

4 VALVE DATA PREFERRED TYPES B FREQUENCY CHANGERS

EAC 91 CHARACTERISTICS

(contd.)

Triode Section

V_a	200	V
I_a	7.5	mA
V_g	-2.8	V
g_m	2.8	mA/V
μ	36	
r_a	12.8	K Ω

OPERATING CONDITIONS

For circuit see Fig. 6, page 57

Coil data :

L1	Turns	3.5
	Coil diameter	10 mm
	Coil length	7 mm
	Diameter of wire	1 mm
L2	Dust cored, to tune to intermediate frequency	
L3	} Dependent upon signal frequency	
L4		

LIMITING VALUES

Triode Section :

V_a max.	250	V
p_a max.	2	W
I_k max.	10	mA
V_{h-k} max.	50	V

Diode Section :

V_a max.	50	V
I_a max.	5	mA

Max. operating frequency as frequency changer	300	Mc/s
Limiting frequency of oscillation	600	Mc/s



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BASE :

B7G

DIMENSIONS :

L=54 mm
D=19 mm

ECH 21 Triode heptode with variable-mu characteristics

HEATER

V_h 6.3 V I_h 0.33 A Suitable for A.C. operation only

CAPACITANCES

Heptode Section

C_{in}	6.8	$\mu\mu F$
C_{out}	9.5	$\mu\mu F$
C_{a-g1}	<0.002	$\mu\mu F$
C_{g3-all}	8.0	$\mu\mu F$

Triode Section

C_{g-k}	3.2	$\mu\mu F$
C_{a-k}	2.0	$\mu\mu F$
C_{a-g}	1.1	$\mu\mu F$



OPERATING CONDITIONS as frequency changer

ECH 21
(contd.)

Heptode Section as Mixer (See Fig. 5, Page 57)

$V_a = V_b$	250	250	V
R_{g2+g4}	22	22	K Ω
R_k	150	150	Ω
R_{g3-gt}	47	47	K Ω
I_{g3+gt}	190	190	μA
V_{g1}	-2	-24.5	V
V_{g2+g4}	100	250	V
I_a	3	—	mA
I_{g2+g4}	6.2	—	mA
r_a	1.4	>3.0	M Ω
g_c	750	7.5	$\mu A/V$
R_{eq}	55	—	K Ω

Triode Section as R.F. oscillator

V_b	250	V
R_{at}	22	K Ω
R_{g3-gt}	47	K Ω
I_{gt+g3}	190	μA
I_a	4.5	mA
g_m (effective)	0.55	mA/V

Characteristics of Triode Section

V_a	100	V
V_g	0	V
I_a	12	mA
g_m	3.2	mA/V
μ	21	

For application as phase inverter and as combined I.F. and A.F. amplifier see Figs. 9, 10 and 11, page 59.

LIMITING VALUES

Heptode Section

$V_{a(b)}$ max.	550	V
V_a max.	300	V
p_a max.	1.5	W
$V_{g2+g4(b)}$ max.	550	V
V_{g2+g4} ($I_a = 3$ mA)	100	V
V_{g2+g4} ($I_a < 1$ mA)	300	V
P_{g2+g4} max.	1	W
I_k max.	15	mA
R_{g1-k} max.	3	M Ω

Triode Section

$V_{a(b)}$ max.	550	V
V_a max.	175	V
p_a max.	0.8	W
V_g max. ($I_g = +0.3 \mu A$)	-1.3	V
R_{g-k} max.	3.0	M Ω



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BASE :

B8G

DIMENSIONS :

L=77 mm

D=32 mm



VALVE DATA PREFERRED TYPES **4** FREQUENCY CHANGERS **B**

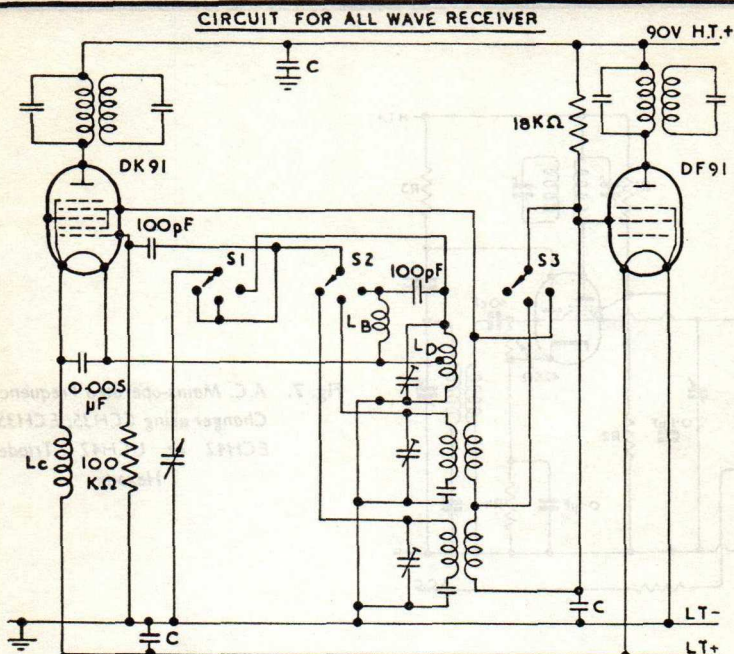


Fig. 4. All-wave Battery-operated Frequency Changer using DK91 Heptode

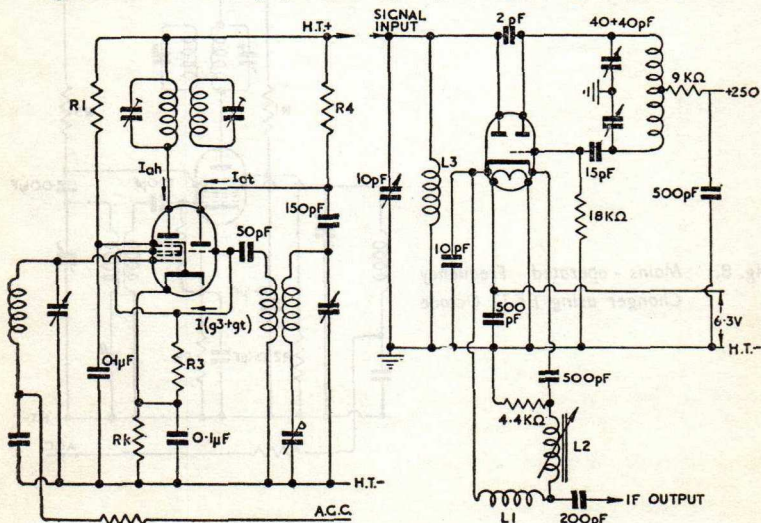


Fig. 5. A.C. Mains-operated Frequency Changer using ECH21 or UCH21 Triode-Hexode

Fig. 6. U.H.F. Mains-operated Frequency Changer using EAC91 Diode-Triode

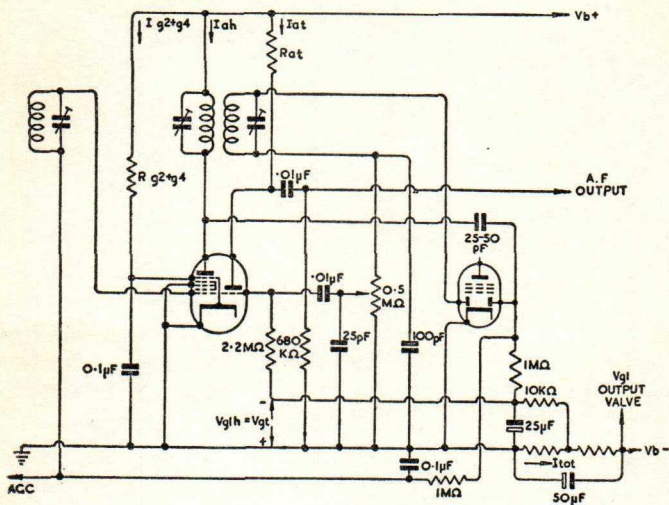


Fig. 9.—Circuit for triode-heptode as combined I.F. and A.F. amplifier.

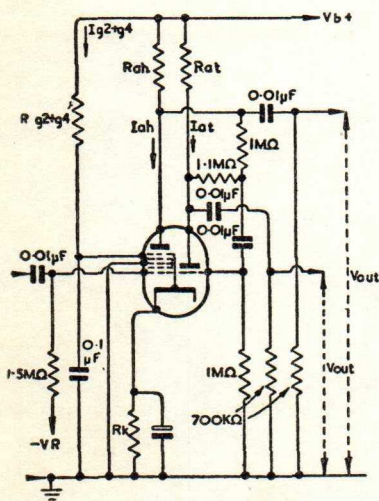


Fig. 10.

Circuit for phase inverter using ECH21 with negative feed-back.

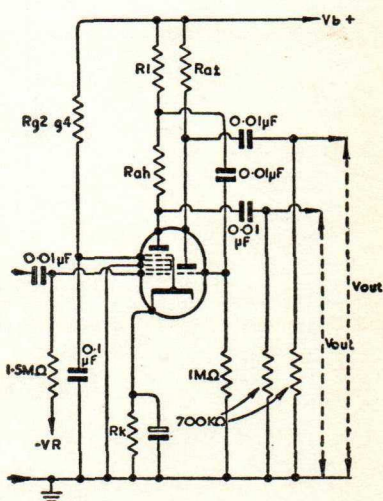


Fig. 11.

Circuit for phase inverter using ECH21 without feed-back.