

MINIATURE HEPTODE FREQUENCY CHANGER

DK91

*Miniature heptode, primarily intended as frequency changer
in battery-operated receivers, and suitable for A.V.C.*

FILAMENT

This valve is suitable for d.c. operation only.

V_f	1.4	V
I_f	0.05	A

CAPACITANCES

C_{g3-a11}	7.0	$\mu\mu\text{F}$
C_{a-a11}	7.5	$\mu\mu\text{F}$
C_{g1-a11}	3.8	$\mu\mu\text{F}$
C_{g3-a}	< 0.4	$\mu\mu\text{F}$
C_{g3-g1}	< 0.2	$\mu\mu\text{F}$
C_{a-g1}	< 0.1	$\mu\mu\text{F}$

OPERATING CONDITIONS

V_a	45	67.5	90	90	V
V_{g2+g4}	45	67.5	45	67.5	V
V_{g3}	0	0	0	0	V
R_{g1}	100	100	100	100	K Ω
r_a	600	500	800	600	K Ω
g_c	235	280	250	300	$\mu\text{A/V}$
$V_{g3} (g_c = 5 \mu\text{A/V})$	-9	-14	-9	-14	V
I_a	0.7	1.4	0.8	1.6	mA
I_{g2+g4}	1.9	3.2	1.9	3.2	mA
I_{g1}	150	250	150	250	μA
I_k	2.75	5.0	2.75	5.0	mA

OSCILLATOR SECTION

$V_{g1} = V_{g3}$	0	V
$V_{g2} = V_{g4} = V_a$	67.5	V
$g_m (R_{g1} - R_{g2} + R_{g4} + a)$	1.4	mA/V

LIMITING VALUES

V_a max.	90	V
$V_{g2+g4(b)}$ max.	90	V
V_{g2+g4} max.	67.5	V
V_{g3} max.	0	V
$I_{k(0)}$ max.	5.5	mA

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CIRCUITS

Frequency changer circuits employing the DK91, for a medium and long wave receiver and for an all-wave receiver are given on page 3

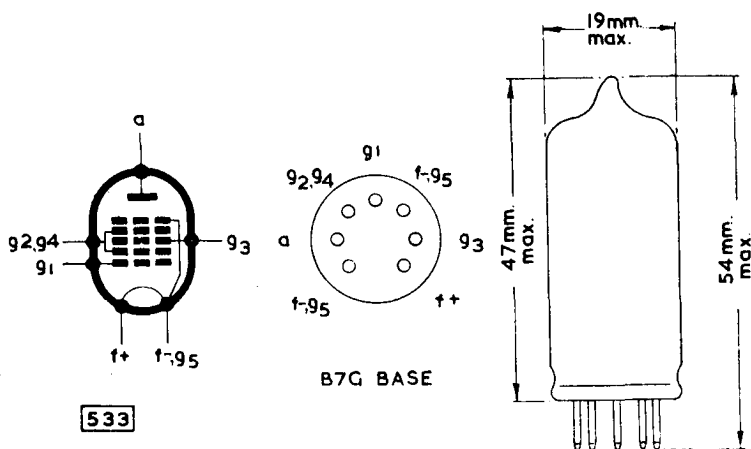
In these circuits—

C designates a decoupling capacitor.

L_c is a filament choke of 12 μ H inductance and with a d.c. resistance of less than 0.5 Ω .

L_B is the booster coil which should be designed to resonate in conjunction with its associated capacitor at a frequency just below the lower limit of the short wave band. For a receiver covering the range 5.8 to 18.7 Mc/s and having an intermediate frequency of 465 kc/s the booster circuit should resonate at 4.75 Mc/s. Suitable values are :
 $C=100 \mu\mu$ F, $L_B=11 \mu$ H.

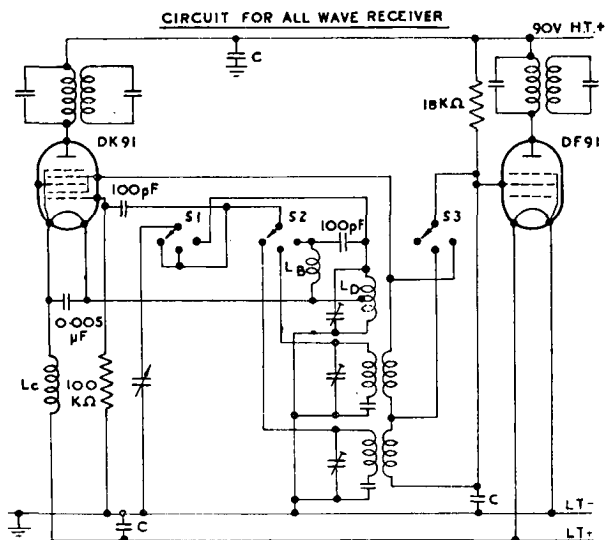
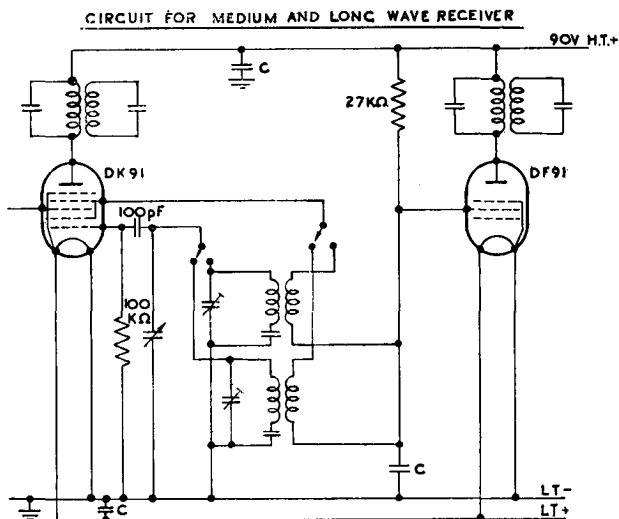
L_D is the short wave coil and should have a Q of approximately 115 at 6.5 Mc/s.



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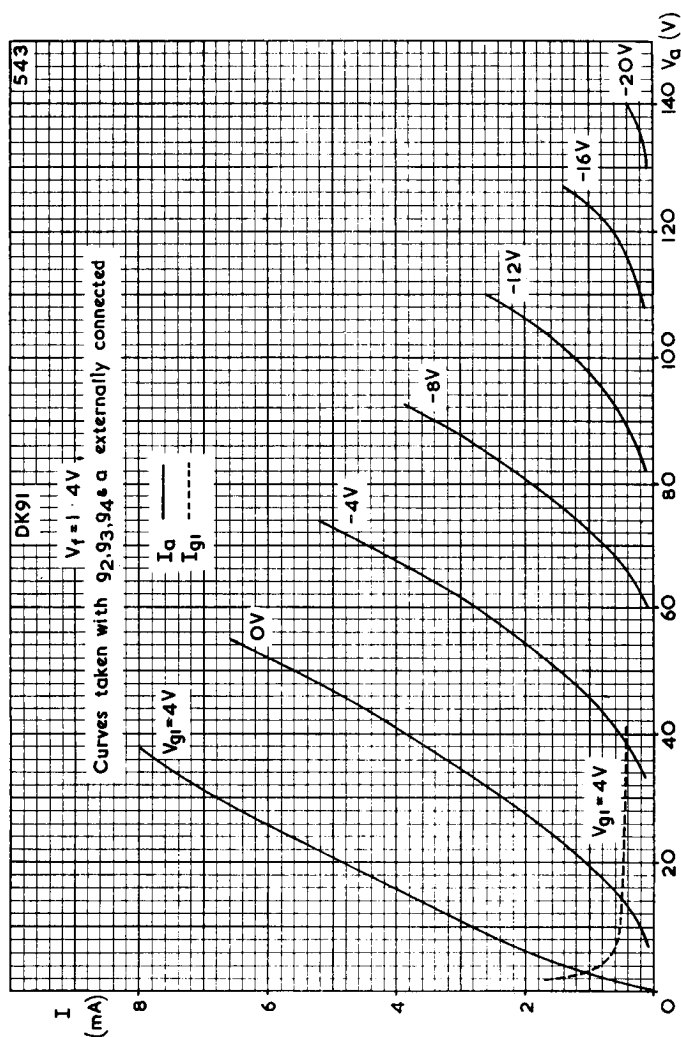
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ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE