OPERATION MANUAL

MULTIQUIP®

Mikasa SERIES

MODEL MVH406GH

REVERSIBLE PLATE COMPACTOR

(HONDA GX390U1SMX2 GASOLINE ENGINE)

Revision #4 (07/09/20)

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

MIKASA MVH406GH REVERSIBLE PLATE COMPACTOR

NOTICE

Specification and part number are subject to change without notice

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

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.

This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the Multiquip MVH-406GH Plate Compactor . Refer to the engine manufacturer's instructions for data relative to its safe operation.

Before using this plate compactor, ensure that the operating individual has read and understands all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

The three (3) 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 three words: **DANGER**, **WARNING**, or **CAUTION**.

DANGER

You **WILL** be ***KILLED*** or ***SERIOUSLY*** injured if you **DO NOT** follow directions.

WARNING

You **CAN** be ***KILLED*** or ***SERIOUSLY*** injured if you **DO NOT** follow directions.

CAUTION

You **CAN** be ***INJURED*** if you **DO NOT** follow directions.

Potential hazards associated with the operation of this equipment will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

HAZARD SYMBOLS

WARNING - Lethal Exhaust Gasses

Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.

WARNING - Explosive Fuel

Gasoline is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids.

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 approved containers, in well-ventilated areas and away from sparks and flames.

WARNING - Burn Hazards

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

CAUTION - Respiratory Hazard

ALWAYS wear approved ***respiratory*** protection when required.

MVH-406GH — SAFETY MESSAGE ALERT SYMBOLS

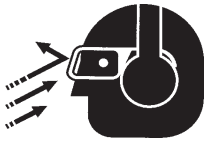
CAUTION - Rotating Parts

NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.

CAUTION - Accidental Starting

ALWAYS place the engine **ON/OFF** switch in the **OFF** position, when equipment is not in use.

CAUTION - Sight and Hearing Hazards

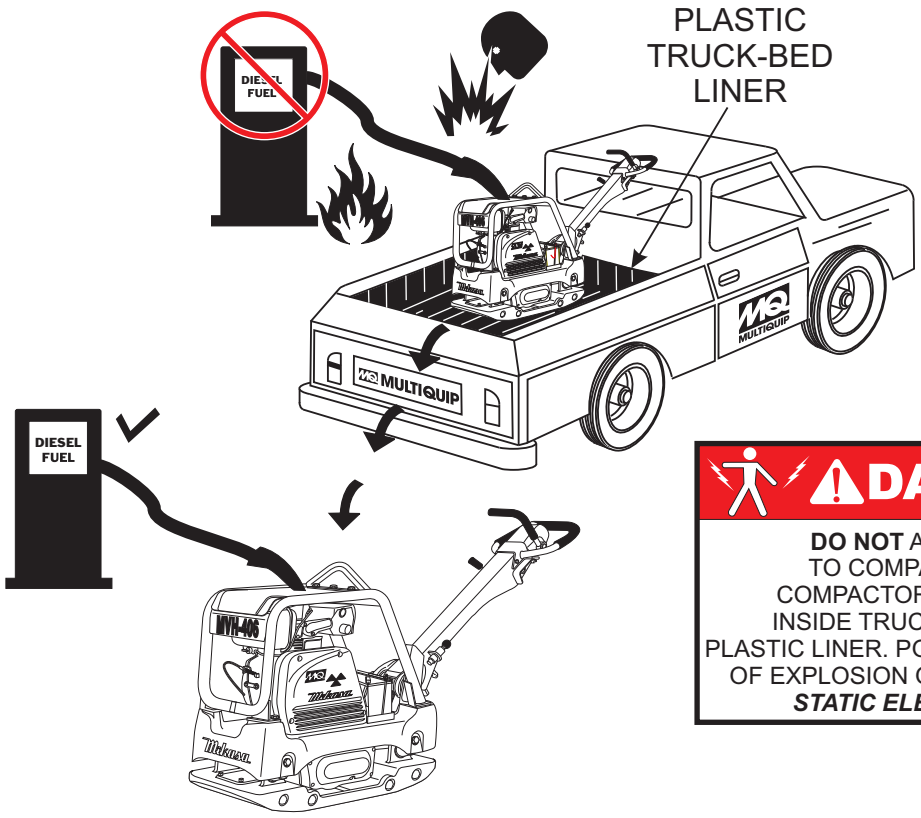


ALWAYS wear approved eye and hearing protection.

CAUTION - Equipment Damage Messages

Other important messages are provided throughout this manual to help prevent damage to your light tower, other property, or the surrounding environment.

This equipment, other property, or the surrounding environment could be damaged if you do not follow instructions.



DANGER

DO NOT ADD FUEL TO COMPACTOR IF COMPACTOR IS PLACED INSIDE TRUCK-BED WITH PLASTIC LINER. POSSIBILITY EXISTS OF EXPLOSION OR FIRE DUE TO ***STATIC ELECTRICITY***.

⚠ WARNING - Read This Manual

Failure to follow instructions in this manual may lead to ***Serious Injury*** or even ***Death***. This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating this equipment.

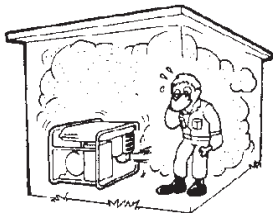
Safety:

- **DO NOT** operate or service this equipment before reading this entire manual.
- This equipment should not be operated by persons under 18 years of age.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.

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

- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- **ALWAYS** check all the bolts on the light tower for tightness.
- **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.

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or generator.
- **High Temperatures** – Allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with *hot* components can cause serious burns.
- The engine of this reversible plate compactor requires an adequate free flow of cooling air. **NEVER** operate the reversible plate compactor in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the reversible plate compactor or engine and may cause injury to people and property. Remember the vibration roller's engine gives off **DEADLY** gases.



- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** liquids. When refueling, **stop the** engine and allow it to cool. **DO NOT *smoke*** around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.

- **NEVER** operate the reversible plate compactor in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe *bodily harm or even death.*
- Topping-off to filler port is dangerous, as it tends to spill fuel.
- **ALWAYS** store the reversible plate compactor in a clean, dry location out of the reach of children.
- **NEVER** run engine without air cleaner. Severe engine damage may occur.
- **NEVER** leave the reversible plate compactor unattended, turn off engine.
- **CAUTION** must always be observed while servicing this reversible plate compactor. Rotating parts can cause injury if contacted.
- **DO NOT** leave reversible plate compactor with engine running.

■ **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.

Transporting

- Always shutdown engine before transporting.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Drain fuel when transporting compactor over long distances or bad roads.
- Always tie-down the compactor during transportation by securing the compactor's guard frame with an appropriate tie-down.

Loading and Unloading

- Before lifting, make sure that machine parts (hook and vibration insulator) are not damaged and screws are not loosened or lost.
- **ALWAYS** make sure crane or lifting device has been properly secured to the lifting bale of compactor.
- **NEVER** lift the machine while the engine is running.
- Use a reliable chain, cable or strap of adequate lifting capacity.
- **NEVER** allow any person or animal to stand underneath the machine while lifting.
- Use a crane with a one point suspension hook and lift straight upwards or forklift to load and unload the compactor. A skilled crane operator is required to perform the job.
- **ALWAYS** use the lifting bale (Figure 1) on the machine when lifting is required. **DO NOT** use any other part of the machine for lifting.
- **ALWAYS** lift the machine vertically.
- Try not to lift machine to unnecessary heights.

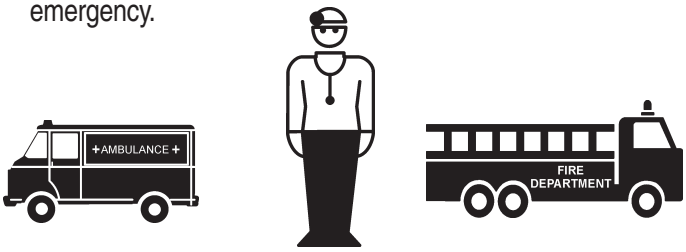
Figure 18. Lifting the Compactor

Emergencies

- **ALWAYS** know the location of the nearest ***fire extinguisher.***

- **ALWAYS** know the location of the nearest and ***first aid kit.***

- In emergencies ***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.



Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- **ALWAYS** allow the machine a proper amount of time to cool before servicing.
- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and always replace broken parts.
- 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.

Figure 2 displays the operation and safety decals as they appear on the reversible plate compactor. Should any of these decals become damaged or unreadable, contact the Multiquip Parts Department for a replacement set.

MVH-406

P/N 920211640

P/N 920203330

Shell Tellus Oil 32

P/N 920211090

MULTIQUIP

P/N 920201580

SAE 10W-30 MOTOR OIL
NPA-195

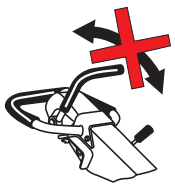
P/N 920201950

V BELT HDPF-5350
NPA-504

P/N 920205040

P/N: 920209620

OPERATIONAL CAUTION
Do not move travel lever if engine stops



NPA-1106

P/N 920211060

Mikasa

Serial No.
Model No.

MULTIQUIP

CONTACT MQ PARTS DEPT.

Operate Unit At Full Throttle
NPA-458

P/N 920204580

Figure 2. Operation and Safety Decals

Table 1. MVH-406GH Reversible Plate Compactor Specifications	
Centrifugal Force	12,346 lbs. (5,600 kg)
Vibration Frequency	4,600 vpm (76.5 Hz)
Traveling Speed	0 to 76 ft/min (0 to 24 m/min)
Plate Size (L x W)	35.43 x 19.69 in (90 x 50 cm)
Plate Size with extension plates (L x W)	35.43 x 25.59 in (90 x 65 cm)
Max. Area of Compaction (no extensions)	7,510 sq. ft. (2,289 sq. meters)
Length (handle in working position)	63.39 in (1610 mm)
Height (handle in working position)	41.34 in (1050 mm)
Length (handle in vertical position)	37.6 in (955 mm)
Height (handle in vertical position)	55.12 in (1400 mm)
Operating Weight (without extension plates)	782 lbs. (380 kg)
Operating Weight (with extension plates)	868 lbs. (395 kg)

Table 2. Engine Specifications	
Engine Make	HONDA GX390U1SMX2
Engine Type	4-Stroke, Single Cylinder, OHV, Gasoline Engine
Cylinder Bore X Stroke	3.5 x 2.5 in (88 x 64 mm)
Displacement	23.8 cu in (390 cm^3)
Maximum Ouput	13.0 HP @3,600 RPM (9.6 kw @3600 RPM)
Fuel Tank Capacity	1.72 gallons (6.5 liters)
Oil Capacity	1.16 quartz (1.1 liters)
Speed Control Method	Centrifugal Flyweight Type
Starting Method	Recoil Start
Dry Net Weight	68.2 lbs. (31 kg)
Dimensions (L x W x H)	15.0 x 17.7 x 17.4 in (380 x 450 x 443 mm)

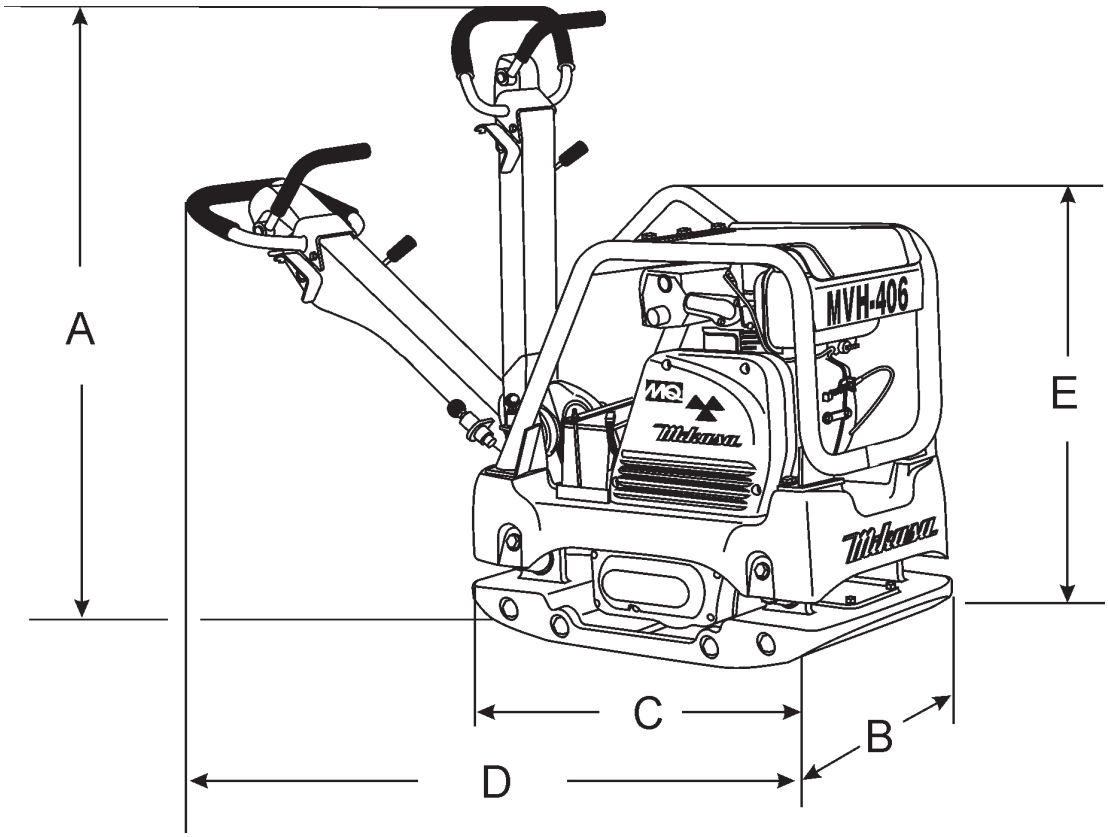


Figure 3. MVH-406GH Reversible Plate Compactor Dimensions

TABLE 3. DIMENSIONS	
REF.	**DIMENSIONS**
A	55.12 in. (140 cm.)
B	19.69 in. (50 cm.)
C	35.3 in. (90 cm.)
D	63.39 in. (161 cm.)
E	41.34 in. (105 cm.)

Plate Compactor

The Mikasa MVH-406GH is a walk behind, reversible plate compactor designed for the compaction of sand, clay and asphalt. 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 soil 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 MVH-406GH produce low amplitude high frequency vibrations, designed to compact granular soils.

The resulting vibrations cause forward motion. The engine and handle are vibration isolated from the vibrating plate. The heavier the plate, the more compaction force it generates.

Reversible Vibratory Plates

Reversible vibratory plates have two eccentric weights that allow a smooth transition for forward and reverse travel, plus increased compaction force as the result of dual weights.

Due to their weight and force, reversible plates are ideal for semi-cohesive soils.

Frequency/Speed

The compactor's vibrating plate maximum frequency is 4600 vpm (vibrations per minute). The forward and reverse travel speed of the compactor is approximately 76 ft./minute (24 meters/ minute).

Engine

The Mikasa MVH-406GH Plate Compactor is equipped with a HONDA GX390U1SMX2 engine.

Controls

Before starting the MVH-406GH Plate Compactor, identify and understand the function of the controls and components as indicated in Figure 4.

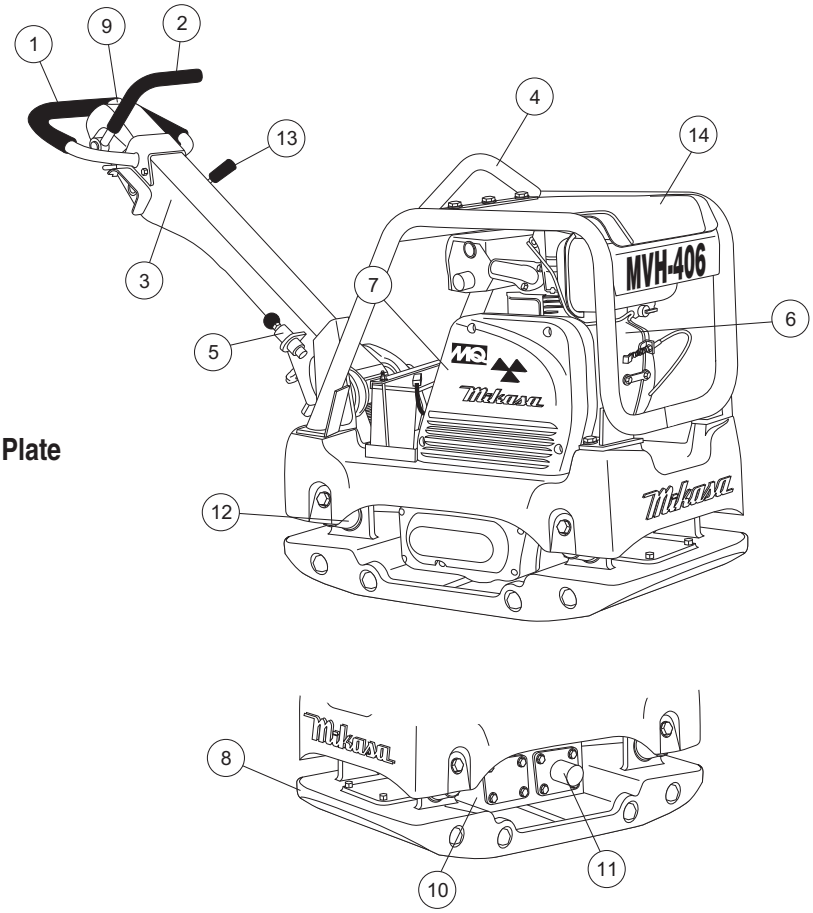


Figure 4. MVH-406GH Reversible Plate Compactor Components

Figure 4 illustrates the location of the major components for the MVH-406GH Reversible Plate Compactor. The function of each component is described below:

1. **Hand Grip –** When operating the compactor use this hand grip to maneuver the compactor.
2. **Forward & Reverse Lever –** ***Push*** the lever forward, the compactor will move in a forward direction, ***pull*** the lever backwards, the compactor will move in backwards direction. Placing the lever in the middle (midway) will cause the compactor not to move (neutral).
3. **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.
4. **Guard Hook** - Used to lift the machine with crane or other lifting device.
5. **Stopper** - Locks the handle in place in the upward position for stowing.
6. **Engine –** This plate compactor uses a GX390U1SMX2 Honda gasoline engine. Refer to the owner's manual for engine information and related topics.
7. **Belt Cover –** Remove this cover to gain access to the V-belts. **NEVER** run the compactor without the V-belt cover. If the V-belt cover is not installed, the possibility exist that your hand may get caught between the V-belt and clutch, thus causing serious injury and bodily harm.
8. **Base Plate –** Designed to compact sand, clay, and asphalt.
9. **Oil Reservoir –** Fill with Shell Tellus Oil 46 or equivalent grade hydraulic oil.
10. **Vibration Case –** Encloses the eccentric, gears and counter weights.
11. **Hydraulic Cylinder –** Activated by moving the travel lever. The cylinder controls the direction of movement by the plate compactor.
12. **Shock Absorber –** Protects plate compactor from damage by absorbing vibration during operation.
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. **Rubber Cover –** Lift this rubber cover to gain access to the fuel tank.

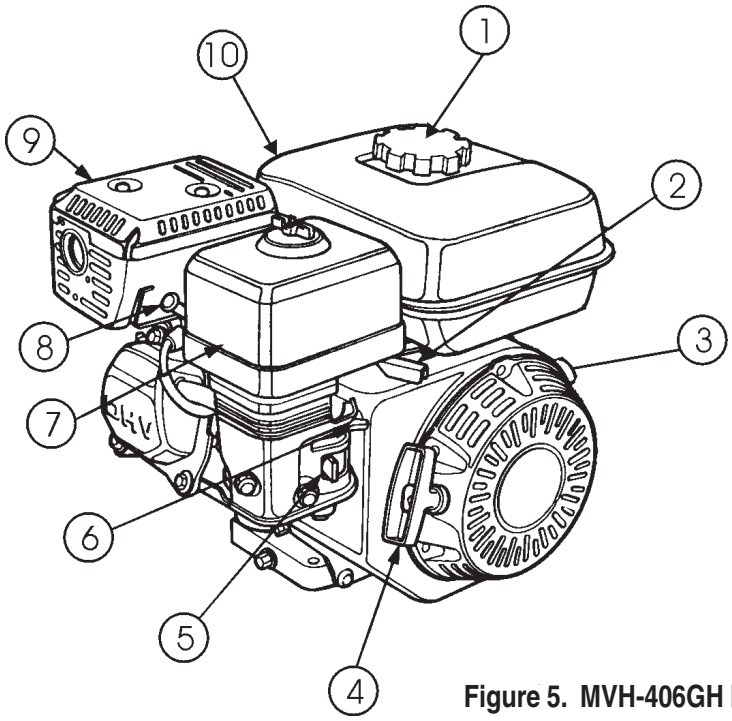


Figure 5. MVH-406GH Engine Components

INITIAL SERVICING

The engine (Figure 5) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturers engine manual for instructions & details of operation and servicing. The engine shown above is a **HONDA** engine, operation for other types of engines may vary somewhat.

1. **Fuel Filler Cap –** Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.

DANGER

Adding fuel to the tank should be done 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.

2. **Throttle Lever –** Used to adjust engine RPM speed (lever advanced forward ***SLOW***, lever back toward operator ***FAST***).
3. **Engine ON/OFF Switch –** ON position permits engine starting, OFF position stops engine operations.
4. **Recoil Starter (pull rope) –** Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
5. **Fuel Valve Lever – OPEN** to let fuel flow, **CLOSE** to stop the flow of fuel.
6. **Choke Lever –** Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.
7. **Air Cleaner –** Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cannister to gain access to filter element.

   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.

8. **Spark Plug –** Provides spark to the ignition system. Set spark plug gap to 0.6 - 0.7 mm (0.028 - 0.031 inch) Clean spark plug once a week.
9. **Muffler –** Used to reduce noise and emissions.

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.

10. **Fuel Tank –** Holds unleaded gasoline. For additional information refer to engine owner's manual.

CAUTION

NEVER operate the compactor in a confined area or enclosed area structure that does not provide ample ***free flow of air***.

ALWAYS wear approved eye and hearing protection before operating the compactor.

Before Starting

1. Read safety instructions at the beginning of manual.
2. Familiarize yourself with the operating and control elements of the machine and the working environment. This includes obstacles in the working area, bearing capacity of the ground and the necessary safety provisions.
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 fastening nuts and bolts for tightness. Loose threads may cause damage to the machine when vibrating.
5. Understand the geographical features and regulations of the job site.
6. Clean the compactor, removing dirt and dust. Particularly, the bottom of the plate, engine cooling air inlet.

Checking Engine Oil Level

1. To check the engine oil level, place the compactor on secure level ground with the engine stopped.
2. Remove the dipstick from the engine oil filler hole (Figure 6) and wipe it clean.
3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.

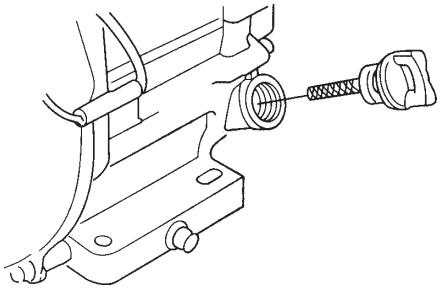


Figure 6. Engine Oil Dipstick Removal

4. If the oil level is low (Figure 7), fill to the edge of the oil filler hole with the recommended oil type (Table 4). Maximum oil capacity is 1.16 quarts (1.10 liters).

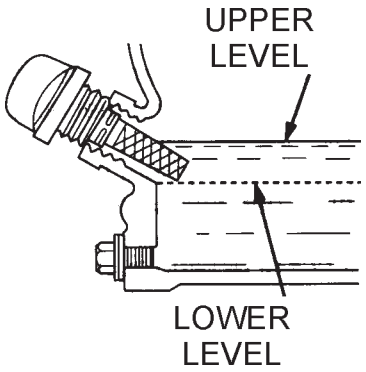


Figure 7. Engine Oil Level

Table 4. 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

Checking the Hydraulic Oil Level

1. To check the engine oil level, place the compactor on secure level ground with the engine stopped.
2. Remove the hydraulic oil breather cap located at the top of the hydraulic oil tank (Figure 8).
3. Using a 24 mm wrench, remove the hydraulic oil filler plug.
3. Visually inspect to determine if hydraulic oil level is low. If oil level is low add Shell Tellus 46 hydraulic oil or equivalent through the hand pump oil filler port.

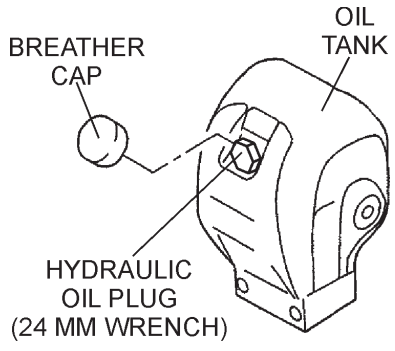


Figure 8. Hydraulic Oil Filler Plug Removal

CAUTION

DO NOT overfill hydraulic oil tank. This could cause oil leaks and sluggish operation. Clean cap and surrounding area before opening to prevent dirt from entering oil tank.

4. When adding hydraulic oil, only fill to the specified oil level as marked on the front of the hydraulic oil tank (Figure 9). **DO NOT** overfill

Figure 9. Oil Tank (Front View)

Checking the Air Cleaner

1. To check the engine oil level, place the compactor on secure level ground with the engine stopped.
2. Loosen the wing nut (Figure 10), remove the air cleaner cover.

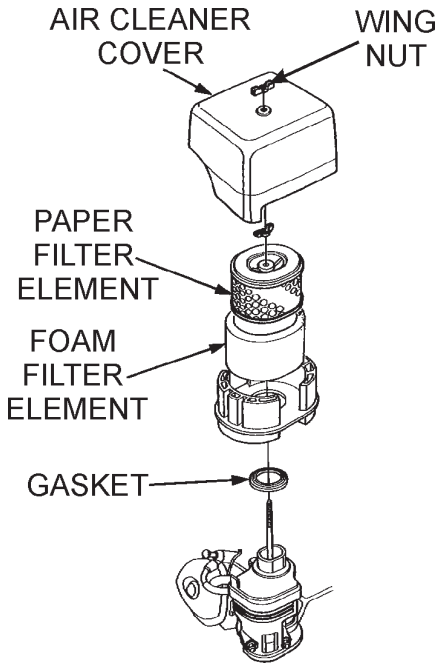


Figure 10. Air Cleaner Element

3. Remove the air cleaner element (Figure 11) and inspect it for signs of wear or dirt. If air cleaner element is dirty, clean or replace element.

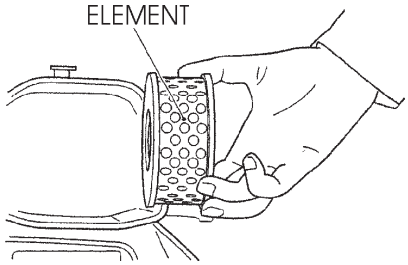
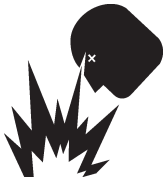


Figure 11. Air Cleaner Element

Explosive Fuel



DANGER

Diesel fuel is 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***.

Checking The Fuel

1. Remove the fuel cap located on top of fuel tank.
2. Visually inspect to see if fuel level is low. If fuel is low, replenish with diesel fuel (Figure 12).
3. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel.

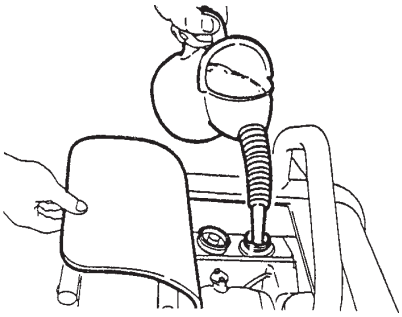


Figure 12. Refueling

DANGER

Fuel spillage on a hot engine can cause a ***fire*** or ***explosion***. If fuel spillage occurs, wipe up the spilled fuel completely to prevent fire hazards. ***NEVER!*** smoke around or near the compactor.

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 start-up*** of the compactor. It is extremely important that this section be read carefully before attempting to use the compactor in the field.

Refer to Figure 3 for the location of controls and components.

Releasing the Handle

1. Pull the handle release pin, (Figure 13) then push down on the hand grip to release the handle.

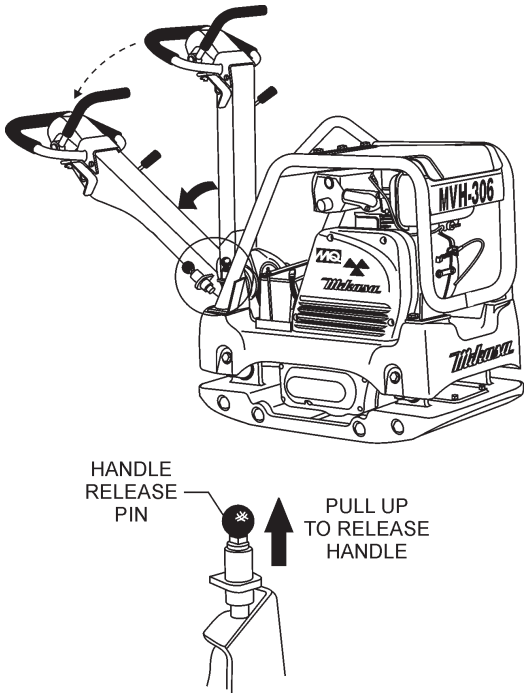


Figure 13. Handle Release Pin

Adjusting Handle Height

The height of the handle is adjustable for your comfort .

1. Loosen the butterfly screw (Figure 14).
2. Turn the grip clockwise to raise the handle or counterclockwise to lower the handle.
3. When the handle is raised to the desired height, tighten the butterfly screw.

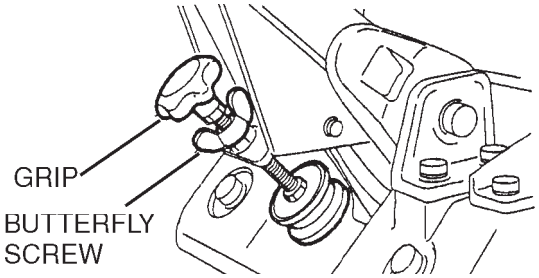


Figure 14. Handle Adjustment

STARTING THE ENGINE

1. Place the engine fuel valve lever (Figure 15) to the "ON" position.

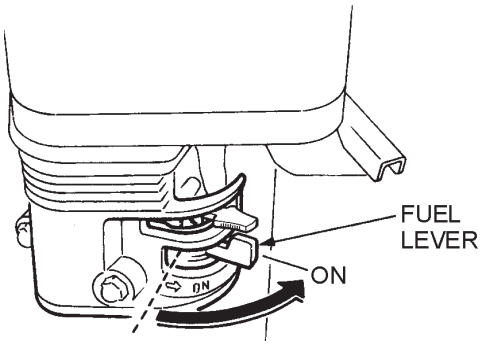


Figure 15. Engine Fuel Valve Lever

2. Place the ***throttle lever*** (Figure 16) in the **START** position (center).

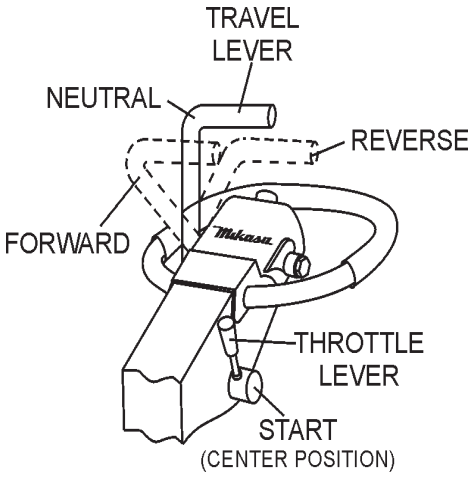


Figure 16. Travel/Throttle Lever (Start Positions)

3. Place the ***choke lever*** (Figure 17) in the "**OPEN"** position if starting a cold engine.

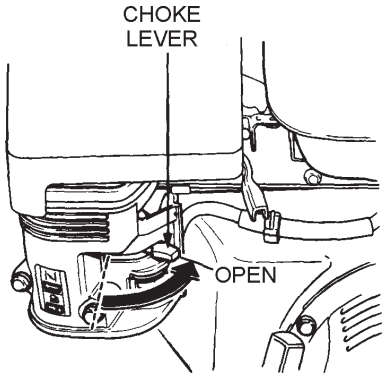


Figure 17. Engine Choke Lever (Open)

4. Place the ***choke lever*** (Figure 18) in the "**CLOSED"** position if starting a warm engine or if the temperature is warm.

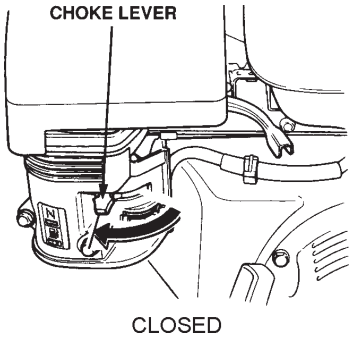


Figure 18. Engine Choke Lever (Closed)

5. Place the ***engine ON/OFF*** switch (Figure 19) in the "***ON***" position.

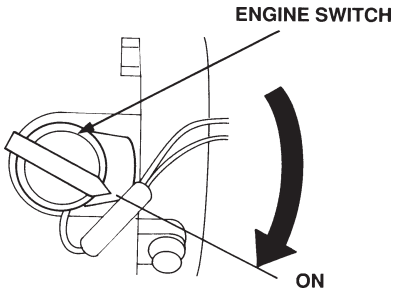


Figure 19. Engine ON/OFF Switch (ON position)

6. Grasp the starter grip (Figure 20) and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding to the compression point. Pull the starter briskly and smoothly for starting.

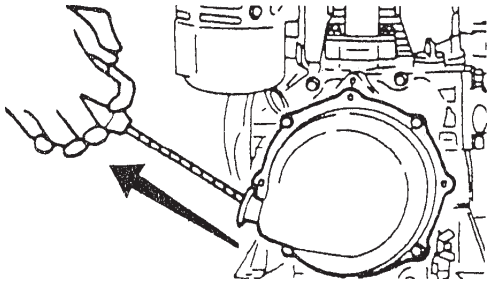


Figure 20. Engine Start Handle

7. If the engine has started, slowly return the choke lever (Figure 18) to the "**CLOSED"** position. If the engine does not start, repeat steps 1 through 6.

8. Before the compactor is placed into operation, run the engine for several minutes. Check for fuel leaks and noises that would be associated with a loose component.

TRAVELING

CAUTION

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

1. Grasp the compactor's hand grip (Figure 21), and move the engine throttle lever (Figure 21) quickly to the ***fast*** position.

2. With the throttle lever in the fast position, the engine speed should be around 3,600 RPM, therefore engaging the centrifugal clutch

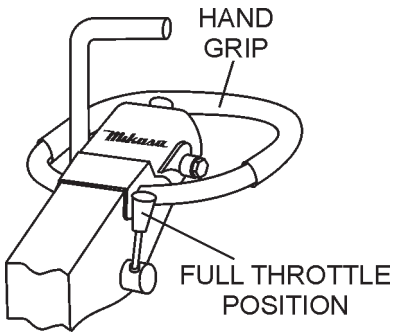


Figure 21. Throttle Lever (Fast)

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

3. To make the compactor move in the forward direction push the travel lever (Figure 22) forward.

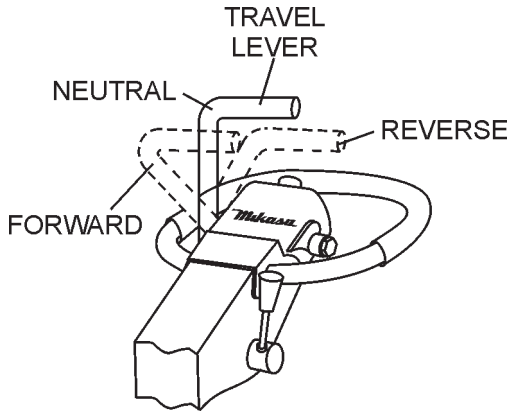


Figure 22. Travel Lever

4. To make the compactor move in the reverse direction pull the travel lever (Figure 22) backwards.
5. Firmly gasp the compactor's hand grip, the compactor will begin moving in the desired position when the direction lever has been placed in the desired position.
6. Slowly walk behind the compactor and be on the lookout for any large objects or foreign matter that might cause damage to the compactor or bodily injury.
7. If travel lever is placed in the neutral position, the machine will vibrate in place.
8. To move the compactor laterally, hold the hand grip firmly and swing compactor. **DO NOT** swing compactor while gripping the travel lever.

Normal Shutdown

1. Return the throttle lever to the **START** position (Figure 16). Allow the machine to cool down for 2 to 3 minutes.
2. Place the travel lever in the **NEUTRAL** position.
3. Place the throttle lever in the **STOP** position (Figure 23) to stop the engine.
4. Turn the engine **ON/OFF** switch to the **"OFF"** position (Figure 24).

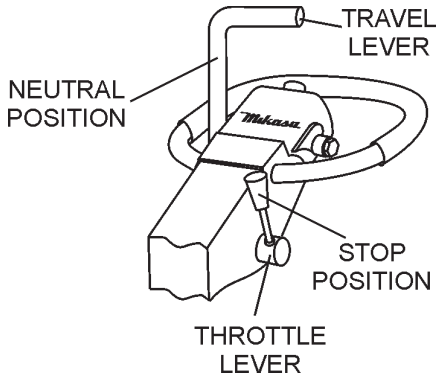


Figure 23. Throttle Lever (Stop)

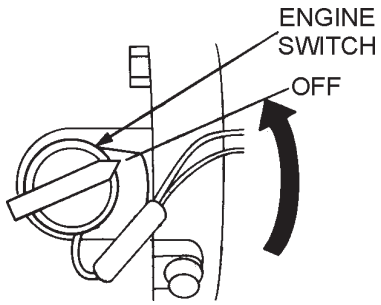


Figure 24. Starter Switch (STOP)

Emergency Shutdown

1. Move the throttle lever quickly to the ***STOP*** position.

STOWING THE HANDLE

1. Push up the handle upward (Figure 25) until the handle locks in place.

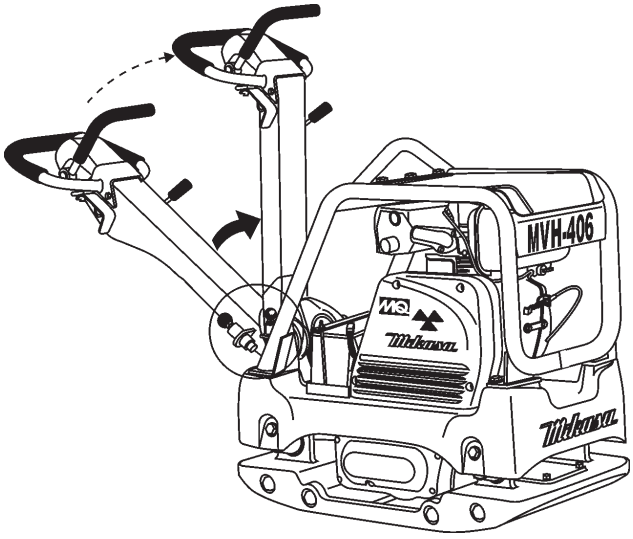


Figure 25. Stowing the Handle

CAUTION

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

Inspection and Maintenance Service Tables.

1. To make sure your plate compactor is always in good working condition before using, carry out the maintenance inspection in accordance with Tables 5 through 7.

TABLE 5. MVH-406GH MACHINE INSPECTION

ITEM	HOURS OF OPERATION
Loose or Missing Screws	Every 8 hours (every day)
Damaged Parts	Every 8 hours (every day)
Function of Controlling System Part	Every 8 hours (every day)
Hydraulic System Leak	Every 100 hours
Vibrator Oil Check	Every 100 hours
Vibrator Oil Replacement	Every 300 hours
Hydraulic Oil Check	Every 100 hours
Hydraulic Oil Replacement	First after 200 hours, then every 1,000 hours
V-belt (clutch) Check	Every 200 hours

CAUTION

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

CAUTION

Fuel piping and connections should be replaced every 2 years.

TABLE 6. MVH-406GH ENGINE CHECK

ITEM	HOURS OF OPERATION
Spark Plug Check	Every 40 hours (every week)
Oil or Fuel Leak	Every 8 hours (every day)
Tightness of Fastening Threads	Every 8 hours (every day)
Engine Oil Check and Replenishment	Every 8 hours (every day) (Replenish to specified maximum level)
Engine Oil Replacement	After first 25 hours then every 50 to 100 hours
Air Filter Cleaning	Every 100 hours
See separate engine manual for details on engine check.	

Daily Service

- Check for leakage of fuel or oil.
- Check for loose screws including tightness. See Table 7 below (tightening torque), for retightening:

TABLE 7.

TIGHTENING TORQUE (in. kg/cm) Diameter

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	300~ 350	650 ~ 700					

* (In case counter-part is of aluminum)
(Threads in use with this machine are all right handed)
Material and quality of material is marked on each bolt, and screw.

- Remove soil and clean the bottom of compaction plate.
- Check hand pump, piping and hose for any leakage. A loosened hydraulic hose can be a cause for leakage. Check hydraulic hose connections with wrench applied for tightness.
- Check engine oil.

Spark Plug

1. Remove and clean the spark plug (Figure 26).
2. Adjust the spark gap to 0.028 ~0.031 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.

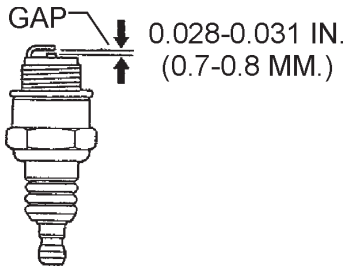


Figure 26. Spark Plug Gap

Engine Oil Replacement

1. Replace engine oil, first in 25 hours of operation and every 50 to 100 hours afterwards.
2. Drain the engine oil when the oil is ***warm*** as shown in Figure 27.
3. Remove the oil drain bolt and sealing washer and allow the oil to drain into a suitable container.
4. Replace engine oil with recommended type oil as listed in Table 4. Engine oil capacity is 1.16 quarts (1.1 liters). **DO NOT** overfill.
5. Install drain bolt with sealing washer and tighten securely.

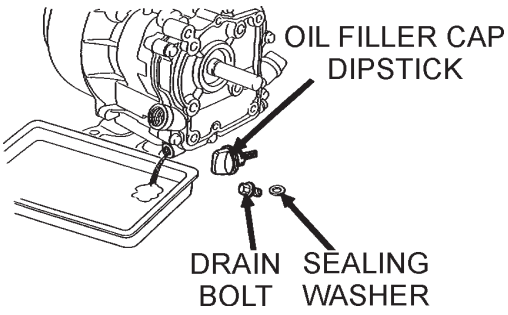


Figure 27. Engine Oil (Draining)

Engine Oil Replacement:

1. Replace engine oil, in first 25 hours of operation and every 50 to 100 hours afterwards.
2. Oil may be drained more easily when it is warm after operation (For more details, see separate engine Owner's Manual).

Air Filter (Every 6 Months or 400 Hours)

1. The air filter element should be cleaned because a clogged air cleaner can cause poor engine starting, lack of power and shorten engine life substantially.

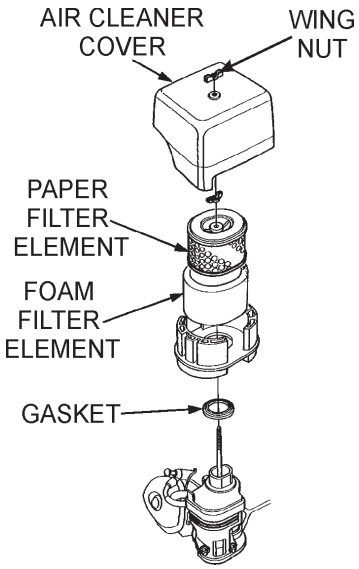


Figure 28. Engine Air Filter and Element

2. To clean or replace air filter loosen the wing nut on the air filter housing (Figure 28) remove the cover and take out air filter cartridge. If only cleaning of the air filter is desired blow through the air filter cartridge from the inside, moving a jet of dry compressed air up and down until all dust is removed.

⚠ CAUTION

NEVER attempt to check the V-belt with the engine running. Severe injury can occur if your hand gets caught between the V-belt and the clutch (Figure 29). Always use safety gloves.

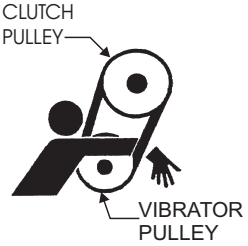


Figure 29. V-Belt Hazard

Checking and Replacing the V-Belt and Clutch

1. After 200 hours of operation, remove the belt cover to check the V-belt tension (Figure 30). Tension is proper if the belt bends about 3/8"(10 mm) when depressed strongly with finger between shafts. Loose or worn V-belts reduces power transmission efficiency, causing weak compaction and reduces the life of the belt itself.

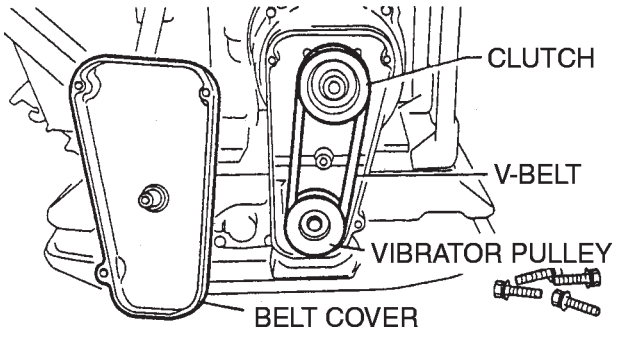


Figure 30. V-Belt Check

- **Replacing the V-belt**

Remove the belt cover. Engage an offset wrench 3/4"(19 mm) or the like to vibrator pulley (lower) fastening bolt. Engage waste cloth or the like at midway of V-belt on the left side and while pulling it back strongly, rotate the offset wrench clockwise so that the V-belt will come off.

- **Reinstalling the V-belt**

Engage V-belt to lower vibrator pulley and push the V-belt to left side of upper clutch and, in the same manner as in removal, rotate offset wrench clockwise so that the V-belt goes back on.

- **Checking Clutch**

Check the clutch simultaneously with V-belt checking. With belt cover removed, check outer drum of the clutch for seizure and "V" groove for wear or damage with your eyes. Clean the "V" groove as necessary. If the shoe is worn, power transmission becomes deficient and slipping will result.

- **Replacing Clutch**

Remove V-belt. Remove bolt at engine power output by giving a light tap with a hammer to an engaged wrench and rotate bolt counterclockwise. Remove clutch with a pulley extractor. To reinstall, reverse the procedure.

CAUTION

Whenever the compactor's vibration becomes weak or lost during normal operation regardless of operation hours, check the V-belt and clutch immediately.

Vibrator Oil Level Check

CAUTION

Always clean the area around the vibrator oil level check plug before removing oil check plug. This will prevent dirt and debris from entering the system.

1. In every 100 hours of operation, with the machine positioned horizontally, use a 3/4" (19 mm) wrench and remove vibrator oil level check plug (Figure 31). Visually inspect and see if vibrator oil level is up to filler port. Use engine oil 10W-30 for lubrication. Capacity of the lubrication oil is 20.3 fl.oz (600cc). Be sure to clean area around check hole to prevent dirt and dust from entering.

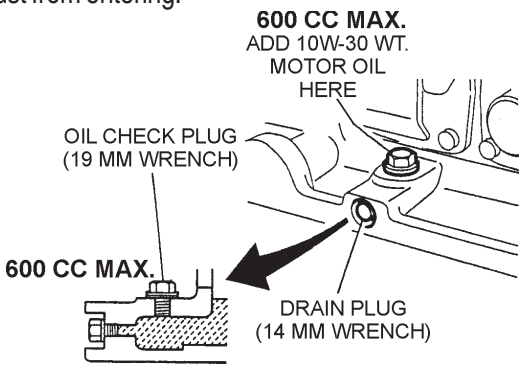


Figure 31. Vibrator Oil Drain and Check Plugs

Draining Vibrator Oil

1. Replace vibrator oil after first 200 hours and in every 1,000 hours of operation.
2. Position handle bar vertically (storage position).
3. Using a 14 mm wrench remove the vibrator oil drain plug (Figure 31) from the vibrating plate assembly.

   For draining oil through level check hole, have the machine inclined with a sleeper or the like placed under the compaction plate on opposite side.

4. After hydraulic oil has been completely drained from machine, fill with 10W-30 motor oil to the appropriate safe operating level (Figure 31).
5. Reinstall drain plug into vibrating plate assembly. Apply seal tape or Loctite #575 to thread portion of drain plug.

Draining Hydraulic Oil

1. Disconnect the hydraulic hose (Figure 32) connected to the hydraulic oil cylinder.

2. Push the travel lever back and forth to drain the hydraulic oil from the hand pump (hydraulic oil reservoir).

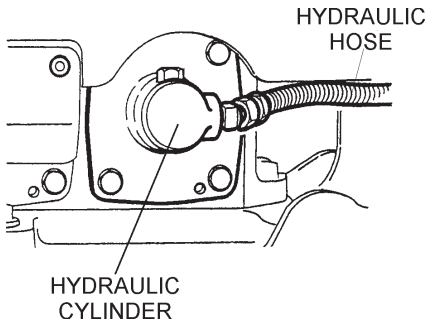


Figure 32. Hydraulic Oil Cylinder/Hose

3. After draining hydraulic oil, reconnect hydraulic oil hose to cylinder.
4. Place handle in upright position. Pull travel lever all the way back (reverse), and using a rope, secure travel lever to hand grip.

Adding Hydraulic Oil

1. Remove the breather cap and oil plug (Figure 33) from the hydraulic oil tank using a 24mm hex socket.

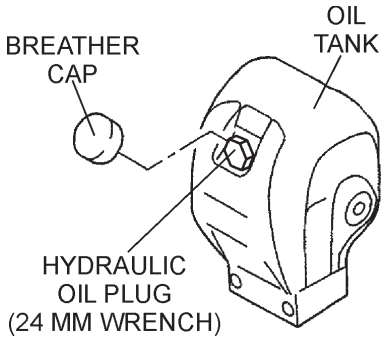


Figure 33. Hydraulic Oil Tank

2. Using a funnel, add ***Shell Tellus Oil #46*** or equivalent to the hydraulic oil tank through the oil filler port (Figure 34). Oil tank capacity is 50.7 fl. oz (1500 cc)

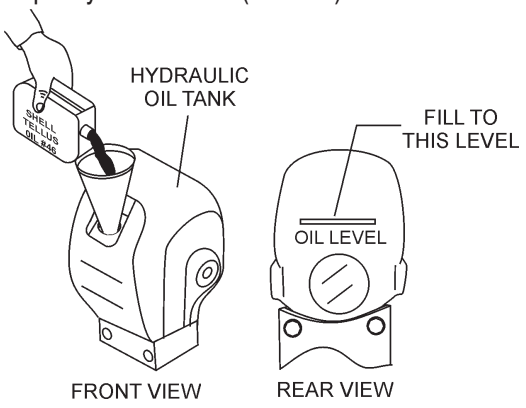


Figure 34. Hydraulic Oil Maintenance

CAUTION

Make sure hydraulic oil is at a normal safe operating level. **DO NOT** over fill. Over filling (excessive oil) will cause excess oil to blow out of bleeder plug.

3. Loosen bleeder plug located at top of hydraulic cylinder on side of vibrator (Figure 35). Air remaining in the circuit will be forced out of the bleeder plug. Once all air has been purged from the hydraulic system, tighten bleeder plug securely
4. Reinsert oil plug into hydraulic oil tank and tighten securely. Reinstall breather cap.

CAUTION

The ***bleeder plug*** should only be loosened, but not removed.

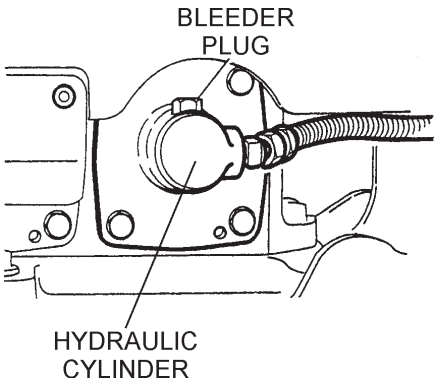


Figure 35. Bleeder Plug

LONG TERM STORAGE

When storing your compactor for long periods do the following:

- Run the engine at idle speed for 3-5 minutes.
- Stop the engine. Drain the engine crankcase oil while the engine is still warm. Fill engine crankcase with fresh oil.
- Wipe any oil or dirt that may have accumulated on the compactor.
- Store compactor in a cool dry place, out of reach of children and unauthorized personnel.

Troubleshooting

See Tables 8 (engine) and 9 (plate compactor) on proceeding pages for engine and plate compactor troubleshooting guide.

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Engine Troubleshooting (Table 8) information shown below. If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service plant.

TABLE 8. ENGINE TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	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.
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 dirtry?	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, and 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"	Suction/exhaust valve stuck or protruded?	Re-seat 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.	Fuel not available 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 clogged?	Replace fuel filter.
	Fuel tank cap breather hole clogged?	Clean or replace fuel tank cap.
	Air in fuel line?	Bleed fuel line.

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Compactor Troubleshooting (Table 9) information shown below. If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service plant.

TABLE 8. ENGINE TROUBLESHOOTING (CONTINUED)

SYMPTOM	POSSIBLE CAUSE	SOLUTION
"Weak in power" compression is proper and does not misfire.	Air cleaner not clean?	Clean or replace air cleaner
	Improper level in carburetor?	Check float adjustment, re-build carbureator.
	Defective Spark plug?	Clean or replace spark plug.
	Defective Spark plug?	
"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 improper?	Replace with correct type of spark plug.
	Correct type of fuel?	Replace with correct type of fuel
	Cooling fins dirty?	Clean cooling fins.
Rotational speed fluctuates.	Governor adjusted correctly?	Adjust governor.
	Governor spring defective?	Replace governor spring.
	Fuel flow restricted?	Check entire fuel system for leaks or clogs.
Recoil starter malfunction.	Recoil mechanism clogged with dust and dirt?	Clean recoil assembly with soap and water.
	Sprial spring loose?	Replace sprial spring.

TABLE 9. TROUBLESHOOTING COMPACTOR		
SYMPTOM	**POSSIBLE CAUSE**	**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.	Travel reversing system inoperative?	Check entire travel system.
	Reversing lever installation correct?	Clean installation of reversing lever.
	Broken or defective oil hose?	Replace oil hose.
	Aeration in hydraulic oil for for travel reversing system?	Purge air in hydraulic oil. (Bleed plug)
	Excessive oil in reversing system?	Fill to correct level.
	Selector valve clogged with trash?	Clean selector valve.
	Cylinder piston bearing failure?	Check piston bearing in cylinder for leakage at USH packing.
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.
	Pump input shaft key or adapter key-way damaged?	Replace input shaft key or adapter key-way
	Cylinder piston bearing failure?	Check piston bearing in cylinder for leakage at USH packing.
Reversing lever operating resistance great.	Excessive hydraulic oil?	Fill to correct level.

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
Unit 2, Northpoint Industrial Estate,
Globe Lane,
Dukinfield, Cheshire SK16 4UJ
E-MAIL: sales@multiquip.co.uk

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