

**PIONEER**

# TX-9500

High-grade AM/FM stereo tuner for clear reception-high sensitivity front end, wide-band linear detector and built-in recording level check signal.

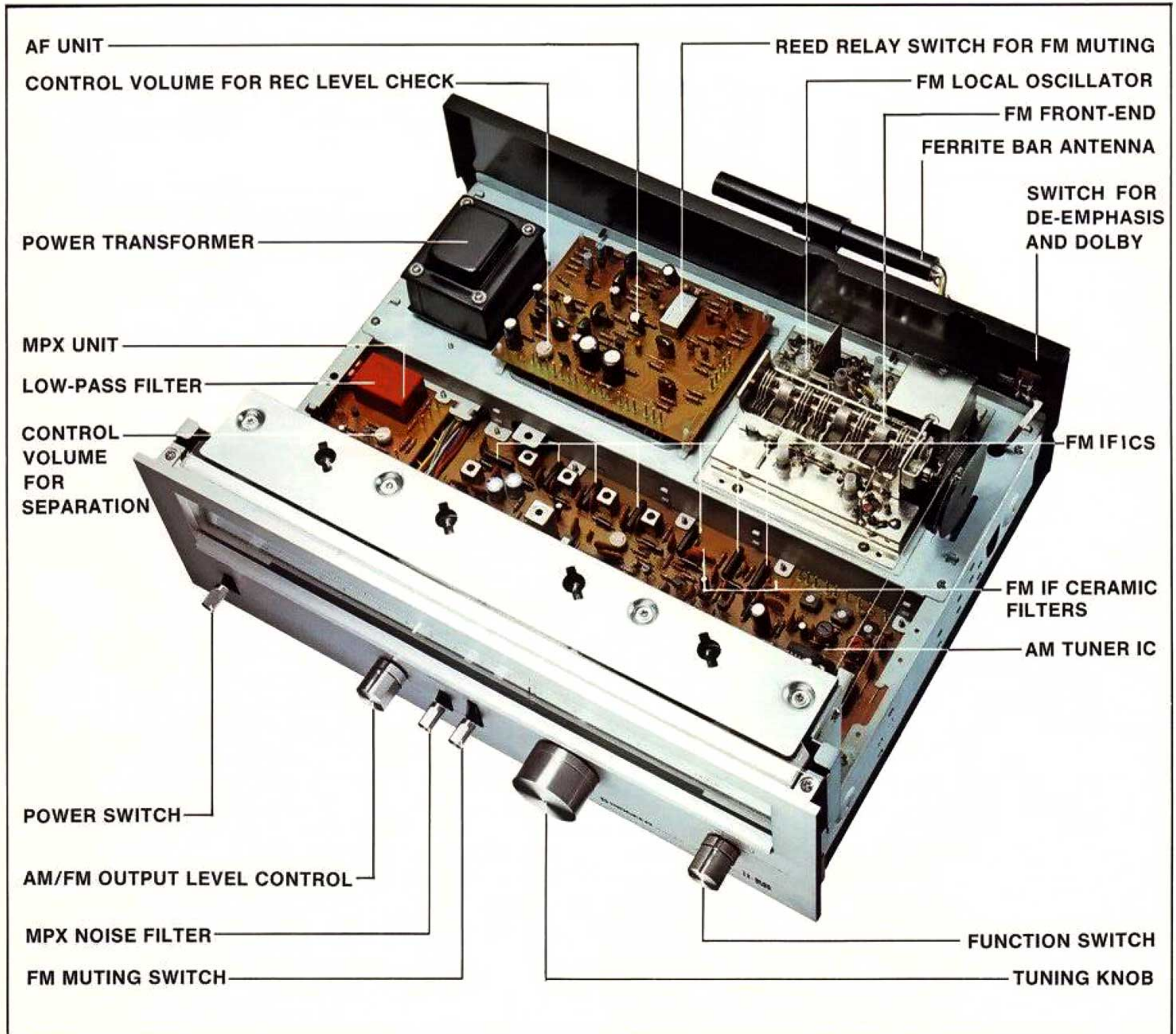
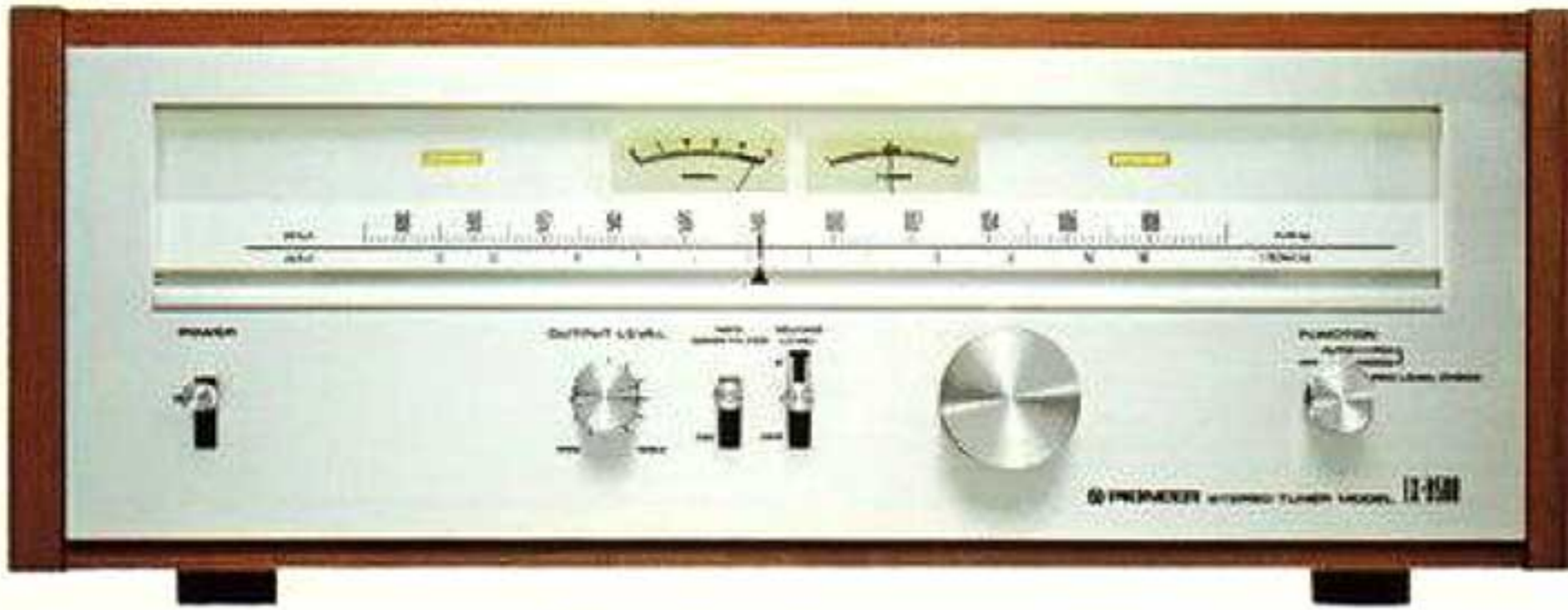


Inside it's one of the most circuit-packed AM/FM tuners we've ever built. And outside it's one of the cleanest and most simple to use. The new Pioneer TX-9500 has our new streamlined looks, logically-arranged switches and controls, and a scientifically-designed tuning system that makes it all look so easy. But it's what's inside that counts: dual-gate MOS FETs and a 5-gang variable capacitor boost FM front end sensitivity to a superb  $1.5\mu\text{V}$  (IHF). The FM IF has 7 ICs with differential amps, 4 ceramic filters (with 2 elements each) and a wide-band linear detector to pinpoint selectivity at 85dB or better and beef up the capture ratio to 1.0dB (IHF). Even in stereo the S/N is a

superhigh 75dB, with Total Harmonic Distortion of 0.2% at 1KHz. Thanks to the PLL MPX (Phase-Lock-Loop Multiplex) demodulator, stereo separation stretches to a wide 35dB over the 50 to 10,000Hz range. Stability? Even in signal-weak or signal-strong areas your station comes in clean and fresh. Planning to record off the air? Hit the switch for the built-in 440Hz test signal generator and check the output level against your deck's VUs for optimum adjustment before the music begins. Why not turn the page and get to know the Pioneer TX-9500 inside and out?



# TX-9500





### FM FRONT END OFFERS A HIGH $1.5\mu\text{V}$ SENSITIVITY

Sharp FM reception under all conditions requires an exceptionally capable FM front end, the section which first senses out the signal. In the Pioneer TX-9500, a frequency-linear 5-gang variable capacitor eliminates interference before it can spoil the sound; the rejection of both images and spurious signals is a highly efficient 110dB. In addition, the three dual-gate MOS FETs, each with a very low NF (noise figure), combine to achieve optimum gain allocation and obtain a sensitivity to signals as faint as  $1.5\mu\text{V}$  (IHF).



### LOCAL OSCILLATOR WITH BUFFER CIRCUIT

Tuning stability is at the mercy of the local oscillator circuit: poor performance means poor reception. To stabilize this critical component, Pioneer has devised a special buffer circuit. It takes the clumsiness out of tuning-in even the too-weak or too-strong signals you want to hear.

### FM IF SECTION FEATURES CLARITY OF TONE

Ideal isolation of the two main parts of the IF section (the signal path circuit and the control circuit for meters and muting) contributes to the stability of the TX-9500. In the IF's signal path circuit, jamming and interference are eliminated by the use of 7 special ICs with differential amplifiers, 4 ceramic filters (with 2 element each) and an 8-stage limiter, resulting in a high capture ratio of 1.0dB (IHF) and an outstanding selectivity of 85dB. In simple terms, this adds up to transparent, fresh-sounding tonality.

### WIDE-BAND LINEAR DETECTOR

Also enhancing tonal quality in the IF section is a wide-band linear detector covering a 6MHz (as opposed to the usual 1 to 2MHz) range to do away with harmonic distortion. Since detecting efficiency is very high, the signal-to-noise ratio is raised to an impressive 75dB. The fact that Total Harmonic Distortion is reduced to no more than 0.2% at the same time, even in stereo operation, further improves sound quality.

### PLL MULTIPLEX CIRCUIT

Vivid sound presence in FM depends on maximum stereo separation over a wide frequency range. And thanks to the PLL circuit in the FM multiplex demodulator in the TX-9500, that's just what you get. PLL (which means Phase-Lock-Loop) is much more stable against temperature fluctuations than ordinary circuits, resulting in a stereo separation of more than 40dB at 1KHz and better than 35dB in the 50 to 10,000Hz range. Additionally, a sharp-cutting low-pass filter eliminates carrier leakage (at 65dB) so that you may record FM signals without beat interruption and inter-modulation.



### BUILT-IN RECORDING SIGNAL LEVEL CHECK

By setting the front-panel LEVEL CHECK switch on, a 440Hz signal is generated at the tuner's output terminals at 1.5 second intervals and passed on to your tape deck. This signal is equivalent to the FM 50% modulation level, and you can use it to check the input level on your tape deck to achieve optimum recording level adjustment before you begin to tape an FM program (just set the recording levels to indicate  $-2\text{dB}$  on the deck's VUs). You may also wish to use the check level signal to determine proper speaker phase or to balance left and right channels.



### 2-STEP FM MUTING AND ACCURATE METER

The 2-step FM muting level selector on the TX-9500 is handy when you wish to cancel inter-station noise while tuning (Step 1) or to allow the tuner to bypass those stations which cannot be received satisfactorily in stereo (Step 2). The muting circuit also cancels the noise heard when tuning a station in or out, and the power-shock noise heard when the tuner is turned on. Then, for extra ease in tuning, the super-sensitive signal-strength meter on the dialplate follows antenna input levels up to the 90dB mark, giving you an accurate reading of strength levels for best tuning.



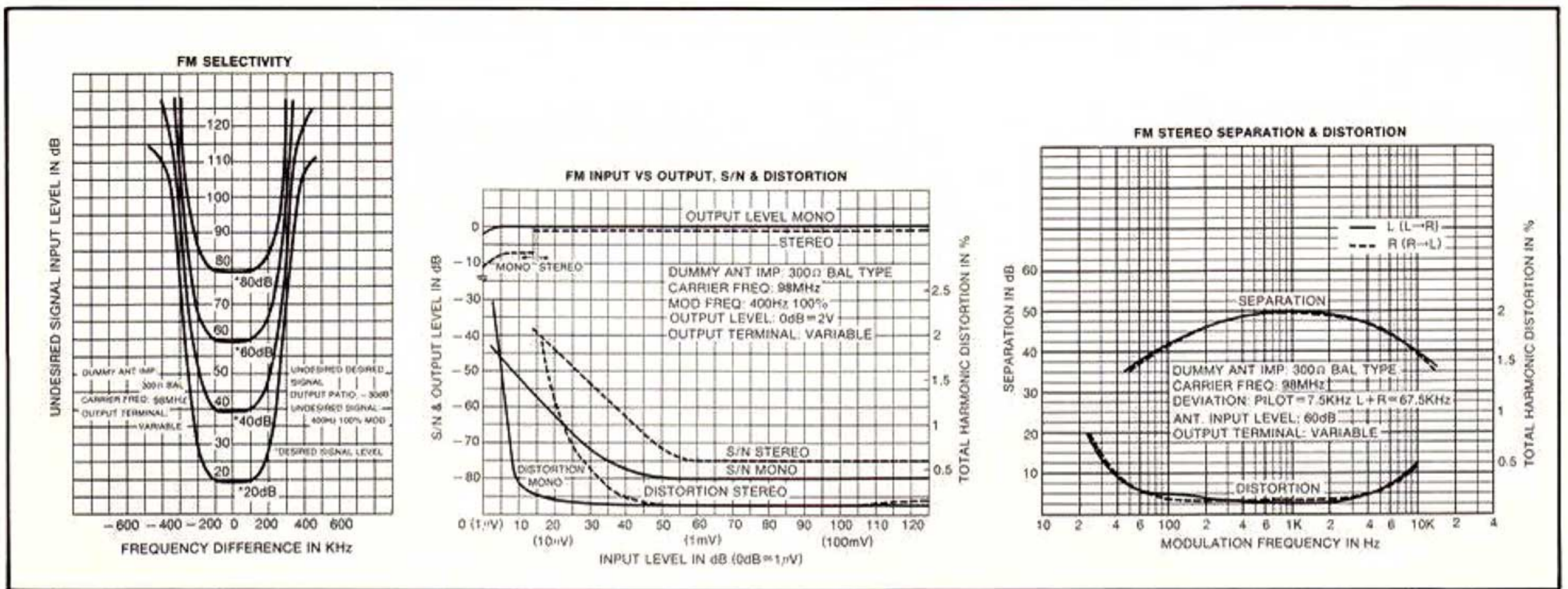
### AM SECTION WITH IC AND CERAMIC FILTERS

Pioneer hasn't skimped on the AM section in the TX-9500. This is a high class performer with a frequency-linear 3-gang variable capacitor, an exclusive IC and special ceramic filters. Overall, you enjoy high rejection of unwanted AM noise, and the clean-cut tuning required for perfect AM listening.

### PRECISION AND BEAUTY STRESSED IN TOTAL DESIGN

The appearance and convenient operation of the TX-9500 are the two most obvious reflections of the excellent engineering inside. For easier tuning, the dial scale is extra-long (250mm) with an FM-linear index divided into equal sections of 200KHz each. A special soft-light illumination system is used to save your eyesight while conserving energy. Further, the precision tuning mechanism, featuring a newly-designed pulley arrangement and a large flywheel with ideal inertia characteristics means accurate, easy tuning under all atmospheric conditions.





## TX-9500 SPECIFICATIONS

### FM SECTION

Circuitry:	3 MOS FETs, 2-stage RF amplifier, 5-gang variable capacitor, 8-stage limiter, P.L.L MPX
Sensitivity	
IHF:	1.5μV
50dB Quieting:	2.5μV (mono), 35μV (stereo)
Signal to Noise Ratio:	80dB (mono), 75dB (stereo)
Total Harmonic Distortion	
100Hz:	0.15% (mono) 0.2% (stereo)
1KHz:	0.15% (mono) 0.2% (stereo)
10KHz:	0.15% (mono) 0.5% (stereo)
Capture Ratio:	1.0dB
Selectivity:	85dB (±400KHz), 55dB (±300KHz)
Frequency Response:	50Hz to 10KHz, +0.2dB, -0.5dB 20Hz to 15KHz, +0.2dB, -1.5dB
Separation:	40dB (1KHz), 35dB (50Hz to 10KHz)
Image Rejection:	110dB
IF Rejection:	110dB
Spurious Rejection:	110dB
AM Suppression:	55dB
Sub Carrier Suppression:	65dB
Muting Threshold:	5μV/22μV
Antenna Input:	300 ohms balanced 75 ohms unbalanced

### AM SECTION

Circuitry:	1 stage RF amplifier, 3-gang variable capacitor
Sensitivity:	300μV/m (IHF, ferrite antenna) 15μV (IHF, external antenna)
Selectivity:	40dB
Signal to Noise Ratio:	50dB
Image Rejection:	65dB
IF Rejection:	85dB
Antenna:	Built-in ferrite loopstick antenna

### AUDIO SECTION

Output (Level/Impedance)	
FIXED:	650mV/5 Kohms
VARIABLE:	70mV to 2V/3.5 Kohms
4 CH. MPX	400mV/2.5 Kohms

### SEMICONDUCTORS

FETs:	3
ICs:	11
Transistors:	34
Diodes:	23

### MISCELLANEOUS

Power Requirements:	120V 60Hz only
Power Consumption:	23 watts
Dimensions:	Without package: 16-17/32(W) x 5-29/32(H) x 14-3/8(D) inches
Weight:	Without package: 20 lb. 1 oz.

NOTE: Specifications and design subject to possible modification without notice.

# PIONEER®

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