

Pulse response shows an initial lag followed by a very sharp rise. This characteristic, which is shared by both drivers, results in a very crisp response to musical transients information.

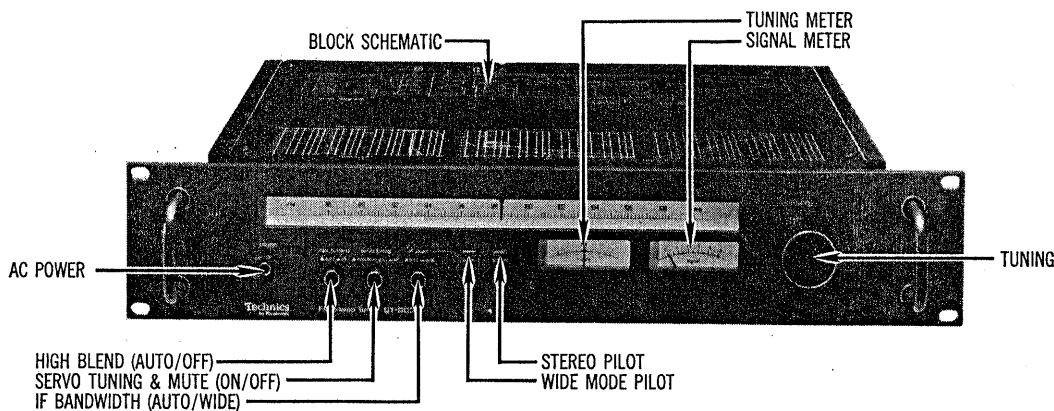
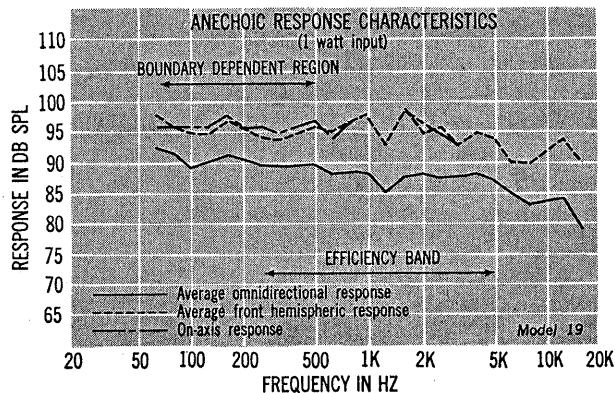
The sound of the Altec is essentially what one would expect on the basis of the excellent and well-balanced lab data. The bass is somewhat on the robust side, although nicely defined and free of boominess. Since the distortion varies little with level until the input power is exceedingly high, it becomes a part of the basic color of the speaker. Thus loud music (including explosive transients) essentially is reproduced with no sense of strain. Since the power-handling capability is vast and the slopes of the omnidirectional frequency-response curves are gentle, it is very easy to tailor the musical balance to taste via tone controls or equalizers, provided that the amplifier is able to supply whatever extra drive is required. With the balance controls set to OPTIMUM, the middles have just a touch of forwardness and the highs are clear and transparent, with a slight mellowness that might be attributed to the rolloff above about 12 kHz.

But probably the most striking characteristic of the Model 19 is its stereo image, which seems three-dimensional to the point of being detached from the speakers. The center of the image seems to extend forward between the two speakers and toward the listener rather than rearward beyond the plane of the speakers as is usually the case. Only at the extreme left and right is there any sense of flattening, and that is slight. About the only grief the Altec 19 gave us in the listening room was in initial setup,

and that because its spring-loaded connectors are located on the bottom of the cabinet. (This does, of course, offer long-term cosmetic advantages.)

Considered in toto, the Model 19 is an outstanding loudspeaker. The differences between it and others in the same price class amount more to points of personal preference than of quality. A particular listener may find the minor faults of one preferable to those of another: The only way to tell is to listen—something we can heartily recommend in the case of the Altec 19. Another point not to be overlooked, especially with respect to such a large unit, is its pleasant appearance and impeccable finish.

CIRCLE 133 ON READER-SERVICE CARD



## A Tough-Looking Tuner from Technics

**The Equipment:** Technics ST-9030, an FM tuner in metal case suitable for rack mounting. Dimensions: 19 by 3½ inches (front panel), 12¾ inches deep plus clearance for controls, connections, and handles. Price: \$399.95. Warranty: "limited," two years parts and labor. Manufacturer: Matsushita, Japan; U.S. distributor: Technics, by Panasonic, One Panasonic Way, Secaucus, N.J. 07094.

**Comment:** Although the first impression made by the ST-9030 tuner is one of no-nonsense styling and rack-mountable macho, in its heart of hearts the unit is not that way at all. Its personality is in fact that of an obsequious servant who anticipates your needs and, unbidden, quietly turns its electronic wiles to delivering the best-sounding FM it can. Choice of station is about all this model will require of you.

The design strategy seems to be based on equipping the unit so that it processes FM signals for the best possible sound, which makes it highly vulnerable to any marginal signal conditions, and including automatic devices that let it "defend" itself when necessary. For example, with the normal (AUTO) setting of the intermediate-frequency bandwidth control, the Technics is adjusted for a wide bandpass, giving low distortion and best capture ratio. Should an interfering signal intrude or the signal level drop too low, the tuner automatically switches to narrow band for better selectivity.

Similarly, the ST-9030 is normally set to maintain the widest stereo separation it can produce; when the input signal falls below a preset threshold, the high frequencies are blended so as to cancel noise components that are of equal amplitude and opposite phase in the two channels.

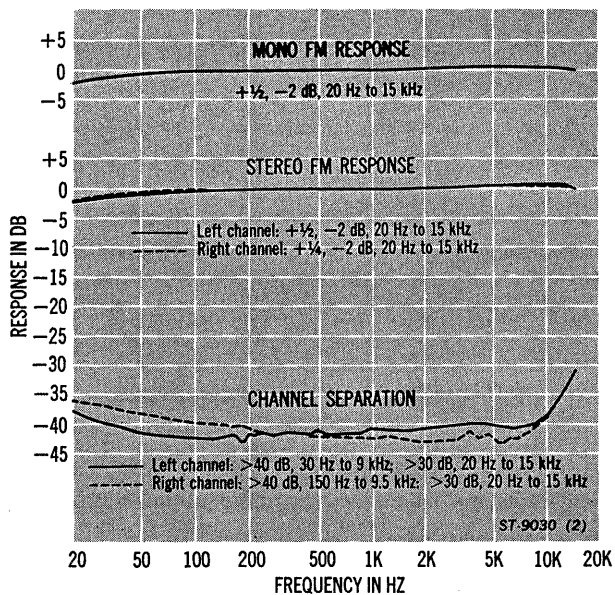
Both of these switching functions have a well-calculated overlap between the "on" and "off" thresholds, which makes them reasonably immune to "hunting" (rapid flipping back and forth) in the presence of fluctuating or borderline input signals. The muting function, controlled by the same switch that activates the servo tuning, is not as neat in this respect—audio breakthrough during rapid tuning can be obtrusive.

The SERVO TUNING itself is a joy to use. When a station is close to the optimum tuning point, a relay pulls in with a satisfying little clink and locks tuning to the exact center of the channel. Like other functions, the servo's normal (and defeatable) setting is its automatic mode.

The lab data confirm that this Technics tuner is optimized for good listening. Distortion is about average with the narrow IF bandpass and much better in the wide mode. Capture ratio is likewise adequate with the IF wide and excellent with it narrow, and IM distortion also is very good. The sensitivity curves, which at low signal levels are about average for a fine tuner, seem calculated to make listening enjoyable, rather than to permit the "collecting" of extremely distant stations. With very strong signals (65 dBf and up), the ST-9030 is the quietest tuner we have tested. Both noise and distortion, far from being increased by front-end overload in the presence of very strong input signals, actually improve a bit under these conditions; the already superlative noise curve is driven right off the bottom of our graph above 85 dBf.

To help in orienting an antenna for minimum multipath, the usual oscilloscope outputs are provided. In addition, the instruction manual explains how the vertical output (apparently a rectified version of the IF signal) can be routed to an unused preamp input and evaluated by ear to determine when the antenna is getting the best signal. Amplitude modulation of the IF signal, a usual symptom of multipath distortion, can thus be heard and minimized by rotating the antenna.

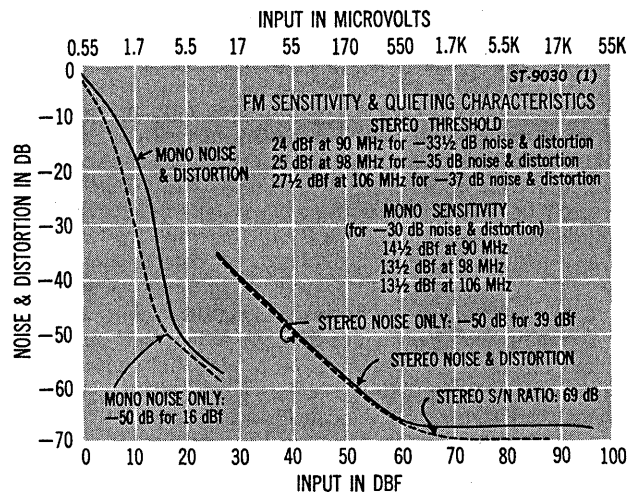
The ST-9030 is, in sonic terms, one of the more endearing tuners we have encountered. Frequency balance is good even though the response curve falls off a bit in the extreme low bass. The cancellation (rather than filtration) of the 19-kHz stereo pilot confines high-frequency droop to the high side of 15 kHz. (The lab did not confirm the passband to 18 kHz, but in normal broadcasting there is no signal there anyway.) Channel separation (with full-strength signals, of course) is astonishing. Some of the 9030's sonic advantages are achieved by processing sig-



nals automatically in ways that other tuners offer as manual options or not at all, which scotches direct comparison. (In particular, the lab had to introduce an interfering signal to keep the tuner in its narrow mode for the appropriate measurements.) Be that as it may, the sound is fine and can be obtained with a minimum of fuss.

Can the Technics ST-9030 justly be called a budget super-tuner? The fact that the exemplary performance by which this category used to distinguish itself is becoming more commonplace among "normal" tuners makes it difficult to say. In our view the Technics sits on the fast-fading boundary between the two categories, much as it does on that between a "technician's" tuner and a "convenience" model. More important, its performance is the result of an elegant balance between conflicting parameters. Certainly it offers very good value for its price and a uniquely conceived approach to the interface between human being and machine.

CIRCLE 135 ON READER-SERVICE CARD



### Technics ST-9030 Tuner Additional Data

Capture ratio	¾ dB		
narrow mode	1¾ dB		
Alternate-channel selectivity	25 dB		
narrow mode	87 dB		
S/N ratio (mono; 65 dBf)	75 dB		
THD	Mono	L ch	R ch
80 Hz	0.060%	0.060%	0.055%
1 kHz	0.065%	0.078%	0.075%
10 kHz	0.16%	1.5%	1.6%
THD, narrow mode	Mono	L ch	R ch
80 Hz	0.17%	1.2%	1.2%
1 kHz	0.17%	0.86%	0.84%
10 kHz	0.24%	2.3%	2.0%
IM distortion	0.01%		
19-kHz pilot	-72 dB		
38-kHz subcarrier	-69 dB		

All data measured in the wideband (normal) mode unless otherwise specified.