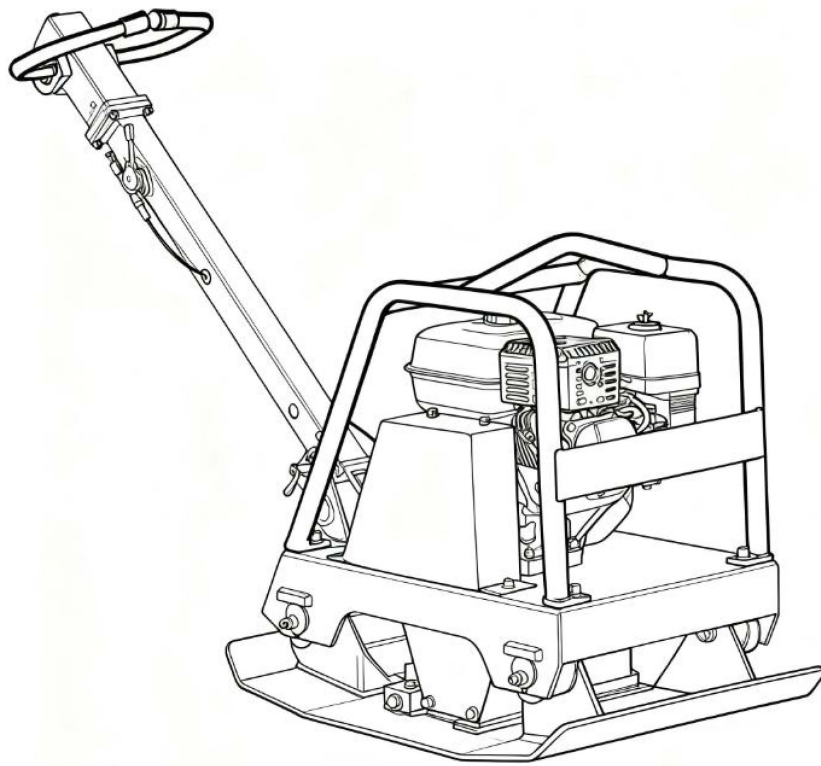


BWM[®] Products

BWM Hydraulic Reversible Plate Compactor User's Manual



BWM HC125 & HC160 SERIES

To reduce the risk of injury, all operators and maintenance personnel must read and understand these instructions before operating, changing accessories, or performing maintenance on BWM Products power equipment. All possible situations cannot be covered in these instructions. Care must be exercised by everyone using, maintaining, or working near this equipment.

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INTRODUCTION

General safety instruction for the operation of power equipment

The goal of our company is to manufacture power equipment that helps the operator work safely and efficiently. The most important safety device for this or any tool is the operator. Care and good judgment are the best protection against injury. All possible hazards cannot be covered here, but we have tried to highlight some of the important items, individuals should look for and obey caution, warning and danger signs placed on equipment, and displayed in the workplace. Operators should read and follow safety instruction packed with each product.

Learn how each machine works. Even if you have previously used similar machines, carefully check out each machine before you use it. Get the 'feel' of it and know its capabilities, limitations, potential hazards, how it operates, and how it stops.

APPLICATIONS

Trench compaction	Earthworks
Road maintenance	Landscaping
Brick paving	Driveway topping

FUNCTIONS AND CONTROLS

The motor is controlled by an 'ON/OFF' switch mounted on the motor below the fuel tank.

Tension of the drive belt is adjustable, loosen the four nuts on the bolts which secure the motor to the base plate. Adjust the set screws which bear against the motor crankcase to achieve the required belt tension. Ensure that the four nuts and the set screw locknuts are tightened after adjustment.

ACCESSORIES

Accessories	Model
Trolley wheel-for easy transportation.	HC125 Series, HC160 Series

HAZARDS AND RISKS

NEVER allow any person to operate the machine without adequate instructions.

ENSURE all operators read, understand and follow the operating instructions.

SERIOUS INJURY could result from improper or careless use of this machine.

Plate compactors are heavy units and should be positioned by two people of appropriate strength, using the lifting handles provided on the machine along with correct lifting techniques.

! MECHANICAL HAZARDS

DO NOT operate the machine unless all protective guards are in place.

KEEP handles and feet clear of rotating and moving parts as they will cause injury if contacted.

ENSURE that the motor operation switch is in the 'OFF' position and the spark plug ignition lead is disconnected before removing the guards or making adjustments.

ENSURE both the machine and the operator are stable by setting up on level terrain and the machine will not tip over, slide or fall while in operation or unattended.

DO NOT leave the machine in operation while it is unattended.

ENSURE that the walls of a trench are stable and will not collapse due to the action of vibration prior to commencing compaction.

ENSURE that the area to be compacted does not contain any 'live' electrical cables, gas, water, or communication services which may be damaged by the action of vibration.

EXERCISE CARE when operating unit. Exposure to vibration or repetitive work actions may be harmful to hands and arms.

NEVER stand on the unit while it is operating.

DO NOT increase the governed no-load motor speed above 3,500 r/min. Any increase may result in personal injury and damage to the machine.

BE CAREFUL not to come in contact with the muffler when the engine is hot, since it can cause severe burns.

ENSURE that the repairs to the motor and machine are carried out by COMPETENT personnel.

! FIRE & EXPLOSION HAZARDS

PETROL is extremely flammable and explosive under certain conditions.

ENSURE that the petrol is only stored in an approved storage container.

DO NOT refuel the motor while it is in operation or hot.

DO NOT refuel the motor in the vicinity of sparks, a naked flame, or a person smoking.

HAZARDS AND RISKS

DO NOT over fill the fuel tank and avoid spilling petrol when refueling. Spilled petrol or petrol vapour may ignite. If spillage occurs, ensure that the area is dry before starting the motor.

ENSURE that the fuel tank cap is securely fitted after refueling.

! CHEMICAL HAZARDS

DO NOT operate or refuel a petrol motor in a confined area without adequate ventilation.

CARBON MONOXIDE exhaust gases from internal combustion motor-driven units can cause death in confined spaces.

! NOISE HAZARDS

EXCESSIVE NOISE can lead to temporary or permanent loss of hearing.

WEAR an approved hearing protection device to limit noise exposure.

! PROTECTIVE CLOTHING

ALWAYS wear approved hearing protection when working in a confined workspace. Protective goggles and a dust mask should be worn when working in a dusty environment. Protective clothing and footwear may also be desirable when working with hot mix bitumen.

! ADDITIONAL HAZARDS

Slip/Trip/Fall is a major cause of serious injury or death. Beware of uneven or slippery work surfaces.

Exercise care when working in the vicinity of unprotected holes or excavations.

Pre-start-up Inspection

The following Pre-start-up inspection must be performed before the start of each work session or after every four hours of use, whichever is first. If any fault is discovered, the compactor must not be used until the fault is rectified.

Thoroughly inspect the compactor for signs of damage. Check components are present and secure. Pay special attention to the belt drive safety guard fitted between the engine and the vibrator unit.

- Check the engine oil level and top up as necessary.
- Check the fuel level and top up as necessary.

Starting and Stopping Procedure

1. Turn on the fuel tap by moving the fuel 'ON/OFF' lever fully to the right (Figure 1).
2. If starting the engine from cold, set the choke 'ON' by moving the choke lever fully to the left. If restarting a warm engine, the choke is usually not required. However, if the engine has cooled to a degree, partial choke may be required.
3. Turn the engine 'ON/OFF' switch to the 'ON' position.
4. Set the throttle to the idle position by moving the throttle lever fully to the right.
Do not start the engine on full throttle, as the compactor will vibrate as soon as the engine starts.
5. Taking a firm hold of the control handle with one hand, grasp the recoil starter handle with the other. Pull the recoil starter until engine resistance is felt, then let the starter return.
6. Taking care not to pull the starter's rope fully out, pull the starter handle briskly.
7. Repeat until the engine fires.
8. Once the engine fires, gradually set the choke lever to the 'OFF' position by moving it to the right.
9. If the engine fails to fire after several attempts, follow the trouble-shooting guide on page 9.
10. To stop the engine, set the throttle to idle and turn the engine 'ON/OFF' switch to the 'OFF' position.
11. Turn the fuel off.

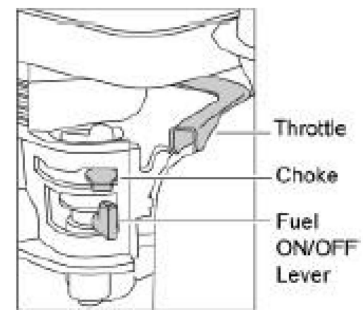


Figure 1.

OPERATION

The machine is best suited to the compaction of bituminous and granular materials e.g. granular soils such as silt and clay are best compacted using the impact force produced by a vibrating rammer.

Where possible, the site should be graded and leveled before commencing compaction.

Correct moisture content in soil is vital to proper compaction. Water acts as a lubricant to help slide soil particles together. Too little moisture means inadequate compaction; too much moisture leaves water-filled voids that weaken the soil's load-bearing ability.

Compaction of dry materials will be facilitated by moistening with a water hose fitted with a sprinkler.

Excessive watering or water content will cause the machine to stall.

Use unleaded 91 grade petrol and ensure that the fuel is free from contamination.

The vibratory motion provides a self-propelling action. Position the handle at the opposite end of the machine to the vibrator.

For more information on starting and correct operating procedures of the motor, refer to the motor operation manual supplied with the unit.

Increase the motor speed to the maximum setting using the hand throttle lever before commencing compacting.

The machine should be controlled by grasping the handle with both hands and applying restraint to control the forward motion.

Steer the machine by moving the handle sideways to the right or left.

ALWAYS maintain good footing so that you do not slip and lose control when starting or operating the machine.

If the optional water tank is fitted, the flow rate can be controlled by adjusting the cock in the supply hose to the sprinkler bar. Inspect the water hose and its connections to ensure that they do not leak.

Due to safety reasons, the reverse speed is slower than the forward speed.

CARE AND PREVENTATIVE MAINTENANCE

Check the oil level each use.

Inspect the rubber anti-vibration mounts for wear or deterioration.

If the optional water tank is fitted, inspect the water hose and its connections to ensure that they do not leak.

Clean the underside of the plate regularly to prevent a buildup of material.

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 1 through 3.

TABLE1.MACHINEINSPECTION

Item	Hours of Operation
(Starting check)	Each Use
Loosened or lost screws	Each Use
Damage of any part	Each Use
Function of controlling System part	Each Use
Vibrator oil check	Every 100 hours
Vibrator oil replacement	Every 200 hours
V-belt(clutch)check	Every 200 hours

TABLE2.ENGINECHECK

(For details, refer to the Engine Manual)	
Item	Hours of Operation
Leakage of oil & fuel	Each Use
Tightness of fastening Threads	Each Use
Engine oil check and replenishment	Each Use
Engine oil change	At first 20 hours, then Every 100 hours
Air cleaner cleaning	Every 50 hours

TABLE3. TIGHTENING TORQUE (in.kg/cm) Diameter

Material	6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
4T	70	150	300	500	750	1100	1400	2000
6-8T	100	250	500	800	1300	2000	2700	3800
11T	150	400	800	1200	2000	2900	4200	5600
*	100(6mm)300-350(8mm)650-700(10mm)							
*(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.								

CAUTION:



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

CAUTION:



Fuel piping and connections should be replaced if needed.

Inspection Before Using.

- Check for leakage of fuel or oil.
- Removes oil and clean the bottom of compaction plate.
- Check engine oil.
- Check for loose screws including tightness. See Table 3 above (tightening torque) for retightening.

Changing Vibrator Oil

When changing the vibrator oil, remove the drain plug located at the bottom-right of the vibrator, and simply tip the compactor to drain the oil. Note that the oil will drain more easily while it is hot. For HC125 and HC160 series, replace the oil with 0.6L of Honda 10W-30 engine oil.

Air Filter

1. The air filter element should be cleaned/replaced because a clogged air cleaner can cause poor engine starting, lack of power and shorten engine life substantially.
2. To clean or replace the air filter, loosen the wing nut on the air filter housing (Figure 2). Remove the cover and take out the air filter cartridge. If only cleaning of the air filter is needed, blow through the air filter cartridge from the inside, moving a jet of dry compressed air up and down until all dust is removed.

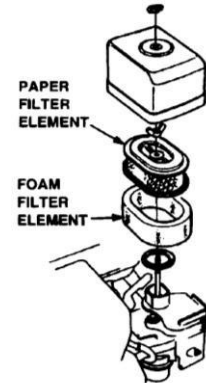


Figure 2. Air filter

Checking and Replacing the V-Belt and Clutch

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.

After 200 hours of operation, remove the upper belt cover to check the V-belt tension (Figure 3). Tension is proper if the belt bends about 10mm 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.

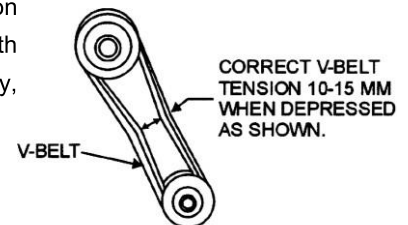


Figure 3. V-belt tension

CAUTION:



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

● Replacing the V-belt

Remove the upper and lower belt covers. Engage an offset wrench (13mm) 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 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 should be checked with running check. If the lining worn, power transmission becomes deficient and slipping will result.

SPECIFICATIONS

Motor

Model	Engine Type	Max. Output
HC125 Series	Honda GX160	4.0KW (5.5HP)
HC160 Series	Honda GX200	4.8KW (6.5HP)

Governor Speed (RPM)

3,500r/min: HC125 Series

3,500r/min: HC160 Series

Vibrator

Model	Frequency (Vibration/Min)	Centrifugal Force (kN)
HC125 Series	5400	25
HC160 Series	5400	30

Operation Mass:

Model	Operation Mass (KG)
HC125 Series	114
HC160 Series	125

Bearings

The following bearings are sealed:

Centrifugal clutch – grease lubricated

Vibrator – oil bath lubricated

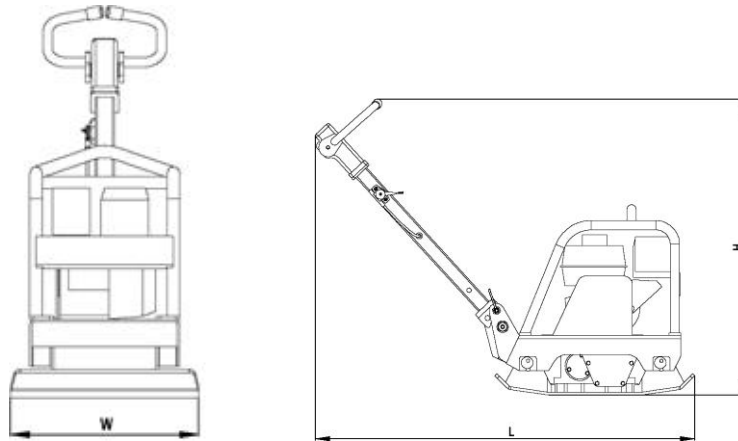
SPECIFICATIONS

Hand-Arm-Vibration (as per ISO8662, Part1, m/s^2): 4.9 m/s^2

Working Size (L X W X H):

HC125 Series: 130x40x97CM

HC160 Series: 130x50x97CM



TRANSPORTATION

1. Always turn off the engine first when transporting machine.
2. Make sure lifting device has enough capacity to hold machine (see identification plate on machine for weight).
3. Use lifting point when lifting machine.
4. Trolley wheel as optional is used for short distance transportation.

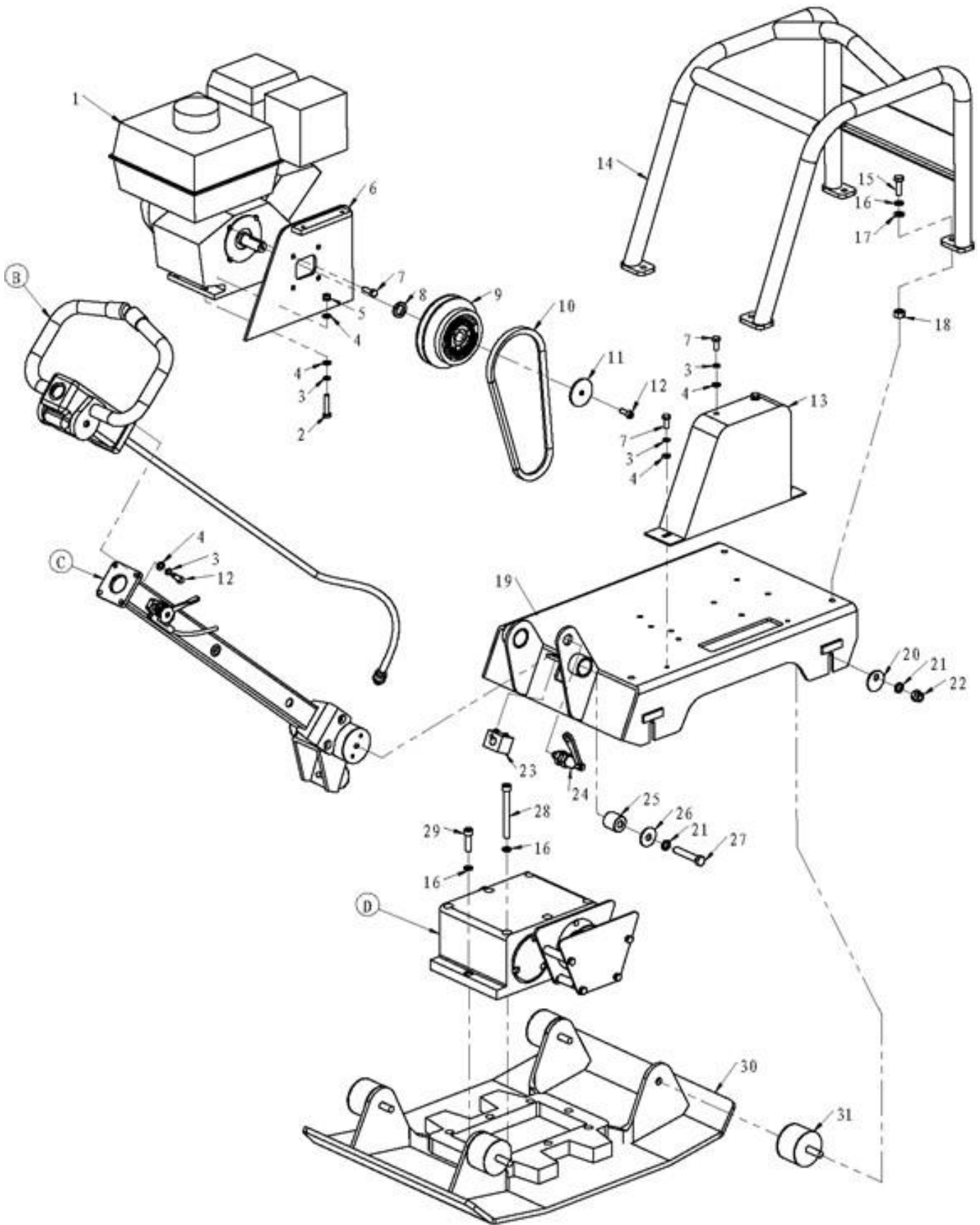
TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES	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 vibration?	Drain excess oil and fill to proper level.
	Malfunction in vibrator housing?	Check eccentric, gears and counterweights.
	Bearing failure?	Replace bearing
	Insufficient engine output?	Check engine, compression etc.

ENGINE TROUBLESHOOTING

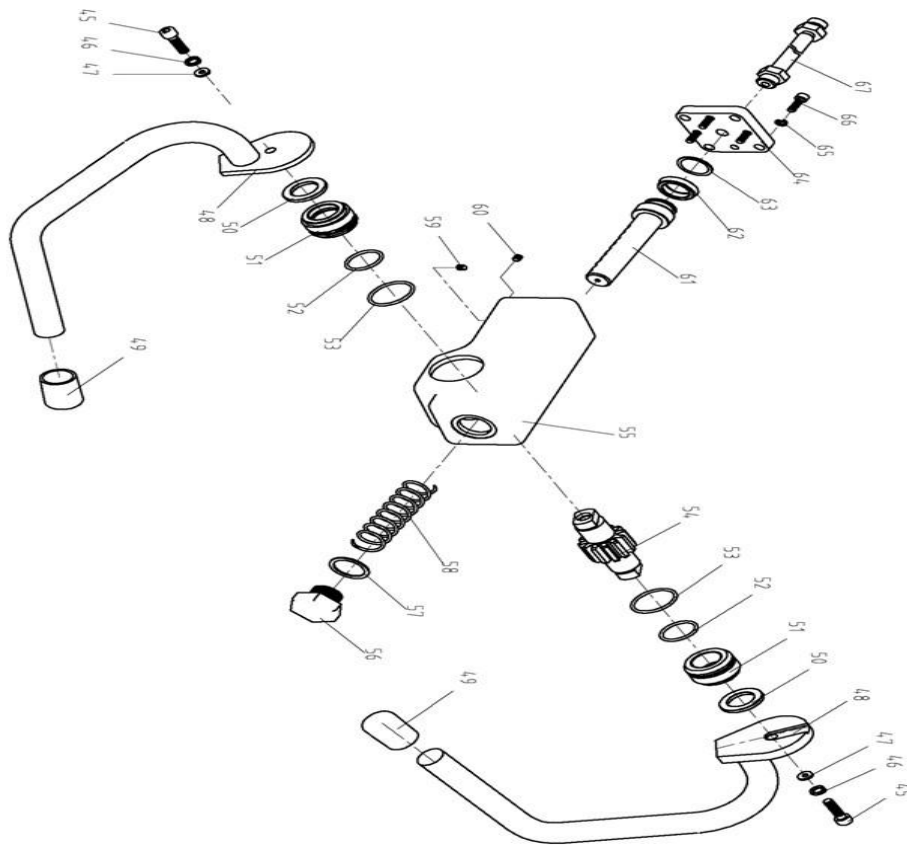
SYMPTOM	POSSIBLE CAUSES	SOLUTION
Difficult to start, "fuel is available, But no SPARK at sparkplug".	Spark plug bridging?	Check gap, insulation or replace spark plug.
	Carbon deposit on spark plug?	Clean or replace spark plug.
	Short circuit due to deficient spark plug insulation?	Check spark plug insulation, replace if worn
	Improper spark plug gap?	Set to proper gap.
Difficult to start, "fuel is available, and SPARK is present at spark plug.	ON/OFF switch is short circuited?	Check switch wiring, replace switch.
	Ignition coil defective?	Replace ignition coil.
	Improper spark gap, points dirty?	Set correct spark gap and clean points.
	Condenser insulation worn or short circuiting?	Replace condenser.
	Spark plug wire broken or short circuiting?	Replace defective spark plug wiring.
Difficult to start, "fuel is available, Spark is present and compression Is normal".	Wrong fuel type?	Flush fuel system, and replace with fresh unleaded 91 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 level, 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.
"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 carburetor.
	Defective Sparkplug?	Clean or replace sparkplug.
"Weak in power", compression is Proper but misfires.	Water in fuel system?	Flush fuel system, and replace with fresh unleaded 91 fuel.
	Dirty sparkplug?	Clean or replace sparkplug.
	Ignition coil defective?	Replace ignition coil.
Engine over heats.	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?	Checkentrefuelsystemforleaksorclogs.
Recoil starter malfunction	Recoil mechanism logged with Dust and dirt?	Clean recoil assembly with soap and water.
	Spiral spring loose?	Replace spiral spring.

ILLUSTRATED PARTS LIST



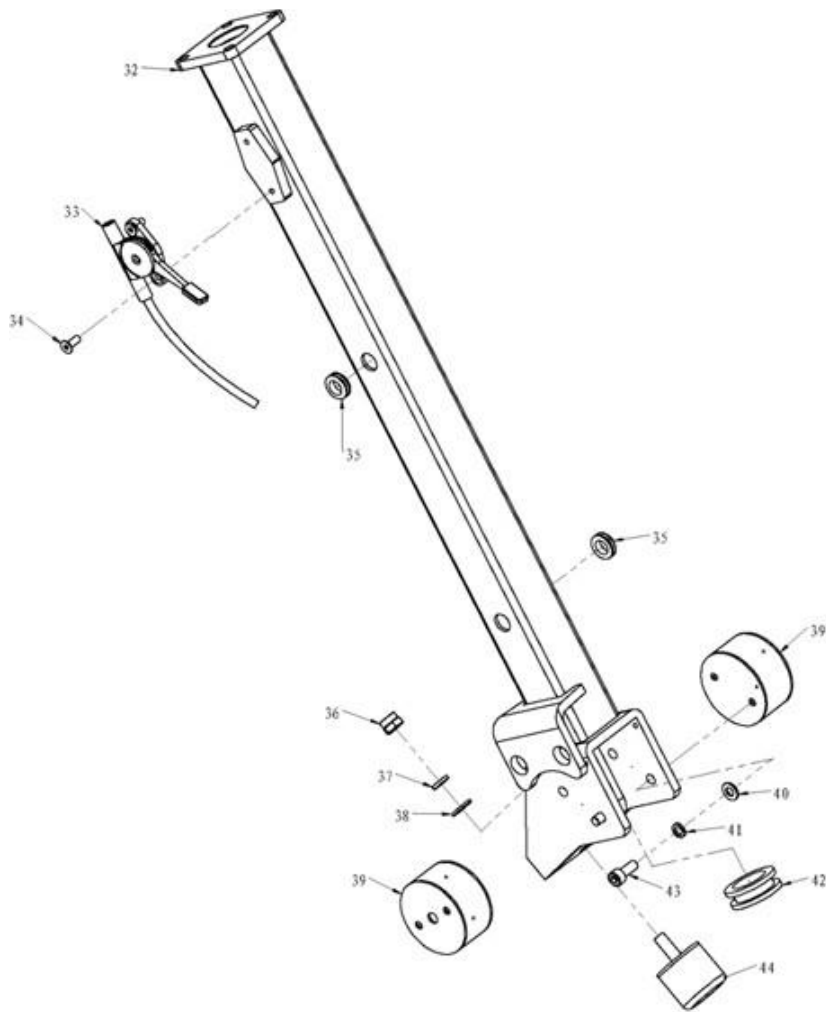
PARTS LIST 1

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	HONDA GX160	ENGINE FOR HC125	1
	HONDA GX270	ENGINE FOR HC160	1
2	GB/T70.1-M8X40	HEXHEAD SCREW M8X40	4
3	GB/T93-8	SPRING WASHER 8	12
4	GB/T97.1-8	FLATW ASHER	16
5	GB/T889.1-M8	LOCK NUT M8	4
6	MH160.00.01	BASE PLATE FOR BELT GUARD	1
7	GB/T5783-M8X20	HEX BOLT M8X20	8
8	MH4025R.00.12GZ	SHAFT SLEEVE	1
9	MH4012.00.20GZ	CLUTCH ASSEMBLY	1
10	XPA777	BELT	1
11	MH4012.00.23	FLAT WASHER	1
12	GB/T70.1-M8X25	HEXHEAD SCREW M8X25	5
13	MH160.00.02	BELT COVER	1
14	MH160.02.00	PROTECTION FRAME	1
15	GB/T5783-M10X35	HEX BOLT M10X35	4
16	GB/T93-10	SPRING WASHER 10	12
17	GB/T97.1-10	FLAT WASHER 10	4
18	GB/T889.1-M10	LOCK NUT M10	4
19	MH125.01.00	BASE PLATE FOR HC125	1
	MH160.01.00	BASE PLATE FOR HC160	1
20	MH4025R.00.06	WASHER	4
21	GB/T93-12	SPRING WASHER12	6
22	GB/T889.1-M12	LOCK NUT M12	4
23	MH4025R.00.18	CLAMP	1
24	170001	LOCK	1
25	MH160.00.03	COLLAR	2
26	MH4025R.00.24	WASHER	2
27	GB/T5783-M12X60	HEX NUT M12X60	2
28	GB/T70.1-M10X120	HEX SCREW M10X120	6
29	GB/T70.1-M10X35	HEX SCREW M10X35	2
30	MH125.04.00	BASE PLATE ASSEMBLY FOR HC125	1
	MH160.04.00	BASE PLATE ASSEMBLY FOR HC160	1
31	MH4025R.00.08C	VIBRATION DAMPER	4



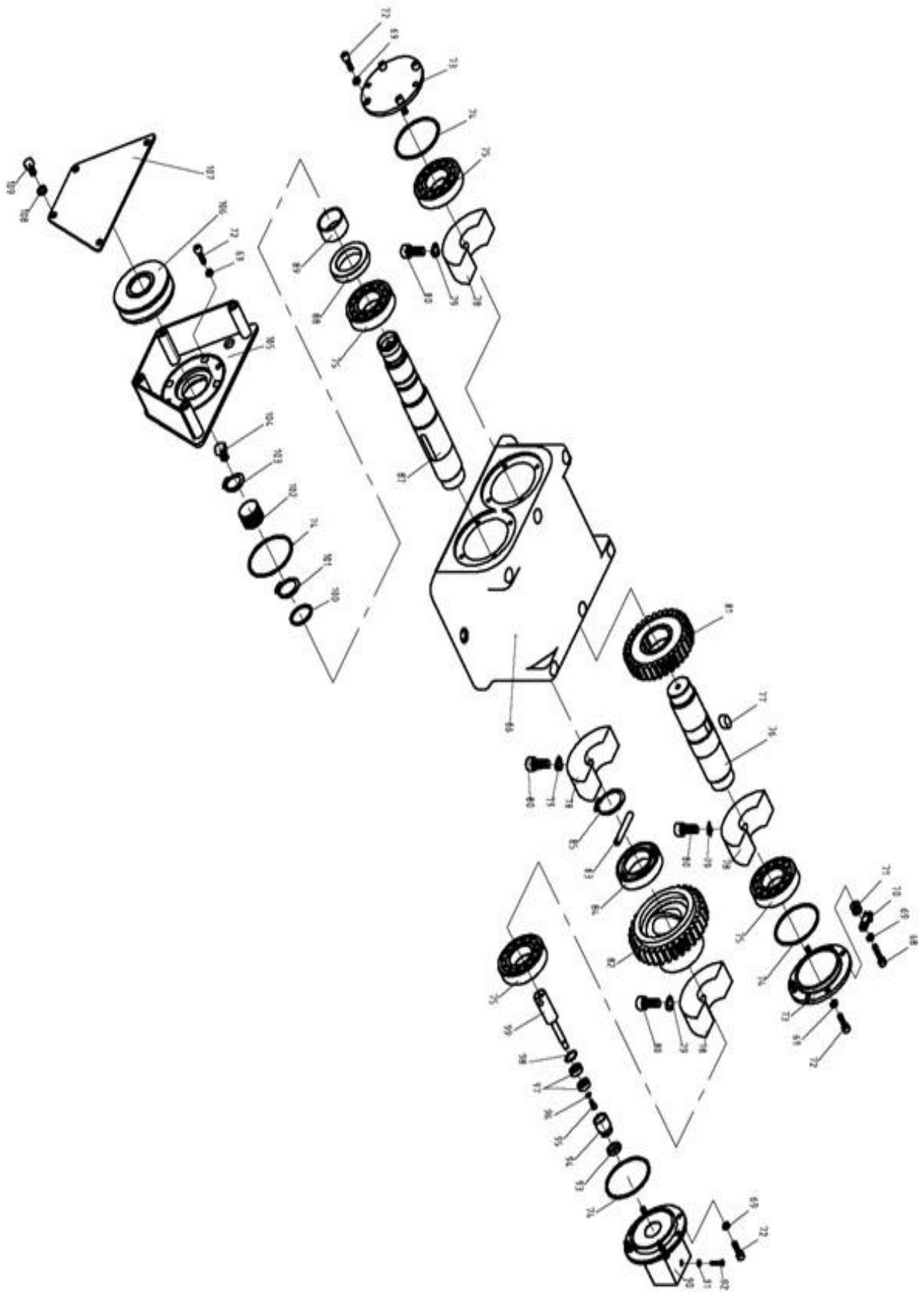
PARTS LIST 3

ITEM NO.	PART NO.	DESCRIPTION	QTY
45	GB70-M8X25	HEX SCREW M8X25	2
46	GB93-8	SPRING WASHER8	2
47	GB97.1-8	FLAT WASHER 8	2
48	MH4025R.00.04.01-01	UPPER HANDLE	2
49	MH4025R.00.04.01-02	HANDLE COVER	2
50	MH4025R.00.04.01-11	WASHER, NYLON	2
51	MH4025R.00.04.01-06	SHAFT SLEEVE	2
52	GB3452.1-26X2.65	O RING	2
53	GB3452.1-38.7X2.65	O RING	2
54	MH4025R.00.04.01-05	PINION SHAFT	1
55	MH4025R.00.04.01-04	CASE, HYDRAULIC PUMP	1
56	JB1000-M27X1.5	SOCKET PLUG	1
57	JB1002-27	GASKET	1
58	MH4025R.00.04.01-10	SPRING	1
59	GB1016-6×6	BOLT 6X6	2
60	GB73-M6×8	SCREW M6X8	1
61	MH4025R.00.04.01-09	CONTROL PISTON	1
62	GB10708.1-33X24X7	PISTON ROD SEAL	1
63	GB3452.1-36.5X2.65	O RING	1
64	MH160.03.03	SEAL PLATE	1
65	GB93-8	SPRING WASHER 8	4
66	GB70-M8X20	HEX SCREW M8X20	4
67	MH4025R.00.20	HYDRAULIC OIL HOSE FOR HC125	1
	MH4025R.00.20C	HYDRAULIC OIL HOSE FOR HC160	1



PARTS LIST 2

ITEM NO.	PART NO.	DESCRIPTION	QTY
32	MH160.03.01	HANDLE	4
33	MH5030R.00.19L	THROTTLE CONTROL ASSY	4
34	GB70.3-M6*20	HEX SOCKET BOLT	2
35	MH4025R.00.26	SLEEVE	2
36	GB/T889.1-M10	LOCK NUT M10	1
37	GB/T93-10	SPRING WASHER 10	1
38	GB/T97.1-10	FLAT WASHER 10	1
39	MH4025R.00.34	VIBRATION DAMPER	2
40	GB/T97.1-8	FLAT WASHER 8	4
41	GB/T93-8	SPRING WASHER 8	4
42	MH4025R.00.04.02-11	SLEEVE, OIL HOSE	1
43	GB/T70.1-M8X20	HEX SCREW M8X20	4
44	MH4025R.00.04.02-12	VIBRATION DAMPER	1



PARTS LIST 4

ITEM NO.	PART NO.	DESCRIPTION	QTY
68	GB70-M6X30	HEX SCREW M6X30	1
69	GB93-6	SPRING WASHER 6	16
70	100016-φ16	CLAMP	1
71	MH4025R.00.29	WASHER	1
72	GB70-M6×20	HEX SCREW M6X20	15
73	MH4025R.00.02-07	BEARING COVER	2
74	GB3452.1-71X2.65	O RING	4
75	NJ207/C3	BEARING	4
76	MH4025R.00.02-08	SHAFT	1
77	GB1096-10×18	KEY	1
78	MH4025R.00.02-05	UNBALANCE WEIGHT	4
79	DIN6796-10	SPRING WASHER	4
80	GB70-M10×25	HEXAGONAL SCREW M10X25	4
81	MH4025R.00.02-09	GEAR WHEEL	1
82	MH4025R.00.02-03	GEAR	1
83	MH4025R.00.02-04	PIN	1
84	GB276-16008	BEARING	1
85	GB894.1-40	RETAINING RING 40	1
86	MH4025R.00.02-01	VIBRATION BOX	1
87	MH4025R.00.02-02	SPINDLE	1
88	GB13871-F040060X8	OILSEAL	1
89	FIR-354020	INNER RACE	1
90	MH4025R.00.02-06	CYLINDER COVER	1
91	JB1002-6	GASKET	1
92	GB5783-M6×12	HEX BOLT M6X12	1
93	GB10708.1-25X17X6.3	GASKET, RUBBER	1
94	MH4025R.00.02.01-02	SLEEVE	1
95	GB70-M5X10	HEX SCREW M5X10	1
96	GB97.1-5	FLAT WASHER 5	1
97	608ZZ	BEARING	2
98	GB893.1-22	RETAINING RING 22	1
99	MH4025R.00.02.01-01	ROTARY SHAFT	1
100	GB3452.1-31.5X2.65	O RING	1
101	GB894.1-35	RETAINING RING 35	1
102	BN32X12	SHAFT SEAL	1
103	GB894.1-32	RETAINING RING 32	1
104	MH4025R.00.02-11	BOLT	1
105	MH4025R.00.02.02.OA	BELT COVER	1
106	MH4025R.00.02-10	PULLEY	1
107	MH4025R.00.02.02-04	COVER PLATE	1
108	GB93-8	SPRING WASHE R8	4
109	GB5782-M8×15	HEX BOLTM8X15	4

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Spare parts are available from our dealers and our official website.

