

Pioneer's Super Superreceiver

Pioneer Model SX-1980 stereo FM/AM receiver in walnut-veneered cabinet. Dimensions: 22 by 8½ inches (front panel), 17½ inches deep plus clearance for controls and connections. Price: \$1,250. Warranty: "limited," two years parts and labor. Manufacturer: Pioneer Electronic Corp., Japan; U.S. distributor: U.S. Pioneer Electronics Corp., 85 Oxford Dr., Moonachie, N.J. 07074.

In the latest lap of the Receiver Power Grand Prix, Pioneer is among the leaders with the SX-1980, rated at 270 watts (24¼ dBW) per channel. Whether such a receiver offers any tangible advantage over one rated at ¼ dB less (250 watts) or suffers any noticeable lack of oomph compared with ½ dB more (300 watts) we'll let you decide. But it is certain that one no longer need go the separates route to provide abundant muscle in the system.

The tuner portion of the SX-1980 ranks with the best. The sensitivity is outstanding and the quieting curve extremely steep. Noise is suppressed to -50 dB with mono inputs at a level at which many tuners barely manage -30 dB. In stereo, too, equivalent quieting requires exceptionally little signal. At the ends of the band, the sensitivity diminishes a trifle but not by more than 1½ dB in either mode. Ultimate signal-to-noise ratios (measured at 65 dBf) are excellent.

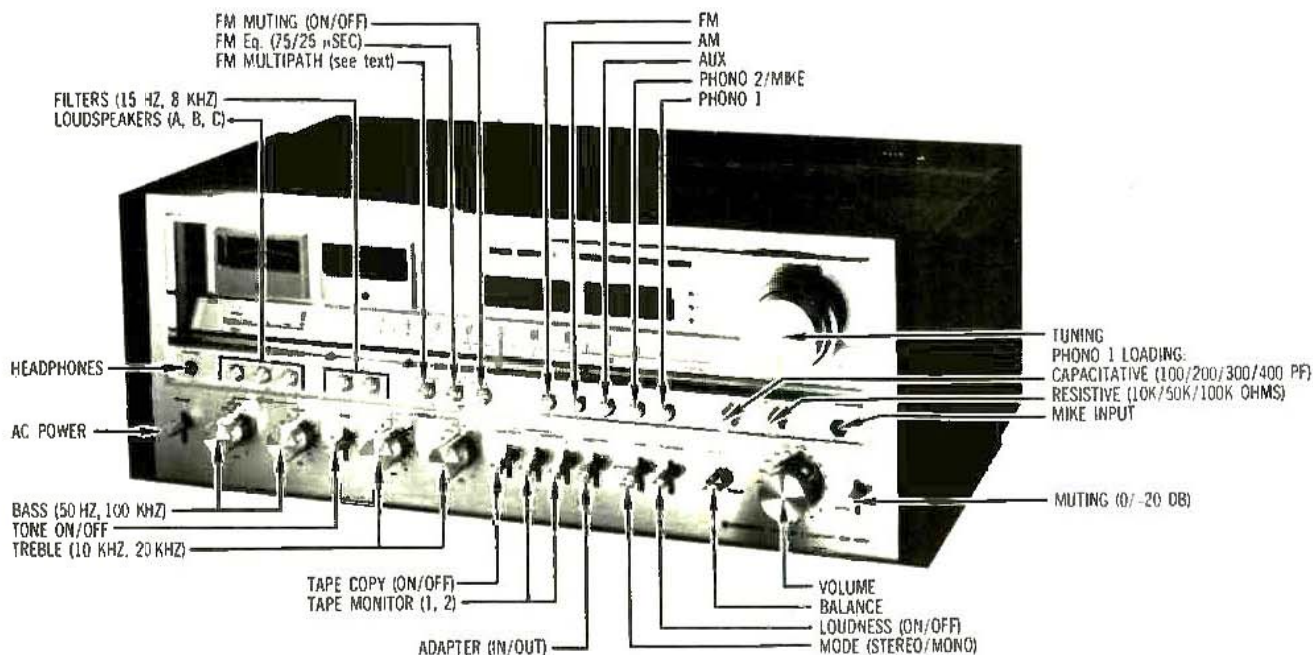
The IF bandwidth, which is nonadjustable, seems like a good compromise between selectivity and midband harmonic

distortion. Intermodulation distortion is even lower than THD. The automatic pilot-canceling circuit (as opposed to the once-standard pilot filter) does an excellent job of suppressing stereo-multiplex by-products while preserving frequency response and stereo separation—the latter, in particular, at a level that few receivers or even separate tuners can match—all the way to the 15-kHz limit of FM transmission; the frequency response is almost the same in mono and stereo.

The SX-1980 meets its power rating with a smidgen to spare when both channels are driven. At rated power, the distortion barely reaches half the tight 0.03% spec. But while the power is abundant, little remains in reserve; dynamic headroom is just ¼ dB. Like many separate superamps, moreover, the power amp section requires that the AC input really stay at 120 volts (which domestic supplies seldom do) for the full rated output. But in such amps the high power rating is itself a form of headroom—a hedge against the demands of musical peaks and reduced voltages in the power distribution system.

Low-frequency damping factor is adequate for any speaker we know of. Sensitivity and signal-to-noise ratio are good on all major inputs, and the phono-overload level is adequate for just about any cartridge. Phono equalization remains exact from 100 Hz to 20 kHz and falls no more than 1 dB at 20 Hz. The subsonic filter essentially has no effect on music.

Two sets of bass and treble tone controls are provided. The 11-position 100-Hz control induces a shelving response that



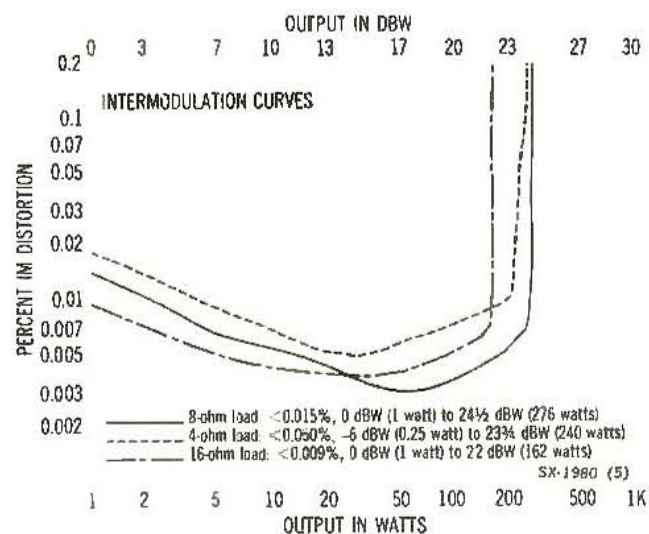
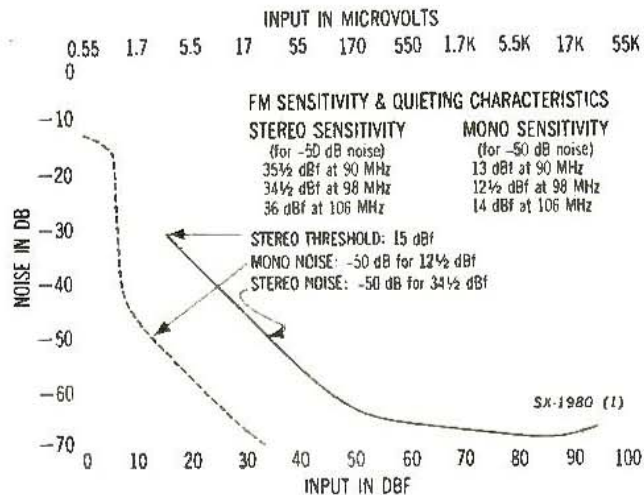
reaches +13 and -14½ dB at the lowest frequencies, hinging from a 400-Hz turnover point. To this can be added the 5-position 50-Hz control that provides a spread of ±3 dB at 50 Hz and +8 to -9 dB at 20 Hz. At the high end, the 10-kHz control reaches +10 and -11 dB at 20 kHz from a 1.5-kHz turnover, and approximately ±5 dB additional is offered by the 20-kHz control. The loudness contour boosts both the bass and treble ends of the spectrum.

Tape dubbing in either direction between two decks can take place whatever input is being monitored. An external processor loop inserts your choice of a signal-conditioning add-on into the circuit; should you go for a Dolby decoder, the FM de-emphasis can be changed to 25 microseconds via a pushbutton. Other accessories can be added between the preamp and power amp by disconnecting a back-panel link.

A choice of 10,000, 50,000, or 100,000 ohms is available for resistive termination of phono cartridges, with capacitive shunts of 100, 200, 300, and 400 picofarads available as well. A rear-panel slide switch activates an RF-suppression filter in the phono circuit to silence any of your intrusive "good buddies." Dual power meters indicate the output power (as usual, into 8-ohm loads, requiring interpretation with respect to the loudspeaker's actual loading) both in watts (0.01 to 540) and in decibels (-40 to +3 relative to the 270-watt rating). Three pushbuttons enable selection of any two of three sets of speakers in combination: an attempt to make "unauthorized" use of all three will elicit stony silence from the receiver.

The extremely good sensitivity of the FM section not only enabled us to receive more stations in our area than usual, but brought in several that had been only marginal on other receivers with lower distortion and improved quieting.

The signal-strength and tuning meters are both adequately sensitive, though the latter is redundant with Pioneer's Automatic Phase Control and Touch Sensor tuning system. As the receiver is tuned within 10 kHz of the station, a red LED FINE TUNE lamp illuminates. Releasing the tuning knob causes the receiver to home in on the station precisely—a condition indicated by a green QUARTZ LOCKED LED. The system works very well in practice, although in our tests there were a couple of spots in the band at which the tuner registered "lock" when receiving noise. Tuning remains stable except when the effort is made to bring in a very weak station adjacent to a very



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Tuner Section

Capture ratio	1½ dB
Alternate-channel selectivity	72 dB
Frequency response	
mono	+ ½, -¼ dB, 20 Hz to 15 kHz
L ch	+ ½, -¾ dB, 20 Hz to 15 kHz
R ch	+ ¾, -¼ dB, 20 Hz to 15 kHz

Channel separation 38 dB, 20 Hz to 15 kHz

THD	Mono	L ch	R ch
80 Hz	0.075%	0.11%	0.013%
1 kHz	0.065%	0.013%	0.013%

IM distortion 0.055%

19-kHz pilot -66 dB

38-kHz subcarrier -68 dB

S/N ratio (at 65 dBf)	
mono	76 dB
stereo	67 dB

Amplifier Section

Manufacturer's rated power 24¼ dBW (270 watts)

Power output at clipping (channels driven simultaneously)	
L ch	24½ dBW (280 watts)
R ch	24½ dBW (280 watts)

Dynamic headroom ¼ dB

Frequency response +0, -1 dB, 10 Hz to 40 kHz
+0, -2½ dB, below 10 Hz to 100 kHz

RIAA equalization +0, -1 dB, 20 Hz to 20 kHz

Input characteristics (re 0 dBW (1 watt); noise A-weighted)

	Sensitivity	S/N ratio
phono 1	0.165 mV	77 dB
phono 2	0.160 mV	77 dB
mike	0.47 mV	64 dB
aux	6.45 mV	89½ dB
tape 1	6.70 mV	89½ dB
tape 2	6.80 mV	89½ dB

Harmonic distortion (THD + N, 20 Hz to 20 kHz)
at 24¼ dBW (270 watts) L ch: <0.015% R ch: <0.014%
at 10 dBW (10 watts) L ch: <0.013% R ch: <0.014%
at 4¼ dBW (2.7 watts) L ch: <0.020% R ch: <0.021%

Phono overload (clipping point) 330 mV at 1 kHz

Damping factor at 50 Hz 57

High filter -3 dB at 8.3 kHz; 12 dB/octave

Low filter -3 dB at 19 Hz; 6 dB/octave

strong one. In this case, thanks to the very narrow lock range, we find we can defeat the system by tuning very slightly away from the stronger station. And on the vast majority of stations, the lock system produces excellent results.

The muting circuit effectively eliminates interstation noise, but spinning the dial through a cluster of stations will cause the audio to cut in and out. When the MULTIPATH button is depressed, the multipath distortion is presented through the loudspeakers and the signal-strength meter continues to indicate the total effective signal level. Thus the antenna can be oriented for minimum multipath (that is, minimum output to the speakers) and adequate signal strength (on the meter) simultaneously, which some switchable-meter systems cannot.

The dual tone controls provide plenty of boost for those who want it as well as precise adjustment for those inclined to subtlety. Used in combination, they can simulate the effect of a broadband equalizer. The effect of proper (or improper) phono-cartridge loading is made manifest by manipulating the phono-load switches. When set to match the cartridge in use (the owner's manual suggests the appropriate settings for the major cartridges), the phono section of the SX-1980 is indeed excellent. Engaging the RFI filter produces a slight high-frequency coloration, but one we think we could live with when the defensive function of the filter is called for: it was not needed during our test period, so we got no fix on its efficiency in suppressing RFI.

The investment in an SX-1980 is certainly substantial, but a system composed of separates with the same power capability, control flexibility, and tuner performance would be virtually impossible to assemble for a comparable cost. (And, if it could be, shopping around for it might take quite a while.) Anyone interested in such a system owes himself an audition of the SX-1980. Pioneer has truly put it all together.

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NEW MEASUREMENT STANDARDS

In making comparisons between current reports and those published in the past, readers are cautioned to pay particular attention to the reference levels and similar test criteria cited. S/N ratios for electronics, in particular, are measured very differently now that we have adopted salient features of the new IHF amplifier-measurement standard. While we believe that the new technique (which also implies a saner approach to loading of all inputs and outputs) will result in measurements that more perfectly reflect audible, in-use effects, they cannot be compared directly to the numbers resulting from the former, more conventional lab measurements.