

Kenwood R1000 shortwave receiver

We have modified a Kenwood R1000 shortwave receiver with a DRM mixer which was obtained from Sat. Service Schneider in Germany.

The mixer is a 467 kHz type with crystal option.

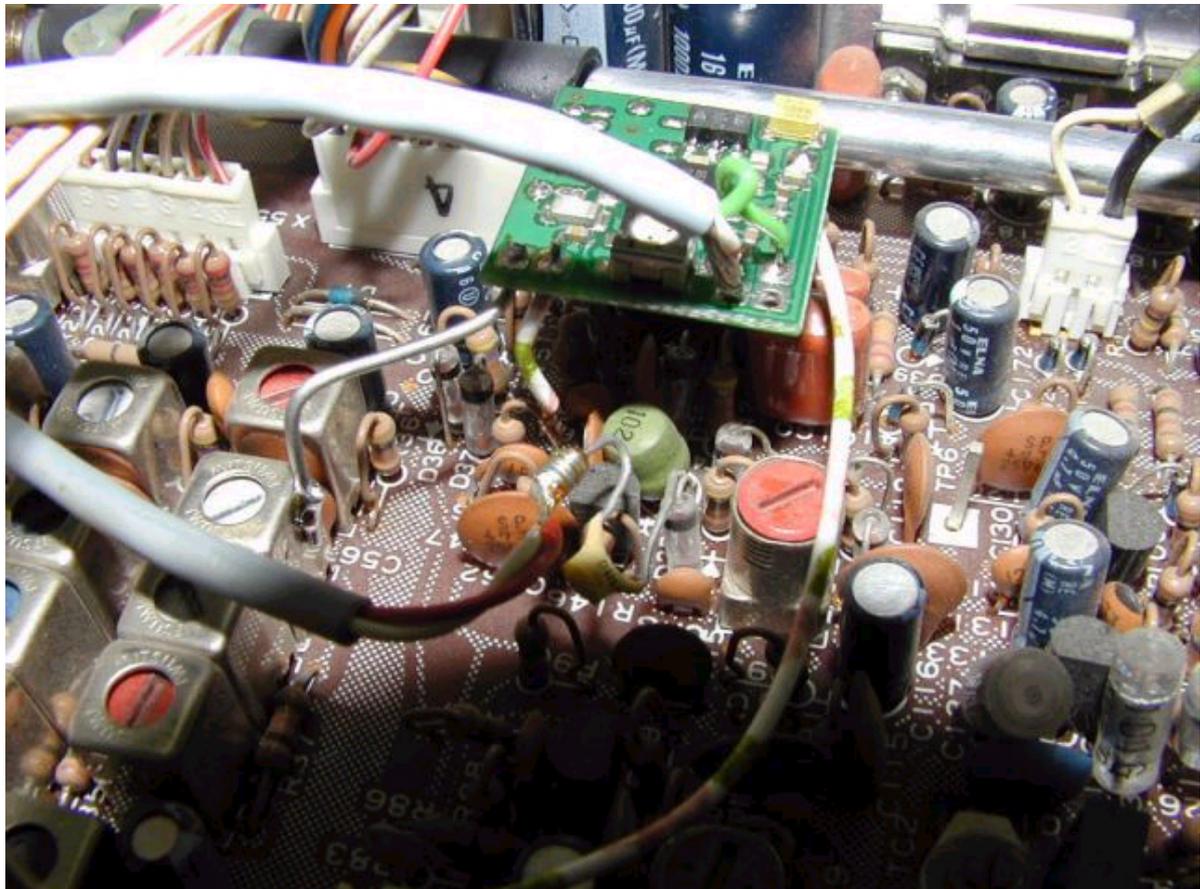
Attached you'll find the Kenwood user manual front page, the specification, the schematic, a picture of the mounting and the output spectrum.

The mixer is connected to the last IF buffer in the Kenwood receiver, on the connection of R148 with the emitter of Q24 (point A). The 'hot' connection of R148 is conveniently the upper wire of the resistor which is mounted vertically. The power connection was made at point B.

We connected the DRM modulator output to the antenna input of the Kenwood with a 40 dB attenuator inserted, and the resulting output spectrum was recorded. I think the spectrum looks quite well and usable.

Editors note: This receiver has yet to be tested and proved with the software, but this document will be updated when it has been tested

Hans Linkels



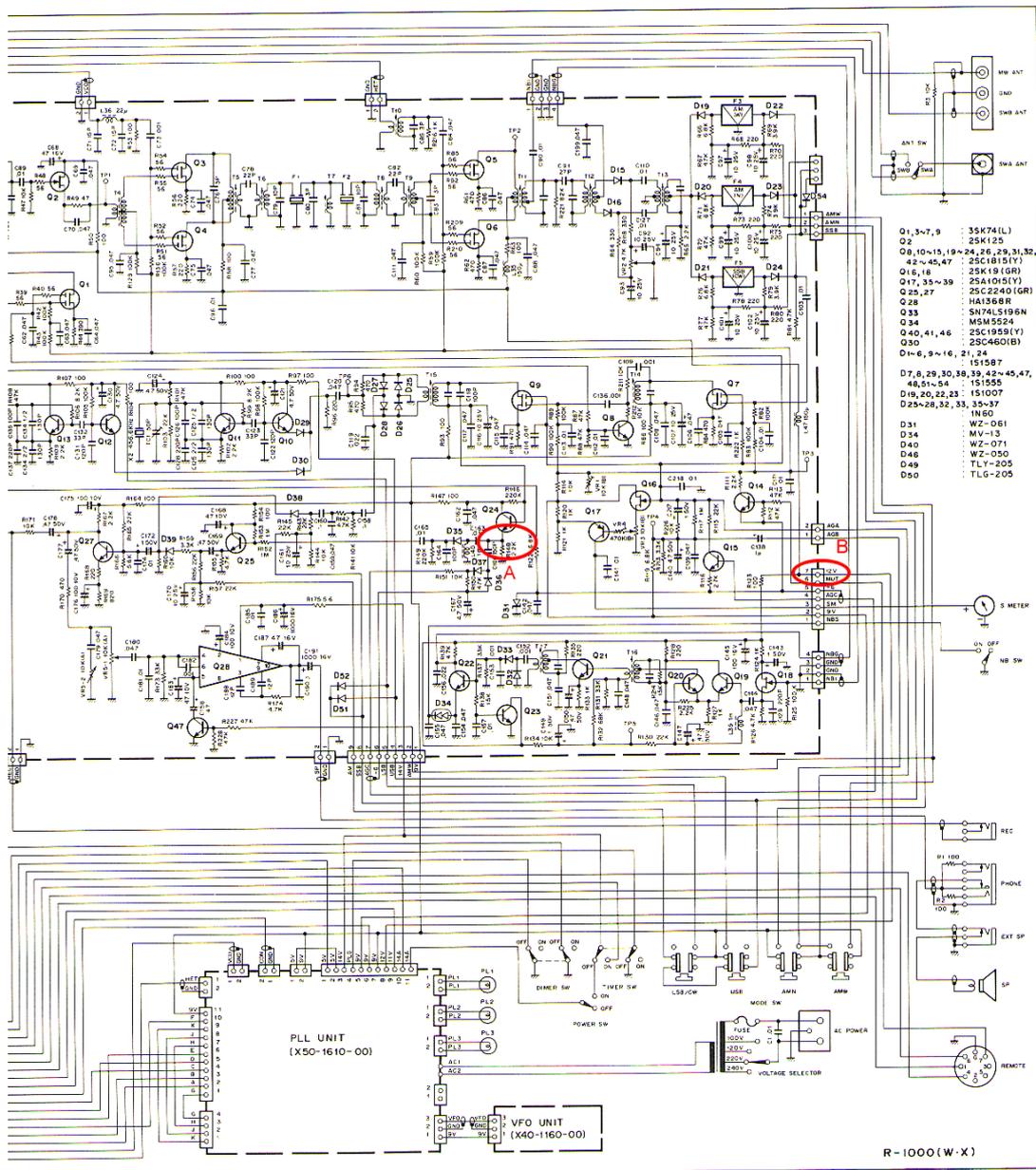
 **KENWOOD**

**COMMUNICATIONS RECEIVER
NACHRICHTENEMPFÄNGER
RECEPTEUR DE COMMUNICATIONS
RECEPTOR DE COMUNICACIONES**

Model R-1000



**INSTRUCTION MANUAL
BEDIENUNGSANLEITUNG
MODE D'EMPLOI
MANUAL DE INSTRUCCIONES**



- Q1, 3~7, 9 3SK74(L)
- Q2 25K125
- Q8, 10~15, 19~24, 26, 29, 31, 32, 42~45, 47 25C181(Y)
- Q16, 18 25K19(GR)
- Q17, 33~39 25A10(Y)
- Q25, 27 25C2240(GR)
- Q28 HALD66B
- Q33 SN74LS196N
- Q34 MSM5524
- Q40, 41, 46 25C1850(Y)
- Q30 25C460(B)
- D1~6, 9~16, 21, 24 151587
- D7, 8, 29, 30, 38, 39, 42~45, 47, 48, 51~54 151555
- D19, 20, 22, 23 151007
- D25~28, 32, 33, 35~37 1N60
- D31 W7-061
- D34 MV-13
- D40 W2-071
- D48 WZ-050
- D49 TLY-205
- D50 TLG-205

R-1000 (W-X)

SECTION 1. INSTALLATION

R-1000 SPECIFICATIONS

Frequency Range	200 kHz—30.0 MHz
Mode	AM, SSB, CW
Sensitivity (10 dB or more S + N/N):	
200 kHz—2 MHz (Antenna impedance: 1 k Ω)	
AM (NARROW, TONE:	
Center)	20 μ V
SSB	5 μ V
2 MHz—30 MHz (Antenna impedance: 50 Ω)	
AM (NARROW, TONE:	
Center)	2 μ V
SSB	0.5 μ V
Image Ratio	More than 60 dB
IF Rejection	More than 70 dB
Selectivity	
AM (WIDE)	12 kHz at -6 dB, 25 kHz at -50 dB
AM (NARROW)	6 kHz at -6 dB, 18 kHz at -50 dB
SSB/CW	2.7 kHz at -6 dB, 5 kHz at -60 dB
Frequency Stability	\pm 2 kHz max. from 1 to 60 minutes after power on \pm 300 Hz max. in every subsequent 30 minutes
Antenna Impedance	MW 200 kHz—2 MHz, 1k Ω (unbalanced) SWA 2 MHz—30 MHz, 50 Ω (Unbalanced) SWB 2 MHz—30 MHz, 1k Ω (unbalanced)
Audio Output	1.5W min. (8 Ω load, 10% distortion)
Audio Load	
Impedance	4—16 Ω , external speaker or headphone
Power Consumption	20W
Power Requirements	100, 120, 220, 240V, AC, 50/60 Hz
Semiconductors	14 ICs, 11 FETs, 64 transistors, 72 diodes, 1 display tube
Dimensions	W 300 mm (12-3/4 inch) H 115 mm (4-1/2 inch) D 218 mm (8-9/16 inch)
Weight	5.5 kg (12.1 lbs)
CLOCK SECTION	
Type	Quartz
Accuracy	\pm 15 seconds max./month

1.1 GENERAL

To obtain maximum performance from your R-1000 receiver, it is recommended you read Sections 2 and 3 in their entirety before attempting to operate the unit.

1.2 ACCESSORIES

The following accessory items are included.

1. Operating manual..... 1 copy
2. AC power cable..... 1 piece
3. Wire for antenna..... 5m
4. Miniature Speaker plug..... 1 piece
5. Fuse (0.7A) for 100/120V operation..... 2 pieces
or fuse (0.4A) for 220/240V operation..... 2 pieces
6. Remote connector (7P)..... 1 piece

1.3 OPERATING LOCATION

As with any solid state electronic equipment, the R-1000 should be kept from extremes of heat and humidity. Choose an operating location that is dry and cool, and avoid operating the receiver in direct sunlight.

1.4 ANTENNA

● Antenna and Grounding

Installation of antenna and grounding is important for optimum reception of short-wave, broadcast or amateur radio signals. A good outdoor antenna will provide the best results.

The following describes various antenna types and their installation.

NOTE:

A simple method is to install the supplied wire antenna as high as possible. It must be extended to its full length for good results.

● Long Wire Antenna

This is the simplest antenna, using about 30 ~ 1000 feet (10 ~ 30m) of wire installed between poles, trees or other convenient supports. The antenna wire should be heavy 8gauge vinyl insulated, stranded wire or 4-gauge copper wire or Copperweld. This type of antenna must be installed horizontally to a length of 60 feet (20m) or more, and be positioned as high as possible. Note that it should be as far away as possible from AC power lines, buildings, trees and other objects.

Fig. 1-1 shows an inverted L antenna. Other antenna types such as sloping, vertical, etc. are also possible.

A long-wire antenna, when installed in a open area, is suitable for all-band operation. (See Fig. 1-1)

● Doublet Antenna

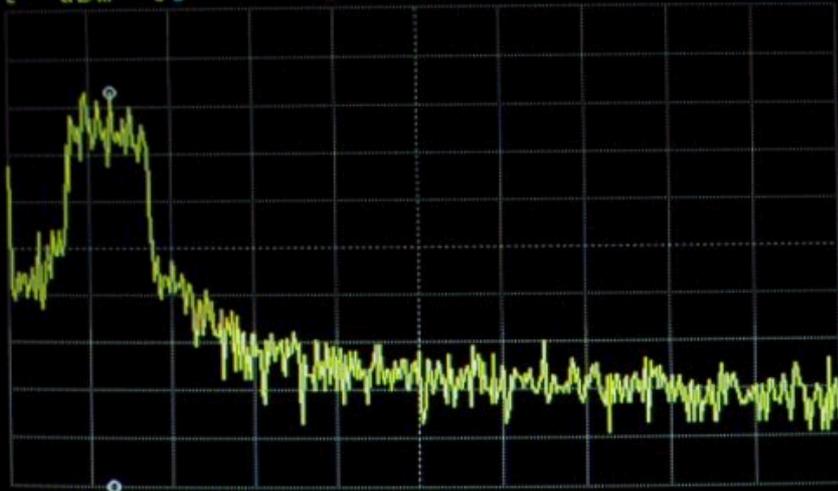
This type of antenna is suitable for reception of a specific band.

The relation between the overall length "L" and the tuned frequency is:

$$L(m) = \frac{143}{\text{Freq (MHz)}} \quad K(\text{feet}) = \frac{468}{\text{freq (MHz)}}$$

SPECTRUM

A:REF B:REF MKR 12 750.001 Hz
-20.00 -10.00 MAG -36.9515 dBm
[dBm] [] MAG



A AUTO SCALE
A REF LEVEL
A /DIV
A BOTTOM
MKR → REF
A SCALE
lin log

DIV DIV CENTER 50 000.001 Hz
10.00 10.00 SPAN 100 000.000 Hz
RBW: 300 Hz ST:11.3 sec RANGE:R=-10,T=-10dBm
REF=-2.00000E+01

SCALE
forAforB