

# OPERATION MANUAL



*Mikasa* SERIES

**MODELS**

**MVH502DSB (CRANK HANDLE)  
MVH502DSB2 (ELECTRIC START)  
REVERSIBLE PLATE COMPACTORS  
(HATZ 1D81S DIESEL ENGINE)**

Revision #6 (07/10/20)

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[www.multiquip.com](http://www.multiquip.com)



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

# PROPOSITION 65 WARNING

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**MIKASA MVH502DSB/DSB2  
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.

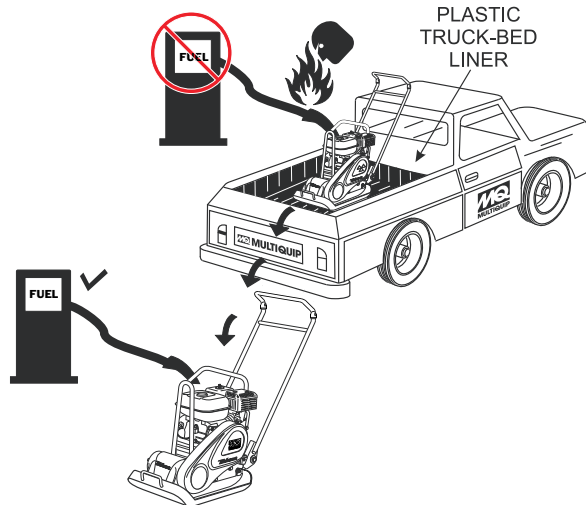


# SAFETY INFORMATION

## 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.



# OPERATION AND SAFETY DECALS

Figure 1 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.



P/N: 920204580



P/N: 920207480



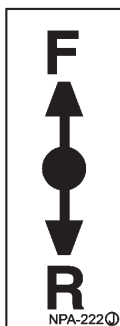
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<p><b>OPERATIONAL CAUTION</b>                  Prior to OPERATION:                  Check engine oil and fuel levels.                  If not enough, add to proper levels.                  To START engine:                  1. Warm up engine at low speed for 3 to 5 minutes.                  2. Operate machine at full throttle speed.                  (Incorrect clutch engagement cause clutch to burn.)                  3. Use travel lever for forward and reverse motion.                  Do not push or pull travel lever strongly.                  To STOP engine: (for electric start engine)                  Move stop key switch to "OFF" position.                  To LIFT machine:                  Use lifting hook in center.                  Outdoor Storage                  Store until covered with plastic sheet in a moisture.</p> <p><b>MIKASA SANGYO CO., LTD TOKYO JAPAN</b></p>	<p><b>DANGER FUEL</b></p> <p>Fire Risk</p>	<p><b>DANGER FUEL</b></p> <p>Operate only in well-ventilated area</p>	<p><b>DANGER LIFTING</b></p> <p>Do not stand next to machine while lifting</p>	<p><b>DANGER LIFTING</b></p> <p>Do not use machine handle</p>	<p><b>CAUTION READ</b></p> <p>Use caution while operating in reverse</p>
	<p><b>WARNING NOISE</b></p> <p>Wear eye protection</p>	<p><b>WARNING HOT TEMP.</b></p> <p>Operate only in well-ventilated area</p>	<p><b>WARNING TRANSPORT</b></p> <p>Set transport wheel tightly by chain</p>	<p><b>CAUTION MOVING PARTS</b></p> <p>Do not touch moving parts in operation</p>	<p><b>CAUTION READ</b></p> <p>Read operator's manual carefully before use</p>

P/N: 920206370



P/N: 920202220



P/N: 920101580



P/N: 920203330

# MVH-502

P/N: 920205000

Figure 1. Operation and Safety Decals

# SPECIFICATIONS

<b>TABLE 1. MVH-502DSB REVERSIBLE PLATE COMPACTOR SPECIFICATIONS</b>	
Centrifugal Force	14,000 lbs. (6,350 kg)
Vibration Frequency	4,000 vpm (67 Hz)
Traveling Speed	0 to 75.5 ft/min (0 to 23 m/min)
Plate Size (L x W)	39 x 21.7 in (990 x 550 mm)
Overall Length	60 in (1,525 mm)
Overall Width	21.7 in (550mm )
Overall Height	43.3 in (1,100 mm )
Operating Weight	1122 lbs. (510 kg)
Lubricating Oil in Vibration Case	33.8 fl oz (1,000 cc)

<b>Table 2. ENGINE SPECIFICATIONS</b>		
<b>Engine</b>	<b>Model</b>	<b>Hatz 1D81S</b>
	Type	Air-cooled, 4-Stroke, Single Cylinder, Diesel Engine
	Bore X Stroke	3.94 in. X 3.34 in. (100 mm x 85 mm.)
	Displacement	40.70 cu-in (667 cm <sup>3</sup> )
	Max Output	15.0 H.P./3600 R.P.M.
	Fuel Tank Capacity	1.85 gallons (7.0 liters)
	Fuel	Diesel #2
	Lube Oil Capacity	1.8 quarts (1.7 liters)
	Starting Method	Crank Handle/Electric
	Battery min./max. Ah	12V 45/70 Ah
<b>Dimension (L x W x H)</b>	14.31 x 19.62 X 23.00 in. (363.5 X 498.5 X 584.5 mm.)	
<b>Dry Net Weight</b>	201 lbs. (91 Kg.)	

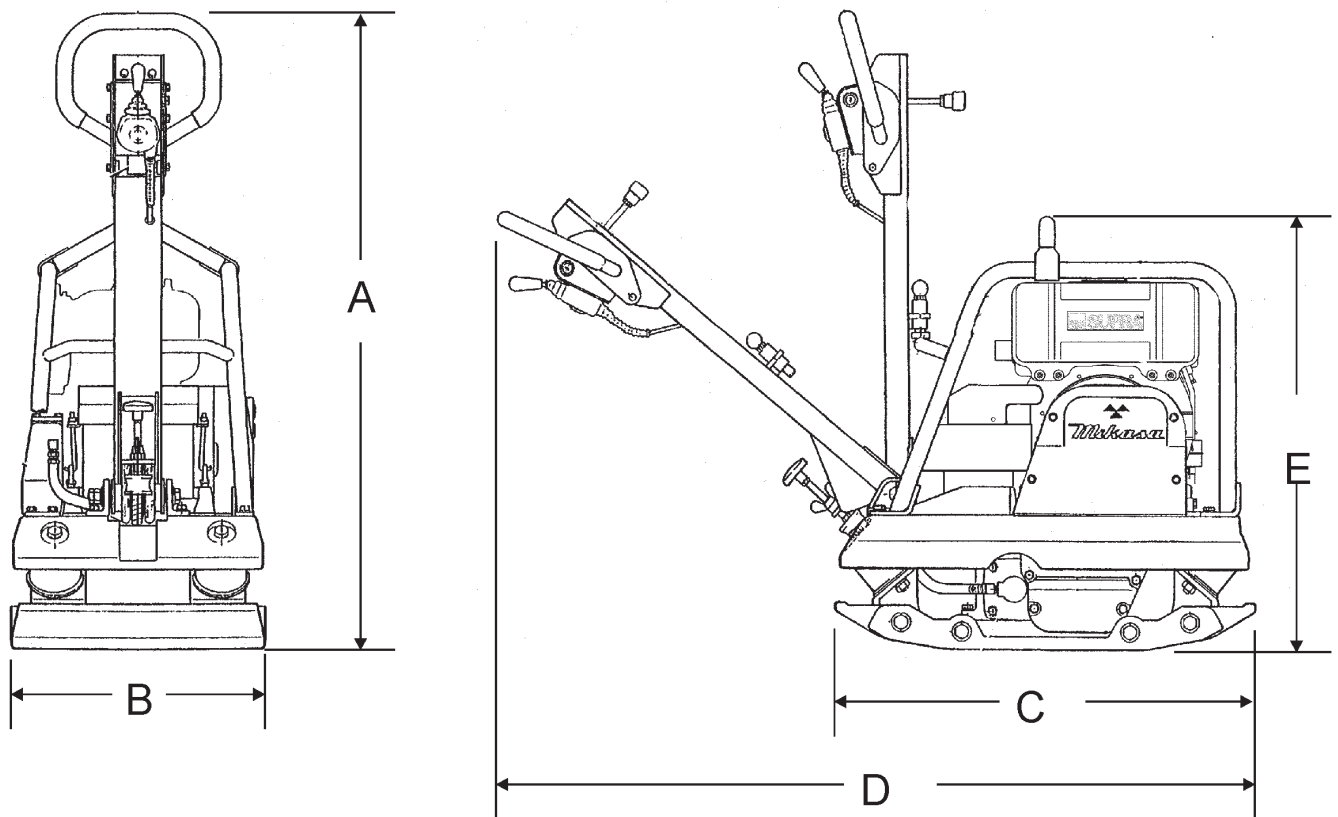


Figure 2. MVH502DSB/DSB2 Reversible Plate Compactor Dimensions

**TABLE 3. DIMENSIONS**

REF.	DIMENSIONS
A	53 in. (134.6 cm.)
B	24 in. (61 cm.)
C	34 in. (86 cm.)
D	63.8 in. (162 cm.)
E	38.2 in. (97 cm.)

# GENERAL INFORMATION

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## Plate Compactor

The Mikasa MVH502DSB/DSB2 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 MVH502DSB/DSB2 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

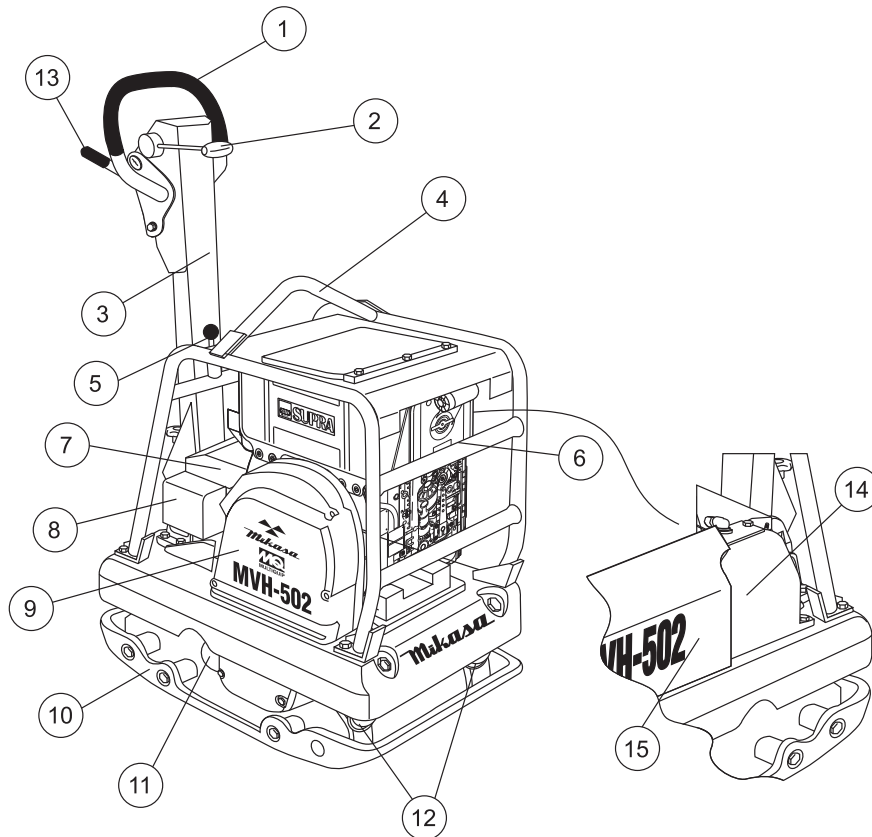
The compactor's vibrating plate maximum frequency is 4000 vpm (vibrations per minute). The forward and reverse travel speed of the compactor is approximately 75.5 ft./minute (23 meters/minute).

## Engine

The Mikasa MVH502DSB/DSB2 Plate Compactor is equipped with a HATZ 1D81S diesel engine.

## Controls

Before starting the MVH502DSB/DSB2 Plate Compactor, identify and understand the function of the controls and components as indicated in Figure 3.



**Figure 3. MVH502DSB/DSB2 Reversible Plate Compactor Components**

Figure 3 illustrates the location of the major components for the MVH502DSB/DSB2 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 **HATZ 1D81S** diesel engine. Refer to the owner's manual for engine information and related topics.
7. **Battery** Maintenance-free type requiring no electrode replenishment.
8. **Starter Switch** Engine starts when key is turned to the **RUN** position
9. **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.
10. **Base Plate** – Designed to compact sand, clay, and asphalt.
11. **Vibration Case** – Encloses the eccentric, gears and counter weights.
12. **Shock Absorber** – Protects plate compactor from damage by absorbing vibration during operation.
13. **Throttle Lever** – Controls the speed of the plate compactor. Place straight vertically to start, push fully counterclockwise for full throttle and fully clockwise to stop plate compactor.
14. **Oil Tank** – Fill with proper grade of diesel engine oil.
15. **Hydraulic Cylinder** – Activated by moving the travel lever. The cylinder controls the direction of movement by the plate compactor.

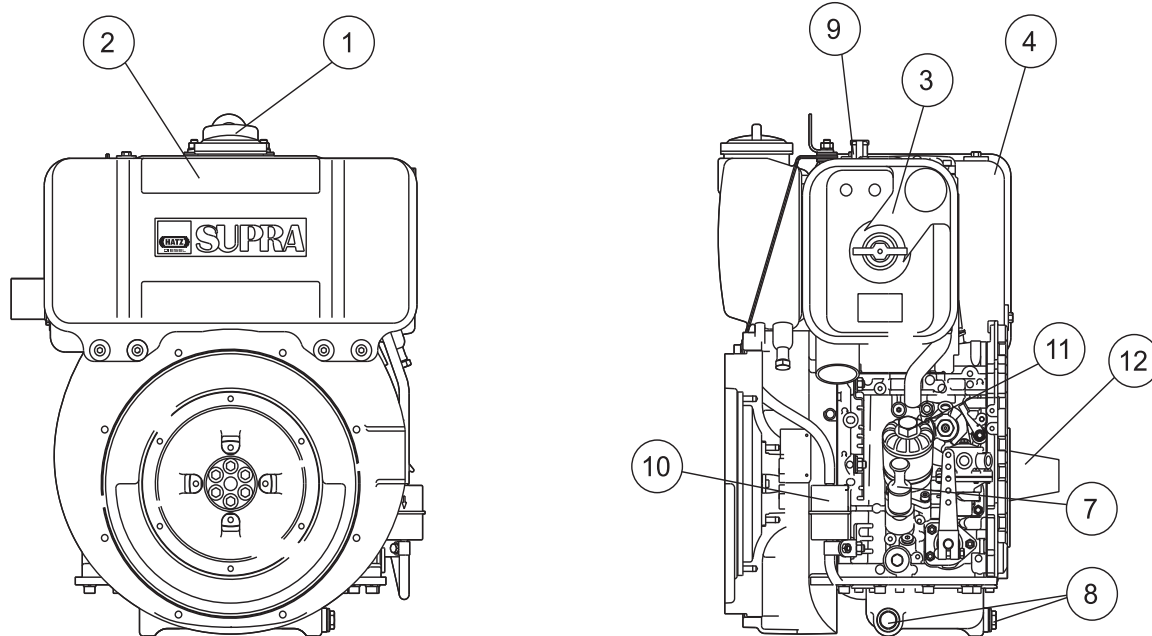



Figure 4. MVH502DSB/DSB2 Engine Components

## ENGINE COMPONENTS

Figure 4 illustrates the location of the major engine components of the machine. Each component is described below:

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

**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.


2. **Fuel Tank** – Capacity is 1.85 gallons (7.0 liters) of #2 diesel fuel.
3. **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.

**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.

4. **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.

7. **Oil Filler Cap/Dipstick** – Remove this cap to add oil to the oil tank. Use dipstick to check oil level.
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 the engine, **DO NOT** use for any other purpose.
10. **Fuel Filter** – Controls the flow of diesel fuel to the carburetor. Must be in the ON position when starting and running the engine.
11. **Oil Filter** – Filters oil for contaminates. Replace as necessary.
12. **Starting Handle Guide Sleeve** – Insert starting handle into the guide sleeve and turn to crank start engine.

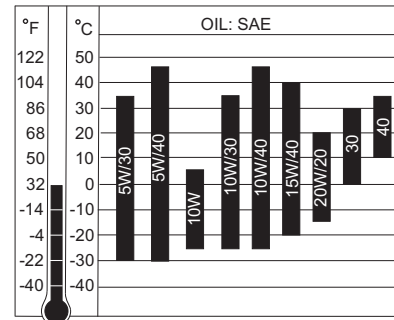
## Before Starting

1. Read safety information 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 the 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.



3. If the oil level is low, fill to the edge of the oil filler hole with the recommended oil type (Table 4). Maximum oil capacity is 2 quarts (1.9 liters).

**Table 4. Oil Selection Chart**

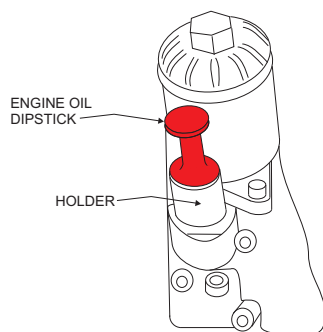


## Checking Engine Oil Level

1. Make sure that the machine is situated in a flat surface so that level measurements will be accurate.
2. Pull out the dipstick from the oil tank (Figure 5).

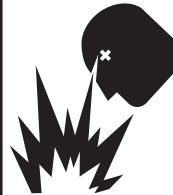
### **CAUTION**

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



**Figure 5. Oil Dipstick**

### **DANGER**

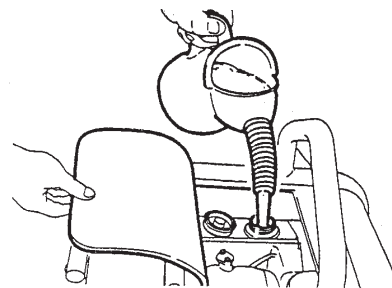


### **EXPLOSIVE FUEL!**

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**.

## 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 6).
3. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel.



**Figure 6. Refueling**



## CAUTION



**DO NOT** attempt to run the compactor until the Safety, General, and Inspection sections have been read and understood.

### Adjusting Handle Height

The height of the handle is adjustable for your comfort .

1. Loosen the butterfly screw (Figure 7).
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.

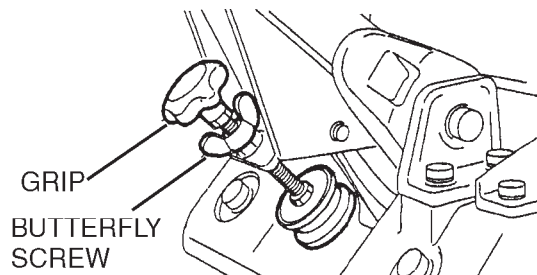


Figure 7. Handle Adjustment

## STARTING THE ENGINE

### Electric Start

1. Move the throttle lever to the **START** position by opening it to about 20 degrees (Figure 8).

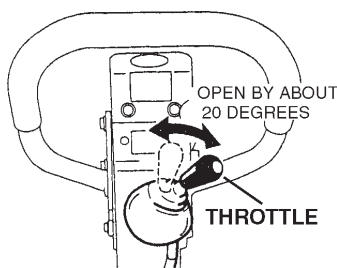


Figure 8. Throttle Lever (Start Position)

2. Insert the starter key into the key switch and turn it to the **RUN** position (Figure 9).

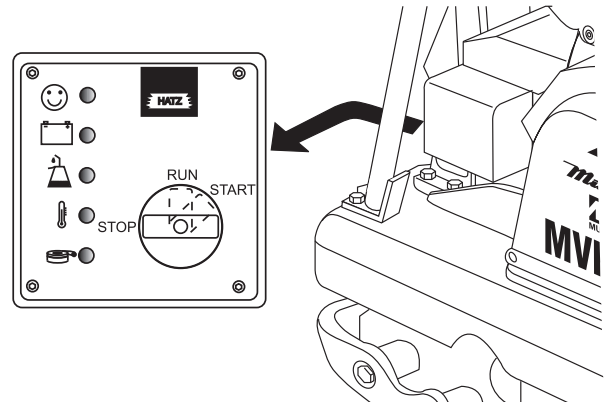


Figure 9. Starter Switch

3. Except for the "**Happy Face**" status LED, verify that all other engine status LED's are **OFF**.

### Engine Status LED's Definitions

- "**Happy Face**" status LED. This LED when lit indicates that the engine and associated components are functioning correctly.
- "**Battery**" status LED. This LED when lit indicates that the battery charging system is not working correctly. If this LED remains **ON**, stop the engine and correct the problem.
- "**Oil Pressure**" status LED. This LED when lit indicates that the Oil pressure is low. If this LED remains **ON**, stop the engine and correct the problem.
- "**Water Temperature**" status LED. This LED when lit indicates that the Water temperature is too high. If this LED remains **ON**, stop the engine and correct the problem.
- "**Air Filter**" status LED. This LED when lit indicates that the air filter is dirty and is not functioning correctly. If this LED remains **ON**, stop the engine and correct the problem.

4. Turn the starter key further to the right to the **START** position to start the engine. Buzzer stops sounding and the engine starts.
5. If the engine fails to start, do not continue to rotate the starter key for more than 5 seconds. Return the key to the **RUN** position and wait 10 seconds before starting again.

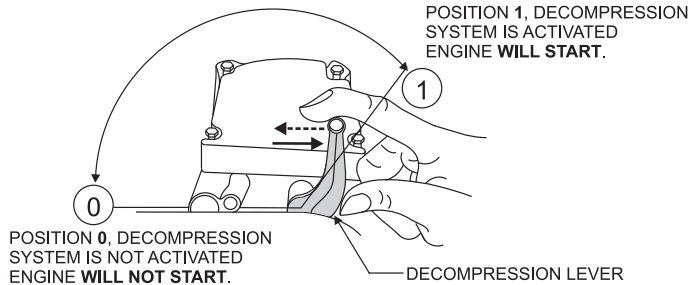
## CAUTION

While the engine is running, never try to turn the starter key to the **START** position.



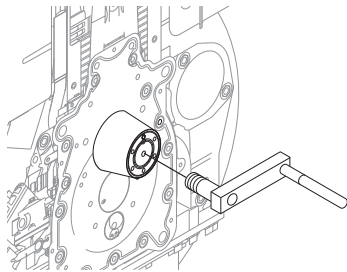
## Crank Handle Start

1. Move the throttle lever to the **START** position by opening it to about 20 degrees (Figure 8).
2. Pull up decompression lever (Figure 10) to position 1 and release.



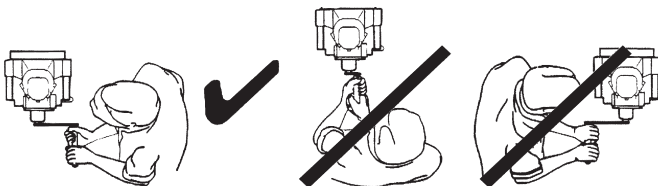
**Figure 10. Decompression Lever**

3. Insert the crank handle into the engine's starting handle guide sleeve (Figure 11).



**Figure 11. Crank Handle Guide Sleeve**

4. When turning the crank handle, observe the correct operating position (Figure 12).



**Figure 12. Starting Handle Operating Position**

5. Grasp the crank handle firmly in both hands and turn counterclockwise at increasing speed. Five turns of the starting handle are needed to build up enough compression to start the engine.
6. Once the engine starts, stop cranking and remove the starting handle from the guide sleeve.

### **CAUTION**

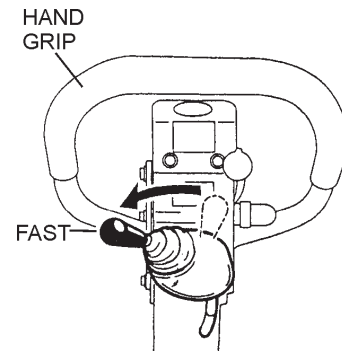
There is a risk of injury from the rotating crank handle. When using the crank handle, keep the body clear of the handle to avoid being struck. If the engine backfires because the handle was not turned firmly enough release the starting handle immediately and stop the engine.

## 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 injury.

1. Grasp the compactor's hand grip (Figure 13), and move the engine throttle lever (Figure 13) quickly to the **fast** position.
2. With the throttle lever in the fast position, the engine speed should be around 2,300 RPM, therefore engaging the centrifugal clutch.

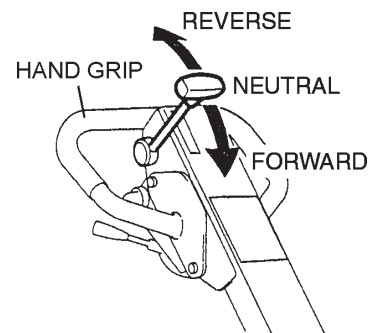


**Figure 13. Throttle Lever ((Fast))**

### **NOTICE**

**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 14) forward.



**Figure 14. Direction Lever**

4. To make the compactor move in the reverse direction pull the travel lever (Figure 13) 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.

## STOPPING

1. Return the throttle lever to the **START** position (Figure 9). Allow the machine to cool down for 2 to 3 minutes.
2. Turn the throttle lever to the **STOP** position (Figure 15) to stop the engine. In a motor start, return the key switch to the **STOP** position (Figure 16) as soon as the engine stops.

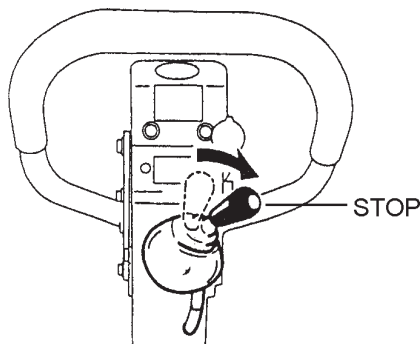


Figure 15. Throttle Lever (Stop)

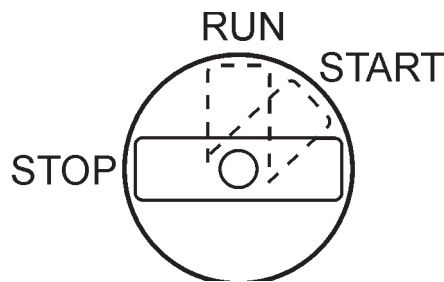


Figure 16. Starter Switch (STOP)

## Emergency Shutdown

1. Move the throttle lever quickly to the **STOP** position, and place the engine **IGNITION** switch in the **OFF** position.

## STOWING THE HANDLE

1. Push up the handle (Figure 17).
2. Pull the stopper grip upward into the hole of the guard frame to lock the handle.

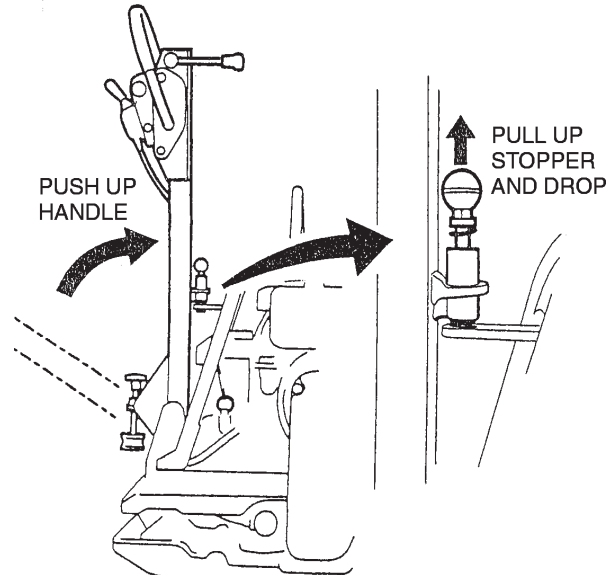


Figure 17. Stowing the Handle

## LIFTING

1. Use a crane or lift to load and unload the machine. A skilled crane operator is required to perform the job.
2. When lifting the machine, check for any damaged or loose bolts, lifting hooks, and shock mounts.
3. Check any damaged or loose bolts in the guard frame to avoid machine sliding off.
4. Make sure that the machine is shut off before machine is lifted.
5. Use reliable cable for lifting.
6. Always lift the machine vertically and keep the machine away from workers and animals.
7. Do not lift the machine higher than the required height.

## TRANSPORTING

1. Always make sure that the machine is shut off while being transported.
2. Check that the fuel cap is properly closed and tightened.
3. When traveling long distances or on rugged terrain, drain the fuel of the machine before transporting.
4. Tie down the machine securely on the transportation so that it will not move or topple over.

**CAUTION**

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

**CAUTION**

Fuel piping and connections should be replaced every 2 years.

**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. MVH-502DSB MACHINE INSPECTION**

ITEM	HOURS OF OPERATION	REMARKS
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	See page 20
Vibrator Oil Check	Every 100 hours	See page 22
Vibrator Oil Replacement	Every 300 hours	See page 22
Hydraulic Oil Check	Every 100 hours	See page 22
Hydraulic Oil Replacement	First after 200 hours, then every 1,000 hours	See page 22
V-belt (clutch) Check	Every 200 hours	See page 21
Battery Check	Every 100 hours	See page 23

**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.

**TABLE 6. MVH-502DSB 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) (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.

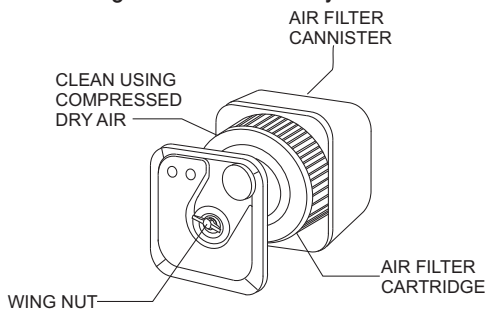
- Remove soil and clean the bottom of compaction plate.
- Check hydraulic pump, piping and hose for any leakage. A loosened hydraulic hose can be a cause for leakage. Check hydraulic hose connections with wrench applied for tightness.
- Check engine oil.

## Engine Oil Replacement:

1. Replace engine oil, first in 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

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.

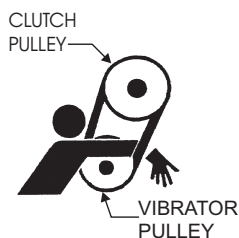


**Figure 18. Engine Air Filter**

2. To clean or replace air filter loosen the wing nut on the air filter housing (Figure 18), 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.

### **WARNING**

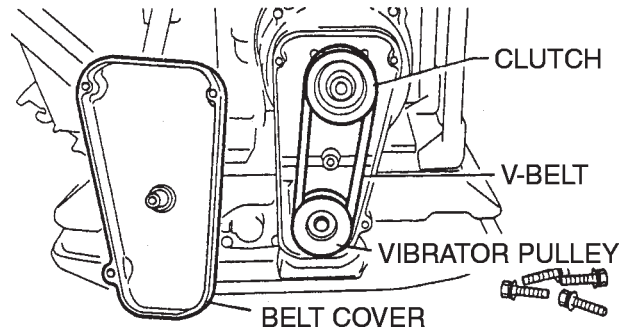
**NEVER** attempt to check the V-belt with the engine running. Severe injury can occur if your hand (Figure 5) gets caught between the V-belt and the clutch. Always use safety gloves.



**Figure 19. 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 20). 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 20. V-Belt Check**

### ● Replacing the V-belt

Remove the belt cover. Engage an offset wrench (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. Wear of lining or shoe should be checked with running check. 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 shock to an engaged wrench (tapping with hammer or the like) and rotating bolt counterclockwise. Remove clutch with a pulley extractor. To reinstall, reverse the procedure.

### **WARNING**

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

### NOTICE

Always clean the area around the vibrator oil level check hole 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, remove vibrator oil level check plug (Figure 21) off vibrator (19 mm wrench) and see if oil is up to filler port. Be sure to clean area around check hole to prevent dirt and dust from entering.
2. In every 300 hours of operation, replace oil (capacity 1,500 cc). 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.

\* Use engine oil 10W-30 for this lubrication.

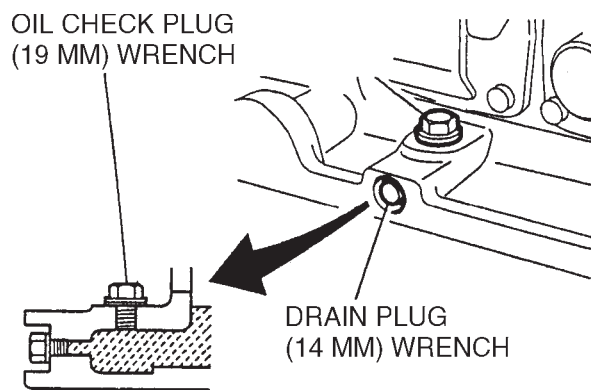


Figure 21. Vibrator Oil Maintenance

## Hydraulic Oil

1. Check hydraulic oil in every 100 hours of operation. With handle bar positioned vertically (storage position), remove breather plug (Figure 23) off the top of hydraulic pump and check for proper oil level.
2. Replace hydraulic oil after first 200 hours and in every 1,000 hours of operation.

### 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 breather plug.

## Replacing Hydraulic Oil

1. Remove the drain plug (Figure 22) at the bottom of the oil tank with a 6 mm hex wrench and drain the hydraulic oil.
2. Clean the filter with light oil.
3. Reinstall the drain plug to the oil tank. Apply seal tape or Roctite #575 to thread portion.
4. Fill tank with hydraulic oil. (Capacity: About 2,500 cc). Use **ShellTellus Oil #46** or equivalent.
5. After filling tank, temporarily install cover. Loosen bleeder plug located at the top of the cylinders on side of vibrator (Figure 23). Air remaining in the circuit will be forced out of the bleeder plug.
6. Tighten the breather plug. Check oil level in the tank again.
7. Install the cover of oil tank. Coat packing with liquid packing such as Threebond #1215. Use loctite #242 for mounting screw.

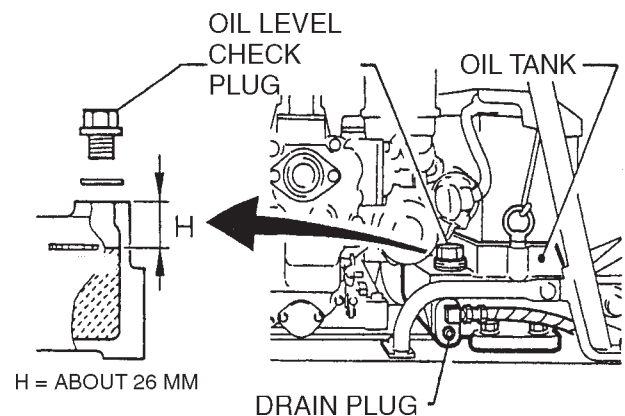


Figure 22. Hydraulic Oil Maintenance

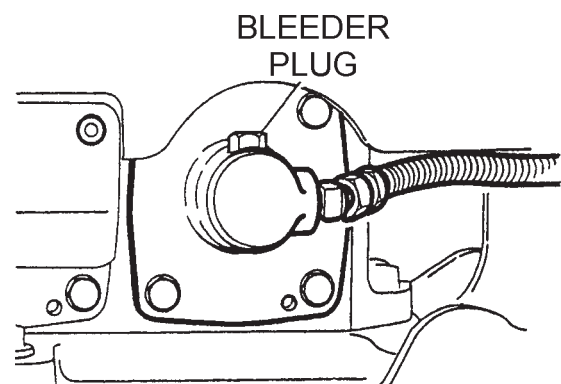


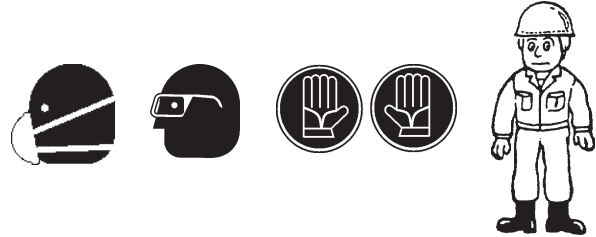
Figure 23. Bleeder Plug

## BATTERY MAINTENANCE

1. Check the battery terminals periodically to ensure that they are in good condition.
2. Use wire brush or sand paper to clean the battery terminals.
3. Check battery for cracks or any other damage. If white pattern appears inside the battery or paste has accumulated at the bottom, replace the battery.
- 4.. If the machine will not be in operation for a long period of time, store in cool dry place and check the battery charge level every month to maintain the performance of the battery.

### CAUTION

Wear **safety glasses** or **face mask**, **protective clothes**, and **rubber gloves** when working with battery.



## BATTERY CABLE CONNECTION

1. Take off the battery cover by removing the M6 nuts (Figure 24).
2. When removing cable, disconnect the ground side (normally negative) first (Figure 24).
3. When installing cable connect the ground side (normally negative) last.

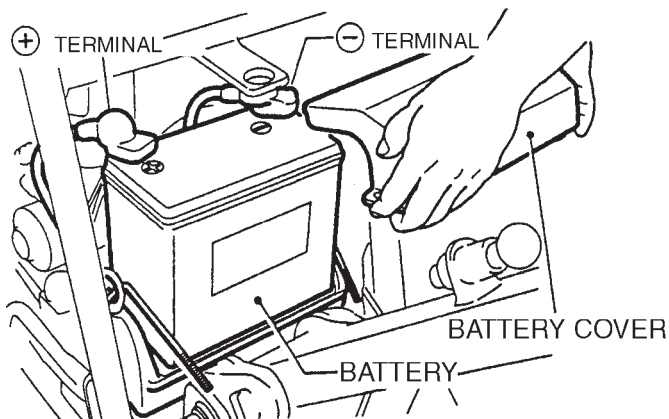


Figure 24. Battery Maintenance



## TROUBLESHOOTING (ENGINE)

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 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.

<b>TABLE 8. ENGINE TROUBLESHOOTING</b>		
<b>SYMPTOM</b>	<b>POSSIBLE PROBLEM</b>	<b>SOLUTION</b>
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?	Replace fuel filter.
	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.

## TROUBLESHOOTING (COMPACTOR)

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 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 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 syste.?	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 syste.?	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 dis-engaged or slips?	Engage V-belt, adjust or replace.
	Clutch slips?	Adjust clutch, replace if necessary.
	Pump input shat key or adapter key-way damaged?	Replace input shatkey 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](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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