

UBX-AF series

Cordless Transducerised Hydraulic Impulse Tools

Instruction Manual

(Version 2.0)



-Read all safety warnings, instructions illustrations and specifications provided with this power tool before installing, operating, repairing, maintaining, changing accessories on or working near the power tool. *Failure to follow all instructions in this manual may result in electric shock, fire and/or serious bodily injury.*

-Do not discard the safety and operating instructions. *Pass these instructions onto the personnel in charge of installation, operation and service. Keep these instructions in an easily accessible place for future reference.*



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Contents

| | |
|--|-----|
| © Safety Instructions | P1 |
| Symbol Identification..... | P5 |
| 1. Product Description & Features | |
| 1.1 Introduction..... | P6 |
| 1.2 Intended Use..... | P6 |
| 1.3 Features..... | P6 |
| 1.4 What's In The Box..... | P7 |
| 1.5 Installation..... | P7 |
| 1.5.1 Place To Install..... | P7 |
| 1.5.2 Workstation Requirements..... | P7 |
| 1.6 Li-Ion Batteries & Charger..... | P8 |
| 1.6.1 Battery Packs..... | P8 |
| 1.6.2 Battery Charger..... | P8 |
| 1.6.3 Attaching And Removing Battery Pack..... | P9 |
| 1.6.4 Battery Life Cycle..... | P9 |
| 2. System Layout | P10 |
| 3. Components & Function | |
| 3.1 Tool Appearance..... | P12 |
| 3.2 Technical Specifications..... | P13 |
| 3.2.1 Tool Technical Specifications..... | P13 |
| 3.2.2 ZigBee Specifications..... | P13 |
| 4. Operation | |
| 4.1 Socket..... | P14 |
| 4.2 Direction Of Rotation..... | P14 |
| 4.3 LED Work Light..... | P14 |
| 4.4 Torque Setting..... | P14 |
| 4.5 Preparation For Operation..... | P14 |
| 5. Attention For Operation | |
| 5.1 Factors Affecting Fastening Torque..... | P15 |
| 5.2 General Instructions For Use..... | P15 |
| 5.3 Cooling Ventilator..... | P16 |
| 5.4 Overheating Protection..... | P16 |
| 5.5 After Daily Use..... | P16 |
| © Maintenance Instructions | P17 |
| Exploded View..... | P18 |
| Parts List..... | P19 |
| 6. Trouble Shooting | P20 |
| © EC Declarations of Conformity | P22 |
| 7. Transportation | P22 |


Safety Instructions



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

( CAUTION can lead to serious result depending upon situation.)

• Identification of the Symbols in this Instruction Manual



Wear eye protection.



Wear protective mask.



Wear protective, slip-resistant footwear.



Wear hard hat.



Wear protective gloves.



Wear ear protection.

General Safety



- This power tool is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given supervision or instruction concerning use of the product by a person responsible for their safety.
- Do not modify power tools. Modifications can reduce the effectiveness of safety measures and increase the risks to the operator.
- Stop using power tools if discomfort, tingling feeling or pain occurs.

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, gases or dust.** *Power tools create sparks which may ignite the dust or fumes. Proceed with care in unfamiliar surroundings. Hidden hazards may exist.*
- **Keep children, bystanders and visitors away while operating a power tool and charging a battery.** *Distraction can cause you to lose control.*
- **Always secure workpiece.** *Use clamps or other practical way to secure and support the workpiece to a stable platform. Holding the workpiece by hand or against your body is unstable and may lead to loss of control.*

Electrical Safety



- **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.*

Personal Safety



- **Stay alert, watch what you are doing and use common sense when operating the power tool. Do not use any 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 personal protective equipment. Always wear eye protection. Protective equipment as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries. Always wear impact-resistant eye protection during the operation of the tool. The grade of protection required should be assessed for each use. Ensure that the workpiece is securely fixed.**



- **Wear suitable gloves to protect hands against hazards such as crushing, impacts, cuts and abrasions and heat. Do not wear loose fitting gloves or gloves with cut or frayed fingers. When using gloves, always be sure that the gloves will not prevent the throttle mechanism from being released.**

- **Prevent unintentional or inadvertent starting. Ensure that the trigger is in the off-position before attaching battery pack, picking up or carrying the power tool. Carry a power tool only by the handle. Carrying power tools with your finger on the trigger or energising power tools that have the trigger on invites accidents. Hold the tool correctly: be ready to counteract normal or sudden movements – have both hands available.**
- **Remove any adjusting wrench before turning the power tool on. A wrench 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 times. This enables better control of the power tool in unexpected situations. Avoid awkward or off-balanced postures. Change the posture during extended tasks, which may help to avoid discomfort and fatigue. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensation or stiffness, the operator should tell the employer and consult a qualified health professional immediately.**
- **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewellery, neck ware or long hair can be caught in moving parts.**
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.**
- **Do not let familiarity gained from frequent use of power tools allow you to become complacent and ignore tool safety principles. A careless action can cause severe injury within a fraction of a second.**

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. Overwork applications can cause not only smoke or fire from the motor but also anvil breakage, resulting in injuries.**

Power Tool Use and Care



- 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 trigger is dangerous and must be repaired.*
- Detach 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 instructions to operate the power tool. *Power tools are dangerous in the hands of untrained users.*
- Maintain power tools and accessories. 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.*
- 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.*
- Keep handles and grasping surfaces dry, clean and free from oil and grease. *Slippery handles and grasping surfaces do not allow for safe handling and control of the power tool in unexpected situations.*
- Hold the power tool by insulated gripping surfaces, when performing an operation where the fastener may contact hidden wiring. *Fasteners contacting 'live' wire may make exposed metal parts of the power tool 'live' and could give the operator an electric shock.*

Power Tool Use and Care



- Unless otherwise required, do not make idle running at free speed.
- When disposal, handle as industrial waste (Recycle Separation : PP-GF30).



- Do not leave the tool, battery and charger inside a vehicle or in places where the temperature may exceed 40°C.
- Do not place the tool as shown on the left figure. Supporting the tool only on the two points may damage the battery casing. It is recommended to use a URYU genuine tool holder to keep the tool at workplace.

Battery Tool Use and Care



- Recharge only with the charger specified by the manufacturer. *A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.*
- Use power tools only with specifically designated battery packs. *Use of any other battery packs may create a risk of injury and fire.*

Battery Tool Use and Care



- **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects that can make a connection from one terminal to another.** *Shorting the battery terminals together may cause burns or a fire.*
- **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, seek medical help. Liquid ejected from the battery may cause irritation or burns.**
- **Do not use a battery pack that appears modified, damaged, deformed or discoloured or the one that has any rust on its casing, overheats, emits a foul odour, smokes, fires or explodes.** *Damaged or modified batteries may exhibit unpredictable behaviour resulting in fire, explosion or risk of injury.*
- **Do not expose a battery pack or tool to fire or excessive temperature.** *Exposure to fire or temperature above 130°C may cause explosion.*
- **Follow all charging instructions and do not charge the battery pack outside the temperature range specified in the instructions.** *Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.*



- *Keep the battery and charger dry and away from water or any liquid as it may cause a short circuit.*
- *Do not attempt to solder anything to the battery. It will dissolve insulations, destroy the gas exhaust valve or the protection circuit.*

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.*
- **Never service damaged battery packs.** *Service of battery packs should only be performed by the manufacturer or authorized service providers.*

Residual Risks



- *Gloves can become entangled with the rotating drive, causing severed or broken fingers. Rotating drive sockets and drive extensions can easily entangle rubber coated or metal reinforced gloves.*
- *Additional residual risks may arise when using the tool which may not be included in the safety warnings. These risks can arise from misuse, prolonged use and so on. Even with the application of the relevant safety regulations and the implementation of safety devices, certain residual risks cannot be avoided. (e.g. injuries caused when changing any parts or accessories)*
- *Please also observe the relevant national industrial safety regulations.*

Workplace Noise and Vibration Risk Management



Follow the instructions of workplace managers and occupational health and safety rules. Carry out risk assessment and implement appropriate controls for noise and vibration at work place.

Noise



Unprotected exposure to high noise levels can cause permanent, disabling, hearing loss and problems such as tinnitus (ringing, buzzing, whistling or humming in the ears).

- Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations. Look after your hearing protection.

Vibration

Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms. If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the power tool, tell the employer and consult a physician immediately.

- Hold the power tool with a light but safe grip taking account of the required hand reaction forces. The risk from vibration is generally greater when the grip force is higher.
- Wear warm clothing when working in cold conditions and keep your hands warm and dry.

Disclaimer

- The contents of this instruction manual are subject to change without prior notice.

Original instructions are in English. Other languages are translation of the original instructions.

Symbol Identification



Direct Current



Do not use the product before you have thoroughly read and completely understood this instruction manual.



Indicates that the product is covered by the European Parliament and the Council Directive, 2012/19/EU (4 July 2012) on waste electrical and electronic equipment. Do not dispose of this product with household waste material.

The product should be sorted separately for environmentally friendly recycling.



Confirms the conformity of the product with the directives of the European Community. (See P.16 for EC Declaration of Conformity.)

1. Product Description & Features

1.1 Introduction

Congratulations on your selection of the new generation of URYU cordless transducerised hydraulic impulse tool, UBX-AF. Taking environmental issue into consideration, UBX-AF series adopt electricity (battery) as the drive power source. UBX-AF tool has an electric motor driving a hydraulic impulse mechanism for tightening and loosening threaded fasteners. UBX-AF tool fitted with the new pulse mechanism and high-power electric motor improves operator comfort (low noise, low vibration and low torque reaction) and energy efficiency.

1.2 Intended Use

- UBX-AF tool is intended for driving in and loosening nuts and bolts as well as for tightening and loosening nuts within the respective range of dimension.
- The tool is intended for professional use only.
- Avoid misuse and abuse of the tool. (e.g. Do not throw the tool on the floor, strike the housing in any way or use the tool as a hammer to knock material into place.)

1.3 Features

1) High Productivity / Low Noise / Low Vibration / Low Torque Reaction

Hydraulic impulse mechanism provides quick tightening with low noise, low vibration and low torque reaction.

- **Vibration total value** : < 2.5m/s²
- **Sound pressure level** : < 73dB

2) Battery-Powered ⇒ Cordless ⇒ Flexible

UBX-AF tool provides you with flexible production line build and layout change.

3) ZigBee Wireless Communication

UBX-AF**Z tool has a ZigBee board and communicates wireless, which provides you with flexible fastening through ZigBee coordinator.

4) High precision fastening is achieved by adjustable motor speed and power.

Motor power is settable in 2 steps from 4 levels;

①Initial Current: from start ON to START torque ②Current: from START torque to CUT torque

Motor speed is settable in 2 steps per 100min⁻¹ increments from 1000 min⁻¹ to 4800 min⁻¹ per work.

(For UBX-AF500Z, motor speed is settable from 1000min⁻¹ to 3600min⁻¹.)

①Initial Speed: from start ON to START torque ②Rotation Speed: from START torque to CUT torque

Speed increases in 3 steps as you pull the trigger progressively.

500min⁻¹ → 1,000 min⁻¹ → Initial Speed Value

5) Built-in Controller Board

High precision fastening is achieved in this single tool.

6) Torque Control & Angle Monitor

Non-contact strain gauge torque sensor : torque measurement in 0.1Nm

Angle encoder : angle measurement in 1 degree

7) Casing Made of Resin ⇒ Light Tool Weight

Tool casing made of resin realizes lighter in weight.

- 8) **SPM Motor with Strong Magnet ⇒ High Torque Efficiency & Maintenance Cost Reduction**
Adopted SPM brushless motor emits no noise and vibration generated from brushes and reduces tool running cost.
- 9) **PhoeniX series Pulse Technology ⇒ Increased Quality & Performance**
URYU PhoeniX pulse technology improves accuracy, efficiency and durability.
- 10) **Safety Feature**
UBX-AF tool stops its operation to minimise impacts from e.g. excessive operation and short circuit to operator and workpiece.
- 11) **Cooling Ventilator ⇒ Reduction in heat generation efficiently**
Cooling ventilator helps to make more frequent fastening cycles by reducing heat generation.

1.4 What's In The Box

Check shipment for transit damage and ensure that the correct UBX-AF model fitted with a casing protection cover, this instruction manual and declaration of conformity have been supplied.

1.5 Installation

Securely install and fix the system (UCC-100Z and UBX-AF) to avoid personal injury in case of an emergency such as earthquake.

Familiarise yourself with the followings to install and fix the system firmly.

1.5.1 Place To Install

- 1) Install the system inside a building. Never expose the system to rain or direct sunshine.
The system is not waterproof.
- 2) Never expose the system to corrosive gas, cutting oil, oil mist and metal chips.
- 3) Install the system with good ventilation. Neither of moisture nor dust is good.
- 4) Do not expose the system to vibration.



For indoor use only

1.5.2 Workstation Requirements

| | | |
|--|--|-------------------|
| Place | Indoors only | |
| Ambient Temperature | 5°C ~ 40°C (41°F ~ 104°F) Note ¹ | |
| Ambient Humidity | 80%RH and less (no dew) | |
| Storage Temperature | 0°C ~ 40°C (32°F ~ 104°F) (no dew) Note ² | |
| Installation Category (Overvoltage Category) | Installation Category II | Note ³ |
| Pollution Degree | Pollution Degree 2 | Note ³ |

Note¹...Lifetime of motor is much affected by ambient temperatures.
Use under the lowest possible temperature within the range of ambient temperature.
Note²...Short period temperature range for transportation
Note³...Above categorizations are Installation category (I-IV) and contamination level (1-4) as per IEC 60664.
IEC stands for International Electrotechnical Commission.

1.6 Li-Ion Battery Packs & Charger

1.6.1 Battery Packs

The tool is driven by the Panasonic battery as shown on the table below.

- Recommended 2.0Ah Battery Packs for UBX-AF series

| | | | | |
|-------------------------|---------------|-----------------|-----------------|-----------------|
| Panasonic Battery Packs | | EYFB32B | EYFB41B | EYFB41B |
| Tool Models | | UBX-AF500Z | UBX-AF600Z | UBX-AF700Z |
| Voltage | | DC10.8V | DC14.4V | DC14.4V |
| Capacity | | 2.0Ah | 2.0Ah | 2.0Ah |
| Charging Time | Usable Charge | Approx. 35 min. | Approx. 35 min. | Approx. 35 min. |
| | Full Charge | Approx. 40 min. | Approx. 40 min. | Approx. 40 min. |
| Weight | | Approx. 0.30kg | Approx. 0.35kg | Approx. 0.35kg |

- Panasonic Battery Packs workable with UBX-AF series (UBX-AF tool capacity changes.)

| | | | | | |
|----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Battery Packs | EYFB32B | EYFB30B | EYFB41B | EYFB43B | EYFB50B |
| Voltage | DC10.8V | DC10.8V | DC14.4V | DC14.4V | DC18.0V |
| Capacity | 2.0Ah | 3.0Ah | 2.0Ah | 4.0Ah | 5.0Ah |
| Usable Charging Time | Approx. 35 min. | Approx. 35 min. | Approx. 35 min. | Approx. 50 min. | Approx. 65 min. |
| Full Charging Time | Approx. 40 min. | Approx. 40 min. | Approx. 40 min. | Approx. 60 min. | Approx. 80 min. |
| Weight | Approx. 0.30kg | Approx. 0.45kg | Approx. 0.35kg | Approx. 0.58kg | Approx. 0.71kg |



WARNING

- Store batteries in a cool, dark and dry place. The recommended ambient temperature range is between 0°C and 20°C (non-condensation).

- Never expose batteries to temperatures above 40°C. Do not keep tools and batteries in places where the temperature may reach 40°C. (e.g. in unventilated metal storage containers or in cars)
- Place the plastic cover on battery to protect from dust and against short circuit when not in use.
- Ensure NOT to recharge batteries before you do not use them for a long period. Recharge batteries just before use.



CAUTION

- Short-circuit with the battery or inside the battery cells due to invasion of water or conductive obstacles, corrosion by gas or deformation by excessive impact or external forces may lead smoke, ignition or burst. Never use the battery under these circumstances.

1.6.2 Battery Charger



WARNING

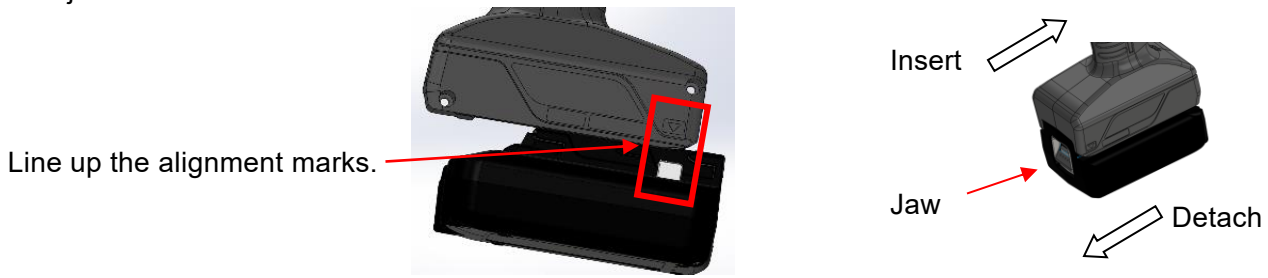


- Only use Panasonic charger, EY0L82B. Use of any other chargers may create a risk of fire or may cause battery to burst when charging. Personal injury or property damage may result.
- Charge only on the voltage indicated on the name plate. Do not attempt to use the charger on any other voltage. Unplug charger when not in use.
- Charge the battery at a temperature range between 5°C and 40°C.
- Never use battery charger with broken power cord nor broken battery / battery charger damaged by a drop, etc.

For more information on the charger, EY0L82B, manual is downloadable from Panasonic homepage.
Other products and company names mentioned are for identification purposes only, and are the trademarks of the respective owner.

1.6.3 Attaching And Removing Battery Pack

- To attach battery, line up the 6 positions (3 positions each on right and left side) of tool and battery and slide the battery until it locks into position (until you hear the click sound).
- To remove battery from the tool, slide the battery to your side while pressing down the battery lock jaw.



1.6.4 Battery Life Cycle

- The battery may be rechargeable up to approximately 700 times after drained, however, it depends on working conditions. When number of fasteners per full charge becomes about a half of the new battery condition, replace the battery with a new one.
- Replace only with the battery designated for the product.

©Operating Cycle per Full-charge (Guideline)

| Model | Durability Test Condition | | Operating Cycle per Full-Charge |
|------------|---------------------------|-------------------------|---------------------------------|
| UBX-AF500Z | UFT-10, M8 bolt, B-Joint | Fastening time 0.5 sec. | Approx. 440 fasteners |
| UBX-AF600Z | UFT-10, M10 bolt, B-Joint | Fastening time 0.5 sec. | Approx. 320 fasteners |
| UBX-AF700Z | UFT-16, M12 bolt, B-Joint | Fastening time 0.5 sec. | Approx. 320 fasteners |

*Torque is set at Hard joint. Numbers of tightening per charge varies depending on torque level, fastener length and application.

Recycle of Li-ion Battery



Li-ion battery is a precious and recyclable resource. Recycle batteries in compliance with your local recycle system and law. Upon removal of battery pack for disposal or recycling, cover the battery pack's terminals with heavy-duty adhesive tape. Do not attempt to destroy or disassemble battery packs or remove any of its components.



The battery must not be disposed of with normal household waste. Take the used batteries to a battery collection site according to your local legislation and the European Parliament and the Council directive, 2013/56/EU (20 November 2013) on batteries.

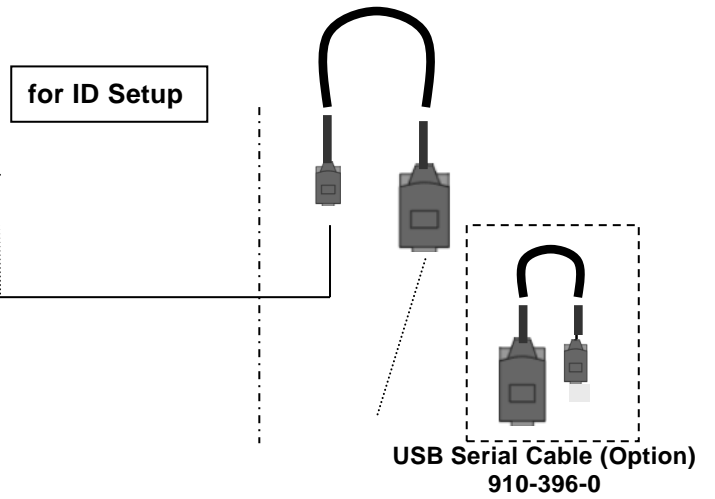
2. System Layout



Tool

Battery

232C Communication Cable (Option)



**USB Serial Cable (Option)
910-396-0**



PC
(not supplied with the product)



Battery Pack
(obtain locally)



UBX-AFZ Tool
f/w ZigBee Transmitter



UCC-100Z Coordinator
f/w ZigBee Receiver

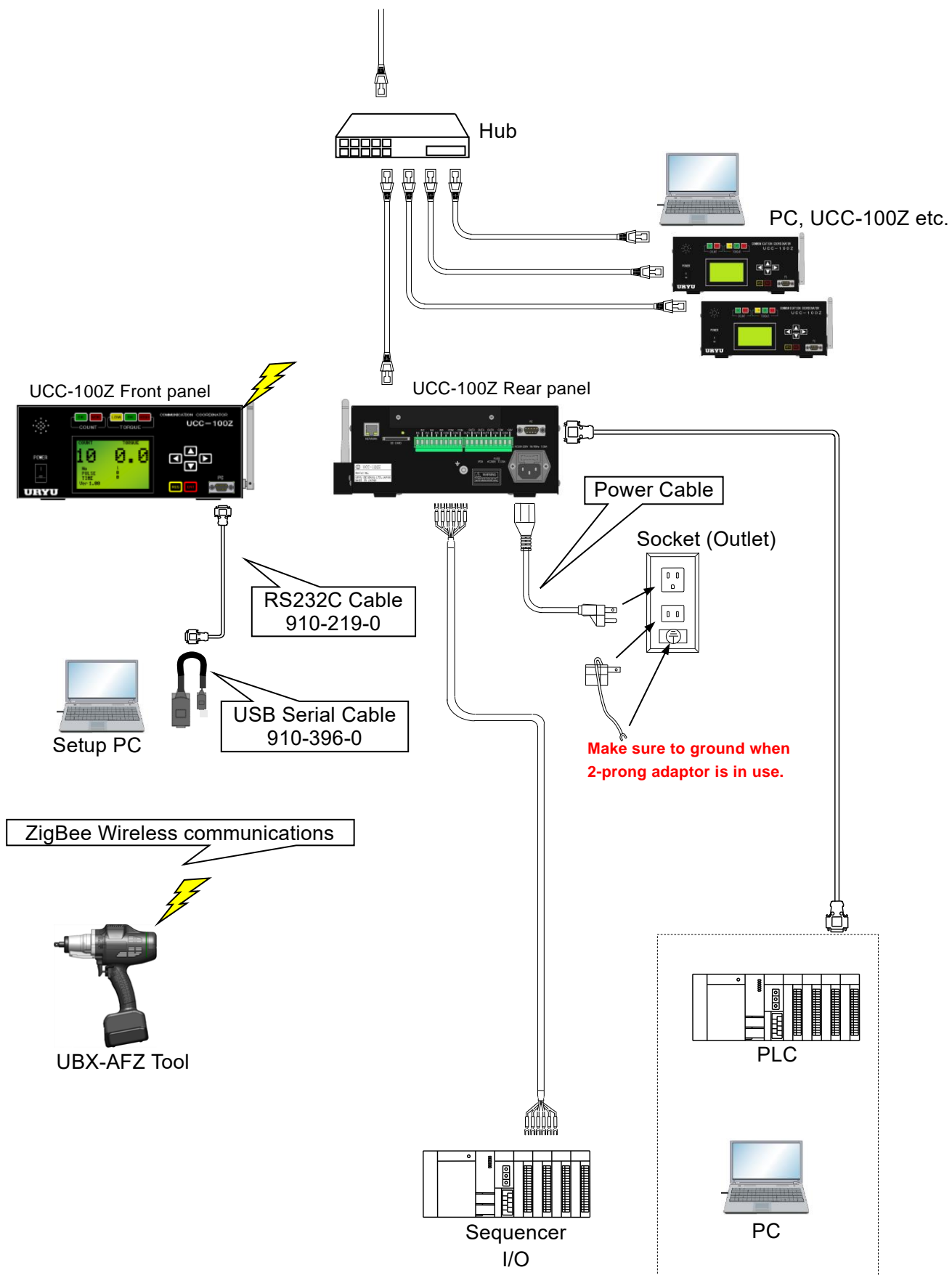


Battery Charger
(*obtain locally)

*For purchase of Battery or Battery Charger, contact your dealer.

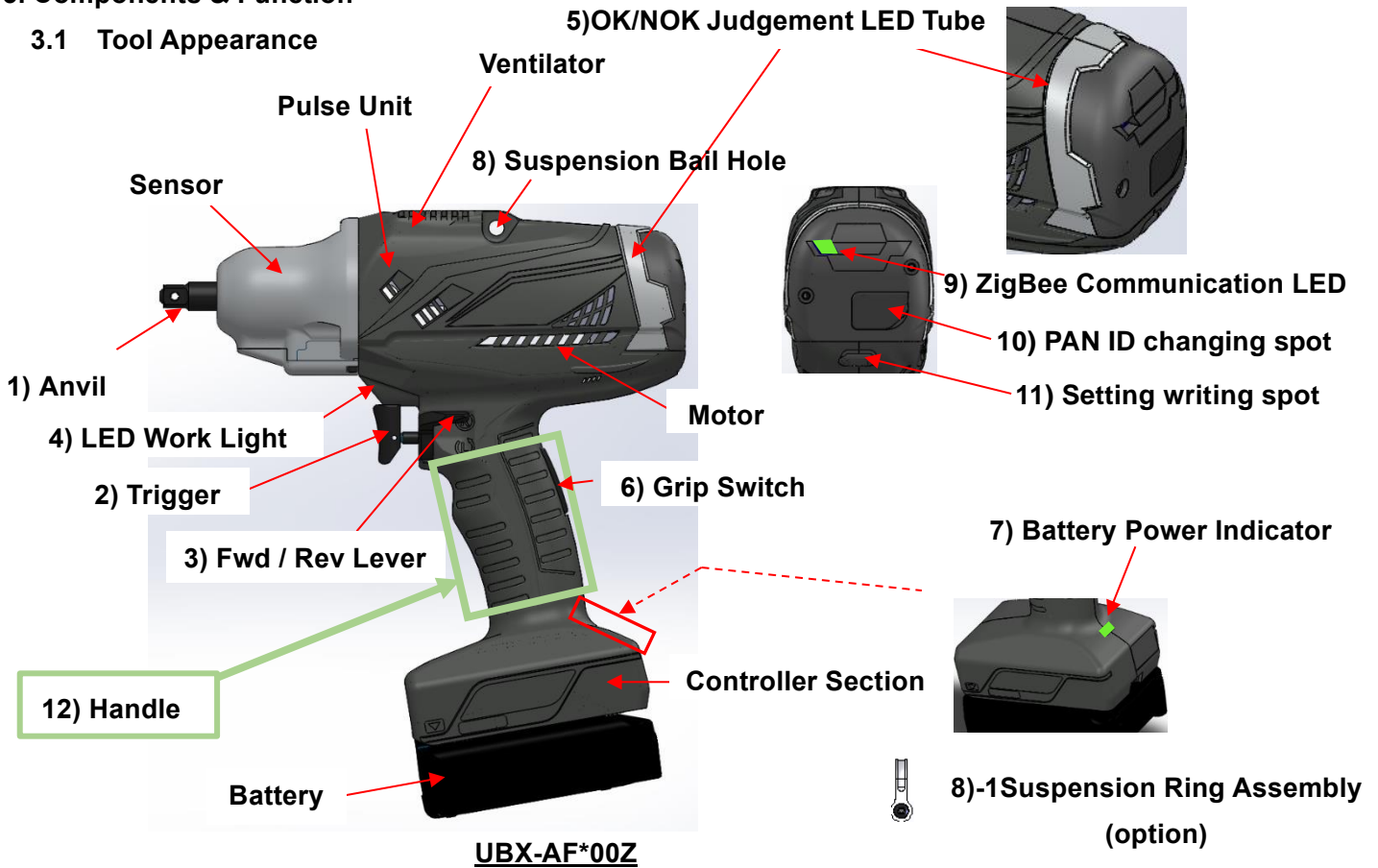
Wireless (ZigBee) Type

System Configuration



3. Components & Function

3.1 Tool Appearance



| Index | Part | Purpose | Reference |
|-------|-----------------------------------|--|--|
| 1) | Anvil | Rotating part to fit socket depending upon purpose. | Square Anvil Type |
| 2) | Trigger | Operates (ON/OFF) the tool | |
| 3) | Fwd / Rev Lever | Changes the direction of rotation | Operator can change rotations by single hand. |
| 4) | LED Work Light | Illuminates work area | LED helps to install fasteners in dark areas. |
| 5) | OK/NOK Judgement LED Tube | Fastening Judgement | Green: OK Red: NOK |
| 6) | Grip Switch | Activates the built-in controller unit | |
| 7) | Battery Power Indicator | Indicates charge capacity level of the battery Green indicates that the battery pack is over 40% of its charge capacity. ⇒ Keep using. Amber indicates that the battery pack is 40% or less of its charge capacity. Red indicates that the battery pack is nearly depleted and needs recharging immediately. Off: EMPTY (Battery level 0%) | Note: Tool will stop after completion of the last tightening when the battery power indicator turns red. |
| 8) | Suspension Bail & Suspension Hole | Suspends the tool | 8)-1: Suspension Ring Assembly (option) |
| 9) | ZigBee Communication LED | Confirms ZigBee communication | When it is ON, ZigBee communication is alive. |
| 10) | PAN ID changing spot | Changes ZigBee communication ID by the switch | |
| 11) | Setting writing spot | Writes ZigBee communication setting | |
| 12) | Handle | Gripping area while operating and carrying the tool | |

3.2 Technical Specifications

3.2.1 Tool Technical Specifications

| Item / Model | | UBX-AF500Z | UBX-AF600Z | UBX-AF700Z |
|---|-------------------|--|---|--------------------|
| Bolt Capacity | | M6-M8 | M8-M10 | M8-M12 |
| Torque Range | Nm | 5.0~20.0 | 15.0~40.0 | 25.0~60.0 |
| Fastening Cycle ^{Note 1} | | 11 fasteners / min. | 10 fasteners / min. | 9 fasteners / min. |
| Free Speed ^{Note 2} | min ⁻¹ | 1000 – 3600 | 1000 - 4800 | |
| Drive Shank Size | mm | 9.5Sq | | |
| Overall Length | mm | 219 | | |
| Weight ^{Note 3} | kg | 1.83(1.53) | 1.88(1.53) | 1.93(1.58) |
| Sound Pressure Level (L _{pA}) | dB(A) | <70 | 73 | 72 |
| Sound Uncertainty | dB(A) | 3 | | |
| Vibration Total Value (A _{hd}) | m/s ² | <2.5 | | |
| Vibration Uncertainty (K) | m/s ² | 0.59 | 0.60 | 0.61 |
| Reaction Moment | Nm | 0.8 | | 1.0 |
| Trigger Force | N | 8.0 | | |
| Battery Voltage (DC) | V | 10.8 | 14.4 | |
| Motor Speed ^{Note 4} | min ⁻¹ | Initial Speed (up to START torque) Settable per 100 min ⁻¹ increments from 1000 min ⁻¹ to 3600 min ⁻¹ | Initial Speed (up to START torque) Settable per 100 min ⁻¹ increments from 1000 min ⁻¹ to 4800 min ⁻¹ | |
| | | Speed (from START to CUT torque) Settable per 100 min ⁻¹ increments from 1300 min ⁻¹ to 3600 min ⁻¹ | Speed (from START to CUT torque) Settable per 100 min ⁻¹ increments from 1300 min ⁻¹ to 4800 min ⁻¹ | |
| Motor Power ^{Note 4} (Current Level) | — | Settable in 2 steps (till and after START Torque) from 4 levels | | |
| IEC62841-1 and IEC62841-2-2 are applied. Protection against electric shock is Class I. | | | | |

Note¹...Fastening Condition : Fastening Time Approx. 0.5 sec/fastener at ambient temperature of 18°C (64.4°F)

Note²...Free speed increases in 3 steps, 500min⁻¹ → 1000min⁻¹ → Initial Speed Value

Note³...Weight f/w 2.0Ah battery pack (see P.8). Value inside () shows weight w/o battery pack.

Note⁴...Settable combination of Motor Power (Current Level) and Motor Speed Range

Current Level 1 : 13 (1300min⁻¹) ~ 48 (4800min⁻¹), Current Level 2 : 17 (1700min⁻¹) ~ 48 (4800min⁻¹)

Current Level 3 : 21 (2100min⁻¹) ~ 48 (4800min⁻¹), Current Level 4 : 25 (2500min⁻¹) ~ 48 (4800min⁻¹)

These declared sound and vibration values given in the above table were obtained by laboratory type testing in accordance with **EN 62841-1 for sound levels** and **ISO 28927-2 for vibration values** and are not adequate for use in risk assessments. Values measured in individual work places may be higher than the declared values. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, the workpiece and the workstation design, as well as upon the exposure time and the physical condition of the user.

We, URYU SEISAKU, LTD., cannot be held liable for the consequences of using the declared values, instead of values reflecting the actual exposure, in an individual risk assessment in a work place situation over which we have no control.

3.2.2 ZigBee Specifications

| | |
|-------------------------------------|---|
| Frequency | 2.4GHz (2.405 - 2.48Hz 16ch) |
| Output | 10mW |
| Modulation and Communication System | Offset phase orthogonal modulation system |
| Spread System | Direct spread spectrum communication system |
| Communication Distance | Radius of approx. 20m ^{*Note} |
| ID Setting | 7 Bit Dip Switch (128 ways) |

*NOTE: The communication may not be established at the place where radiation noise such as electric welding exists. If there is a place where the communication is not established even in a short distance between the transmitter and the receiver, there may be a dead point which is generated by a reflected wave.

4. Operation

4.1 Socket



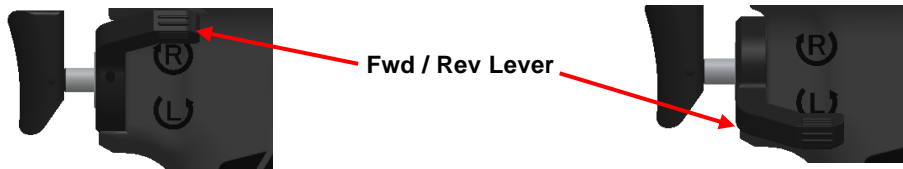
- Use impact sockets in good condition. Worn or ill-fitting sockets reduce power. Replace worn sockets to prevent vibration, loss in torque output, poor accuracy and damage to the output drive. Poor condition or hand sockets and accessories can shatter and become a projectile.

- A heavy (big) socket and / or accessory may damage the power tool and cause high vibration.
- Guided deep engagement socket is recommended to minimise torque loss and vibration. Consult your local URYU distributor or URYU Japan for proper sockets.
- A universal joint socket or a socket connector reduces torque output.
- To attach socket to the tool, connect female 3/8" square drive socket and anvil by depressing retainer pin.

4.2 Direction Of Rotation



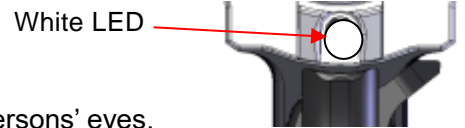
- Note the position of the forward / reverse lever before operating the tool. Be aware of the direction of rotation.



Set Fwd / Rev lever to **R** for **clockwise** rotation. Set Fwd / Rev lever to **L** for **anticlockwise** rotation.

4.3 LED Work Light

Pull the trigger and the LED work light illuminates work area.



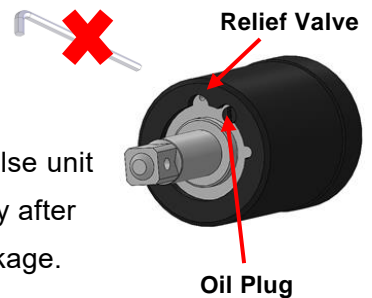
Never look directly into the LED work light while it is on or shine the light into other persons' eyes.

4.4 Torque Setting

Torque setting is made with UCC-100Z, coordinator.
See UCC-100Z instruction manual for details.



Never touch the oil plug and the relief valve in the pulse unit for torque adjustment. Relief valve adjusts output only after maintenance. Removal of oil plug will result in oil leakage.



4.5 Preparation For Operation

1) Turn UCC-100Z ON.

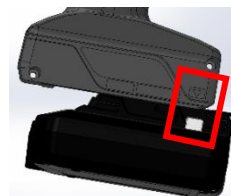
See UCC-100Z instruction manual for details.



2) Insert Battery into the Tool.

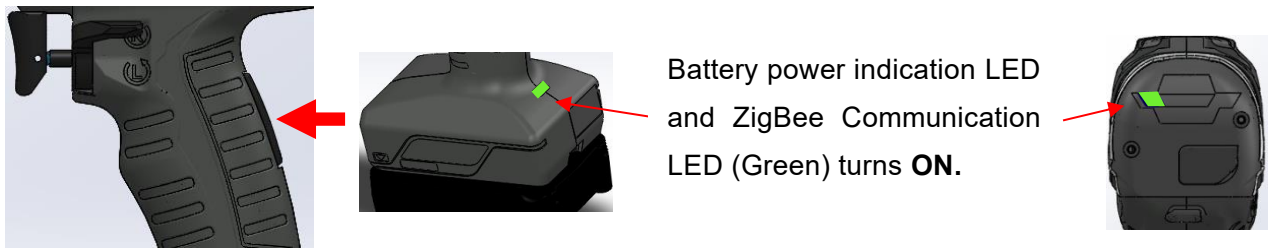


Insert battery by lining up ∇ mark on tool casing and the white mark on battery pack.



Line up the positions.

3) Grip Switch to Activate the Built-in Controller Board.



4) Pull Trigger to operate the tool.

Before use, surely check if loosening of a screw, damage on tool's appearance / battery contact part / spare part is observed. Such factor may cause not only capacity deterioration or breakdown but also danger.

See Pairing Manual for method of pairing the UBX-AF tool and UCC-100Z coordinator.

After tightening job is completed, the green ZigBee communication LED turns off, which disables the tool. Only after the tool has received a tightening parameter setting from some upper device, via ZigBee, the ZigBee communication LED turns on again, which enables the tool to start tightening operation in accordance to the newly received parameter setting.

5. Attention For Operation

5.1 Factors Affecting Fastening Torque

- 1) Fastening torque can change even for the same sized bolt because of torque coefficient determined by finishing status of fastener or workpiece such as industrial quality ranking of the fastener and / or its length. Fastening torque can also change by the surface condition of workpiece or each condition of workpieces. Great torque drop can be seen when the bolt and nut rotate simultaneously.
- 2) A wobbling socket loses torque transmission a lot, makes vibration bigger and gives burden onto the tool or the operator. Also, an unnecessary big or heavy socket causes torque scatter. Use an appropriate size of socket for the bolt. As extension bar / guided socket is recommended to minimise torque-down and wobbling.
- 3) Pull the trigger firmly to operate the tool. If the trigger is not pulled correctly, the tool may not be stopped automatically.
- 4) Torque-drop can be seen when a universal joint or socket connector is used.

5.2 General Instructions For Use

1) Decide the rotation direction by the Fwd/Rev lever.

2) Pull the trigger.

-1. Speed increases in 3 steps as you pull the trigger progressively for both forward and reverse.

-2. If you release your finger from the trigger, an electric brake automatically engages to stop anvil rotation.

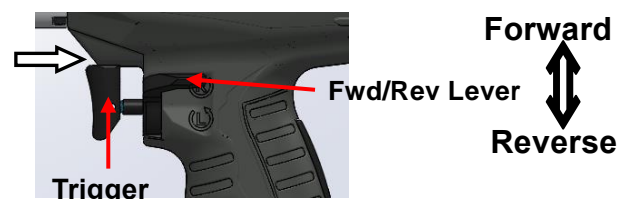
3) Fastening

Keep pulling the trigger until automatic shut-off.

- Fastening torque does not reach preset torque if you release the trigger prior to automatic shut-off.

When torque reaches preset torque, the tool stops automatically.

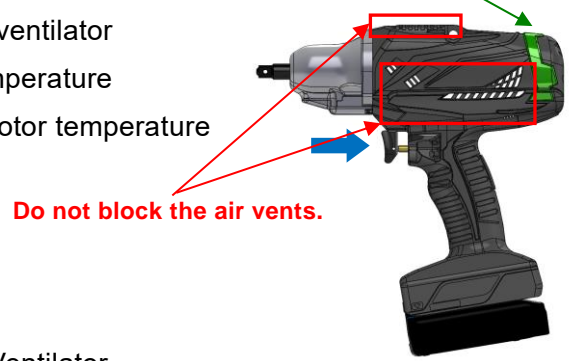
(Green LED and OK buzzer Confirm OK tightening).



5.3 Cooling Ventilator

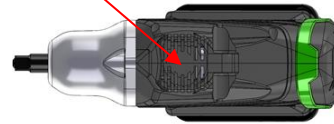
In case of the motor temperature is below 40°C, the cooling ventilator operates only when the trigger is pulled. When the motor temperature exceeds 40°C, the ventilator continues to operate until the motor temperature drops below 40°C. After the ventilator stops its operation, pull the trigger again so that the ventilator operates with the above logic.

Green LED and OK buzzer confirm OK tightening.



Do not block the air vents when the tool is in use. Insufficient ventilation may result in heat or smoke.

Cooling Ventilator



5.4 Overheating Protection

Overheating protection functions to disable the tool when the motor heats up due to exceeding duty cycle. OK/NOK Judgement LED tube turns red and disables the tool until the red LED turns off.

OK / NOK Judgement LED Tube

| Colour | Status |
|--------|--------------------------|
| Green | Tightening OK |
| Red | Under Heating Protection |

Once the red LED blinks, do not use the tool for 30 minutes at least until the motor temperature has cooled down. Do not detach and re-attach the battery or replace the battery with another one while the red LED blinks. This resets the heating protection even with the overheating motor.

Guidance of Suitable Applications for UBX-AF series

Example : UBX-AF700Z

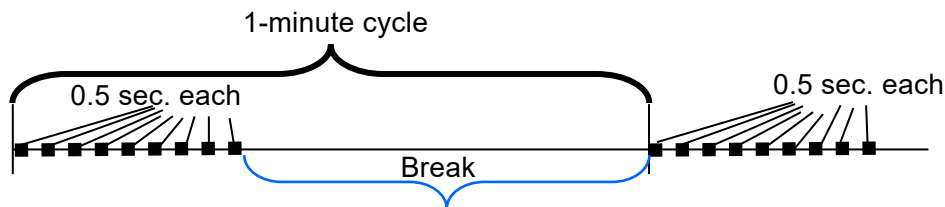
Working condition : (the same as the durability test condition, See P9. Operating Cycle per Full-Charge)

Bolt Size --- M12 Fastening Time per Fastener --- approx. 0.5 sec.

UBX-AF700Z will be able to fasten 9 fasteners per minute under the above working condition.

Mathematical Expression ----- 0.5 sec./fastener × 9 fasteners/min. = 4.5 sec./min.

With UBX-AF700Z, overheating protection will not function as long as the tool tightens M12 fasteners for total 4.5 sec. per minute, see below.



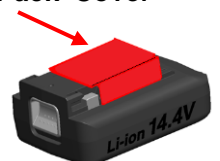
Softer joints (i.e. longer fastening time per fastener) will require less aggressive fastening cycles.

5.5 After Daily Use

When the working day is over, detach the battery from the tool to avoid unexpected operation nor electric shock.

Cover the battery pack for dust / rubbish adhesion prevention.

Battery Pack Cover



Maintenance Instructions



- Continuous satisfactory operation depends upon proper tool care and regular maintenance.
- Have your power tool serviced by a qualified repair person.
- Use URYU genuine parts for replacement. This will ensure that the safety and the optimum performance of the tool are maintained. Refer to the parts list and use correct jigs for proper service.
- UBX-AF is a precision tool. When disassembly / assembly / adjustment, exclusive jigs, tester and special techniques are required. Defective disassembly / assembly / adjustment may cause not only insufficient performance but also an accident. When overhaul, contact your local URYU distributor or URYU Japan.
- Remove the battery from the power tool before carrying out work on the power tool (e.g. maintenance, changing socket etc.). There is risk of injury from unintentionally pressing the trigger.

Multemp PS No. 2

| URYU Code | Quantity |
|-----------|----------|
| 998-712-0 | 300g |
| 998-711-0 | 18kg |

Lubrication

- For the bearing, coat one-third of the bearing with high quality grease, Multemp PS No. 2 (see the right table) or equivalent.

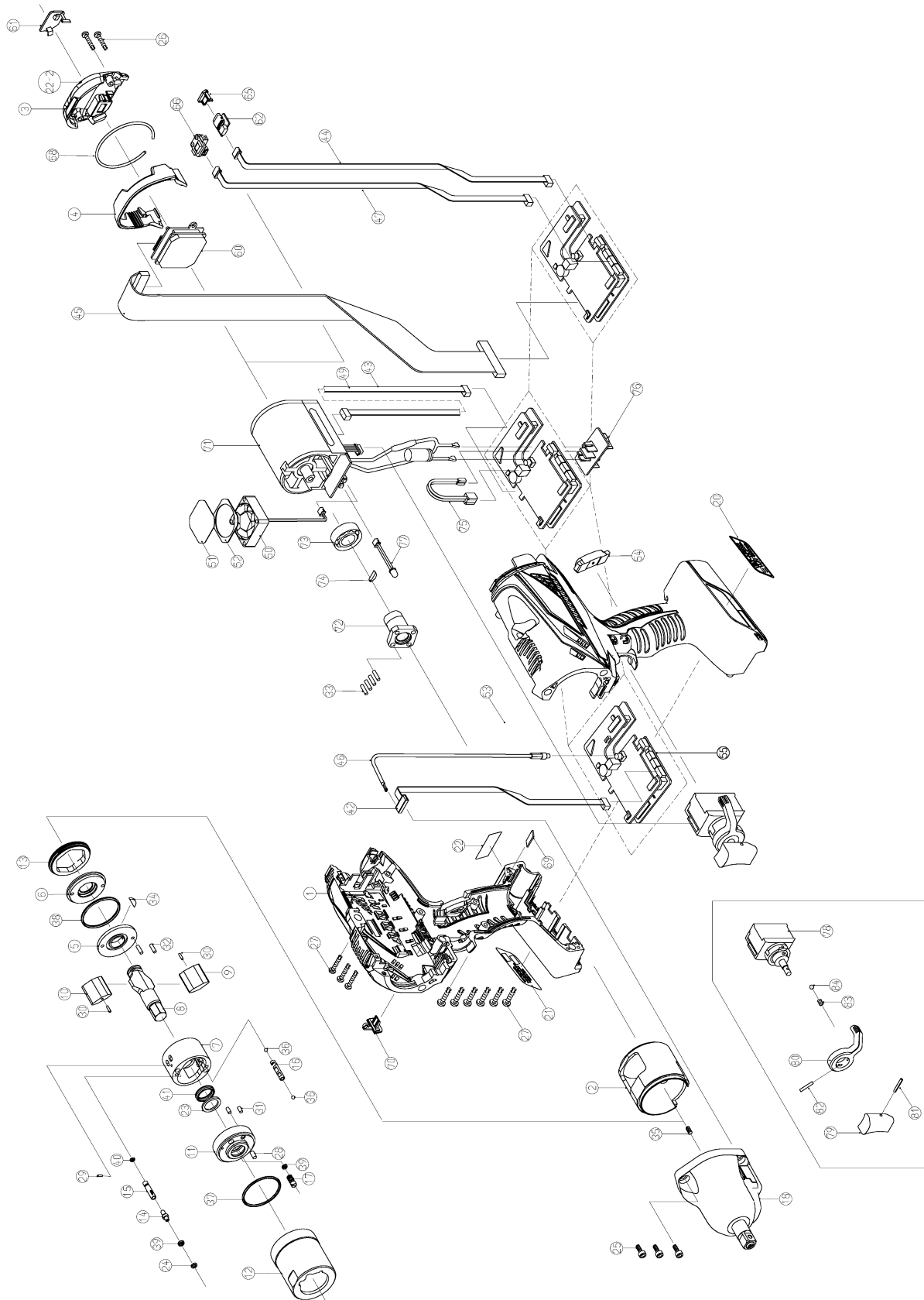
Pulse Fluid

| URYU Code | Quantity |
|-----------|----------|
| 998-735-0 | 20L |

Overhaul

- It is recommended that after every 5,000,000 pulses or 6 months, replace the pulse fluid.
- It is recommended that after every 10,000,000 pulses or 12 months, the pulse unit should be inspected with care. Inspect hard parts for damages or wearing. Replace damaged parts, all sealing materials such as X-ring, O-rings and supporter rings and consumable materials each time you disassemble the pulse unit.
- More frequent overhaul may be required when the tool is in heavy duty operation.
- Wipe the casing with a soft cloth. Do not use volatile liquid or a wet cloth as it would cause deterioration of its strength and discolouration.
- Regularly clean the power tool's air vents. The ventilator can draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.
- Ensure that any labels on the tool are kept in legible condition. Replace any damaged label.

Exploded View



Parts List

| Index | Part Code | | | Part name | Qty | Remarks |
|-------|------------|------------|------------|---|-----|------------------------------------|
| | UBX-AF500Z | UBX-AF600Z | UBX-AF700Z | | | |
| 1 | | 12A-025-3 | | Handle | 1 | |
| 2 | | 12A-255-3 | | Regulator Barrel | 1 | |
| 3 | | 12A-012-3 | | Head Cover | 1 | |
| 4 | | 12A-013-3 | | Handle Upper Cover | 1 | |
| 5 | | 12A-901-3 | | Rear Liner Plate | 1 | |
| 6 | | 12A-310-3 | | Anvil Rear Spacer | 1 | |
| 7 | | 12A-902-3 | 12A-902-5 | Liner | 1 | |
| 8 | | 12A-319-3 | 12A-319-5 | Anvil | 1 | |
| 9 | | 12A-440-3 | 12A-440-5 | Driving Blade (A) | 1 | |
| 10 | | 12A-440-4 | 12A-440-6 | Driving Blade (B) | 1 | |
| 11 | | 12A-904-3 | | Front Liner Plate | 1 | |
| 12 | | 12A-905-3 | 12A-905-5 | Liner Casing | 1 | |
| 13 | | 12A-906-3 | | Liner Casing Cover | 1 | |
| 14 | | 174-907-2 | | Relief Valve Spindle | 1 | |
| 15 | | 12A-970-3 | 12A-970-5 | Relief Valve | 1 | |
| 16 | | 12A-276-3 | 12A-276-5 | Pressure Regulator Valve | 1 | |
| 17 | | 194-742-0 | | Oil Plug | 1 | |
| 18 | | 09B-975-5 | 09C-975-5 | Sensor Casing Assembly | 1 | |
| 19 | | 12A-840-3 | | Casing Protector | 1 | |
| 20 | 12A-924-1 | 12A-924-3 | 12A-924-5 | Model Name Sticker | 1 | Casing |
| 21 | | 12A-944-3 | | Address Sticker | 1 | Casing |
| 22 | | 12A-993-3 | | Battery Level Sticker | 1 | Casing |
| 22-1 | 910-636-0 | 910-637-0 | 910-638-0 | Model Identification Sticker | 1 | Head Cover |
| 23 | | 944-312-0 | | Back-up Ring | 1 | Anvil |
| 24 | | 944-203-0 | | Back-up Ring | 1 | Relief Valve Spindle |
| 25 | | 945-541-0 | | Allen Head Screw | 3 | Sensor Casing Assembly |
| 26 | | 861-181-1 | | Tapping Screw | 2 | Head Cover |
| 27 | | 963-253-0 | | Tapping Screw | 9 | for fastening Handle |
| 28 | | 969-449-0 | | Pin | 1 | Front Liner Plate |
| 29 | | 970-013-0 | | Pin | 1 | Relief Valve |
| 30 | | 970-014-0 | | Pin | 2 | Driving Blade |
| 31 | | 970-147-0 | | Pin | 2 | Liner (Front Plate side) |
| 32 | | 972-033-0 | | Roller Pin | 2 | Liner (Rear Plate side) |
| 33 | | 972-087-0 | | Roller Pin | 4 | Joint, Rear Liner Plate |
| 34 | | 974-961-0 | | Half-moon Key | 1 | Anvil Rear Spacer |
| 35 | | 976-159-0 | | Spring | 1 | Anvil |
| 36 | | 981-225-0 | | Ball | 2 | Pressure Regulator Valve |
| 37 | | 990-334-0 | | O-Ring | 1 | Rear Liner Plate |
| 38 | | 990-923-0 | | O-Ring | 1 | Front Liner Plate |
| 39 | | 990-970-0 | | O-Ring | 2 | Relief Valve Spindle, Oil Plug |
| 40 | | 990-621-0 | | O-Ring | 1 | Relief Valve |
| 41 | | 991-030-0 | | X-Ring | 1 | Anvil |
| 42 | | 910-230-0 | | Control Board Connection Cable Assembly | 1 | Angle |
| 43 | | 910-425-0 | | Motor Communication Cable Assembly | 1 | for Motor |
| 44 | | 910-232-0 | | Communication Cable Assembly | 1 | for UART Communication |
| 45 | | 910-427-0 | | ZigBee Cable Assembly | 1 | |
| 46 | | 910-428-0 | | Coaxial Cable Assembly | 1 | for AD Sensor |
| 47 | | 910-235-0 | | Judgement LED Cable Assembly | 1 | for Judgement LED |
| 48 | | 910-478-0 | | Noise Sheet | 1 | ZigBee Cable Assembly |
| 49 | | 910-479-0 | | Noise Sheet | 1 | Motor Communication Cable Assembly |
| 50 | | 910-438-0 | | Fan Assembly | 1 | |
| 51 | | 910-476-0 | | Nylon Mesh | 1 | |
| 52 | | 910-477-0 | | Mesh Plate | 1 | |
| 53 | | 910-384-0 | | Grip Switch | 1 | |
| 54 | | 910-409-0 | | Grip Switch Plate | 1 | |
| 55 | | 910-434-0 | | Control Board Assembly | 1 | |
| 60 | | 910-374-0 | | ZigBee Board Assembly | 1 | |
| 61 | | 910-448-0 | | Dipswitch Cover | 1 | |
| 62 | | 910-458-0 | | Communication Board Assembly | 1 | UART Output |
| 65 | | 910-459-0 | | Communication Board Assembly Cover | 1 | |
| 66 | | 910-466-0 | | Judgement LED Board Assembly | 1 | |
| 68 | | 910-449-0 | | Elastomer Tube (φ2) | 1 | |
| 69 | | 910-404-0 | | Battery Indication Cover | 1 | |
| 70 | | 910-455-0 | | Motor Connector Cover | 1 | |
| 71 | | 910-656-0 | | Motor Assembly | 1 | |
| 72 | | 12A-079-3 | 12A-079-5 | Connector | 1 | |
| 73 | | 982-922-0 | | Ball Bearing | 1 | |
| 74 | | 974-952-0 | | Half-moon Key | 1 | |
| 75 | | 910-447-0 | | Battery Cable Assembly | 1 | |
| 76 | | 910-383-0 | | Battery Terminal Stand | 1 | |
| 77 | | 910-469-0 | | Motor LED Cable Assembly | 1 | |
| 78 | | 910-475-0 | | Switch Assembly | 1 | |
| 79 | | 147-107-2 | | Valve Lever | 1 | |
| 80 | | 09B-212-5 | | Reverse Lever | 1 | |
| 81 | | 973-018-0 | | Roll Pin | 1 | |
| 82 | | 973-014-0 | | Roll Pin | 1 | |
| 83 | | 976-006-0 | | Spring | 1 | |
| 84 | | 981-002-0 | | Ball | 1 | |
| 93 | | 891-300-1 | | Socket Pin Assembly | 1 | |
| 86 | | 910-391-0 | | Uzig01 ZigBee Coordinator | 1 | Option |
| 87 | | 910-393-0 | | ZigBee Connection Cable | 1 | Option |
| 88 | | 910-020-0 | | Setup PC Cable | 1 | Option |
| 89 | | 863-993-1 | | Battery Protector | 1 | Option |
| 90 | | 136-790-7 | | Suspension Ball | 1 | Option |
| 91 | | 136-791-7 | | Suspension Ball Base | 1 | Option |
| 92 | | 945-941-0 | | Hexagon Round Head Bolt | 2 | Option |

6. Trouble Shooting

| Symptom | Possible Reasons | Possible Solution |
|---|--|---|
| Tool does not run. | <ul style="list-style-type: none"> • Battery is not attached. • Battery power indicator does not turn on. • The tool is under heat protection. • Battery Power Indicator turns red. • Wire breakage inside the tool • ZigBee Communication LED does not turn on. • ZigBee communication is not alive. | <ul style="list-style-type: none"> ●Insert battery to the tool and touch grip switch. ●Do not use the tool until the motor cools down. (Leave the ventilator work until it stops, which will expedite the motor cool down.) ●Change batteries. (Recharge the removed battery.) ●Repair or replace ●Check conditions (power & communication) of upper equipment such as Uzig coordinator, UEC-4800(SD), UCC-100Z. Remove battery once and attach battery again and press the grip switch. ●See ZigBee communication error. |
| Unexpected direction of rotation | <ul style="list-style-type: none"> • Unintentional change of Fwd/Rev lever position | <ul style="list-style-type: none"> ●Set Fwd/Rev lever to the correct position for your job. |
| Tool does not work properly. | <ul style="list-style-type: none"> • Breakage of part(s) or missing part(s) • Low setting parameters for Current and/or Speed • Excessive load | <ul style="list-style-type: none"> ●Repair or replace. ●Review parameters for Current and Speed ●Load reduction |
| Ventilator does not work. | <ul style="list-style-type: none"> • Breakage of ventilator • Breakage of wire for ventilation inside the tool | <ul style="list-style-type: none"> ●Repair or replace |
| Buzzer does not sound. | <ul style="list-style-type: none"> • Breakage | <ul style="list-style-type: none"> ●Repair or replace |
| Out of torque control | <ul style="list-style-type: none"> • Incorrect setting parameter • Wire breakage inside the tool • Sensor breakage | <ul style="list-style-type: none"> ●Double check setting parameter such as CAL and change parameters. ●Repair or replace |
| Does not measure; - angle - fastening time - pulse count | <ul style="list-style-type: none"> • Incorrect setting parameter • Wire breakage inside the tool • Sensor breakage | <ul style="list-style-type: none"> ●Review setting parameter for your job. ●Repair or replace |
| Too long fastening time | <ul style="list-style-type: none"> • Tool overheats. • Oil leakage | <ul style="list-style-type: none"> ●Review the current process / tool model. ●Repair or replace |
| Sensor Error (ZERO Error, CAL Error etc.) | <ul style="list-style-type: none"> • Sensor breakage / Wire breakage | <ul style="list-style-type: none"> ●Repair or replace ●See instruction manual of UEC-4800 / UCC-100Z. |
| ZigBee Communication Error | <ul style="list-style-type: none"> • Long distance between the tool and the coordinator. • Condition (radio frequency) at workplace has changed. • Cable disconnection • Wire breakage / Breakage of related part(s) | <ul style="list-style-type: none"> ●Review install location. ●Recheck updated radio frequency Condition at workplace and if necessary, make pairing again. ●Check connection of the system. ●Repair or replace |

When an error occurs, OK / NOK Judgement LED tube flashes in red.

Please check the error display on UEC-4800 controller / UCC-100Z coordinator.

NOK Judgement LED tube



• Error List (Display type shows Error on the monitor screen.)

| Error | Display | Content | Reference / Measure(s) |
|----------------------|--|---|---|
| ZERO ERROR | ERR01 Controller display : <i>0.E.</i> | ZERO check error at start up by grip switch | |
| CAL ERROR | ERR02 Controller display : <i>CAL.E.</i> | CAL check error at start-up by grip switch | |
| SETUP ERROR | ERR03 Controller display : <i>S.E.</i> | Setting range interlocking | |
| TORQUE LOW | TRQNOK (+ Value) | Torque Value < Torque Low | |
| TORQUE HIGH | TRQNOK (+ Value) | Torque Value > Torque High | |
| PULSE LOW | PLSNOK (+ Value) | Pulse Count < Pulse Low | |
| PULSE HIGH | PLSNOK (+ Value) | Pulse Count > Pulse High | |
| FREE RUN ERROR | NOKFRE (+ Value) | Free Run Angle Value < Free Run Angle | |
| ANGLE LOW | DEGNOK (+ Value) | Angle Value < Angle Low | |
| ANGLE HIGH | DEGNOK (+ Value) | Angle Value > Angle High | |
| INITIAL ERROR | <i>IDE.</i> | Elapsed time from START to CUT is shorter than Initial Error Timer. (Torque reaches CUT before Initial Error timer is up.) | <ul style="list-style-type: none"> ● Double hit error ● If the error appears with the normal tightening process, review setting parameters. |
| CYCLE ERROR | <i>CYLE.</i> | Elapsed time from START to CUT is longer than Cycle Error Timer. (Torque does not reach CUT before Cycle Error timer is up.) | <ul style="list-style-type: none"> ● Review workpiece condition. ● Review setting parameters. |
| INCOMPLETE JOB ERROR | <i>FE.</i> | Tool stops tightening before reaching CUT torque. (e.g. Fingers off from trigger while tightening) | <ul style="list-style-type: none"> ● Review Judgement Delay Timer ● Check tool condition. ● Do not release fingers from trigger before tool stops automatically. |
| CPU ERROR | ERR10 Controller display : <i>CPUE.</i> | CPU Thermal Error | |
| MOTOR ERROR | ERR11, ERR32 Controller display : <i>UDt.E.</i> | Motor System Error | |
| ZIGBEE ERROR | ERR12 Controller display : <i>bPPE.</i> | ZigBee Communication Error | |
| SENSOR ERROR | ERR13, ERR14 Controller display : <i>Adt.E.</i> <i>rDEE.</i> | Sensor Communication Error | |
| BATTERY ERROR | ERR15 Controller display : <i>bAt.E.</i> | Over-discharged battery, Battery Thermal Error | |

EC Declaration of Conformity



WE, URYU SEISAKU, LTD., DECLARE THAT UBX-AF500Z, UBX-AF600Z AND UBX-AF700Z CORDLESS TRANSDUCERISED IMPULSE TOOLS ARE IN COMPLIANCE WITH THE ESSENTIAL REQUIREMENTS OF THE EUROPEAN PARLIAMENT AND THE COUNCIL DIRECTIVES, 2014/30/EU (26 FEBRUARY 2014) ON ELECTROMAGNETIC COMPATIBILITY, 2006/42/EC (17 MAY 2006) ON MACHINERY, 2011/65/EU (8 JUNE 2011) AS AMENDED BY (EU)2015/863 ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT AND 2014/53/EU (16 APRIL 2014) ON THE HARMONISATION OF THE LAWS OF THE MEMBER STATES RELATING TO THE MAKING AVAILABLE ON THE MARKET OF RADIO EQUIPMENT.

Harmonised Standards

EN-62841-1:2015, EN-62841-1-1:2015/AC:2015, EN 62841-2-2:2014, EN 62841-2-2:2014/AC:2015

EN ISO 28927-2:2009, EN ISO12100:2010

EN 50581 :2012

EN61010-1 : 2010

EN61000-6-4 : 2007 +A1 : 2011, EN61000-6-2 : 2005

EN62368-1:2014(2ND.ED.), EN301489-1 : V2.1.1, EN301489-17 : V3.1.1, EN300328 : V2.1.1

KAZUMASA URYU

EXECUTIVE DIRECTOR

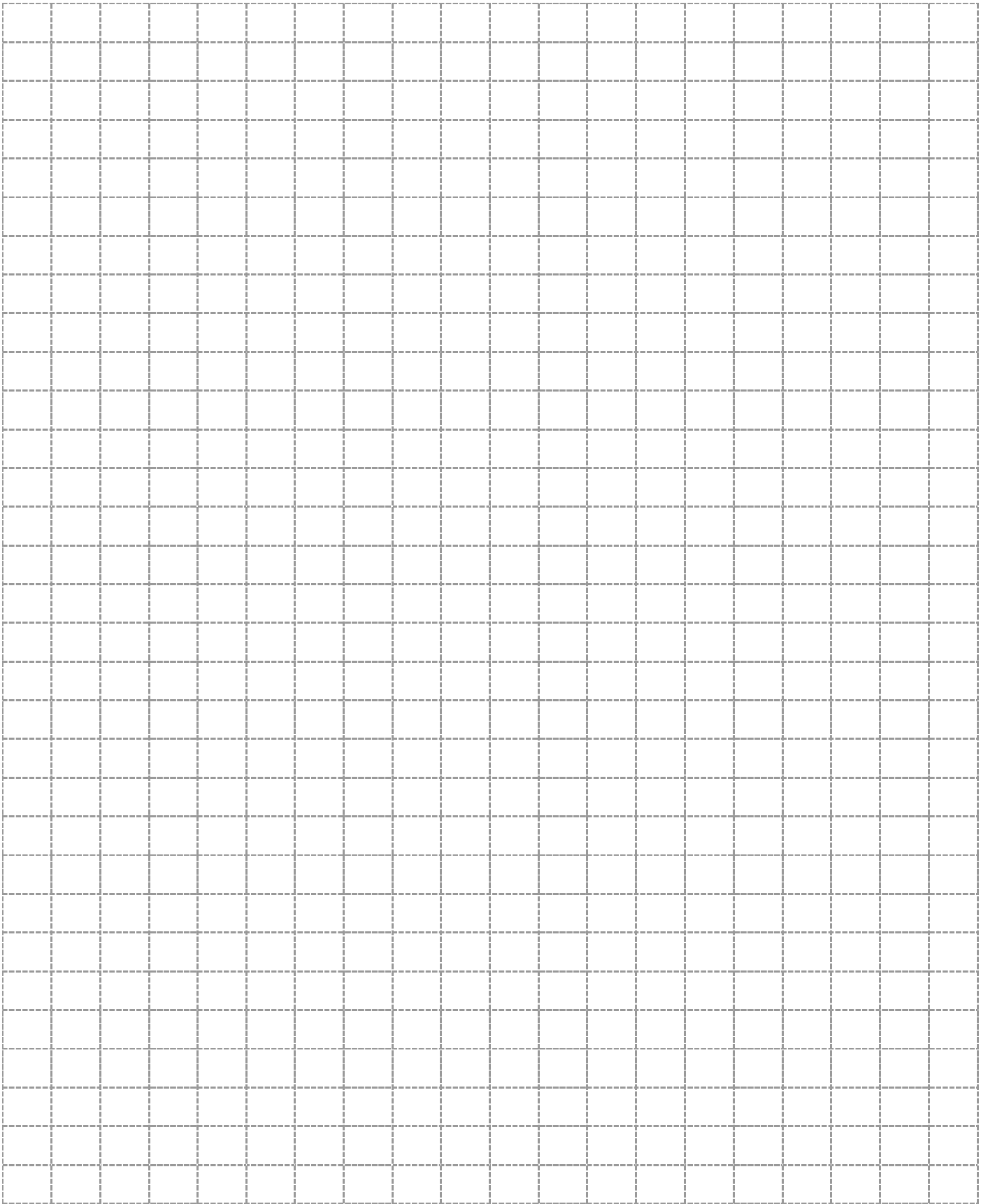
OSAKA, JAPAN

12 NOVEMBER 2020

7. Transportation

- Ensure to remove the battery from the power tool for transport and storage. There is risk of injury from unintentionally pressing the trigger.
- Protect the product from any heavy impact or strong vibrations which may occur during transportation in vehicles.
- Secure the product to prevent it from slipping or falling over.

MEMO





Distributed by

For further information, contact your nearest URYU distributor or URYU Japan.

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UBX-AF-2020-11-12