

NRD-505

100KHz-30MHz RANGE PLL-SYNTHESIZED

JRC Japan Radio Co., Ltd.



The Emblem Of Your Shack-**JRC** Amateur Radio Receiver

An Epoch-making Amateur All-

The NRD-505 is an all-wave receiver of the highest class for amateurs developed by JRC, a leading manufacturer of radio communications equipment for more than 60 years in Japan, featuring the latest digital technology and semiconductor elements as well as the much-talked-about PLL digital synthesizer system.

The NRD-505 is full



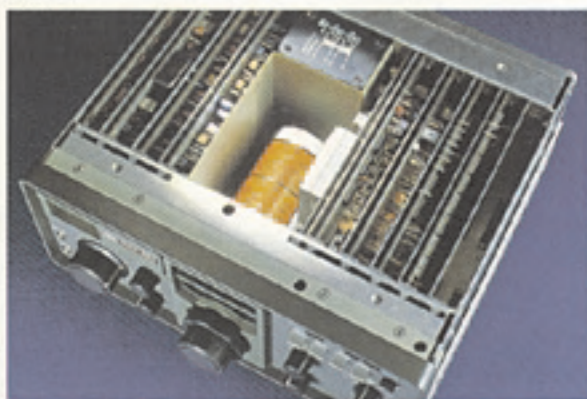
of performance advantages, including a highly reliable circuit design and tough construction based on communications equipment design standards; the use of high-quality circuit components; general frequency coverage, all operation modes and high frequency stability; and a rewritable memory function (option) for an automatic tuning. The longer you use your NRD-

-wave Receiver.

505, the better you will find how good it is. If you haven't been satisfied with your receivers as yet, you will find full satisfaction with the NRD-505.

1 PLL DIGITAL SYNTHESIZER SYSTEM

The receiver local frequency which is supplied from a digital frequency synthesizer phase-locked with a reference crystal oscillator and a permeability-tuned type variable frequency oscillator (VFO) assures outstanding frequency stability. Moreover, the synthesizer has the main part housed in an aluminium diecast case and employs a drift cancel circuit and a full-scale double-loop PLL circuit, in order to ensure rigid construction and high-quality circuit performance.



2 HIGHLY RELIABLE VFO

The heart of the radio receiver is the variable frequency oscillator (VFO), which embodies the advanced technology of JRC that has long produced marine all-wave receivers which must withstand the toughest conditions. The VFO features dials which are completely free of backlash; excellent frequency linearity and temperature characteristics; superb resistance to secular change and shock; and compact and rugged construction.

3 DIGITAL AND ANALOG FREQUENCY READING

The receiver employs a frequency counter with a digital readout in increments of 100

Hz and a 1 kHz-graduated dial indicator for high accuracy and convenience in frequency reading.



4 4-CHANNEL PRESET-FREQUENCY CMOS IC MEMORY CIRCUIT (OPTION)

This is a rewritable CMOS random access memory which stores 4 channels of frequencies. Memory manipulation and frequency change can be very easily performed by means of push-button switches on the front panel. When it is set to memory reception, the receiver is instantly tuned to the memory frequency, regardless of the dial-set frequency, for automatic reception. The memory frequency is digitally indicated.

5 ALL-WAVE, ALL-MODE RECEPTION

The receiver can continuously cover an extensive range of 100kHz to 30MHz, and receive in any of the radio TTY, CW, USB, LSB and AM modes.

A variable beat frequency oscillator (BFO) (± 2.5 kHz) and an AF active filter are built-in in the receiver for CW reception. An optional high-selectivity mechanical filter (0.6kHz bandwidth) for exclusive use in CW mode is also available.

6 UP-CONVERSION TYPE DOUBLE SUPERHETERODYNE

The NRD-505 is an up-conversion type double superheterodyne receiver converting frequencies of 100kHz to 30MHz into the first intermediate frequency of 70.455MHz. It features a high-performance circuit design incorporating a PIN-diode attenuator, a push-pull RF amplifier consisting of low-noise high-power transistors, an FET balanced mixer, and a crystal filter in the 1st IF stage. All these add up to marked improvements on double-signal and nearby-interference characteristics.

NRD-505

7 SIMPLE, SPEEDY TUNING

The MHz-band selector from 0 to 29MHz in 1MHz increments, and the double tuning dial (one turn corresponding to 100kHz and 33 kHz respectively) assure simple, speedy tuning. The input BPF system with automatic switching dispenses with the need for troublesome preselector tuning operation.

8 3-POSITION HIGH-SELECTIVITY IF FILTERS

A mechanical filter and a ceramic filter with excellent selectivity characteristics are used as IF filters.

9 ELECTRONIC TUNING AND ELECTRONIC SWITCHING

Tuning and switching are electronically performed without any mechanical movement. This means simple construction, quick response, high reliability, and long life.

10 COMPLETELY MODULAR CONSTRUCTION

The NRD-505 receiver is of completely modular design being composed of plug-in printed circuit boards for ease of servicing. The PC boards employ glass epoxy boards and completely automatic soldering, and a unique connecting method is applied using a mother board and flexible printing. All this ensures uniform quality and improved reliability.

11 ALL SOLID-STATE

All solid-state design using the newest semi-conductors is another attractive feature of the NRD-505. They include low-power Schottky TTL IC's and CMOS IC's, which contribute to reduced power consumption.

12 EASY TO OPERATE, SMALL AND RUGGED

The front panel is designed for maximum ease of operation, and looks impressive as befitting a top-class receiver. The enclosure is completely dust-proof, composed of a small-sized, lightweight, rugged aluminum chassis and case that are high-precision-machined by computer control. Thus, the enclosure satisfies tough environmental conditions.

13 BUILT-IN ACCESSORY CIRCUITS

A noise blanker, IF output terminal, special line output terminal (for radio TTY), recording terminal, headphone terminal, AF active filter circuit, ΔF (RIT) circuit, VFO overlap indicator circuit, AGC 3-step switch-over circuit, input attenuator circuit, phase-locking indicator circuit, and all the functions that are necessary for operation are provided as standard.

14 OPERATION IN COMBINATION WITH THE NSD-505 TRANSMITTER

The NRD-505 has all the functions necessary for amateur station operation, such as VFO output, sidetone input, anti-trip output, monitor input, external VFO input, and muting terminals, and VFO INT-EXT selector, which permit operation in combination with the NSD-505 transmitter which will soon be introduced by JRC.

Moreover, the NRD-505 receiver can be used for transceive operation with any other transmitter than the JRC NSD-505, through a VFO converter unit that is optionally available.

● OPTIONS

FREQUENCY MEMORY UNIT CDD-48

Just plug it into the chassis. The addition of the memory function greatly extends the range of application and offers greater enjoyment in sophisticated operations.

SPEAKER NVA-505

Designed specially for the NRD-505 to the same height and depth to match it (215 mm wide). Nominal maximum input is 2 W, and impedance 8 ohms.

CW (N) MECHANICAL FILTER

Easily mountable on the IF circuit board. It offers sharp selectivity and enjoyment in CW operations.

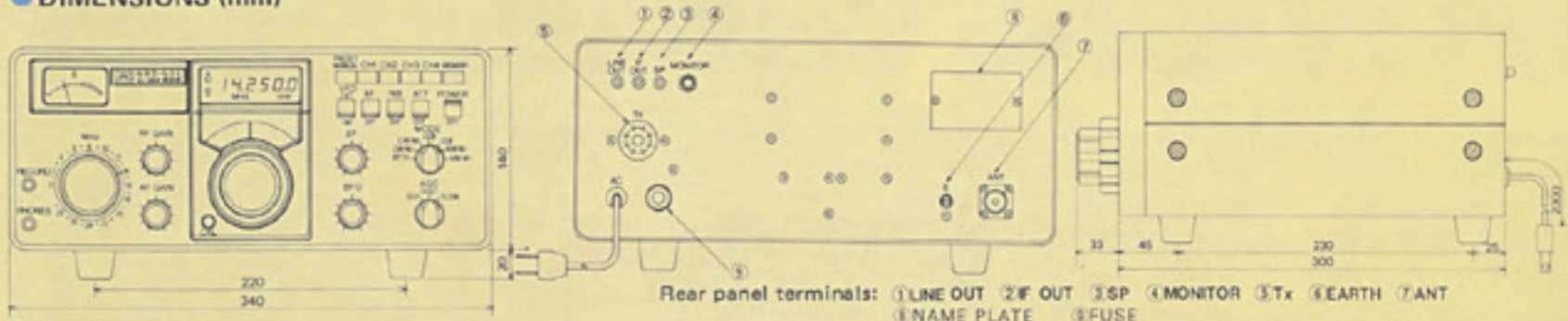
VFO CONVERTER UNIT CGA-26

Just plug it into the chassis for transceive operation with other sets.

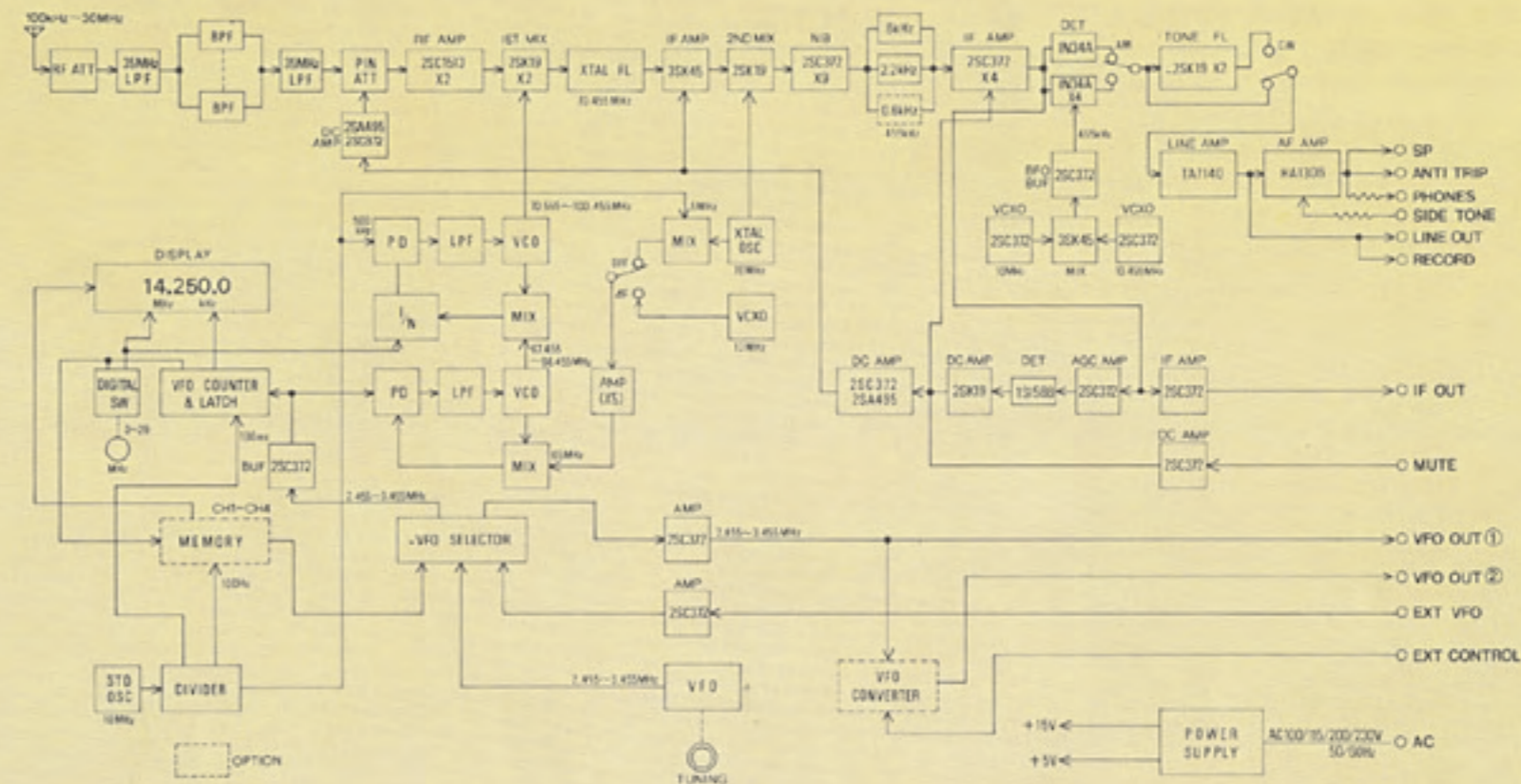
● SPECIFICATIONS

Receiving frequency range:	100kHz to 30 MHz (30 bands in 1 MHz-increments)
Receiving modes:	RTTY/CW/SUB/LSB/AM
Receiving system:	Double superheterodyne
	First IF: 70,455MHz
	Second IF: 455kHz
Sensitivity (S/N 10dB)	CW/SSB AM
1.6 to 30MHz	Less than 0.5 μ V Less than 2 μ V
100 to 1600kHz	Less than 10 μ V Less than 40 μ V
Selectivity	-6dB -60dB
AM (W)	4.4 to 7.0kHz 10kHz or less
RTTY/CW(W)/SSB/	
A AM(N)	2.0 to 2.6kHz 6kHz or less
CW(N)*	0.5 to 1.0kHz 3kHz or less
* CW(N) filter is an option.	
Frequency stability:	Less than 100Hz per hour after warm-up
Image rejection ratio:	70dB or more
IF rejection ratio:	70dB or more
Input impedance:	50dB or more
Input impedance:	50 to 75 ohms unbalanced
AF outputs	
Speaker output	1W or more (4 to 8 ohms)
Record/line output:	1mW or more
Power requirements:	AC 100/115/200/230V, 50/60Hz, approx. 50VA
Semiconductors:	66 ICs, 18 FETs, 54 transistors, 103 diodes
Dimensions:	340mm wide x 140mm high x 300 mm deep
Weight:	Approx. 10 kg
Accessories:	Instruction Manual (1 copy), M-type coaxial plug (1 pc.), headphone and recording plug (2 pcs.), RCA plug (3 pcs.), 8P US plug (1 pc.), fuse (1 pc.), pilot lamp (3 pcs.)

● DIMENSIONS (mm)



● BLOCK DIAGRAM



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