SONY

WORLD ZONE

CRF-220

INSTRUCTIONS FOR USE
BEDIENUNGSANLEITUNG
MODE D'EMPLOI

INSTRUCTIONS FOR USE

Your WORLD ZONE CRF-220 is a highest quality multi-band receiver that presents you with listening enjoyment of 22 bands broadcast from anywhere in the world; long wave, standard broadcast, 19 short wave and frequency modulation (FM) band. This WORLD ZONE can also receive SSB (single side band) signal and CW (continuous wave) signal.
Read this manual carefully to enjoy and utilize the full scope of this radio.

TABLE OF CONTENTS

BEDIENUNGSANLEITUNG

Ihr „WORLD ZONE" CRF-220 ist ein Hochleistungs-Multi-Band-Empfänger, der Ihnen die Möglichkeit bietet, 22 Bänder von überall in der Welt zu empfangen: Langwelle, Mittelwelle, 19 Kurzwellen und UKW-Bereiche. Außerdem können Sie sich an SSB-Signalen (einfaches Seitenband) und CW-Signalen (kontinuierliche Welle) erfreuen.
Um die volle Leistung des Geräts richtig auszunützen, lesen Sie bitte diese Anleitung sorgfältig durch.

INHALTSVERZEICHNIS

MODE D'EMPLOI

Votre SONY WORLD ZONE CRF-220 est un récepteur à gammes d'ondes multiples de très haute qualité qui vous offre la possibilité d'écouter 22 gammes d'ondes émises en n'importe quel point du globe: grandes ondes, émissions standard, 19 gammes d'ondes courtes et la modulation de fréquence (FM). En outre, le WORLD ZONE permet de capter un signal SSB (bande unilatérale) et CW (onde continue).
Lisez attentivement ce mode d'emploi afin d'apprécier et d'utiliser au mieux de ses possibilités votre radio.

TABLE DES MATIERES

MAIN FEATURES

1. FET (Field Effect Transistor) in FM and SW tuners provides stable reception even in strong signal areas.
2. Easy and accurate SW tuning by quality disc turret switching system and double superheterodyne system.
3. Single side band reception which gives you enjoyment of listening to communications between radio hams, ships, international telephone stations, etc.
4. Sensitivity and clear reception with high performance 45 SONY transistors, 34 diodes and three long telescopic aerials and built-in ferrite bar aerial.
5. Solid state filter and selectivity switch ensure excellent selectivity rejecting interference signals.
6. If you pre-tune in the desired station of each band, you can always enjoy the reception of the station only by pushing the band selection buttons.
7. Usable in any place with standard batteries and auto/boat battery.
8. AFC switch and muting switch for effective FM reception.
9. Noise limiter switch for effective SW reception and sensitivity switch for stable reception of distant or local station.
10. Dynamic 4W power output from two speakers. The bass and treble tone controls are separately adjusted.
11. Convenient Tuning meter which provides tuning and battery condition checking.
12. Dial light for easy tuning in dark place.
13. Jacks for connecting earphone, headphoe tape recorder, stereo adaptor and external speaker.

Operating on standard batteries

Open the rear cover of the receiver by pressing your thumbs in the catches on the top of the cover and pulling toward you. Insert three batteries into each cylinder with the correct polarity indicated on the cylinder and in the compartment. Place the two cylinders containing the batteries on the ribbon in the compartment. Press the negative end (flat side) of the battery against the spring contact and push the other end of the cylinder slightly.

- The battery allows about ten days operation under ordinary use of 2 or 3 hours a day.
- It is recommended that you check the battery condition occasionally. Set the POWER switch to ON and press the BATTERY CHECK switch down, and if the pointer of the Battery check meter moves and stays in the green zoon, the condition of the batteries is nomal. If the pointer stays out of the green zoon, replace all the batteries with the new ones. Weak or distorted sound also indicates that the batteries are exhausted.
- When the set is not used for more than a few weeks, take out the batteries from the battery compartment to avoid the battery leakage.

good battery condition

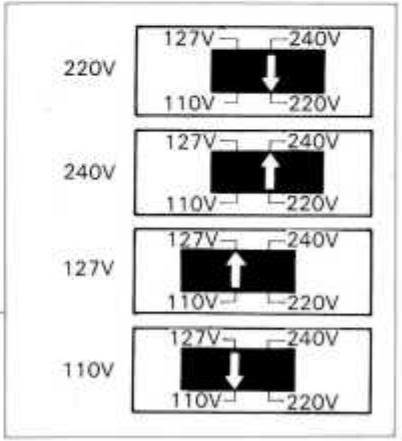
Operating on house current

Adapting to the local power line

The set is adjustable for operating on either AC 110V, 127V, 220V and 240V. Before connecting the mains lead see the VOLTAGE SELECTOR at the lower right of the rear and check that the AC power line voltage is preadjusted to your local power line voltage. If readjustment is required, consult your nearest SONY dealer.

CAUTION

The CRF-220 available in the United Kingdom is fixed to operate on AC 240V power line. When changing the setting voltage, be sure to consult your nearest SONY dealer.



Connecting to house current

Connect the AC IN socket at the lower right of the rear and the convenient AC outlet with the mains lead supplied.

WARNING

This apparatus must be earthed to your 3-pin plug in accordance with following instructions.

IMPORTANT

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

Green-and-yellow :	Earth
Blue :	Neutral
Brown :	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows :—

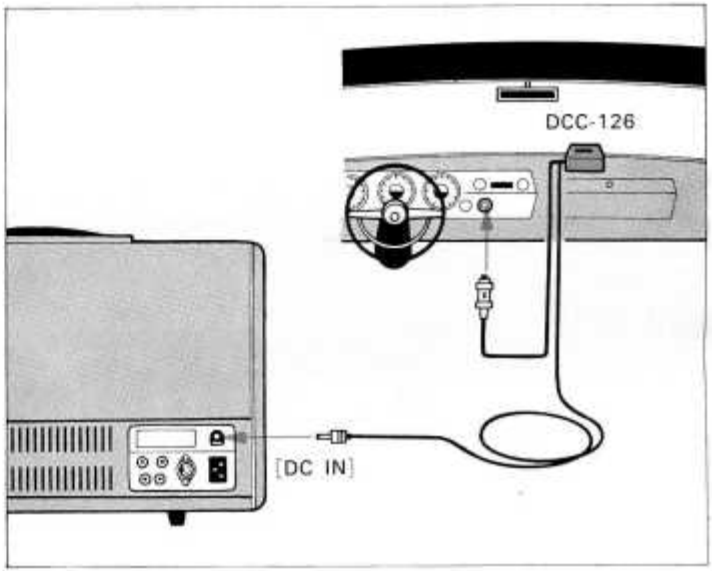
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow. The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

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

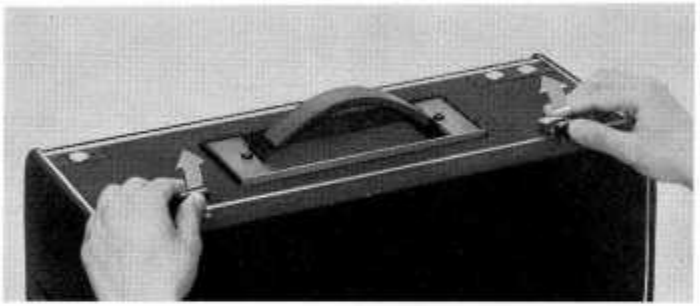
Operating on auto/boat battery

The set can be operated on a 12 V auto/boat battery through the cigarette lighter socket of your car or boat. Check the voltage of your auto/boat battery to see whether it is 12 V or not. Insert the round plug of SONY Car battery cord DCC-126 (optional) into the cigarette lighter socket of the car or boat, and one-pin plug into the DC IN socket of the receiver as illustrated.

○ For further instructions, refer to the instruction manual of DCC-126.



Open the front cover by unfastening the two snaps at the top as illustrated.

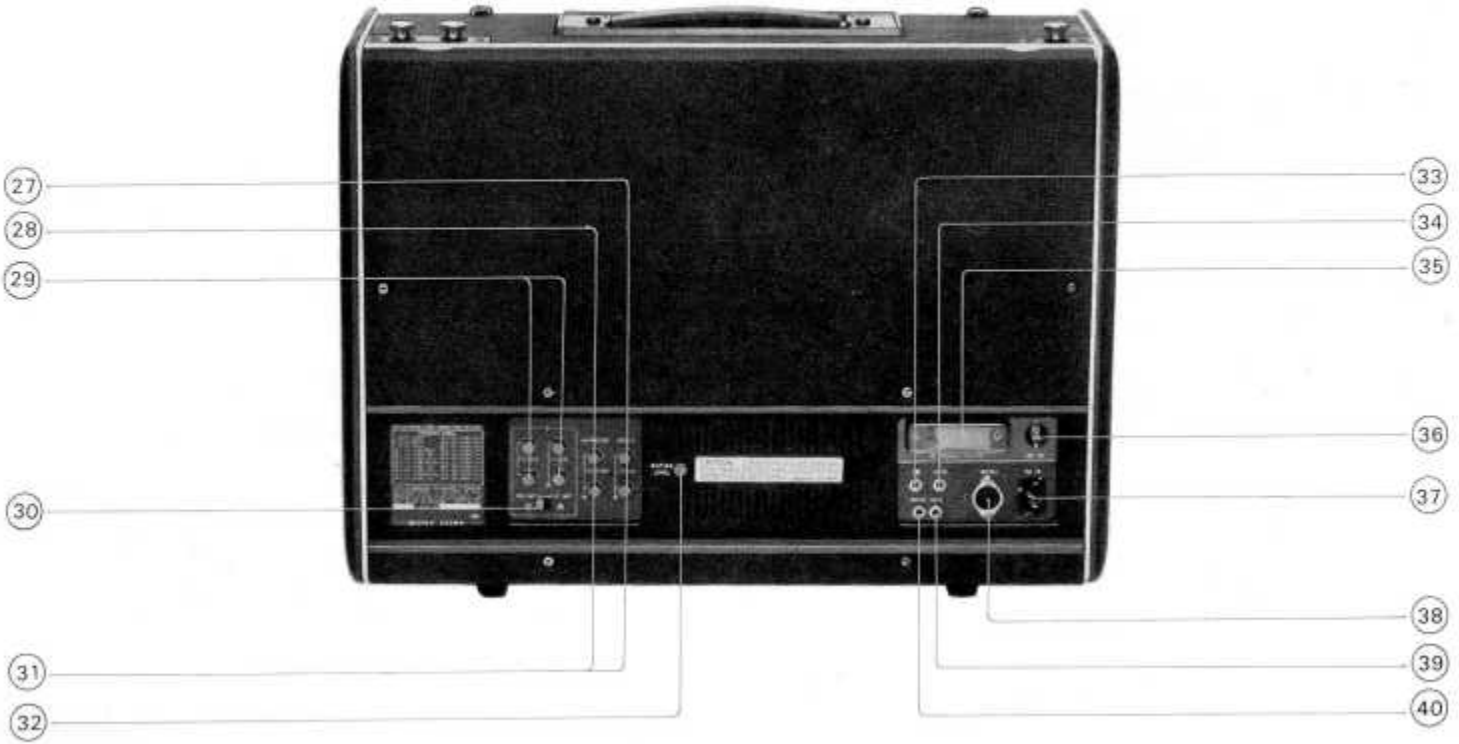


To close the cover, insert the catches at the bottom side first and fasten the two snaps at the top.

Instruction manual compartment

Instruction manual can be stored conveniently into the compartment at the back of the front cover. Open the compartment while pressing the tiny spring toward the outsides.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
SONY


27
28
29
30
31
32
33
34
35
36
37
38
39
40

① SW Telescopic Aerial
Use for SW1-19 reception, press the top of the aerial and then pull it out to its full length and stand it vertically.

② SW Band Indicating Window

③ Tuning Meter/Battery Check Meter [BATTERY INDICATOR]
This meter reads the tuning condition.
When the station is tuned in, the maximum deflection rightwards of the pointer shows good tuning condition. The meter, in addition, reads the battery condition.

④ SW BAND SELECTOR (at the left side)
Pull out the knob and turn it to select the desired SW band (2-19). The selected SW band appears in the SW band indicating window.

⑤ CALIBRATOR Knob
In SW2-19 reception, if the calibration of the tuning dial does not agree with the frequency of a known signal (refer to "Short Wave Guide"), turn this knob to move the scale up or down so that the pointer may indicate the correct frequency on the scale. Usually place the [•] mark of this knob to the center of the rotation.

⑥ BATTERY CHECK Switch
In battery operation, the battery condition can be checked by this switch. Turn the set on and press the switch down. If the pointer of the Tuning meter moves and stays in the green zone, the condition of the batteries is normal. If the pointer stays out of the green zone, replace all the batteries with new ones.

⑦ Dial Light Switch [LIGHT]
In battery operation, press this switch down, and the Tuning meter and the Dial scale of the selected band illuminate.

⑧ AC Lamp

⑨ BASS Tone Control
Turn this control clockwise to accentuate the bass tone.

⑩ TREBLE Tone Control
Turn this control clockwise to accentuate the treble tone.

⑪ POWER Switch
Set the switch to ON, and the set operates.
In AC operation, when you turn the set on, the Dial scale and AC lamp lights.

⑫ HEADPHONE Jack
Plug a headphone having 8-ohm impedance into this jack. SONY headphone DR-5A is recommended.

⑬ EARPHONE Jack
For private listening, plug an earphone into this jack. The built-in speaker will automatically be disconnected.

⑭ VOLUME Control
Turn this control clockwise to increase the volume and counter-clockwise to decrease it.

⑮ MGC Switch
Usually push the switch to off, and the gain control automatically operates to provide stable reception with less distortion. When receiving very strong AM (MW, SW or LW) stations, SSB or CW, pull out the switch to on, and the gain control can be adjusted manually. Turn it clockwise and adjust it to obtain stable reception.

⑯ ⑰ BFO Switch, BFO Knob
Usually place this switch to OFF. When you receive SSB or CW signal, this switch and knob are used.

1. Set the BFO switch to on and the mark [•] of the BFO knob to either USB or LSB according to the receiving signal frequency.
2. Press the desired SW band selection button and tune in the desired station.
3. Adjust the BFO knob to obtain the best reception within the white barred zone of USB or LSB.
   Simultaneous adjustment of the Tuning knob and the BFO knob may lead the good results.

⑱ FM Telescopic Aerial
Use for FM reception, press the top of the two aerials and pull them out and adjust the angle, direction and length for best reception.

⑲ Dial Scale

⑳ Band Selection Buttons
Press the desired band button. The Dial scale of the selected band will illuminate in AC operation.
In SW2-19 reception, after pressing the SW band selection button [SW2-19], turn the SW BAND SELECTOR. The selected SW band will appear in the SW band indicating window.

㉑ TUNING Knobs
Slowly turn the knob which is located below the selected Band selection button and tune in the desired station by watching the Tuning meter

㉒ AFC Switch
Effective only for FM reception.
Set this switch to ON, AFC is on which is effective for stable and easy FM tuning. However, when the desired FM station is weak adjacent in frequency to a strong station, the AFC may pull the tuning into the stronger station. Under these conditions, set this switch to OFF.

㉓ MUTING Switch
Effective only for FM reception.
Set this switch to ON, this operates to eliminate noise and static heard between transmissions to a desirable level fo your listening. When you receiving a weak signal station, the sound may come on intermittently. In such case, readjust the aerial or set this switch to OFF. Be carefull not to increase the sound volume because strong noise will occur when the station is not tuned in.

㉔ SELECTIVITY Switch
Usually set this switch to BROAD.
When you want to tune in a considerably far-away SW station where noise interferences exsist and what you want is articulation rather than sound quality, set this switch to SHARP. This setting restricts more narrowly the received signal width thereby getting sound distinctivity.
In FM reception, this switch is not effective.

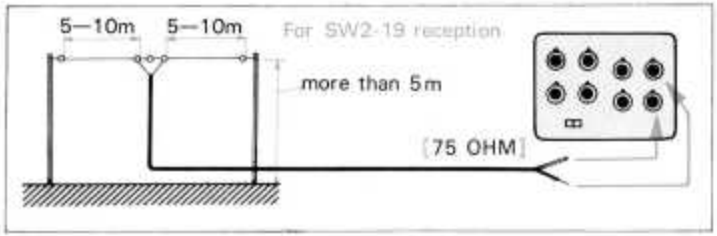
㉕ Noise Limiter Switch [ANL]
Usually set this switch to OFF position. When the impulse-type noise, such as ignition noise or key click occurs, set the switch to ON to eliminate the noise. Particularly in receiving stations of more than 20 MHz, this switch works more effectively in ON position. This switch has no relation to FM reception.

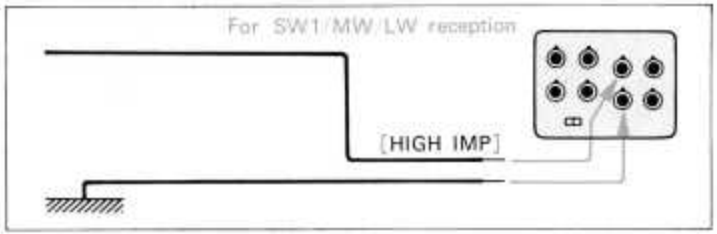
㉖ SENSITIVITY Switch
Usually place this switch to DX position. When you receive strong station, or at night local station can not be received satisfactorily, set the switch to LOCAL position.
When receiving SW 2-19 band with the SW telescopic aerial, this switch is not effective.

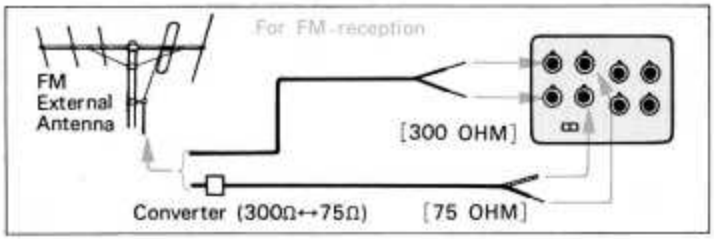
㉗ SW2-19 Aerial Terminals
For SW2-19 reception, use the popular dipole aerial with a 75-ohm coaxial aerial cable. Connect the inner lead-in wire of the coaxial aerial cable to the upper terminal and the outer lead-in wires to the lower terminal.

㉘ SW1/MW/LW Aerial Terminals
When receiving SW1, MW or LW in a building or in a difficult reception area, connect the aerial wire of more than 6 meters long to this terminal and extend it outdoors as high as possible. Also, the use of a ground wire may provide better reception.

㉙ FM Aerial Terminals
300-ohm balanced aerial and 75-ohm coaxial aerial can be connected to these terminals. In 300-ohm aerial connection loosen the FM aerial terminal screws [300 OHM] and connect the 300-ohm feeder wires to the terminals behind the washer. When using a 75-ohm coaxial aerial, connect the inner lead-in wire of the coaxial aerial cable to the upper terminal of the FM aerial terminals [75 OHM] and the outer lead-in wire to the lower terminal.







㉚ FM Aerial Switch
When using built-in FM telescopic aerials, set the switch to ROD ANT and when using FM external aerial, set it to EXT ANT.

㉛ Earth Terminals
When external aerials are being used, simultaneous use of a earth wire will eliminate hum and noise and greatly improve reception. Connect one end of the earth wire to a Earth terminal and the other end to a convenient external earth. Any earth terminal can be used for a earth connection.

㉜ MUTING LEVEL Adjustment Screw
The muting level is pre-set at the factory to the optimum. This muting level can be changed by this screw so as to suit your reception conditions if you want. Turn the screw with the driver clockwise to increase the muting level. When you tuning in a weak station, turn it counterclockwise to decrease the level.

㉝ Recording Jack [⏺]
Connect this jack and the microphone input of your tape recorder with a suitable connecting cord.
The sound volume of the radio has no effect on recording level.

㉞ External Speaker Jack [EXT SP]
Connect an external speaker having 3—8 ohm impedance to this jack. Be careful to connect properly according to the polarity (+), (—) of the terminals of the speaker. Use the SONY Connecting cord RK-36 for connection. Connect the red clip of the cord to the (+) terminal of the speaker.

㊱ VOLTAGE SELECTOR

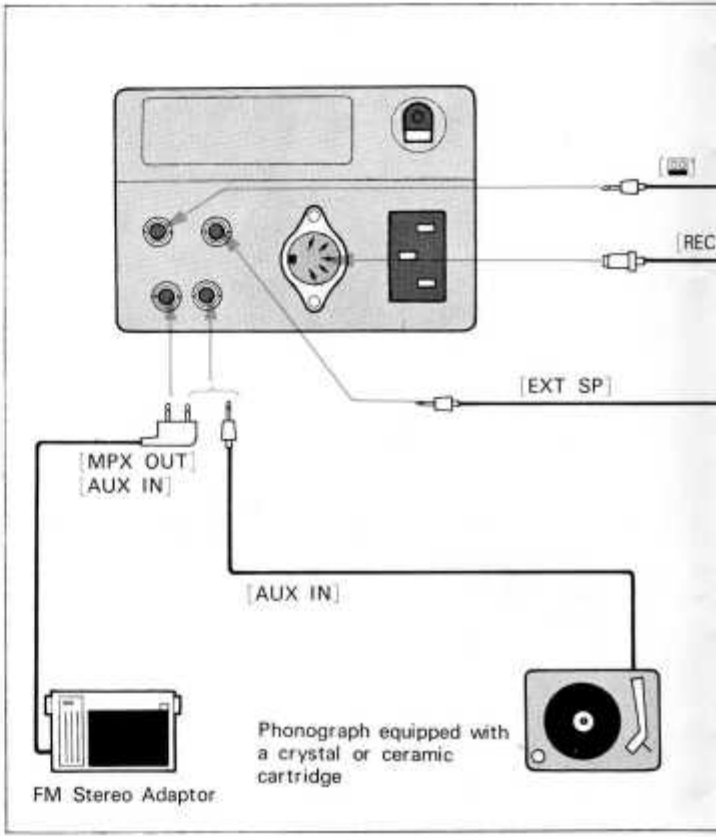
㊲ DC IN Socket

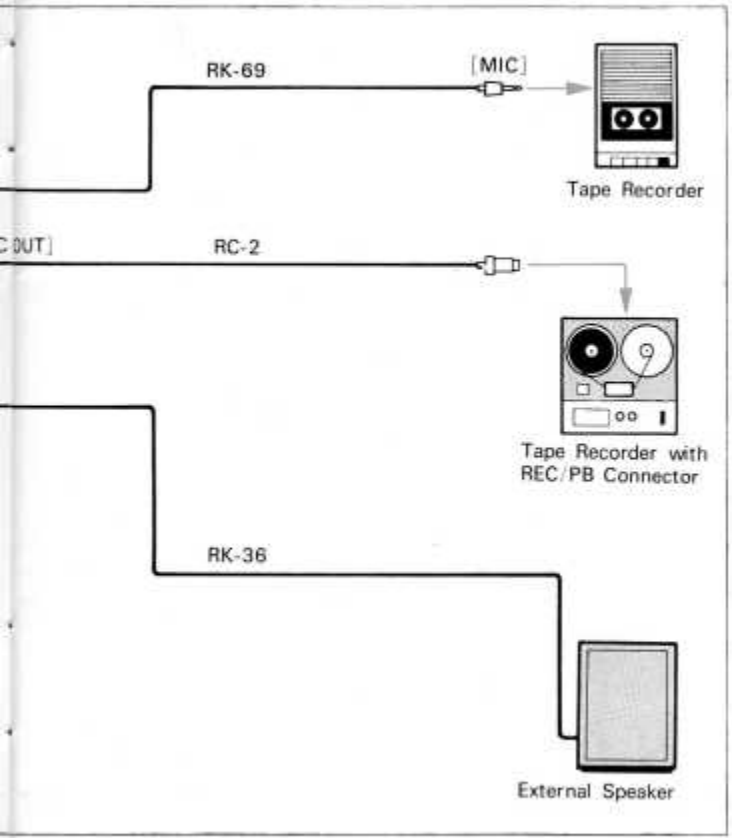
㊳ AC IN Socket

㊴ Recording Connector [REC OUT]
To record the radio programs with using a tape recorder or a tape deck which incorporates the same type connector. Use a single cable, the SONY REC/PB connector cable RC-2 (optional), for connection. Through this connector, pre-recorded programs can not be played back.
- The volume and tone control of the receiver has no effect on the recording level.

㊵ AUX IN Jack
Connect tape recorder or record player equipped with a crystal or ceramic pickup to this jack with a suitable connecting cord, for playing back pre-recorded tapes or reproducing record performance through the receiver.

㊶ MPX OUT Jack
You can enjoy FM stereophonic broadcast with the receiver by connecting a FM stereo adaptor to the AUX IN jack and this jack.



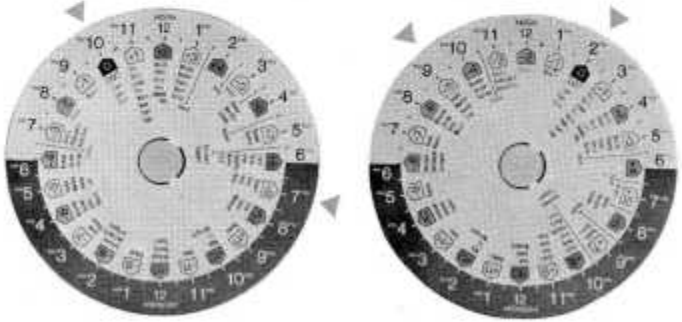


TIME ZONE CHART

Most of SW broadcasting times are indicated by Greenwich Mean Time (GMT). Use the world time dial and world map located on the back of the front cover and convert the GMT into your local time.

To change the GMT into your local time, turn the World time dial and fit the GMT to the outside time and read your local time.
For example: 10 a.m. at GMT is 7 p.m. in Tokyo.

To change your local time into the GMT, fit your city name on the Time dial to the present time on the outside of the Time dial and read the time at GMT.
For example: 9 a.m. in New York is 2 p.m. at GMT.



FM reception

1. Set the FM aerial switch to ROD ANT and pull the two Telescopic aerials.
2. Turn on the power.
3. Set the SENSITIVITY switch to DX and MUTING switch and AFC switch to ON position.
4. Press the Band selection button [FM].
5. Tune in the desired station by turning the Tuning knob below the FM band selection button.
6. Adjust the length of the Telescopic aerials and the angle between them for best reception.
   Two-thirds of their full length is suitable.
7. Adjust the sound volume and tone quality by turning the control knobs.
   - When using FM external aerial, be sure to set the Aerial switch to EXT ANT.

MW/LW reception

The built-in directional ferrite bar aerial is effective. The Telescopic aerials have no effect for these receptions.

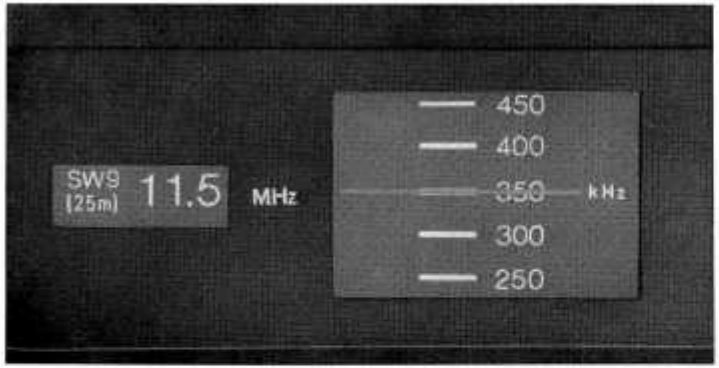
1. Turn on the power.
2. Set the MGC switch and BFO switch to OFF.
3. Set the SELECTIVITY switch to BROAD and Noise limiter switch to OFF and SENSITIVITY switch to DX position.
   All levers should be in the upper position.
4. Press the desired Band selection button.
5. Tune in the desired station by turning the Tuning knob below Band selection button.
6. Adjust the sound volume and tone quality.

SW reception (SW1 and SW2-19)

1. Pull out the SW telescopic aerial to its full length and stand it vertically.
2. Turn on the power.
3. Set the BFO switch to OFF.
4. Set the SELECTIVITY switch to BROAD and Noise limiter switch to OFF and SENSITIVITY switch to DX position.
5. Press the Band selection button [SW] or [SW2-19].
6. For SW2-19, pull out the SW band selector and by turning it, select the desired SW band which will appear in the SW band indicating window.
7. Tune in the desired station by turning the Tuning knob below the Band selection button.
8. Adjust the volume and tone.

How to tune in the desired signal frequency

The signal frequency appearing in the SW band indicating window is in MHz unit and the frequency on the Dial scale is calibrated in kHz unit. The desired signal frequency by adding the frequencies appearing in both the indicating window and the Dial scale. For example, if you want to receive 11.850 MHz signal frequency, at first, turn the SW band selector so that [SW9(25m)11.5] appears in the indicating window. Then, turn the Tuning knob and set the Dial scale to 350 kHz which is 0.350 MHz. By adding both frequencies (11.5 MHz+0.350 MHz), 11.850 MHz is obtained.



SSB/CW reception

This receiver is designed to receive SSB (single side band) signal and CW (contineous wave) signal. Generally SSB signal is used for communications of ships, radio hams or planes. CW signal is transmitted by means of Morse code, therefore, the understanding of the Morse code is required for CW reception.

The receiver covers all ham bands transmitted by SSB signal and the SSB signal will be received in two side band positions according to the frequency of the ham band: in general USB (upper side band) for frequency more than 10 MHz and LSB (lower side band) for frequency less than 10 MHz.

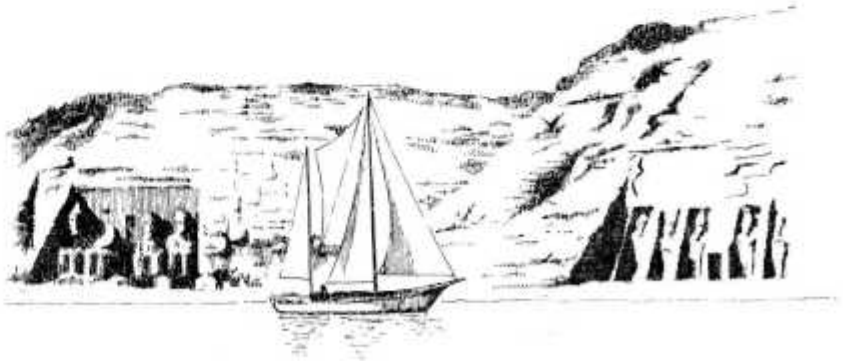
1. Pull the MGC switch to on and adjust the gain control manually.
2. Set the BFO switch to ON and the mark [•] of the BFO knob to either [USB] or [LSB] according to the receiving signal frequency and find the best reception position within the white barred zone of [USB] or [LSB].
3. Press the SW band selection button and turn the Tuning knob very slowly.
   ○ In CW reception, set the BFO knob to either [USB] or [LSB].

NOTICE ON ADJUSTMENT

Before consulting your SONY dealer, first, try to check and adjust the following.

Symptoms	Adjustments
Broadcasting can not be heard or sound volume is too small, though the pointer of the Tuning meter is moving.	Check the Aerial switch. Set the SENSITIVITY switch to DX position.
The reception of weak FM signal is difficult.	Set the SENSITIVITY switch to DX. Set the MUTING switch to OFF. (In this case, do not increase the sound volume suddenly.) Connect the FM external aerial. Set the AFC switch to OFF position.
Sound does not come on at all.	Set the MGC switch to OFF. (In MGC operation, when the knob is turned fully counterclockwise, sound does not come on.) Check to see that your desired Band selection button is pressed down. (Sound does not come on when any Band selection buttons are not pressed.)
In AM (SW, MW, LW) reception, strong beat sound occurs.	Set the BFO switch to OFF.
Hum or static noise occurs particularly in reception of distant stations.	Connect the external aerial and ground the earth.
Big noise occurs while tuning in the FM station.	Set the MUTING switch to ON.
In FM reception, the reception is disturbed by interference signal or ignition noise.	Place the external aerial far-away from the traffic road.

Symptoms	Adjustments
The pointer of the Tuning meter swings out because of strong signals.	Set the SENSITIVITY switch to LOCAL.
SSB reception is difficult.	Check the position of LSB and USB of the BFO knob.
When the MUTING switch is set to ON position in FM reception, the sound comes on intermittently.	Set the MUTING switch to OFF or tune in the station precisely. Adjust the muting level by turning the adjustment screw counter-clockwise.



SPECIFICATIONS

Circuitry:	Superheterodyne (FM, MW, LW, SW1) Double superheterodyne (SW2-19) 3 FET and 25 transistors for reception 17 transistors for AUX circuits 34 diodes, 2 thermistors
Power Requirement:	~AC 110, 127, 220 or 240 V 50/60 Hz ⎓DC 9 V, battery size "D" x 6 ⎓DC 9 V with using SONY Car battery cord DCC-126
Power Consumption:	12W
Aerial:	FM: 2 telescopic aerial 1000 mm External aerial terminals [300 OHM] and [75 OHM] are provided. MW/LW: built-in ferrite bar aerial 10 ϕ x 180 mm external aerial terminal is provided. SW1-19 Telescopic aerial 1470 mm SW1 external aerial terminal [HIGH IMP] is provided. SW2-19 external aerial [75 OHM] is provided.
Frequency Range:	FM 87.5— 108 MHz (2—55 Channel) MW 530—1605 kHz (566—187 m) LW 150— 400 kHz (2000—750 m) SW1 1.6— 4.5 MHz (Marine) SW2 2.0— 2.6 MHz (120 m) SW3 3.0— 3.6 MHz (90 m) SW4 3.5— 4.1 MHz (75, 80 m) SW5 4.5— 5.1 MHz (60 m) SW6 5.8— 6.4 MHz (49 m) SW7 7.0— 7.6 MHz (40, 41 m) SW8 9.5—10.1 MHz (31 m) SW9 11.5—12.1 MHz (25 m) SW10 14.0—14.6 MHz (20 m) SW11 15.0—15.6 MHz (19 m) SW12 17.5—18.1 MHz (16 m) SW13 21.0—21.6 MHz (15 m) SW14 21.4—22.0 MHz (13 m) SW15 25.5—26.1 MHz (11 m) SW16 26.8—27.4 MHz (11 m) SW17 28.0—28.6 MHz (10 m) SW18 28.6—29.2 MHz (10 m) SW19 29.2—29.8 MHz (10 m)
Intermediate Frequency:	FM: 10.7 MHz SW1, MW, LW: 455 kHz (468 kHz for the CRF-220 available in the United Kingdom) SW2-19: 1.6—2.2 MHz 455 kHz (468 kHz for the CRF-220 available in the United Kingdom)
Maximum Sensitivity: (at output 50 mW, S/N 6 dB)	FM: −2 dB (0.8 μV) MW: 28 dB (25 μV) LW: 36 dB (41 μV) SW: 0 dB (1 μV)
Signal-to-Noise Ratio:	FM: 63 dB at 54 dB input, 400 Hz 30% modulation MW: 37 dB at 60 dB input, 400 Hz 30% modulation

	LW: 30 dB at 60 dB input, 400 Hz 30% modulation SW: 44 dB at 44 dB input, 400 Hz 30% modulation
Image Rejection:	FM: 72 dB at 98 MHz MW: 60 dB at 1605 kHz LW: 80 dB at 360 kHz SW1: 30 dB at 4.5 MHz SW2: 80 dB at 2.1 MHz SW19: 30 dB at 29.5 MHz
Selectivity:	LW: MW: SW: } 40 dB at [BROAD] position 60 dB at [SHARP] position
Muting Level:	10 dB—30 dB (adjustable)
Frequency Response:	100—20,000 Hz ± 10 dB (tone control)
Audio Output:	AC 4W (undistorted) DC 1.5W (undistorted)
Current Drain:	AC 180 mA (at zero signal) DC 90 mA (at zero signal)
Speakers:	12 × 8 cm (4-3/4 × 3-5/32") × 2, 8Ω
AUX Input Jack:	Maximum sensitivity, −53 dBs (1.7mV) at 50 mW output Input impedance 5 kΩ
MPX Output Jack:	Output level −20 dBs (78 mV) at 5 kΩ load impedance
Recording Jack:	Output level −50 dBs (2.4 mV) Output impedance 2.2 kΩ
Recording Connector:	Output level −30 dBs (24 mV) Output impedance 80 kΩ
External speaker Jack:	3—8 ohm speaker can be connected.
Headphone Jack:	8-ohm headphone can be connected.
Earphone Jack:	8-ohm earphone can be connected.
Dimensions:	452(W) × 325(H) × 190(D)mm (average) (17-13/16 × 12-13/16 × 7-1/2")
Weight:	13.8 kg (with batteries) (average) (30 lb 5 oz)
Supplied Accessories:	mains lead, polishing cloth, short wave guide

While the information given is true at the time of printing small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications. We should ask you to check with your appointed SONY dealer if clarification on any point is required.