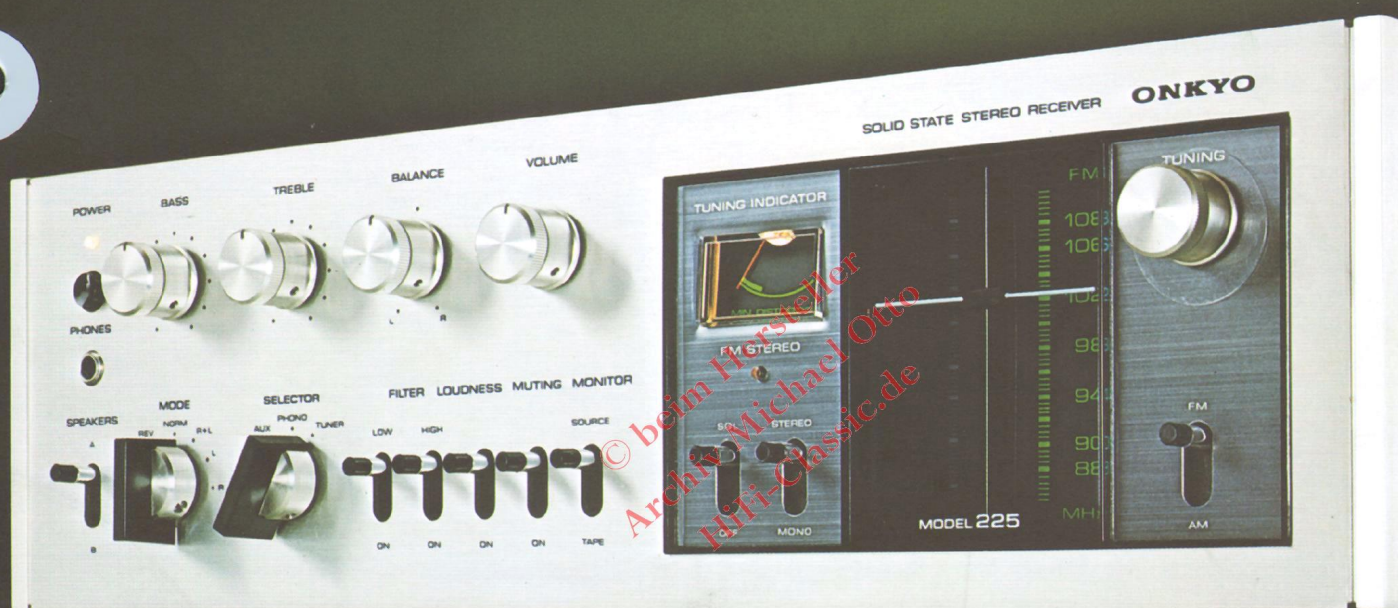


model 225



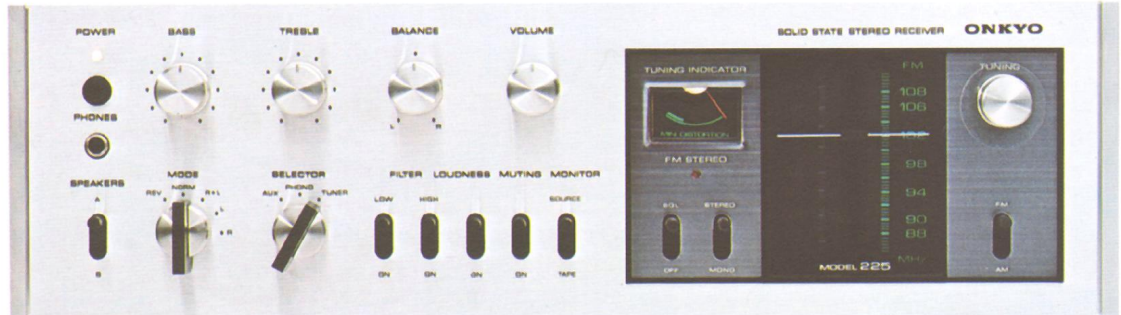
This is one compact unit but it contains a high performance tuner and large output amplifier.

From Onkyo's technically advanced laboratories comes this newest of stereo receivers. It opens up new worlds of music for your enjoyment. This newest addition to the Hi-Fi field, Model 225, easily wins the hearts of music lovers. This unit gives you a greater choice of stations because it is so sensitive that distant and weak stations can be tuned in easily. Signal-to-Noise ratio is greater than 65 dB which means that your program is not disturbed by unnecessary noise. The big phono overload capacity of the preamplifier means that loud sounds will not cause distortion while you are listening. Onkyo has incorporated low noise silicon transistors into this model to do away with self generating noise. RIAA deflection is less than ± 0.5 dB from 30 to 15,000 Hz.

Elements in the power amplifier section were carefully calculated for good listening results and dependability. All-stage direct coupling adds to the fine results delivered by Model 225. This is a very professional receiver with a minimum distortion—0.3% (mono) and 0.5% (stereo). This guarantees that you are going to get the sounds you expect and not a lot of noise you don't want. The finely designed front panel is aesthetically pleasing to the eye and at the same time very practical.

All in all it delivers 70 watts of dynamic power. With this receiver Onkyo surpasses itself in excellence and performance. It is an extremely fine stereo tuner and amplifier that you will be able to enjoy year in and year out.

ONKYO® model 225 STEREO RECEIVER



Tuner section Performance of the Tuner Section

The performance of Model 225 is something Onkyo is proud of because it assures you many hours of perfect listening pleasure. The sensitivity of this receiver is rated at $2\mu\text{V}$ (IHF) so that you can receive weak and distant stations with ease. The true sounds, as they are broadcast, come out of your speakers because the distortion of Model 225 is very low.

Front End

The front end is so important in any receiver because signals that don't get past this stage never get to your ears in any shape. Model 225 employs a frequency-linear 4 gang variable capacitor to make fine and easy tuning possible. In addition, this model uses the highly developed FET (Field Effect Transistor) in the RF amplifiers to make sure that there is no distortion even of the highest amplitude signals.

IF Stage

This is what separates a top class tuner from a medium class unit. Model 225 has as many as 5 IF stages to assure the desired selectivity, sensitivity and amplification. 4 of these stages, including 3 differential amplifiers, work as limiters while 3 pairs of ceramic filters take the places of the ordinary coil and capacitor types to assure sharp selectivity and a broad bandwidth.

Detector

A new and technically advanced ratio detector is used in Model 225 so that nothing is lost when the FM signal is converted into an audio signal. It is easy to get a broad bandwidth but this unit's special feature is that it combines bandwidth with perfect linearity. This, in

combination with the front end and IF stages, assures distortion free reception as little as 0.3% (mono) and 0.5% (stereo).

FM Muting Circuit

Model 225's sensitivity is $2\mu\text{V}$ (IHF). This is very good but Onkyo found that with such a sensitive receiver they had to incorporate a muting circuit into Model 225 to do away with loud inter-station noise. When the muting circuit switch is turned on irritating inter-station noise is completely eliminated. However, when trying to receive a weak signal turn this switch off or you will eliminate the desired station.

Automatic FM MPX Section

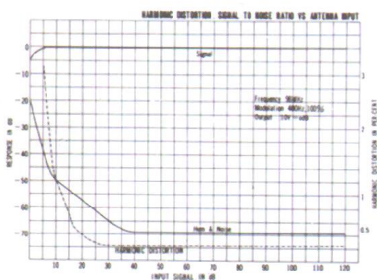
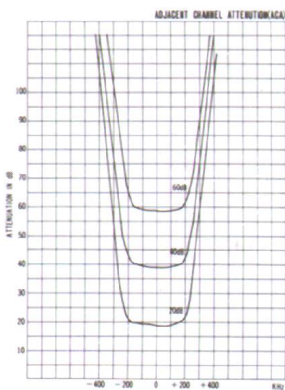
Model 225 changes easily and automatically from stereo to mono and back again. However, Onkyo has found out from experience that such automatic changing is not always advisable. So Model 225 has an Automatic FM Stereo/Mono Changer that senses the strength of any particular wave and if it is not strong enough for stereo reception it remains automatically in the mono mode. This means that Model 225 always reproduces clear sharp sound regardless of the strength of the signal.

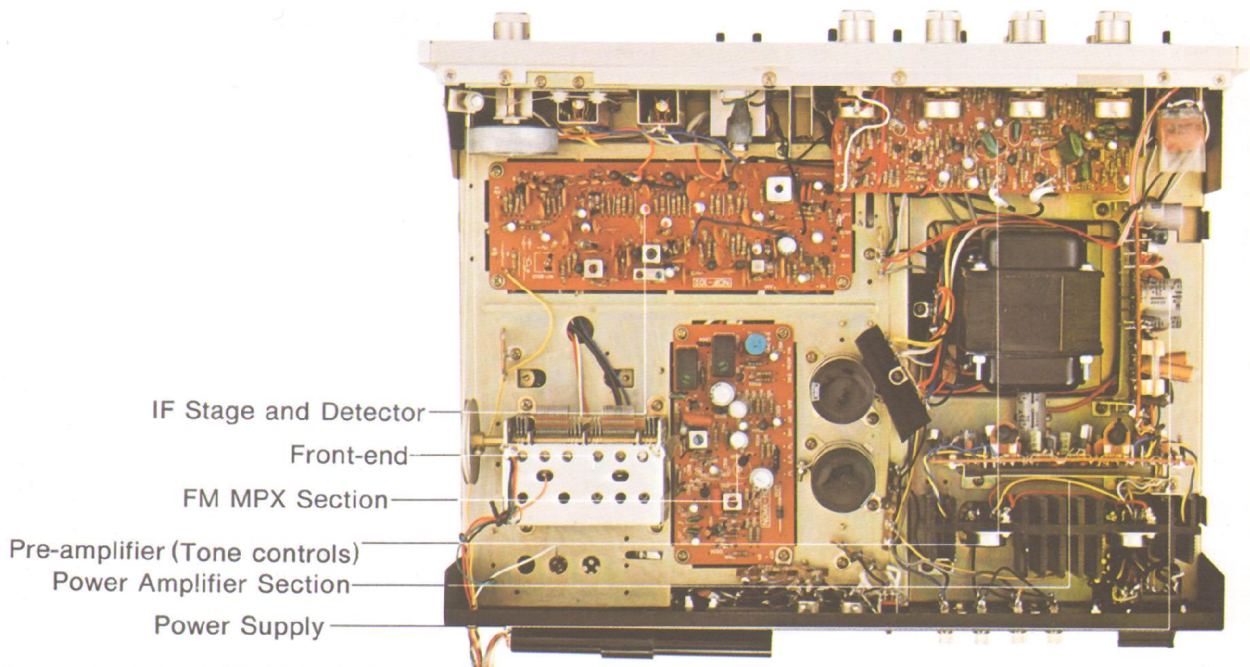
Distortion-null Tuning Meter

Onkyo designs for simplicity and quality. That is why Model 225 has this Distortion-null meter. It simultaneously shows the point of least distortion and the point of the strongest signal. This makes tuning of Model 225 much easier and creates a more attractive front panel.



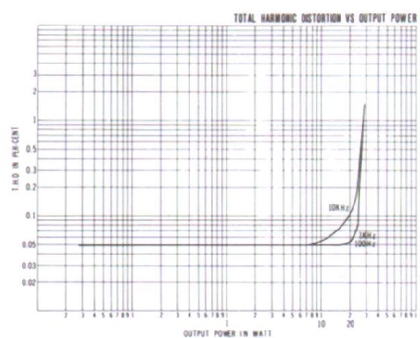
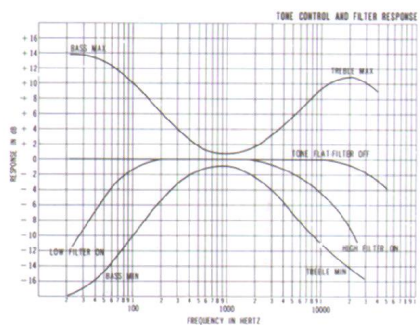
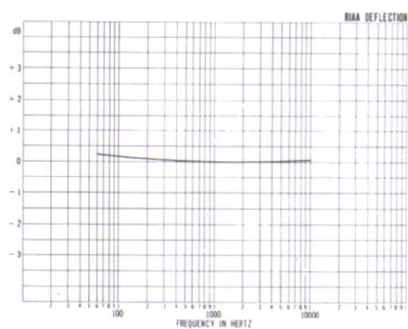
AM dial appears during AM reception.





Amplifier section Pre-amplifier Section

Precise equalization is so important in a preamplifier and consequently it is an outstanding feature of Model 225. In order to design a precise equalizer circuit Onkyo turned to the computer for exact calculation of each detail in the equalizer. The three direct-coupled equalizer stages use low noise silicon transistors. The results are predictable-RIAA deflection of less than ± 0.5 dB from 30 to 15,000 Hz and signal to noise (S/N) ratio of better than 70 dB. Big phono overload is a "must" in a modern preamplifier. Once the input is distorted all the remaining stages amplify this distortion until it is almost unbearable. To avoid this and to assure clear record reproduction at all times Model 225 has a phono overload of 140 mV (1 KHz). A low distortion NF type tone control is used for natural and precise compensation of bass and treble according to the acoustics of the room and an individual's taste.



Power Amplifier Section

Onkyo designed Model 225 for all-stage direct coupling and differential amplifier circuitry. Feeding the signal directly to the speakers without coupling capacitor results in more power and less distortion especially in low frequency range. Also by eliminating the output capacitor Model 225 has a wider and flatter frequency response, better transient response and a higher damping factor in the low frequency range. The 3 stages of differential amplifiers give perfect 0 V on the speaker terminals. DC voltage leak, which tends to cause distortion and malfunctioning of the speakers, is completely eliminated. Since the differential amplifier is not affected by changes in voltage and temperature Model

225 always maintains stable operation under all conditions and with all types of programs.

ASO Type Protection Circuit

Many of the specialized transistors in Model 225 are very sensitive and need extra protection. That is the job of the ASO type protection circuit. If the input surpasses the ASO (Area of Safe Operation) of a transistor this circuit electronically controls the input signal without stopping the amplifier operation. Damage is stopped but not your enjoyment of the program.

Transient Killer

Usually when an amplifier is switched on or off there is some shock noise that is very irritating to sensitive ears and could damage the speakers. To do away with this irksome feature of ordinary amplifiers Onkyo has installed the transient killer in Model 225. Now no shocking noise will disturb you when you turn Model 225 on or off.

Multi Step-up Terminals

Model 225 has a preamplifier and main amplifier system. This is usual with most receivers but what is extraordinary is that they can be used separately. It is easy to upgrade Model 225 to a multi-amplifier stereo system with the addition of either Model 624 or 613. Models 624 and 613 are dividing amplifiers and they divide and amplify the signals before sending them to either of the three speakers, tweeter, mid-range or woofer. Addition of either Model 624 or 613 results in a bi-amplifier system. If 2 units are added the result is a tri-amplifier system. Connection is simple with a DIN connector. Versatility is the key word when talking about Model 225.



Specifications

Type	All Silicon Transistor Integrated Stereo Receiver.	15 Hz ~ 30 kHz ($+0$ -1 dB 1W output)
Circuit.....	Direct-Coupling and Differential Amplifier, Quasi-Complementary SEPP System.	Power Band Width..... 20 Hz ~ 30 kHz (IHF -3 dB THD 0.3%)
Semiconductors...	Transistor 57 (2 FET), Diode 47	Residual Noise
Tuner Section		less than 0.5 μ W (VR min., TONE max.) less than 0.3 μ W (VR min., TONE flat)
Tuning Range	FM 88-108 MHz AM 530-1,605 kHz	Input Sensitivity & Input Impedance
Sensitivity	FM 2 μ V AM 40 μ V (IHF) 240 μ V/m (IHF) Bar Antenna	PHONO..... 2 mV (50 K Ω) AUX..... 100 mV (100 K Ω)
Image Rejection Ratio	FM 70 dB (98 MHz) AM 40 dB (1 MHz)	RIAA Characteristics... ± 0.5 dB (30 Hz ~ 15 kHz)
IF Rejection Ratio	FM 100 dB (98 MHz) AM 40 dB (1 MHz)	Maximum Allowable Input
Signal to Noise Ratio.....	FM 65 dB (IHF) AM 45 dB (30% 1 mV input)	PHONO
Adjacent Channel Attenuation	better than 65 dB	Controls
AM Suppression Ratio	better than 50 dB	BASS
Capture Ratio	less than 1.5 dB	TREBLE
Harmonic Distortion ... FM MONO.....	less than 0.3%	High FILTER
	ST..... less than 0.5%	Low FILTER
	AM..... less than 0.8%	Audio Muting.....
Frequency Response... 20 Hz ~ 15 kHz ($+0$ -1 dB)		Signal to Noise Ratio (IHF C Net Work)
Stereo Separation.....	better than 38dB (400 Hz)	PHONO
Audio section		AUX
Dynamic Power	70 W (IHF 8 Ω)	Power Source... AC 110/120/220/240 V, 50/60 Hz
RMS Continuous Power... 22W + 22W (8 Ω 1 kHz)		Power Consumption
Total Harmonic Distortion.....	less than 0.3% (at rated output 1 kHz) less than 0.06% (at 10W output 1 kHz) less than 0.06% (at 0.5W output 1 kHz)	45 W (Electrical Goods Control standards)
IM Distortion.....	less than 0.1% (at 10W output) (SMPTE 70 Hz : 7 kHz 4 : 1)	Dimensions
Frequency Response.....		Weight
		10 kg
		Other for Attachment Circuits
		● FM MONO/STEREO Automatic changer ● Stereo Indicator ● Tuning Meter ● AC Outlet ● SP Terminal (A/B Selector) ● Headphone Jack ● Tape Recording Terminal ● Tape Recording/Playback Connector ● Multi-Step-Up Connector ● Tape Monitor Switch ● High Filter ● Low Filter ● Audio Muting ● Loudness Switch ● FM Squelch Switch
		Specifications are subject to change according to improvements without notice.

ONKYO CORPORATION