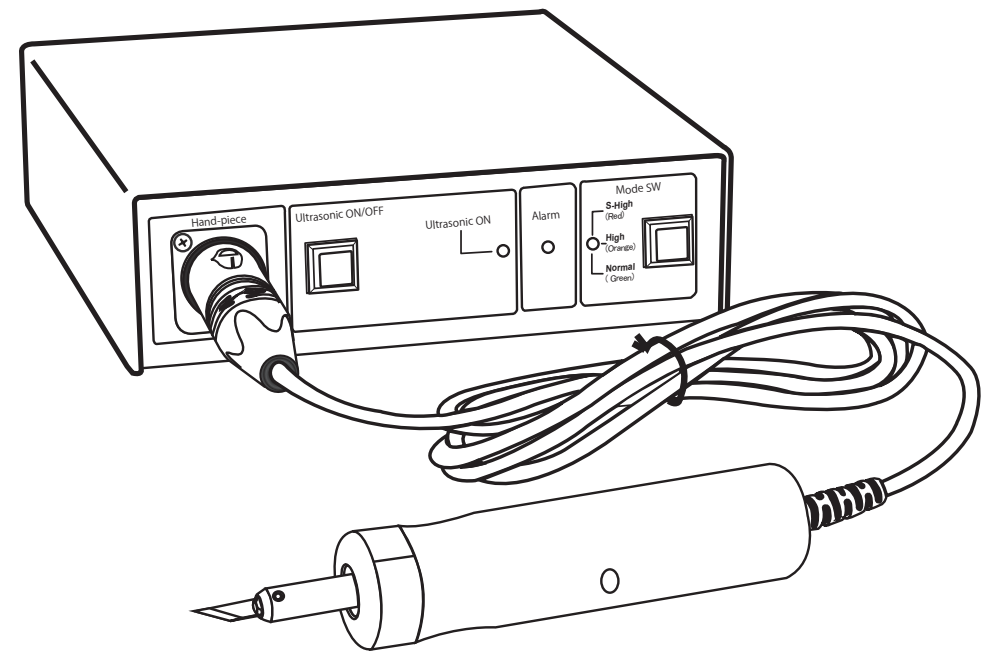


User Guide

(Included instruction for safety use)

ZD-95

Hobby use Ultrasonic cutter



<General sales agent>

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MADE IN JAPAN

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Safety precautions

Thank you very much for purchasing our Ultrasonic cutter. Before you use, please read this "Safety precautions" page and use the device properly. After you read, please keep this manual at the place where users could read anytime.

Please conform the points listed below to prevent electric shock, ignition, malfunction, health injury and damage to real property.

- If abnormalities such as odor or smoke emission occurs, disconnect the plug immediately.
- Do not allow child to use, and keep or use the device at the place where child or infant could touch.
- Never use at the environments listed below.
 - Place where corrosive gas and dust generates.
 - Place where vibration and impact happens frequently, and not flat.
 - Place where is getting wet , moist, high temperature.
- Do not use near or upon electric device and heat sources.
- Do not use the device when the plug's insertion has loosened. Also, do not stick dust or water on plug.
- Do not bend, pull, twist, bundle, place heavy matter on the cables. Do not use the damaged cable.
- Do not put, wash, pour the water to the unit.
- Do not use the power other than 100 VAC, 50 or 60 Hz. Do not share the outlet with any other device and do not use AC adaptor except attached one.
- When you equip or remove the blade, unplug the power cord from outlet.
- Before you use, check the blade whether it has equipped properly.
- Do not use the blade except specified blade.
- Do not use near precision instruments or cardiac pacemaker.

- When you disconnect a plug, do not hold a cable and please disconnect a plug straightly.
- Never touch the blade under any circumstances while the main unit is operating.
- Do not look closely at the blade or point it at other persons while the main unit is operating.
- Do not get close your eyes to the blade, or to people during it is operating.
- Please set on the flat table or floor for using.
Please set on the place where main body will not fall, even if you pull the cable.
- Do not make processing on the energized devices or cables.
- When you move a main unit, turn OFF the power, and remove the blade or put blade protector on.
- Do not make processing on the materials with Ultrasonic Cutter, which may generates toxic substances.
- Do not touch anything with blade, except working material.
- If abnormalities such as odor or smoke emission occurs, disconnect the plug immediately and do not keep in somewhere.
- Do not apply too much power to cut work material.
(Reference: Approx. 50N or more)
- Please switch the mode switch button, when the unit is standby.
- When you leave from work space, not using, or keep in somewhere, be sure to disconnect the plug from outlet.
- Do not give shock to the device.
- Do not disassemble the device except trained repair engineer.
- Do not put any foreign matters into openings and/or spaces of the device.
- Do not spray on the product or accessories, or wipe with alcohol such as organic solvent.
- Please dispose the old used blade, conform to the rules determined by each municipality.

Specifications

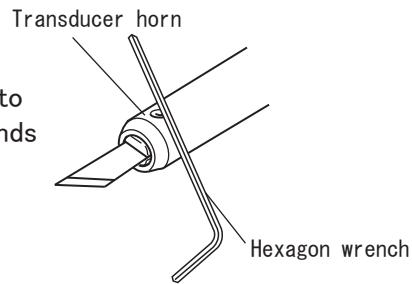
Product name & Model number	Ultrasonic cutter ZO-95
Oscillation frequency	40kHz
Power Source	AC adapter INPUT : 100-240 VAC 50/60Hz OUTPUT : 12 VDC
Max. power consumption	Max. 110VA
Ambient temperature	Temperature: 10 to 35 °C (No condensation)
External dimensions	Main unit (Generator): 185mm × 169mm × 55mm Hand-piece: φ28 × 150mm (including the blade)
Hand-piece cable	1.6m (straight cable)
Weight	Main unit (Generator): Approx. 1.2kg Hand-piece: Approx. 350g (including the hand-piece cable)

The product specification and appearance are subject to change without notice.

How to check the transducer horn vibration

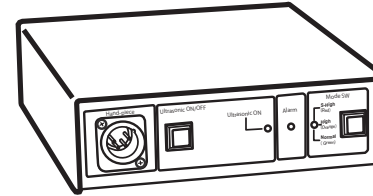
1 Contact the hexagon wrench to a side of horn like a picture, and push the output switch. Please operate shorter than 2 seconds.

2 If you feel vibration transmits from horn to hexagon wrench, or hexagon wrench sounds or moves, it is the normal state.

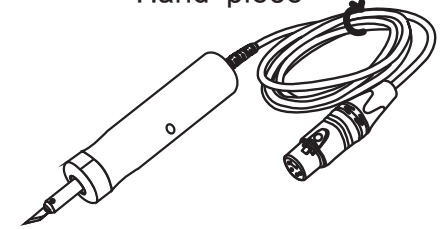


Main parts

Main unit



Hand-piece



- User Guide (1 book)
- AC adaptor (1 pce.)
- Power cord (1 pce.)
- BDC-200P(40 pcs. per pack)
- Blade fixing screw (3 pcs.) [HB03]
- Blade fixture (1 pce.) [ZH04]
- Hexagon wrench (1 pce.) [RR02]
- Edge protector (1 pce.) [ZH805]

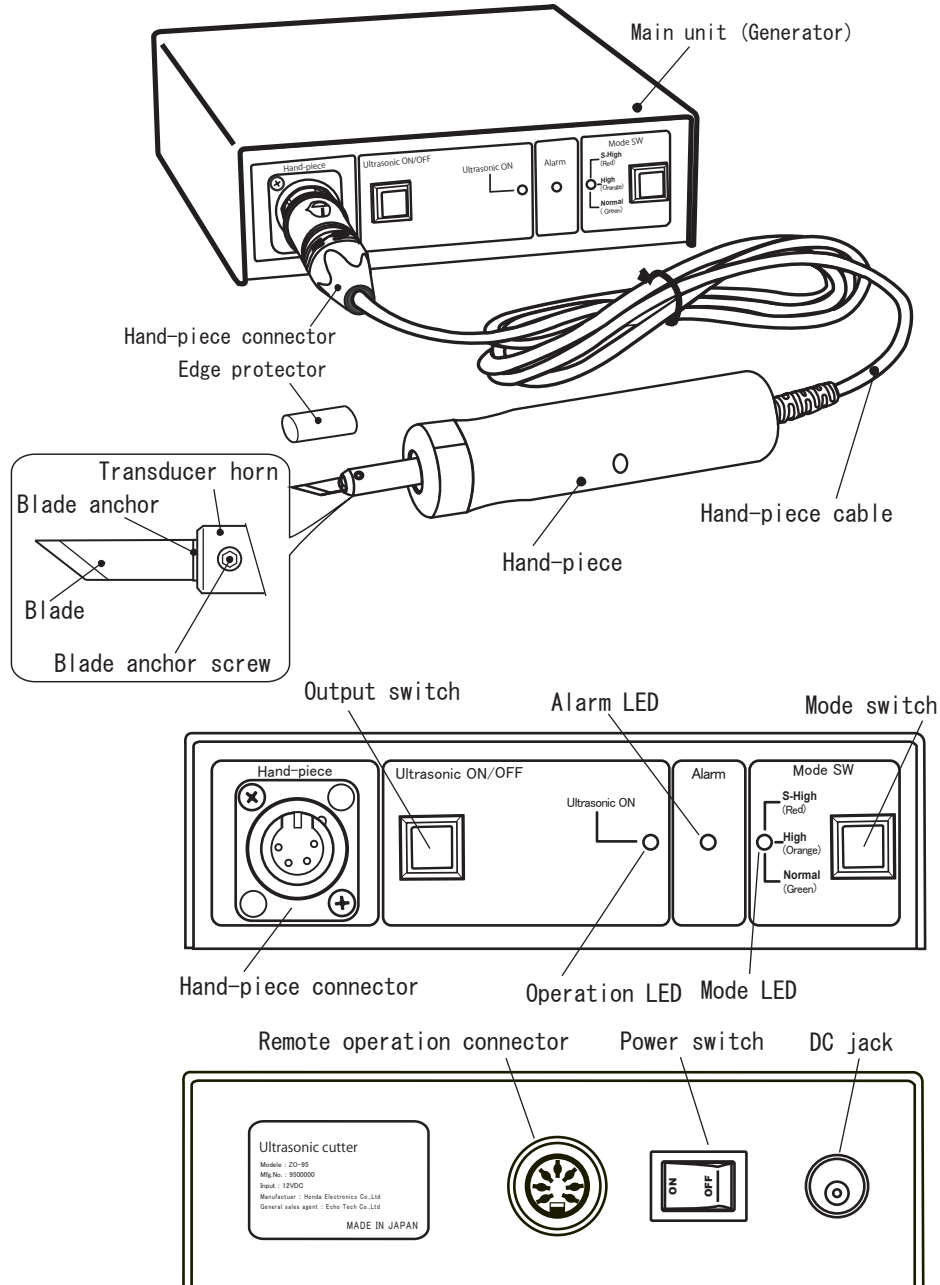
Do not use the blade which has a hole, because it breaks very easily.



Optional items

- (A) Maintenance set [SB01]
 - (Cleaning bar (1 piece)
 - (Abrasive paper for the cleaning bar (3 pcs.))
- (B) Abrasive paper for the cleaning bar (3 pcs.) [SB02]
- (C) Cutting mat (1 pce. : 150x200x3mm) [CM02]
- (D) Foot switch[ZH801]
- (E) Torque screwdriver[ZH25T]
- (F) Carrying case[ZH804]

Names of parts



Before requesting the repair

Before you request for a repair, please check the following points.

Symptom	Item to be checked	Referring page
Unable to turn ON the device.	<ul style="list-style-type: none"> ● Is the power plug connected to the outlet? ● Is it correctly connected to AC100V power source? ● Is the AC adapter connected correctly? ● Is the specified AC adapter have used for the device? ● Is the hand-piece connected to the main device? 	P9
Blade doesn't vibrate even though pressing output switch.	<ul style="list-style-type: none"> ● Is the Power switch turned on? ● Is the transducer horn vibrating? ● Is the blade and the blade anchor fixed tightly? ● Is there are contamination, deformation, damage on the Blade, Blade anchor or in inside the transducer horn? ● Is the power applied on hand piece too much? ● Is the Output switch pressed for long time? ● Is the Alarm LED blinking? ● Is the Operation LED blinking? 	P4~8, P9 P13, P14
Abnormal noise have sounds from the hand-piece.	<ul style="list-style-type: none"> ● Is the blade and the blade anchor fixed tightly? ● Is the blade got bend or broken? ● Is there are contamination, deformation, damage on the blade, Blade anchor or in inside the transducer horn? ● Is the specified blade equipped on hand piece? 	P5~8, P12
Hand-piece get heat up.	<ul style="list-style-type: none"> ● Is the product used for a prolonged time? ● Did the S-High or High mode have use for a prolonged time? ● Is the power applied on hand piece too much? ● Is the blade and the blade anchor fixed tightly? ● Is there are contamination, deformation, damage on the Blade, Blade anchor, Blade anchor screw, or in inside the transducer horn? 	P5~8, P9 P12

Majority of device malfunctions is caused by contamination on the blade or blade anchor. Before you request for repair, check the blade, blade anchor and blade anchor screw whether it is tightened within proper torque level.

The maintenance will be charged fee, even if it was the period of warranty.
 ※Blade and blade anchor is consumable parts, if you find abnormalities even though you had maintenance, please replace the parts.

If you could not solve the device problem processed all instructions above, please make contact to the shop or company, which you purchased.

Daily maintenance

Transducer horn maintenance

- If the transducer horn is not cleaned enough, the following symptoms might occur.
 - Hand-piece heats up easily.
 - ✘ The temperature inside of hand-piece raises speedily, and the unit will shift to Stopped state.
 - Cutting performance get worse.
 - ✘ Transducer horn is an important parts, fixing blade and transducer.
Contamination, discoloration, etc. makes hardly transmit ultrasonic vibration to the blade.
 - Abnormal noise
 - ✘ Due to the contamination, discoloration, etc., the ultrasonic vibration will be unstable and generates abnormal noise.
- When the device is on operation, Blade anchor and Blade anchor screw may generates the contamination, or will be wear.
When you find contamination on parts, or it got wear, please replace it.

About the maintenance

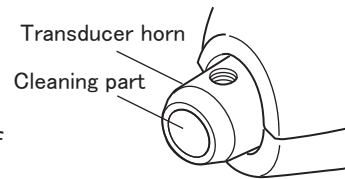
1. Before you do maintenance, please disconnect the power cord from outlet.
2. Make sure that the device is turned OFF.
3. Remove the contamination from the inside of transducer horn by Maintenance set [SB01].

Do not clean the other parts except transducer horn with any organic solvent like alcohol.

Do not do whole washing the main unit and the hand-piece.

Do not attach any contamination or scratch in inside of slit of blade anchor or hole for the blade anchor.

It may cause the abnormal vibration or malfunction of blade anchor.



4. Rub away the contamination inside of transducer horn with cotton swab.

Before use

Cautions for operating

- Hobby used Ultrasonic cutter cut very sharply than normal cutter.
Please pay attention for handling.

Blade and blade anchor

- ① If the blade or blade anchor doesn't fixed properly, ultrasonic vibration will not be transmit to the horn.
 - ✘ Before you use a device, make sure the parts has been fixed properly.
- ② The contamination on the blade, blade anchor, and inside of horn may leads overheat, odor, and damage.
 - ✘ Before you use, check if there are contamination on parts.
If you find contamination, please remove before you use the device.

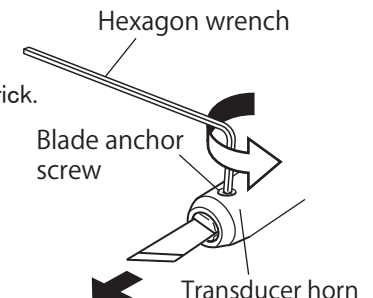
Replacement of blade

Unplug the power plug from outlet, when you equip or remove blade, or doing maintenance.

- 1 Make sure that the device is turned OFF.
- 2 Loosen the blade anchor screw on the transducer horn (metallic part at the edge of hand-piece), with accessory hexagon wrench and remove the blade.

Handle the blade with care to avoid the incisura or prick.

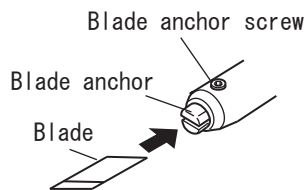
After using the device, the blade, blade anchor, blade anchor screw and transducer horn are heated up.
Take extra care to avoid burn yourself.



3 Direct blade's under part same as right figure, and insert to the slit on anchor.

Pay attention to the directions of the tip and under part of blade.

Please use the specified blade. If any unspecified blade has been used, the blade will not vibrate correctly and it may lead very dangerous situation, such as device malfunction or blade defect.



Do not use the blade with a hole.

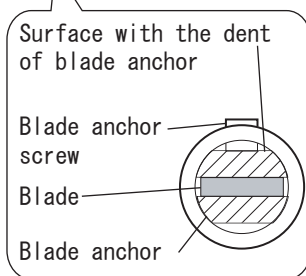
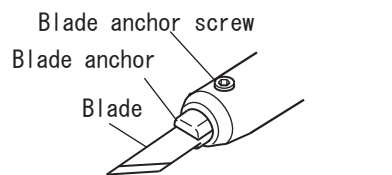


4 Set in same direction the blade anchor's dent and hole that blade anchor screw will be set.

5 Confirm the blade and blade anchor, whether it has inserted properly, and tighten the blade anchor screw with accessory hexagon wrench.

Confirm the blade anchor screw, whether it has tightened up. (The torque level is around $0.6\text{N}\cdot\text{m}$)

If the blade anchor screw get loosen, the blade may fall out from transducer horn, and it may leads accident. It may also leads worse of sharpness, or malfunction.

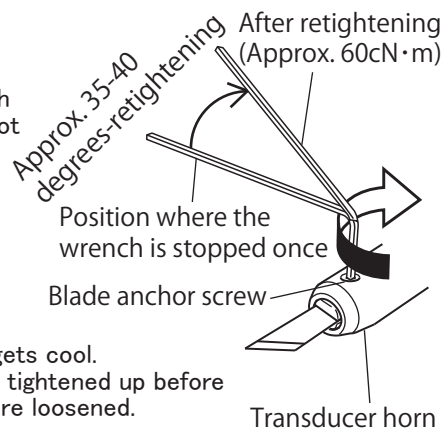


Replace the blade anchor screw to the new one, when the hole on the screw has stripped.

Replace the hexagon wrench if the edge of wrench is abraded away and the blade anchor screw cannot be tightened up.

Please ask for repair, if the blade anchor screw cannot be remove.

If the blade anchor screw has replaced when the transducer horn is heated up, the blade anchor screw might be loosen after the transducer horn gets cool. Please confirm whether the blade anchor screw is tightened up before using, and tighten up if the blade anchor screw were loosened.



How to operate the device

1 Start operation

- Under Stand-by state, press Output switch once to start operation.
- ✳ During the operation, both Operation LED and Mode LED will lights up.

2 Stop operation

- During the operation, press Output switch once to stop operation and the unit will shift to Stand-by state.

- If approx. 10 min passes after the operation has started, operation will stops and the unit will shift to Stand-by mode.

※The major cause of shifting to Abnormal state is, because the of blade anchor screw were not tightened, or doing maintenance enough.

Check “Blade replacement” page and ”Blade anchor screw replacement” page, and tighten again.

Check “Maaintenance” page and do maintenance.

■ No connection of hand-piece

No LED lights up if the main unit is turned on when the hand-piece is not connected to the main unit.

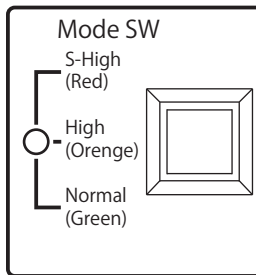
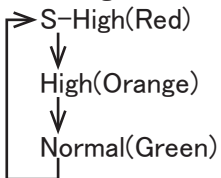
※If the hand-piece is connected to the main unit under this state, the main unit cannot be operated at all.

※Turn off by Power switch once and turn on by Power switch again after the hand-piece is connected to the main unit to restore to Stand-by state.

Turn off by Power switch once and turn on by Power switch again to restore to Stand-by state.

Mode explanation

To change the output mode, press Mode switch.



■ Normal mode
Mode of using normally.

■ High mode

Cutting power of High mode is larger than that of Normal mode.

If there is difficulty of cutting work materials by Normal mode, switch to High mode from Normal mode.

But because the temperature inside of hand-piece raises earlier with High mode than Normal mode, the unit moves to Stopping state by the high temperature in a shorter time (approx. 5 min).

Operation with High mode for a prolonged time or continuously could result in deterioration and malfunction of transducer.

■ S-High mode

Cutting power of S-High mode has been enhanced from High mode.

For S-High mode, temperature inside the hand-piece raises speedily than High mode, the unit will shifts to Stopped state by detecting high temperature within shorter time.(approx. 3 min).

Operation with S-High mode for a prolonged time or countinuos use might be a cause of transducer deterioration or malfunction.

Replacement of blade anchor

Replace the blade anchor to the new one, when the shape of blade anchor get deformed, the blade gets dull, any abnormal noises has sounds from the tip of blade.

Unplug the power plug when you equip or remove blade, or doing maintenance.

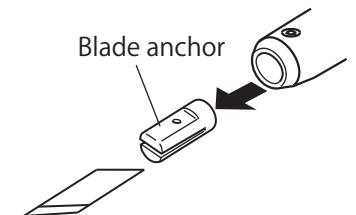
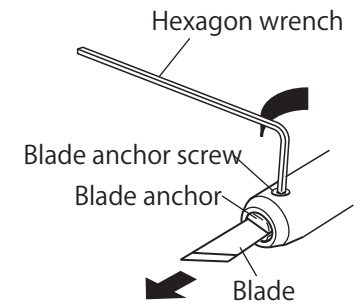
1 Make sure that “Power switch” is turned OFF.

2 Loosen the blade anchor screw with the hexagon wrench and unfix the blade anchor and blade from transducer horn and blade anchor.

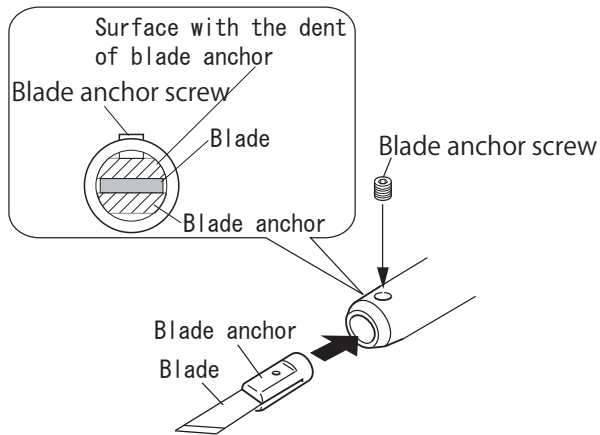
Handle the blade with care to avoid injuring yourself.

The blade, blade anchor, blade anchor screw and transducer horn get very hot after using the product.

Please take extra care to avoid from burn yourself.



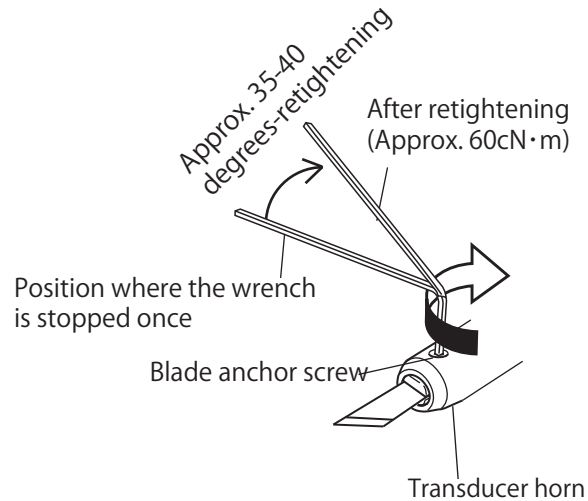
- 3 Set new blade anchor, correspond the place of dent and screw hole on transducer horn.



- 4 Confirm whether the blade and blade anchor has been inserted properly, and tighten the blade anchor screw with accessory hexagon wrench.

Make sure the blade anchor screw has been tightened. (The tighten torque level is around $60\text{cN}\cdot\text{m}$)

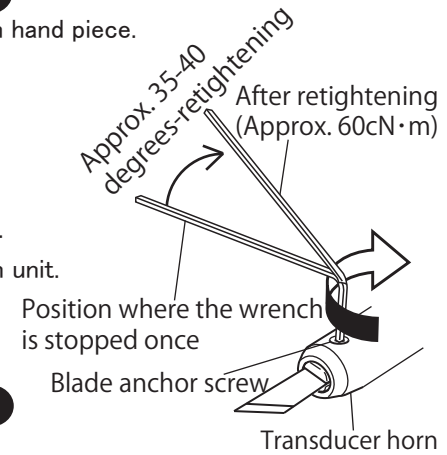
If the blade anchor screw has been loosened, it may lead accident. Also, it may lead decline of sharpness, or malfunction.



How to use

Preparation

- 1 Check whether blade has properly equipped on hand piece.
- 2 Make tighten the blade anchor screw again.
Sometimes the screw get loosen.
- 3 Connect the power cord to AC adaptor.
- 4 Connect the power cord to outlet.
- 5 Connect the AC adaptor cord to the main unit.
- 6 Connect the hand piece connector to the main unit.
- 7 Turn ON the main unit power.
※Mode LED (Green) will light up.



Status explanation

- Stand-by state
State of main unit has turned ON, and only the Mode LED has lighted up.
- Operating state
State of transducer has vibrating.
※Operation LED and Mode LED has lighted up.
- Stopped state detecting high temperature
State of protective function works, due to high temperature inside the activated hand-piece.
※Only Alarm LED lights up.
※In this state, any control by any switch will be denied.
※After detects temperature declining on the hand piece, it will shift to a Stand-by mode.
- Abnormal state
State of the protective function works, due to the unit get overloaded.
※Only Alarm LED blinks.
※In this state, any control by any switch will be denied and the unit will not be restore automatically.
※Turn OFF by pushing Power switch once and turn ON by pushing Power switch again to restore to Stand-by mode.
※Cause of shifting to Abnormal state
 - Blade anchor screw get loosened.
 - Maintenance were not done enough.
 - Cut work material applying too much power.
 - Hand-piece deterioration