

RADIO CONSTRUCTORS DATA SHEET

35

BIAS RESISTOR VOLTAGES

The Table lists, to 2 significant figures, voltages across emitter bias or cathode bias resistors for emitter or cathode currents from 0.5 to 100mA. Apart from its use in design work, the Table may also be employed during servicing to determine emitter or cathode current. If, for example, a voltage reading of 23 is given across a 270 Ω cathode bias resistor, the cathode current of the associated valve is slightly in excess of 80mA.

Bias Resistance	EMITTER OR CATHODE CURRENT										
	0.5mA	1mA	2mA	4mA	6mA	10mA	20mA	40mA	60mA	80mA	100mA
1Ω									0.13	0.18	0.1
2.2Ω								0.19	0.28	0.38	0.22
4.7Ω							0.14	0.27	0.41	0.54	0.47
6.8Ω						0.10	0.20	0.40	0.60	0.80	0.68
10Ω											1.0
22Ω					0.13	0.22	0.44	0.88	1.3	1.8	2.2
47Ω				0.19	0.28	0.47	0.94	1.9	2.8	3.8	4.7
68Ω			0.14	0.27	0.41	0.68	1.4	2.7	4.1	5.4	6.8
100Ω		0.10	0.20	0.40	0.60	1.0	2.0	4.0	6.0	8.0	10
220Ω	0.11	0.22	0.44	0.88	1.3	2.2	4.4	8.8	13	18	22
270Ω	0.14	0.27	0.54	1.1	1.6	2.7	5.4	11	16	22	27
330Ω	0.17	0.33	0.66	1.3	2.0	3.3	6.6	13	20	26	33
470Ω	0.24	0.47	0.94	1.9	2.8	4.7	9.4	19	28	38	47
560Ω	0.28	0.56	1.1	2.2	3.4	5.6	11	22	34	45	
680Ω	0.34	0.68	1.4	2.7	4.1	6.8	14	27	41		
820Ω	0.41	0.82	1.6	3.3	4.9	8.2	16	33	49		
1kΩ	0.50	1.0	2.0	4.0	6.0	10	20	40			
1.5kΩ	0.75	1.5	3.0	6.0	9.0	15	30				
2.2kΩ	1.1	2.2	4.4	8.8	13	22	44				
3.3kΩ	1.7	3.3	6.6	13	20	33					

RADIO CONSTRUCTORS DATA SHEET

36

PHASE SHIFT OSCILLATOR C-R VALUES

In a conventional phase shift oscillator the anode or collector couples into a three-stage phase shift network whose output is returned to the grid or base. Each stage consists of a series capacitor C followed by a shunt resistor R and, when all three C's and all three R's are equal, oscillator frequency is equal to $\frac{1}{2\pi\sqrt{6}CR}$.

The Table lists R values to two significant figures for frequencies from 50Hz to 15kHz against values of C from 100pF to 0.5μF.

Frequency	100pF	200pF	500pF	1,000pF	2,000pF	5,000pF	0.01μF	0.05μF	0.1μF	0.5μF
50Hz										
100Hz	6.5MΩ	6.5MΩ	2.6MΩ	1.3MΩ	650kΩ	260kΩ	130kΩ	26kΩ	13kΩ	2.6kΩ
150Hz	4.3MΩ	3.3MΩ	1.3MΩ	650kΩ	330kΩ	130kΩ	65kΩ	13kΩ	6.5kΩ	1.3kΩ
200Hz	3.3MΩ	2.2MΩ	870kΩ	430kΩ	220kΩ	87kΩ	43kΩ	8.7kΩ	4.3kΩ	
300Hz	2.2MΩ	1.6MΩ	650kΩ	330kΩ	160kΩ	65kΩ	33kΩ	6.5kΩ	3.3kΩ	
400Hz	1.6MΩ	1.1MΩ	430kΩ	220kΩ	110kΩ	43kΩ	22kΩ	4.3kΩ	2.2kΩ	
500Hz	1.3MΩ	810kΩ	330kΩ	160kΩ	81kΩ	33kΩ	16kΩ	3.3kΩ	1.6kΩ	
750Hz	870kΩ	650kΩ	260kΩ	130kΩ	65kΩ	26kΩ	13kΩ	2.6kΩ	1.3kΩ	
1kHz	650kΩ	430kΩ	170kΩ	87kΩ	43kΩ	17kΩ	8.7kΩ	1.7kΩ		
2kHz	330kΩ	330kΩ	130kΩ	65kΩ	33kΩ	13kΩ	6.5kΩ	1.3kΩ		
3kHz	220kΩ	160kΩ	65kΩ	33kΩ	16kΩ	6.5kΩ	3.3kΩ			
4kHz	160kΩ	110kΩ	43kΩ	22kΩ	11kΩ	4.3kΩ	2.2kΩ			
5kHz	130kΩ	81kΩ	33kΩ	16kΩ	8.1kΩ	3.3kΩ	1.6kΩ			
7.5kHz	87kΩ	65kΩ	26kΩ	13kΩ	6.5kΩ	2.6kΩ	1.3kΩ			
10kHz	65kΩ	43kΩ	17kΩ	8.7kΩ	4.3kΩ	1.7kΩ				
15kHz	43kΩ	33kΩ	13kΩ	6.5kΩ	3.3kΩ	1.3kΩ				

RADIO CONSTRUCTORS DATA SHEET

38

ABBREVIATIONS — A to L

The Table lists the more commonly employed abbreviations, from A to L inclusive, which are encountered in electronic work.

A	ampere	e.s.u.	electrostatic unit
a.c.	alternating current	eV	electron-volt
a.f.	audio frequency	F	farad
a.f.c.	automatic frequency control	f	frequency
a.g.c.	automatic gain control	f.c.	frequency changer
Ah	ampere-hour	f.m.	frequency modulation
a.m.	amplitude modulation	f.s.d.	full-scale deflection (meter)
a.n.l.	automatic noise limiter	f.s.k.	frequency-shift keying
a.t.u.	aerial tuning unit	f.w.	full wave
a.v.	alternating voltage	gc	conversion conductance
b.f.o.	beat frequency oscillator	gm	mutual conductance
B.S.S. or B.S.	British Standard Specification	H	Henry
C	capacitor or capacitance	h.f.	high frequency
C.C.S.	continuous commercial service rating	h.t.	high tension
c.g.s.	centimetre-gramme-second system of units	h.w.	half wave
c.o.	crystal oscillator	Hz	Hertz (= 1 cycle per second)
c.r.o.	cathode ray oscilloscope	I	current
c.r.t.	cathode ray tube	i.c.w.	interrupted continuous wave
c/s	cycles per second (now superseded by Hz)	i.f.	intermediate frequency
c.w.	continuous wave	i.f.t.	intermediate frequency transformer
dB or db	decibel	i.s.b.	independent sideband
d.c.	direct current	J	Joule
d.c.c.	double cotton covered	K	Kelvin (absolute) temperature
d.p.d.t.	double pole, double throw	kHz	kilohertz (= 1,000 cycles per second)
d.p.s.t.	double pole, single throw	kV	kilovolt
d.r.c.	double rayon covered	kVA	kilovolt-ampere
d.s.b.	double sideband	kVh	kilovolt-hour
d.s.c.	double silk covered	kW	kilowatt
d.v.	direct voltage	kΩ	kilohm
e.c.o.	electron-coupled oscillator	L	inductor or inductance
e.h.f.	extremely high frequency	LC ratio	inductance/capacitance ratio
e.h.t.	extra high tension	l.f.	low frequency
e.m.f.	electromotive force	l.s.	loudspeaker
e.m.u.	electromagnetic unit	l.w.	long wave
e.r.p.	effective radiated power		

RADIO CONSTRUCTORS DATA SHEET

39

ABBREVIATIONS — M to Z

The Table lists the more commonly employed abbreviations, from M to Z, which are encountered in electronic work.

mA	milliampere	r.m.s.	root mean square
mA/V	milliamperes per volt	R/T	radio telephony
m.f.	medium frequency	RTTY	radio teletype
mH	millihenry	Rx	receiver
MHz	megahertz (= 1,000,000 cycles per second)	s/c	short-circuit
m.k.s.	metre-kilogramme-second system of units	s.c.c.	single cotton covered
m.o.	master oscillator	s.f.	signal frequency
mV	millivolt	s.h.f.	super high frequency
m.w.	medium wave	s.p.d.t.	single pole, double throw
MΩ	megohm	s.p.s.t.	single pole, single throw
nF	nanofarad	s.r.c.	single rayon covered
n.f.m. or n.b.f.m.	narrow-band frequency modulation	s.s.b	single sideband
o/c	open-circuit	s.s.c.	single silk covered
osc.	oscillator	s.w.	short wave
P	power	s.w.g.	standard wire gauge
p.a.	public address or power amplifier	s.w.r.	standing wave ratio
p.a.m.	pulse amplitude modulation	T/R	transmit-receive
p.c.m.	pulse code modulation	t.r.f.	tuned radio frequency
p.d.	potential difference	TVI	television interference
pF	picofarad	Tx	transmitter
p.f.m.	pulse frequency modulation	u.h.f.	ultra high frequency
p.i.v.	peak inverse voltage	V	volt
p.m.	pulse modulation or phase modulation	VA	volt-ampere
p-p	peak-to-peak	v.d.r.	voltage dependent resistor
p.p.m.	pulse position modulation or parts per million	v.f.	video frequency or voice frequency
p.r.f.	pulse repetition frequency	v.f.o.	variable frequency oscillator
p.t.f.e.	polytetrafluoroethylene	v.h.f.	very high frequency
p.u.	pick-up	v.l.f.	very low frequency
p.v.c.	polyvinyl chloride	W	watt
Q	quality factor	Wh	watt-hour
R	resistor or resistance	w.p.m.	words per minute
r.c.c.	resistance-capacitance coupling	W/T	wireless telegraphy
r.f.	radio frequency	X	reactance
r.f.c.	radio frequency choke	Z	impedance