

YAMAHA CR450

Stereo FM/AM Receiver with Continuous Loudness Control, High & Low Filters



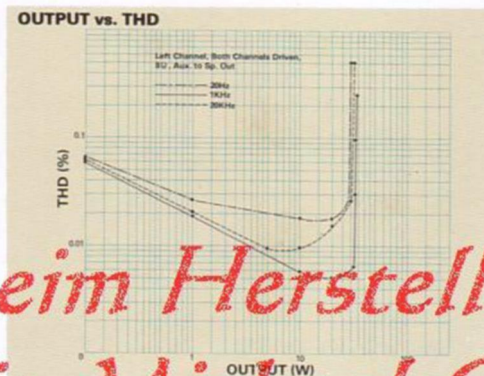
The beautiful receiver balance: easy operation, precision control features

In spite of a moderate-range price tag the CR-450's extras like continuous loudness control, low & high filters and dual headphone jacks might make it look like a top-of-the-line receiver. Especially since the famous Yamaha low-distortion performance makes it *sound* like one. Each section is designed and computer-checked to make sure you get superb response in every measurable way — plus the music difference that comes from our 90 years of music instrument experience.

Amplifier

Parallel Push-Pull Pure Complementary OCL Circuitry

Less than 0.1% distortion throughout the entire audible range (at rated output). No other amplifier in this class provides such clean, transparent response. It comes from a differential amplifier direct-coupled to all other key stages, including an OCL pure complementary output stage. This section also assures plenty of power for any home listening situation as well as excellent stability.



*© beim Hersteller
Archiv Michael-Otto*

Outstanding Power from 4,700 Micro-Farad Supply Capacitors

These capacitors work with the oversize, closely-regulated power transformers to form a power circuit that provides a whopping 90 watts of dynamic power (0.1% THD at 8Ω), or 25 watts per channel RMS continuous power.

A constant-voltage power supply drives all tuner and amp stages, assuring immunity from line voltage fluctuations. The benefit is clear in the outstanding response, especially in the low frequency range.

Three-Stage Direct Coupled Phono Equalizer with ICs

High-performance monolithic integrated circuits make up the CR-450 phono equalizer. They are part of the reason behind the low distortion and better than 75dB signal-to-noise ratio (IHF). The combination of 150mV RMS input capacity (1KHz, 0.1%) and 3mV sensitivity gives this circuit the ability to handle a signal 50 times more powerful than required for full output. This is ideal protection against distortion, proven by the equalizer's virtually perfect tracing of the RIAA playback curve.

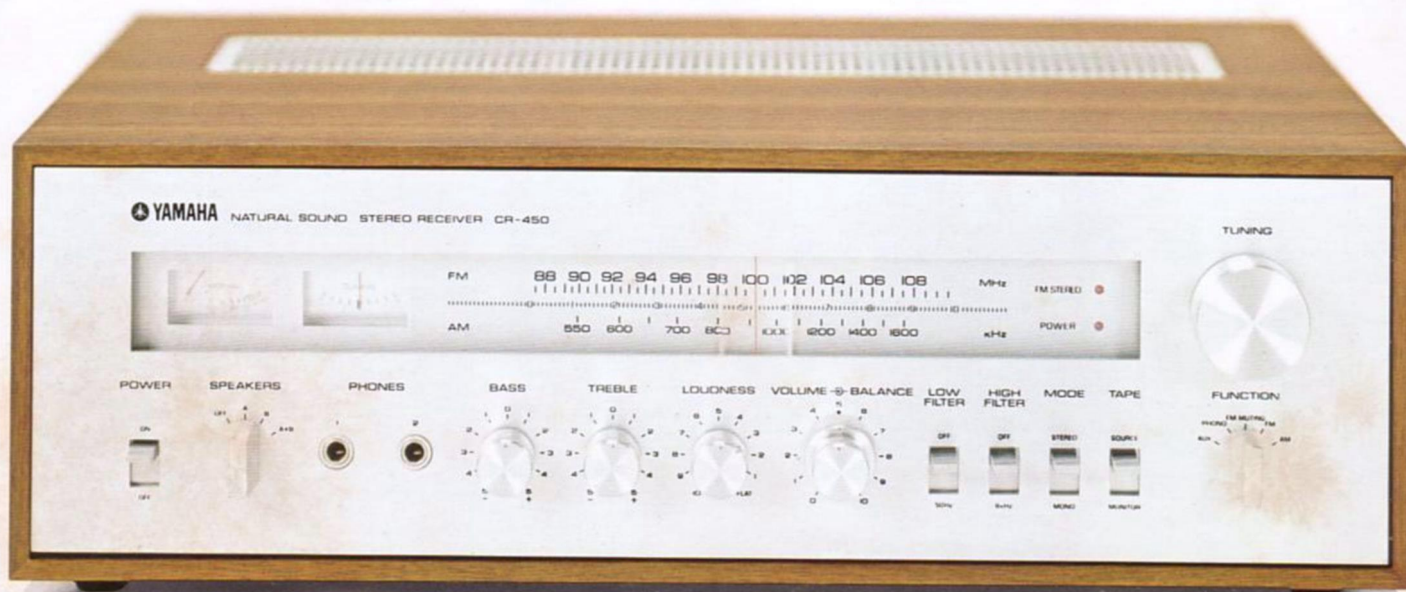
Low and High Filters

Sharp cutoff characteristics let you slice away the extreme ends of the sound spectrum when unusual noise problems occur — without affecting the music. Use High to cut tape hiss and record scratches, Low to avoid turntable rumble.

LED Power & FM Stereo Indicator Lamps

Clear, permanent light emitting diodes.

Two AC Outlets (Switched and Unswitched)



Continuous Loudness Control

Boost both ends of the frequency scale to make up for reduced ear sensitivity during low-volume listening. This knob also adjusts the volume, so that after an initial setting you can control both with one touch, for the same apparent tonal balance at any volume level — a possibility not found with ordinary on-off Loudness switch systems.

Unique Yamaha Collector-to-Emitter Negative Feedback Type Control Amp

This design combines the best of negative feedback and capacitor-resistor type amplifiers — maximizing signal-to-noise characteristics and at the same time minimizing distortion. It results in better all-around tone control curves and absolutely flat response when the knobs are set to their mid positions.

The bass control is a continuous $\pm 12\text{dB}$ at 50Hz, the treble $\pm 10\text{dB}$ at 10KHz.

Dual Speaker System Connections with Relay Protection Circuit

Connect stereo speakers in separate rooms, then switch on one set or both (A, B, A + B settings). All speakers are protected against damage by special relay sensors which cut the output automatically whenever a DC signal appears at the terminals.

One-touch connectors let you hook up speakers in seconds, without using a screwdriver.

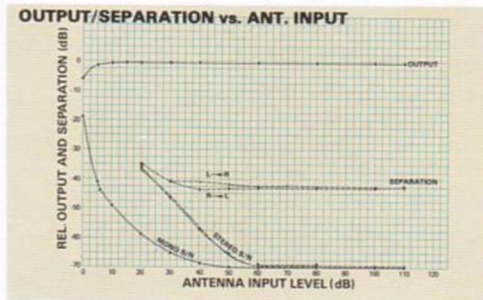
Two Headphone Jacks

Private listening — alone or just the two of you — plus monitoring with an assistant for critical recordings. A convenient extra to let you share the pure sounds of headphone broadcasts.

Tuner

High-Performance FM Front End with FET Circuitry, Three-Ganged Tuning Capacitor

The CR-450 FM section benefits from advanced field effect transistor technology in its RF stage. Combined with a precision three-ganged tuning capacitor this section provides excellent sensitivity for clear reception even in weak signal areas, plus outstanding image frequency rejection.

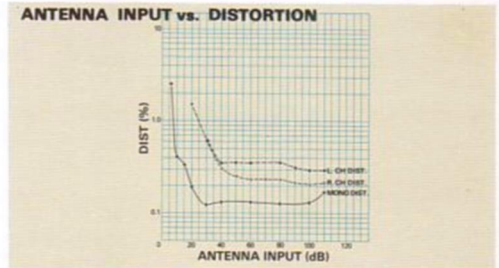


IF Amplifier: Dual Three-Stage Differential Amps, Six Ceramic Filter

The IF stage's IC design is complemented by bi-resonator ceramic filters which assure outstanding band-pass characteristics. Dual three-stage differential amplifiers give the tuner section its 60dB FM selectivity, 1.5dB capture ratio and ultra-low distortion figures (mono: 0.3%, stereo: 0.5%, at 400Hz). The station you select is free of interference from neighboring stations and from discernible distortion.

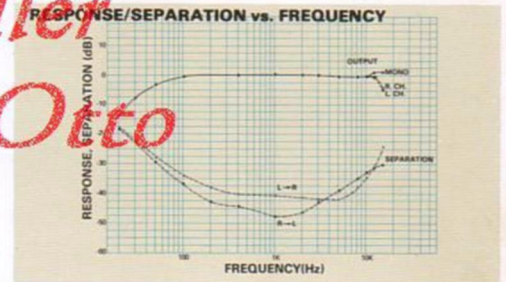
Precise Hairline Tuning Indicator, Wide Linear Dial Scale for AM & FM

Dual Meters: Signal & Tuning



Specially Yamaha-Developed IC Stereo Demodulator

A uniquely balanced integrated circuit design in the FM multiplex demodulator gives the CR-450 its superb stereo channel separation throughout all frequency ranges, including the difficult trebles. The circuit also employs an LC-type filter which holds carrier leakage to under 40dB to keep beat interference and intermodulation distortion at negligible levels. This filter maintains constant stability because it requires absolutely no adjustments.



FM Muting

Cuts noise and hiss between FM stations when tuning.

High-Performance AM Tuner Section



SPECIFICATIONS

AUDIO SECTION

Min. RMS Output Power per Channel

25 watts (8 ohms) from 20Hz to 20,000Hz at no more than 0.1% Total Harmonic Distortion

30 watts (4 ohms) from 20Hz to 20,000Hz at no more than 0.1% Total Harmonic Distortion

Continuous RMS Power (both channels driven)

32 + 32W (8 Ω) at 1,000Hz
40 + 40W (4 Ω) at 1,000Hz

Continuous RMS Power (each channel driven)

37/37W (8 Ω) at 1,000Hz
50/50W (4 Ω) at 1,000Hz

Dynamic Power (IHF)

90W (8 Ω)
120W (4 Ω)

Total Harmonic Distortion

Overall (Aux to Speaker Output, 20 to 20,000Hz) less than 0.1% at rated power
less than 0.05% at 1 watt

Preamplifier Only (Phono to Rec Out) less than 0.1% at rated power

Intermodulation Distortion (70Hz:7,000Hz = 4:1 SMPTE method)

Overall (Aux to Power Out) less than 0.1% (8 Ω) at rated power

Frequency Response (at 1 watt)

Overall (Aux, Tape PB to Power Out) 20 to 20,000Hz +0.5dB, -1dB

Deviation from RIAA (20 to 15,000Hz) +0.5dB, -0.5dB

Damping Factor (8 Ω) better than 50 at 1,000Hz

Channel Separation (at rated power, 1,000Hz)

Overall from Aux, Tape PB 65dB

Hum and Noise (IHF, Closed Circuit A Network)

Overall from Phono better than 75dB

Overall from Aux, Tape PB better than 90dB

Residual Noise

less than 0.5mV

Input Sensitivity and Impedance (at rated power, 1,000Hz)

Phono 3mV (47K Ω)

Phono Max. Input Capability 150mV (THD 0.1%)

Aux, Tape PB 50mV (50K Ω)

Output Level and Impedance (at rated power, 1,000Hz)

Tape Rec Out 50mV (less than 500 Ω)

DIN Tape Rec Out 30mV (less than 80K Ω)

Tone Controls

Bass \pm 12dB at 50Hz

Treble \pm 10dB at 10,000Hz

Filters

Low -3dB at 50Hz (-6dB/oct.)

High -3dB at 8,000Hz (-6dB/oct.)

Loudness Control (Continuous Loudness Volume at Minimum)

+10dB at 100Hz, +6dB at 10,000Hz

TUNER SECTION

FM:

Tuning Range 88-108MHz

Sensitivity (mono)

IHF 2.0 μ V

DIN (40KHz Dev.; S/N 26dB) 1.5 μ V

Sensitivity (stereo)

DIN (40KHz Dev.; S/N 46dB) 50 μ V

Image Frequency Rejection 45dB

IF Rejection 60dB

Spurious Response Rejection 45dB

AM Rejection 50dB

Capture Ratio 1.5dB

Selectivity

IHF 60dB

DIN (\pm 300KHz/40KHz Dev.) 60dB

Signal-to-Noise Ratio

Mono

IHF (75KHz Dev.) 68dB

DIN (40KHz Dev.) 62dB

Stereo

IHF (75KHz Dev.) 66dB

DIN (40KHz Dev.) 60dB

Total Harmonic Distortion (Antenna Level: 1mV)

Mono

IHF (400Hz; 75KHz Dev.) less than 0.3%

DIN (1KHz; 40KHz Dev.) less than 0.3%

Stereo

IHF (400Hz; 75KHz Dev.) less than 0.5%

DIN (1KHz; 40KHz Dev.) less than 0.5%

Stereo Separation

IHF (400Hz; 75KHz Dev.) 40dB

DIN (1KHz; 40KHz Dev.) 40dB

50-10,000Hz

IHF (75KHz Dev.) 28dB

DIN (40KHz Dev.) 28dB

Frequency Response

50-10,000Hz \pm 1.0dB

Sub-Carrier Suppression

40dB

Antenna Impedance

300 Ω balanced

75 Ω unbalanced

AM

Tuning Range 525 to 1,605KHz

Usable Sensitivity (IHF) 50dB/m

Signal-to-Noise Ratio 43dB at 80dB/m

Image Frequency Rejection 40dB at 1,000Hz

Selectivity 25dB at 1,000Hz

IF Rejection 40dB at 1,000Hz

GENERAL

Power Source

USA & Canada

AC 117V, 60Hz

Other Areas

AC 110/130/220/240V

50/60Hz

190W

Power Consumption

AC Outlets (max. total 200 watts)

Switched 1

Unswitched 1

Dimensions

465 x 157 x 335mm

18 1/4" x 6 1/4" x 13 1/4"

Weight

9.3Kg (20.5 lbs.)

Finish

Wood cabinet, American walnut grain

Specifications subject to change without notice.

For details please contact:

SINCE 1887



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