

Victor

for Research,
Educational
and Development
Uses

Technical Purpose Records

A description and listing of a series of
talking machine records developed in the
R C A Victor Research Laboratories.



RCA Victor Company, Inc.
Camden, N. J., U. S. A.

Description

The technical purpose records listed herewith were developed for use in the laboratories of the RCA Victor Company, Inc. It is believed that they will be of service in the study of sound and in the development of sound reproducing devices. Hence they are being made commercially available for that purpose.

The records were recorded electrically, with the aid of a vacuum tube oscillator. This was arranged so that the needle traced an essentially pure sine wave path. All record grooves are laterally cut, and will not operate a reproducer of the hill-and-dale type. To secure correct frequencies, the turntable must be rotating at 78 revolutions per minute, with sound box in playing position.

List Price 10-in. Records - - - \$0.75 Each

List Price 12-in. Records - - - \$1.25 Each

(Single records in any series may be purchased.)

Series I—Comprising records carrying constant note frequency bands from 25.5 vibrations per second up to 3000 vibrations per second. Recorded with proper amplitude to produce uniform lateral needle point velocity and equal loudness from 200 vibrations up, and with as great amplitude as possible below this frequency. A most carefully recorded series of pure note records for delicate laboratory tests. Playing time per frequency, 50 seconds.

Size	Catalog No.	Frequency Vib./Sec.	Double Amplitude (Inches)	Max. Velocity (In./Sec.)	Transmission Units (Gain or loss over 1000 Cycle Note)
12-in.	84500-A	{ 25.5	.00777	.622	-12.6
		{ 28.9	.00648	.589	-13.0
12-in.	84500-B	{ 32.4	.00633	.645	-12.2
		{ 37.0	.00716	.833	-10.0
12-in.	84501-A	{ 41.6	.00621	.811	-10.3
		{ 47.4	.00582	.867	- 9.7
12-in.	84501 B	{ 54.3	.00540	.922	- 9.1
		{ 58.0	.00668	1.220	- 6.7
12-in.	84502-A	{ 68.7	.00898	1.86	- 3.1
		{ 70.0	.00722	1.59	- 4.5
12-in.	84502-B	{ 75.3	.00566	1.34	- 5.9
		{ 80.5	.00593	1.50	- 4.9
12-in.	*83500	{ 85	.00587	1.57	- 4.6
		{ 94	.00642	1.92	- 2.8
10-in.	*83000	{ 100	.00407	1.28	- 6.3
		{ 105	.00508	1.68	- 4.0
12-in.	84503-A	{ 110	.00519	1.79	- 3.4
		{ 115	.00412	1.49	- 5.0
		{ 120	.00463	1.75	- 3.6
		{ 125	.00473	1.86	- 3.1
12-in.	84503-B	{ 130	.00450	1.84	- 3.2
		{ 140	.00480	2.11	- 2.0
		{ 150	.00459	2.17	- 1.8
		{ 160	.00433	2.18	- 1.8
12-in.	84504-A	{ 170	.00356	1.91	- 2.9
		{ 180	.00349	1.98	- 2.6
		{ 190	.00347	2.07	- 2.2
		{ 200	.00369	2.32	- 1.1

*Single face. All others double face.

Size	Catalog No.	Frequency Vib./Sec.	Double Amplitude (Inches)	Max. Velocity (In./Sec.)	Transmission Units (Gain or loss over 1000 Cycle Note)
12-in.	84504-B	150	.00494	2.33	- 1.0
		175	.00398	2.19	- 1.6
		200	.00377	2.37	- 0.9
		225	.00373	2.64	0.0
12-in.	84505-A	250	.00329	2.59	- 0.15
		275	.00298	2.57	- 0.2
		300	.00255	2.41	- 0.75
		325	.00237	2.44	- 0.65
12-in.	84505-B	350	.002500	2.75	+ 0.5
		375	.002242	2.64	0.0
		400	.002042	2.57	- 0.2
		425	.001873	2.51	- 0.45
12-in.	84506-A	450	.001867	2.64	0.0
		475	.001835	2.74	+ 0.35
		500	.001880	2.95	+ 1.0
		550	.001660	2.87	+ 0.75
12-in.	84506-B	600	.001585	2.99	+ 1.1
		650	.001445	2.95	+ 1.0
		700	.001323	2.91	+ 0.85
		750	.001227	2.89	+ 0.3
12-in.	84507-A	800	.001071	2.69	+ 0.2
		850	.001032	2.76	+ 0.4
		900	.001020	2.88	+ 0.8
		950	.001000	2.98	+ 1.1
12-in.	84507-B	1000	.000840	2.64	0.0
		1100	.000820	2.83	+ 0.6
		1200	.000763	2.88	+ 0.8
		1300	.000689	2.82	+ 0.6
12-in.	84508-A	1400	.000599	2.64	0.0
		1500	.000558	2.63	0.0
		1600	.000564	2.83	+ 0.6
		1700	.000511	2.73	+ 0.35
12-in.	84508-B	1800	.000454	2.57	- 0.2
		1900	.000444	2.65	0.0
		2000	.000433	2.72	+ 0.3
		2100	.000423	2.79	+ 0.5
12-in.	84509-A	2200	.000375	2.60	- 0.1
		2300	.000365	2.64	0.0
		2400	.000376	2.83	+ 0.6
		2500	.000348	2.74	+ 0.35
12-in.	84509-B	2600	.000333	2.72	+ 0.3
		2700	.000339	2.87	+ 0.75
		2800	.000310	2.73	+ 0.3
		2900	.000265	2.42	- 0.75

Size	Catalog No.	Frequency Vib./Sec.	Double Amplitude (Inches)	Max. Velocity (In./Sec.)	Transmission Units (Gain or loss over 1000 Cycle Note)
12-in.	84510-A	3000	.000263	2.48	- 0.5
		3200	.000281	2.83	+ 0.6
		3400	.000279	2.98	+ 1.1
		3600	.000273	3.09	+ 1.4
12-in.	84510-B	3800	.000222	2.65	0.0
		4000	.000243	3.06	+ 1.3
		4200	.000193	2.55	- 0.3
		4400	.000241	3.33	+ 2.15
12-in.	*83501	4600	.000231	3.34	+ 2.15
		4800	.000234	3.53	+ 2.6
		5000	.000192	3.02	+ 1.2
		5170	.000189	3.07	+ 1.3
12-in.	84511-A	4000	.000203	2.55	- 0.3
		4100	.000212	2.73	+ 0.3
		4200	.000205	2.71	+ 0.25
		4300	.000206	2.78	+ 0.4
12-in.	84511-B	4400	.000178	2.46	- 0.6
		4500	.000173	2.45	- 0.6
		4600	.000173	2.50	- 0.4
		4700	.000170	2.51	- 0.4
12-in.	84512-A	4800	.000160	2.41	- 0.8
		4900	.000144	2.22	- 1.5
		5000	.000144	2.27	- 1.3
		5100	.000141	2.26	- 1.4
12-in.	84512-B	5200	.000144	2.36	- 1.0
		5300	.000136	2.27	- 1.3
		5400	.000129	2.20	- 1.6
		5500	.000149	2.59	- 0.2
12-in.	84513-A	5600	.000143	2.51	- 0.4
		5700	.000141	2.53	- 0.4
		5800	.000140	2.55	- 0.3
		5900	.000130	2.41	- 0.8
12-in.	84513-B	6000	.000114	2.15	- 1.9
		6200	.000113	2.21	- 1.6
		6400	.000102	2.06	- 2.3
		6600	.000107	2.22	- 1.6
12-in.	*83502	6800	.000117	2.51	- 0.4
		7000	.000109	2.40	- 0.8
		7500	.000106	2.50	- 0.4
		8000	.000067	1.69	- 3.9

*Single face. All others double face.

Series II—Provided to complete Series I, from 46 to 225 vibrations per second where constant loudness is required below 200 vibrations. There is a slight decrease in loudness when the frequency gets below 100 vibrations. The marked increase in amplitude is to be noted, and attention is drawn to the fact that the amplitudes are so great on this series that the needle will not track with any except the most delicate reproducing mechanism. Playing time, per frequency, 50 seconds.

Size	Catalog No.	Frequency Vib./Sec.	Double Amplitude (Inches)	Max. Velocity (In./Sec.)	Transmission Units (Gain or loss over 1000 Cycle Note)
12-in.	84514-A	{ 46	.00792	1.15	- 7.2
		{ 50	.00807	1.27	- 6.4
12-in.	84514-B	{ 58	.00835	1.52	- 4.8
		{ 68	.00836	1.79	- 3.5
12-in.	84515-A	{ 75	.00872	2.05	- 2.3
		{ 84	.00771	2.04	- 2.3
12-in.	84515-B	{ 92	.00703	2.09	- 2.1
		{ 125	.00650	2.56	- 0.3
12-in.	84516-A	{ 150	.00686	3.23	+ 1.8
		{ 175	.00464	2.55	- 0.3
12-in.	84516-B	{ 200	.00470	2.95	+ 1.0
		{ 225	.00368	2.60	- 0.1

Series III—This is a condensed form of Series I and Series II, covering frequencies of from 5000 vibrations per second to 46 vibrations per second. The playing time per frequency band is reduced to 15 seconds. These four records carry all essential frequencies in the musical range for aural tests of reproducing systems; or usual class room or experimental work, and are of equal loudness when played on an ideal machine down to 200 vibrations.

AURAL TEST SET

Size	Catalog No.	Frequency Vib./Sec.	Transmission Units (Gain or loss over 1000 Cycle Note)	Frequency Vib./Sec.	Transmission Units (Gain or loss over 1000 Cycle Note)
12-in.	84517-A	5000	+ 1.2	4000	+ 1.3
		4800	+ 2.6	3800	0.0
		4600	+ 2.15	3600	+ 1.4
		4400	+ 2.15	3400	+ 1.1
		4200	- 0.30		
12-in.	84517-B	3200	+ 0.6	2600	+ 0.3
		3000	- 0.5	2500	+ 0.35
		2900	- 0.75	2400	+ 0.6
		2800	+ 0.3	2300	0.0
		2700	+ 0.75		
12-in.	84518-A	2200	- 0.1	1700	+ 0.35
		2100	+ 0.5	1600	+ 0.6
		1900	0.0	1500	0.0
		1800	- 0.2	1400	0.0
12-in.	84518-B	1300	+ 0.6	950	+ 1.1
		1200	+ 0.8	900	+ 0.8
		1100	+ 0.6	850	+ 0.4
		1000	0.0	800	+ 0.2
12-in.	84519-A	750	+ 0.8	500	+ 1.0
		700	+ 0.85	450	0.0
		650	+ 1.0	400	- 0.2
		600	+ 1.1	350	+ 0.5
		550	+ 0.75		
12-in.	84519-B	300	- 0.75	175	- 1.6
		275	- 0.20	150	- 1.0
		250	- 0.15	125	- 5.0
		225	0.0	84	- 6.0
		200	- 0.9		
10-in.	*83001	75	- 7.5	50	-11.4
		68	- 9.1	46	-13.6
		58	-10.0		

*Single face. All others double face.

Series IV—These records have been recorded for use in demonstrating the effect of removal of various parts of the sound frequency spectrum on the characteristics of music, speech and the combination of both. In addition the effect of overloading the amplifiers through which the frequencies pass can be shown. They will be very helpful in training an observer so that he can

better judge types of reproduction and reasons for the various types of distortion.

Size	Catalog No.	Band	MUSIC
12-in.	84520-A		<ol style="list-style-type: none"> 1. Normal range of frequencies. 2. Frequencies below 375 cycles per second eliminated. 3. Frequencies below 1250 cycles per second eliminated. 4. Normal range of frequencies. 5. Frequencies above 2500 cycles per second eliminated. 6. Frequencies above 1250 cycles per second eliminated. 7. Normal range of frequencies.

Size	Catalog No.	Band	SPEECH
12-in.	84520-B		<ol style="list-style-type: none"> 1. Normal range of frequencies. 2. Frequencies below 375 cycles per second eliminated. 3. Frequencies below 1250 cycles per second eliminated. 4. Normal range of frequencies. 5. Frequencies above 2500 cycles per second eliminated. 6. Frequencies above 1250 cycles per second eliminated. 7. Normal range of frequencies.

Size	Catalog No.	Band	MUSIC AND SPEECH
12-in.	84521-A		<ol style="list-style-type: none"> 1. Music, normal range of frequencies (no overloading in amplifier). 2. Music, normal range of frequencies, amplifier overloaded. 3. Music frequencies below 375 and above 2500 cycles per second eliminated, amplifier overloaded. 4. Music, normal range of frequencies (no overloading in amplifier). 5. Speech, normal range of frequencies (no overloading in amplifier). 6. Speech, normal range of frequencies, amplifier overloaded. 7. Speech, frequencies below 375 and above 2500 cycles per second eliminated, amplifier overloaded. 8. Speech, normal range of frequencies (no overloading in amplifier).

Size	Catalog No.	Band	MUSIC AND SPEECH
12-in.	84521-B		<ol style="list-style-type: none"> 1. Music, normal range of frequencies. 2. Music, frequencies below 375 and above 2500 cycles per second eliminated. 3. Music, frequencies below 750 and above 2500 cycles per second eliminated. 4. Music, normal range of frequencies. 5. Speech, normal range of frequencies. 6. Speech, frequencies below 375 and above 2500 cycles per second eliminated. 7. Speech, frequencies below 750 and above 2500 cycles per second eliminated. 8. Speech, normal range of frequencies.