

C-100D Amperex / Collins - Oscillator Tube



Few is known on this vacuum tube made by Amperex for Collins around 1936. It was used for a while in the crystal oscillator of the 32G AM transmitter, before being replaced by a more traditional 6L6. In order to prevent to be sued by RCA, AT&T, Westinghouse and other owners of the rights for the De Forest triode oscillator circuit, Collins reached an agreement with Amperex to produce its own gridless tube. The first one was the [C-100A](#), using external grids according to a patent assigned in 1915 to Dr. Robert Goddard, the same who pioneered the development of rockets. There is also a C-100E, same as C-100D but with 6.3 V filament.

In the C-100D a sort of grid made by eight flat rings is mounted inside the large anode cylinder, very close to its internal wall and very far away from the V-shaped filamentary cathode in the middle. The tube oscillates when biased in a negative resistance region, with 150 V typical on the grid and 75 V an the anode.



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AVERAGE CHARACTERISTICS

Type	Shoe, Size and Base Fig.	Filament		Max. Plate Dissipation W	Plate Resistance Ohms	Amplification Factor	Max. D.C. Plate Voltage V	Max. D.C. Plate Current M.A.	Max. D.C. Grid Current M.A.	Max. Peak-to-Peak Grid Voltage V	Interelectrode Capacitances			Class Service	TYPICAL OPERATION																
		V	A								C _{gp}	C _{cl}	C _{pl}		D.C. Plate Voltage V	D.C. Grid Voltage V	D.C. Plate Current M.A.	D.C. Grid Current M.A.	Plate Loss W	Power Output W	Peak A.C. Grid Volts V	Grid Volts V	and microfarads								
C-100D	A	2.5	2.25	20	100000	18	400	50	50	22	5	2	Oscillator	75	150	3	25 (Neg. Pl. res. 7000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000				
		100	200	6	38 (Neg. Pl. res. 5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000				
C-100E	A	6.3	.92	20	100000	18	400	50	50	22	5	2	Oscillator	75	150	3	25 (Neg. Pl. res. 7000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000		
		100	200	6	38 (Neg. Pl. res. 5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000			
C-101	F	10.0	2.0	75	5500	23	1750	150	30	60	4.5	3.5	1.4	B, AF	1500	52	135	57.0	260	132	12000	12000	12000	12000	12000	12000	12000	12000	12000		
		10.5												B, RF	1500	55	75	1.5	70.0	42	80										
															C, Mod.	1250	250	110	21.0	32.5	105	380									
															C, Tel.	1500	200	150	18.0	55.0	170	340									
															C, Grid Mod.	1500	280	72	1.5	66.0	42	340									
C-120	B	10.0	2.0	75	18000	90	1500	160	40	20	5.2	5.3	3.2	B, AF	1250	0	150	65.0	245	90	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	
		10.5												B, RF	1250	0	95	8.0	75.0	45	55										
															C, Mod.	1000	147	120	21.0	25.0	95	250									
															C, Tel.	1250	135	160	23.0	55.0	145	260									
															C, Grid Mod.	1250	-80	90	7.0	70.0	42	150									
C-200	M	10.5	3.4	150	4000	18	3000	200	60	30	5.8	5.2	1.2	B, AF	2500	140	150	150	450	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	14000	
														B, RF	2500	140	90	150	75												
															C, Mod.	2500	450	140	60	100	250										
															C, Tel.	3000	425	165	60	150	345										
															C, Grid Mod.	2500	425	100	150	100	8000										
C-201	E	10.0	3.25	120	5400	25	1500	200	60	30	9.0	6.0	1.8	B, AF	1250	45	160	75	250	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	
															B, RF	1250	45	110	91.5	46											
															C, Mod.	1250	300	165	50	71	135										
															C, Tel.	1250	125	165	25	71	135										
															C, Grid Mod.	1250	300	120	100	50	2000										
C-202	E	10.0	3.25	120	3400	12	1500	200	60	30	8.0	5.5	2.0	B, AF	1250	100	160	75	250	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	
															B, RF	1250	100	110	91.5	46											
															C, Mod.	1000	260	165	50	55	110										
															C, Tel.	1250	260	165	25	71	135										
															C, Grid Mod.	1250	300	120	100	50	2330										

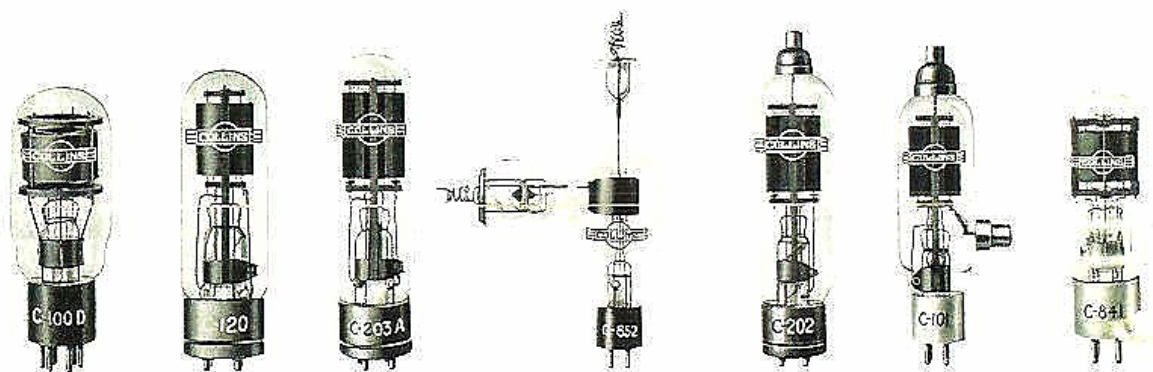


Figure A Max. Overall Dimensions 5 1/8 x 2 Medium 6 Pin Base	Figure B Max. Overall Dimensions 7 x 2-1/16 Standard 50 Watt Base	Figure C Max. Overall Dimensions 7 7/8 x 9-5/16 Standard 50 Watt Base	Figure D Max. Overall Dimensions 8 3/4 x 4 1/4 Medium 4 Pin Base Grid and Plate Flexible Leads	Figure E Max. Overall Dimensions 9 1/8 x 2 5/8 Standard 50 Watt Base Plate Cap	Figure F Max. Overall Dimensions 7-13/16 x 8 Medium 4 Pin Base Grid and Plate Caps	Figure G Max. Overall Dimensions 5 7/8 x 9-1/16 Medium 4 Pin Base
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- Copy of the table containing the characteristics of C-100D and of the 6,3 V version C-100E from a 1938 Collins Power Tube catalog, thanks to John Walker.