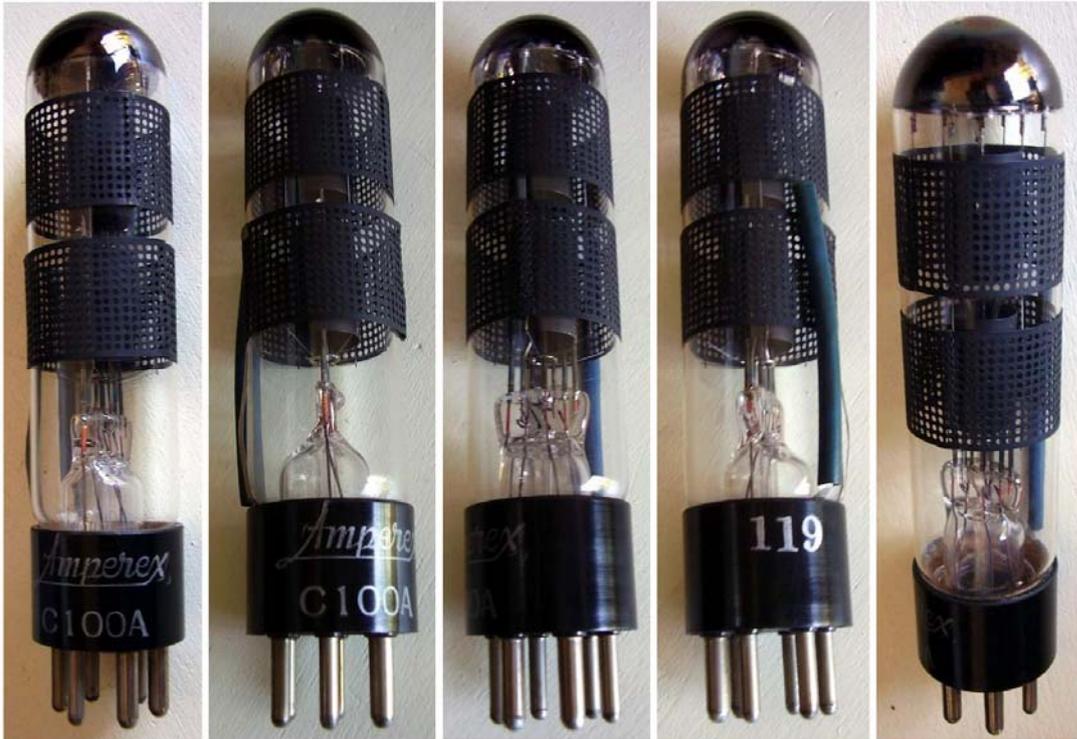


C-100A – External Grid Oscillator



Oscillator tube specifically developed by Collins, in partnership with Amperex, to avoid to be sued for patent infringement by RCA, AT&T, Westinghouse and other owners of the rights for the De Forest triode oscillator circuit. The tube was intended for use in crystal controlled transmitters. Used in 1936 inside the 30FXC transmitter.

It has a special type of control element, an external grid, which reduces the crystal current and contributes toward very persistent and stable oscillation. Manufactured for Collins by Amperex. 2.5 volts at 1.75 amps filament, 225 V typical DC plate voltage at 22 mA, 0.75 W across 10 kohms load. Gain 3.

Used in the Collins 45A transmitter, introduced in 1935, and in the 30FXC set, 1936. Collins bought the patent rights from Dr. Robert Goddard, the same known for his works on the rockets, who had patented this tube in 1915. (Source: Collins Collector Association). U.S. patent no. 1159209.

In the table below, from the site of Collins Radio, the only data available for this rare tube and from TCA Magazine, August 2015 the application circuit as crystal controlled oscillator.

AVERAGE CHARACTERISTICS—COLLINS POWER TUBES

Type	Shape, Size and Base Figure	Filament		Max. Plate W. Dissipation	Plate Resistance Ohms	Amplification Factor	Max. D. C. Plate Voltage	Max. D. C. Plate Current	Max. D. C. Grid Current	Max. Freq. for Full Rating M.C.	Inter-electrode Capacitance			TYPICAL OPERATION									
		V.	A.								Class Service	D. C. Plate Voltage	D. C. Grid Voltage	D. C. Plate Current	D. C. Grid Current	Plate Loss W.	Power Output W.	Peak A. C. Grid Volt.	Load Impedance				
		C _{gp}	C _{gf}																	C _{pt}			
C-204A	I	11	3.85	250	6300	25	2500	.275	.080	3	15	12.5	2.3	B, AF	2000	-60	.250	200	600*	75	9000	8000†	
														B, RF	2000	-70	.160	220	100				
														C Mod	2000	-260	.240	160	320				
														C Tel	2000	-175	.250	150	350				
C-211	M	10	3.25	100	3600	12	1250	.175	.050	6	14.5	6.5	5.5	A, AF	1250	-80	.060	20	260*	75	9000	8000†	
														B, AF	1250	-100	.160	85	100				
														B, RF	1250	-100	.106	90	42.5				
														C Mod	1000	-260	.150	.035	50				100
														C Tel	1250	-225	.150	.018	57.5				130
C-212E	J	14	6.0	275	1900	16	2000	.300	.080	15	18.8	14.9	8.6	A, AF	1500	-57	.167	50	600*	75	9000	8000†	
														B, AF	2000	-120	.275	250	100				
														B, RF	2000	-125	.185	270	100				
														C Mod	1500	-250	.285	100	325				415
														C Tel	2000	-200	.275	100	450				425
C-300	E	11.5	4.0	200	5500	24	3000	.275	.075	60	6.5	6.0	1.4	B, AF	2500	-105	.200	200	600*	75	9000	8000†	
														B, RF	2500	-105	.120	200	100				
														C Mod	2500	-350	.175	.050	127.5				310
														C Tel	2500	-250	.240	.030	200				400
C-100A	O	2.5	1.75	5.0	10000‡	3	250							Oscillator	225‡	.022‡	0.75		10000‡				

* Designates 2 tubes. † Plate to plate impedance. ‡ Oscillating condition. † Effective with 7500 ohms resistance in series with plate supply.

