged?	Replace head and spark plug gaskets.
No fuel present at carburetor.	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 (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.	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.

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
WEBSITE: www.multiquip.com

CANADA

Multiquip

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

UNITED KINGDOM

Multiquip (UK) Limited Head Office

0161 339 2223
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This manual MUST accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

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