

## Superior Tuning in a Slim Package

**JVC T-3030** stereo FM tuner in metal case. Dimensions: 16½ by 2¼ inches (front panel), 13 inches deep plus clearance for controls and connections. Price: \$649.95. Warranty: "limited," two years parts and labor. Manufacturer: Victor Co., Japan; U.S. distributor: JVC America, Inc., 58-75 Queens Midtown Expressway, Maspeth, N.Y. 11378.

Judging a book by its cover is said to be ill advised. Certainly the diminutive size of the JVC T-3030 FM tuner belies the circuit complexity that lies within. And, though it's not necessarily true of look-alikes, the four-digit LED frequency readout does imply a form of crystal-controlled tuning. The oscillator frequency of the tuner is synthesized by comparing it with a quartz-controlled reference circuit; accuracy and stability are therefore determined solely by the rock-stable crystal. Accordingly, there is no need for the common channel center meter, which has been omitted.

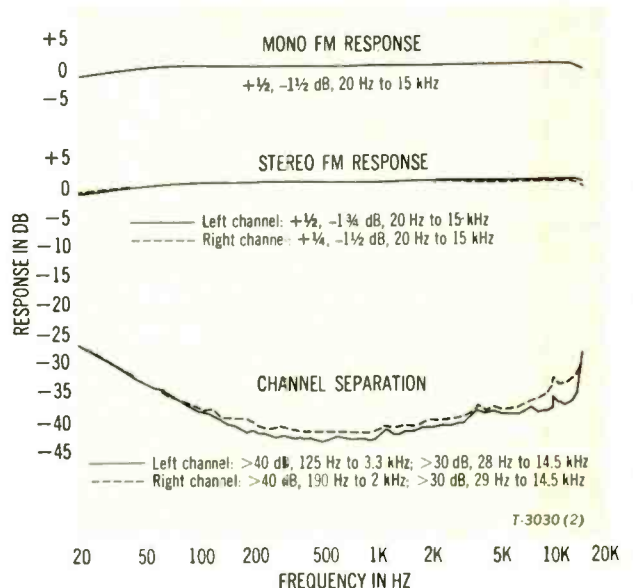
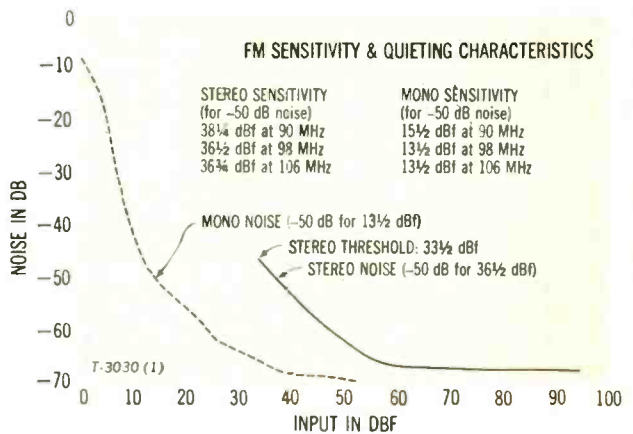
You tune the T-3030 by pressing one of the two buttons that cause it to scan (upward or downward) through the band in 0.1-MHz increments. In the slow-scan mode, it moves about 1 MHz in ¼ seconds—it requires about 1 minute 22 seconds to sweep the entire FM band. When you press QUICK simultaneously, the rate increases, and the tuner slews from 88 to 108 MHz in less than 13 seconds.

During tuning, the output of the T-3030 is squelched, but the five-LED signal-strength display and the stereo indicator alert you to the presence of a station. Since the first LED will not illuminate at signal strengths below 27 dBf, however, many stations that would afford excellent reception (at least 62-dB quieting) in mono slip by unnoticed. To "find" them, you either must know their precise frequency and tune manually or scan the band very slowly, stopping at each possible station and waiting for the tuner to come out of squelch. We find conventional rotary mechanisms more convenient for the purpose. Had JVC chosen 0.2-MHz steps—the closest station spacing allowed by the FCC—the process could have taken only half as long; furthermore, such a design would avoid confusion between stations' quasi-frequency nicknames ("Stereo 101," etc.) and their true tuning (100.9 or 101.1 MHz—or even farther from the nominal).

Seven preset buttons are provided; a single-digit LED display indicates which of the seven has been selected. Presetting your favorite seven stations for the first time is a rather complex procedure but one that is readily accomplished if you follow the manual's instructions precisely. The T-3030 stores the frequencies in a memory, maintaining the settings even when the tuner is switched off and—as with a conventionally tuned receiver—returning at switch-on to the station it was receiving when it was turned off. A battery (with a claimed life of

one year) prevents "amnesia" during power failures. Provided that the battery is changed before it is completely discharged, the batteryless memory will coast for 10 minutes or so and hold your commands during the replacement.

The availability of seven presets is a bit misleading. If you wish to listen to only seven stations, they can be locked in; but



## JVC T-3030 Stereo FM Tuner

Capture ratio	1½ dB			
Alternate-channel selectivity	83½ dB			
S/N ratio (at 65 dBf)	stereo	67½ dB		
	mono	72½ dB		
THD + N	L ch	R ch	Mono	
	80 Hz	0.18%	0.19%	0.085%
	1 kHz	0.17%	0.17%	0.095%
	10 kHz	0.34%	0.34%	0.16%
IM distortion	0.065%			
19-kHz pilot	-65½ dB			
38-kHz subcarrier	-67½ dB			

should you wish to tune manually, the frequency stored in the last preset used will be lost when you do. An example may clarify. Assume you have preset seven stations and have selected Preset 4. You now wish to scan the band. You move the SELECT/MANUAL switch to MANUAL and press one of the scanning buttons. When you do, Preset 4 will be readjusted to the manually tuned frequencies. To return it to its previous setting, you must remember what it was and feed it back into the memory after your manual tuning. The only purpose we find for the SELECT/MANUAL switch is to prevent manual tuning (and hence the loss of presets) in the SELECT mode.

In addition to a fixed-level output pair, the T-3030 affords control of the output level from a second pair of back-panel jacks, which are handy for matching the tuner to the levels fed to the system's preamp by other equipment. A detector-output jack provides for discrete FM quadraphony should such a

system become a reality. Strangely, the only antenna input is for 75-ohm coaxial; if you use a 300-ohm lead-in, you will need a balun to match the T-3030.

You have a choice of two muting levels (plus off). Even in the more sensitive position, however, the tuner rejects a large number of stations that would provide excellent mono reception, so we frequently find ourselves forgoing the muting—especially when scanning. A calibration signal equivalent to a 50% modulation level aids in preadjusting tape-recorder levels, and the high-blend/"antibirdy" switch helps with less-than-perfect reception conditions.

**A high level of performance** is reflected in the laboratory data. The differences in sensitivity across the band suggest some mistracking in the electronic-tuning mechanism, but midband sensitivity is very good and the low end is only about 2 dB less sensitive. The distortion is low—especially in mono—and the capture ratio and alternate-channel selectivity are very good. Frequency response and separation are what we expect from a top-of-the-line tuner.

And the lab data correlate well with our listening tests. The apparent selectivity is excellent: We find no problem separating stations well on alternate and, in most cases, even adjacent channels. With signals of reasonable strength, the sound is extraordinarily clean, and the stereo reception of strong stations is excellent. We suspect that this reflects the T-3030's ability to tune to the station with greater precision than we could do ourselves. We would prefer a conventional meter to the five-LED signal-strength display, which we find less than adequate as an antenna-orienting aid. For that matter, some means of indicating multipath would also be helpful.

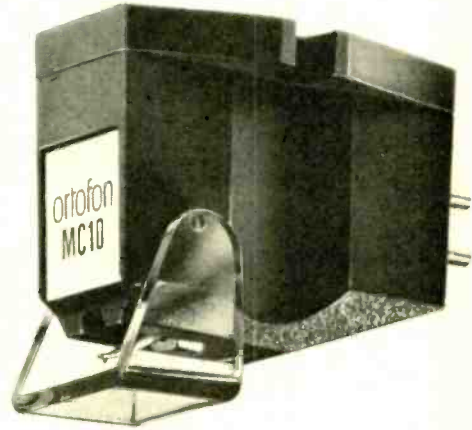
Certainly the JVC here demonstrates the level of technical excellence that can be achieved in a synthesized tuner. Station selection is notably accurate, and—while manual tuning is not so convenient as with conventional techniques—the choice of presets assures you that your favorite stations can be tuned quickly as well as precisely.

# A Moving Coil for the Price of a Moving Magnet

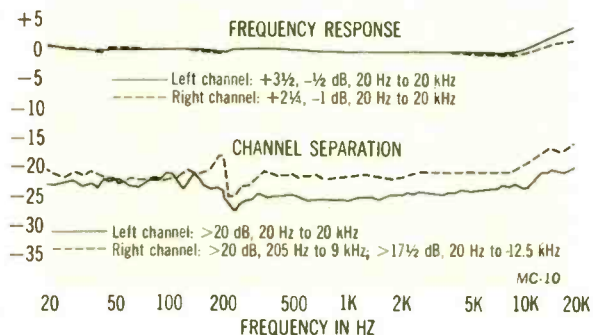
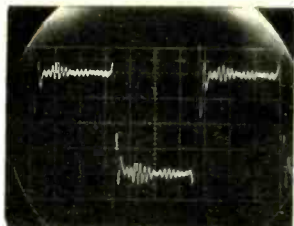
**Ortofon Model MC-10** moving-coil phono pickup, with elliptical stylus. Price: \$125; \$185 with STM-72 matching transformer; optional MCA-76 head amp, \$265. Warranty: "limited," one year parts and labor. Manufacturer: Ortofon Mfg. A/S, Denmark; U.S. distributor: Tannoy-Ortofon, Inc. (Div. of Harman International), 122 Dupont St., Plainview, N.Y. 11803.

As head amps become more commonplace in preamps and even receivers—and they are beginning to—we suspect that more home listeners will want to try moving-coil cartridges and explore for themselves the special quality that many fans and reviewers find in them. One deterrent to this exploration has been the rather steep prices that moving-coil models command. Ortofon has made the cost barrier a good deal less formidable by introducing the MC-10 at a price competitive with high-end fixed-coil types; here at last is a way to get your feet wet without going to the cleaners.

Like most others of its kind, the MC-10 requires what is by today's standards a relatively high vertical tracking force for proper operation. The manufacturer recommends 2 grams,  $\pm 0.3$  gram. Tests performed in the lab indicate that the pickup tracks acceptably at the bottom of this range and even



Square-wave response



### Ortofon MC-10 Moving-Coil Phono Pickup

Sensitivity (at 1 kHz)	0.03 mV per cm/sec
Channel balance (at 1 kHz)	$\pm < 1/4$ dB
Vertical tracking angle	20°
Low-frequency resonance (in SME 3009 arm)	
vertical	11 Hz; 8 1/2 dB rise
lateral	11 Hz; 9 dB rise
Maximum tracking level (re RIAA 0 VU; 1.7 grams VTF)	
300 Hz	+ 12 dB
1 kHz	+ 9 dB
Weight	7.15 grams
Tip dimensions	
tip radii	6.27 by 15.45 micrometers
scanning radii	8.35, 9.40 micrometers

slightly below (although it would be foolish, in our opinion, to let this tempt one into cheating on the specified VTF). The frequency-response curve (as measured through Ortofon's MCA-76 head amp, which presumably supplies ideal loading) is reasonably flat, showing just a hint of a dip in the upper mid-range and a peak near the highest extreme of the audio band-pass. Balance between the channels is accurate to within a fraction of a dB at midband and proves excellent elsewhere as well. Good separation remains throughout the audible band, falling off just a trifle in the highest octave. Square-wave traces at 1 kHz show fairly rapid rise followed by modest overshoot and some ultrasonic ringing.

Measured second-harmonic distortion is kept under good control in the frequency range in which the spurious products are audible. Intermodulation distortion also is well controlled, and the vertical tracking angle is a reasonable match for the nominal values used in cutting most discs.

Mounted in an SME 3009 tone arm, the MC-10 shows a low-frequency resonance that is fairly pronounced but located almost ideally between the lowest audible frequency and the frequency at which disc warps are worst—that is, at the point where it will cause the least trouble. In practice, we found that the Ortofon tracks warps very well indeed and can maintain contact with discs on which warp-induced wow is clearly audible and annoying.

We listened to the MC-10 through our own head amp to maintain consistency with our tests of similar pickups, though the Ortofon head amp used for the lab measurements checked out well; the pickup's separation and distortion data, for example, are not compromised by limitations in the head amp. Overall, we would characterize the MC-10 as one of the brighter-sounding cartridges we have heard. It tends to emphasize sharp transients in a way that lends a little extra definition to prominent rhythmic features and individual vocal and instrumental lines, particularly when the texture is not very dense. Special clarity is thus afforded chamber music. In heavier textures that are complex or massed, the transient emphasis and brightness may strike some as rather excessive and apt to compromise smoothness. Voices, particularly in choruses, take on an edge that makes them seem more emphatic and robust than they could be in reality, and a string orchestra assumes an almost surreal gloss. The stereo image is stable and highly plausible with any program material.

A transducer always leaves its signature on the music it reproduces, and that of the MC-10, though bolder than some, is consistent with artistic quality and integrity. This, in view of the pickup's relatively modest price, represents a considerable achievement.