

Scott Model CD-87R Stereo Cassette Deck



MANUFACTURER'S SPECIFICATIONS

Frequency Response: 30 Hz to 14 kHz,
30 Hz to 17 kHz with FeCr and CrO₂
tapes.

Harmonic Distortion: 1.5 per cent.

S/N Ratio: 56 dB.

Input Sensitivity: Mike, 0.5 mV, Line 50
mV.

Output Level: Line, 400 mV, Head-
phone, 1 mW @ 8 ohms.

Wow & Flutter: 0.065 per cent W rms.

Dimensions: 18 3/4 in. (46.6 cm) W x
13 1/4 in. (33.5 cm) D x 5 1/4 in. (13.2 cm)
H.

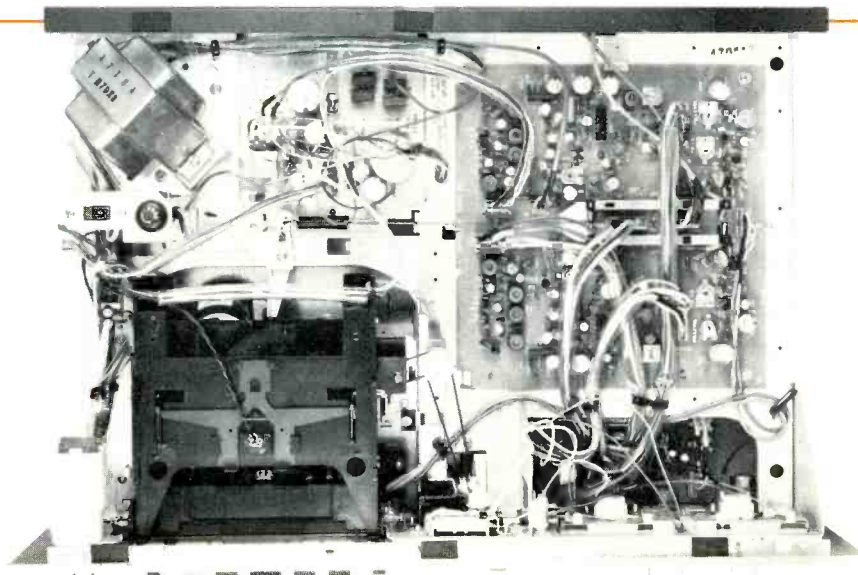
Weight: 18.3 lbs. (8.3 kg).
Price: \$349.95.

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The Scott CD-87R cassette deck has very good basic performance as well as some features not normally available. As a starter, the unit designated CD-87 is mountable in standard racks. (Don't get confused by the fact that the CD-87R is the *non-rack* unit.) Below the counter and its reset and the memory switch is the tape-running indicator which this reviewer found very helpful. Immediately to the right is the *Record* status light. The two level meters are brightly illuminated, but the scales seemed a bit small by current practice. A peak indicator with a +3 threshold is between the meters. In a row below are the two mike phone jacks, a mike-DIN/line switch, a three-position Dolby NR switch to permit having the multiplex filter in or out, separate bias and EQ

switches with positions for normal, FeCr, and CrO₂, and the output and record level controls. The latter is a dual-concentric pot with friction clutching. The knob diameters are a bit on the small side for easy adjustment.

The cassette loading scheme is unique and does seem somewhat magical in operation. Placing a tape in the elevated carrier within the door opening and giving it the slightest push, or closing the clear-plastic door, causes the cassette to zip into position. *Eject* swings the carrier back up snappily, but retains the cassette in the load/unload position. The first judgment was that the action was too vigorous, but throughout the testing the cassettes were always properly seated for play and retained in the carrier on ejection. Ac-



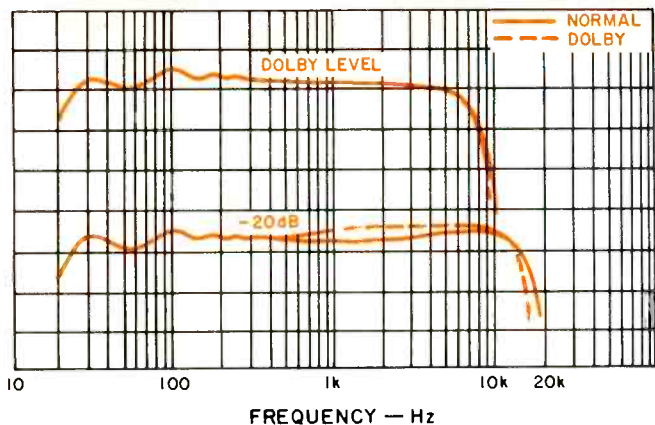


Fig. 1—Frequency response with Scotch Master I tape in normal and Dolby modes.

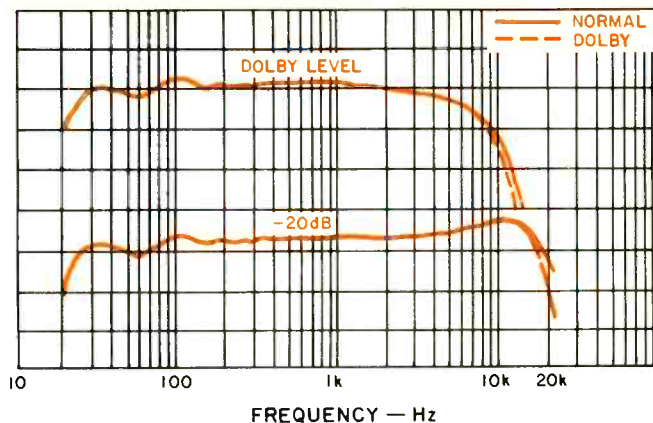


Fig. 2—Frequency response with the Sony FeCr tape in normal and Dolby modes.

cessibility to the heads and capstan drive was adequate with the carrier in the play position and the plastic head cover flipped-up. The lever-action tape motion controls required a firm push, but latched reliably each time. The phone jack is just to the left, with the power switch above.

The line in and out phono jacks are on the back panel, as well as a DIN in/out jack. The flow soldering on the major PCB was excellent, and the hand soldering in other areas was good. Parts identification was good and the adjustments were well labeled. There were three internal fuses, not mentioned in the instruction book.

Performance

The play response of the Scott deck was very good in the middle and high frequencies, but was up to 4 dB down at the lowest frequencies, consistently for three different alignment tapes. Playback of standard reference levels were within 0.5-dB meter indication with the output pot at maximum. BASF Studio, Maxell UDXLI and UDXLII, Scotch Master I, Master II, and Master III, Sony FeCr, and TDK SA all showed good record/playback responses in the pink-noise/RTA checks. Head contour effects were apparent up to about 200 Hz in the swept-sinewave record/playback responses. Scotch Master I had a gently falling response at Dolby level (+3 meter), but headroom still extended to 7.3 kHz (see Fig. 1). With the level 20 dB lower, the upper limit was 16.5 kHz. The response with Dolby was very close at the higher level, but there was a gentle (+1.5 dB) elevation around 2 kHz, and the

high end rolled off at 14.5 kHz. The headroom with Sony FeCr was 6.8 kHz, slightly less than that with Dolby (Fig. 2). The response 20 dB lower extended to 20 kHz with a slight peak at 12 kHz. These excellent results were substantially matched in Dolby mode, with minor discrepancies at the very highest frequencies. The responses for TDK SA were close to those for the Scotch tape (Fig. 3). The multiplex filter was 3 dB down at 16.6 kHz, and the 33-dB notch was at 19.040 kHz. The phase jitter in the playback of a recorded 10-kHz tone was 50 degrees, good for a cassette deck. (The jitter does vary from one cassette to another.)

The CD-87R deck had a low level of distortion products compared to other recorders in its price range, particularly with the CrO₂-type tape, TDK SA. With a 1-kHz test tone, HDL₃ was 1.3 per cent or less at Dolby level for the three tapes tested. At 8 dB lower record level, HDL₃ for TDK SA was approaching 0.1 per cent (Fig. 4). HDL₂ (2nd harmonic distortion level) and HDL₅ (5th) were admirably low with few exceptions. Use of Dolby obtained a reduction in the levels of all distortion products, in contrast with some decks where there is an increase in HDL₂. The plot of HDL₃ vs. frequency for the TDK tape at 10 dB below Dolby level (-7 meter) shows very low distortion except for the lowest frequencies (Fig. 5). The signal-to-noise ratios were excellent for all tapes. With IEC "A" weighting, the figures were 50.3, 55.4, and 55.2 dBA for Scotch Master I, Sony FeCr, and TDK SA, respectively. With a HDL₃ = 3 per cent reference, the results were 57.7, 59.2, and 57.9 dBA. With Dolby, the values were 59.8, 63.2, and 60.2 dBA for the Scotch, Sony, and TDK tapes. With the 3

Fig. 3—Frequency response with TDK SA CrO₂ tape in normal and Dolby modes.

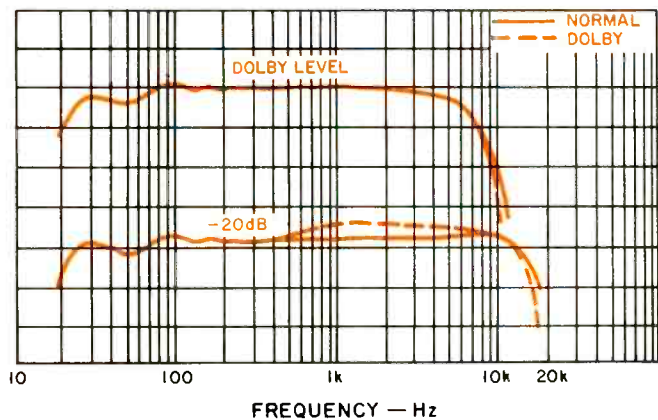
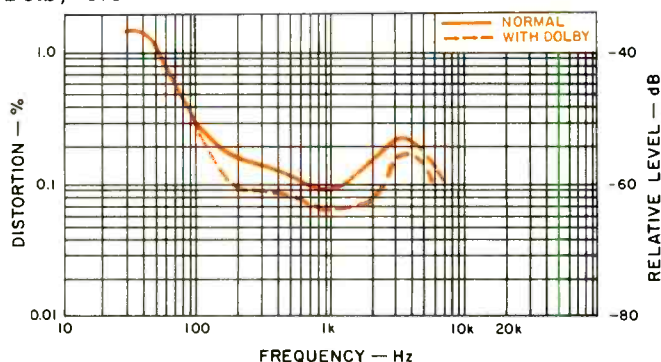
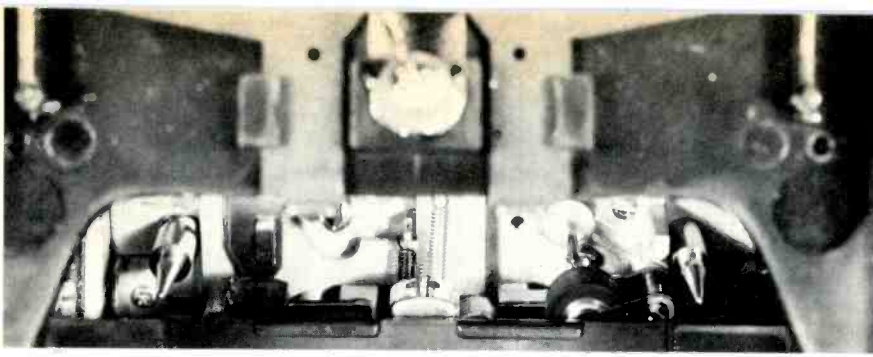


Fig. 4—Third harmonic distortion vs. frequency with TDK SA tape in the normal and Dolby modes at 10 dB below Dolby level.





per cent HDL₃ reference, the figures were 67.8, 67.4, and 63.8 dBA, excellent performance. CCIR weighted figures were 8 dB lower for normal mode, about 5 dB lower with Dolby. Erasure and crosstalk were both at least 80 dB down. Separation from one track to the other was an excellent 50 dB, much better than the typical cassette deck.

Mike input sensitivity was 0.3 mV and that for line was 24 mV, both better than the specifications. Clipping of the input signal appeared at a level equivalent to +16 on the meters. The sections of the input level pot tracked very closely. The friction coupling was slightly tight, somewhat aggravated by the small knob diameter. The output pot also had excellent tracking, and the output at its maximum position was equal to the specified 400 mV with a zero meter indication. The output at the headphone jack was less than the specified 1 mW with an 8-ohm load, but it drove most phones satisfactorily. There is no designation on the face of the meters, but the dynamic response was in accordance with VU meter standards. The scales are not as detailed as some, but they matched set-in attenuation exactly. The "+3" peak indicator threshold was at +5 with a CW signal and at +6 with a 10-mS tone burst. The playback of a standard tape was 0.7 per cent fast with 120 V power. With a reduction to 100 V, the play speed was 0.17 per cent higher; at 130 V, the speed was 0.3 per cent lower. The wow and flutter and speed stability were checked at the beginning, middle, and end of a cassette (Fig. 6). The typical flutter of 0.05 per cent W rms is certainly very good, and within the specified 0.065 per cent but there were a number of peak values close to 0.1 per cent W rms. On an IEEE weighted peak basis, the typical value was 0.07 per cent. The wind times were just over 80 seconds for C-60 cassettes.

Listening and Use Tests

Loading and unloading cassettes was very easy, in general, though a little care was needed. Accidentally pushing a tape slightly when unloading could result in its being loaded again. Pushing the tray in without a cassette required shifting up the two guide rollers at each side of the tray, a somewhat fussy task not mentioned in the instruction book. The cleaning and demagnetization were accomplished with care; it would have helped if there had been additional clearance for the Q-tips and the demagnetizer. The tape motion controls worked reliably through all of the testing, including the concerted effort to make something go wrong. The tape-running indicator was useful, particularly when it was desirable to check what was going on from some distance away.

The text of the instruction book was quite adequate, with the exception of the failure to mention the need to lift the roller guides to push the tray in without a cassette. The illustrations were good, although I would have liked to see more information provided on setting record levels. The playback of recorded music left little to be desired. With Sony FeCr, there was a slight increase in ticks from one record. With TDK SA, there was a very slight increase in presence with Dolby, but this change was very subtle. With these tapes, and the Scotch Master I, there was nothing detrimental detected. The Scott CD-87R does not offer all the features found in some of the other decks in its price range, but this cassette deck does deliver very good record/playback response, low distortion, accurate VU meters, excellent signal-to-noise ratio, and its snappy load/unload scheme. And if rack mounting appeals to you, there's the Scott CD-87, complete with front-panel handles. *Howard A. Roberson*

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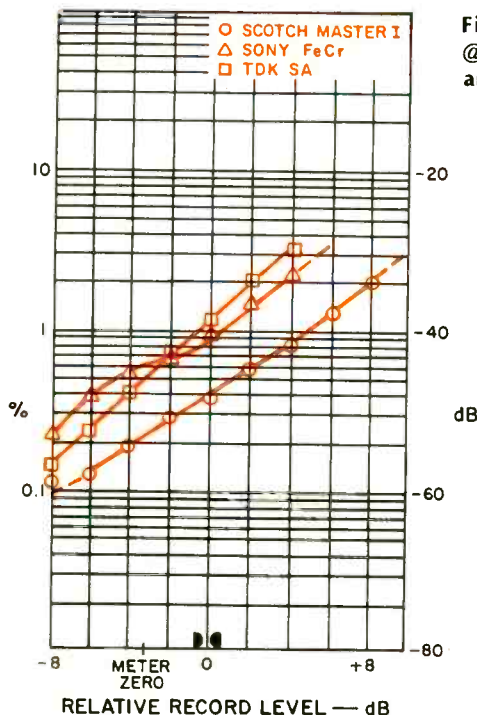


Fig. 5—Third harmonic distortion vs. level @ 1 kHz with Scotch Master I, Sony FeCr, and TDK SA CrO₂ tapes.

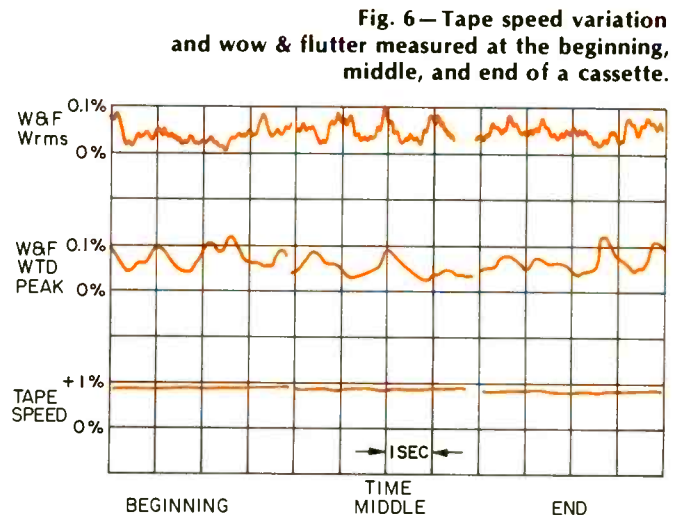


Fig. 6—Tape speed variation and wow & flutter measured at the beginning, middle, and end of a cassette.