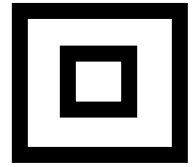


Mikasa

PORTABLE CONCRETE VIBRATOR
(MOTOR VOLTAGE 220 - 240V)

UM-ZF100A



DOUBLE
INSULATION

INSTRUCTION MANUAL

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We thank you for selecting Mikasa Portable Concrete Vibrator.
For your safe and proper operation, please read this manual and
be always sure to keep it ready for reference.



<http://www.mikasas.com>

202-01701



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1. Introduction

- This instruction manual describes the correct operation method of MGX portable vibrator and its easy inspection and maintenance. To enhance your work efficiency and to make your work more effective, please read this manual before using the vibrator.
- After you finish reading, please keep this manual at hand so that you can refer to it whenever necessary.
- For inquiries about repair parts, parts lists, service manuals, and repairs, please contact the store where you purchased the product, our sales office, or the Mikasa Parts Service Center. For parts lists, please visit our homepage at: <http://www.mikasas.com/> where you can access Mikasa WEB parts lists.

The illustrations in this instruction manual might differ in part from the actual product due to design change, etc.

2. Machine overview

2.1 Use of machine

This portable concrete vibrator (UM-ZF100A) is external vibrator suited for surface finishing concrete. This product is used for concrete casting of walls, pillars and joists with high bar arrangement density for which the vibrator used in the concrete cannot provide sufficient compacting. When pressed this product from the outside of formwork panel of concrete, it can give vibration to concrete through the formwork panel so that prevent insufficient concrete filling and provide beautiful surface finish.

Concrete casting in an area deep down the ground or anywhere far from the power source can be done easily by extending the cord. Because this vibrator is small and light, long work and machine handling can be done easily and safely.

2.2 Warning for incorrect applications and incorrect uses

Do not use this portable concrete vibrator for purpose other than concrete compacting. Do not use this product in concrete directly, because of external vibrator. Never connect this product to wrong voltage. If connected to wrong voltage, the machine might occur damage, and there will be the risk of electric shock or electrocution. To prevent the risk of them, make sure to use a breaker at the power source.

Do not hold the vibrator and vibrating area near the vibrator with hand directly while you work. There is a risk of vibration disease.


2.3 Structure

This portable concrete vibrator consists of the commutator motor part and the vibration part. Those parts are connected with the spring coupling. Vibration part have an eccentric rotary shaft generated strong vibration by motor speed.

2.4 Power transmission

The electricity from the power source runs the commutator motor. The motor speed rotates an eccentric rotary shaft via the spring coupling, so that makes vibration for concrete compaction. The switch is used to turn on and off the commutator motor.

2.5 Double insulation


This vibrator is marked with a “” symbol because two insulators are used as double insulation between the electricity conducting part and the outside frame that comes into contact with people.






Double insulation tools are highly safe against electric shock.

If the existing part is replaced with a different part, or when the parts are assembled incorrectly, double insulation structure will be lost, and the vibrator might become unsafe to operate.

For disassembly/assembly of electric system and parts change or repair, please contact your distributor.

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

WARNING

- Do not work if one of the following conditions exists.
 - you are tired or sick and not feeling well,
 - you have taken medicine or drug, or
 - you have had a drink.



CAUTION

- Read the operation manual well and work safely by taking correct steps of operation.
 - Prevent the operation of the machine by someone who does not have sufficient knowledge of operation.
- Work in proper work clothes.
 - Always use protective gear (helmet, protective goggles, safety shoes, anti-vibration gloves, etc.) for safe operation of the machine, and wear appropriate work clothe.
 - For outdoor work, rubber gloves and slip-resistant shoes are recommended.
 - Long hair should be covered with a cap or hair cover.
- Please wear noise suppressing device.
 - When doing work that generates high level of noise, wear noise suppressing devices such as ear plugs or ear muffs.
- Check the machine carefully to make sure there is no breakage, crack or deformation.
 - Check also the cabtyre cord to make sure the conducting part is not exposed due to wear or crack. As the cabtyre cord wears relatively quickly, please replace with a new one at early timing. Also check the power outlet and the plug for breakage, deformation, burn or damage at the cord connection area.
- Always check the machine to see if there is any loosened bolt or abnormal part. Operate the machine after making sure the machine is in normal condition.
- The faceplate (operation method, warning information, etc.) on the machine is very important for safe operation of the machine. Clean the machine and always keep the information on the faceplate clearly legible.
- When the information on the faceplate (operation method, warning information, etc.) on the machine is difficult to read, replace it with a new one.



⚠ CAUTION

- It is dangerous if young children come into contact with the machine. Use some measure, such as "Do not enter" sign around the work area or proper storage (storage location) of the machine, to prevent children from coming near the machine.
- MIKASA is not responsible for remodeling without manufacturer's permission or accident caused by any use other than [warning for incorrect purpose and incorrect use].

4.2 Cautions before work

⚠ WARNING

- Before working, carefully make sure that there is no buried pipe such as electric wire tubes, water pipes or gas pipes in the area where work is to be done.
 - If there are buried objects, the tool might touch them, causing an accident of electrification or electric leak, or gas leakage.
- Always keep the work area clean.
 - Unorganized littered work site is likely to cause accident.
- Consider the surrounding condition of work area.
 - Do not use the machine in rain, and when the plug or the outlet of vibrator and extension cord is wet.
 - Keep the work area sufficiently lighted.
 - Do not use the machine in the environment where there is flammable liquid gas nearby.

⚠ CAUTION

- Noise prevention rule
 - For noise, there are laws and rules established by the ordinances of each municipality.
It is necessary to use the machine at below the specified allowable noise level to prevent noise problem in the vicinity.
Depending on the situation, use noise shielding fence when working.

⚠ DANGER

- Please check the followings before using the machine. Check the following items before plugging into the outlet.
- Check the power source to be used.
 - Always make sure the power is the one shown on the faceplate. The power voltage you can use is 220-240V single phase. If you use the voltage that exceeds the display, the motor coil might be burned out.
 - If the voltage is low, the current flowing to the motor circuit increases and there arises potential for danger of burnout. Also do not use direct current power. That will result not only in damage of the product but also in accident.



⚠ DANGER

- Check of the earth leakage breaker.
 - Because this product is double insulation structure, the setting of earth leakage breaker is exempted by a law. But this machine is very dangerous because it's used at a juicy place. Use electric leakage breaker by all means.

⚠ WARNING

- Make sure the switch is turned off.
 - If the machine is plugged without knowing that the switch turned on, the machine starts to operate unexpectedly, causing an accident. The switch is turned on when it pulled trigger, and turned off when separated trigger.
 - Always check that the switch can be turned on and off by pulling and separating of the trigger.
- Check the assembly of the motor and the rubber joint.
 - Before starting, check the rubber joint between motor and vibrator to make sure it is assembled straight to the front cover of the motor without any damage. The rubber joint is left- hand screw.

⚠ WARNING

- Check of the plug and power outlet.
 - If you experience looseness when the plug is inserted into the outlet, or if the plug comes off from the outlet, you need some repair.
If used without repair, overheating might occur, resulting in an accident.



⚠ CAUTION

- (Connection) Extension cord
 - Use an (connection) extension cord that is not damaged.
 - If the power source is far away from the machine and you need an extension cord, use the one with sufficient size that allows the flow of necessary current, and try to make the length of the cord as short as possible for maximum efficiency and trouble free operation of the machine.
 - Use the extension cable cord of thickness more than core line 1.25 mm².
 - As the cord gets longer, the voltage becomes lowered in proportion to the length, which results in poor motor starting operation and lowering of output. (UM-F type can extend approximately 50m at 2 mm² .)
 - For outdoor use, use cable cord or cable connection (extension) cord.

4.3 Cautions during work

⚠ WARNING

- Always be alert and pay careful attention to your work.
 - When using the vibrator, work very carefully with careful attention to the operation method, work method and the surrounding condition.
 - Use your common sense.
 - When you are tired, do not use the machine.
- Avoid sudden start.
 - Do not carry the machine with the switch turned on while connected to the power source.
 - Before plugging, make sure that the switch is turned off.
- Do not handle the cord carelessly.
 - Do not pull the cord when trying to unplug it.
 - Do not use the machine by hanging it with the cord.
 - Do not put the cord near heat, oil or sharp corner.
- Do not use the vibrator that cannot be started or stopped by the operation of the switch.



⚠ DANGER

- If you notice abnormal condition of the machine or abnormal noise while using the machine, turn off the switch immediately to stop the machine. Then contact the sales store or the rental store to ask for inspection and repair. Electric leak or fire accident might occur.

⚠ CAUTION

- Do not operate continuously for a long time.
 - The rated time of the motor is 30 minutes. The rated time is the time that can be used at the rated output. Use within the rated time, and be sure to rest for the same amount of time (or longer) as the usage time.
- When not used, always turn off the switch.
- Do not use the machine with abnormal posture.
 - Always secure stable footing and keep good balance.

⚠ WARNING

- When working at high location, make sure that there is no one underneath. For safe work, use a safety wire to prevent the fall of the machine.
- Do not let children come near the machine.
 - Anyone other than the workers should not be allowed to touch the high frequency vibrator and extension cord.
 - Do not allow anyone other than the workers to come near the work area.

4.4 Cautions for maintenance

WARNING

- Before inspection and maintenance work, always turn off the switch and unplug from the power outlet.
- Do maintenance work carefully.
 - Check the cord regularly, and if damage is detected, contact the sales store for repair.
 - If repair is done by someone without proper repair knowledge or skill, the machine will not function properly, and even accident and injury might occur.
 - When using a connection (extension) cord, check it regularly and if damage is detected, replace it with a new one.
 - Keep the holding part dry and clean all the time. Keep the holding part free of oil and grease.



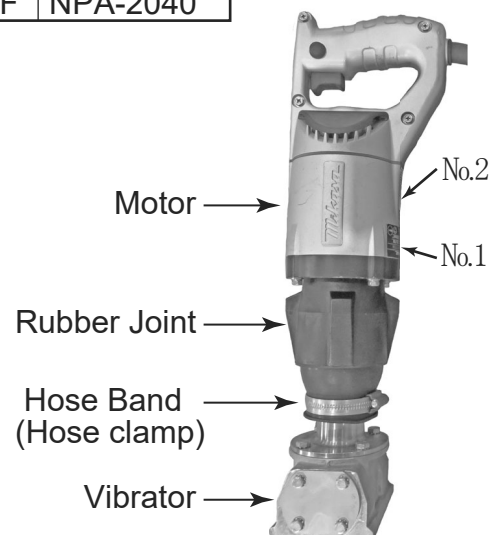
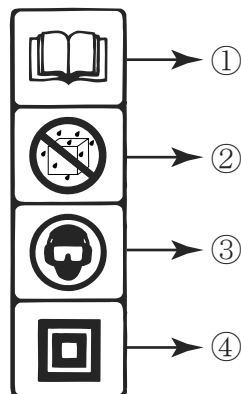
CAUTION

- Make sure to check that the rubber joint is tightened properly by hitting with the plastic hammer. The rubber joint is left-hand screw.
- Make sure to check that the hose band (hose clamp) is tightened properly.
- Align the position of motor and vibrator, then tighten the hose band (hose clamp).

4.5 Labeling position

Fig.No.	Part No.	Part Name	Remark
1	9202-20380	DECAL, NAMEPLATE/UM-F	NPA-2038
2	9202-20400	DECAL, CAUTION(ICON)/UM-F	NPA-2040

No.2



4.6 Descriptions of symbols used on safety label

- ① Read the instruction manual carefully.
Read the instruction manual before use, and operate the machine safely.
- ② Do not use in rain (to avoid electrification, short circuit).
Do not use the machine in rain.
Do not wash with water.
Do not leave the machine in rain without covering.
Do not transport the machine in rain without covering.
- ③ Wear ear and eye protection gear
- ④ Double insulation
Double insulation structure. Grounding not required.

5. Appearance

5.1 Name of each part

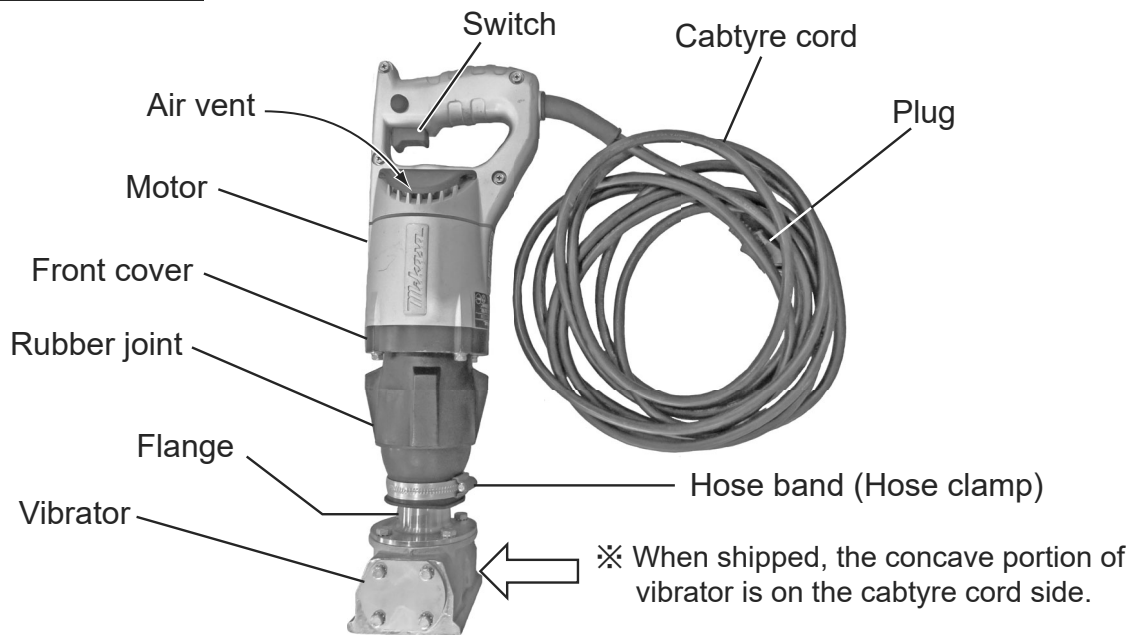


Figure 1: Name of each part

5.2 Specifications

Model	Length (mm)	Vibrating board size (mm)	Vibration Hz (V.P.M.)	Motor	Weight (kg)
UM-ZF100A	420	78 x 115	166~200 (10,000~12,000)	280W 220 - 240V 2.0A	5.2

6. Concrete casting

● Before using the vibrator, do warm up for 2 to 3 minutes.

- When the ambient temperature is low, do warm up for more than 2 to 3 minutes before use.
- Securely insert the plug into the socket, and operate the switch quickly and properly.

CAUTION • Do not use this vibrator in concrete directly, because of external vibrator.

● Use by pressing the vibrator on the outside of formwork panel of concrete.

- In order to prevent excessive vibration from being applied, the standard vibration time for concrete of 12 to 18 cm slump should be about 15 sec. at one location for an interval of 30 to 50 cm.
- Do not hold vibrator part directly with hand while using.

CAUTION • While using the vibrator, do not bend the rubber joint between the motor and vibrator.

- Do not put or drop heavy objects on the vibrator.
- When moving the vibrator, Hold the motor handle do not drag it with the cabtyre cord.
- The rated time of the motor is 30 minutes. The rated time is the time that can be used at the rated output. Use within the rated time, and be sure to rest for the same amount of time (or longer) as the usage time.

7. Maintenance and storage

⚠ Danger • Always turn off the switch and unplug from the power outlet before starting check or maintenance work.

7.1 Check of the tightening bolts for each parts

- Check of the tightening bolts for each parts to see if there are any looseness. If looseness are found, tighten them again securely.
- If the machine is used with loosened bolts, an accident leading to injury might occur.

7.2 Remove the mortar that has adhered at the air vent

- If the air vent is clogged, overheating occurs, which might result in burnout. (Refer to Figure 1)

7.3 Check of the grease inside of the rubber joint and the vibrator case

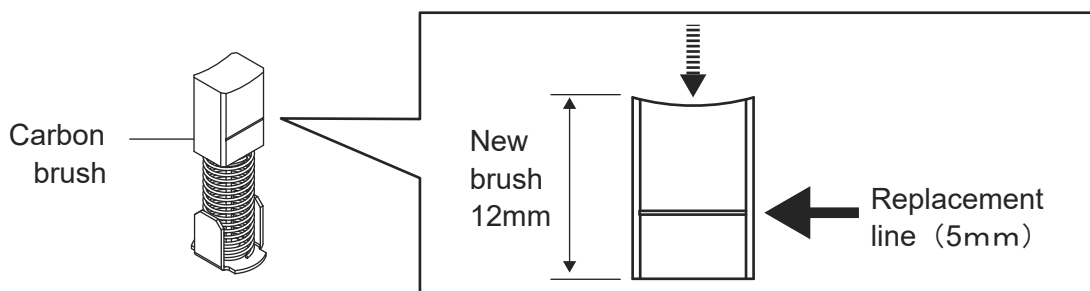
- At every 50 to 100 hours of operation, wipe off the old grease on the spring coupling and spring inside of the rubber joint, then apply new grease to them. (Use the molybdenum grease.)
- At about 200 hours of operation, wipe off the old grease on the pinion, gear and eccentric rotary shaft inside of the vibrator case, then apply about 40g of new grease to them. (Use the urea grease having high temperature and extreme pressure.)

How to disassemble the vibrator case

Remove the bearing housings at both ends of the vibrator case, then remove the eccentric rotary shaft assembly from one side of the vibrator case.

7.4 Check of the carbon brush

- If you notice a drop in motor revolution or lowering of the force, remove the back cover of the motor to check the wear of carbon brush.
- For UM model, the carbon brush should be replaced with a new one when its remaining length is less than 5mm (length of new brush is 12mm). Contact your distributor if you need to replace the carbon brush.



⚠ WARNING • For vibrator repair, please contact your distributor.

- This product complies with the applicable safety requirements. Please do not try to make alterations.
- For repair, please contact your distributor. If repair is done by someone without proper knowledge and skill, it might result in the performance of the machine being compromised, and even there might arise a risk of accident or injury.

CAUTION • Make sure to use a MIKASA genuine carbon brush when replacing the carbon brush with a new one.

8. Remove and install the vibrator

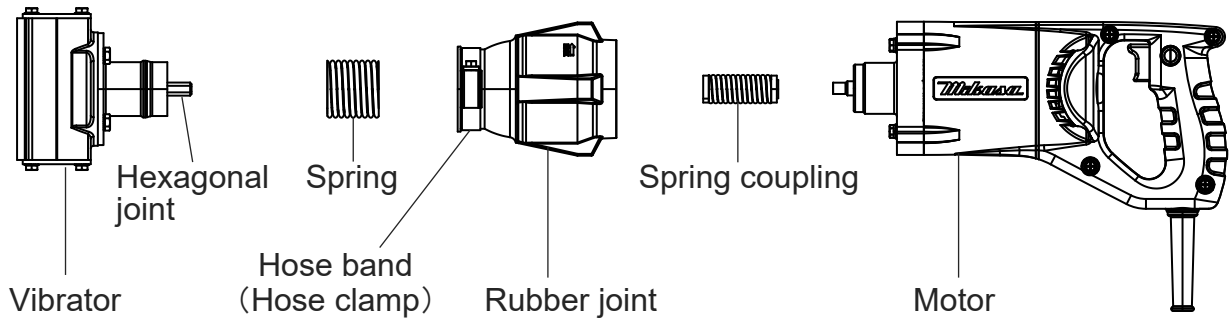


Figure 2: Name of each part

8.1 Remove the vibrator

1. Remove the rubber joint by hitting with the plastic hammer. (The rubber joint is left-hand screw.) (Figure 3)

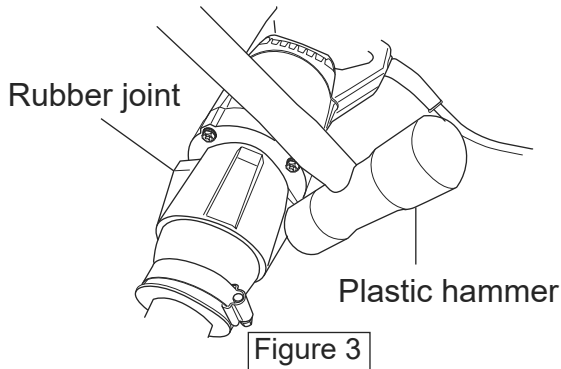


Figure 3

2. Remove the vibrator from the rubber joint by loosening the hose band (hose clamp). (Figure 4)

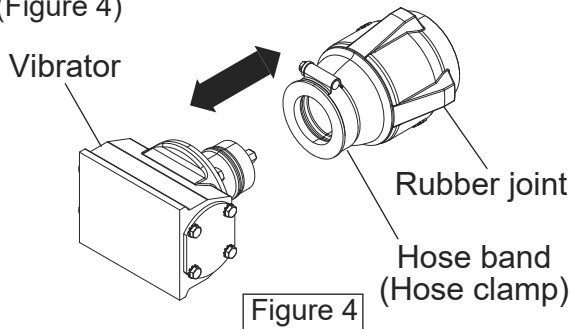


Figure 4

3. Remove the spring coupling fixed to the motor with the pliers wrench. (Figure 5)

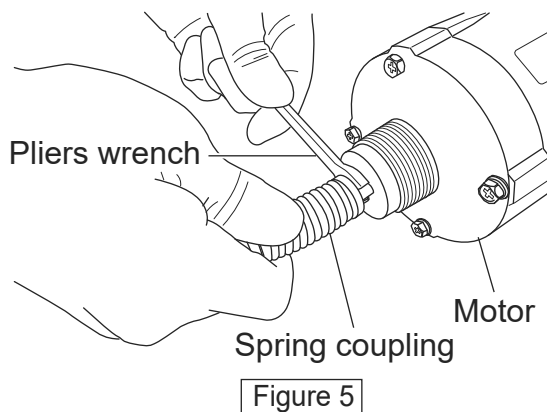


Figure 5

8.2 Install the vibrator

⚠ CAUTION

Check of the tightening bolts for each parts to see if there are any looseness. If looseness are found, tighten them again securely.

1. If the grease inside of the vibrator is insufficient, apply the urea grease. (Refer to 7. Maintenance and storage on P7.)
2. Apply the molybdenum grease to the spring coupling and spring inside of the rubber joint. (Refer to 7. Maintenance and storage on P7.)
3. Assemble the spring coupling to the motor. (Figure 5)
4. Install the vibrator until end of the rubber joint. (Figure 4)
5. Install the hexagonal joint to the spring coupling, then install the rubber joint to the motor. (Figure 6)

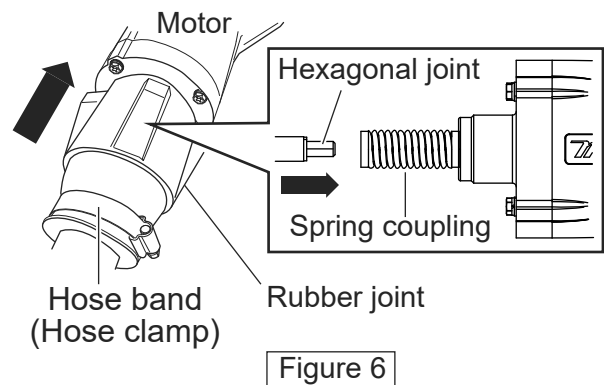


Figure 6

6. Tighten the rubber joint properly by hitting with the plastic hammer. (The rubber joint is left-hand screw.) (Figure 3)
7. Align the position of motor and vibrator, then tighten the hose band (hose clamp) properly.

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