

UHF Synthesized Diversity Tuner

Operating Instructions Page 2 _____ **EN**

Manual de Instrucciones Página 17 _____ **E**

WRR-801A

Owner's Record

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

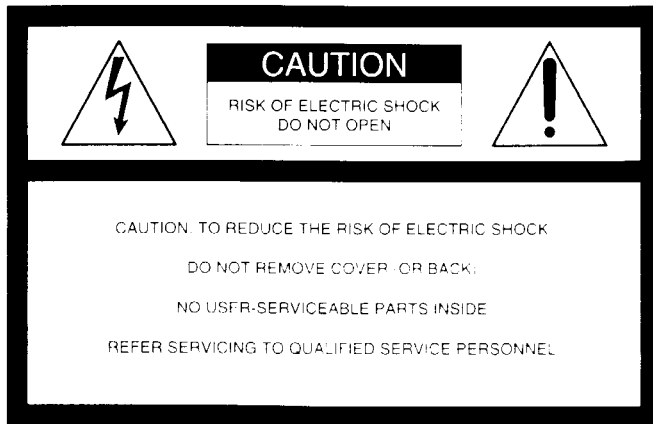
Model No. WRR-801A Serial No. _____

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

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.



This symbol 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

Notice for customers in Canada:

Use of Sony wireless devices is regulated by 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.

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.

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Precautions

On operation

- The tuner must be used within a temperature range of 0°C to 40°C (32°F to 104°F). Avoid using the tuner for extended periods at extremely high temperatures or placing it in direct sunlight, especially outdoors, because this may damage the finish of the case. Never install the tuner on or near a heat source, such as lighting equipment or power amplifiers.
- To avoid using in very humid or dusty places, because such use may shorten the life of the tuner.
- To avoid degradation of the signal-to-noise ratio, do not use the tuner in noisy places or in locations subject to vibration, such as the following:
 - near electrical equipment, such as motors, transformers or dimmers
 - near air conditioning equipment or places subject to direct air flow from an air conditioner
 - near public address loudspeakers
 - where adjacent equipment might knock against the tuner

- Switching lights on or off may produce electrical interference over the entire frequency range. Position the tuner and the wireless microphones so that interference is minimized.
- The tuner is precisely adjusted at the factory and no adjustment before use is necessary. Do not touch the inside of the tuner or try to repair it by yourself.

On cleaning

Clean the tuner with a dry, soft cloth. Never use thinner, benzene, alcohol or any other chemicals, since these may damage the finish.

The WRR-801A is a reliable UHF synthesized diversity tuner for the 800-MHz-band Sony UHF wireless microphone system which uses the frequency bands allocated for UHF TV broadcasting. This tuner is designed to enable simultaneous use of multiple channels when channels are selected according to the Sony channel plan. Installing six WRU-801A UHF Synthesized Tuner Units will enable six-channel operation on the tuner. At shipping, one tuner unit is installed in the tuner, and additional tuner units (sold separately) can be installed easily.

Features

Phase Locked Loop (PLL) synthesized system

The WRR-801A has a refined phase locked loop (PLL) synthesizer circuit and covers two UHF TV channels. It operates on 94 channels over a 12-MHz frequency.

Preprogrammed wireless channel plan for simultaneous multichannel operation

The WRR-801A has many preprogrammed, easily settable channels for simultaneous multichannel operation. One group allows setting of 94 channels. The tuner also has six preset groups of channels, each of which permits simultaneous operation of 7, 8 or 11 channels without the effects of intermodulation.

Modular multichannel reception

By installing optional WRU-801A UHF Synthesized Tuner Units, you can receive up to six channels on one WRR-801A unit.

Versatile display

A liquid-crystal display provides a variety of information, including the levels of the reception channels, RF information and transmitter battery condition.

Space diversity reception system

The WRR-801A provides stable signal reception with minimum dropout.

Tone squelch circuit for noise elimination

A built-in squelch circuit eliminates noise and signal interference when the WRR-801A is in signal reception standby mode.

Compander system

A compander (compressor/expander) system enables stabilized wireless transmission over a wide dynamic range.

Rack mounting

The WRR-801A can be mounted in an EIA standard 19-inch rack (1U size).

System Configuration

The tuner can be used with a Sony UHF synthesized wireless microphone or UHF synthesized transmitter among the models listed in the table below.

Sony 800 MHz-band system models

Frequency band		Model name	
TV channel	Frequency (MHz)	Transmitter or microphone	Tuner
68	794.125 to 799.875	WRT-800A (68)	WRR-800A (68)
		WRT-805A (68)	WRR-801A (68)
		WRT-810A (68)	WRR-810A (68)
69	800.125 to 805.875	WRT-820A (68)	WRR-820A (68)
		WRT-830A (68)	WRR-840A (68)
		WRT-860A (68)	WRR-850A (68)
		WRT-867A (68)	WRR-860A (68)

The tuner stores seven groups of selectable channels: groups 00 (94 channels), 11 (11 channels), 12 (8 channels), 13 (8 channels), A1 (8 channels), A2 (7 channels) and A3 (7 channels).

Channel groups other than group 00 are designed so that all channels of one group can be used simultaneously within the same UHF wireless microphone system without causing intermodulation. It is therefore recommended that you usually use a channel group other than group 00 unless the use of group 00 is specifically necessary.

Each "wireless channel" is represented by a 2-digit TV channel number and a 2-digit number, for example: 68-23.

Note

To eliminate interference or noise, please note the following.

- Do not use two or more wireless microphones or transmitters whose wireless channels are the same.
- If there is a TV broadcasting station nearby, to avoid possible interference from its broadcasting, do not use that station's channel.
- The number of wireless microphone channels actually usable in a multi-channel system may be smaller than the normal capacity of that system if there is interference from TV broadcasting or other RF signals.
- When operating two or more UHF wireless microphone systems using the same wireless channel in the same group, ensure that the systems are at least 100 m (330 feet)¹⁾ apart as far as they are installed within sight of each other.

Wireless Channel Lists

Group 00: All channel access

Use only for a one-channel system or to scan for open channels.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
68-01	794.125	69-01	800.125
68-02	794.250	69-02	800.250
68-03	794.375	69-03	800.375
68-04	794.500	69-04	800.500
68-05	794.625	69-05	800.625
68-06	794.750	69-06	800.750
68-07	794.875	69-07	800.875
68-08	795.000	69-08	801.000
68-09	795.125	69-09	801.125
68-10	795.250	69-10	801.250
68-11	795.375	69-11	801.375
68-12	795.500	69-12	801.500
68-13	795.625	69-13	801.625
68-14	795.750	69-14	801.750
68-15	795.875	69-15	801.875
68-16	796.000	69-16	802.000
68-17	796.125	69-17	802.125
68-18	796.250	69-18	802.250
68-19	796.375	69-19	802.375
68-20	796.500	69-20	802.500
68-21	796.625	69-21	802.625
68-22	796.750	69-22	802.750
68-23	796.875	69-23	802.875
68-24	797.000	69-24	803.000
68-25	797.125	69-25	803.125
68-26	797.250	69-26	803.250
68-27	797.375	69-27	803.375
68-28	797.500	69-28	803.500
68-29	797.625	69-29	803.625
68-30	797.750	69-30	803.750
68-31	797.875	69-31	803.875
68-32	798.000	69-32	804.000
68-33	798.125	69-33	804.125
68-34	798.250	69-34	804.250
68-35	798.375	69-35	804.375
68-36	798.500	69-36	804.500
68-37	798.625	69-37	804.625
68-38	798.750	69-38	804.750
68-39	798.875	69-39	804.875
68-40	799.000	69-40	805.000
68-41	799.125	69-41	805.125
68-42	799.250	69-42	805.250
68-43	799.375	69-43	805.375
68-44	799.500	69-44	805.500
68-45	799.625	69-45	805.625
68-46	799.750	69-46	805.750
68-47	799.875	69-47	805.875

1) The distance depends on the operating environment and conditions.

Wireless Channels Selectable

Group 11: 11-channel group

Use when TV channels both 68 and 69 are available.

Channel	Frequency (MHz)
68-05	794.625
68-14	795.750
68-25	797.125
68-41	799.125
68-47	799.875
69-12	801.500
69-16	802.000
69-30	803.750
69-37	804.625
69-40	805.000
69-42	805.250

Group 12: 8-channel group

Use when TV channel 68 is on the air.

Channel	Frequency (MHz)
69-01	800.125
69-05	800.625
69-11	801.375
69-25	803.125
69-28	803.500
69-36	804.500
69-41	805.125
69-43	805.375

Group 13: 8-channel group

Use when TV channel 69 is on the air.

Channel	Frequency (MHz)
68-03	794.375
68-13	795.625
68-18	796.250
68-26	797.250
68-37	798.625
68-40	799.000
68-44	799.500
68-46	799.750

Group A1: 8-channel group

Use when both TV channels 68 and 69 are available.

Channel	Frequency (MHz)
68-06	794.750
68-20	796.500
68-24	797.000
68-40	799.000
69-04	800.500
69-17	802.125
69-23	802.875
69-47	805.875

Group A2: 7-channel group

Use when TV channels 68 is on the air.

Channel	Frequency (MHz)
69-11	801.375
69-22	802.750
69-30	803.750
69-36	804.500
69-40	805.000
69-43	805.375
69-45	805.625

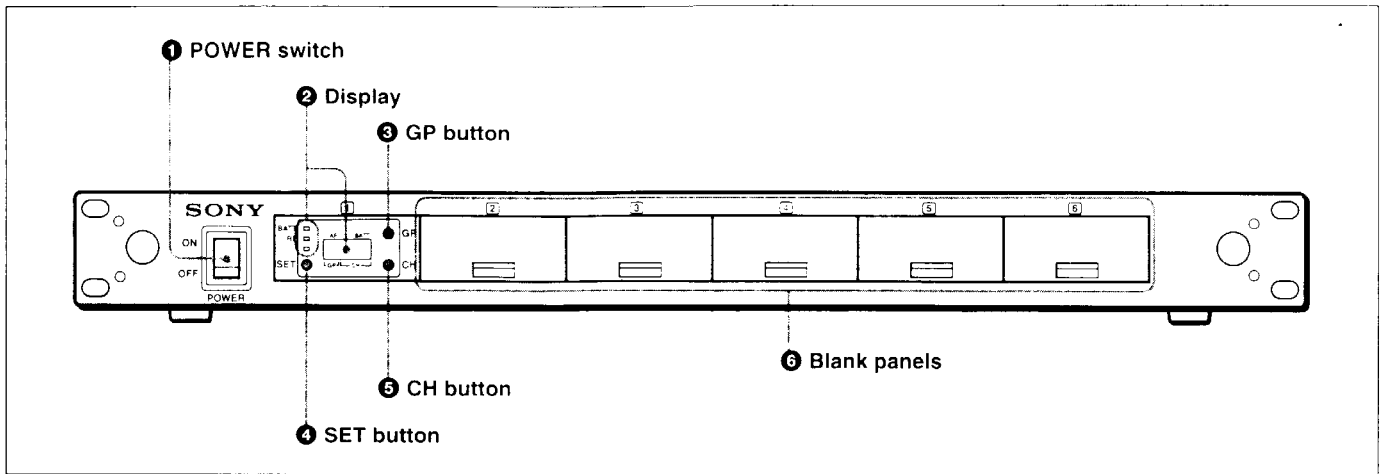
Group A3: 7-channel group

Use when TV channels 69 is on the air.

Channel	Frequency (MHz)
68-10	795.250
68-21	796.625
68-29	797.625
68-35	798.375
68-39	798.875
68-42	799.250
68-44	799.500

Location of Parts and Controls

Front Panel



1 POWER switch

Turns the power on and off.

2 Display

Displays the status of the tuner and the group and channel assigned to the unit.

For details, see the following section "Display".

3 GP (group) button

Press to change the group or to display frequencies.

4 SET button

Press to change the group or channel.

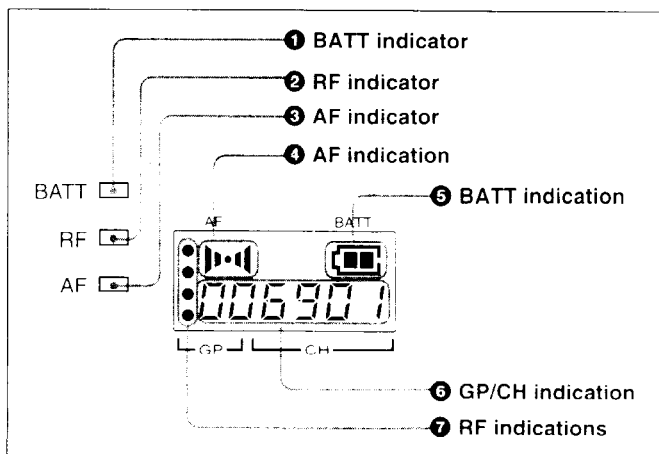
5 CH (channel) button

Press to change the channel in a group.

6 Blank panels

Remove these panels to install optional WRU-801A UHF Synthesized Tuner Units.

Display



1 BATT (battery) indicator

5 BATT (battery) indication

Indicate the condition of the wireless microphone transmitter batteries. The indicator and indication start flashing about one hour before the transmitter batteries go flat.

2 RF (radio frequency) indicator

7 RF (radio frequency) indications

The indicator lights and the indications (dots) appear when the antenna reception is optimal. Depending on the RF input level, the number of dots changes.

3 AF (audio frequency) indicator

4 AF (audio frequency) indication

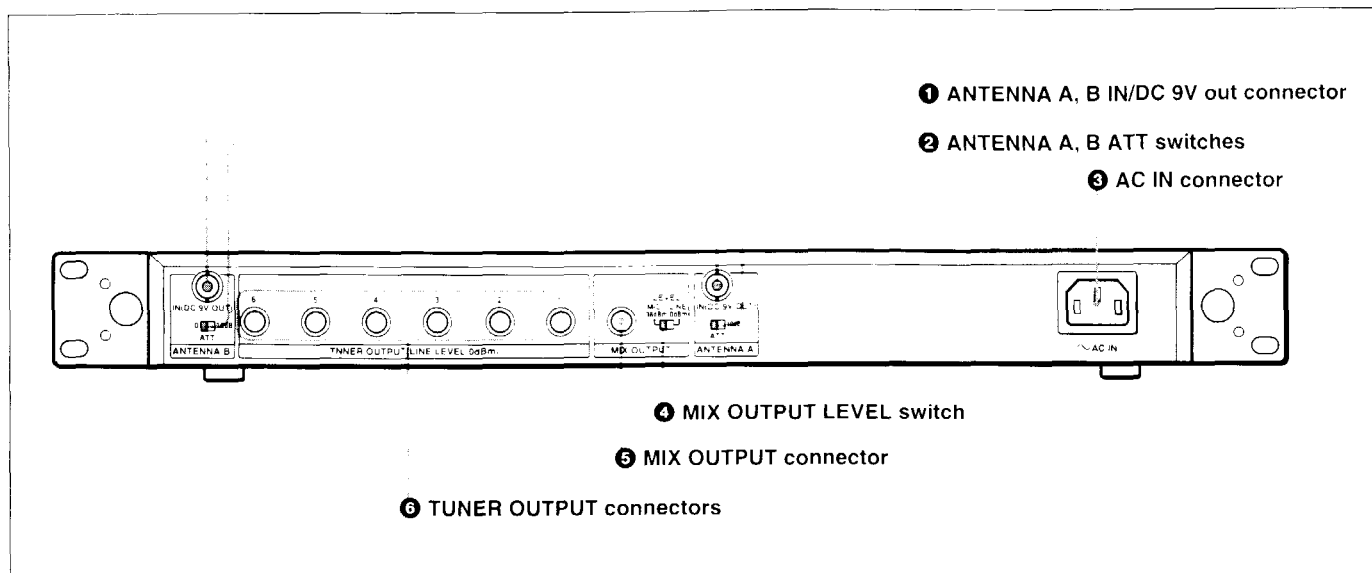
The indicator lights and the indication appears when the audio output level is higher than the reference level.

6 GP/CH (group/channel) indication

Shows the reception channel group and respective channel number.

Pressing the GP button changes this indication to the frequency indication.

Rear Panel



1 ANTENNA A, B IN / DC 9V OUT (antenna A, B input/DC power output) connectors (BNC type)

Connect the supplied antenna or an optional AN-820A UHF Antenna. To connect two of these units, these connectors are connected to the ANTENNA OUT connectors of the WD-820A UHF Antenna Divider. When the AN-820A is connected, 9 V DC power is supplied to the antenna's internal booster through these connectors.

Note

Never short-circuit these connectors.

2 ANTENNA A, B ATT (attenuation) switches

Select the RF attenuation as 0 dB or 10 dB. (Normally, set the switches to 0 dB.)

3 AC IN connector

Connects to an AC power source with the supplied AC power cord.

4 MIX OUTPUT LEVEL switch

Selects the mixed output level as 0 dBm or -38 dBm. Set this switch according to the input level of the equipment connected to the tuner.

5 MIX OUTPUT connector (ø6.3 phone balanced (1/4 inch TRS))

Supplies mixed audio signals of six tuner units. You can connect this to the audio input connector of a mixer, amplifier or similar equipment.

6 TUNER OUTPUT (tuner sound output) connectors (ø6.3 phone balanced (1/4 inch TRS))

Each connector supplies the audio signal from the corresponding tuner unit. You can connect this to the audio input connector of a mixer, amplifier, or similar equipment.

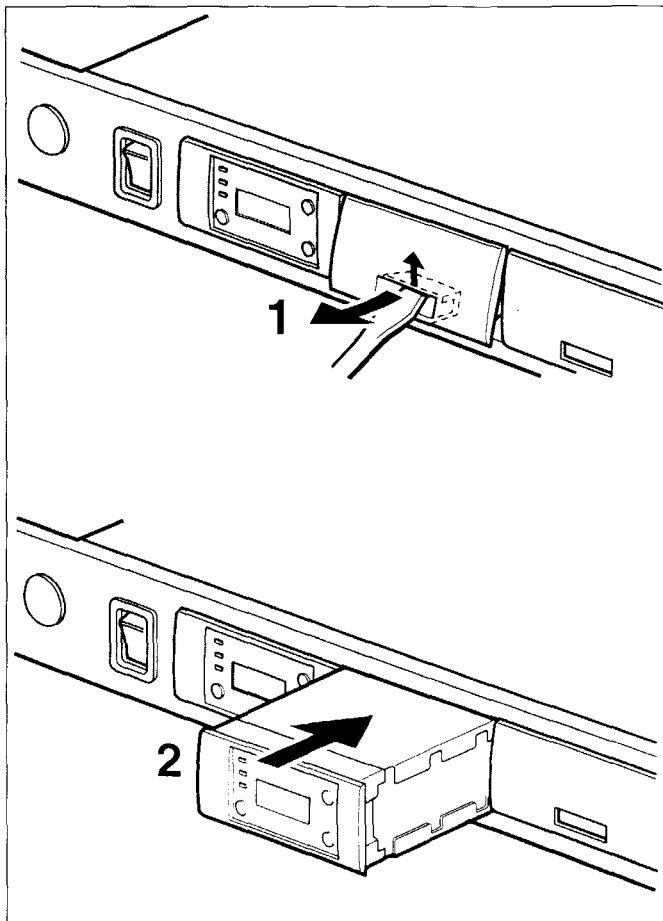
Installing a WRU-801A Tuner Unit

Up to five WRU-801A UHF Synthesized Tuner Units can be installed.

Notes

- Be sure to power this unit off before installing the WRU-801A.
- The buttons and display on the front panel of the WRU-801A may be damaged if they are gripped too strongly. Always hold the WRU-801A by the side.
- Do not touch the connectors on the rear panel of the WRU-801A.
- Be careful of static electricity.

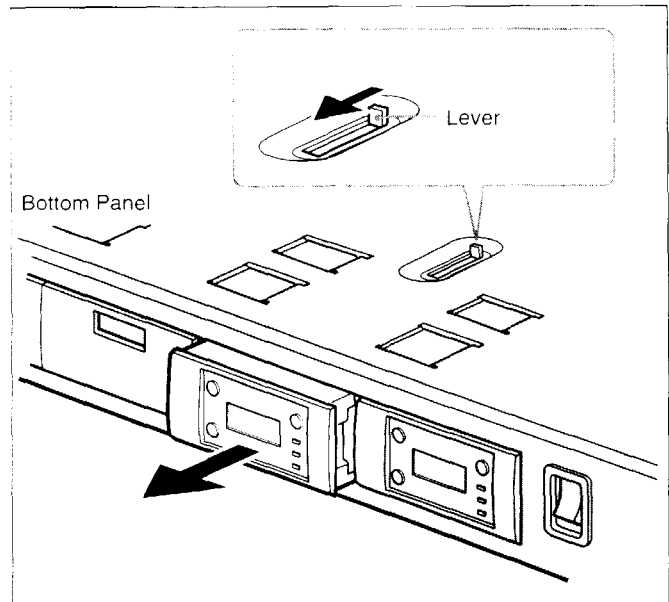
Installing a WRU-801A



- 1** Power the tuner off and remove the blank panel with a screwdriver or other tool.
- 2** Hold the WRU-801A by the side and insert into the slot. Push in until you hear a click.

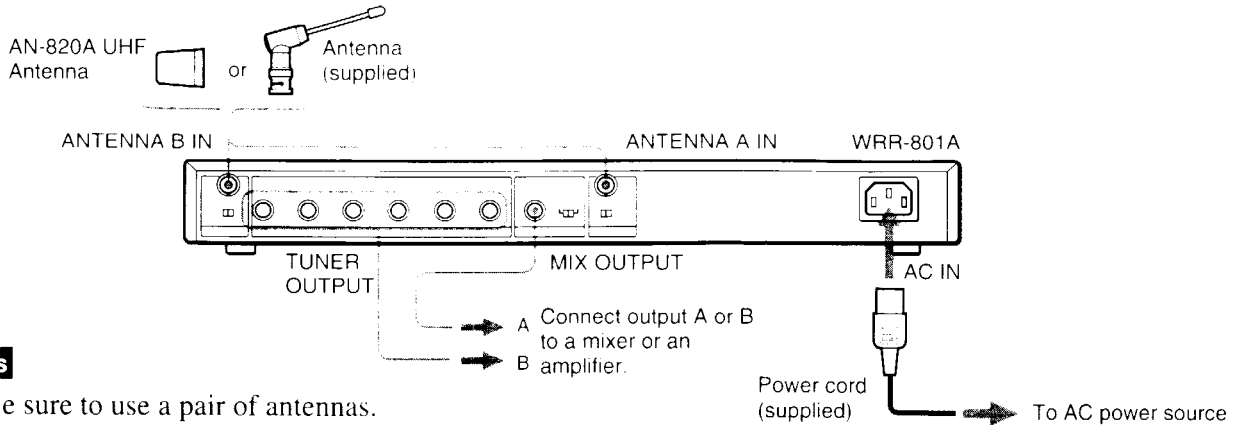
Removing a WRU-801A

On the bottom panel of the tuner, locate the lever corresponding to the slot where the WRU-801A is installed and pull the lever forward. The WRU-801A is ejected from the slot.



Basic Connections

When using 1 to 6 channels

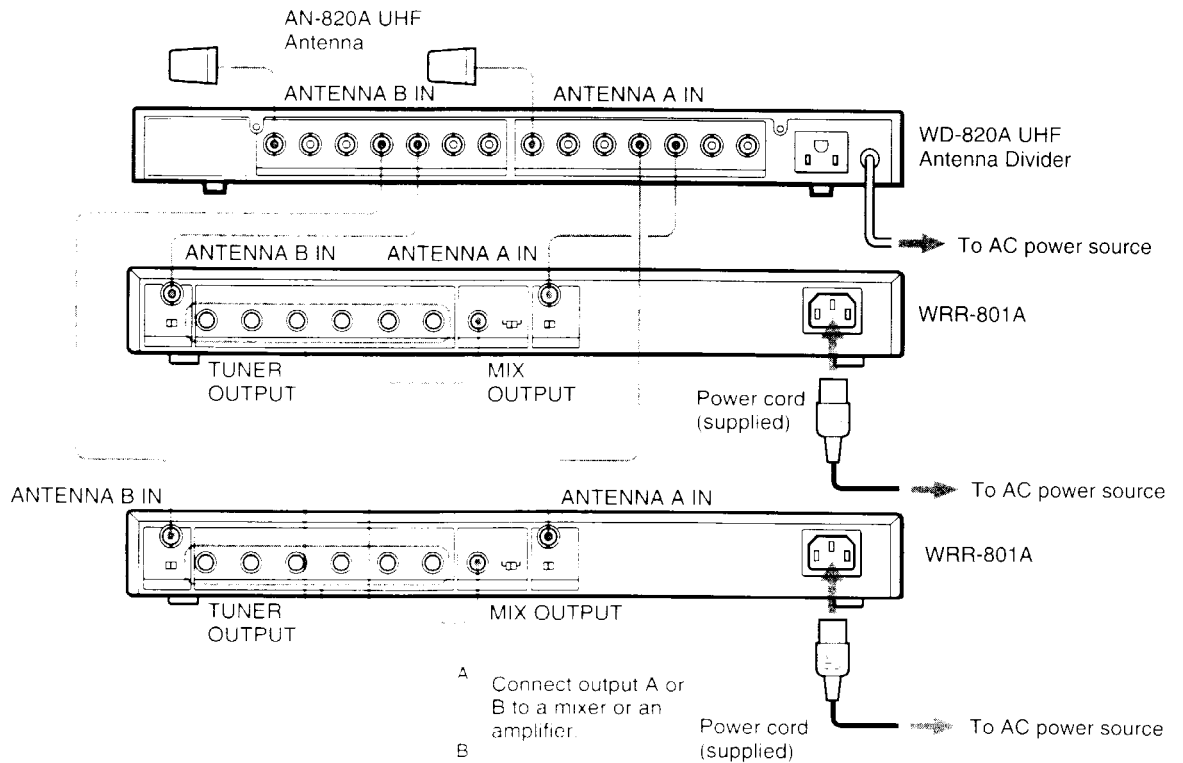


Notes

- Make sure to use a pair of antennas.
- Make the antenna tips point upward.

Connection for Multichannel Operation

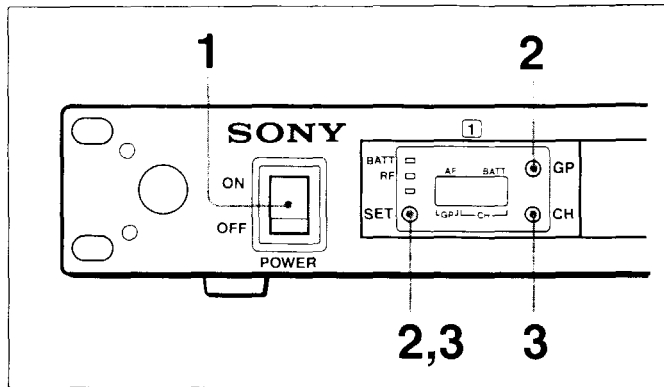
When using 7 to 11 channels



Channel Setting

Take the following precautions to prevent interference and noise.

- Do not simultaneously use two or more microphones and transmitters that are set to the same channel.
- When simultaneously using two or more tuners, always set the tuners to different channels within the same group (other than group 00).
- Separate the reception antennas and the transmitter by more than 3 meters (9 feet 11 inches).



1 Turn the POWER switch on.

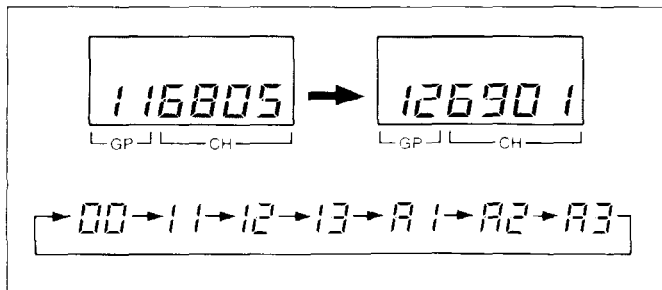
The message "U 68" appears on the display, and then the current tuner status is displayed.

Note

Turn the POWER switch on after reducing the volume of equipment connected to the TUNER OUTPUT connector. Otherwise, noise will be heard when the power is turned on.

2 Press and hold down the SET button, and press the GP button in 3 seconds to select a group.

Each time you press the GP button, the GP indication changes as shown in the following figure. To change the indication continuously, press and hold down the GP button.

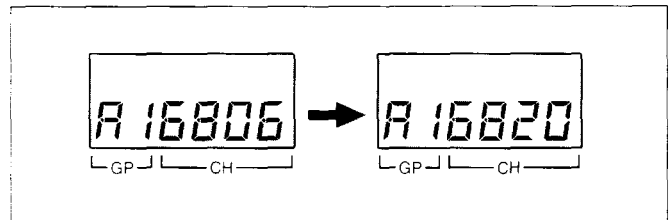


The CH indication shows the lowest frequency channel of the selected group. For group 00, however, the channel selected last is displayed. Releasing the buttons automatically cancels the group and channel selection mode, and the currently displayed group is selected.

3 Press and hold down the SET button, and press the CH button in 3 seconds to select a channel.

Similar to step 2, each time you press the CH button, the CH indication changes in the order shown in the group and reception channel list. (See "Wireless Channel Lists" on page 7.)

If you press the CH button when the last channel of the selected group is displayed, the first channel of the group will be displayed.



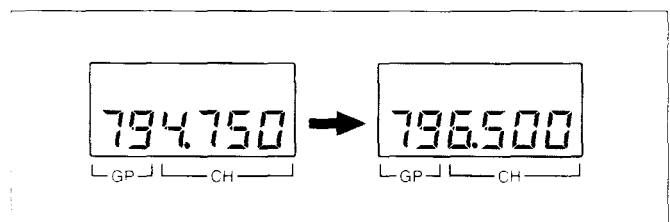
Selecting the reception channel by frequency

Press the GP button.

This changes the GP/CH indication to a frequency indication.

To change a frequency, press the CH button while keeping the SET button pressed. (A higher frequency will be displayed.)

Press the GP button again to change the frequency indication to a GP/CH indication.



4 If the desired channel or frequency is displayed, release the SET button and CH button.

The selected channel is set.

To store the selected group and channel

Leave the indication unchanged for 5 seconds.

The group and channel set in the procedure explained above are stored in memory.

Automatic Search and Setting of Available Channels

You can set multiple channels by setting a group for the first tuner unit only. For other tuner units, available channels in the same group are automatically set.

- 1 Power off all wireless microphones and transmitters.
- 2 On the first tuner unit, select the group to be used.
- 3 Press the SET button on the first tuner unit and hold it down for 3 seconds.

Available channels in the same group are automatically set on the other tuner units. After automatic setting, you can adjust the groups and channels of individual tuner units.

Note

Set each tuner unit to the same group.

When using two tuners

When you use two tuners, proceed as follows to ensure that the two tuners do not use the same channel settings.

- 1 Follow the procedure explained above to set the group and channel of the first tuner.
- 2 Power on the wireless microphones or transmitters after adjusting them to the channels of each tuner unit.

Note

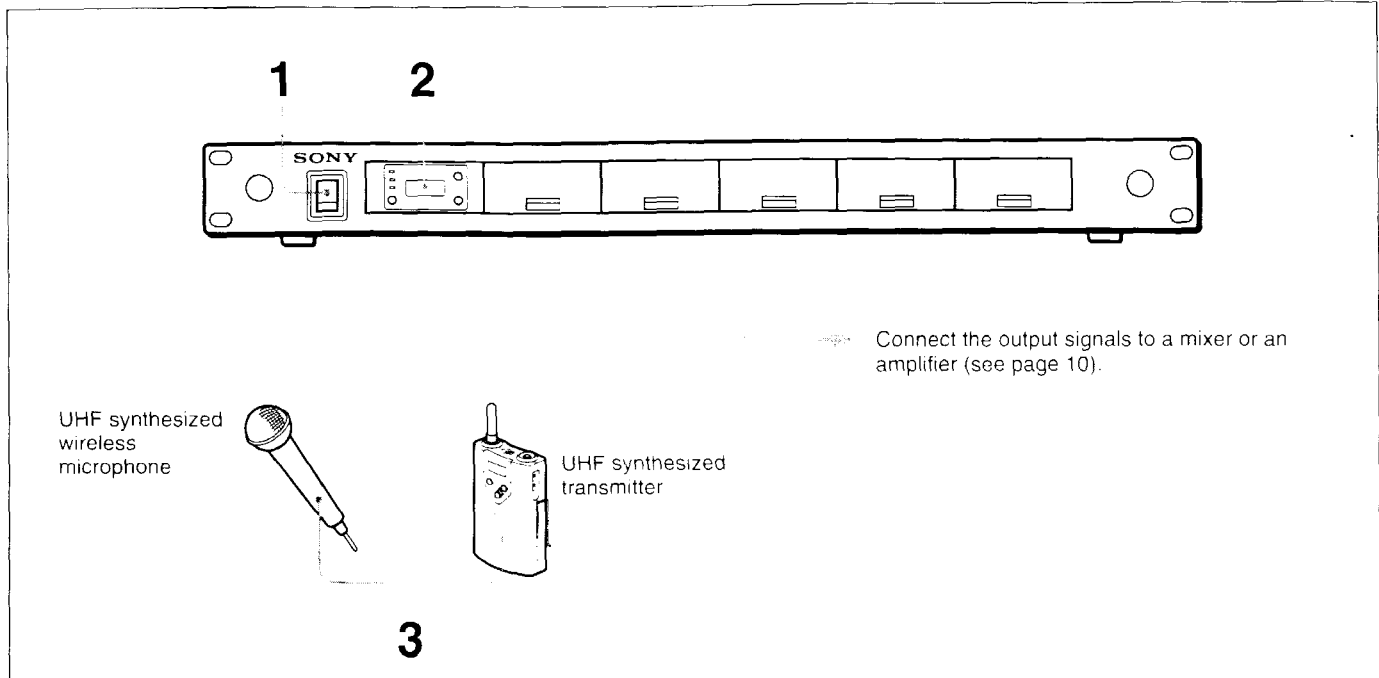
If the microphones or transmitters are not powered on, the two tuners may use the same channel twice.

- 3 On the first tuner unit of the second tuner, set an available channel in the same group as selected on the first tuner.
- 4 Press the SET button of the first tuner unit on the second tuner and hold it down for 3 seconds.

Available channels in the same group (channels in use neither by the first tuner nor by the first tuner unit on the second tuner) are automatically set on the other tuner units on the second tuner.

Note

If automatic channel setting does not function well for the 2nd tuner (due to poor reception), set channels manually for the 2nd tuner.



- 1 Turn the POWER switch on.

Note

Turn the POWER switch on after reducing the volume of the equipment connected to the TUNER OUTPUT connector. Otherwise, noise will be heard when the POWER switch is turned on.

- 2 Set the reception channel.

For details on setting the channels on the tuner, see "Channel Setting" on page 11.

- 3 Turn on the wireless microphone or transmitter. Use the wireless microphone or transmitter to which the same channel is assigned as to the tuner.

If noise is heard

Depending on the environment where the system is installed, outside noise or radio wave may disrupt the transmission of certain channels.

To select a channel under this circumstance, turn off the wireless microphone and transmitter. Then select a channel at which the RF indicator is off. (A channel free from noise or radio wave interference is selected.) Set the same channel on the microphone or transmitter.

Muting Functions

This tuner has the following three muting functions, which work in combination.

(1) Muting by RF input level

As sufficient S/N for the audio output may not be obtained if no RF signal is received or the RF input level is low, the audio output can be muted when the RF input level falls below the muting level.

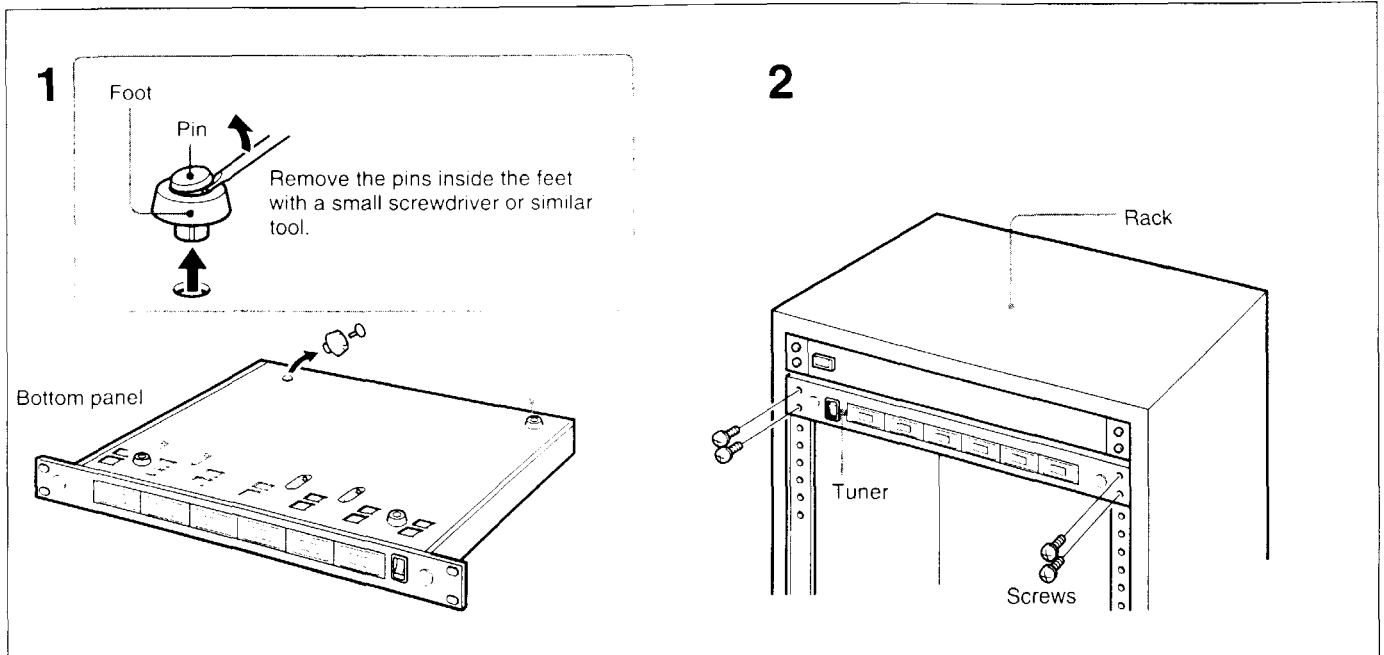
(2) Tone squelch

The audio output is obtained only when the tuner receives an RF signal which includes a specified tone signal. The audio output is muted to eliminate noise which may be heard when the transmitter is turned on/off or the tuner receives an interference RF signal.

(3) Noise squelch

The audio output is muted to eliminate noise which may be heard when there is such excessive interference RF signal that the tone squelch does not work.

Rack Mounting



- 1 Remove the feet of the tuner before mounting it on a rack.
- 2 Mount the tuner on the rack using screws that are at least 12 mm (1/2 inches) long and that match the diameter of the screw holes on the rack.

Error Messages

Apart from the normal indications, the following error messages may appear on the display.

Message	Meaning	Remedy
Err 01	An error has occurred in the backup memory data.	The memory data is initialized. Reset the group and channel settings.
Err 02	The PLL-synthesized circuit has a malfunction.	Contact your nearest Sony dealer.
NO TONE	As no tone signal is available or a tone signal other than 32.768 kHz is being received, the audio signal output is muted.	The transmitter's tone signal is in trouble. Contact your nearest Sony dealer. If you are using a WRT-810A wireless microphone, a "NO TONE" message appears when you turn off the AF switch, but this is normal.

Tuner

Reception type	110KF3E
Circuit system	Dual conversion superheterodyne
Reception frequencies	794.125 to 805.875 MHz
Local oscillators	Crystal controlled PLL synthesizer
Selectivity	60 dB or more (at ± 250 kHz detuned)
Spurious rejection ratio	70 dB or more
Image rejection ratio	70 dB or more
Muting level	30 dB μ^1
Antenna connectors	BNC-R type (2), 50 ohms
Frequency response	100 to 15,000 Hz ± 3 dB
De-emphasis	50 μ sec
Signal-to-noise ratio	30 dB or more at an A-weighted RF input level of 20 dB μ 60 dB or more at an A-weighted RF input level of 60 dB μ (± 5.0 kHz deviation at 1 kHz modulation)
Distortion	1% or less (± 40 kHz deviation at 1 kHz modulation)
Tone signal frequency	32.768 kHz
Output level	0 dBm ²⁾ (± 16 kHz deviation at 1 kHz modulation) (-20 dBm (± 5 kHz deviation at 1 kHz modulation))
Mix output level	
LINE	0 dBm (± 16 kHz deviation at 1 kHz modulation) (-20 dBm (± 5 kHz deviation at 1 kHz modulation))
MIC	-38 dBm (± 16 kHz deviation at 1 kHz modulation) (-58 dBm (± 5 kHz deviation at 1 kHz modulation))

Output impedance 150 ohms
Output connectors ϕ 6.3 phone balanced (1/4 inch TRS)

General

Power requirements	120 V AC, 60 Hz
Power consumption	30 W
Power supply for antenna boosters	9 V DC (max. 100 mA)
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	-20°C to +55°C (-4°F to +131°F)
Dimensions	482 \times 44 \times 300 mm (19 \times 1 3/4 \times 11 7/8 inches) (w/h/d)
Mass	Approx. 3.8 kg (134 oz)

Accessories supplied

AC power cord (1)
Antennas (2)
Operating Instructions (1)

Design and specifications are subject to change without notice.

1) 0 dB μ =1 μ V

2) 0 dBm=0.775 Vrms (600 ohms loaded)