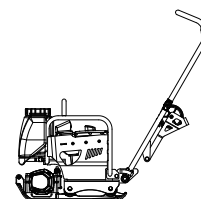


Mikasa

PLATE COMPACTOR

MVC-i60



OPERATION MANUAL

en




<http://www.mikosas.com>

402-15401



EC Declaration of Conformity

1 Manufacturer's name and address	Mikasa Sangyo Co., Ltd. 1-4-3, Kanda-Sarugakucho, Chiyoda-ku, Tokyo, 101-0064, Japan	
2 Description of the equipment	Compaction machines (Vibratory Plates : Plate Compactors) MVC-i60VAS — 100 105 3 Phase Induction Motor : 1.2 kW	
2.1 Product		
2.2 Type		
2.3 Version(s)		
2.4 Measured sound power level dB(A)		
2.5 Guaranteed sound power level dB(A)		
2.6 Motor type : Net power		
3 Conformity assessment procedure	Annex VIII of 2000/14/EC as last amended by 2005/88/EC	
4 Notified Body's name and address	TÜV Rheinland LGA Products GmbH Tillystraße 2, 90431, Nürnberg, Germany Notified Body number: NB 0197	
5 Comply with relevant provisions and requirements of the following directives and standards	2000/14/EC , 2006/42/EC , 2014/30/EU EN 500-1:2006 +A1:2009 , EN 500-4:2011	
6 Signature	 _____ Kenichi Nagasawa : Director, General Manager R&D Division	Apr. 2024
7 Technical documentation keeper	Engineer , R&D Division , Mikasa Sangyo Co., Ltd. 15-1,Shimoosaki,Shiraoka-city,Saitama,349-0203,Japan	
Reference data	MVC-i60VAS	
Hand-arm vibration level ※ Ahv m/s ²	1.8	

※ Directive 2002/44/EC compliant. Test course (crushed gravel) is in comply with EN 500-4

Table of contents

1. INTRODUCTION.....	1
2. MACHINE OVERVIEW.....	1
3. WARNING SIGNS	2
4. CAUTIONS FOR SAFETY.....	2
4.1 General Cautions	2
4.2 Cautions for Installing and Removing the Rechargeable Battery	3
4.3 Precautions before Starting Work	3
4.4 Precautions during Work	3
4.5 Precautions while Lifting	3
4.6 Precautions for Transportation and Storage	4
4.7 Precautions for Maintenance	4
4.8 Precautions for Rechargeable Battery and Battery Charger	4
4.9 Decals Position	5
4.10 Decals List	5
4.11 Descriptions of the Warning Decals	6
5. SPECIFICATIONS.....	7
5.1 Plate Compactor	7
5.2 Exciter (Vibrating Motor)	7
5.3 Rechargeable Battery	8
5.4 Battery Charger	8
6. APPEARANCE	9
6.1 Dimensions	9
6.2 Components	10
7. INSPECTION BEFORE OPERATION	11
7.1 Inspection	11
7.2 Rechargeable Battery and Battery Charger	11
7.3 Install and Remove the Rechargeable Battery	11
7.4 VAS Folding Handle Check	12
7.5 Revolving Cart Check	12
7.6 Water Tank Check	13
8. OPERATION	14
8.1 Start	14
8.2 Stop	14
9. TRANSPORTATION.....	15
10. CLEANING.....	15
11. STORAGE.....	15
12. INSPECTION AND MAINTENANCE.....	16
12.1 Inspection and Maintenance Schedule	16
13. TROUBLESHOOTING.....	17
13.1 Rechargeable Battery and Battery Charger	17
13.2 Plate Compactor	17

1. INTRODUCTION

- This operation manual describes the proper methods for using the plate compactor, as well as simple checks and maintenance. Be sure to read this operation manual before using the plate compactor, in order to get full use of the excellent performance of this machine, to improve your operation and to perform work effectively.
- After reading this manual, store it in a handy location for easy reference.
- For details about the RECHARGEABLE BATTERY (BOB) and BATTERY CHARGER (BOC) for this machine, see the separate operator's manuals for them.
- For inquiries about repair parts, parts lists, service manuals and repair of the machine, please contact the shop where you purchased it, or the Mikasa Website.
In addition, parts lists are available on the MIKASA website at: <http://www.mikasas.com/english/>

The illustrations in this manual might slightly differ in part from the machine you actually purchased due to design changes.

2. MACHINE OVERVIEW

Application

This plate compactor is the machine that compact the ground and it intends to make the smooth ground surface. This machine is suitable for making the smooth ground surface, such as leveling the soil and sand, finishing the asphalt.

Its applications include compacting for road, embankments and reservoirs as well as backfilling for gas pipelines, water pipelines and cable installation work.

Warning about Incorrect Applications and Techniques

Plate compactor is hard to move forward on a soil with much water (especially clay soil).

Plate compactor is difficult to compact a ground include big stones due to insufficient compacting force. Therefore, it is not suitable for such the above application.

Plate compactor is mainly used to compact the smooth ground surface, it is not effective for jobs that requires heavy compaction.

In case of requiring heavy compaction, it is recommended to use Plate compactor, Reversible Compactor or Vibration Roller, which has strong compaction force.

Structure

This machine is a walk-behind, one-way plate compactor.

The upper section of the plate compactor consists of the power unit, handle, guard hook and water tank, which are assembled on the base.

The lower section of the plate compactor consists of the vibrating plate and exciter (vibrating motor unit that has an eccentric rotor).


The upper section and lower section are assembled by shock absorbers, and power unit and vibrating motor are connected by wire harness.






Power Transmission

This machine is equipped with the exciter (vibrating motor unit that has an eccentric rotor) and the lithium ion battery as power unit.

Vibration of vibrating plate by exciter creates to travel the machine to forward and the vibration and weight of machine creates compaction force to ground.

3. WARNING SIGNS

The triangle shaped  marks used in this manual and on the decals stuck on the main body indicate common hazards. Be sure to read and observe the cautions described.

 Warning labels indicating hazards to humans and to equipment.	
 DANGER	Denotes an extreme hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, is likely to result in serious injury or death.
 WARNING	Denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in serious injury or death.
 CAUTION	Denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury to people and may damage or destroy the product.
CAUTION (without at )	Failure to follow the instructions may result in damage to property.

4. CAUTIONS FOR SAFETY

4.1 General Cautions

DANGER

- Do not use the machine in the rain and machine wet with water.
- Do not use the machine near flames.
- Do not touch the machine with wet hands. It is dangerous about electric shock and electric leakage.

WARNING

- Do not work with this machine, when
 - you are tired or sick and not feeling well.
 - you have taken medicine or drug.
 - you have had a drink.



CAUTION

- Please read the operation manual well and work safely by using the machine properly.
- For handling of the rechargeable battery and battery charger, please read to the attached operation manuals for them.
- Please understand of the structure of this machine well.
- Make sure to do the inspection and check the machine conditions before starting operation.
- Please use protective equipment such as helmet, protective shoes, protective gloves, etc., and wear appropriate work clothes for making your work safe.
- Always wear noise protection equipment such as ear muffs or ear plugs and protective eyeglasses.
- The decals shown operation method, warning and etc. stuck on the machine are very important for your safety. Clean the machine so that the decals can be read easily. If it is difficult to read the decals, please replace with new ones.
- It is dangerous if children touch the machine. Please be careful about storage location and storage method for the machine.
- Stop the motor and remove the rechargeable battery before maintenance work.
- We are not responsible for any accidents occurred due to the fixing without using genuine parts (foot and etc.) and equipment modifications.



4.2 Cautions for Installing and Removing the Rechargeable Battery

DANGER

- Be sure that the rechargeable battery switches off.
- Be sure to work in a clear and flat location without any combustibles nearby.
- After installing the rechargeable battery, make sure it is securely installed.



4.3 Precautions before Starting Work

CAUTION

- Always preform a pre-operation inspection before each operation and correct any problems.
- Always check the equipment for loosened bolts or nuts before starting.
- Before attaching the rechargeable battery, make sure that:
 - Exterior covers are not damaged.
 - Switches are not damaged.
 - Battery lock lever is not damaged.
 - Battery connections are not damaged.
 - Motor wire harness is not damaged.
 - There are no debris or excessive dirt on the motor or the rechargeable battery.
- During the test run,
 - Check that all switches work (start and stop) properly.
 - Check that all indicators light when the motor is turned on.

4.4 Precautions during Work

CAUTION

- If you use the machine for a long time, be careful to watch for signs of vibration syndrome. Since this machine vibrates, work for a long time may have a negative effect on your body. Take sufficient brakes while working.
- Before starting to operate the machine, check the safety for people around and obstacles nearby.
- Always be careful around ground condition at job site. Operate the machine in stable position and balance.
- Do not touch the exciter during work or soon after work, because it is very hot.
- If you find trouble or damage of the machine during work, stop work immediately.
- Before leaving or moving the machine, be sure to stop the motor.



4.5 Precautions while Lifting

DANGER

- Before lifting the machine, make sure that there is no damage to parts on the machine (especially the shock absorber and the hook), loosening or missing of the bolt, and the machine must be in a safe condition.
- Stop the motor and then remove the rechargeable battery before lifting the machine.
- Use adequate lifting cable (wire or rope) of sufficient strength for support to the machine.
- Do not lift it higher than necessary for safety.
- Do not use a damaged lifting cable.
- Use one point lifting hook for lifting the machine and lift straight upwards.
- Do not use any other points (such as the handle) for lifting.
- Never lift or suspend the machine rapidly with hydraulic excavator.
- Never allow any person or animal to stand underneath the machine while lifting.
- Be careful not to an accident when using any lifting equipment. Before using the lifting equipment, make sure that there is no trouble or damage.



4.6 Precautions for Transportation and Storage

DANGER

- Stop the motor and then remove the rechargeable battery before transporting or storing the machine.
- After the motor and main body has cooled down enough, transport or store the machine.
- Maintain upright position of the machine on a level ground during transporting or storing.
- Tie down the machine with cable (wire or rope) so that it cannot move or tip over.
- Avoid storage areas with high temperature and high humidity, or environments with severe temperature changes. Keep away from direct sunlight and rain.
- When transporting this machine, use the revolving cart equipped on the handle.



4.7 Precautions for Maintenance

WARNING

- Ensure safety for maintenance. It needs appropriate maintenance for keeping the machine performance. Keep the machine in good condition with attention to the machine's condition always.
- Do not touch the hot parts until they have cooled down enough to prevent burn.

CAUTION

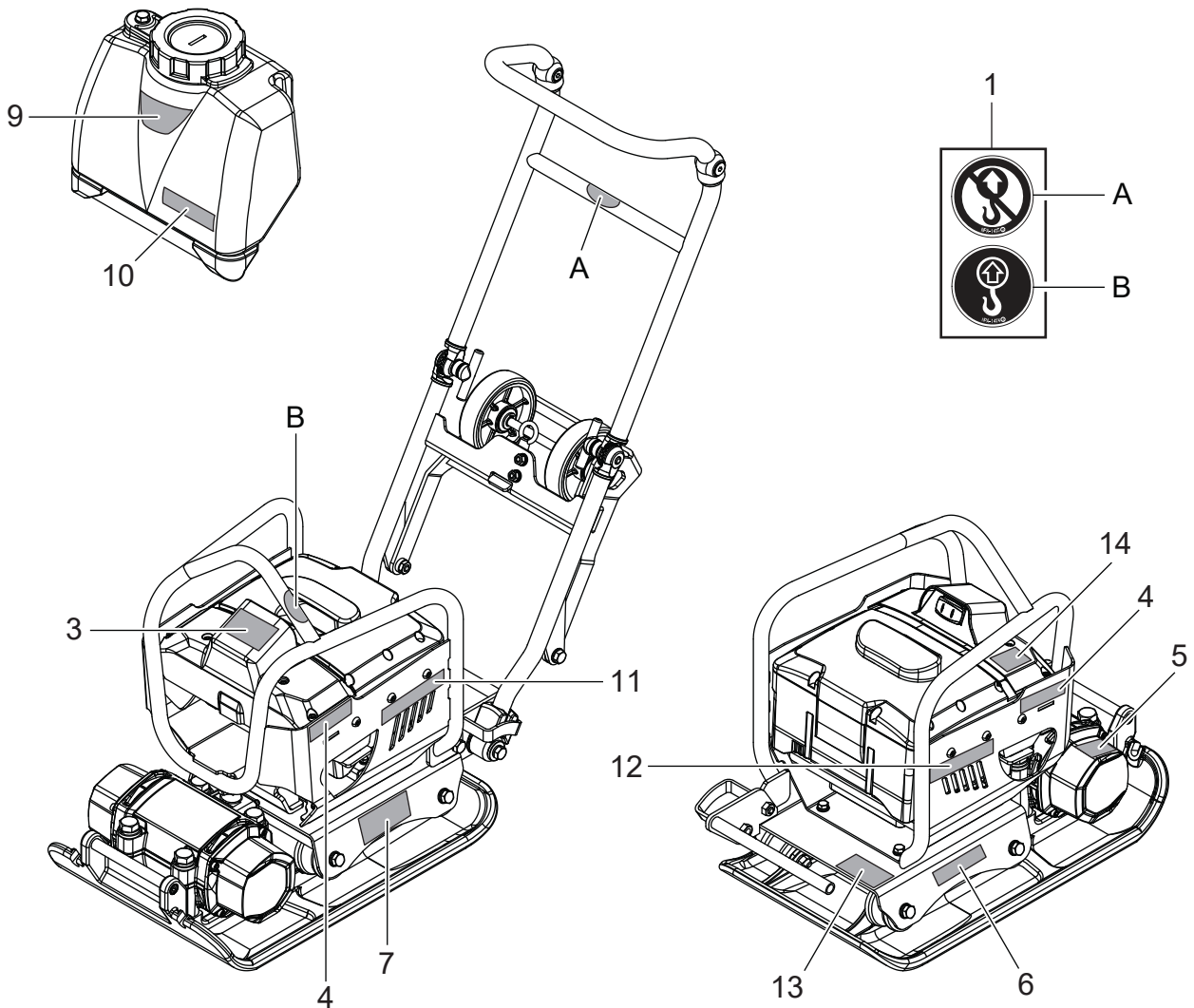
- Be sure to stop the motor before maintenance of the machine.
- Do not touch the lubrication oil until they have cooled down enough to prevent burn.
- When maintenance of the machine with disassembling, be sure to refer the service manual and always work safely.
- After maintenance of the machine, check that the parts are assembled properly and machine conditions are safe.



4.8 Precautions for Rechargeable Battery and Battery Charger

Regarding precautions for the RECHARGEABLE BATTERY (BOB) and BATTERY CHARGER (BOC), follow the separate operation manuals for them.

4.9 Decals Position



4.10 Decals List

No.	Part No.	Part Name	Q'TY	Label No.
1	9209-00180	DECAL SET,LIFT/NO LIFT	1	
3	9202-26050	DECAL,SMART-i_66X36	1	
4	9202-25720	DECAL,MIKASA(125)WHITE	2	
5	9202-17060	DECAL,CAUTION BURN(ICON)	1	NPA-1706
6	9202-24760	DECAL,CAUTION WASH&DRY/EX	1	NPA-2476
7	9202-24350	DECAL,CAUTION /COMBI./e60	1	NPA-2435
9	9202-10960	DECAL,M-MARK WHITE-40X80	1	
10	9202-25720	DECAL,MIKASA(125)WHITE	1	
11	9202-25790	DECAL,MVC-i60(R)/GREEN	1	
	9202-25860	DECAL,MVC-i60(R)/ORANGE	1	
12	9202-25800	DECAL,MVC-i60(L)/GREEN	1	
	9202-25870	DECAL,MVC-i60(L)/ORANGE	1	
13	9202-25930	PLATE,SERIAL NO./MVCi60/EX	1	
14	9202-25930	DECAL,EC NOISE REQ.LWA105	1	

4.11 Descriptions of the Warning Decals



9202-24350 DECAL,CAUTION /COMBI./e60

- ① **Read the manual carefully.**
Read and fully understand the operation manual before operating the machine.
- ② **Burn hazard.**
Never touch the hot parts. Allow these parts to cool before servicing the machine.
- ③ **Rotating parts hazard.**
Keep hands clear from all moving parts (such as inside the belt cover) to prevent injury.
- ④ **Keep safe distance.**
Be careful not to approach danger source during operation.
- ⑤ **Noise hazard.**
Always wear ear protection while operating the machine.
- ⑥ **Electric shock hazard.**
Be careful about electric shock. Stop the power unit before maintenance.
- ⑦ Do not use the machine in the rain and wet machine.
- ⑧ Do not use the machine with wet hands.



No lifting position.

Do not use any other points (such as the handle) except one point lifting hook for lifting the machine.



Lifting position.

Use one point lifting hook for lifting the machine.



- ① Do not use high pressure washer.
- ② Keep dry.

5. SPECIFICATIONS

5.1 Plate Compactor

Model		MVC-i60 VAS
Operating Weight with Water Tank without Water Tank	kg (lbs.)	82 (181) 76 (168)
Dimensions Overall Length (Including handle) Overall Width Overall Height (Including handle)	mm (inch)	1055 (41.5) 350 (13.8) 1010 (39.8)
Plate Size Length Width	mm (inch)	585 (23.0) 350 (13.8)
Performance Vibration Frequency Centrifugal Force Max. Traveling Speed Max. Area of Compaction	Hz (V.P.M) kN (kgf, lbf) m/min (ft./min) sq.m/hour (sq.ft/hour)	98 (5880) 11 (1122, 2473) 25 (82) 675 (7266)
Water Tank Capacity	liter (qt.)	8.5 (9.0)
Handle		VAS Folding Handle
Cart		Revolving Cart
Operating Time Battery Type: BOB10 Battery Type: BOB14	min	80 110
Charging Time Charger Type: BOC13	min	95 (BOB10) / 140 (BOB14)

- Operating weight includes weight of machine, lubricants, 50% of fuel tank and 50% of water in case with water tank.
- VAS Handle: Vibration Absorbing System Handle.

5.2 Exciter (Vibrating Motor)

Type	Three-phase induction motor	
Model	Exciter kpl. 11kN_E	
Rated Output	kW (PS)	1.2 (1.6)
Rated Current	A	21.5
Rated Voltage	V	51

※ Specifications are subject to change without notice.

5.3 Rechargeable Battery

Manufacturer		BATTERY ONE	
Model		BOB10	BOB14
Battery Type		Rechargeable Lithium Ion Battery	
Type of Current (Output)		DC	
Rated Voltage	V	51	
Dimensions	Length	220 (8.7)	
	Width	290 (11.4)	
	Height	196.5 (7.7)	
Weight	kg (lbs.)	9.7 (21.4)	9.96 (22.0)
Energy Content	Wh	1008	1425
Capacity	Ah	20	28
Operating temperature range	°C (°F)	-10 ~ +50 (14 ~ 122)	
Charging temperature range	°C (°F)	0 ~ +45 (32 ~ 113)	
Storage temperature range	°C (°F)	-20 ~ +50 (-4 ~ 122)	

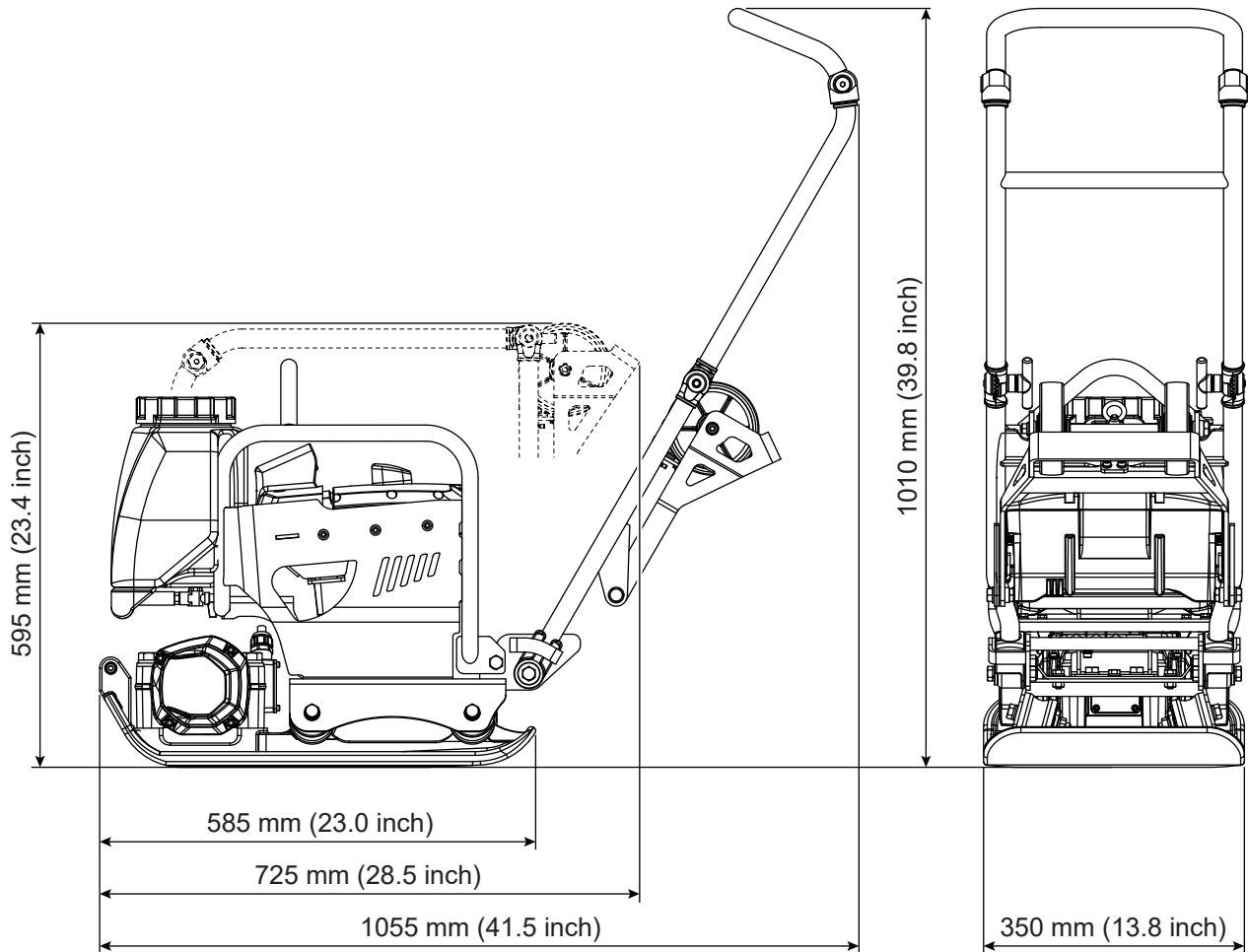
5.4 Battery Charger

Manufacturer		BATTERY ONE	
Model		BOC13	
Type of Current (Input)		AC	
Rated Voltage	V	100 ~ 240	
Rated Current	A	2.9 ~ 7.3	
Rated Frequency	Hz	50 ~ 60	
Rated Output	kW	0.65	
Type of Current (Output)		DC	
Output Current	A	13.5	
Nominal Output Voltage	V	48.0	
Output Voltage Range	V	2.7 ~ 60	
Phases		1	
Dimensions	Length	296 (11.7)	
	Width	396 (15.6)	
	Height	217 (8.5)	
Weight	kg (lbs.)	5.3 (11.7)	
Supply Cable	mm (inch)	2000 (78.7)	
Protection Class		I / Protective earthing	
Protection Type		IP65 *	
Operating temperature range	°C (°F)	0 ~ +45 (32 ~ 113)	
Storage temperature range	°C (°F)	-20 ~ +60 (-4 ~ 140)	
*Different protection for:			
* Rechargeable battery connector plug: IP20			

※ Specifications are subject to change without notice.

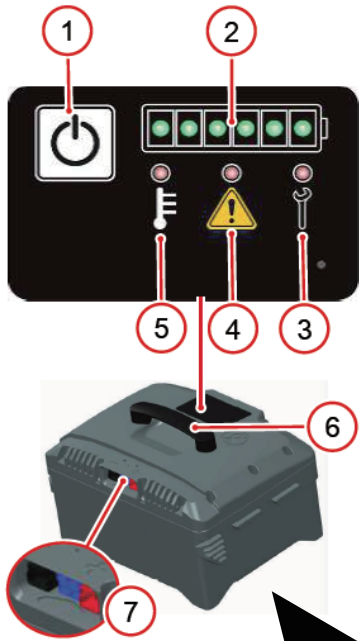
6. APPEARANCE

6.1 Dimensions

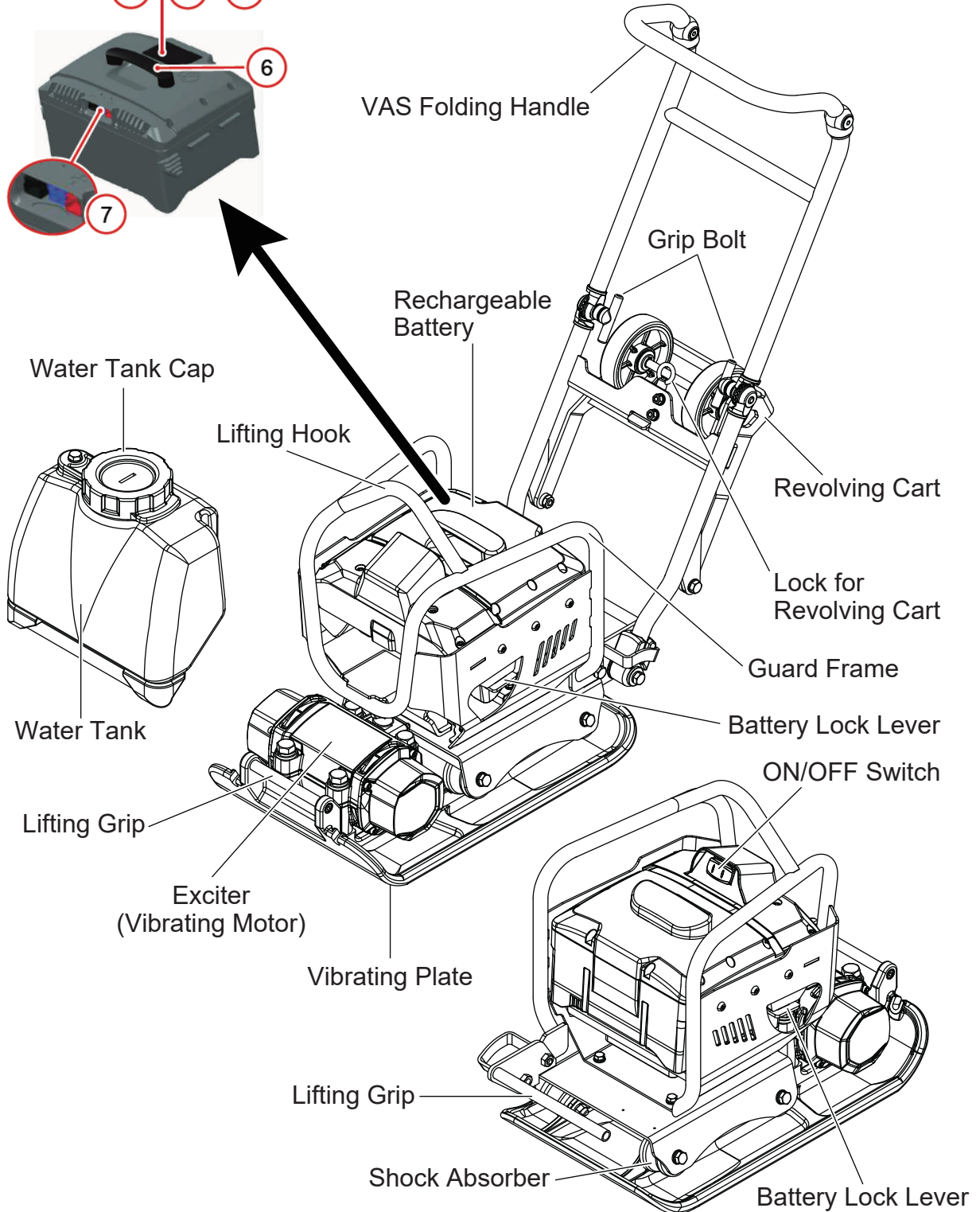


Specifications are subject to change without notification.

6.2 Components



- 1 Start Button: Activation / Deactivation
- 2 Control Light Charge Condition
- 3 Control Light Diagnosis
- 4 Control Light Rechargeable Battery Error
- 5 Control Light Over Temperature / Under Temperature
- 6 Handle
- 7 Connections (Contact Strip)



7. INSPECTION BEFORE OPERATION

⚠ WARNING

- Check the machine while the motor is stopped. You may be caught in a rotating part and be seriously injured.
- Check the machine after it ties down on level ground to avoid tip over.
- Check the machine after it has cooled down to avoid burns.



⚠ CAUTION

- It is extremely important that this section be read carefully before attempting to operate the machine.
- Do not use your machine until this section is thoroughly understood.
- Follow the separate operation manuals for the rechargeable battery and battery charger when you operate them.

Inspection parts	Inspection items
Visual inspection	Deformation, Breakage, Crack, Dirt
Vibrating plate	Wear, Deformation, Breakage, Crack
Handle, Guard frame	Deformation, Breakage, Crack
Shock absorber	Deformation, Breakage, Crack
Bolts, nuts	Loosing or missing
Power connection	Deformation, Breakage, Crack, Dirt, Wear

7.1 Inspection

1. Clean each parts of the machine.
Thoroughly remove dirt and oil from the machine.
2. Make sure that all bolts and nuts are not loosened. If they are loosened, retighten them to prevent an accident and trouble.
3. Make sure that the guard hook, belt cover and shock absorbers are not damaged. If they are damaged, replace new ones.
4. Replace any missing or damaged safety and operation decals.

7.2 Rechargeable Battery and Battery Charger

Follow the separate operation manuals for the rechargeable battery and the battery charger when operating the following contents.

- Charging and Charge Level
- Cleaning
- Storage
- Disposal

7.3 Install and Remove the Rechargeable Battery

⚠ CAUTION

- Make sure to use a genuine rechargeable battery.
- Connections and contact area of the accumulator must be clean and dry.
- Note the direction of installation when installing the accumulator. The connections must point in the direction of the protective cover.

● Installing the rechargeable battery (Fig.1)

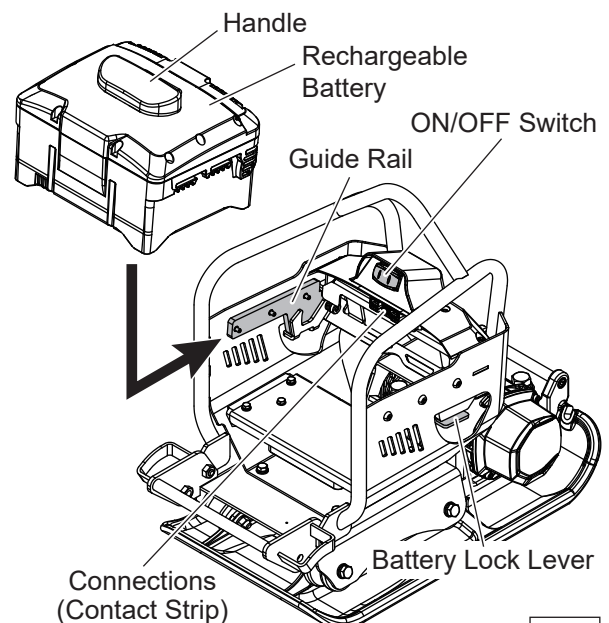


Fig.1

1. Press OFF on the ON/OFF switch.
2. Lift the rechargeable battery by its handle.
3. Carefully insert the rechargeable battery into the guide rail provided on the guard frame from the rear.
4. Insert the rechargeable battery to the front by its handle until you hear the lock make a clearly audible click.

● Removing the rechargeable battery (Fig.2)

CAUTION

● Allow the machine to come to a complete stop.

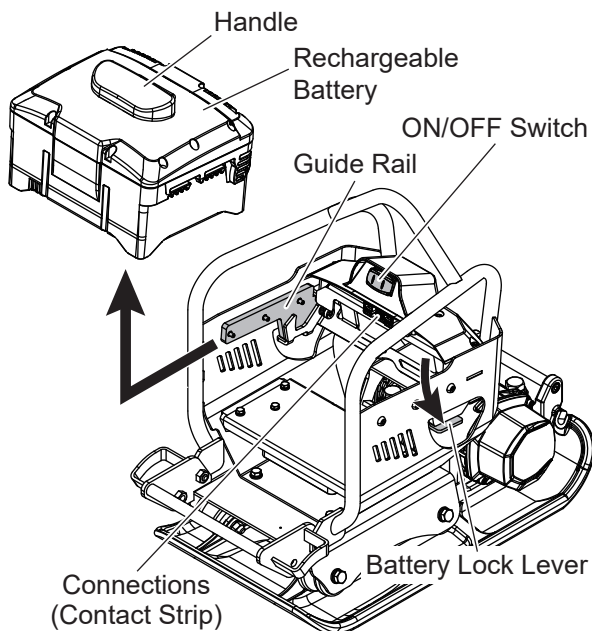


Fig.2

1. Press OFF "O" on the ON/OFF switch.
2. Push the battery lock lever down.
3. With the other hand, carefully pull the rechargeable battery by its handle to the rear until it stops.
4. Pull out the rechargeable battery by its handle and put it down safely.

7.4 VAS Folding Handle Check

1. Check the VAS folding handle to fix at storage or operation position. When fixing the handle position, tighten the grip bolts certainly. (Fig.3)

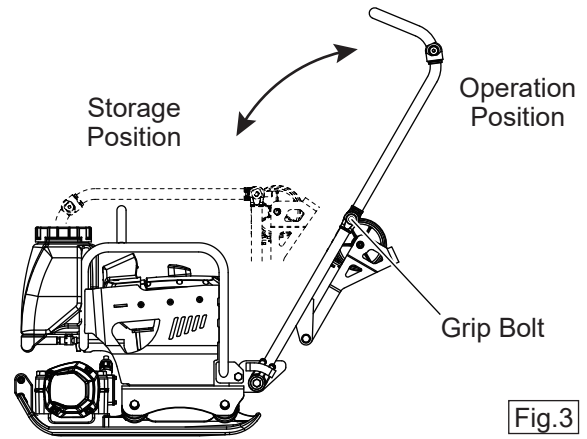


Fig.3

7.5 Revolving Cart Check

1. Check that the lock for revolving cart lock and unlock certainly. (Fig.4)

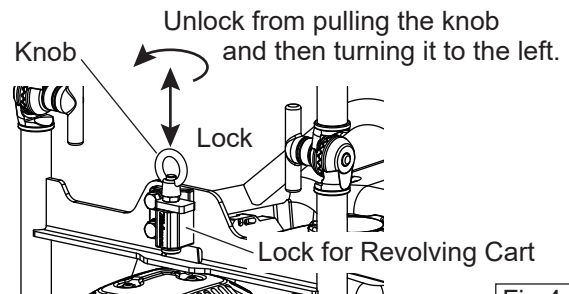


Fig.4

2. Check that the revolving cart move from storage position to carrying position smoothly. (Fig.5)

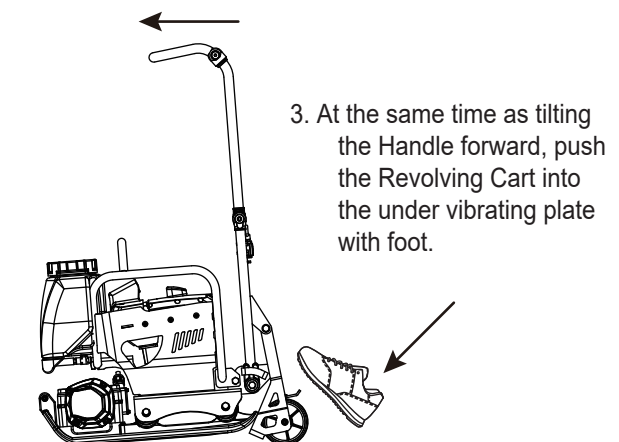
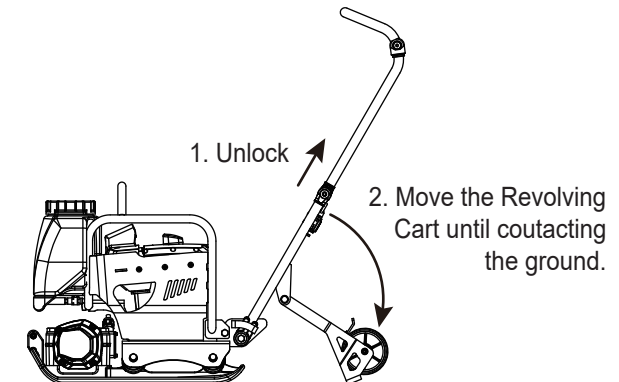


Fig.5

3. Check that the cart rotates smoothly by moving the machine forward and backward. (Fig.6)

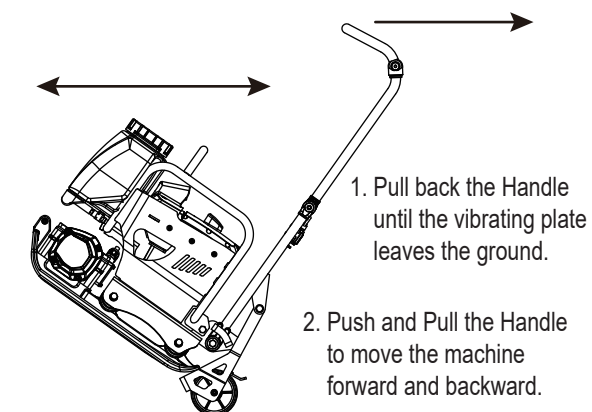


Fig.6

CAUTION

- Do not get oil and gasoline on the cart. Oil and gasoline cause the rubber to swell and deteriorate. If contaminated with oil or gasoline, immediately clean the cart.

7.6 Water Tank Check

1. Check the water tank for leaks after filling the water. (Fig.7)

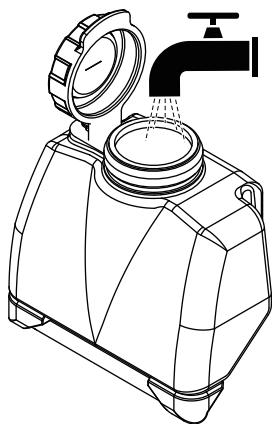


Fig.7

2. Check the valve of water tank ON and OFF. (Fig.8)

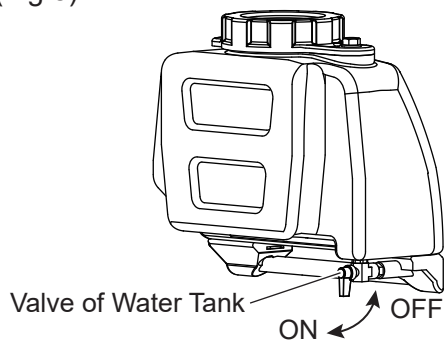
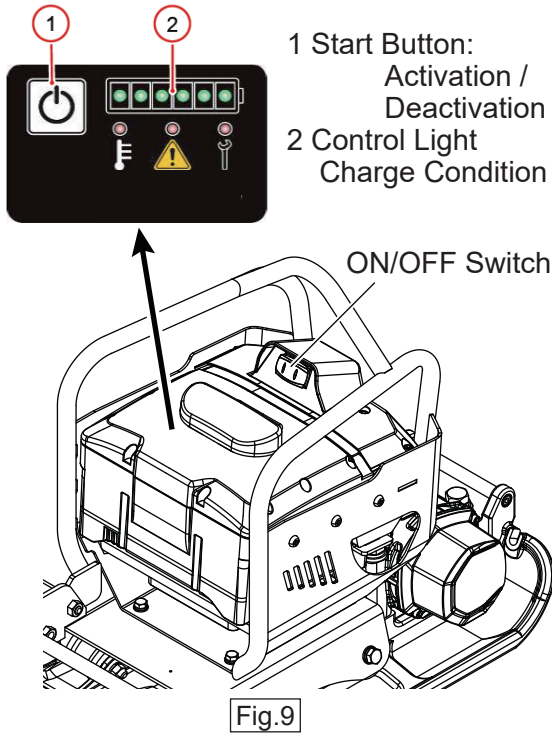


Fig.8

8. OPERATION

8.1 Start

1. Press start button: Activation / Deactivation.
2. Check the current state of charge via the control light charge condition.
3. Hold the machine by the handle.
4. Press ON " I " on the ON/OFF switch.

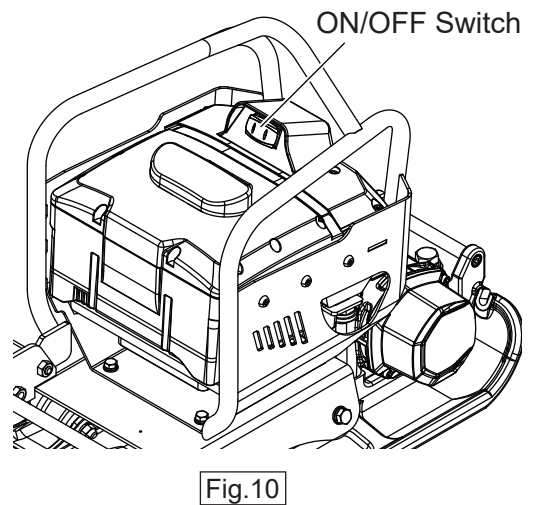


8.2 Stop

WARNING

- Do not touch the hot parts until they have cooled down enough to prevent burn.

1. Press OFF " O " on the ON/OFF switch.
2. Allow the machine to come to a complete stop.



CAUTION

- DO NOT use this machine on ground that is harder than the machine can handle, or for driving pilings or tamping rock beds. Furthermore, use of the machine on sloping ground, such as the side of an embankment, may make the machine unstable and can cause an accident. It can also result in premature machine wear due to uneven loads on the machine.
- Use the machine with confidence for compacting earth and sand, soil, gravel, and asphalt.
- DO NOT use the machine for other types of jobs.

9. TRANSPORTATION

1. Stop the motor unit before transporting the machine.
2. Do not move the machine until the motor and main body have cooled down enough.
3. Remove the rechargeable battery.
4. Maintain upright position of the rammer on a level ground during transporting.
5. Tie down the rammer with cable (wire or rope) so that it cannot move or tip over during transporting.

10. CLEANING

- Do not use a hose or pressure washer to spray water to the electrical components.
- Water entering the electrical components may cause a malfunction.
- Only use dry and clean cloths.

11. STORAGE

1. Store the machine the same procedure as 9. TRANSPORTATION.
2. Avoid storage areas with high temperature and high humidity, or environments with severe temperature changes. Keep away from direct sunlight and rain.
3. Put a cover on the machine to avoid depositing dirt.

12. INSPECTION AND MAINTENANCE

Proper maintenance is essential for safe, economical, reliable, and environmentally friendly operation.

⚠ WARNING

- Check the machine while the motor is stopped. You may be caught in a rotating part and be seriously injured.
- Check the machine after it ties down on level ground to avoid tips over.
- Check the machine after it has cooled down to avoid burns.



Regarding the inspection and maintenance of the Rechargeable Battery and Battery Charger, always follow each operation manuals.

12.1 Inspection and Maintenance Schedule

Inspection interval	Inspection parts	Inspection items	Remarks
Daily (before starting operation)	Visual inspection	Deformation, Breakage, Crack, Dirt	
	Vibrating plate	Wear, Deformation, Breakage, Crack	
	Handle	Deformation, Breakage, Crack	
	Guard frame	Deformation, Breakage, Crack	
	Lifting grip	Deformation, Breakage, Crack	
	Revolving cart	Operation	
	Shock absorber	Deformation, Breakage, Crack	
	Battery lock lever	Operation	
	Bolts, nuts	Loosing or missing	
	Power connection	Deformation, Breakage, Crack, Dirt, Wear	

⚠ CAUTION

- The above table shows the inspecyion interval for standard condition.
- The inspection interval may vary depending on the condition in which the machine is used.
- For check of bolt and nut loosening and retightening, refer to the following standard tightening torque table.

Standard tightening torque table (unit: kgf·cm, 1 kgf·cm = 9.80665 N·cm)

		Bolt size							
		6 mm	8 mm	10 mm	12 mm	14 mm	16 mm	18 mm	20 mm
Material	4T (SS400)	70	150	300	500	750	1,100	1,400	2,000
	6-8T (S45C)	100	250	500	800	1,300	2,000	2,700	3,800
	11T (SCM435)	150	400	800	1,200	2,000	2,900	4,200	5,600
	In case counterpart is of aluminum.	100	300~350	650~700					

- Bolt threads used with this machine are all right-hand screw.
- Material and quality of material is marked on each bolts.

13. TROUBLESHOOTING

13.1 Rechargeable Battery and Battery Charger

Regarding the troubleshooting of the Rechargeable Battery and Battery Charger, please refer to each operation manuals for them.

13.2 Plate Compactor

- Exciter (Vibrating motor) dose not start.

- Rechargeable battery is not installed correctly.
- Battery power is low.
- Rechargeable battery has malfactioned.
- Wire breakage or short circuit.
- Brekage of the exciter (vibrating motor).

Mikasa

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