



Sansui SC-3000 Cassette Deck: Handsome and Highly Capable

The Equipment: Sansui Model SC-3000, a front-loading Dolby stereo cassette deck in metal case. Dimensions: 17 $\frac{3}{8}$ by 6 $\frac{1}{4}$ inches (front panel) by 11 $\frac{1}{2}$ inches deep plus clearance for controls and connections. Price: approx. \$360. Warranty: one year parts, six months labor (exclusive of heads and cosmetic features). Manufacturer: Sansui Electric Co., Ltd., Japan; U.S. distributor: Sansui Electronics Corp., 55-11 Queens Blvd., Woodside, N.Y. 11377.

Comment: As regular readers of these reports know, we have not been very enthusiastic about the rush to front-loading cassette-deck designs since some have tended to be materially more complex or more awkward to use than conventional top-load designs. The SC-3000's well is very much like that of a top-loader; the cassette within it is almost as visible as and the mechanism not much more complex than those of top-loaders, scotching most of the reservations we've had. The styling is fresh and functional and the operation eminently sane. It is, in a word, an attractive product.

To the left of the cassette well is a three-digit counter. To its right are the meters, which are of the averaging type, flanked on the right by phone-jack mike inputs and on the left by three light-emitting diodes: RECORD, DOLBY NR, and PEAK. The first two diodes are simply pilot lights for the indicated function switching; the PEAK LED is designed to light when instantaneous signal levels exceed 6 dB above the meters' indicated 0 VU (which is calibrated at 2 dB below the Dolby-level indication). Thus the averaging meters are designed to read 0 VU at about 4 dB below the DIN 0 VU, while the peak indicator triggers at about 2 dB above DIN 0 VU. These values seem well chosen, as long as the user takes care to allow as little triggering of the LED as possible, since its threshold level is very near the actual midrange overload point of most tapes. Since the meters are only moderately large and their needle action quite quick (the needles "flicker" more than those of professional meters on music with a strong beat) they are not particularly easy to read. We found ourselves using the meters as a rough indication of level and relying almost entirely on the LED for precise setting of the level controls.

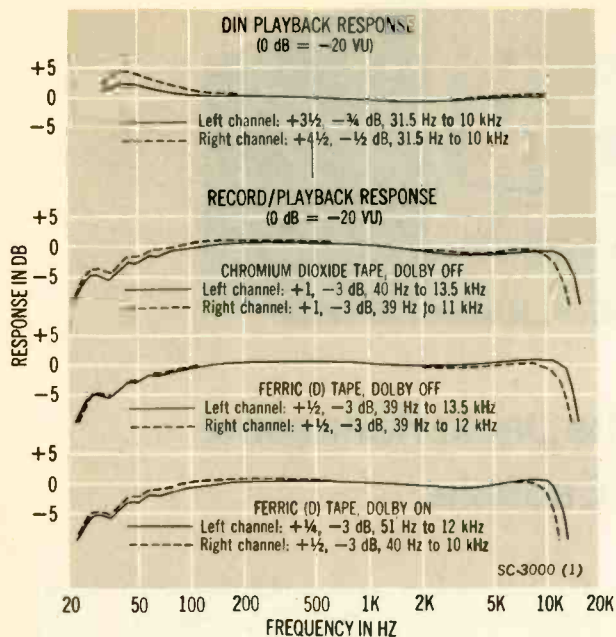
There are three level controls at the bottom right of the front panel. One is for output level; the other two are MIC/LINE controls for each channel. Each controls the line level in one channel until you plug a mike into its input jack, which disconnects the line feed in favor of the mike signal. You cannot mix inputs, though you can record a mono mike signal in one channel and a mono line signal in the

other. Nor can you make one-hand fades in both channels simultaneously without considerable dexterity and practice. (Had Sansui used one knob for level in both channels and the other for interchannel balance, fades would have been easier to manage.)

Next to the knobs are three levers: MEMORY, DOLBY NR, and TAPE SELECTOR. The first controls a memory-rewind feature to stop the tape when the counter reaches 000. It and the Dolby switches have on/off positions, while the tape switch is marked NORMAL (LH)/CHROMIUM. The NORMAL position, Sansui has given us to understand, is adjusted to match TDK D (Dynamic) and similar tapes, and we tested it with D. Both on the bench and in the listening room the match is excellent. But Sansui, like a number of other manufacturers (and this is a subject on which we've commented when we've encountered it in the past), supplies a fairly long list of tapes and recommended switch positions. It should be obvious to the user that not all of these tapes can match the deck with equal success. When we tried Maxell LN, for example, we could hear a slight loss in highs; when we switched to Maxell UD or UD-XL (tapes that, because of their price, the uninitiated might suppose would provide better performance than the modestly priced LN), there was audible emphasis given to the high end. In both cases, of course, use of the Dolby noise reduction exaggerates these nonlinearities slightly. Even so, the differences are so small that they should go unnoticed by all but the really critical listener. But be warned that, if the signals you plan to record already contain audible hiss, the premium ferric tapes may be slightly less satisfactory (because they emphasize the hiss) than the budget types (because they suppress the hiss as they roll off the highs) with the SC-3000 and Dolby.

Similarly, the Sansui table shows TDK SA (Super Avilyn) as usable with the CHROMIUM switch position. We found this to work well with Dolby off (TDK's recommendation, incidentally, where the deck can't be readjusted for Dolby level with SA's output, which is higher than that of chromes), but the dulling of highs with the Dolby circuit on is audible enough that few users would, we think, find SA's premium price justified with this combination. Any chrome tapes we tried proved a good match to the CHROMIUM position with Dolby on. With the TAPE switch set to NORMAL and Dolby on, we found a good match with TDK D, Memorex MRX₂, and Fuji FL.

The transport controls are solid-feeling rectangular levers below the cassette well. (All the controls have excellent "feel," in fact.) You can switch from any motion func-



tion to any other without pressing STOP in between. The STOP lever itself also doubles as the EJECT lever; pressing it will not eject the cassette when the tape is in motion, however—only stop it. A second press is required once the tape is stopped, so that the user can't inadvertently (and annoyingly) eject the cassette during stop-and-go use. This design, which is not uncommon, seems particularly convenient to us. The transport shuts itself off automatically at the end of the tape in any mode.

At the bottom left of the front panel are a stereo headphone jack (whose output level is controlled by the same knob as the line output, of course) and an on/off pushbutton for AC power. On the back panel are pin-jack pairs for line input and line output connections, a DIN input/output connector, and a binding post for a separate ground lead should one be required.

The heart of the drive system is an electronically controlled DC motor. Tests at CBS Technology Center show that even with the line AC lowered to 105 volts the speed accuracy of our sample stays just within Sansui's 2% spec; at higher line voltages the accuracy improves somewhat. (As voltage goes up, speed goes down. This is not surprising, for we have found similar data on other electronically controlled DC-drive products in the past. The explanation is to be found in the response of the control circuit—rather than the motor—to the altered line voltage.) The capstan is mechanically decoupled from the hub-drive system, which may account for the excellent (0.08%, measured by the ANSI/IEEE standard in record/play) wow-and-flutter figure.

Both mechanically and electronically the unit meets Sansui's specs at every point where our bench testing can confirm them. Noise is low, channel separation extremely high, erasure excellent. As mentioned earlier, the record/play response with TDK D tape is extremely flat; with TDK chrome the response is not quite as flat but still is very fine.

In terms of operating convenience and reproduced sound the deck strikes us as excellent. Even head cleaning (which requires removal of the cassette-well door) is almost as easy with this front-loading design as it is with most top-loaders and easier than it is with some top-loaders and many front-loaders. (Sansui supplies a head-cleaning accessory with the unit.)

Sansui SC-3000 Additional Data

Speed accuracy	2.0% fast at 105 VAC	
	1.9% fast at 120 VAC	
	1.7% fast at 127 VAC	
Wow and flutter	playback: 0.06%	
	record/play: 0.08%	
Rewind time (C-60 cassette)		73 sec.
Fast-forward time (same cassette)		73 sec.
S/N ratio (re 0 VU, Dolby off)		
playback	L ch: 55 dB	R ch: 56 dB
record/play	L ch: 53 1/2 dB	R ch: 54 dB
Erasure (333 Hz at normal level)		67 dB
Crosstalk (at 333 Hz)		
record left, play right		58 dB
record right, play left		53 dB
Sensitivity (re DIN 0 VU)		
line input	L ch: 100 mV	R ch: 90 mV
mike input	L ch: 0.60 mV	R ch: 0.53 mV
Meter action (re DIN 0 VU)		
	L ch: 4 dB high	R ch: 3 1/2 dB high
Total harmonic distortion (at -10 VU)		
L ch	<1.3%, 50 Hz to 5 kHz	
R ch	<1.3%, 50 Hz to 5 kHz	
IM distortion (record/play, -10 VU)		
L ch	5.0%	R ch: 4.5%
Maximum output (re DIN 0 VU)		
L ch	0.5 V	R ch: 0.5 V

The features and controls are well thought-out, though there are two fairly obvious omissions: mike/line mixing and Dolby-FM decode/recording switching. It is our impression that relatively few home users actually need the mixing feature, which does add to cost, so Sansui's decision to omit it would appear sensible. The extra Dolby switching presumably would add a little to cost too, but there currently are enough Dolby broadcasters in this country that the feature would appear to be useful. Either feature can be added via outboard equipment of course, though the cost is much higher than that of the built-in equivalents. But these are questions that each designer—and purchaser—must answer for himself. And the basic design decisions—those affecting sound quality—have been very well handled indeed by Sansui.

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 Jensen OPC Model 25 loudspeaker
 Marantz 5420 cassette deck
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