

# AVANTGRAND N3/N2

Before using this instrument, be sure to read "PRECAUTIONS" on pages 6 – 7.

**N3:** When assembling or transporting the unit, consult a qualified AvantGrand dealer. (Refer to page 41 for the assembly instructions.)

Achten Sie darauf, vor Einsatz dieses Instruments die "VORSICHTSMASSNAHMEN" auf Seiten 6-7 durchzulesen. N3: Wenden Sie sich bezüglich Zusammenbau und Transport des Gerätes an einen qualifizierten AvantGrand-Händler. (Lesen Sie auf Seite 41 für Anweisungen zur Montage.)

Avant d'utiliser cet instrument, lisez attentivement la section « PRÉCAUTIONS D'USAGE » aux pages 6-7.

N3: Lors de l'assemblage ou du transport de l'unité, consultez un revendeur qualifié AvantGrand. (Reportez-vous à la page 41 pour obtenir des instructions sur le montage.)

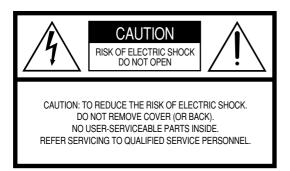
Antes de utilizar el instrumento, lea la sección "PRECAUCIONES", en las páginas 6-7.

**N3:** Al montar o transportar la unidad, consulte a un distribuidor cualificado de AvantGrand. (Consulte las instrucciones de montaje en la página 41.)

Owner's Manual
Bedienungsanleitung
Mode d'emploi
Manual de instrucciones

## **SPECIAL MESSAGE SECTION**

**PRODUCT SAFETY MARKINGS:** Yamaha electronic products may have either labels similar to the graphics shown below or molded/stamped facsimiles of these graphics on the enclosure. The explanation of these graphics appears on this page. Please observe all cautions indicated on this page and those indicated in the safety instruction section.



See bottom of Keyboard enclosure for graphic symbol markings.



The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



The lightning flash with arrowhead symbol, within the equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock.

IMPORTANT NOTICE: All Yamaha electronic products are tested and approved by an independent safety testing laboratory in order that you may be sure that when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. DO NOT modify this unit or commission others to do so unless specifically authorized by Yamaha. Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty may be denied if the unit is/has been modified. Implied warranties may also be affected.

**SPECIFICATIONS SUBJECT TO CHANGE:** The information contained in this manual is believed to be correct at the time of printing. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

**ENVIRONMENTAL ISSUES:** Yamaha strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

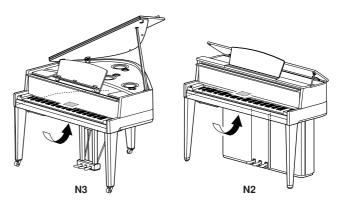
**Battery Notice:** This product MAY contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

Warning: Do not attempt to recharge, disassemble, or incinerate this type of battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by applicable laws. Note: In some areas, the servicer is required by law to return the defective parts. However, you do have the option of having the servicer dispose of these parts for you.

**Disposal Notice:** Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc.

**NOTICE:** Service charges incurred due to lack of knowledge relating to how a function or effect works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

NAME PLATE LOCATION: The graphic below indicates the location of the name plate. The model number, serial number, power requirements, etc., are located on this plate. You should record the model number, serial number, and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.



Model		_
Serial No		_
Purchase Date		

92-469- 1 (bottom)



The above warning is located on the bottom of the unit.

#### **Explanation of Graphical Symbols**



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

## IMPORTANT SAFETY INSTRUCTIONS

- 1 Read these instructions.
- 2 Keep these instructions.
- 3 Heed all warnings.
- 4 Follow all instructions.
- 5 Do not use this apparatus near water.
- 6 Clean only with dry cloth.
- 7 Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8 Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9 Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

- 11 Only use attachments/accessories specified by the manufacturer.
- 12 Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13 Unplug this apparatus during lightning storms or when unused for long periods of time
- 14 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

#### **WARNING**

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

(UL60065\_03)

#### IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

BLUE : NEUTRAL BROWN : LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured makings identifying the terminals in your plug proceed as follows: The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Making sure that neither core is connected to the earth terminal of the three pin plug.

• This applies only to products distributed by Yamaha Music U.K. Ltd.

(2 wires)

## Hybrid Piano

## AVANTGRAND

Combining over one hundred years of superb piano craftsmanship with the latest advanced technologies, Yamaha is proud to introduce a true hybrid acoustic/digital piano that meets the demands of contemporary musicians.

#### Authentic Acoustic Piano Touch with Special Grand Piano Action and Piano Keyboard

This brand new, innovative keyboard delivers the rich expressive quality of an actual grand piano, thanks to its finely nuanced touch and exceptional response. Drawing on our many decades of expertise in crafting grand pianos, Yamaha has created a unique and yet wholly traditional piano action mechanism for the Avant Grand—employing an action in which the hammers hit the strings from underneath, just as on an actual grand piano. The action of the hammers and the balance of each hammer weight have been meticulously adjusted to give this revolutionary keyboard an exceptionally natural and consistent feel. The keyboard also uses real-wood keys, just as on a real grand piano, and the white keys are made from the special material "Ivorite," developed specifically by Yamaha to recreate the natural feel of ivory. The result is an amazingly expressive keyboard that lets your fingers dance lightly over the keys when playing rapid passages, and provides firm response when playing slow passages—for an authentic touch and feel that goes far beyond any existing digital piano.

#### The Realistic Ambience of Grand Piano Voice

The N3/N2 features Yamaha's original brand new four-channel Multi Sampling tone-generation sampling technology for the grand piano voices. The voices are recorded at the left, right, center and rear positions of a grand piano, giving performers the rich resonance and sonic power heretofore only available on an actual grand piano.

The instrument also utilizes a new four-channel Multi Speaker System, in which each speaker is equipped with its own dedicated amplifier. This is essential for preserving the sonic integrity of each frequency range and making sure that every musical part and all of its nuances are reproduced naturally with absolute clarity. In addition, the N3 is equipped with a special flat resonator inside the instrument to enhance the expressive response of the sound, providing a realistic response especially for the high notes.

#### True Grand Piano Resonance

The Avant Grand features a special TRS (Tactile Response System), which realistically reproduces the resonance of the instrument, or the vibration that you feel from the keys or the pedals when you play an actual grand piano. You can switch the function on/off, and the strength of vibration can be adjusted in three levels.

#### Flexible Volume Control

Unlike acoustic pianos, the Avant Grand gives you full control over the instrument volume, letting you adjust the level just as desired. Also, you can play or listen in total privacy through one or two pairs of headphones. The innovative TRS system enables you to feel the natural vibration of real acoustic grand piano even when using headphones.

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You can download various MIDI-related reference materials, such as the MIDI Data Format and MIDI Implementation Chart, from the Yamaha Manual Library.

Connect to the Internet, visit the following website, type the model name of your instrument (such as "N3") in the Model Name text box, then click the Search button.

#### Yamaha Manual Library

http://www.yamaha.co.jp/manual/

- The illustrations and displays as shown in this manual are for instructional purposes only, and may appear somewhat different from those on your instrument.
- The panel illustrations shown in this manual are taken from the N3.

## **PRECAUTIONS**

#### PLEASE READ CAREFULLY BEFORE PROCEEDING

\* Please keep this manual in a safe place for future reference.



### WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

#### Power supply/Power cord

- Only use the voltage specified as correct for the instrument. The required voltage is printed on the name plate of the instrument.
- Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.
- Use only the supplied power cord/plug.
- Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.

#### Do not open

 Do not open the instrument or attempt to disassemble the internal parts or modify them in any way. The instrument contains no user-serviceable parts. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel.

#### **Water warning**

- Do not expose the instrument to rain, use it near water or in damp or wet
  conditions, or place containers on it containing liquids which might spill into
  any openings. If any liquid such as water seeps into the instrument, turn off the
  power immediately and unplug the power cord from the AC outlet. Then have
  the instrument inspected by qualified Yamaha service personnel.
- · Never insert or remove an electric plug with wet hands.

#### Fire warning

Do not put burning items, such as candles, on the unit.
 A burning item may fall over and cause a fire.

#### If you notice any abnormality

If the power cord or plug becomes frayed or damaged, or if there is a sudden
loss of sound during use of the instrument, or if any unusual smells or smoke
should appear to be caused by it, immediately turn off the power switch,
disconnect the electric plug from the outlet, and have the instrument inspected
by qualified Yamaha service personnel.



## CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

#### Power supply/Power cord

- When removing the electric plug from the instrument or an outlet, always hold the plug itself and not the cord. Pulling by the cord can damage it.
- Remove the electric plug from the outlet when the instrument is not to be used for extended periods of time, or during electrical storms.
- Do not connect the instrument to an electrical outlet using a multiple-connector.
   Doing so can result in lower sound quality, or possibly cause overheating in the outlet.

#### Assembly (N3)

Read carefully the attached documentation explaining the assembly process.
 Failure to assemble the instrument in the proper sequence might result in damage to the instrument or even injury.

#### Location

- Do not expose the instrument to excessive dust or vibrations, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day) to prevent the possibility of panel disfiguration or damage to the internal components.
- Do not use the instrument in the vicinity of a TV, radio, stereo equipment, mobile phone, or other electric devices. Otherwise, the instrument, TV, or radio may generate noise.
- Do not place the instrument in an unstable position where it might accidentally fall over
- Before moving the instrument, remove all connected cables.

When setting up the product, make sure that the AC outlet you are using is
easily accessible. If some trouble or malfunction occurs, immediately turn off
the power switch and disconnect the plug from the outlet. Even when the power
switch is turned off, electricity is still flowing to the product at the minimum
level. When you are not using the product for a long time, make sure to unplug
the power cord from the wall AC outlet.

#### **Connections**

Before connecting the instrument to other electronic components, turn off the
power for all components. Before turning the power on or off for all
components, set all volume levels to minimum. Also, be sure to set the volumes
of all components at their minimum levels and gradually raise the volume
controls while playing the instrument to set the desired listening level.

#### **Maintenance**

- In the case of a model with a polished finish, gently remove dust and dirt with a soft cloth. Do not wipe too hard since small particles of dirt can scratch the instrument's finish.
- When cleaning the instrument, use a soft, dry or slightly damp cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths
- During extreme changes in temperature or humidity, condensation may occur
  and water may collect on the surface of the instrument. If water is left, the
  wooden parts may absorb the water and be damaged. Make sure to wipe any
  water off immediately with a soft cloth.

#### **Handling caution**

- Take care that the key cover does not pinch your fingers, and do not insert a finger or hand in any gaps on the fallboard or instrument.
- Never insert or drop paper, metallic, or other objects into the gaps on the fallboard, panel or keyboard. If this happens, turn off the power immediately and unplug the power cord from the AC outlet. Then have the instrument inspected by qualified Yamaha service personnel.
- Do not place vinyl, plastic or rubber objects on the instrument, since this might discolor the panel or keyboard.
- In the case of a model with a polished finish, bumping the surface of the instrument with metal, porcelain, or other hard objects can cause the finish to crack or peel. Use caution.
- Do not rest your weight on, or place heavy objects on the instrument, and do not use excessive force on the buttons, switches or connectors.
- Do not use the instrument/device or headphones for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss. If you experience any hearing loss or ringing in the ears, consult a physician.

#### Using the bench (If included)

- Do not place the bench in an unstable position where it might accidentally fall over.
- Do not play carelessly with or stand on the bench. Using it as a tool or stepladder or for any other purpose might result in accident or injury.
- Only one person should sit on the bench at a time, in order to prevent the possibility of accident or injury.
- Do not attempt to adjust the bench height while sitting on the bench, since this
  can cause excessive force to be imposed on the adjustment mechanism,
  possibly resulting in damage to the mechanism or even injury.
- If the bench screws become loose due to extensive long-term use, tighten them
  periodically using the included tool.

#### Saving data

#### Saving and backing up your data

 The song data saved to internal memory of this instrument is retained even when the power is turned off. However, the data could be lost due to malfunction or incorrect operation. Save important data to a USB storage device (page 29).

#### **Backing up the USB storage device**

 To protect against data loss through media damage, we recommend that you save your important data onto two USB storage devices.

Yamaha cannot be held responsible for damage caused by improper use or modifications to the instrument, or data that is lost or destroyed.

Always turn the power off when the instrument is not in use.

This product incorporates and bundles computer programs and contents in which Yamaha owns copyrights or with respect to which it has license to use others' copyrights. Such copyrighted materials include, without limitation, all computer software, style files, MIDI files, WAVE data, musical scores and sound recordings. Any unauthorized use of such programs and contents outside of personal use is not permitted under relevant laws. Any violation of copyright has legal consequences. DON'T MAKE, DISTRIBUTE OR USE ILLEGAL COPIES.

. Copying of the commercially available musical data including but not limited to MIDI data and/or audio data is strictly prohibited except for your personal use.

#### **IMPORTANT** – Check your power supply –

Make sure that your local AC mains voltage matches the voltage specified on the name plate on the bottom panel. In some areas a voltage selector may be provided on the bottom of the main keyboard unit near the power cord. Make sure that the voltage selector is set for the voltage in your area. The voltage selector is set at 240V when the unit is initially shipped. To change the setting use a "minus" screwdriver to rotate the selector dial so that the correct voltage appears next to the pointer on the panel.

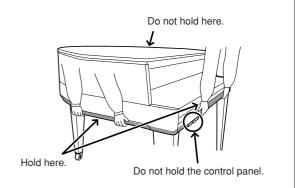
#### **Transporting / Placing**

If you move to another location, transport the instrument horizontally. Do not lean it up against a wall or stand it up side down. Do not subject the instrument to excessive vibration or shock.

#### **A** CAUTION

When moving the instrument, always hold the bottom of the main unit. Be sure not to hold the control panel located on the bottom left. Improper handling can result in damage to the instrument or personal injury

- N3: To enhance the safety and to protect the floor, we recommend to put the instrument on caster cups.
- N2: Place the instrument away from the wall so that you can open or close the lid. (Rear: at least 15 cm, Side: at least 10 cm) If you find the instrument shaky or unstable after installing, insert the included felt strips. For details, refer to the instructions supplied with the felt strips.



#### Tuning

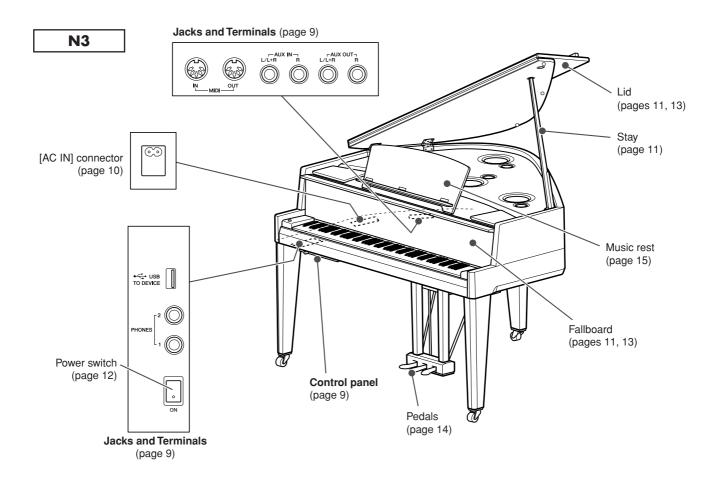
Unlike an acoustic piano, the instrument does not need to be tuned. It always stays perfectly in tune. However, if you feel something wrong concerning the keyboard touch, contact your Yamaha dealer.

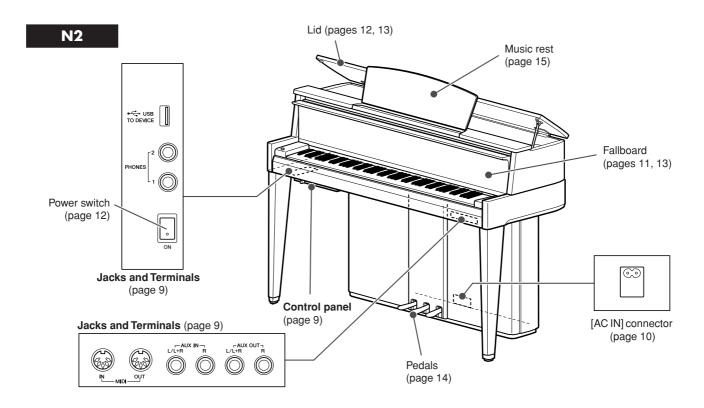
(1)B-13 2/2

## Panel Controls and Terminals

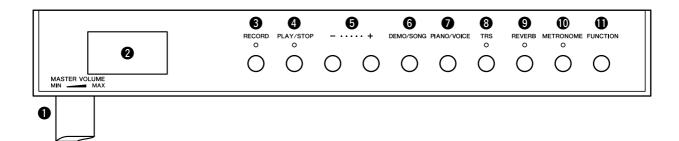
#### **Overview**

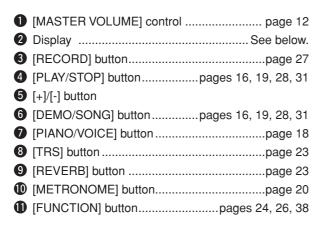
The jacks and terminals on the underside of the instrument as shown here may seem to be in reverse from your perspective in front of the instrument. Make sure when using these to carefully check the names as printed on the panel before making connections.

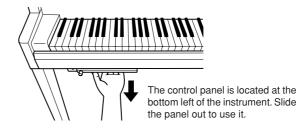




#### **Control Panel**







#### **CAUTION**

Do not pull on the [MASTER VOLUME] control to slide out the control panel.

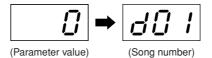
#### Display

Normally indicates the currently selected song\* number. (When no song is selected, nothing is displayed.)



(Song number)

As you change the settings of each function, the parameter value appears briefly before returning to the song number display.



The TRS or reverb setting value is displayed while the [TRS] or [REVERB] button is held.

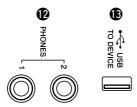


(TRS or reverb value

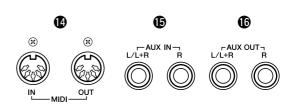
For more information, refer to the instructions on each function. The message list (page 39) is also available for your reference.

\*Song: In this manual, performance data is called a "Song." This means preset songs (page 16), voice demos (page 19), user songs (page 28) and USB songs (page 31).

### **Jacks and Terminals**



- PHONES] jacks.....page 14
- USB [TO DEVICE] terminal.....page 35

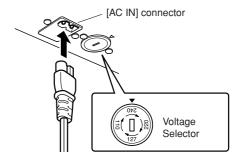


- MIDI [IN] [OUT] connectors.....page 37
- **(b)** AUX IN [L/L+R] [R] jacks.....page 36
- **6** AUX OUT [L/L+R] [R] jacks.....page 36

## Playing the Keyboard

### Connecting the power cord

**1-1** Set the voltage selector and insert the power cord plug to the [AC IN] connector. Refer to the "Panel Controls and Terminals" on page 8 for information on the location of the [AC IN] connector.



#### **Voltage Selector**

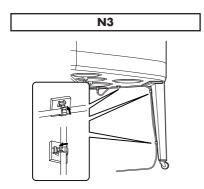
Before connecting the AC power cord, check the setting of the voltage selector which is provided in some areas. To set the selector for 110V, 127V, 220V or 240V main voltages, use a "minus" screwdriver to rotate the selector dial so that the correct voltage for your region appears next to the pointer on the panel. The voltage selector is set at 240V when the unit is initially shipped. After the proper voltage has been selected, connect the AC power cord to the AC IN and an AC wall outlet. A plug adaptor may be also provided in some areas to match the pin configuration of the AC wall outlets in your area.

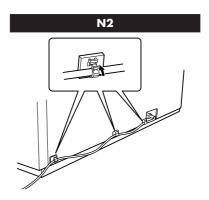
#### 

Make sure your instrument is rated for the AC voltage supplied in the area in which it is to be used. (The voltage rating appears on the name plate on the bottom panel). Connecting the unit to an inappropriate AC supply can seriously damage the internal circuitry and may even pose a shock hazard!

**1-2** Attach the included cord holders to the instrument, then clip the power cord into the holder.

#### **Example**





**1-3** Insert the plug on the other end of the power cord to a standard AC outlet.



#### N WARNING

Use only the AC power cord supplied with the instrument. If the supplied power cord is lost or damaged and needs to be replaced, contact your Yamaha dealer. The use of an inappropriate replacement can pose a fire and shock hazard!

#### / WARNING

The type of AC power cord provided with the instrument may be different depending on the country in which the instrument was purchased. (In some areas a plug adaptor may be provided to match the pin configuration of the AC wall outlets in your area.) Do NOT modify the plug provided with the instrument. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

## 2 Opening the fallboard

Using the hand grip on the front, lift open the fallboard.

#### **!** CAUTION

Hold the fallboard with both hands when opening or closing it. Do not release it until it is fully opened or closed. Be careful to avoid catching fingers (yours or others, especially children's) between the fallboard and the unit.

#### **<u>A</u>** CAUTION

Do not place objects such as a piece of metal or paper on top of the fallboard. Small objects placed on the fallboard may fall inside the unit when the fallboard is opened and may be nearly impossible to remove. This could cause electric shock, short circuit, fire or other serious damage to the instrument.

If this happens, turn off the power immediately and unplug the power cord from the AC outlet. Then have the instrument inspected by qualified Yamaha service personnel.



## $oldsymbol{3}$ Opening the lid

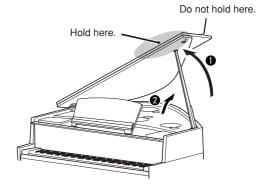
#### N3

One long stay and one short stay are provided on the lid. Use one of them to open the lid to the desired angle.

#### / CAUTION

Do not let children open or close the lid. Also, be careful to avoid catching fingers (yours or others, and especially those of children) when raising or lowering the lid.

- **3-1** Hold the right side of the lid and raise it.
- **3-2** Raise the lid stay and carefully lower the lid so that the end of the stay fits into the recess in the lid.



For the longer stay, use the inner recess, and for the shorter stay, use the outer recess to support the lid.

#### **!** CAUTION

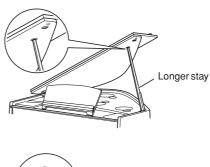
Do not use the outer recess for the longer stay. Doing so makes the lid unstable and may cause it to fall, resulting in damage or injury.

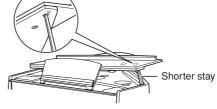
#### **!** CAUTION

Make sure that the end of the stay fits securely in the lid recess. If the stay is not properly seated in the recess, the lid may fall, causing damage or injury.

#### **!** CAUTION

Be careful that you or others do not bump the stay while the lid is raised. Also, make sure to close the lid when moving the instrument. If bumped, the stay may be dislodged out of the lid recess causing the lid to fall.



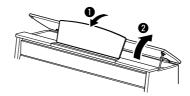


N2

#### **A** CAUTION

Be careful to avoid catching fingers (yours or others, and especially those of children) in folding portion or between the cover and main unit.

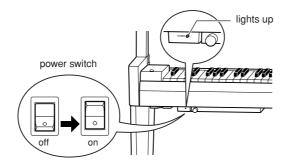
- **3-1** Raise the music rest (page 15).
- **3-2** Open the lid up as far as it will go.



## **4** Turning the power on

Turn on the switch located on the bottom left of the keyboard to turn the power on.

The [POWER] indicator located below the left end of the keyboard lights up.



#### **!** CAUTION

Do not press any keys until the instrument has completely started up (approx. eight seconds after turning on the switch). Doing so may cause some keys to not sound normally.

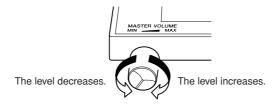
## **5** Playing the keyboard

Play the keyboard to produce sound.



#### Adjusting the volume

While playing the keyboard, adjust the volume level by using the [MASTER VOLUME] control located at the left of the panel.



When the TRS (page 23) function is on, sound can be heard to some degree even when the volume is set to the minimum.

#### **!** CAUTION

Do not use this instrument at a high volume level for a long period of time, or your hearing may be damaged.

## $\emph{6}$ Turning the power off

Turn the switch off.



The [POWER] indicator turns off.



A small amount of electrical current remains even after the power switch is turned off. If you plan not to use the instrument for a long period of time, be sure to unplug the instrument from the AC outlet.

## 7 Closing the lid

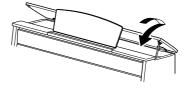
N3

- **7-1** Hold the lid stay and carefully raise the lid.
- **7-2** Hold the lid in its raised position and lower the lid stay.
- **7-3** Carefully lower the lid.



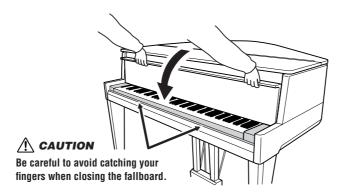
N2

Slightly raise the lid, then lower it gently.



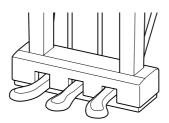
## $\delta$ Closing the fallboard

Grip the fallboard, and close it gently.



## **Using the Pedals**

The instrument has three foot pedals that produce a range of expressive effects similar to those produced by the pedals on an acoustic piano.

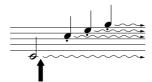


#### Damper (Right) Pedal

The damper pedal functions in the same way as a damper pedal on an acoustic piano. When the damper pedal is pressed, notes sustain longer. Releasing the pedal immediately stops (damps) any sustained notes. The damper pedal features a half-pedal function.

#### Sostenuto (Center) Pedal

If you play a note or chord on the keyboard and press the sostenuto pedal while the note(s) are held, those notes will sustain as long as you hold the pedal (as if the damper pedal had been pressed) but all subsequently played notes will not be sustained. This makes it possible to sustain a chord, for example, while other notes are played "staccato."



When you press the damper pedal here, the notes you play before you release the pedal sustain longer.



When you press the sostenuto pedal here while holding the note, the note will sustain as long as you hold the pedal.

#### What is the half-pedal function?

This function allows the sustain length to vary depending on how far the pedal is pressed. The farther you press the pedal, the more the sound sustains. For example, if you press the damper pedal and all notes you are playing sound a bit murky and loud with too much sustain, you can release the pedal half way to subdue the sustain (murkiness).

#### Soft (Left) Pedal

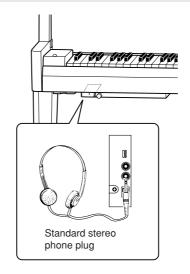
The soft pedal reduces the volume and slightly changes the timbre of notes played while the pedal is pressed. The soft pedal will not affect notes that are already playing when it is pressed.

## **Using Headphones (option)**

Connect a pair of headphones to one of the [PHONES] jacks located on the bottom left of the instrument. When the headphones are plugged into either of the [PHONES] jacks, the internal speaker system is automatically shut off. Two [PHONES] jacks are provided. You can connect two sets of standard stereo headphones. (If you are using only one pair of headphones, you can plug them into either jack.)

#### **<u>A</u>** CAUTION

Do not listen to the instrument at a high volume level through headphones for a long period of time, or your hearing may be damaged.



The TRS is turned off when headphones are connected. Press the [TRS] button to turn it on (page 23).

When the TRS (page 23) is on, sound can be heard to some degree even when the headphones are connected.

## **Music Rest**

#### N3

#### To raise the music rest:

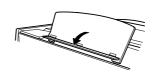
**1** Gently open the front portion of lid.



2 Pull the music rest up and toward yourself until it remains at the desired angle. The music rest is latched at angles of 35 degrees and 70 degrees.



3 Open the music brace.



#### To lower the music rest:

1 Close the music brace.



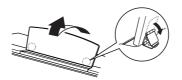
- 2 Pull the music rest toward yourself as far as it will go. When the music rest is at a 35 degree angle, raise it to a 70 degree angle, then pull it toward yourself.
- **3** Gently lower the music rest backward until it is all the way down.



#### N2

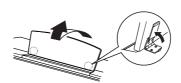
#### To raise the music rest:

- 1 Pull the music rest up and toward yourself as far as it will go.
- 2 Flip down the two metal supports at the left and right on the rear of the music rest.
- 2 Lower the music rest so that it rests on the metal supports.



#### To lower the music rest:

- Pull the music rest toward yourself as far as it will go.
- **2** Raise the two metal supports (at the rear of the music rest).
- **3** Gently lower the music rest backward until it is all the way down.

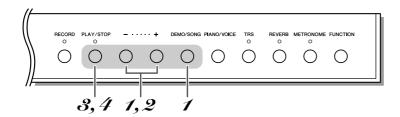


#### **<u>A</u>** CAUTION

Do not try to use the music rest in a half-raised position.

## Listening to the Preset Songs

This instrument features a variety of built-in piano preset songs. You can simply listen to these songs.



## I Engage the Preset Song mode.

While holding down the [DEMO/SONG] button, press the [+] or [-] button until "PD 1" appears on the display.



## ${\it 2}$ Select a preset song.

Press the [+] or [-] button to select a song.

- PO 1-P 10 ...... Select a preset song number and play only the selected song.
- P.RL ...... Play all preset songs in sequence.

## 3 Start playback.

Press the [PLAY/STOP] button to start playback.

While a piano preset song is playing, press the [+] or [-] button to change to the next or previous piano song.

## # Stop playback.

Press the [PLAY/STOP] button to stop playback.

#### Song

In this manual, performance data is called a "Song." This includes preset songs and demo songs.

#### Mode:

A mode is a status under which you can execute a certain function. In the Preset Song mode, you can select a preset song.

#### Random order:

The songs are selected and played back randomly by the instrument—similar to the shuffling of a deck of cards—when pressing the [PLAY/STOP] button.

You can play the keyboard along with the preset song.

While a piano preset song is playing, hold down the [METRONOME] button and press the [+] or [-] button to change the song tempo.

If you are using the metronome (page 20) during preset song playback, press the [+] or [-] button to change the song tempo. You can also press keys to change the tempo.

The preset songs will not be transmitted via MIDI.

#### Select and start playback songs from the keyboard

You can also select and start playback songs by pressing the keys.

• Play back a particular song:

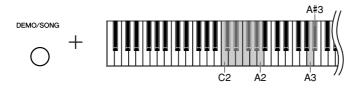
While holding down the [DEMO/SONG] button, press one of the C2–A2 keys.

• Play back all:

While holding down the [DEMO/SONG] button, press the A3 key.

• Play back randomly:

While holding down the [DEMO/SONG] button, press the A#3 key.



The selected preset song starts to play.

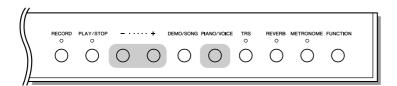
#### **Preset Songs**

isplay	Key	Title	Composer
PO 1	C2	Nocturne, op.9-1	F. F. Chopin
P02	C#2	Mädchens Wünsch, 6 Chants polonaise	F. Liszt
P03	D2	Fantaisie-Impromptu	F. F. Chopin
P04	D#2	Aria, Goldberg-Variationen, BWV.988	J. S. Bach
P05	E2	Clair de lune	C. A. Debussy
P06	F2	Sonate, K.380, L.23	D. Scarlatti
POT	F#2	Sonate für Klavier Nr.14 "Mondschein", op.27-2	L. v. Beethoven
P08	G2	Sonate für Klavier Nr.5, K.283	W. A. Mozart
P09	G#2	Valse, op.69-2	F. F. Chopin
P 10	A2	Consolation No.3	F. Liszt

## **Basic Operations and More**

The following instructions provide all you need to know about the instrument to take full advantage of its versatile and sophisticated functions.

## **Selecting Voices**



Press and release the [PIANO/VOICE] button to select the Grand Piano 1 voice. While holding down the [PIANO/VOICE] button, press the [+] or [-] button to select a different voice.

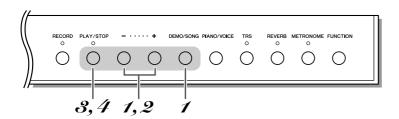
Turn the [MASTER VOLUME] control to adjust the volume level while playing the keyboard.

Display	Voice Name	Description
1	Grand Piano 1	Recorded samples from a full concert grand piano. Perfect for classical compositions as well as any other style that requires acoustic piano.
2	Grand Piano 2	Spacious and clear piano with bright reverb. Good for popular music.
3	E.Piano 1	An electronic piano sound created by FM synthesis. Good for popular music.
Ч	E.Piano 2	The sound of an electric piano using hammer-struck metallic "tines." Soft tone when played lightly, and an aggressive tone when played hard.
5	Harpsichord	The definitive instrument for baroque music. Since the strings of a harpsichord are plucked, there is no touch response.

To understand the characteristics of various voices, listen to demo songs for each voice (page 19).

## **Listening to the Voice Demo Songs**

Demo songs are provided that effectively demonstrate each of this instrument's voices.



## I Engage the Demo Song mode.

While holding down the [DEMO/SONG] button, press the [+] or [-] button until the "da" !" appears on the display.



## ${\it 2}$ Select a demo song.

Press the [+] or [-] button to select a song.

## 3 Start playback.

Press the [PLAY/STOP] button to start playback.

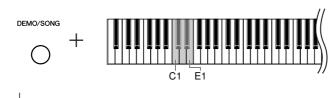
While a demo song is playing, press the [+] or [-] button to select and play the next or previous demo song.

## 4 Stop playback.

Press the [PLAY/STOP] button to stop playback.

#### Select and start playback songs from the keyboard

If you wish to select a particular demo song, press one of the C1–E1 keys while holding down the [DEMO/SONG] button.



The selected demo song starts to play.

#### **Demo Songs**

Each of the voices features its own demo song that showcases the corresponding voice.

The dQ 1 and dQS songs are re-arranged excerpts from the original compositions.

The other demo songs are Yamaha's original pieces (©2009 Yamaha Corporation).

Display	Key	Voice Name	Title	Composer
d0 I	C1	Grand Piano 1	Un sospiro, 3 Études de concert	F. Liszt
905	C#1	Grand Piano 2	_	_
403	D1	E.Piano 1	_	_
404	D#1	E.Piano 2	_	_
405	E1	Harpsichord	Concerto a cembalo obbligato, 2 violini, viola e continuo No.7, BWV.1058	J. S. Bach

Simply press the [DEMO/SONG] button to start playback of the demo song for the currently selected voice.

You can play the keyboard along with the demo song.

While a demo song is playing, press and hold down the [METRONOME] button and press the [+] or [-] button to change the song tempo.

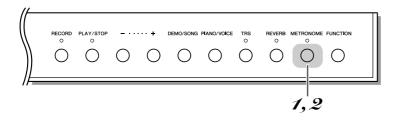
If you are using the metronome (page 20) during demo song playback, press the [+] or [-] button to change the song tempo. You can also press keys to change the tempo.

The demo songs will not be transmitted via MIDI.

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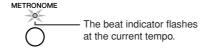
## **Using the Metronome**

This instrument features a built-in metronome (a device that keeps an accurate tempo) that is convenient for practicing.



#### Start the metronome.

Press the [METRONOME] button to turn on the metronome.



#### Adjusting the tempo

You can adjust the metronome tempo by pressing the [+] or [-] button while the metronome is playing.

• To increase the tempo value in steps of one:

While the metronome is playing, press the [+] button.

Alternatively, press the C#5 key while holding down the [METRONOME] button.

• To decrease the tempo value in steps of one:

While the metronome is playing, press the [-] button.

Alternatively, press the B4 key while holding down the [METRONOME] button.

• To increase the tempo value in steps of ten:

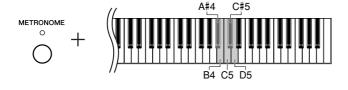
While holding down the [METRONOME] button, press the D5 key.

• To decrease the tempo value in steps of ten:

While holding down the [METRONOME] button, press the A#4 key.

● To reset the tempo to default:

While the metronome is playing, press the [+] and [-] buttons simultaneously. Alternatively, press the C5 key while holding down the [METRONOME] button.



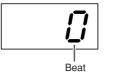
Setting range: 5 to 500 beats per minute Normal setting: 120

When the song is selected, it becomes the default tempo of the song automatically during playback.

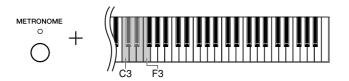
To reset the tempo to default value while the metronome is stopped, press the [METRONOME], [+] and [-] buttons simultaneously.

#### Adjusting the time signature

While holding down the [METRONOME] button, press one of the C3–F3 keys. The current setting appears on the display while both controls are held.



The first beat is accented with a bell sound and the rest with clicks. When the time signature is set to 0/4, clicks sound in all beats



Display	Key	Beat
0	C3	0/4 (No downbeat)
2	C#3	2/4
3	D3	3/4
ч	D#3	4/4
5	E3	5/4
8	F3	6/4

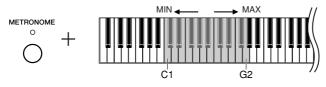
Normal setting: 0/4 (No downbeat)

## ${\it 2}$ Stop the metronome.

Turn off the metronome by pressing the [METRONOME] button.

#### Adjusting the volume

While holding down the [METRONOME] button, press one of the C1–G2 keys to determine the volume. The current metronome volume setting appears on the display while both controls are held.



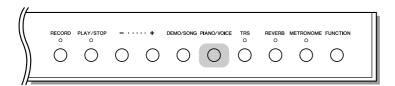
The volume level increases as you press higher keys.

Setting range: 1–20 Normal setting: 10

The metronome volume setting is retained even when the power is turned off.

## **Adjusting the Keyboard Touch (Touch Sensitivity)**

You can select four different types of keyboard touch sensitivity — HARD, MEDIUM, SOFT or FIXED — to match different playing styles and preferences.



While holding down the [PIANO/VOICE] button, press one of the A6–C7 keys to select the desired touch sensitivity. The current touch type setting appears on the display while both controls are held.



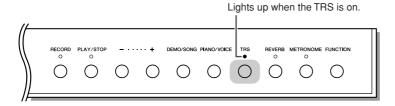
Display	Key	Touch Type	Description		
OFF	A6	Fixed	All notes are produced at the same volume no matter how hard the keyboard is played.		
1	A#6	Soft	Allows maximum loudness to be produced with relatively light key pressure.		
2	B6	Medium	Produces a fairly "standard" keyboard response.		
3	C7	Hard	Requires that the keys be played quite hard to produce maximum loudness. The volume level changes very widely from pianissimo to fortissimo to facilitate dynamic and dramatic expression.		

Normal setting: 2 (Medium)

This setting does not change the weight of the keyboard.

## **Adjusting the Strength of Vibration (TRS)**

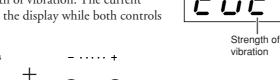
This instrument features a special TRS (Tactile Response System) that enables you to feel the natural vibration or resonance of the instrument when you play the keyboard, just as on an actual acoustic piano. You can select the strength of vibration for your taste.



Press the [TRS] button to switch the TRS function on or off.

#### Adjusting the strength of vibration

While holding down the [TRS] button, press the [+] or [-] button to adjust the strength of vibration. The current strength setting appears on the display while both controls are held.



Setting range: t01 (weak) – t03 (strong) Normal setting: t02

The actual vibration strength you feel will differ depending on the selected voice, even when the TRS value on the display is the same.

The TRS value is restored to the default setting (t02) when the voice is changed.

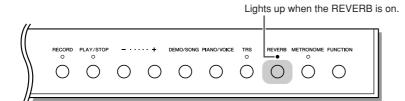
To display the TRS value, press just the [TRS] button.

The TRS is turned off when headphones are connected. Press the [TRS] button to turn it on.

When headphones are connected, the vibration is weakened even if the setting value has not been changed.

## Adding Variations to the Sound — Reverb

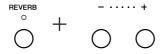
The reverb effect reproduces the realistic acoustic ambience of grand piano.



Press the [REVERB] button to switch the reverb on or off.

## Adjusting Reverb Depth

While holding down the [REVERB] button, press the [+] or [-] button to adjust the reverb depth. The current reverb depth setting appears on the display while both controls are held.



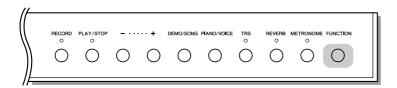
Setting range: 1–20 Normal setting: 5

To display the reverb depth setting, press just the [REVERB] button.

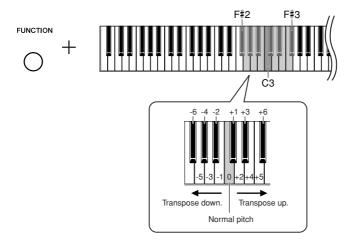
## **Transposition**

This instrument's Transpose function makes it possible to easily match the pitch of the keyboard in semitone intervals to the range of a singer or other instruments.

For example, if you set the transposition amount to "5," playing key C produces pitch F. In this way, you can play a song as though it were in C major, and this instrument will transpose it to F major.



While holding down the [FUNCTION] button, press one of the F#2–F#3 keys to set the desired amount of transposition. Holding down both controls shows the current amount of transposition.



• To transpose the pitch down (in semitone steps):

Press one of the F#2–B2 keys while holding the [FUNCTION] button.

• To transpose the pitch up (in semitone steps):

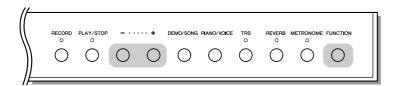
Press one of the C#3–F#3 keys while holding the [FUNCTION] button.

To initialize the normal pitch:

Press the C3 key while holding the [FUNCTION] button.

## **Fine-tuning the Pitch**

You can fine-tune the pitch of the entire instrument. This function is useful when you play this instrument along with other instruments or CD music.



#### ● To tune up (in about 0.2Hz steps):

While holding down the [FUNCTION] button, press the [+] button. Holding down both buttons shows the current pitch setting.



#### Example: 432.0Hz

#### ● To tune down (in about 0.2Hz steps):

While holding down the [FUNCTION] button, press the [-] button. Holding down both buttons shows the current pitch setting.

#### To restore standard pitch:

While holding down the [FUNCTION] button, press the [+] and [-] buttons simultaneously. Holding down all three buttons shows the current pitch setting.

The tuning setting is retained even when the power is turned off.

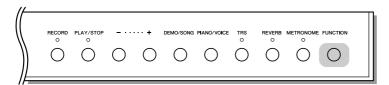
#### Hz (Hertz):

This unit of measurement refers to the frequency of a sound and represents the number of times a sound wave vibrates in a second.

Setting range: 414.8–466.8Hz (=A3) Normal setting: 440.0Hz (=A3)

## **Scale Tuning**

You can select various scales. Equal Temperament is the most common contemporary piano tuning scale. However, history has known numerous other scales, many of which serve as the basis for certain genres of music. You can experience the tunings of these genres.



While holding down the [FUNCTION] button, press one of the C5–F#5 keys to select the scale. Holding down both controls shows the current scale setting.

Normal setting: Equal

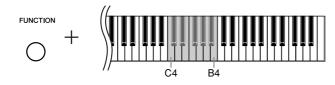


Display	Key	Scale	Description
ł –	C5	Equal	The pitch range of each octave is divided equally into twelve parts, with each half-step evenly spaced in pitch. This is the most commonly used tuning in music today.
2	C#5	Pure Major	These tunings preserve the pure mathematical intervals of each scale, — especially for triad chords (root, third, fifth). You can hear this best in
3	D5	Pure Minor	actual vocal harmonies — such as choirs and a cappella singing.
Ч	D#5	Pythagorean	This scale was devised by the famous Greek philosopher and is created from a series of perfect fifths, which are collapsed into a single octave. The 3rd in this tuning are slightly unstable, but the 4th and 5th are beautiful and suitable for some leads.
5	E5	Mean-Tone	This scale was created as an improvement on the Pythagorean scale, by making the major third interval more "in tune." It was especially popular from the 16th century to the 18th century. Handel, among others, used this scale.
6	F5	Werckmeister	This composite scale combines the Werckmeister and Kirnberger systems, which were themselves improvements on the mean-tone and Pythagorean scales. The main feature of this scale is that each key
7	F#5	Kirnberger	has its own unique character. The scale was used extensively during the time of Bach and Beethoven, and even now it is often used when performing period music on the harpsichord.

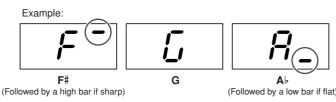
Normal setting: C

#### **Determines the Base Note for each scale**

While holding down the [FUNCTION] button, press one of the C4–B4 keys. Holding down both controls shows the current base note setting.



Key	Base Note						
C4	С	D#4	E♭	F#4	F#	A4	Α
C#4	C#	E4	Е	G4	G	A#4	В♭
D4	D	F4	F	G#4	Αb	B4	В

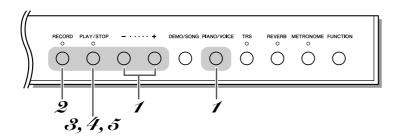


## Recording your Performance

This instrument's recording function enables you to record your performance. Follow the steps below to record and play back your performance.

#### Audio recording and data recording

Cassette tape recordings use a different data format than this instrument. Cassette tapes record audio signals. On the other hand, this instrument records information about the notes and voices being played and about the timing and tempo of those notes. It does not record audio signals. When you play back a recorded performance on this instrument, its internal tone generator reproduces the sound according to the recorded information.



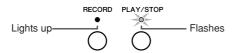
#### Select a voice for the recording.

While holding down the [PIANO/VOICE] button, press the [+] or [-] button to select the desired voice (page 18). Use the [MASTER VOLUME] control to adjust the volume to a comfortable listening level.

## ${\it 2}$ Engage the Record mode.

Press the [RECORD] button.

The [RECORD] button indicator lights up steadily, and the [PLAY/STOP] button indicator flashes.



Press the [RECORD] button again if you wish to cancel Record mode.

#### **A** CAUTION

After you've recorded a performance on this instrument, starting to record another performance will automatically erase the previously recorded data.

You can also use the [MASTER VOL-UME] control to adjust the volume level during playback.

You cannot engage the Record mode while another song, such as a demo song, is playing.

This instrument's internal memory allows the recording of one song.

The recorded song to the instrument can be saved to USB flash memory (page 29).

When a USB flash memory device is connected to the instrument, the performance is recorded to the USB flash memory directly.

If there is not enough recording capacity left, or if the files U00–U99 already exist in the USB flash memory, "F UL" will appear on the display and the Record mode cannot be engaged.

Before using a USB flash memory device, be sure to read "Precautions when using the USB [TO DEVICE] terminal" on page 30.

## 3 Start recording.

Recording starts as soon as you play the keyboard.

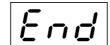
Alternatively, press the [PLAY/STOP] button to start recording.

 $\downarrow$ 

The [RECORD] button indicator and the [PLAY/STOP] button indicator light up.

## 4 Stop recording.

Press either the [RECORD] or [PLAY/STOP] button to stop recording.



Data writing will begin.

When the recording is finished, the " $\mathcal{E} \cap \mathcal{O}$ " appears on the display for three seconds.

#### **<u>A</u>** CAUTION

Do not turn off the power to the instrument or disconnect the USB flash memory device, while the instrument is recording the data (while "- - - " is displayed ). Otherwise, all recorded data, including the data being recorded, will be lost.

## **5** Play back the recorded performance.

Press the [PLAY/STOP] button to start playback of the recorded performance.

If the metronome was on when you started recording, you'll be able to keep time with the metronome while recording, but the metronome sound will not be recorded.

If the memory becomes full during recording, "F LL" will appear on the display and recording will stop automatically. (All recorded data up to that point will be retained.)

If you wish to erase previously recorded data to the instrument, press the [PLAY/STOP] button to start recording, then press it again to stop recording. Do not connect any USB device during this operation.

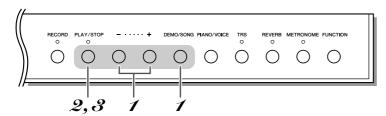
The song data recorded to a USB flash memory device can be erased by using a computer.

When you record to a USB flash memory device directly, if you select another song or disconnect the USB device after recording, the recorded performance cannot be played back by pressing the [PLAY/STOP] button. Refer to "Listening to songs in USB Flash Memory" on page 31 to play back the song.

## Playing Back the Song Recorded to the Instrument

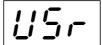
You can play back the song recorded to the instrument using the Record function (page 27). You can also play the keyboard along with the playback.

Refer to page 31 to playback the song recorded to a USB flash memory device.



## Engage User Song mode.

While holding down the [DEMO/SONG] button, press the [+] or [-] button until "U5r" appears on the display.



## 2 Start playback.

Press the [PLAY/STOP] button to start playback.

## 3 Stop playback.

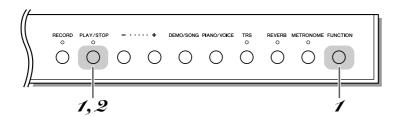
Press the [PLAY/STOP] button again to stop playback.

#### User song:

In this manual, the performance data recorded to this instrument is called a "User song".

## **Saving Your Recorded Performance to USB Flash Memory**

The recorded user song data on this instrument can be saved to a USB flash memory device. Before using a USB flash memory device, be sure to read "Precautions when using the USB [TO DEVICE] terminal" on page 30.



## 1 Engage Saving mode.

Make sure that a USB flash memory device is connected to the instrument, then while holding the [FUNCTION] button, press the [PLAY/STOP] button.

"Uxx" (xx is a number) appears on the display after " $5R_U$ ."

If you wish to cancel saving, press any button other than [PLAY/STOP] button before you go on to the next step.

## ${\it 2}$ Save the data.

Press the [PLAY/STOP] button.

Data writing will begin.

When the saving is finished, "End" appears on the display for three seconds.



Songs recorded on this instrument are saved under the file names of "USER-SONGxx.mid" (xx is a number 00–99) in the "USER FILES" folder.

The number of available file containers is  $100 \, (UDD-U99)$ .

#### **A** CAUTION

Do not turn off the power to the instrument or disconnect the USB flash memory device, while the instrument is saving the data to the USB device (while "---" is displayed). Otherwise, all data, including the data being saved, will be lost.

## Precautions when using the USB [TO DEVICE] terminal

This instrument features a built-in USB [TO DEVICE] terminal. When connecting a USB device to the terminal, be sure to handle the USB device with care. Follow the important precautions below.

#### NOTE

For more information about the handling of USB devices, refer to the owner's manual of the USB device.

#### ■ Compatible USB devices

• USB storage devices (flash memory, floppy disk drive, hard disk drive, etc.)

The instrument does not necessarily support all commercially available USB devices. Yamaha cannot guarantee operation of USB devices that you purchase. Before purchasing a USB device for use with this instrument, please visit the following web page:

http://music.yamaha.com/download/

#### **NOTE**

Other USB devices such as a computer keyboard or mouse cannot be used.

#### ■ Connecting USB device

- When connecting a USB device to the USB [TO DEVICE] terminal, make sure that the connector on the device is appropriate and that it is connected in the proper direction.
- Though the instrument supports the USB 1.1 standard, you can connect and use a USB 2.0 storage device with the instrument. However, note that the transfer speed is that of USB 1.1.

#### **Using USB Storage Devices**

By connecting the instrument to a USB storage device, you can save data you've created to the connected device, as well as read data from the connected device.

#### NOTE

Although CD-R/RW drives can be used to read data to the instrument, they cannot be used for saving data.

## ■ The number of USB storage device to be used

Only one USB storage devices can be connected to the USB [TO DEVICE] terminal.

#### ■ Formatting USB storage media

When accessing a USB storage device or media, a message may appear prompting you to format the device/media. If so, execute the Format operation (page 33).

#### **A** CAUTION

The format operation overwrites any previously existing data. Make sure that the media you are formatting does not contain important data.

#### ■ To protect your data (write-protect)

To prevent important data from being inadvertently erased, apply the write-protect provided with each storage device or media. If you are saving data to the USB storage device, make sure to disable write-protect.

## ■ Connecting/removing USB storage device

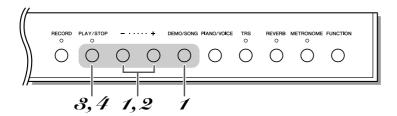
Before removing the media from the device, make sure that the instrument is not accessing data (such as in the Save and Format operations).

#### **<u>A</u>** CAUTION

Avoid frequently turning the power on/off to the USB storage device, or connecting/disconnecting the device too often. Doing so may result in the operation of the instrument "freezing" or hanging up. While the instrument is accessing data (such as during Save and Format operations) or is mounting the USB storage device (shortly after the connection), do NOT unplug the USB connector, do NOT remove the media from the device, and do NOT turn the power off to either device. Doing so may corrupt the data on either or both devices.

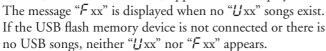
## Listening to songs in USB Flash Memory

You can conveniently connect a USB flash memory device to the instrument and listen to songs recorded to that device (on a computer). You can also save your recorded performances on the instrument to the connected device and play those songs back as well. Before using a USB flash memory, be sure to read "Precautions when using the USB [TO DEVICE] terminal" on page 30.



## I Engage the USB Song mode.

Make sure that the USB flash memory device is connected to the instrument. Then press the [+] or [-] button while holding the [DEMO/SONG] button until the message "*Uxx*" or "*Fxx*" (xx is a number 00–99) appears on the display.





## 2 Select a USB song.

Press the [+] or [-] button to select the song you want to play.

- UDD-U99 ......Select the number of the desired USB song, that of the performance which you've recorded and saved using this instrument (page 29) and play the song.
- F DD F 99 ......Select the number of the desired USB song, that which you've saved by using a computer and play the song.
- LIFIL ......Play all USB songs in sequence.
- *U.r. d* ......Play all USB songs continuously in random order.

## 3 Start playback.

Press the [PLAY/STOP] button to start playback.

## 4 Stop playback.

Press the [PLAY/STOP] button to stop playback.

#### **Character Code**

If the song cannot be loaded, you may need to change the character code setting.

#### International

Files with western alphabetical names (including umlaut or diacritic marks) can be loaded (files with names in Japanese cannot be loaded).

Turn the power on while holding the [FUNCTION] and [REVERB] buttons.

#### Japanese

Files with western alphabetical names and Japanese names can be loaded; however, file names including umlauts or diacritic marks cannot be loaded.

Turn the power on while holding the [FUNCTION] and [METRONOME] buttons.

#### USB song:

In this manual, the performance data saved to a USB flash memory device is called a "USB song."

The display may not appear immediately, depending on the number of the folders in the USB flash memory.

Certain songs may take more time than others to start playback. Keep in mind that this also affects the time between playback of successively played songs.

The playback voice can be changed. You can play the keyboard along with the USB song. The voice of the song played is assigned to the voice playing on the keyboard.

While a USB song is playing, hold down the [METRONOME] button and press the [+] or [-] button to change the song tempo.

If you are using the metronome (page 20) during USB song playback, press the [+] or [-] button to change the song tempo. You can also press keys to change the tempo.

Normal setting: International

#### Selecting songs with the keyboard

#### • Forward 1 song:

Press the C#5 key while holding down the [DEMO/SONG] button.

Press the B4 key while holding down the [DEMO/SONG] button.

#### Forward 10 songs:

Press the D5 key while holding down the [DEMO/SONG] button.

#### • Rewind 10 songs:

Press the A#4 key while holding down the [DEMO/SONG] button.

### • Select the "!/xx" (xx is a number 00–99) song:

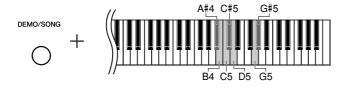
Press the C5 key while holding down the [DEMO/SONG] button.

#### Play back all:

Press the G5 key while holding down the [DEMO/SONG] button.

#### • Play back randomly:

Press the G#5 key while holding down the [DEMO/SONG] button.

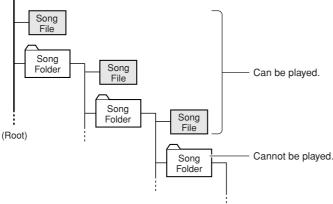


#### **Data format**

This instrument can play back files of SMF Format 0 and Format 1 (Standard MIDI file).

When playing songs copied to a USB flash memory device from a computer or other device, the songs must be stored either in the USB flash memory's root directory or a first-level/second level folder in the root directory. Songs stored in these locations can be played as song data. Songs stored in third-level folders created inside a second-level folder cannot be played by this instrument.

## **USB flash memory**



When copying song data from computer to USB flash memory, make sure to save it by using SMF Format 0 and Format 1. Keep in mind that songs recorded on other devices may use a variety of voices not available on this instrument and hence may sound different than the original songs.

#### "// xx":

The smallest number among U00-U99 is selected. If there are no any "LIxx" songs, the smallest number among F00-F99 is selected

If a USB flash memory device is not connected or there are no USB songs, the "USr" song is selected.

#### What is SMF (Standard MIDI File)?

The SMF (Standard MIDI File) format is one of the most common and widely compatible sequence formats used for storing sequence data. There are two variations: Format 0 and Format 1. A large number of MIDI devices are compatible with SMF Format 0, and most commercially available MIDI sequence data is provided in SMF Format 0.

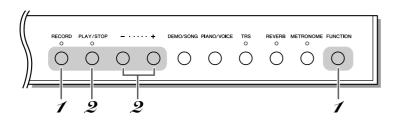
The user song is saved as SMF Format

## Formatting USB Flash Memory

Certain USB flash memory devices may require formatting before they can be used by this instrument.

#### **<u>A</u>** CAUTION

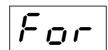
If you format a USB flash memory that already contains data, all of the data will be erased. Be careful not to erase important data when using the format function.



## I Engage the Format mode.

After connecting the USB flash memory device to be formatted to the instrument, press the [RECORD] button while holding the [FUNCTION] button.

The message "For" (Format) appears on the display.



## **2** Start Formatting.

After pressing the [PLAY/STOP] button, a "n  $\mathcal{G}$ " message appears on the display. Press the [+] button to execute the formatting operation. Press the [-] button to cancel formatting.

When the formatting is finished, " $\mathcal{E} \cap \mathcal{O}$ " appears on the display for three seconds.

#### **CAUTION**

Do not turn off the power to the instrument or disconnect the USB flash memory device, while the instrument is formatting the USB device (while "- - - " is displayed ). Doing so may damage the data or the USB flash memory itself.

## ${\it 3}$ Exit from the Format mode.

Press any one of the buttons.

# Backing up Data and Initializing the Settings

## Backup data in internal memory

The following data will be saved to internal memory of the instrument. The data is maintained even when the power is turned off.

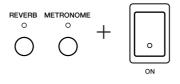
- Metronome volume (page 21)
- Fine-tuning of the pitch (page 25)
- Character code (page 31)
- User song data recorded to the instrument (page 27)

## **Initializing the data**

When you initialize the data, all data, excluding the character code setting and the User song, will be initialized and reset to the factory default settings.

While holding down the [METRONOME] button and the [REVERB] button, turn on the power to the instrument.

If this instrument somehow becomes disabled or malfunctions, turn off the power to the instrument, then perform the initialization procedure.



While the instrument is initializing the data, "[Lr" appears on the display.



#### **CAUTION**

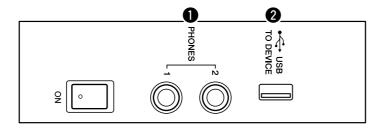
Do not turn off the power to this instrument while it is initializing the data in its internal memory (while " $\mathcal{L} \mathcal{L}$ " is displayed).

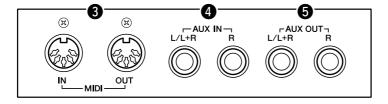
## **Connections**

### **Connectors**

#### **A** CAUTION

Before connecting the instrument to other electronic components, turn off the power to all the components. Before turning the power on or off to all components, set all volume levels to minimum (0). Otherwise, electrical shock or damage to the components may result.





Refer to the "Panel Controls and Terminals" on page 8 for information on the location of the connectors.

### 1 [PHONES] jacks

A set of standard stereo headphones can be plugged in here for private practice. Refer to "Using Headphones (option)" on page 14 for more information.

#### 2 USB [TO DEVICE] terminal

This terminal is for connection to USB storage devices. For more information, refer to "Precautions when using the USB [TO DEVICE] terminal" on page 30.

#### 3 MIDI [IN] [OUT] connectors

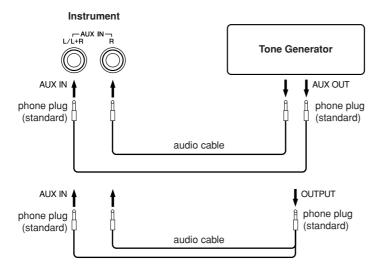
Use MIDI cables to connect external MIDI devices to these connectors. Refer to "About MIDI" on page 37 for more information.

#### 4 AUX IN [L/L+R] [R] jacks

The stereo outputs from another instrument can be connected to these jacks, allowing the sound of an external instrument to be reproduced via the N3/N2's speakers. Refer to the diagram below and use audio cables to make the connections. Use only the AUX IN [L/L+R] jack for connection with a mono device.

#### **<u>^</u>** CAUTION

When the instrument's AUX IN jacks are connected to an external device, first turn on the power to the external device, then to the instrument. Reverse this order when you turn the power off.

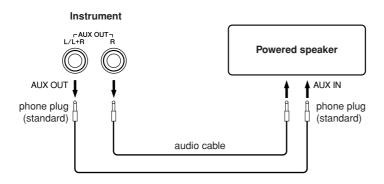


#### 6 AUX OUT [L/L+R] [R] jacks Use audio cables and adaptor plugs with

These jacks let you connect the instrument to external powered speaker systems, for playing in larger venues at higher volumes. Refer to the diagram below and use audio cables to make the connections.

#### **<u>A</u>** CAUTION

When the instrument's AUX OUT jacks are connected to an external audio system, first turn on the power to the instrument, then to the external audio system. Reverse this order when you turn the power off.



no resistance.

When the sound from the AUX OUT jacks is routed to the AUX IN jacks, the input sound will be output from the speaker of the instrument. The output sound may be excessively loud and may cause noise.

Use only the AUX OUT [L/L+R] jacks for connection with a mono device.

## **About MIDI**

MIDI (Musical Instrument Digital Interface) is a global format standard for performance data transmission and reception between electronic musical instruments. Connecting musical instruments that support MIDI via MIDI cables enables you to transfer performance and setting data between multiple musical instruments. Using MIDI, you can also achieve more advanced performances than using just a single musical instrument.



You need a dedicated MIDI cable (optional) to make a MIDI connection.

Since the transmission or reception of MIDI data can vary depending on the type of MIDI device, each MIDI device can transmit or receive only data and commands that are compatible with other connected MIDI devices.

Please check the "MIDI Implementation Chart" on the Data List to find out what MIDI data and commands your devices can transmit or receive. Refer to page 5 for the "Data List."

Voice demo and piano preset song data are not transmitted via MIDI.

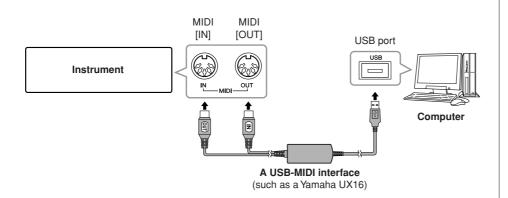
## **Connecting to a Computer**

Connecting this instrument to a computer using the MIDI connectors enables you to transfer MIDI data between the instrument and the computer. For example, performance data of this instrument can be sent to and saved on the computer.

## **CAUTION**

When connecting the instrument to a computer, first turn off the power to both the instrument and the computer before connecting any cables. After making connections, turn on the power to the computer first, then to the instrument.

You must install a software application on the computer to be able to transfer MIDI data between this instrument and a computer.



Use an optional USB-MIDI interface (such as a Yamaha UX16) to connect this instrument's MIDI connectors to the computer's USB port. You also need to install the USB-MIDI driver on the computer correctly to use the interface. For more information, refer to the user's manual that came with the USB interface device.

## **Local Control On/Off**

"Local Control" refers to the fact that, normally, the keyboard of this instrument controls its internal tone generator, allowing the internal voices to be played directly from the keyboard. This situation is "Local Control On," since the internal tone generator is controlled locally by its own keyboard. Local control can be turned Off, however, so that the keyboard of this instrument does not play the internal voices, but the appropriate MIDI information is still transmitted via the MIDI OUT connector when notes are played on the keyboard. At the same time, the internal tone generator responds to MIDI information received via the MIDI IN connector.

While holding down the [FUNCTION] button, press the C6 key. Pressing the C6 key repeatedly toggles between Local Control On and Off.



## Message List

Message			Comment			
0	0	1	Indicates failure in accessing the USB flash memory or media.  → Disconnect the USB flash memory device or media and connect it again to the USB [TO DEVICE] terminal. If this message appears repeatedly, use another USB flash memory device or media.			
0	0	2	Indicates that the song data cannot be loaded correctly.			
0	0	4	Indicates that the song data is too large to be loaded.			
0	0	5	The USB flash memory device or media has not been formatted.  → Format the USB flash memory device or media after making sure on your computer that the USB flash memory or media you are formatting does not contain important data (page 33).			
0	0	8	Indicates that the protected song data cannot be loaded.			
0	0	7	There is no song data.			
0	0	8	The USB flash memory device or media is not connected.  → Connect a USB flash memory device or media to the USB [TO DEVICE] terminal.			
0	1	ч	Indicates failure in saving the file, because the same name folder exists in the USB flash memory device or media.  → Change the folder name using your computer.			
0	2	0	This USB device cannot be used.  → Use only USB flash memory devices compatible with the instrument.			
0	2	2	Displayed when the total amount of USB flash memory or USB hub has become too large.  → Refer to "Using USB Storage Devices" on page 30.			
	2	3	Indicates failure in connecting the USB flash memory or media.  → Disconnect the USB flash memory device or media and connect it again.			
	2	Ч	Communication with the USB device has been shut down because of the overcurrent to the USB device.  Disconnect the device from the USB [TO DEVICE] terminal, then turn on the power of the instrument.			
-	-	-	Processing the current operation.			
Ε	L	_	Initializing to the normal settings.			
Ε	5	3	Indicates failure in setting the keyboard.			
Ε	5	4	Please contact your nearest Yamaha dealer or authorized distributor.			
_E	п	Ъ	Displayed when the current operation is completed.			
F	U	L	Displayed when internal memory is full.  Displayed when the total amount of files or folders has become too large.  Displayed when the media is full.			
F	0	٦	Indicates that the instrument has engaged format mode for the USB storage device.			
Π		4	Prompts you to confirm or cancel the formatting operation.			
Ρ	٦	o	Indicates that the USB storage device or media is write-protected.			

<sup>\*</sup> When an operation (such as saving or data transfer) is in process, the display shows a sequence of flashing dashes.
\* Press the [+] or [-] button to exit from these message displays.

## **Troubleshooting**

Problem	Possible Cause and Solution			
The instrument does not turn on.	The instrument has not been plugged in properly. Securely insert the female plug into the socket on the instrument, and the male plug into a proper AC outlet (page 10).			
Noise is heard from the speakers or head- phones.	The noise may be due to interference caused by the use of a mobile phone in close proximity to the instrument. Turn off the mobile phone, or use it further away from the instrument.			
The overall volume is low, or no sound is heard.	The Volume is set too low: set it to an appropriate level using the [MASTER VOLUME] control (page 12).  Make sure a pair of headphones is not connected to the headphones jack (page 14).  Make sure that Local Control (page 38) is on.			
Sound is still heard from the instrument even though headphones are plugged in.	When the TRS is on, sound can be heard slightly even if the headphones are connected. Turn the TRS off to mute all sound other than the headphones (page 23).			
Sound is still heard from the instrument even though the volume is set to the minimum.	When the TRS (page 23) is on, sound can be heard to some degree even when the volume is set to the minimum. This is normal, and is not a malfunction.			
The pitch and/or tone of the Piano Voices in certain ranges do not sound right.	The Piano Voices attempt to precisely simulate actual piano sounds. However, as a result of sampling algorithms, overtones in some ranges may sound exaggerated, producing a somewhat different pitch or tone. This is normal, and no cause for concern.			
Sound is not heard on a particular key.	Keyboard may not function normally if the key was pressed when the power was turned on. Turn off the power and turn it again to reset the function. Do not touch any keys when turning the power on.			
Sound input to the AUX IN jacks is interrupted.	The output volume of the external device connected to this instrument is too low. Increase the output volume of the external device. The volume level reproduced via this instrument's speakers can be adjusted by using the [MASTER VOLUME] control.			
The damper pedal has no effect.	<ul> <li>(N3) The pedal cord may not be properly connected. Make sure to securely insert the pedal cord into the pedal jack (page 42).</li> <li>(N2) The damper pedal was pressed when the power was turned on. This is not a malfunction; press the pedal again to reset the function.</li> </ul>			
The USB flash memory device has hung up (stopped).	Disconnect the device and connect it to the instrument again.     The USB flash memory is not compatible with the instrument. Only use the USB flash memory device whose compatibility has been confirmed by Yamaha (page 30).			

<sup>\*</sup> The message list (page 39) is also provided for your reference.

## Maintenance

When the surface of the instrument loses luster, wipe the instrument evenly with a cloth moistened with some special piano cleaner. For more information, contact the store where you purchased the instrument.

## N3: Assembling the Unit

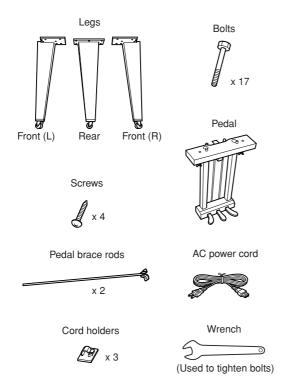
## **!** CAUTION

- Be careful not to confuse parts, and be sure to install all parts in the correct orientation. Please assemble in accordance
  with the sequence given below.
- · Assembly should be carried out by at least three persons.
- . Be sure to use the correct screw size, as indicated below. Use of incorrect screws can damage the instrument.
- Be sure to tighten all screws upon completing the assembly of each unit.
- To disassemble, reverse the assembly sequence given below.

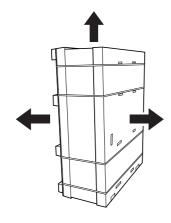
Have a Phillips-head (+) screwdriver of the appropriate size ready.

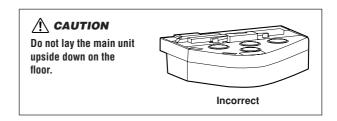
# Remove the parts and collect them together for assembly.

1-1 Remove the parts shown below from the smaller box.

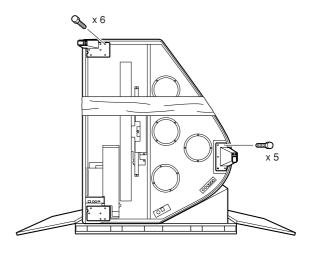


- 1-2 Set the larger box upright with the right side up.
- 1-3 Cut the bands.
- 1-4 Remove the covers.





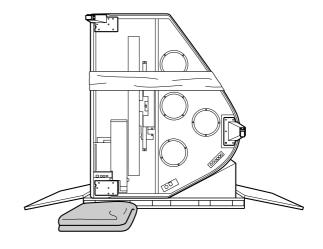
2 Attach and securely tighten the right front leg and the rear leg with the bolts.



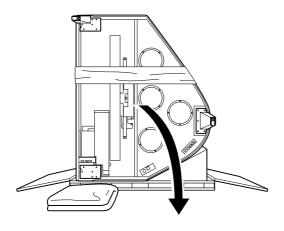
## **<u>A</u>** CAUTION

When the instrument is set upright (as in the illustration above), take extra care not to keep the instrument from falling over, since it is unstable in this position.

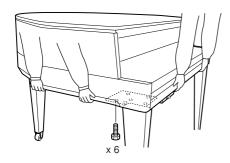
3 Set a blanket at the left corner.



## 4 Set the piano upright.



## 5 Attach and securely tighten the left front leg with the bolts while holding the piano firmly.

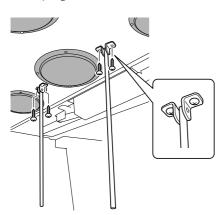


## **<u>A</u>** CAUTION

Do not hold the control panel. Using excessive force on the panel can result in damage to the instrument.

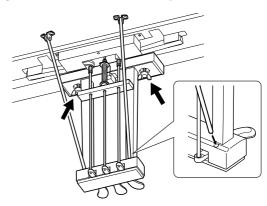
## 6 Attach the pedal brace rods.

Find the threaded bores on the bottom of the unit, and securely tighten the screws to attach the rods.



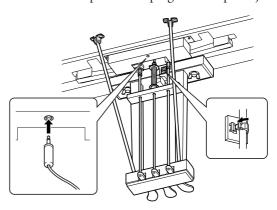
## 7 Attach the pedal.

Insert the pedal brace rods into the pedal box recesses and make sure they fit securely, then securely tighten the screws to attach the pedal.



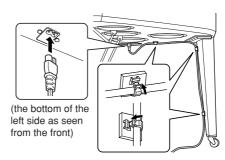
## 8 Connect the pedal cord.

- 8-1 Make sure the pedal cord is clipped into the cord holder.
- 8-2 Insert the pedal cord plug into the pedal jack.



## **9** Connect the power cord.

- 9-1 Insert the power cord plug into the [AC IN] connector.
- 9-2 Attach the cord holders to the instrument, then clip the power cord into the holder.



## After completing the assembly, please check the following.

- Are there any parts left over?
  - → Review the assembly procedure and correct any errors.
- Is the instrument clear of doors and other movable fixtures?

  → Move the instrument to an appropriate location.
- Does the instrument make a rattling noise when you shake it?
   → Tighten all screws.
- Is the power cord inserted securely into the sockets?
   → Check the connection.
- If the main unit creaks or is otherwise unsteady when you play on the keyboard, refer to the assembly diagrams and retighten all screws.

## **Specifications**

			N3	N2		
		Width	1,481mm (58-5/16")	1,471mm (57-15/16")		
Size/Weight	Dimensions	Height	1,014mm (39-15/16") 1,009mm (39-3/4") Lid up: 1,734mm (68-1/4") With music rest: 1,181mm (			
		Depth	1,195mm (47-1/16")	531mm (20-7/8")		
	Weight		199kg (438lbs., 12oz.)	142kg (313lbs., 1oz.)		
		Number of Keys	88 (A-1-C7)			
	Keyboard	White	lvorite			
		Black	Phoenolic resin			
O - untural		Touch Sensitivity	Fixed/Soft/Medium/Hard			
	Sensor	Hammer Sensors	Non-contact optical fiber			
	System	Key Sensors	Non-contact optical fiber			
		Number of Pedals	3			
	Pedal	Half Pedal	Yes			
Control Interface  Cabinet  Voices  Effects  Songs		Functions	Damper (with half-pedal effect), Sostenuto, Soft			
Cabinot	Fallboard		Y	⁄es		
Cabinet	Music Rest		Yes (angle adjustable)	Yes		
		Tone Generation Technology	4ch Mult	i Sampling		
	Tone	Stereo Sustain Samples	Yes			
Voices	Generation	Key-off Samples	Yes			
voices		String Resonance	Yes			
	Polyphony	Number of Polyphony (Max.)	256			
	Preset Number of Voices		5			
Effects	Types	Reverb	Yes			
	Preset	Number of Songs	10 preset songs, 5 voice demo songs			
Songs	Recording	Number of Songs	One Song 300KB (approx. 30,000 notes)			
Effects	necording	Number of Tracks	1			
Effects 7  Songs		Metronome	Yes			
	0	Tempo	Yes			
	Overall Controls	Transpose	Yes			
	001111010	Tuning	Yes			
		Scale Type	7 types			
		MIDI	IN/OUT			
	Connectors	Headphones	PHONES x 2			
Connectivity		AUX IN	[L/L+R] [R]			
		AUX OUT	[L/L+R] [R]			
		USB [TO DEVICE]	Yes			
Amplifiers and	Amplifiers		22W x 10 + 30W x 4 + 80W x 2	22W x 10 + 80W x 2		
Speakers	Speakers		(16cm + 13cm + 2.5cm) x 4 + Transducer x 4 (13cm + 2.5cm) x 3 + (8cm + 2.5m) + 16cm x 2 + Transducer x 2			
Accessories	Owner's Manual, AC Power Cord, Cord Holders (3 pcs. Felt Key Cover, Bench (included or optional depending on low My Yamaha Product User Registration					

<sup>\*</sup> Specifications and descriptions in this owner's manual are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer.

## **Optional Accessories**

Headphones	HPE-160		
USB-MIDI Interface	UX16		

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## Information for Users on Collection and Disposal of Old Equipment



This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC.

By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

## [For business users in the European Union]

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

## [Information on Disposal in other Countries outside the European Union]

This symbol is only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

5

## **FCC INFORMATION (U.S.A.)**

## 1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

- 2. IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.
- 3. NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all

installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

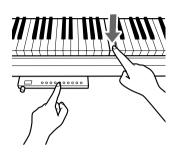
If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park. CA90620

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

(class B)

<sup>\*</sup> This applies only to products distributed by YAMAHA CORPORATION OF AMERICA.

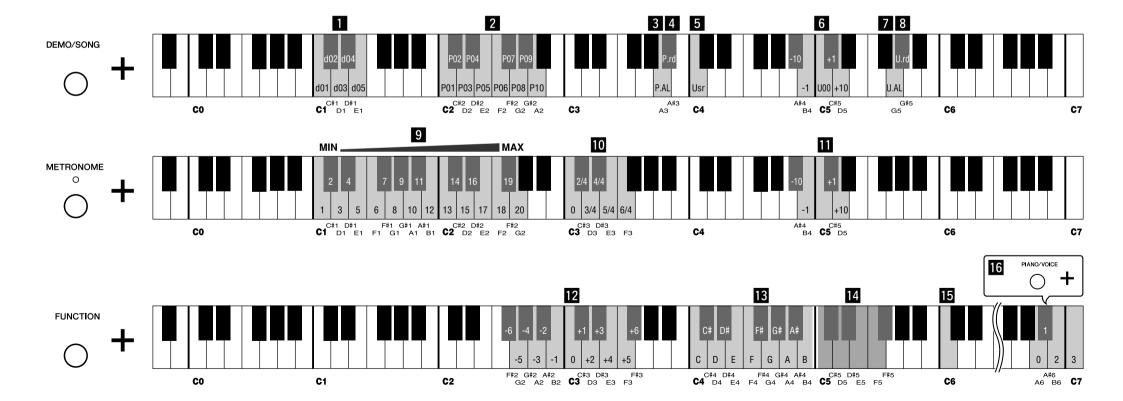
## Quick Operation Guide / Übersicht über die Kurzbefehle



While holding down the button on the control panel, press one of the corresponding keys shown below to select songs, or set parameters.

	•	0 ,		_	•	
	1	Voice Demo Playback	(⇒p.19)	9	Metronome Volume	(⇒p.21)
	2	Preset Song Playback	(⇒p.17)	10	Metronome Time Signature	(⇒p.21)
	3	Preset Song Playback: all	(⇒p.17)	1[1]	Metronome/Song Tempo	(⇒p.20)
4	4	Preset Song Playback: random	(⇒p.17)	12	Transpose	(⇒p.24)
	5	User Song Playback	(⇒p.26)	13	Base Note	(⇒p.26)
(	6	USB Song Playback	(⇒p.32)	14	Scale	(⇒p.26)
	7	USB Song Playback: all	(⇒p.32)	15	Local Control on/off	(⇒p.38)
1	8	USB Song Playback: random	(⇒p.32)	16	Touch Sensitivity	(⇒p.22)

Um Songs auszuwählen oder Parameter einzustellen, halten Sie die Bedienfeldtaste gedrückt und schlagen Sie gleichzeitig eine der betreffenden nachstehend gezeigten Tastaturtasten an. 1 Voice-Demo-Wiedergabe (⇒S.19) 8 USB-Song-Wiedergabe: Preset-Song-Wiedergabe (⇒S.17) zufällige Reihenfolge (⇒S.32) 3 Preset-Song-Wiedergabe: Metronomlautstärke (⇒S.21) alle nacheinander (⇒S.17) Metronom-Taktart (⇒S.21) 4 Preset-Song-Wiedergabe: Metronom-/Song-Tempo (⇒S.20) zufällige Reihenfolge (⇒S.17) 12 Transponierung (⇒S.24) 13 Grundton User-Song-Wiedergabe (⇒S.26) (⇒S.26) 14 Skala USB-Song-Wiedergabe (⇒S.32) (⇒S.26) Lokalsteuerung ein/aus USB-Song-Wiedergabe: (⇒S.38) alle nacheinander (⇒S.32) 16 Anschlagempfindlichkeit (⇒S.22)



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