

SONY.

3-205-009-01 (1)

UHF Synthesized Transmitter Unit

Operating Instructions **GB**

Wireless Channel Lists **Attached separately**

WRT-847B

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3-205-009-01 (1)

Owner's Record

The model and serial numbers are located at the rear of the unit. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. WRT-847 B

Serial No. _____

Notice for customers in the U.S.A.

Use of Sony wireless devices is regulated by the Federal Communications Commission as described in Part 74 subpart H of the FCC regulations and users authorized thereby are required to obtain an appropriate license.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Notice for customers in Canada:

Use of Sony wireless devices is regulated by the Industry Canada as described in their Radio Standard Specification RSS-123.

A licence is normally required. The local district office of Industry Canada should therefore be contacted. When the operation of the device is within the broadcast band, the licence is issued on no-interference, no-protection basis with respect to broadcast signals.

Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Avis pour les clients au Canada:

L'usage des appareils sans-fil Sony est réglé par l'Industrie Canada comme décrit dans leur Cahier des Normes Radioélectriques CNR-123.

Une licence est normalement requise. Le bureau de l'Industrie Canada doit être contacté. Lorsque l'opération de l'appareil est dans les limites de la bande de radiodiffusion, la licence est émanée sur la base de non-interférence, non-protection avec les signaux de radiodiffusion.

L'utilisation de cet appareil est soumise aux deux conditions suivantes : (1) cet appareil ne peut causer d'interférences, et (2) cet appareil doit accepter toutes les interférences, y compris les interférences capables de provoquer un fonctionnement indésirable de l'appareil.

Table of Contents

Precautions	1
Introduction	2
Features	2
Parts Identification	4
Power Supply	7
Settings	8
Initiating Setting Mode	8
Changing the Transmitting Channel	8
Changing the Audio Gain Setting	10
Changing the RF Output Power	10
Changing the Compressor Mode	11
Changing the Audio Equalizer	11
Resetting the Accumulated Battery Use Time Indication	12
Troubleshooting	13
Specifications	15
Error Messages	16

Precautions

- The unit is designed for use in ambient temperature range of 0°C to 50°C (32°F to 122°F).
- Do not place the unit on or near heat sources, such as lighting equipment, power amplifiers, or in a place subject to direct sunlight or excessive moisture. In such places, the external finish or internal parts of the unit may be damaged.
- If the unit is used in a very humid or dusty place or in a place subject to an active gas, clean its surface as well as the connectors with a dry, soft cloth soon after use. Lengthy use of the unit in such places or not cleaning it after its use in such places may shorten its life.
- When cleaning the unit, never use organic solvents such as thinners or benzine, which will damage the finish of the unit.
- The unit has been factory adjusted precisely. Do not tamper with its internal parts or attempt to repair it.
- Make sure to use two LR6 (size-AA) alkaline batteries.
- Make sure the poles of the batteries match the + and – markings in the battery holder.
- Remove the batteries when the unit will not be used for a long period of time.
- Do not attempt to recharge the alkaline batteries.
- Do not dispose of the batteries in fire. Do not disassemble or short-circuit the batteries.

Introduction

Coupling with the CU-F780, CU-G780, CU-E700, CU-E672 or CU-F117 Sony Microphone Capsule Unit, the WRT-847 *B* UHF-synthesized transmitter unit makes up a UHF-synthesized wireless microphone to be used in a UHF-synthesized wireless microphone system.

For vocal concentration, operate the WRT-847 *B* in conjunction with the WRR-802A, MB-806A UHF Synthesized Tuner. For vocal and interview use, operate the WRT-847 *B* in conjunction with the WRR-805A/855A UHF Synthesized Tuner.

The microphone/transmitter and tuners of the wireless microphone system are classified by frequency band.

A 24 MHz frequency band (or two consecutive-numbered TV channels) is assigned to each microphone/transmitter and tuner model.

In building up a UHF wireless microphone system, be sure to combine a microphone/transmitter and a tuner having the same TV channel number.

Features

Selectable microphone capsules

To make up suitable wireless microphones for your use, five microphone capsule units are available as optional accessories. The capsule units for the WRT-847 *B* are;

CU-F780 Dynamic Microphone Unit

CU-G780 High Sound Quality Dynamic Microphone Unit

CU-E700 Electret Condenser Microphone Unit

CU-E672 Unidirectional Electret Condenser

Microphone Unit

CU-F117 Omnidirectional Dynamic Microphone Unit

The capsule unit can be mounted simply by screwing it into the transmitter.

Phase Locked Loop (PLL) synthesized system

The WRT-847 *B* features a refined phase locked loop (PLL) synthesizer circuit.

POWER switch with holding function

The POWER switch can be locked in the ON position to protect against accidental power cutoffs.

Low-battery notification on the unit and the tuner

When the transmitter batteries are low, the transmitter sends a warning to the WRR-802A/805A/850A, MB-806A in the

form of "Battery status information."

This information is set to the WRR-802A/805A/850A, MB-806A about one hour before the batteries go dead to allow the batteries to be safely replaced.

When the WRR-802A/805A/850A, MB-806A receive this information, the LED and the LCD on tuner panel start to flash.

Powered by readily available battery type

The built-in, high-efficiency DC-DC converter provides about eight hours of continuous and stable operation (at 10 mW output) with two LR6 (size-AA) alkaline batteries.

LCD read-out of various information

The transmitter's LCD shows the current channel number, frequency, audio gain level setting, RF output setting, compressor mode, audio equalizer setting and residual battery power.

The accumulated battery use time is also indicated (in one-minute increments) to allow precise monitoring of battery use.

Automatic saving of channel, audio gain and RF output settings

All channel, audio gain, compressor mode, audio equalizer and RF output settings are automatically saved when the transmitter is turned off (and are maintained even when the batteries are removed), thus eliminating the need to make the same settings again the next time you use the transmitter.

Highly reliable audio gain level adjustment

With an adjustable range of -12 dB to +9 dB in 3 dB steps, the built-in input level volume reduces signal distortion during the input of excessively strong audio signals. It can raise the input gain during too low audio input.

Tone signal-incorporated RF carrier signal

The transmitter sends an RF carrier signal that incorporates a tone signal to enable any tuner with a tone squelch circuit to pick out only the target audio signal.

Wide dynamic range and low noise

The transmitter compander (compressor/expander) system enables transmission over a wide dynamic range with minimum noise.

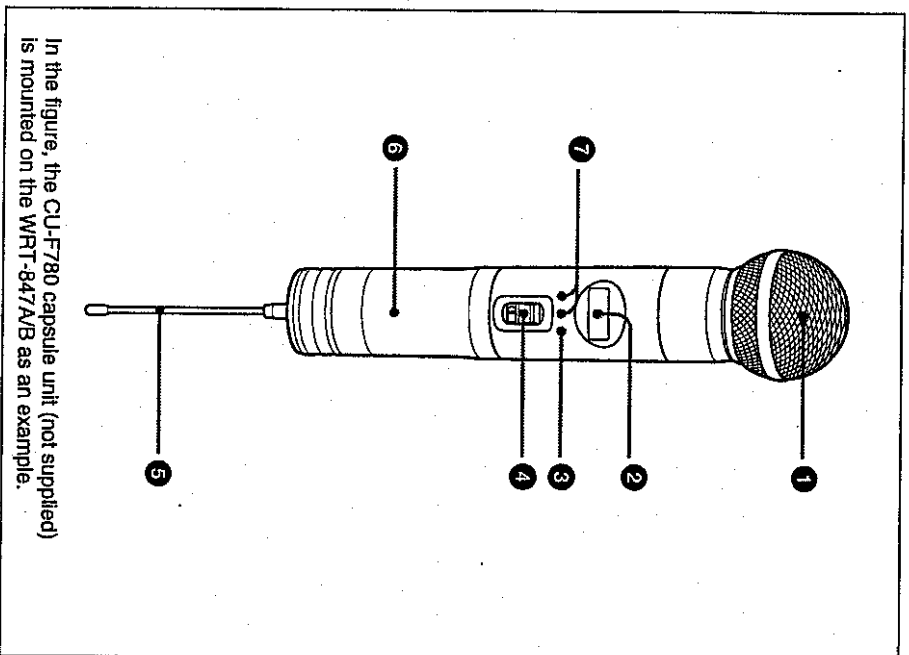
Selectable RF output

The RF output power can be adjusted to high (50 mW) or low (10 mW) to match the environment where it will be used.

Notes on microphone system operation

- When operating two or more transmitters, keep the transmitters separated from each other by a distance of at least 30 cm (1 foot).
- Keep transmitters at least 3 meters (10 feet) away from the receiving antenna.

Parts Identification

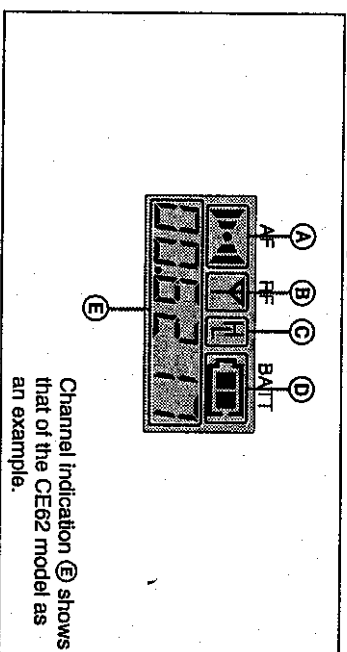


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WRT-847A/B (WW) 3-205-009-01 (1)

- 1 Microphone capsule unit (not supplied)**
Mount the microphone capsule unit (CU-F780, CU-G780, CU-E700, CU-E672 or CU-F117) securely.
See the *Instruction Manual* supplied with your microphone capsule unit for mounting.

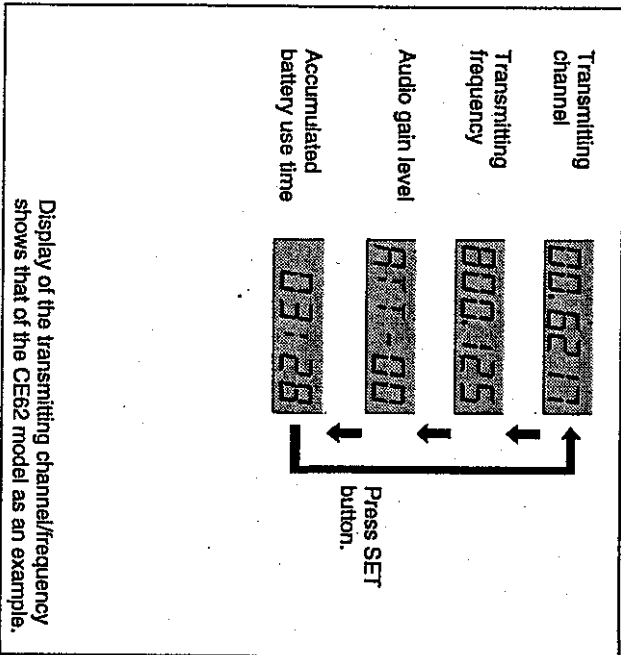
2 Liquid-crystal display (LCD)



- A AF (audio input) indication**
Lights whenever an audio signal stronger than the reference level is received.
- B RF (antenna output) indication**
Lights during signal transmission from the antenna.
- C Power (rf power) indication**
Shows the RF power setting.
See "RF power setting" on page XX.

② **BATT (battery) indication**
Shows the battery condition.
See "Battery indication" on page XX.

③ **CH (channel) indication**
Displays the transmitting channel.
Each time you press the SET button in Transmit mode, the channel indication changes as follows.



Display of the transmitting channel/frequency shows that of the CE62 model as an example.

Transmitting channel: The current transmitting channel setting.

Transmitting frequency: The current transmitting frequency setting.

Audio gain level: The input gain level setting in decibels. Can be set within a range of -12 dB to +9 dB in 3-dB steps.

Accumulated battery use time: The accumulated time of battery use (in 1-minute increments).

To adjust these parameters, see "Settings" from page XX to XX.

③ SET button

In Transmit mode, press this button to change the indicated items in the lower half of the liquid-crystal display.

To change the settings on each item, set the transmitter in the Setting mode as follows: Turn the POWER switch to ON while holding the SET button down. Then press the SET button to select the items to be changed, and press the +/- buttons to change the settings.

For details on Setting mode, see "Settings" on page XX.

Parts Identification

4 POWER switch

Turns the transmitter ON or OFF.

When you set this switch to ON without holding down any of SET⁺ and +/- button, the transmitter enters Transmit mode, and the signal of the selected channel is transmitted.

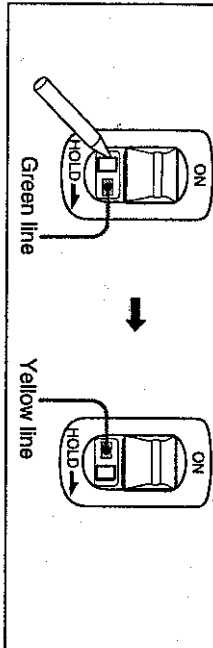
The HOLD switch appears when the POWER switch is set to ON.

Set the HOLD switch to the lock position to prevent an accidental power cutoff during microphone operation.

Locking the POWER switch

Slide the HOLD switch to the right with a ballpoint pen or similar item.

A yellow line appears when the switch is in the hold position.



5 Antenna

6 Battery holder

Insert the batteries here.

For details on inserting the batteries, see "Power Supply" on page XX.

6 GB

7 + (+ selection) / - (- selection/reset) buttons

In Setting mode, use these buttons to select the transmitting channel/frequency, audio gain level, compressor mode, audio equalizer setting and RF power level.

Use the - button to reset the accumulated battery use time indication to 00:00.

For details on Setting mode, see "Settings" from page XX to XX.

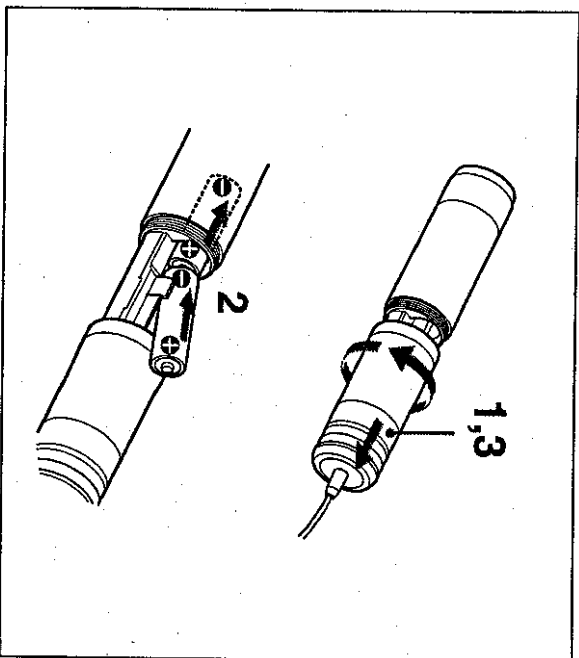


To press the +/- buttons use a ballpoint pen or similar item.

Power Supply

The transmitter can operate on two LR6 (size AA) alkaline batteries continuously for about eight hours (at 10 mW RF power, 25 °C / 77°F).

Inserting the batteries



- 1 Turn the grip in the direction of the arrow to open the battery holder.

- 2 Match two batteries to the polarity markings and insert them into the battery holder.

- 3 Close the battery holder and lock the grip by turning it in the opposite direction of the arrow.

Battery indication

When you turn the power on, the battery condition is indicated by the BATT indication in the liquid-crystal display.

	1	2	3	4
BATT indication	Lights	Lights	Flashes	Goes off
Battery condition	Good	Less than half-charge	Almost exhausted	Completely exhausted

Note

The indication may be incorrect if the two batteries are not new when inserted. If you plan to use the transmitter for a long period, replace both batteries with new ones at the same time.

Settings

For the transmitting channels and frequencies selectable on your transmitter, see the "SONY Wireless Microphone System Frequency List" supplied with this manual.

Initiating Setting Mode

Enter Setting mode to change the transmitting channel, the transmitting frequency, the audio gain level and RF output power, the compressor mode, the audio equalizer mode, or to reset the accumulated battery use time indication.

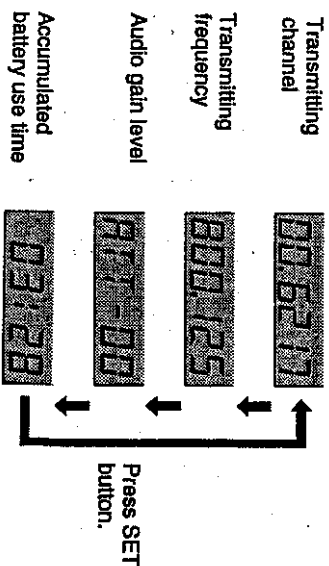
To enter Setting mode

While holding down the SET button, set the POWER switch to ON.

Hold the SET button down until an indication appears on the liquid-crystal display.

The transmitter enters Setting mode and the indication before the transmitter was previously turned OFF flashes on the liquid-crystal display.

Pressing the SET button cycles the setting modes in the order shown in figure on the right column.



Display of the transmitting channel/frequency shows that of the CE62 model as an example.

Changing the Transmitting Channel

The transmitting channel can be selected through either the channel number or the frequency.

1

Set the transmitter to Setting mode.

If the channel number (or frequency) indication does not appear, press the SET button until the channel number (or frequency) indication appears.

2

Press the + or – button to select the channel number (or frequency).

Pressing the + button cycles the indication in the order shown in the tables in the "SONY Wireless Microphone System Frequency List" supplied with the manual. Pressing the – button cycles the indications in the opposite direction.

Channel selection mode	Frequency selection mode
	
+ button ↓ ↑ – button	+ button ↓ ↑ – button
	
Display example for CE62 model	

Hold down the button to change the channel number (or frequency) quickly.

3

When the desired channel number (or frequency) appears, set the POWER switch to off position to release Setting mode, or press the SET button to continue operations in Setting mode.

The next time you turn on the transmitter (by setting the POWER switch to ON), the transmitter will enter Transmit mode with the selected channel number (or frequency).

Notes

- The transmitter cannot transmit in Setting mode.
- Make sure that the channel selected on the transmitter is the same as that selected on the tuner being used in the same system.
- Depending on the noise or interference conditions, all selectable channels may not be usable. If necessary, you can determine which channels are usable by cycling the channel selection through a number of channels on the tuner with the unit set to OFF. Those channels for which the RF indicator on the tuner does not light are usable.
- The transmitter may not operate correctly if it is turned on immediately after being turned off in Setting mode. Wait for a few seconds before turning the power on again.
- The channel numbers and frequencies of your transmitter are shown on the "SONY Wireless Microphone System Frequency List" supplied with the manual.

Settings

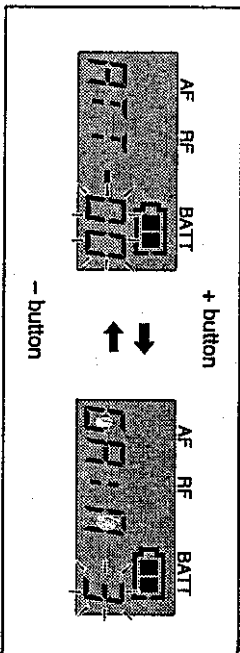
Changing the Audio Gain Setting

You can change the audio input gain within a range of -12 dB to +9 (in 3-dB steps) in either Setting mode or Transmit mode.

When the audio input is excessively strong and distortion occurs, reduce the input gain by setting it to "-12 dB" to "-3 dB". When the audio input is excessively low, raise the input gain by setting it to "+3 dB" or "+9 dB". The factory preset setting is "0 dB".

Changing the audio gain in Setting mode

- 1 Set the transmitter to Setting mode.
- 2 If the audio gain indication ("GAIN-" or "ATT-") is not displayed, press the SET button until it appears.
- 3 Press the + or - button to change the audio gain setting.



Hold down the button to change the level quickly.
10^{dB}

- 4 Once the desired level appears, set the POWER switch to off position to release Setting mode, or press the SET button to continue operations in Setting mode.

The next time you turn on the transmitter (by setting the POWER switch to ON), the transmitter enters Transmit mode with the audio gain selected.

Changing the audio gain in Transmit mode

You can also change the audio gain while transmitting in Transmit mode.

- 1 If the audio gain indication is not displayed, press the SET button until it appears.
- 2 Press the + or - button to change the audio gain setting.

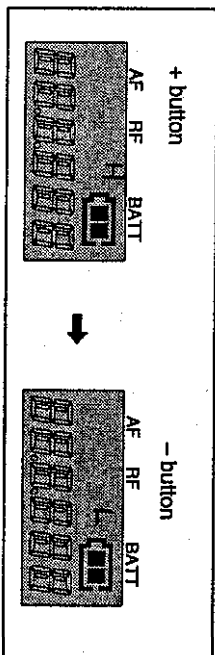
Changing the RF Output Power

You can select the RF output power from two levels of 50 mW or 10 mW in Setting mode.

- 1 Set the unit to Setting mode.
- 2 If "H" or "L" (RF output power indication) is not displayed, press the SET button until it appears.

-
- 3** To set the RF power output to 50 mW, press the + button.
“H” appears on the liquid-crystal display.

To set the RF power output to 10 mW, press the – button.
“L” appears on the liquid-crystal display.



- 4** Once the desired indication appears, set the POWER switch to the off position to release Setting mode, or press the SET button to continue operations in Setting mode.

The next time you turn on the unit (by setting the POWER switch to ON), the transmitter enters Transmit mode with the RF output power level selected.

Settings

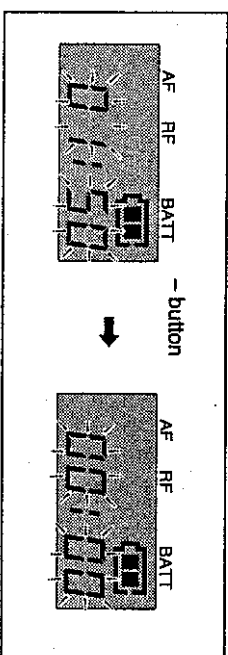
Resetting the Accumulated Battery Use Time Indication

The accumulated battery use time is the total time (in hours and minutes) the batteries have been used. It is recorded whenever the transmitter is on. Reset the indication to "00:00" whenever you replace the batteries.

1 Set the transmitter to Setting mode.

2 If the accumulated battery use time (for example "01:50") is not displayed, press the SET button until it appears.

3 Press the - button.
The indication resets to 00:00.



To go back to previous value, press the + button while the "00:00" indication is on.

12^{GB}

4 Set the POWER switch to off position to release Setting mode.

Troubleshooting

If you have any problem using the transmitter, use the following checklist. Should any problem persist, consult your Sony dealer.

Symptom	Meaning/Remedy
The transmitter does not turn on.	• The + and – poles of the batteries do not match those of the battery compartment. → Insert the batteries with the poles correctly matched. • The batteries are exhausted. → Replace the batteries with new ones. • The battery terminals in the transmitter are dirty. → Clean the + and – terminals with a cotton swab.
The batteries run down quickly.	• The batteries are exhausted. → Replace the batteries with new ones. • A manganese batteries are being used. → Use the alkaline batteries. The battery life of a manganese battery is less than half that of an alkaline battery. • The transmitter is being used under cold conditions. → The batteries run down quickly under cold conditions.
The transmitter cannot be turned off.	The HOLD switch is in locked position. → Change the HOLD switch to the unlocked position so that the green line appears.
The channel cannot be changed.	An attempt was made to change the channel by pressing the SET button only. → Turn the transmitter off, then turn it on again while holding down the SET button. Then change the channel with the + and – buttons.
There is no sound.	• The indication on the LCD is flashing. → The transmitter is in channel setting mode. Turn the power off, then on again. • The channel setting on the transmitter is different from that on the tuner. → Use the same channel setting for both the transmitter and tuner. • The AF or RF indicator does not turn on. → Confirm that the transmitter and tuner are both turned on.

Troubleshooting

Symptom	Meaning/Remedy
The sound is weak.	- The audio gain level is too low. → The output level is low. Press the + button in audio gain level setting mode to raise the gain level. - The volume on the amplifier, mixer or tuner is low. → Adjust the volume.
There is distortion in the sound.	The audio gain level is too high. → The input level is extremely high. Press the – button in audio gain level setting mode to lower the gain level.
There is sound interruption or noise.	- The receiver's antenna is incorrectly connected. → Connect the antenna correctly according to the operation manual of the tuner or antenna divider. - The antenna divider is turned off. → Turn the antenna divider on. It is possible for the tuner to receive signals even when the antenna divider is turned off, but sound interruption or noise may occur. - The RF indicator lights even when the transmitter is off. → Jammed transmissions are being received. Determine which channels are usable (i.e., channels for which the RF indicator on the tuner does not light) and set the tuner and transmitter to the same usable channel. - Two or more wireless microphones/transmitters are set to the same channel. → Make sure no two microphones/transmitters are set to the same channel. Set each microphone/transmitter to a different channel.

Specifications

Transmitter and modulator section

Oscillator	Crystal controlled PLL synthesizer
Type of emission	F3E
Carrier frequencies	470 to 806 MHz
Operating frequency band	24 MHz
	<i>Refer to the "Wireless Microphone System Frequency List" supplied with the manual.</i>
RF power output	10 mW/50 mW selectable (50-ohm load)
Tone signal	32.768 kHz
Battery condition signal	32.782 kHz
Type of antenna	1/4 -wavelength wire

Audio section

Acceptable microphone capsule	Sony microphone capsules listed on next page
Pre-emphasis	50 µs
Deviation	±5 kHz (94 dB _{SPL} 1 kHz input)
Frequency response	70 to 15,000 Hz
Signal-to-noise ratio	60 dB or more (A-weighted, modulation frequency 1 kHz, with ±5 kHz deviation at WRR-802A)
Audio gain control	-12 to +9 dB, variable in 3-dB steps
Maximum input level	142 dB _{SPL} (at audio gain -12 dB)

Power section

Power requirements	3.0 V DC (two LR6/size AA alkaline batteries)
Battery life	Approx. 8 hours at 25°C (77°F), with Sony LR6 alkaline batteries, at 10 mW RF output

General

Operating temperature	0°C to +50°C (32°F to 122°F)
Storage temperature	-30°C to +60°C (-22°F to +140°F)
Dimensions	37 × 150 mm (diameter/length) (1 1/2 × 6 inches) not including antenna
Mass	Approx. 150 g (0.3 oz) not including batteries

Supplied accessory

Operating Instructions (1)	
Wireless Microphone System Frequency List (1)	
Microphone holder (1)	
Stand adaptor (1)	
	(PF 1/2 to W 3/6 type for the customer in Europe and Australia)
Channel color seal (1)	(PF 1/2 to W 3/6 type for the customer in USA)
Soft case (1)	

1) 0 dB_{SPL} = 2 × 10⁻⁵ Pa