

# OPERATION MANUAL



*Mikasa* **SERIES**  
**MODEL MVC98D2**  
**ONE-WAY PLATE COMPACTOR**  
**(YANMAR L48V6 DIESEL ENGINE)**

Revision #2 (07/13/20)

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

# PROPOSITION 65 WARNING

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## **MQ MIKASA SERIES MVC98D2 PLATE COMPACTOR**

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### **NOTICE**

*Specification and part number are subject to change without notice.*

# SAFETY INFORMATION

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



## SAFETY MESSAGES

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

## SAFETY SYMBOLS

**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      |

# SAFETY INFORMATION

## GENERAL SAFETY

### CAUTION

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



- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.



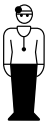
- **NEVER** operate this equipment under the influence of drugs or alcohol.



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



# SAFETY INFORMATION

## 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.

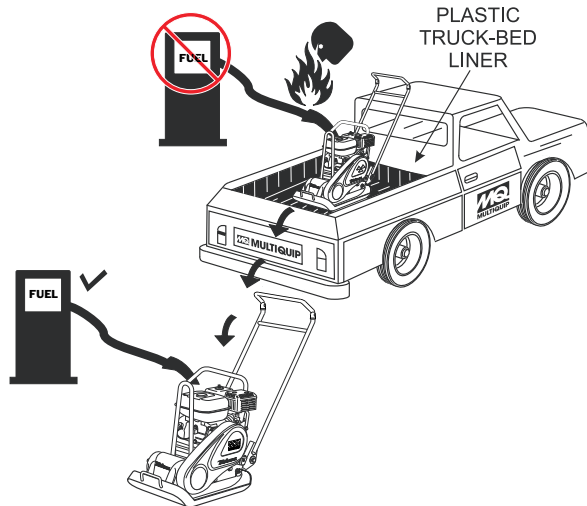



# SAFETY INFORMATION

## 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 lifting device has been properly secured to the lifting bail (hook) of the equipment.
- **ALWAYS** shutdown engine before transporting.
- **NEVER** lift the equipment while the engine is running.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Use adequate lifting cable (wire or rope) of sufficient strength.
- Use one point suspension hook and lift straight upwards.
- **DO NOT** lift machine to unnecessary heights.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.

## ENVIRONMENTAL SAFETY

### NOTICE

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



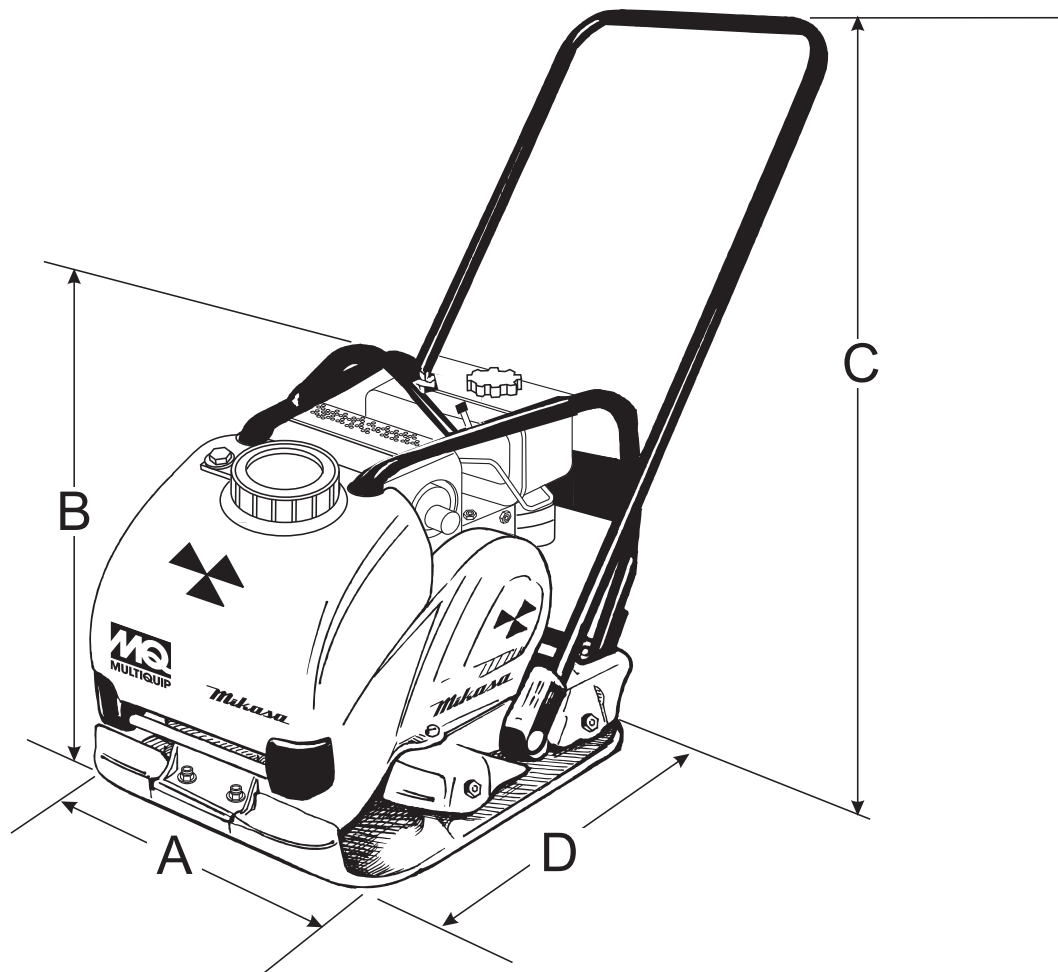


Figure 1. MVC98D2 Reversible Plate Compactor Dimensions

| TABLE 1. DIMENSIONS |                     |
|---------------------|---------------------|
| REFERENCE LETTER    | DIMENSIONS IN. (MM) |
| A                   | 19.75 in. (502 mm.) |
| B                   | 26 in. (660 mm.)    |
| C                   | 40 in. (1,016 mm.)  |
| D                   | 22.75 in. (578 mm.) |

| <b>TABLE 2. Specifications (Compactor)</b> |                                   |
|--|-----------------------------------|
| Models                                     | MVC-98D2                          |
| Centrifugal Force                          | 3,350 lbs. (1,520 kg)             |
| Number of Vibrations                       | 6,000 vibrations/min              |
| Traveling Speed                            | 72 ft./min (22 meters/min)        |
| Plate Size (LxW)                           | 19.6 x 22.0 in.<br>(498 x 559 mm) |
| Operating Weight                           | 218 lbs. (99 kg)                  |
| Water Tank Capacity                        | 13.7 qt. (13.0 liters)            |
| Max. Area Of Compaction                    | 7092 sq. ft./hr.                  |

| <b>Table 3. Specifications (Engine)</b> |                    |  |
|---|--------------------|--|
| <b>Engine</b>                           | <b>Model</b>       | <b>YANMAR<br/>L48V6F3R4AAW4</b>                                    |
|   | Type               | Air-cooled 4 stroke, Vertical<br>Single Cylinder, Diesel<br>Engine |
|   | Bore X Stroke      | 2.7 in. x 1.8 in.<br>(70 mm x 57 mm)                               |
|   | Displacement       | 219 cc (13.4 cu-in)  |
|   | Max Output         | 4.2 H.P./3600 R.P.M.   |
|   | Fuel Tank Capacity | Approx. 0.63 U.S. gallons<br>(2.4 liters)                          |
|   | Fuel               | Diesel Fuel  |
|   | Lube Oil Capacity  | 0.84 qts. (.80 liters)   |
|   | Starting Method    | Recoil Start   |
| <b>Dimension (L x W x H)</b>            |                    | 13.1 x 15.1 x 16.5 in.<br>(332.5 x 384.5 x 417.8 mm)               |
| <b>Dry Net Weight</b>                   |                    | 58.4 lbs (26.5 Kg.)  |

## Plate Compactor

The Mikasa MVC98D2 is a walk-behind 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.

## Compactor Components

This plate compactor is comprised of an anti-vibration handle, vibrating case (eccentric), water tank, guard hook, rubber shock absorbers and a Yanmar diesel engine.

## Vibratory Plates

The vibratory plates of the MVC98D2 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. The heavier the plate, the more compaction force it generates.

## Power Transfer

The Mikasa MVC98D2 Plate Compactor is equipped with an air-cooled, vertical single-cylinder, 4-stroke Yanmar L48V6 diesel engine. A centrifugal clutch is attached to the output shaft of the engine and will engage when the engine speed reaches approximately 2,300 ~ 2,600 rpm's.

Engine shaft speed is transferred via engine pulley and V-belt to vibrator pulley. The vibrator pulley rotates an eccentric rotor shaft that is contained within the vibrator case.

The generated vibration created from the eccentric rotor is transmitted to the compacting plate. This vibration causes the compactor to move in a forward direction.

## Frequency/Speed

The compactor's vibrating plate maximum frequency is 6,000 vpm (vibrations per minute). The forward and reverse travel speed of the compactor is approximately 72 ft./minute (22 meters/minute).

## Water Sprinkler System

The water sprinkler system will provide about 20 minutes of sprinkling with the water cock in the full open position and the compactor operating at full speed. It is suggested to mix a small amount of detergent or diesel fuel with water. This will allow the water to flow much easier.

## Controls

Before starting the MVC98D2 Plate Compactor, identify and understand the function of the controls and components as indicated in Figure 2.

# COMPACTOR COMPONENTS

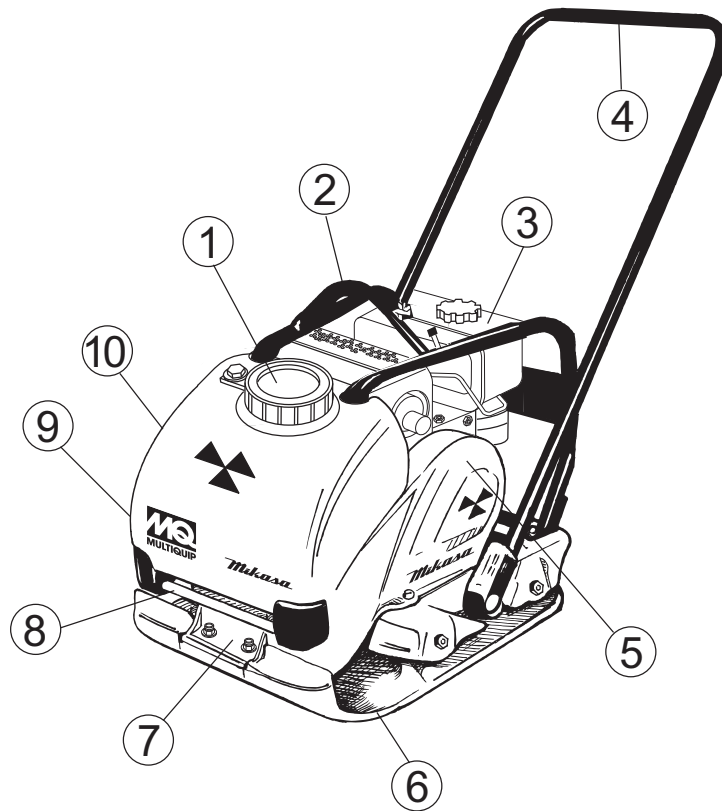
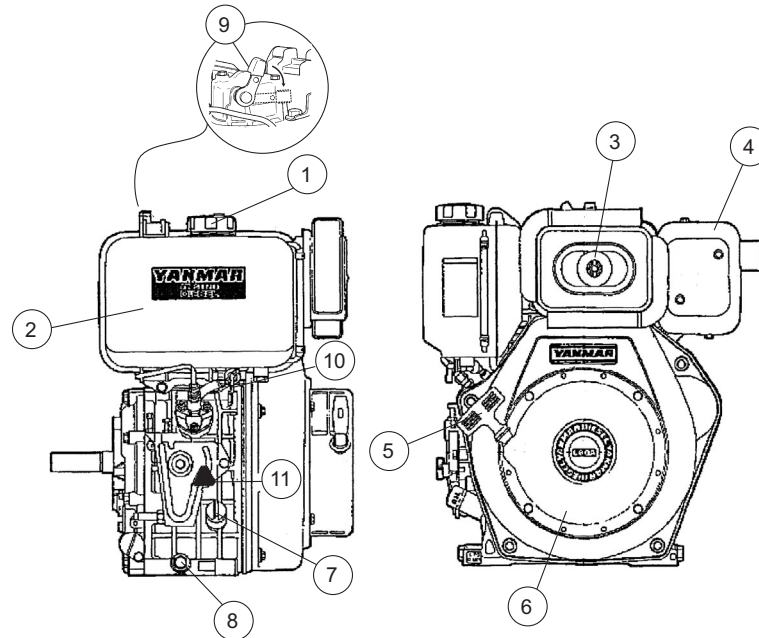


Figure 2. MVC98D2 Components

Figure 2 illustrates the location of the major components for the MVC98D2 Plate Compactor. The function of each component is described below:

1. **Water Tank Cap** – Remove this cap to add water to the water tank.
2. **Lifting Hook** – When lifting of the compactor is required either by forklift, crane etc., tie rope or chain around this lifting point.
3. **Diesel Engine** – This plate compactor uses a YANMAR L48V6 engine. Refer to the YANMAR owners manual for engine information and related topics.
4. **Handle Bar** – When operating the compactor use this handle bar to maneuver the compactor.
5. **Belt Cover** – Remove this cover to gain access to the V-belt. **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.
6. **Vibrating Plate** – A flat, open plate made of durable cast iron construction used in the compacting of soil.
7. **Vibration Case** – Encloses the eccentric, gears and counter weights.
8. **Water Tube (Sprinkler)** – Supplies water to the soil via a splash plate.
9. **Water Shut-Off Valve** – Turn this valve downward to let water flow from the water tank to the water tube.
10. **Water Tank** – Holds 13.7 quarts of water, removable no tools required.



**Figure 3. Engine Controls and Components**

The engine shown above is a **YANMAR L48V6** engine (Figure 3). The engine 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. Each component is described below:

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.
2. **Fuel Tank** – Capacity is 2.5 quarts (2.4 liters) of diesel fuel.
3. **Air Cleaner** – Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter canister to gain access to filter element.
4. **Muffler** – Used to reduce noise and emissions.
5. **Recoil Starting Handle (pull rope)** – Type of engine starting method.

**WARNING**



Add fuel to the tank only when the engine is stopped and has cooled 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.

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

7. **Oil Filler Cap / Dipstick** – Remove this cap to add oil to the engine crankcase. Read dipstick to determine if oil level is low. **DO NOT** over fill.

**NOTICE**

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

8. **Oil Drain Plug** – Unscrew plug to drain oil from engine crankcase. Dispose of oil in a safe manner.
9. **Decompression Lever** – Press down before starting engine. To prevent damage to engine, **DO NOT** use for any other purpose.

**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 Cock** – Controls the flow of diesel fuel to the carburetor. Must be in the ON position when starting and running the engine.
11. **Speed Control Lever** – Regulates engine speed.

## Compactor Instructions

The purpose of this section is to assist the user in the setting up of a **NEW** compactor. If your compactor is already assembled (vibration handle), then this section can be skipped.

Before packaging and shipping this MQ Mikasa Walk-Behind Plate compactor was run and tested at the factory. If there are problems, please let us know.

### NOTICE

The new plate compactor cannot be put into service until the setup installation instructions are completed. These setup instructions only need to be performed at the time of unpacking a **NEW** compactor.

## Steering Handle Assembly

The steering handle is not attached to the compactor's lower base at the time of shipment. To attach the steering handle to the lower base assembly perform the following:

1. Remove the bolts and washers (handle mounting hardware) from both sides of the plate compactor (Figure 4).
2. Position the anti-vibration handle over the compactor.
3. Align the holes at the bottom of the handle to the holes on the compactor (lower base) where the bolts and washers were removed. Install and tighten the bolts and washers.

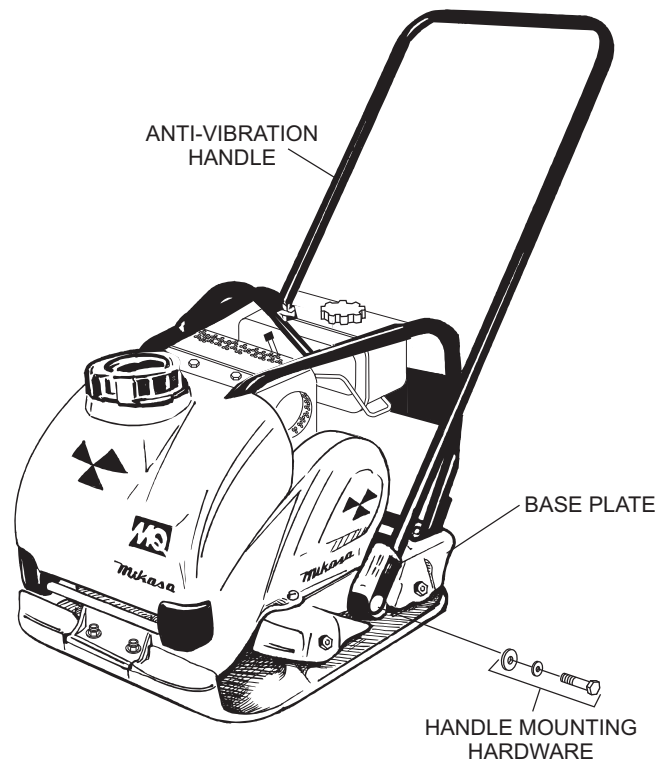



Figure 4. Installing the Steering Handle

**CAUTION**



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

**CAUTION**



**ALWAYS** wear approved eye and hearing protection before operating the unit.

### Before Starting:

1. Read safety instructions at the beginning of manual.
2. Remove dirt and dust, particularly in 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:

1. To check the engine oil level, place the compactor on secure level ground with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole (Figure 5) and wipe clean.

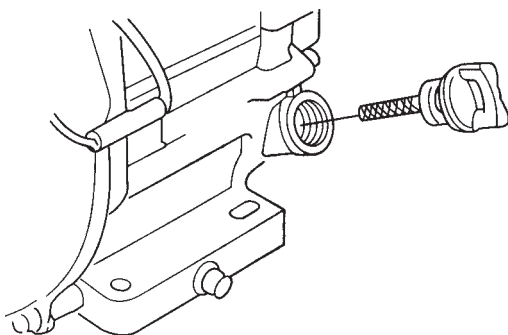


Figure 5. Engine Oil Dipstick (Removal)

3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
4. If the oil level is low (Figure 6), fill to the edge of the oil filler hole with the recommended oil type (Table 4). Maximum oil capacity is 0.84 quarts (0.80 liters).

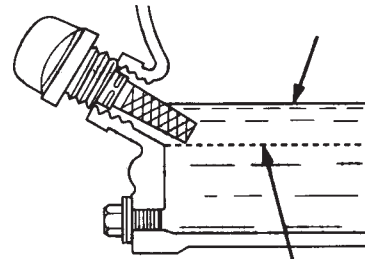
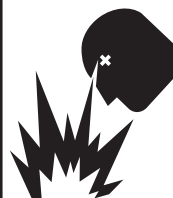


Figure 6. Engine Oil Dipstick (Oil Level)

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    |

### DANGER



### EXPLOSIVE FUEL!

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

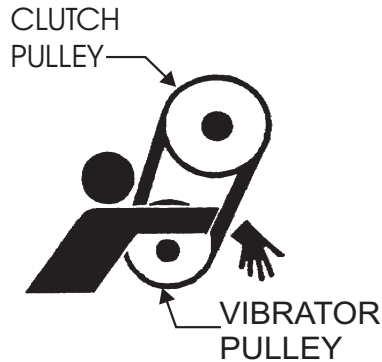
### Fuel Check:

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

## V-Belt Check

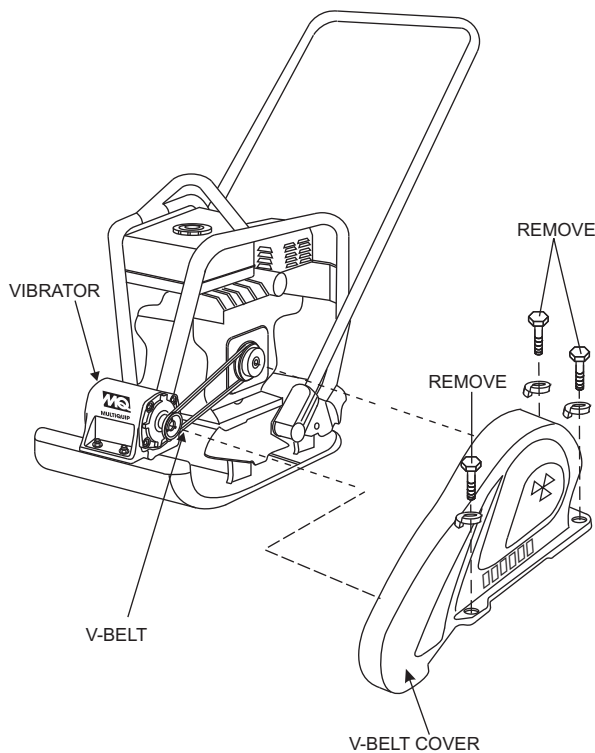
**CAUTION**

**NEVER** attempt to check the V-belt with the engine running. Severe injury can occur if your hand (Figure 7) gets caught between the V-belt and the clutch. Always use safety gloves.



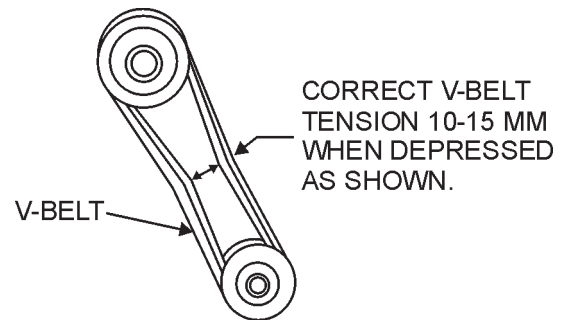
**Figure 7. V-Belt Hazard**

1. To check the V-belt tension, remove the three bolts that secure the belt cover to the frame as shown in Figure 8.



**Figure 8. V-Belt Cover Removal**

2. The V-belt tension is proper if the V-belt bends 10 to 15 mm (Figure 9) when depressed with finger at midway between the clutch and vibration pulley shafts.

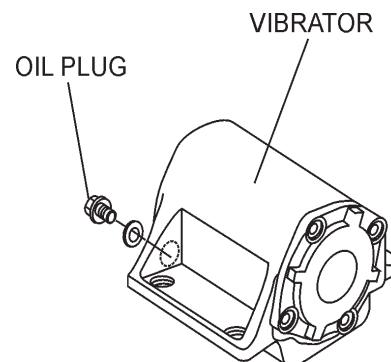


**Figure 9. V-Belt Tension**

3. A loose V-belt will decrease the power transmission output, causing reduced compaction and premature wear of the belt.
4. If the V-belt becomes worn or loose, replace it. See maintenance section.

## Vibrator Oil Check

1. Place the MVC98D2 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 plug (vibrator oil gauge) as shown in Figure 10. The oil level should be up to the oil plug. The vibrator holds 140 cc (approximately 4 oz.). **IMPORTANT**, if oil is required, replace using only SAE10W-30 motor oil.



**Figure 10. Vibrator Oil Plug**



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.

## Starting the Engine

1. Open the fuel cock (Figure 11).

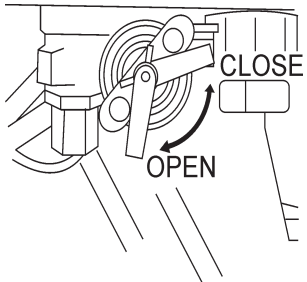


Figure 11. Fuel Cock

2. Move the engine speed control lever (Figure 12) to the **IDLE** position.

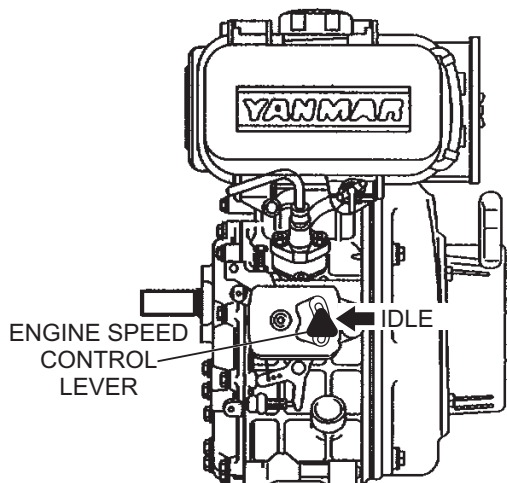


Figure 12. Engine Speed Control Lever (Idle Position)

3. Push down the decompression lever (Figure 13) and release.

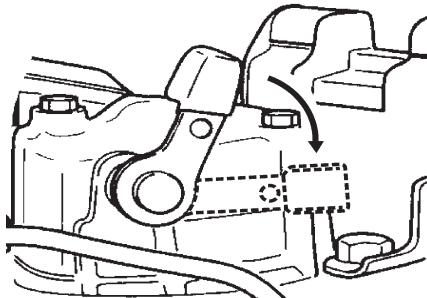


Figure 13. Decompression Lever

4. Grasp the starter grip (Figure 14) and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding to the compression point. Pull the starter grip briskly and smoothly for starting.

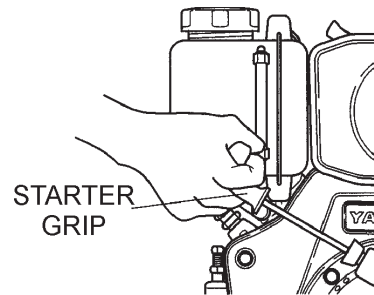


Figure 14. Starter Grip

5. If the engine does not start, repeat steps 1 thru 4.

## Operation

1. Once the engine has started, move the engine speed lever quickly to the **FAST** (Figure 15) position.
2. With the engine speed control lever placed in the **FAST** position, the engine speed should be between 2,300 ~2,600 RPM's, therefore engaging the centrifugal clutch.

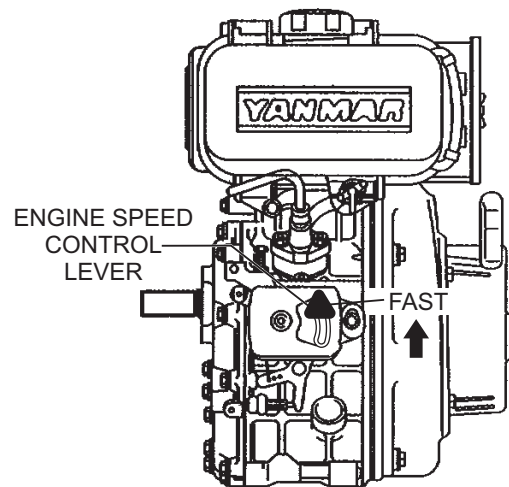


Figure 15. Speed Control Lever (Fast Position)

### NOTICE

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

# OPERATION/PREPARATION FOR LONG-TERM STORAGE

## CAUTION

Make sure to follow all safety rules referenced in the safety information 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 injury.

3. Firmly grasp the compactor's handle bar with both hands, the compactor will begin moving forward.
4. 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.
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.

## NOTICE

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

## Normal Shut-Down Procedure:

1. Place the speed control lever in the **IDLE** position. Allow the engine to cool down for 2 to 3 minutes.
2. Next, place the speed control lever in the **STOP** position (Figure 16) to stop the engine.
3. Close the fuel cock (Figure 11).

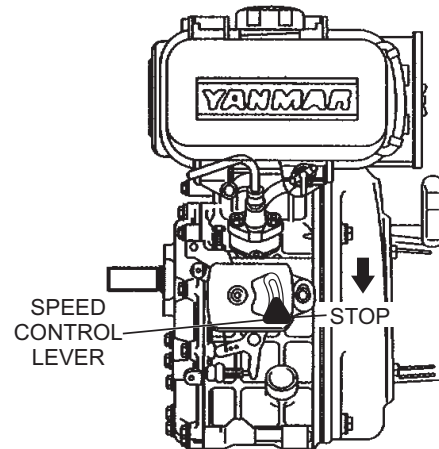


Figure 16. Speed Control Lever (Stop Position)

## Emergency Shutdown Procedure:

1. Move the speed control lever quickly to the **STOP** position (Figure 16).
2. Close the fuel cock.

## Compactor Storage

For storage of the compactor for over 30 days, the following is required:

- Drain the fuel tank completely, or add STA-BIL to the fuel.
- Run the engine until the fuel in the injection system is completely consumed.
- Completely drain the oil from the crankcase and refill with fresh oil.
- Pour 2 or 3 cc of SAE 30 oil into the cylinder and crank slowly to distribute the oil.
- Pull out the starter rope slowly and stop at the compression point.
- Clean all external parts of the compactor with a cloth.
- Cover the compactor and store in a clean, dry place.

## CAUTION

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

### Inspection and Maintenance Service Tables.

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. MVC-98D2 MACHINE INSPECTION**

| ITEM                     | HOURS OF OPERATION        |
|--------------------------|---------------------------|
| Loose or Missing Screws  | Every 8 hours (every day) |
| Damaged Parts            | Every 8 hours (every day) |
| V-Belt Check/Replacement | Every 200 hours           |
| Clutch Check             | Every 200 hours           |
| Vibrator Oil Check       | Every 100 hours           |
| Vibrator Oil Replacement | Every 300 hours           |
| Clutch Check             | Every 200 hours           |

## NOTICE

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. Fuel piping and connections should be replaced every 2 years.

**TABLE 6. MVC-98D2 ENGINE CHECK**

| ITEM  | HOURS OF OPERATION  |
|---|---|
| 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)<br>(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 maintenance. |   |

### 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**

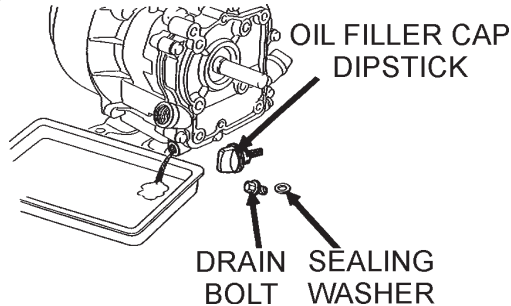
| Material | 6mm | 8mm     | 10mm    | 12mm  | 14mm  | 16mm  | 18mm  | 20mm  |
|----------|-----|---------|---------|-------|-------|-------|-------|-------|
| 4T       | 70  | 150     | 300     | 500   | 750   | 1,100 | 1,400 | 2,000 |
| 6-8T     | 100 | 250     | 500     | 800   | 1,300 | 2,000 | 2,700 | 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 vibrating case for any oil leakage.
- Check engine oil.

## 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 17.



**Figure 17. Engine Oil (Draining)**

3. Remove the oil drain bolt and sealing washer and allow the oil to drain into a suitable container.
4. Replace engine oil in the oil tank with recommended type oil as listed in Table 4. Engine oil capacity is 1.16 quarts (1.1 liter). **DO NOT** overfill.
5. Install drain bolt with sealing washer and tighten securely.

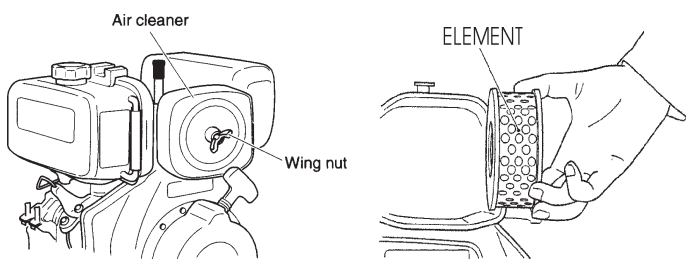
## Air Filter Cleaning

1. Remove the air cleaner cover and foam filter element as shown in Figure 18.
2. Tap the paperfilter element (Figure 18) several times on a hard surface to remove dirt, or blow compressed air [not exceeding 30psi (207 kPa, 2.1 kgf/cm<sup>2</sup>)] through the filter element from the air cleaner case side.

### **CAUTION**

**NEVER** brush off dirt. Brushing will force dirt into the fibers and cause poor performance in your air filter. Replace the paper filter element if it is excessively dirty.

3. Clean foam element in warm, soapy water or nonflammable solvent. Rinse and dry thoroughly. Dip the element in clean engine oil and completely squeeze out the excess oil from the element before installing.

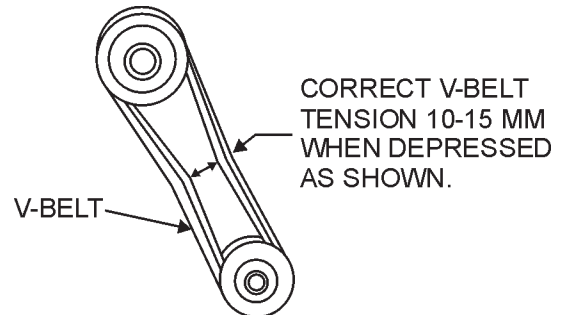


**Figure 18. Engine Air Filter**

## Checking and the V-Belt

After 200 hours of operation, remove the belt cover to check the V-belt tension (Figure 19).

1. Remove the belt cover.
2. Tension is proper if the belt bends about 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 19. Checking V-belt Tension**

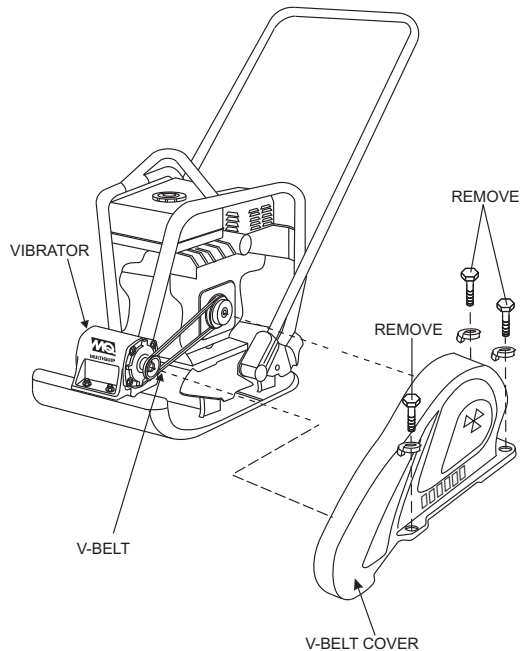
### **CAUTION**



**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. Always use safety gloves.

## Replacing the V-belt

1. Remove the V-belt cover (Figure 20).
2. Using cutters, simply cut the worn or defective V-belt and discard.
3. Place one end of the new V-belt onto the upper pulley (clutch side).
4. Place a 19 mm offset wrench or the like onto the lower vibrator pulley fastening bolt.
5. Place the other end of the V-belt onto lower vibrator pulley. Rotate offset wrench clockwise so that the V-belt moves onto the lower vibrator pulley.



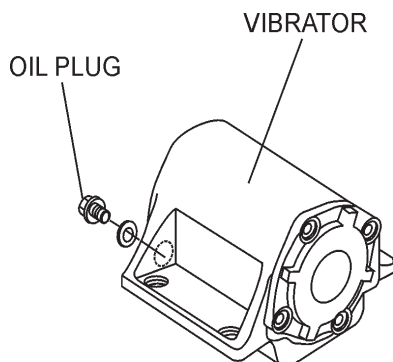
**Figure 20. V-Belt Check**

## Vibrating Case Oil Replacement (300 Hours)

### **CAUTION**

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

1. Place the plate compactor horizontally on a flat surface.
2. Remove oil drain plug (Figure 21) from vibrator and drain oil from the vibrating case.
3. Using a funnel, fill vibrating case with SAE10W-30 motor oil. The oil level should be up to the oil plug. The vibrator holds 140 cc (approximately 1 pint).
4. Re-install oil drain plug into vibrator.



**Figure 21. Oil Level Check Plug**

## Checking and Replacing the Clutch

### Checking the Clutch

1. With belt cover removed, visually check outer drum of the clutch for seizure and "V" groove for wear or damage.
2. Clean the "V" groove as necessary.
3. Check the clutch lining and shoe for signs of wear. If the shoe is worn, replace the clutch to prevent deficient power transmission and slippage.

### Replacing the Clutch

1. Place a 19 mm offset wrench or the like onto the lower vibrator pulley fastening bolt.
2. While pulling back hard on the V-belt near the lower vibrating pulley, rotate offset wrench clockwise so that the V-belt slips off the lower vibrator pulley. Set V-belt aside.
3. Remove bolt at engine power output by giving a shock to an engaged wrench (e.g. tapping with hammer) and rotate the bolt counterclockwise.
4. Remove clutch with a pulley extractor.
5. To install a new clutch, reverse steps 1-4.

# TROUBLESHOOTING

**TABLE 8. ENGINE TROUBLESHOOTING**

| SYMPTOM  | POSSIBLE PROBLEM  | SOLUTION  |
|--|---|---|
| Engine will not start or start is delayed, although engine can be turned over. | Speed control lever is in "STOP" position?                    | Set speed control lever to "START" position.  |
|  | No fuel reaching injection pump?                              | Add fuel. Check entire fuel system.   |
|  | Defective fuel pump?  | Replace fuel pump.  |
|  | Fuel filter clogged?  | Replace fuel filter and clean tank.   |
|  | Faulty fuel supply line?                                      | Replace or repair fuel line.  |
|  | Compression too low?  | Check piston, cylinder and valves. Adjust or repair per engine repair manual.   |
|  | Fuel injector not working correctly?                          | Repair or replace injector in accordance with engine repair manual.   |
|  | Oil pressure too low?   | Check engine oil pressure.  |
|  | Low starting temperature limit exceeded                       | Comply with cold starting instructions and proper oil viscosity.  |
| At low temperatures engine will not start.                                     | Fuel separates has inadequate resistance to low temperatures? | Check whether clear (not turbid) fuel emerges from the fuel line (detach from injection pump). If the fuel is turbid or separated, warm up the engine or drain the complete fuel supply system. Refuel with winter grade diesel fuel. |
|  | Engine oil too thick?   | Refill engine crankcase with correct type of oil for winter environment.  |
| Engine fires but stops soon as starter is switched off.                        | Throttle lever in STOP position?                              | Reposition throttle lever to RUN position.  |
|  | Fuel filter blocked?  | Replace fuel filter.  |
|  | Fuel supply blocked?  | Check the entire fuel system.   |
| Engine stops by itself during normal operation.                                | Fuel tank empty?  | Add fuel.   |
|  | Fuel filter blocked?  | Replace fuel filter.  |
| Low engine power, output and speed.  | Fuel tank empty?  | Fill with No.2 diesel fuel.   |
|  | Fuel filter clogged?  | Replace fuel filter.  |
|  | Fuel tank venting is inadequate?                              | Ensure that tank is adequately vented.  |
|  | Speed control lever does not remain in selected position?     | See engine manual for corrective action.  |
|  | Engine oil level too full?                                    | Correct engine oil level?   |
| Low engine power output and low speed, black exhaust smoke.                    | Air filter blocked?   | Clean or replace air filter.  |
|  | Incorrect valve clearances?                                   | Adjust valves per engine specification.   |
|  | Malfunction at injector?                                      | See engine manual.  |

**TABLE 9. PLATE COMPACTOR TROUBLESHOOTING**

| SYMPTOM                                      | POSSIBLE CAUSE                   | SOLUTION   |
|--|----------------------------------|--|
| Travel speed too low, and vibration is weak. | Engine speed too low?            | Set engine speed to correct RPM.                             |
|  | Clutch slips?                    | Check or replace clutch.                                     |
|  | V-belt slips?                    | Adjust or replace V-belt.                                    |
|  | Excessive oil in vibrator?       | Drain excess oil and fill to proper level.                   |
|  | Malfunction in vibrator housing? | Check eccentric, gears and counter weights.                  |
| Does not travel forward.                     | V-belt slips?                    | Replace V-belt.  |
|  | Clutch slips?                    | Check clutch springs and shoes.                              |
|  | Vibrator locked?                 | Check vibrator housing (eccentric, gears and counterweights) |

# OPERATION MANUAL

## HERE'S HOW TO GET HELP

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

### UNITED STATES

#### *Multiquip Inc.*

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

### CANADA

#### *Multiquip*

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

### UNITED KINGDOM

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

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

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