

Startup guide

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We would like to thank you for making a Patmark marking machine your choice for meeting your marking and traceability needs. To help you use your Patmark, this manual contains detailed information. Please read these instructions carefully and keep this document for future reference.

Tocho Marking Systems, Inc.

This is a translation of the original instruction and the original instruction is in Japanese.



General Safety Information

	<p>Beware of high temperature</p> <p>Prolonged continued use would heat up the solenoid. This will not affect the quality of marking. However, do not touch the area around the stylus pin or the solenoid with bare hands after continued use. In particular, refrain from using the system around small children.</p>
	<p>Beware of loud noise</p> <p>Loud noise will occur when the marking force is set high or depending on material properties and the shape of the workpiece especially thin and hollow ones such as pipes. Therefore, always wear an ear plug when operating the system.</p>
	<p>Using near water and in a humid area is prohibited</p> <p>Patmark series are IP20 classification. To prevent fire, electric shock, and damage, do not use the system around water. Also, do not touch the system with wet hands.</p>
	<p>Beware of unwearing property gears</p> <p>For your safety, wear a protection glass when operating the tool and wear PPE (Personal Protective Equipment) for hearing protection when operating the tool.</p>

General Power Tool Safety Warnings

WARNING : Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference. The term "power tool" in the warnings refer to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

1. Work area safety

- **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gasses or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

Note : Not expected to use or produce under potentially explosive atmosphere, as well as toxic, corrosive, flammable and explosive substances. Not expected to use under ATEX.

2. Electrical safety

- **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.

- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduce the risk of electric shock.
- **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

Note : The term “Residual Current Device (RCD)” may be replaced by the term “Grounded Fault Circuit Interrupter (GFCI)” or “Earth Leakage Circuit Breaker (ELCB)”.

3. Personal safety

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Use PPE (Personal Protective Equipment). Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injury.
- **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
- **Remove any adjusting key or wrench before turning the power tool on.** A wrench or key left attached to a rotating part of the power tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all time.** This enables better control of the power tool in unexpected situations.
- **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- **If devices are provided for the connections of dust extraction and collections facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

4. Power tool use and care

- **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot

be controlled with the switch is dangerous and must be repaired.

- **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

5. Service

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.



Safety Information for the use of Patmark

1. Properly manage the work space and keep children away.

- Be sure to keep the work space clean and tidy at all times. Do not use the battery and the battery charger in a disorderly environment, as doing so could lead to an accident.

2. Do not allow anyone not concerned with actual work, to touch the battery or the battery charger.

- Allowing such person to touch the battery or the battery charger could result in injury (especially dangerous for small kids).

3. When not in use, be sure to store and manage the battery and the battery charger in a proper manner.

- Be sure to store the battery and the battery charger in a dry environment that is out of the reach of children or can be locked, as not doing so could lead to an accident.

4. Do not handle the power cord attached to the battery charger in a rough manner.

- Do not carry the battery charger around by grabbing the power cord or disconnect the battery charger from the power socket by pulling the power cord.
- Do not bring the power cord near heat, oil, or any sharp edge.
- Carefully select a space where the battery charger will be used, so that its power cord won't be

damaged by being stepped on, getting caught, or otherwise being subjected to an excessive force.

- Be sure to periodically inspect the power cord attached to the battery charger. If any damage is found, please contact the distributor to arrange replacement service.
- If an extension cord is used with the power cord, be sure to periodically inspect it, and, if any damage is found, stop using it. Not following this precaution could cause an electric shock or a fire.

5. If any abnormality is found, please contact the distributor to request inspection and repair service.

- Do not perform unauthorized disassembly or repair of the lithium-ion battery or the battery charger, as doing so would not only prevent them from performing at their full capacity but also could cause an accident or injury.



Safety precautions for the lithium-ion battery and the battery charger

1. Please use the battery charger and lithium-ion battery that are specified for the equipment.

- Please use the battery charger and lithium-ion battery that are specified in the operation manual. Using any other type of battery charger or lithium-ion battery could cause the battery to explode and cause bodily injury or property damage.

2. Recharge the battery correctly by following the proper procedure.

- The battery charger must be plugged into a power socket where the voltage is indicated (AC100V-240V). Do not use the battery charger with any DC power supply, engine generator, transformer, etc., as it could lead to overheating or cause a fire.
- Do not use the lithium-ion battery in a temperature below 0°C (32° F) or above 40°C(104°F), as it could cause an explosion or a fire.
- Be sure to recharge the lithium-ion battery in a well-ventilated area. Do not cover up the vent holes on the lithium-ion battery or the battery charger. Not following these precautions could possibly cause an explosion or a fire.
- If any smoke, foul odor, or other abnormality is detected while recharging the battery, immediately pull the power plug out of the power socket.
- When not in use, be sure to keep the battery charger unplugged from the power socket. If any dust or dirt on the power plug or socket must be removed, be sure to wipe it off using a dry cloth. Not following this precaution could cause an electric shock or a fire.

3. Do not cause a short circuit between the terminals on the lithium-ion battery.

- If any foreign object that is made of a material that conducts electricity such as metal, comes in contact with the lithium-ion battery, a short circuit could occur to cause heat, smoke, or a fire.

Therefore, be sure to follow the precautions below when storing the lithium-ion battery.

- 1) Keep any electricity-conducting material out of the storage case such as metal debris, nail, wire, copper line, etc.

- 2) To prevent a short circuit, be sure to keep the lithium-ion battery inserted into the marking equipment or store it in the battery cover.

4. Use caution to avoid electric shock.

- Do not touch the power plug of the battery charger with wet hands, as it could cause an electric shock.

5. Please also pay attention to creating and maintaining a proper work environment.

- Do not use the battery charger or lithium-ion battery in the rain or in a moist or wet environment, as it could cause an electric shock or smoke.
- Make sure that that work space is well-lit, as working in a dark place could lead to an accident.
- Refrain from using the product near inflammable liquid or gas, as it could cause an explosion or a fire.
- When lightning is occurring, do not use the product and make sure that the power plug is pulled out of the power socket, as not doing so could lead to a fire or electric shock caused by a lightning strike.
- Refrain from using or storing the product in a place where there is a large amount of dust or other fine particles. If any such particles or other foreign objects enter into the product, it could cause overheating, a fire, or other accident.

6. Do not throw the lithium-ion battery into a fire.

- Do not subject the lithium-ion battery to excessive heat or high pressure by putting it into a microwave oven or high-pressure container, as doing so could cause a fire, explosion, or leakage of hazardous substances.

7. Be careful when handling the lithium-ion battery and the battery charger.

- Do not drop the lithium-ion battery or the battery charger to the ground or otherwise subject it to a strong impact. Also, do not cause a large amount of shock to the lithium-ion battery by stabbing it with a nail, striking it with a hammer, stomping on it, throwing it onto a hard surface, dropping it to the ground, etc., as doing so could cause excessive heat, a fire, electric shock, etc.
- Please do not use any lithium-ion battery that is apparently damaged or deformed significantly, as doing so could cause excessive heat, a fire, electric shock, etc.
- Do not disassemble or modify the lithium-ion battery or the battery charger, as doing so could cause excessive heat, a fire, electric shock, bodily injury, or other accident.

8. Be sure to follow the precautions specified below to prevent electrolyte leakage, heat, smoke, or ignition of the lithium-ion battery.

- Make sure that metal debris or dust does not accumulate on the lithium-ion battery. When not in use, do not keep the lithium-ion battery in an environment where dust may accumulate on it. Also, when storing the lithium-ion battery, remove any metal debris and dust that may have collected on it, and keep it away from any metal parts (screws, nails, etc.) so that they do not touch each other. Not following these precautions could result in a short circuit that could cause the battery to generate

heat, ignite, or explode.

- Do not directly connect the lithium-ion battery to a power socket or a cigarette lighter receptacle in an automobile.
- Refrain from using the lithium-ion battery for any purpose other than to operate the marking equipment.
- If any electrolyte leakage or foul odor from the lithium-ion battery is detected, immediately keep the battery away from any fire and stop using it. If the lithium-ion battery is left in a high temperature or other harsh environment, it could lead to electrolyte leakage.
- Do not recharge the lithium-ion battery in a temperature below 0°C (32° F) or above 40°C(104°F), as doing so could cause an explosion or a fire.
- Refrain from using the lithium-ion battery in an environment where strong static electricity exists.
- Do not recharge, use, or store the lithium-ion battery in a high-temperature environment such as near a fire or in the hot sun. Do not store the lithium-ion battery in a place where the ambient temperature could rise above 50°C(122°F) *i.e., in a steel box or inside an automobile during summer. Not following these precautions might not only lead to deterioration of the battery but also could cause smoke or a fire.
- If any abnormality such as a foul odor, heating, discoloration, and deformation is detected while using, recharging, or storing the lithium-ion battery, immediately stop using the battery and contact the distributor for a consultation.
- If any electrolyte leaked from the lithium-ion battery and gets into eyes, thoroughly wash the eyes using tap water or any clean water, without rubbing the eyes, and then quickly visit a doctor for treatment. Leaving the eye untreated after it has come into contact with battery electrolyte could possibly lead to vision disability.
- If any electrolyte leaked from the lithium-ion battery comes in contact with the skin or clothes, immediately wash it using tap water or other clean water. Not doing so could cause skin irritation.

Procedure for recharging the lithium-ion battery

1. Check the electrical specification of the power socket.

- Check and make sure that the power socket that will be used is AC100V-240V. Use of any other type of power socket will cause the battery charger to become abnormally hot and malfunction. Also do not try to recharge the battery by connecting to DC power supply or a gasoline-powered generator.

2. Connect the battery charger and the power cord, and then insert the power plug into the power socket.

- LED lamp [OFF]

3. Set the lithium-ion battery.

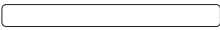





- Slide the battery all the way in through the insertion port of the battery charger.

LED lamp [Red ON]: Recharging start.

LED lamp [Green ON]: Recharging complete.

4. Remove the lithium-ion battery.

- Remove the power plug attached to the battery charger from the power socket.

LED indication patterns		
Color	Lamp status	Recharging status
No lit	 OFF	The power plug is inserted into the power socket.
Red	 Continuously Turned ON	The battery is being recharged.
Green	 Flashing	The battery has been recharged to a practically useable level (80%).
Green	 Continuously Turned ON	The battery has been fully recharged.
Orange	 Flashing	Waiting until it becomes ready for the recharging process (when the temperature of the lithium-ion battery is too high or low).
Red	 Flashing	Unable to recharge the lithium-ion battery (due to any abnormality with the battery, etc.).

Self-Protection function of the lithium-ion battery

The lithium-ion battery is equipped with a self-protection function to suspend the power output for the purpose of extending the life of the battery. If any of the following circumstances occurs when a Patmark series product is being used, the product could stop operating even when the switch is pressed down. However, this is simply a result of the self-protection function being turned on, and not a product malfunction.

1. The marking operation stops when the remaining power in the battery becomes low.

- In this case, please swiftly recharge the battery.

2. If the level of the load being put on the marking equipment becomes too high, it may stop working.

- In such case, let go of the switch for the time being, and remove the cause of the overload.

3. If the lithium-ion battery becomes overheated, the marking equipment may stop its working.

- In such case, stop using the lithium-ion battery and remove it from the marking equipment. Then, let the battery cool down to a sufficiently low temperature in a well-ventilated area where there is no direct sunlight, etc.

Long-term storage of the lithium-ion battery

When the lithium-ion battery is left sitting without being used for an extended period of time, it could cause over discharge that might lead to deterioration or some sort of technical issue. Therefore, be sure to recharge the battery at least once every six months from the time it was last recharged, using the specified battery charger, even when the product won't be used for a long period of time. Not following this precaution could cause an abnormality with the battery due to over discharge.

Recycling of lithium-ion batteries

Lithium-ion batteries are the type of battery that can be recycled. Therefore, if there are any lithium-ion batteries that are no longer in use, please bring them to the distributor.

Noise prevention regulations

There are various regulations on noise management in the form of laws and prefectural ordinances, etc. Be sure to use the product while keeping the level of the noise being emitted below the regulation threshold not to disturb people in the surrounding area. If the circumstances require it, consider putting up sound insulation walls around where the work is performed.

Replacement of lithium-ion batteries

When replacing an old lithium-ion battery with a new one, be sure to use the product that is specified by Tokyo Chokoku Marking Products. Using any other battery not specified by us (including use of a battery after unauthorized disassembly and modification) not only violates the warranty terms but also creates a condition where we are no longer able to offer any safety- or product-related warranty.

Lithium-ion battery and battery charger specifications

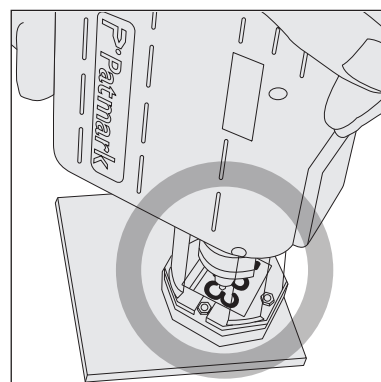
Lithium-ion battery	
Item name	BPL-2520A
Electrical specification	DC25.2V, 2.0Ah
Dimensions	76mm (3in) × 119mm (4.6in) × 64mm (2.5in)
Mass	450g (1lbs)
Recharge time	120 minutes
Protection function	Over-charge and over-discharge prevention function
Temperature range for product use	Recharge: 0°C (32° F) - 40°C(104°F) Discharge: -10°C(14°F) - 40°C(104°F)

Battery charger	
Item name	BC0075G
Input voltage specification	AC100-240V
Recharge current specification	2A *During rapid charge
Protection function	Over-charge prevention function
Operating function	Cooling fan, LED indicator (three colors, six-level operation mode)
Dimensions	200mm (7.8in) × 130mm (5.1in) × 84mm (3.3in)
Mass	945g (2lbs)
Temperature range for product use	0°C (32° F) - 40°C(104°F)



USING SYSTEM FOR PURPOSES OTHER THAN MARKING IS PROHIBITED

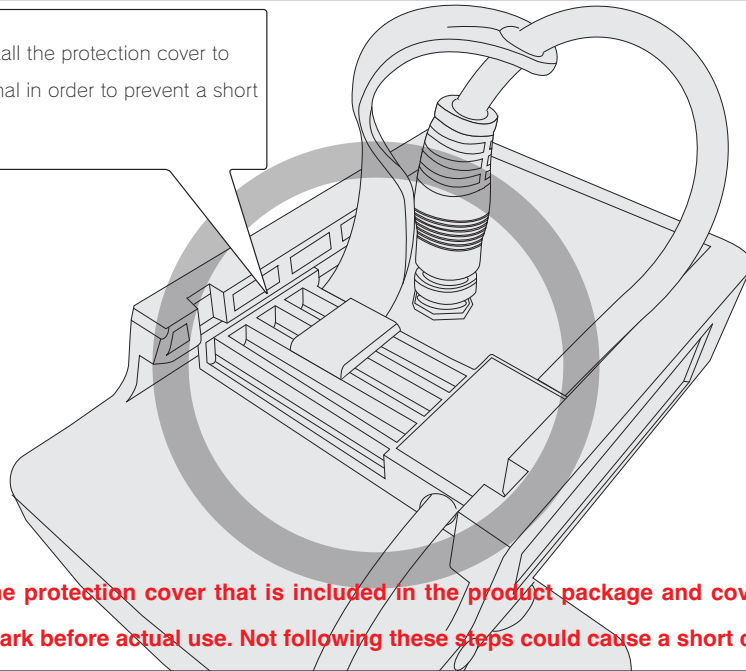
The Patmark series is a marking machine. Using the machine for purposes other than marking may result in unexpected accidents and injury, which will not be covered by the warranty.



HANDLE POWER WITH CARE – WHEN USE AC/DC ADAPTER

When you connect the AC adapter to the Patmark, please follow the proper sequence by which it should be connected. Otherwise, static charge could be created in the DC output plug of the AC adapter, potentially resulting in electric shock or weak injury. Also, make sure the adapter's plug does not touch metal parts other than the controller's power connector.

Make sure to install the protection cover to protect the terminal in order to prevent a short circuit.

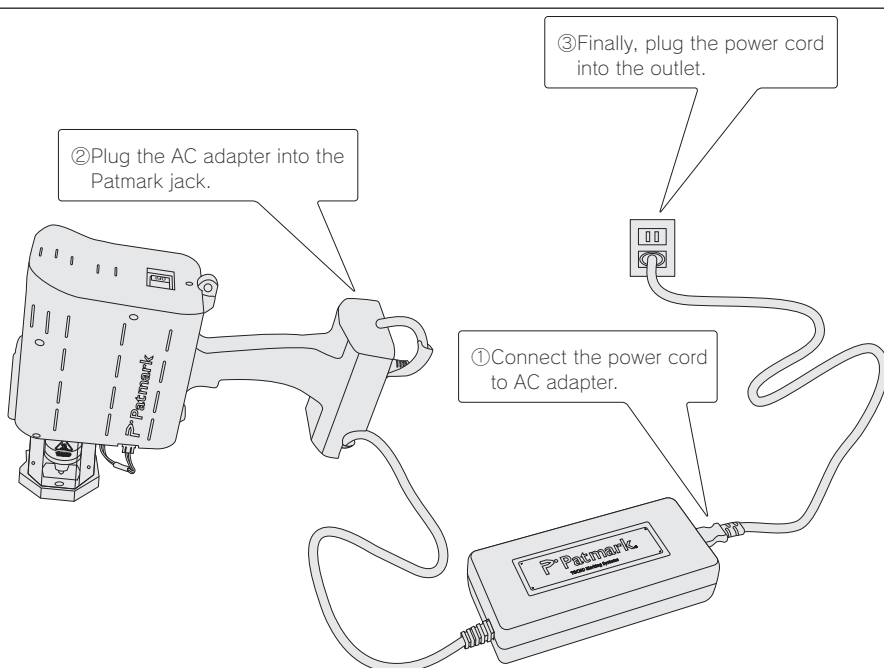


Be sure to put on the protection cover that is included in the product package and cover the terminal on the Patmark before actual use. Not following these steps could cause a short circuit.

② Plug the AC adapter into the Patmark jack.

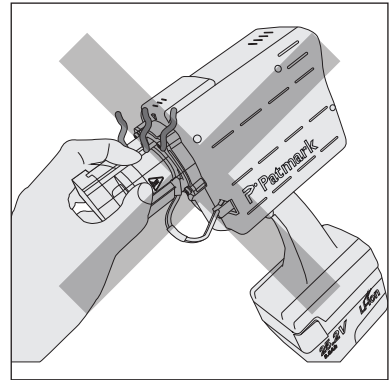
③ Finally, plug the power cord into the outlet.

① Connect the power cord to AC adapter.



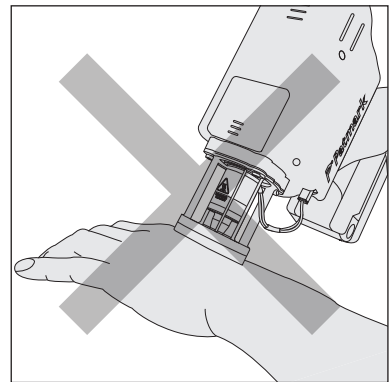
BEWARE OF HIGH TEMPERATURE

Prolonged continued use would heat up the solenoid. This will not affect the quality of marking. However, do not touch the area around the stylus pin or the solenoid with bare hands after continued use. In particular, refrain from using the system around small children.



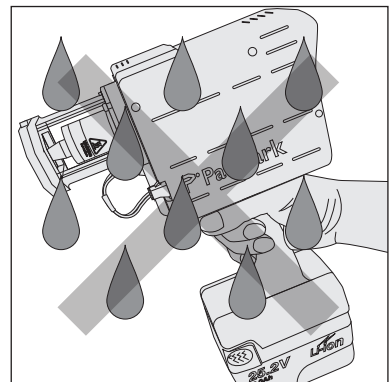
DO NOT PERFORM MARKING OPERATION ON A HUMAN OR ANIMAL

Performance of marking operation on any human or animal is strictly prohibited. Not obeying this rule would not only cause bodily harm but also could result in a critical condition. Especially avoid using and storing the product in a place that is accessible to small children.



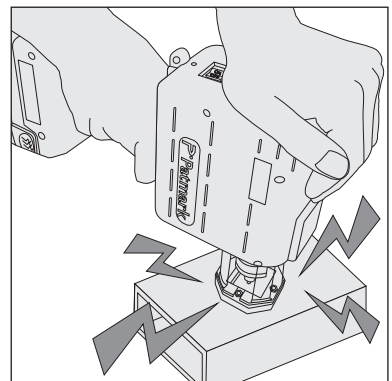
USING NEAR WATER IN A HUMID AREA IS PROHIBITED

To prevent fire, electric shock, and damage, do not use the system around water. Also, do not touch the system with wet hands. Patmark series is IP20 classification.



BEWARE OF LOUD NOISE

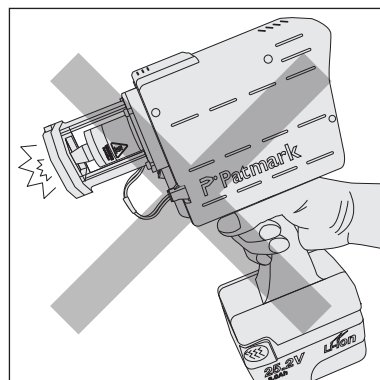
Loud noise will occur when the marking force is set high or depending on material properties and the shape of the workpiece especially thin and hollow ones such as pipes. Therefore, always wear an ear plug when operating the system.



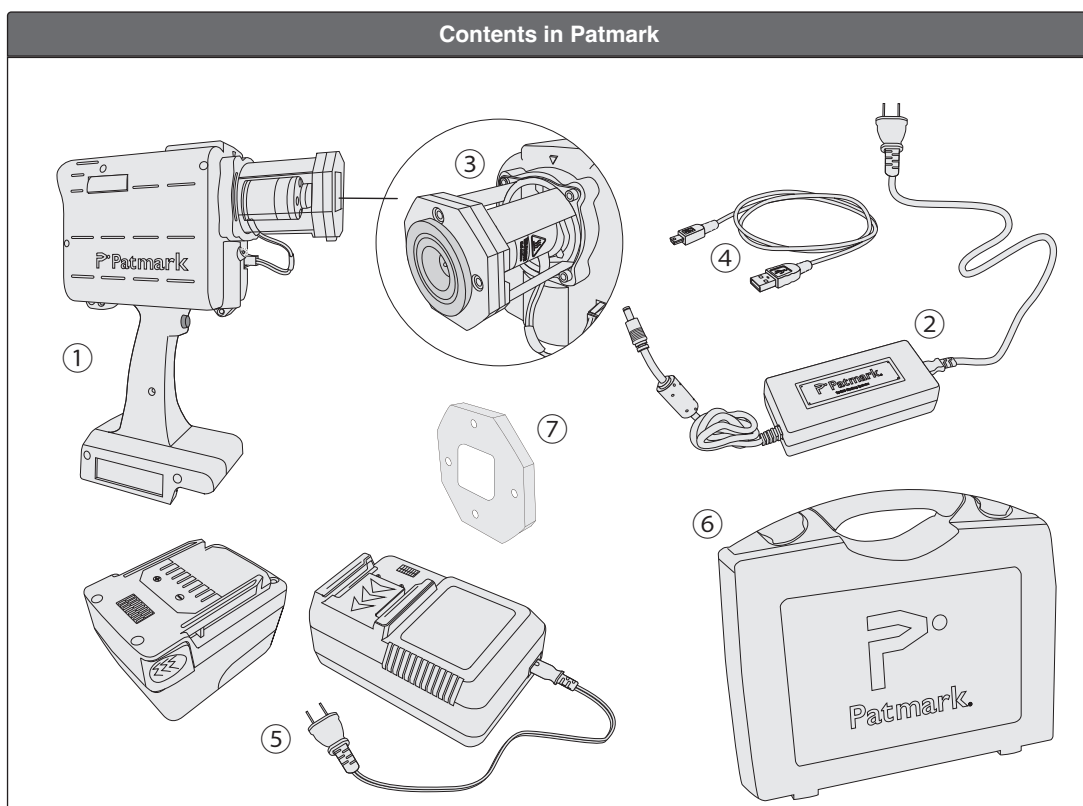


CHECK FOR WORKPIECE BEFORE MARKING

Do not conduct marking without a workpiece. Always set the workpiece so that the stylus pin touches the workpiece, including during the test run. Negligence could result in damage to the stylus pin.

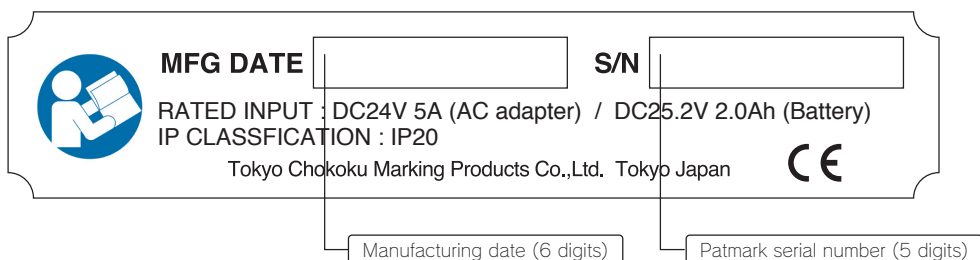


Contents in Patmark



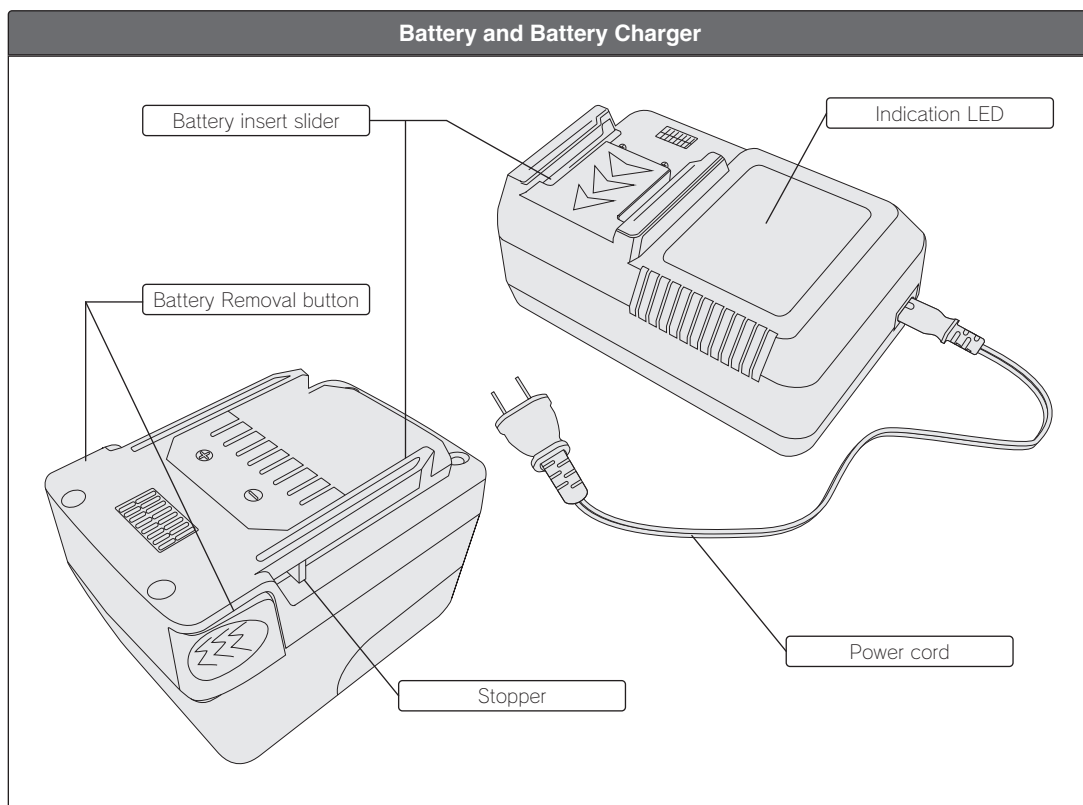
- ① Patmark marking head
- ② AC/DC adapter and Power cord
- ③ Centering tool (Patmark-mini only)
- ④ USB cable for option
- ⑤ Battery and Charger (Battery set only)
- ⑥ Carrying case (Patmark-mini only)
*Optional carry case for Patmark is available.
- ⑦ Spacer (Patmark-mini only)
Note : See the attached "Instructions for Deeper Marking Applications" for the spacer usage.

Indication on the name plate

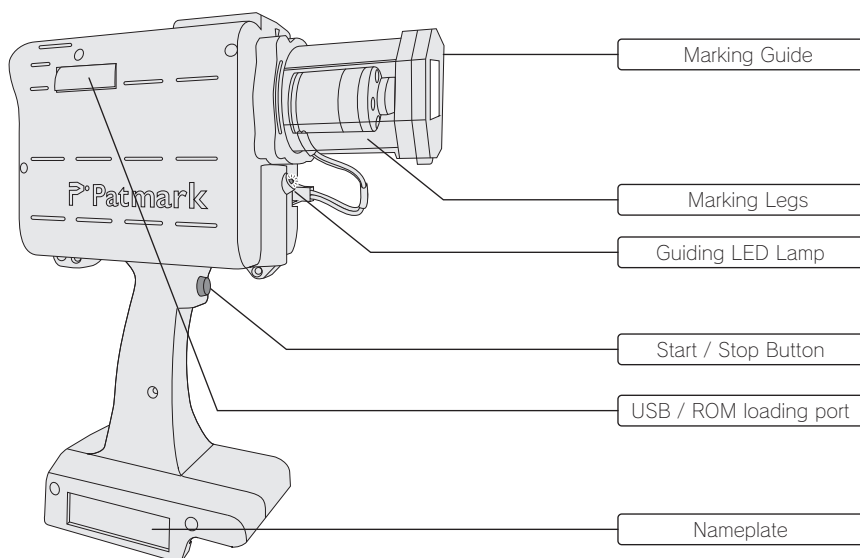


When the Patmark is turned ON, the serial number that is indicated on the name plate will be shown on the smartphone or tablet PC as WiFi SSID.

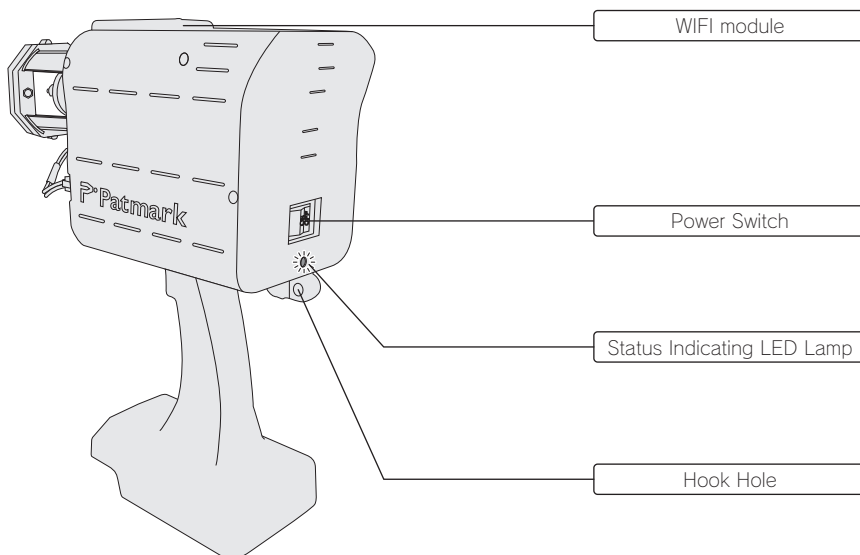
Names of various parts of the Patmark and lithium-ion battery

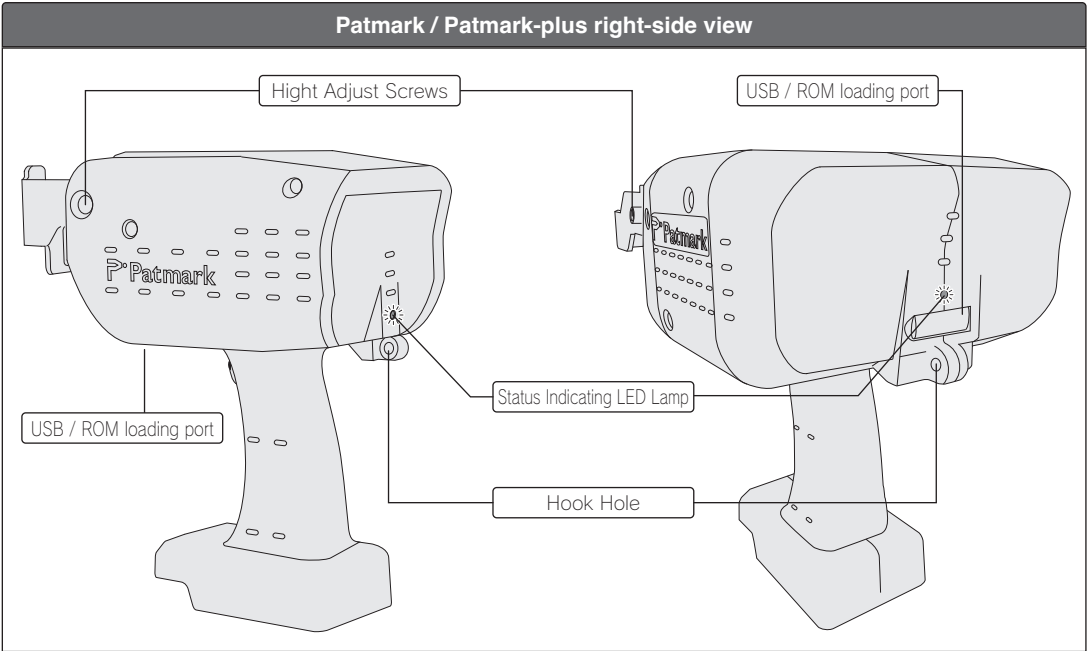
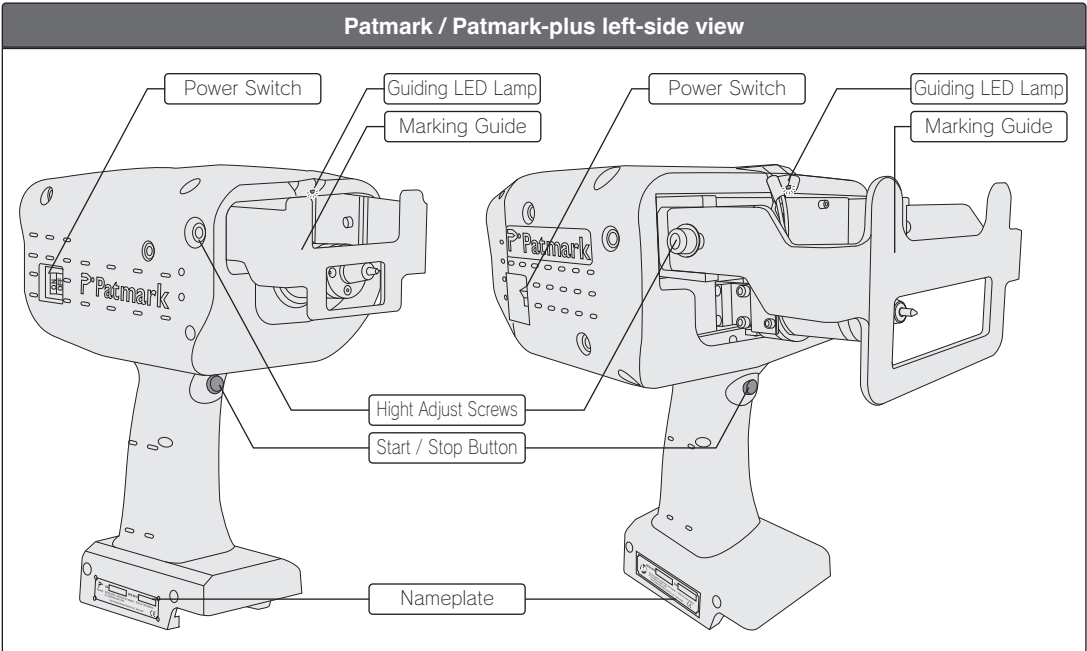


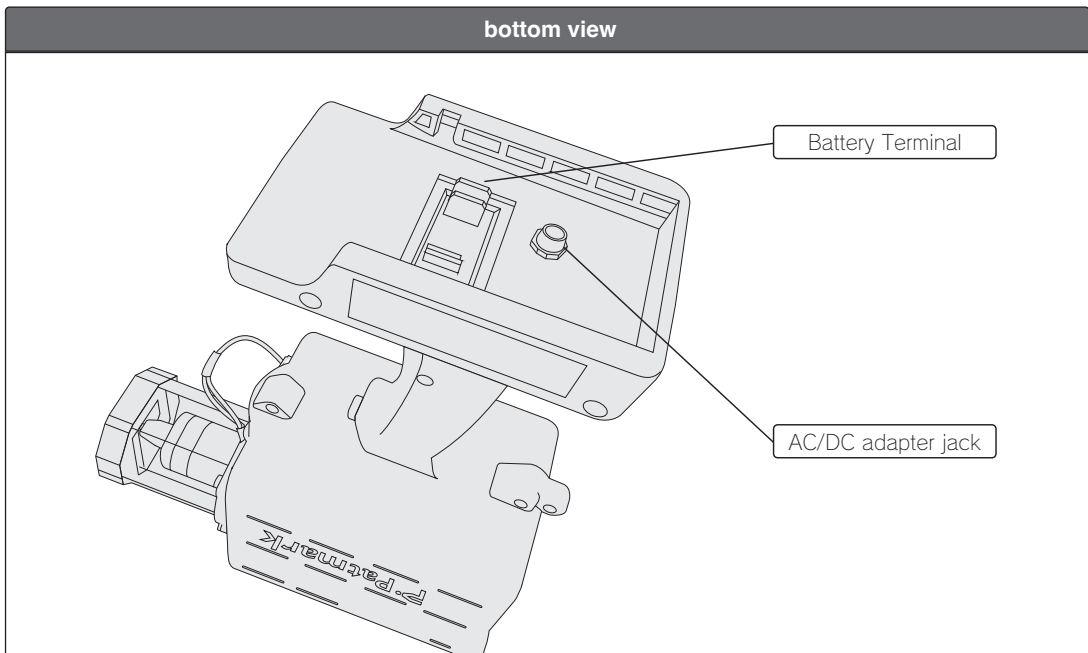
Patmark-mini left-side view



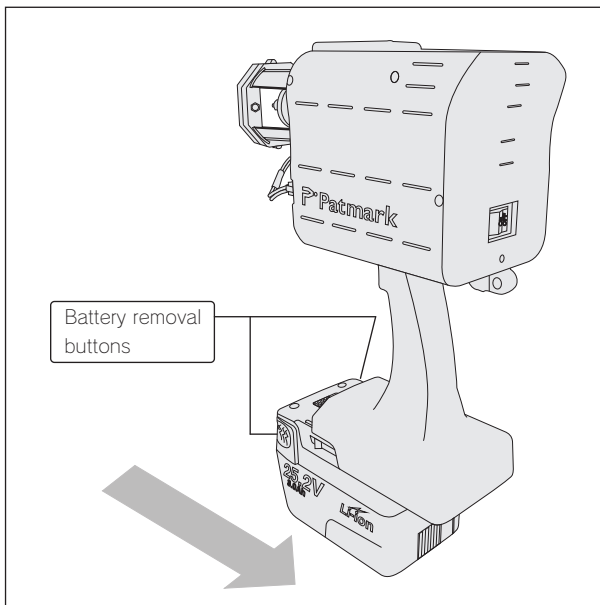
Patmark-mini right-side view







Procedure for installing and removing the lithium-ion battery



Installation procedure

Slide the battery all the way in until it makes a clicking sound.

Removal procedure

While pressing down the battery removal buttons, slide the battery out in the opposite direction to that in which the battery was initially installed.

Start button on marking head

Start	Push the start button once after sending marking data.
Pause	Push the start button once during marking.
Restart	Push the start button once during pause.
Cancel	Holding down the start button 3 seconds during pause.
Alarm Reset	Holding down the start button 3 seconds.

LED lamps for indicating the status of the Patmark

Color	Lamp status	Status
Blue	Continuously turned ON	Power is ON (on standby)
Blue	Flashing	Marking
Red/Green	Flashing alternatively	No font available / No marking data available
Red	Continuously turned ON	Setting error
Red	Flashing	X-axis origin return error
Green	Flashing	Y-axis origin return error
White	Flashing	WiFi communication error
Yellow	Flashing	Low battery

PM Win Software

Advanced settings can be made using PM Win Software. Please read the attached "PM Win Software guide" for more information.

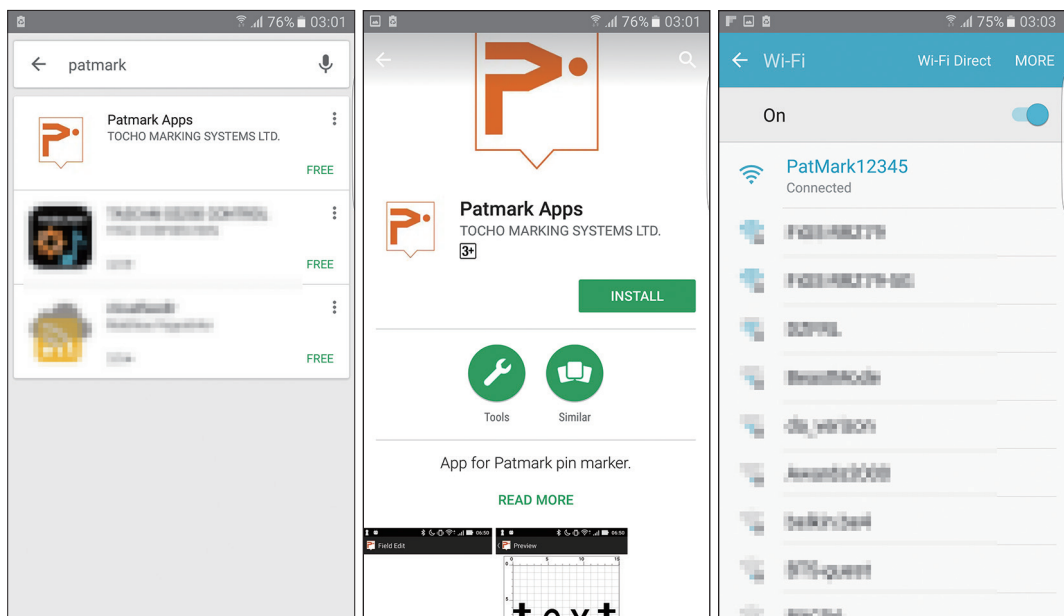
Installation of the app and establishment of the connection of the Patmark *Screenshots using Android device.



*The Patmark application software is available for download at Google Play and the App Store.

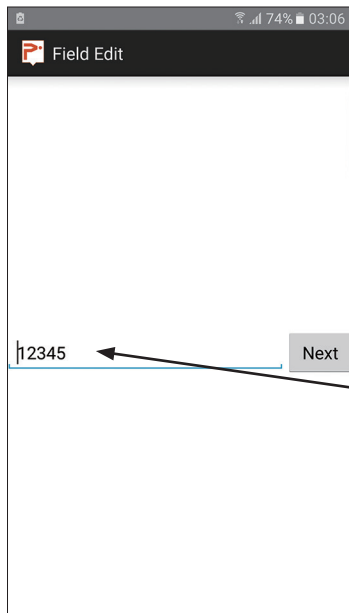
1. Install the right version of Patmark application software that is suitable for the smartphone or tablet to be used.
2. After the installation is completed, turn ON the Patmark unit.
3. Enter into the WiFi setting on the smartphone or tablet, search for the SSID of the Patmark, and connect to it.

The SSID is the serial number that is indicated on the name plate attached to the Patmark unit.

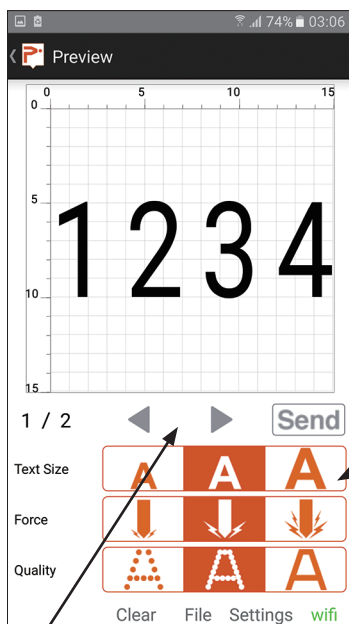


Explanation on the application software

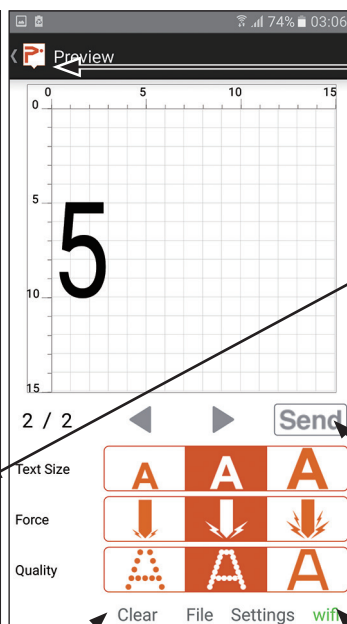
*Screenshots using Android device.




Enter the text data and click on the 'Next' button. The types of text that can be used for marking operation include the alphabets, numbers and various symbols.



If the entered data is longer than the marking area, press the left and right arrows to view the page showing the entire data.



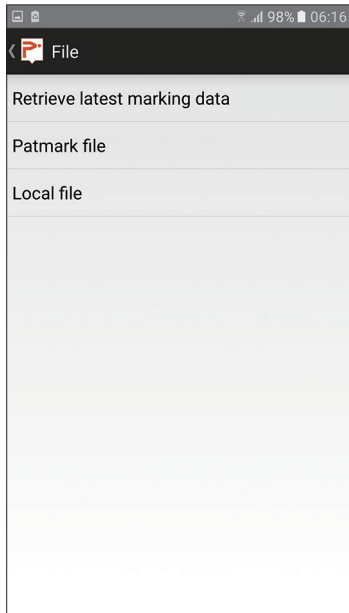
Pressing the 'Clear' button will delete the data being shown on the preview screen.

 Clicking this mark will show the previous page.

Select the settings on the font size, marking force, and quality (dot density).

After the settings have been entered, press 'Send' to transmit the marking data.

Check that "wifi" symbol turns green (connected). If the "wifi" symbol is orange, click on it to reconnect.



The following operations can be performed on the 'File' screen.

1. Retrieve the latest marking data

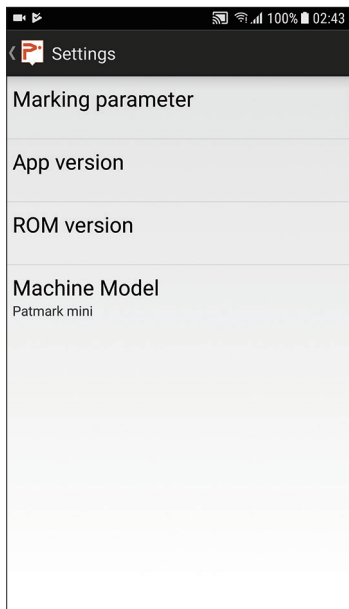
This will load the marking data currently being used from the Patmark.

2. Patmark file

This will allow you to 'Retrive,' 'Replace', 'Rename,' and 'Delete' any file being stored in the Patmark unit. However, once a file is saved in the Patmark, it can no longer be edited when the file is loaded again.

3. Local file

This will allow you to 'Retrive,' 'Replace', 'Rename,' and 'Delete' any file being stored in the smartphone or the tablet. Pressing the '+' button on the top right corner will save the selected file.



The following operations can be performed on the 'Settings' screen.

1. Marking parameters

Font size: Font size at three different levels of small, medium, and large can be set by choosing from available height options in mm.

Marking force: Marking force of weak, medium, or strong can be set on a scale of 0 (no marking force) to 9 (strongest).

Quality: Font quality at three different levels of low, medium, and high (dot density) can be set on a scale of 1 (low) to 9 (high).

2. App software version

This will show the version of the application software currently installed.

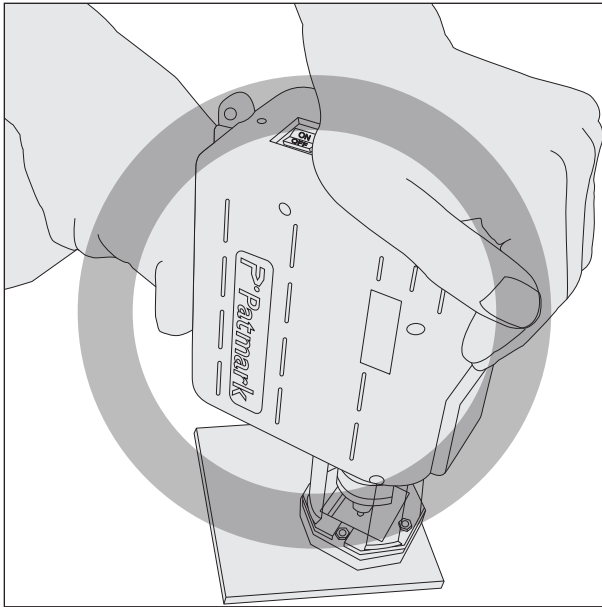
3. ROM firmware version

This will show the version of the ROM firmware currently Installed in Patmark.

4. Machine Model

Choose a machine model at the beginning.

Procedure for performing marking operation using the Patmark



As shown in the figure on the left, make sure to hold the equipment **using both hands**, click on the 'Start/Stop' button once, and let go of the button. While the marking operation is being performed, tightly hold onto the equipment with both hands and do not let go.

Maintenance and inspection



When conducting maintenance, inspection and parts replacement, switch off the Patmark and remove the plug from the power socket without fail.

1. Inspection of tightening screws

Check for any loose screws. Retighten if there is any looseness.

2. Care after use

Wipe away any oil and grease stains and keep in a good condition for use. Wipe main unit with a dry cloth. Do not use gasoline, thinner or petroleum for cleaning, otherwise the main unit could be damaged. Concerning maintenance around pins and pin holders, refer to the "maintenance manual".

3. Storage after work

Store in a dry place away from high temperatures and high humidity. Do not store within reach of children or where there is a risk of falling.

Concerning overseas use of products purchased in Japan

We have prescribed the following regulations concerning cases where our products that have been purchased in Japan are used overseas. We would appreciate your understanding upon confirming these contents in advance.

1. Issue or failure occurring in a product purchased in Japan will be handled inside Japan.

Please send it to our support via the dealer of purchase. If this occurs within one year of purchase, we will handle the problem free of charge, however, please understand that you will be charged for transportation, customs or other incidental expenses, even if the warranty period is still in effect.

2. Following repair, we will send the product back to the place of purchase in Japan.

Please understand that we do not make overseas deliveries.

3. If you wish to receive repair or other support from an overseas local agent due to circumstances, please understand that this will be charged, even if it is within the warranty period.

4. If you are using the product in a country that does not have a local agent of our company, problems can only be handled inside Japan. Please send it to our support via the dealer of purchase.

If this occurs within one year of purchase, we will handle the problem free of charge, however, please understand that you will be charged for transportation, customs or other incidental expenses, even if the warranty period is still in effect.

5. Overseas local agents are sometimes subject to revision without prior notice. Please either confirm on our company's website or inquire at our sales department in advance.

Appendix 1: Distance between the stylus pin and the workpiece

The distance between the stylus pin and the workpiece will vary according to the material properties of the workpiece and the marking force. Always do a trial marking run and use the proper settings (marking force and distance).

		Distance pin and workparts(mm)							
		~	0.5	1.0	2.0	3.0	4.0	5.0	6.0
Force	1	○	○	△	△	×	×	×	×
	2	△	△	○	○	○	△	×	×
	3	△	△	○	◎	◎	○	△	△
	4	△	△	○	◎	◎	◎	○	○
	5	△	△	○	◎	◎	◎	◎	○
	6	△	△	○	◎	◎	◎	◎	○
	7	△	△	○	◎	◎	◎	◎	◎
	8	△	△	○	○	◎	◎	◎	◎
	9	△	△	○	○	◎	◎	◎	◎

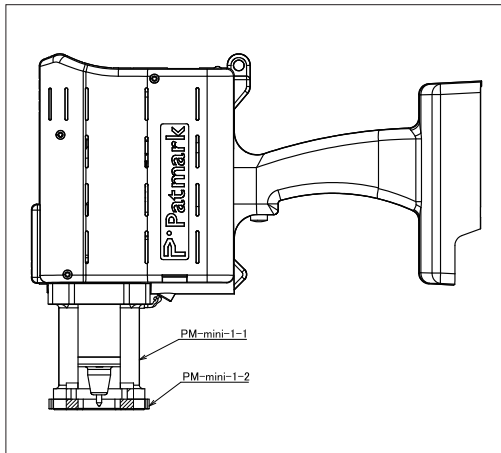
*The above is set quality 5.

* ◎ :recommended, ○ :acceptable, △ :acceptable but not recommend, × : can not mark

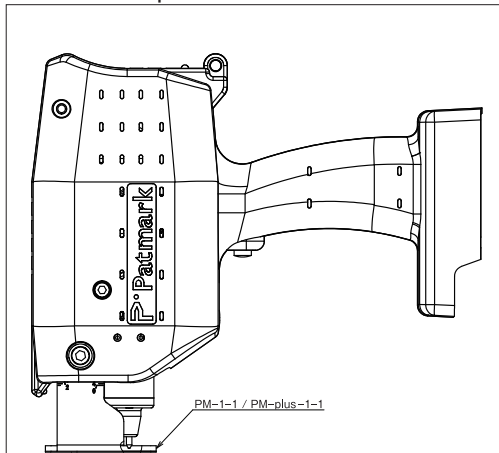
Appendix 2: Spare parts list

Please change the following consumption parts when you got some quality problems.

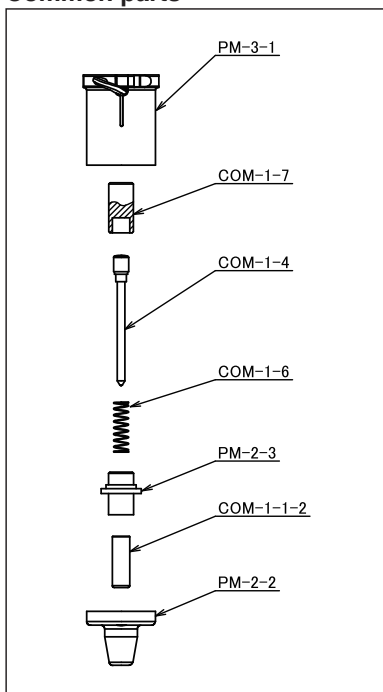
Patmark-mini



Patmark / Patmark-plus



Common parts



No.	Patmark-mini	Patmark Patmark-plus
PM-2-2	Pin Holder	
COM-1-1-2	Socket Bush	
PM-2-3	Pin Guide	
COM-1-6	Spring	
COM-1-4	Stylus Pin	
COM-1-7	Hammer	
PM-3-1	Solenoid Assy	
PM-mini-1-1	Marking Legs	
PM-mini-1-2	Marking Guide (standard)	
PM-1-1 PM-plus-1-1		Marking Guide

Appendix 3: Specifications

Patmark unit information				
		Patmark-mini	Patmark	Patmark-plus
Marking area		15mm x 15mm (0.6" x 0.6")	33mm x 15mm (1.3" x 0.6")	80mm x 20mm (3.1" x 0.8")
Power	AC adapter	Input : AC100V-240V, 50/60Hz Output : DV24V 5A		
	Battery	*DC25.2V 2.0Ah		
	Battery charger	Input AC100V - 240V 50/60Hz		
Weight	When use AC adapter	1.4kg (3lbs)	2.3kg (4.9lbs)	3kg (6.6lbs)
	When use Battery *attached 25.2V	2.0kg (4.4lbs)	2.9kg (6.4lbs)	3.5kg (7.8lbs)
Dimensions	When use AC adapter	89.2mm x 202.6mm x 256mm (3.5" x 8" x 10")	124mm x 221mm x 250mm (4.9" x 8.7" x 9.9")	182mm x 254mm x 250mm (7.2" x 10" x 9.9")
	When use Battery *attached 25.2V	89.2mm x 202.6mm x 304.9mm (3.5" x 8" x 12")	124mm x 221mm x 298.4mm (4.9" x 8.7" x 11.7")	182mm x 254mm x 298.4mm (7.2" x 10" x 11.7")
Vibration mesurement		Less than 2.5m/s2		
Software	iOS, Android app	WIFI connectivity		
	PM Win software	WIFI, USB connectivity		
Workparts products	Material	Metal (availavle up to HRC62), Plastic, Paper, Wood products		

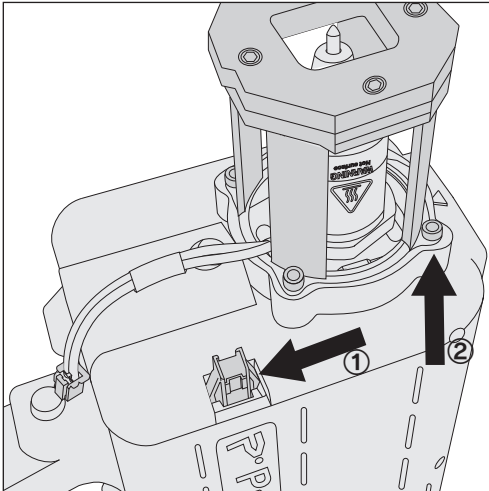
*The lithium-ion battery are subject to change without notice at the discretion of the battery manufacturer.

App and PM Win Software information				
		Patmark-mini	Patmark	Patmark-plus
Text height	app	0.5 - 15mm *0.5mm pitch		0.5 - 20mm *0.5mm pitch
	PM Win Software	0.1 - 15mm *0.1mm pitch		0.5 - 20mm *0.1mm pitch
Fonts		Alphanumeric, Symbols		
2D code	PM Win Software only	Data Matrix, QR code (upto 80 bytes)		
Logo	PM Win Software only	Browse and trace JPEG, BMP on Logo Editor		
	PM Win Software only	Aumatic DXF converter		
Multiple lines	app	Single line only		
	PM Win Software	Available multiple lines within marking area		
Serial number	PM Win Software only	0001 - 9999		
Auto date	PM Win Software only	Year, Month, Day, Hour, Minute, Second, Julian date		

Appendix 4: Maintenance Manual

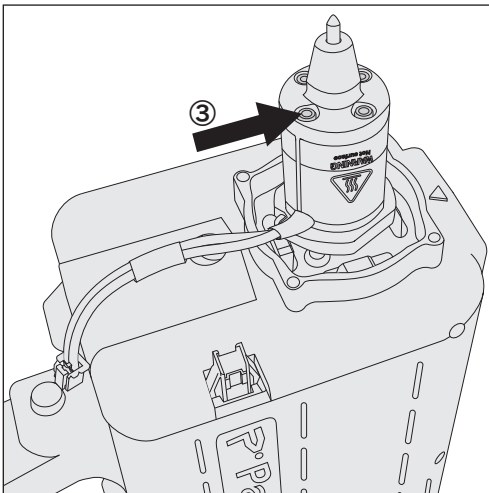
1. Replace the Stylus Pin and Pin Holder

This procedure below guides Patmark-mini. Follow the same procedures for Patmark as well.



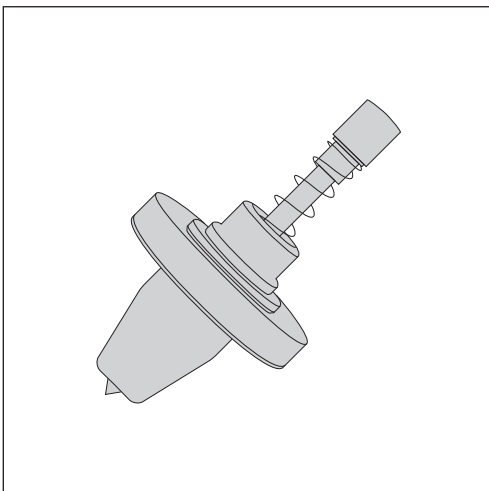
1. Remove the solenoid connector off.
2. Unscrew the 4 cap screws M3-8 out of the Marking Legs (PM-4-1) then remove the Marking Legs.

*Please pay attention not drop the cap screws down inside the Patmark.

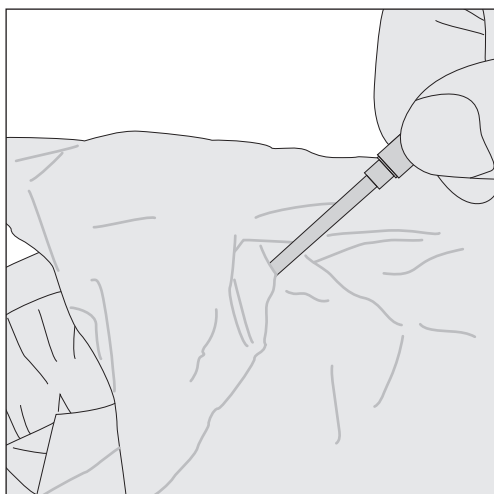


3. Unscrew the 4 cap screws with washer M2.5-5 out of the Pin Holder (PM-2-2) then take the Pin Holder out.

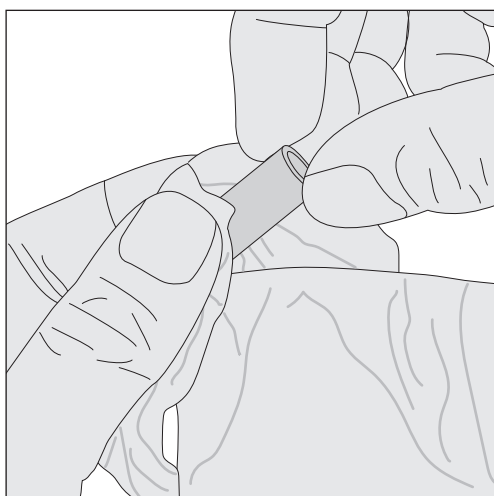
*Please pay attention not drop the cap screws down inside the Patmark.



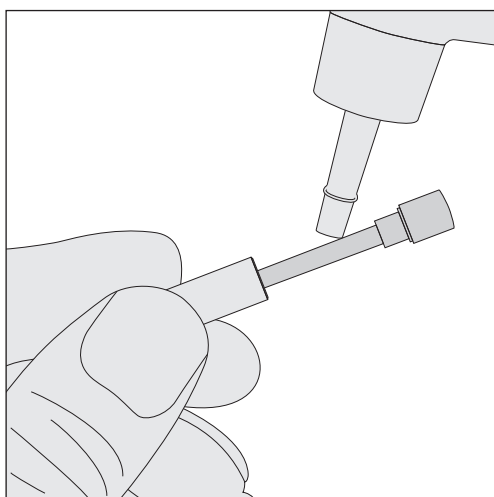
4. Take out the below items from the Pin Holder.
 - Stylus Pin (COM-1-4)
 - Spring (COM-1-6)
 - Pin Guide (PM-2-3)
 - Socket Bush (COM-1-1-2)



5. Clean up the Stylus Pin by wiping dust away with cloth.

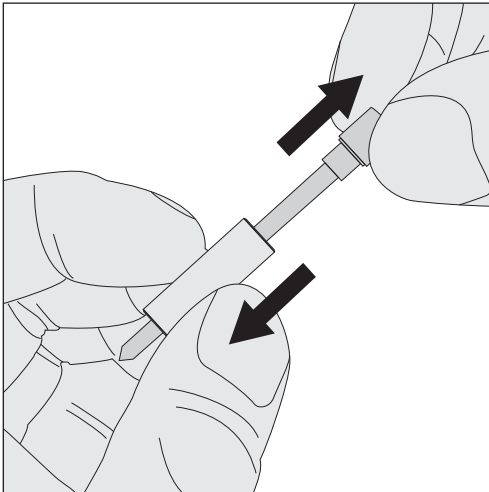


6. Take the Hammer (COM-1-7) out from the Solenoid Assy (PM-3-1) then clean it up by wiping dust away with cloth.

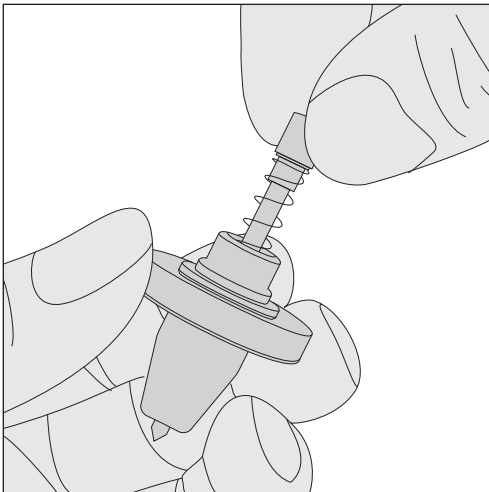


7. Apply the lubricating oil a bit around the Stylus Pin then insert it into the Socket Bush.

Lubricating oil (Spindle oil) type
: ISO VG22



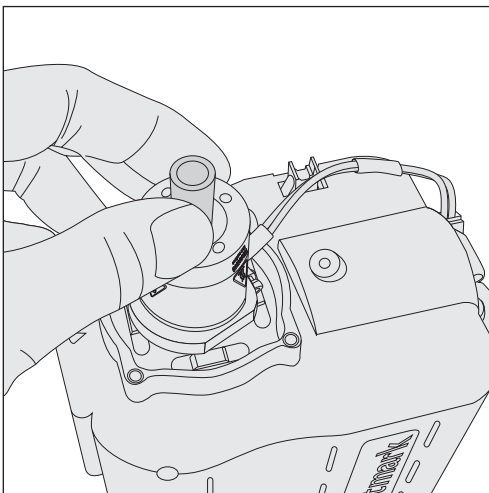
8. Move the Stylus Pin up and down to lubricate whole the part.



9. Assemble the Socket Bush, Pin Guide into the Pin Holder then insert the Stylus Pin and Spring.

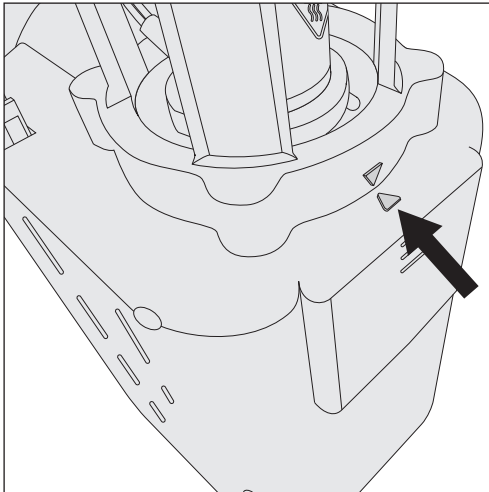
*No insert direction for the Socket Bush

*Insert longer side of the Pin Guide down into the Pin Holder.



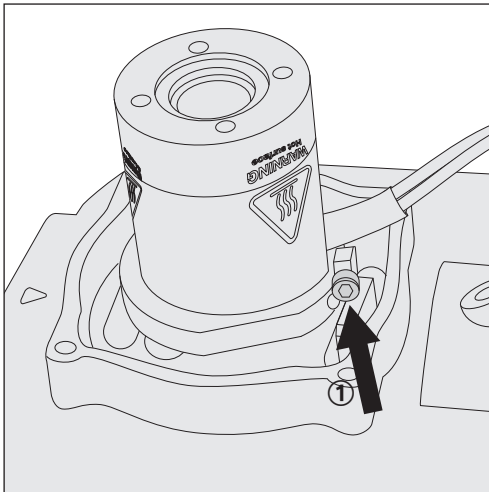
10. Insert the Hammer into the Solenoid Assy with caution its direction.

*Concave side up.



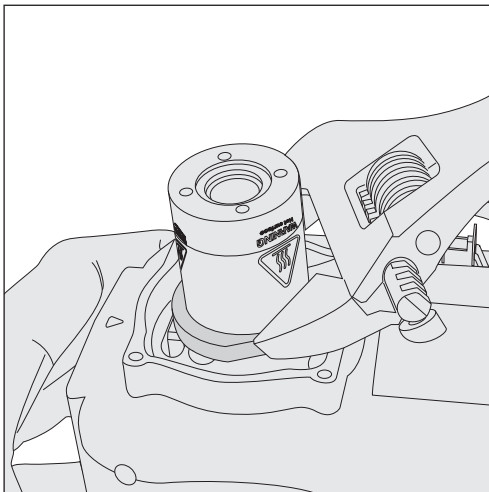
11. Assemble the Pin Holder with the Solenoid Assy then assemble the Marking Legs with caution to meet their triangles each other.

2. Maintenance and replace for Solenoid Assy



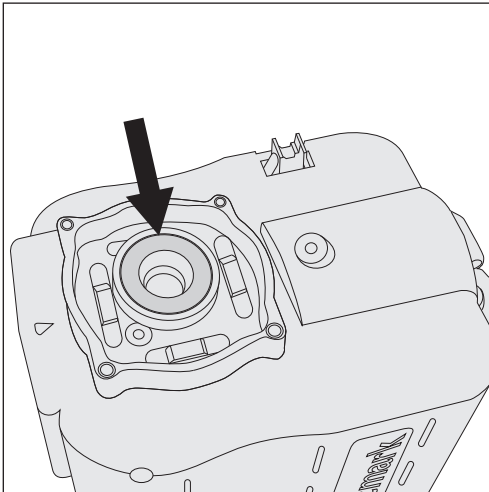
1. Untighten a cap screw M2.5-10 at the bottom location.

*Do not take the screw out.

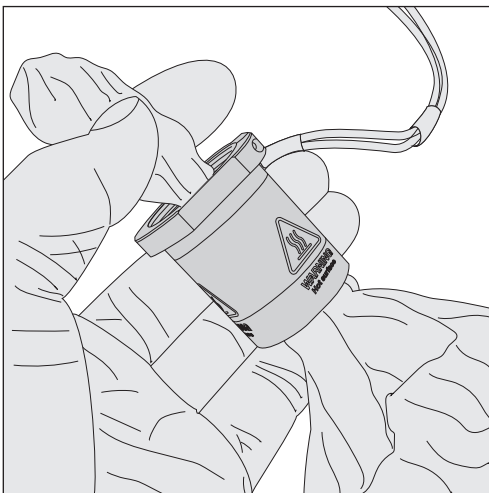
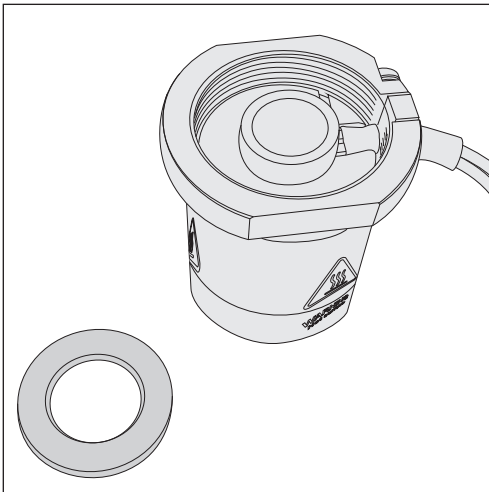


2. Turn the Solenoid Assy to CCW direction then take it out.

*If it is hard turn by hand at the beginning, use a wrench then turn it out by hand.



3. A washer is placing on the Patmark. Be aware to lose it.



4. Clean up the inside of the Solenoid Assy by using cloth. After cleaning it up, place the Washer then assemble the Solenoid Assy by turning it toward CW by hand. Lastly tighten it up by using the wrench then tighten the cap screw up at the bottom.

Warranty

1. If the unit fails while in normal use according to the manual or service manual, etc., free repairs will be provided during warranty period. Please request repair at your distributor of purchase.
2. Repairs will be charged in the following cases, even if they occur during the warranty period:
 - Failure and damage arising from wrong usage, remodeling or improper repair
 - Dropping after purchase or failure and damage arising during transportation
 - Failure and damage arising from fire, earthquake, flooding, lightning strike, other natural disasters, abnormal voltage and so on
 - Replacement of consumption parts (See appendix 2 Spare Parts List)

Warranty Period	1 year	Model	
Ship date		S/N Marking Head	

Inquire about items inquiry

Please contact our distributor if you have inquiry for operation and malfunction.

Manufacturer information:

Company : Tocho Marking Systems, Inc..

Address : 87-378 Ro Yachimata Yachimata Chiba Japan 289-1144

Tel : +8143-308-4301 Fax : +8143-308-4302

URL : <https://www.tokyo-chokoku.co.jp>