

# SONY®

FM/AM PLL synthesized receiver

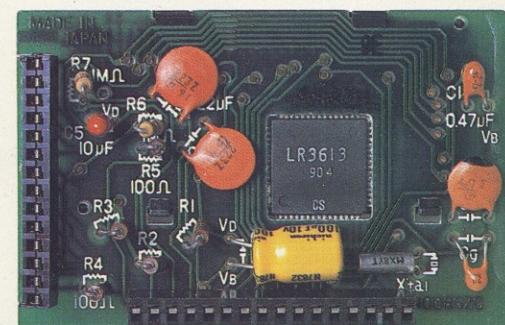
ICF-2001 **2001**

The world's most advanced  
microprocessor-controlled radio

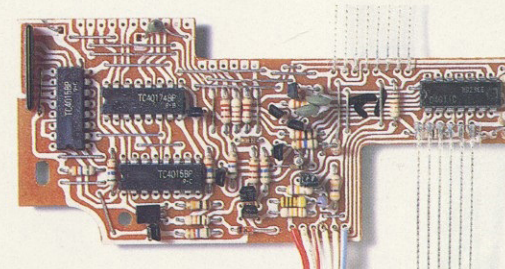


The ultimate in radiotechnology – the ICF-2001 is the only receiver with microprocessor-controlled tuning and PLL synthesizer circuit. No more tuning knob, no more dial scale, no more band selection among LW, MW and SW. This revolutionary receiver covers the whole AM frequency range from 150 kHz to 29,999 kHz in one band. In addition, the microprocessor-aided tuning is performed just by pressing the calculator-type buttons. The LCD frequency readout allows AM tuning to a super precise 1 kHz. Superior reception is assured by the unique PLL synthesizer and dual conversion superheterodyne circuitry.

# Sony's futuristic technology revolutionized the world of DX-ing; LW, MW, SW and even FM--are tuned by the microprocessor



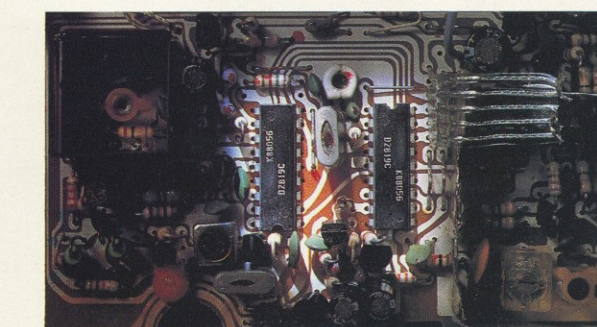
● Microprocessor block



● Digital-to-analog converter

## Dual PLL synthesizer circuit assures ultra stable reception

Since the AM band of the ICF-2001 covers an extremely wide frequency range from 150 kHz to 29,999 kHz, dual PLL (Phase-locked Loop) synthesizer circuits are employed. The PLL 1 circuit has 100 kHz step while the PLL 2 handles 1 kHz step, both of which are controlled by quartz oscillator for precise and stable tuning. Thanks to the dual PLL synthesizer combination, the wide frequency coverage and precision fine tuning of 1 kHz step are realized.



● PLL Synthesizer block

## New 4-way tuning system: direct access, manual, preset and auto scan tuning

### Direct access tuning

This revolutionary tuning method was realized by the built-in microprocessor. For tuning stations with frequencies precisely known, just push the calculator-type buttons and you'll get the exact frequency tuned in.

### Manual tuning

Two buttons allow manual tuning in precise 100 kHz (FM) or 1 kHz (AM) steps. For each one momentary press of the DOWN or UP manual tuning button, the tuned frequency decreases or increases. By continuing to press either of the manual tuning buttons, the tuning frequency will rapidly change in the selected direction. Pressing the FAST button simultaneously with DOWN or UP button increases the tuning steps to 200 kHz (FM) and 10 kHz (AM). The manual tuning function is required for distant, weak stations because auto scan tuning does not function below the threshold level. In this case, manual tuning will provide the required precise tuning.

### Preset tuning

The tuning frequencies of up to six stations of both FM and AM can be stored in the memory so that any of the preset stations can instantly be recalled. To preset a station requires, first, by manual or direct access tuning, selecting the desired station. Second, pressing both the ENTER button and one of the six MEMORY PRESET buttons keeps the station in memory until you put a new station in the same memory. Additional stations can be preset in a similar manner. Any preset station can then be tuned by simply pressing the appropriate MEMORY PRESET button.

### Auto scan tuning

This feature is extremely convenient for tuning in stations with frequencies not precisely known. First, set the lowest and highest frequencies of scanning area in L 1 and L 2 by pressing the ENTER button and L 1 or L 2 button simultaneously. Then, press the START/STOP button to start the scanning. The tuning frequency increases by 3 kHz step in AM or by 100 kHz step in FM to tune in the first station encountered. When the SCAN AUTO STOP switch on the side of the set is at ON, scanning stops automatically at the first encountered station. When the same switch is at OFF, scanning continues without stopping.



### Liquid crystal multi display

The liquid crystal display used in the ICF-2001 realized easy reading and low battery consumption. Its display modes are: 1. Frequency readout, 2. Sleep timer setting readout, 3. Numbers of preset stations, 4. Malfunction alarm "TRY AGAIN", 5. Scanning limit frequencies (L 1 and L 2) readout. The display panel is equipped with convenient dial light for night-time tuning.

### Electronic 90-minute sleep timer

The built-in electronic timer lets you listen while you go to sleep. It stops the radio automatically after 10 to 90 minutes. Remaining time is digitally displayed for easy timer setting.

### Powerful 1.6W output

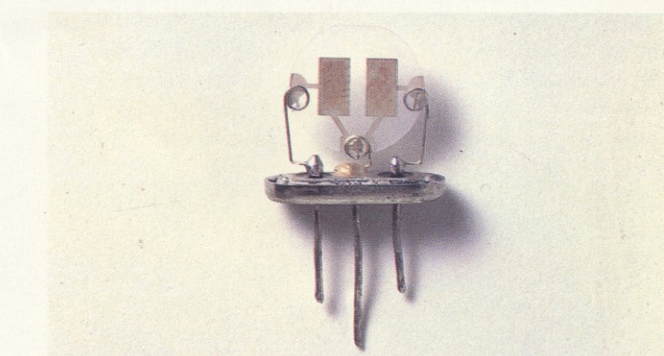
The 10 cm speaker reproduces powerful sound with clear tonal quality. Its oversized magnet contributes to high efficiency and high power.

### Clear FM reception with FET RF amplifier

The RF amplifier employed in the FM tuner section contributes to superior image rejection characteristics as well as high sensitivity and good signal-to-noise ratio. Both strong and weak stations are received with minimal distortion.

### Superior AM reception by dual conversion circuit and crystal filter

Image rejection characteristics are largely improved by the dual conversion superheterodyne circuit. The 10.7 MHz IF (intermediate frequency) of the FM band is utilized as the 2nd IF of the AM band, contributing to both high image rejection and effective circuit design. A crystal filter newly developed for this purpose realized clearer reception than commonly used ceramic filters.



● IF crystal filter

### Highly sensitive telescopic antenna for both FM and AM

Unlike other radios which use short ferrite-bar antenna for LW and MW bands, the ICF-2001 receives both FM and AM bands by the 120 cm long telescopic antenna, thus decreases multipath effect and increases sensitivity.

### All FET front end for high sensitivity and high interference rejection

The front end block of the AM band consists of all-FET circuit for effective rejection of intermodulation, cross modulation, and spurious interference. The FETs realize low noise and good intermodulation response at the same time.

### More features ...

- 5-step LED signal strength indicator
- Separate tone controls for bass and treble
- External antenna terminal
- 3-step RF gain control
- SSB/CW compensator
- AM antenna adjustment dial
- Separate power supply for radio and microprocessor
- AC/DC operation with optional AC adaptor

## Listening Beyond the horizon

Everyone starts out listening to commercial AM and FM broadcasting. Music/news/sports radio is an integral part of our everyday lives. And most people are satisfied with a listening world that stops at the radio horizon of their local station.

But the world of radio is much, much bigger than the AM and FM bands. Once you venture beyond these narrow confines you command an unlimited source of listening adventure. Every hour of the day the airwaves are filled with foreign overseas broadcasts, marine, and amateur communications. All you need to add these new and exciting dimensions to your world of listening is the ICF-2001.

## Radio frequencies and bands

Radio frequencies are usually shown in Hz (cycle-per-second) but they also have length measured in meters. This measure is generally used to identify a range of frequencies and is called a band: i.e., the 15 Meter Band covers all frequencies from 21.0 to 21.45 MHz as the median frequency wave is 15m in length.

All frequencies, or wave length, are not used for the same kind of broadcasting. Some are better for long distance and some are better for local broadcasting. The kind of broadcast material makes a difference as some are better for music, some for voice, others for television or telegraphy.

In order to prevent interference and assure the best transmission, certain of these frequencies (and bands of frequencies) have been assigned by International Agreement to specific types of broadcasting. For the sake of convenience these allocations are grouped together in broad categories that are also called "bands", even though they are not measured in meters. These "bands" are:

- Long Wave Band (LW 150 - 525 kHz)
- Medium Wave Band (MW 530 - 1,605 kHz)
- Short Wave Band (SW 1.6 - 30.0 MHz)
- Very High Frequency Band (VHF 76 - 108 MHz)

## The world on your ICF-2001

Every hour a different part of the world comes within the reach of your ICF-2001 receiver. Radio reception is affected by a magnetic field surrounding the earth. This field, called the ionosphere, changes shape as the earth turns, constantly bending and reflecting radio waves from new parts of the globe to your antenna. Here is a brief look at what will be coming at you on the LW, MW and SW bands.

## Long Wave Band (150 - 525 kHz)

In Europe, Northern Africa and Soviet Union, LW band is used for general entertainment broadcasting similar to other areas' MW. In USA, it is used for radio navigation/Morse code broadcasting and for aviation weather broadcasts.

## Medium Wave Band (530 - 1,605kHz)

In many countries, standard AM broadcasting is done on the MW band. But with the ICF-2001 you are not stuck with just your local stations; at night, you may pick up stations thousand kilometers away.

## Short Wave Band (1.6 - 30.0 MHz)

The most exciting listening in the world takes place on the SW band. The auto scan tuning can bring in thousands of stations from all over the world. And they are on-the-air 24 hours a day as different parts of the world begin their international broadcasting at different times.

### 120 Meter Band (2300 - 2498 kHz)

Tropical band\*; local broadcasting in tropical countries.

### 75 Meter Band (3900 - 4000 kHz)

Amateur radio band in North and South America. Local broadcasting in Europe, Africa and Oceania.

### 60 Meter Band (4750 - 5060 kHz)

Tropical band\*

### 49 Meter Band (5950 - 6200 kHz)

Suitable for short distance reception with many local broadcasters in Southeast Asia, Far East and Soviet Union.

\* Lightning storms are very common in tropical countries. Those frequencies that are least affected by lightning, static and interference are assigned for "tropical" broadcasting.

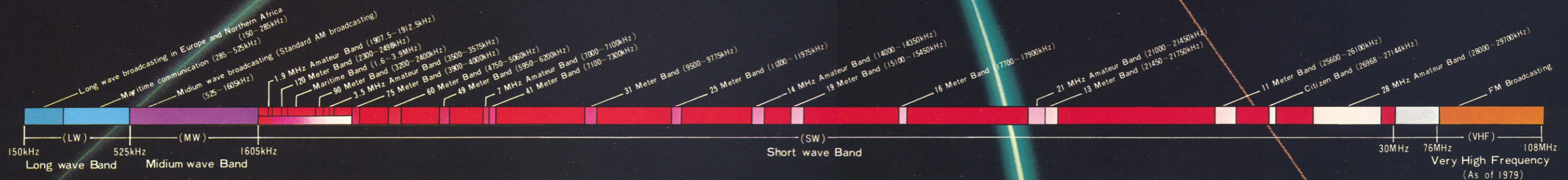
## Standard frequency stations

When you want to know the exact time of a day, tune in the government-operated standard frequency station of your country. In U.S.A., for example, WWV in Colorado and WWVH in Hawaii are transmitting precisely controlled transmission on frequencies such as 2.5, 5.0, 10.0 and 15.0 MHz, you can use them for checking the tuning accuracy of your receiver.

## Volmet stations

World's major airports are transmitting latest information on weather condition. There are seven Volmet networks in the world on following frequencies:

- Europe: 2980, 5575, 11391 kHz
- Atlantic: 3001, 5652, 8668, 13272 kHz
- Pacific: 2980, 5519, 8903, 13344 kHz
- South East Asia: 3432, 6680, 10017 kHz
- North Africa: 6575, 8896, 11279 kHz
- South Africa: 3495, 6617, 10073 kHz
- Middle East: 3001, 5561, 8819, 8823.5 kHz



## Specifications

**Circuit system:** FM Superheterodyne  
AM Dual conversion super-heterodyne

**Semiconductors:** 9 IC, 11 FET, 42 transistors, 24 diodes, 1 LSI, 5 LED

**Frequency range:** FM 76 - 108 MHz  
AM 150 - 29,999 kHz

**Antennas:** FM Telescopic antenna, external antenna terminal  
AM Telescopic antenna, built-in ferrite-bar antenna, external antenna terminal

**Intermediate frequency:** FM 10.7 MHz  
AM 1st 66.35 MHz, 2nd 10.7 MHz

**Speaker:** 10 cm diameter

**Power output:** 1.6W

**Jacks:** Earphone, rec out, timer input, DC in 4.5V

**Power requirements:** Processor section;  
DC 3V 2 "AA" size batteries  
Radio section;  
DC 4.5V 3 "D" size batteries  
AC 110, 120, 220, 240V, 50/60 Hz with AC power adaptor  
AC-122 (optional)  
Car battery with car battery cord DCC-127A

**Battery life:** Processor section;  
approx. 1 year using Sony super batteries SUM-3S  
Radio section;  
approx. 11 hours using Sony super batteries SUM-1S

**Dimensions:** 310(W) x 56(H) x 171(D) mm  
(12<sup>1</sup>/<sub>4</sub> x 2<sup>1</sup>/<sub>4</sub> x 6<sup>3</sup>/<sub>4</sub>" )  
including projecting parts and controls

**Weight:** 1.8 kg. (3 lb 15 oz)  
including batteries

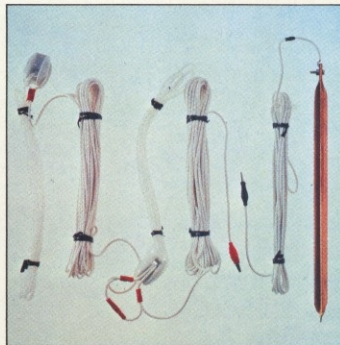
**Supplied accessory:** Shoulder strap

\* Design and specifications are subject to change without notice.

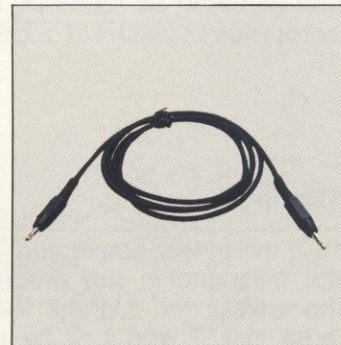
## Optional Accessories



Headset HS-30



Antenna for SW reception AN-60



Connecting cord RK-69A



AC power adaptor AC-122



Car battery cord DCC-127A