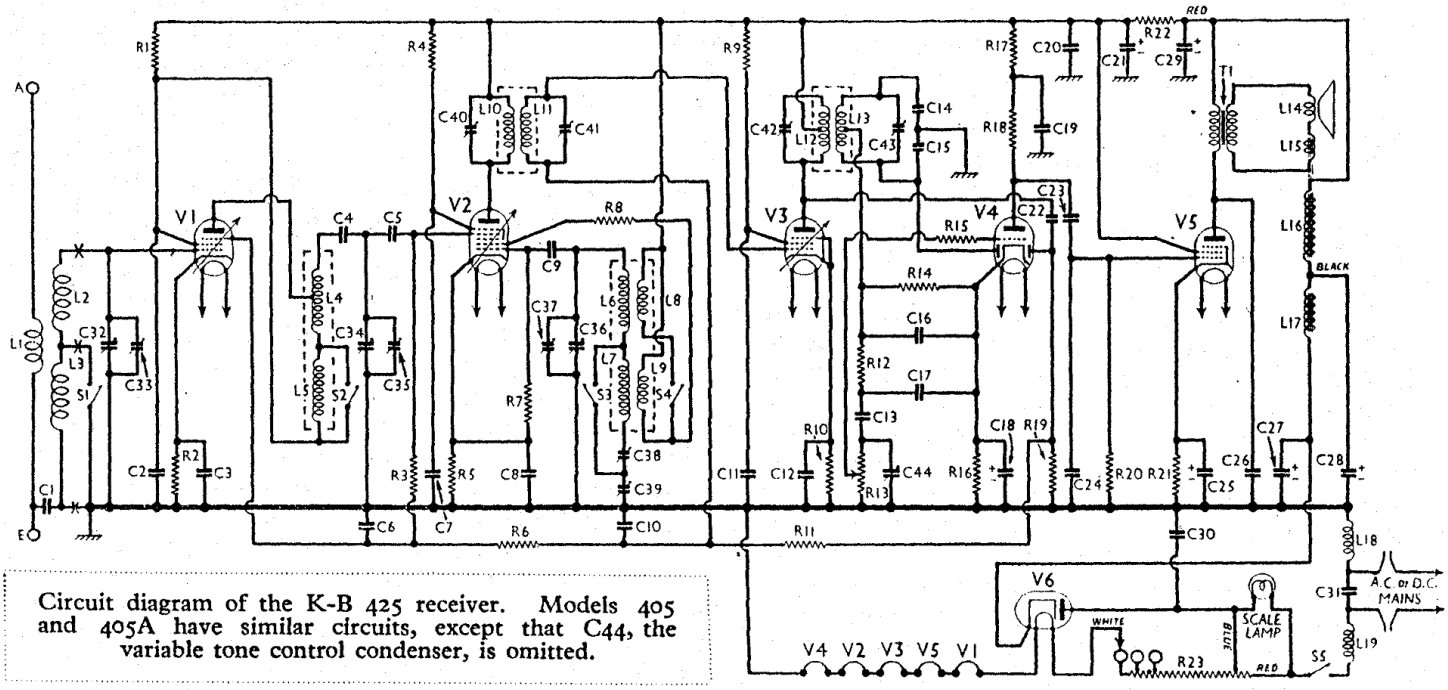
KOLSTER-BRANDES - 425



Circuit diagram of the K-B 425 receiver. Models 405 and 405A have similar circuits, except that C44, the variable tone control condenser, is omitted.

COMPONENTS AND VALUES

	Condensers	Values (μF)
C1	Earth blocking condenser	0·01
C2	V1 S.G. and anode decoupling	0·1
C3	V1 cathode by-pass	0·1
C4	H.T. blocking condenser	0·02
C5	H.F. coupling V1 to V2	0·001
C6	A.V.C. line decoupling	0·1
C7	V2 S.G.'s by-pass	0·5
C8	V2 cathode by-pass	0·1
C9	V2 oscillator C.G. condenser	0·0001
C10	A.V.C. line decoupling	0·1
C11	V3 S.G. by-pass	0·1
C12	V3 cathode by-pass	0·1
C13	L.F. coupling to vol. control	0·02
C14	Small fixed trimmers	0·00002
C15	Small fixed trimmers	0·00002
C16	I.F. by-passes	0·0003
C17	I.F. by-passes	0·0001
C18*	V4 cathode by-pass	25·0
C19	V4 anode decoupling	0·5
C20	H.T. circuit by-pass	0·5
C21*	H.T. smoothing	4·0
C22	Coupling to V4 A.V.C. diode	Very low
C23	L.F. coupling to V5	0·02
C24	V5 grid I.F. by-pass	0·0002
C25*	V5 cathode by-pass	25·0
C26	Tone corrector	0·01
C27*	H.T. smoothing	8·0
C28*	H.T. smoothing	8·0
C29*	H.T. smoothing	4·0
C30	Mains H.F. by-passes	0·01
C31	Mains H.F. by-passes	0·01
C32†	Frame aerial tuning	0·0005
C33‡	Frame aerial trimmer	—
C34†	V1 anode circuit tuning	0·0005
C35‡	V1 anode circuit trimmer	—
C36†	Oscillator tuning	0·0005
C37‡	Oscillator trimmer	—
C38‡	Oscillator L.W. tracker	—
C39‡	Oscillator M.W. tracker	—
C40‡	1st I.F. trans. pri. tuning	—
C41‡	1st I.F. trans sec. tuning	—
C42‡	2nd I.F. trans. pri. tuning	—
C43‡	2nd I.F. trans. sec. tuning	—
C44†	Variable tone control	—

* Electrolytic † Variable ‡ Pre-set.

Scale Lamp.—This is an Osram M.E.S. type, rated at 6.2 V 0.3 A, and connected across part of **R23**.

	Resistances	Values (ohms)
R1	V1 S.G. and anode decoupling	5,000
R2	V1 G.B. resistance	1,000
R3	V2 C.G. resistance	1,000,000
R4	V2 S.G.'s H.T. feed	15,000
R5	V2 fixed G.B. resistance	500
R6	V2 A.V.C. line decoupling	100,000
R7	V2 oscillator C.G. resistance	25,000
R8	V2 oscillator anode resistance	2,500
R9	V3 S.G. H.T. feed	15,000
R10	V3 fixed G.B. resistance	1,000
R11	A.V.C. line decoupling	100,000
R12	I.F. stopper	100,000
R13	Manual volume control	500,000
R14	V4 signal diode load	250,000
R15	V4 grid I.F. stopper	100,000
R16	V4 G.B. resistance	7,000
R17	V4 anode decoupling	100,000
R18	V4 anode load	100,000
R19	V4 A.V.C. diode load	500,000
R20	V5 C.G. resistance	250,000
R21	V5 G.B. resistance	500
R22	V1, V2, V3 and V4 H.T. feed	300
R23	Heater circuit ballast, total	550

	Other Components	Approx. Values (ohms)
L1	External aerial-earth coupling	0·1
L2	Frame aerial	1·5
L3	Frame aerial	4·0
L4	V1 anode circuit tuning coils	—*
L5	V1 anode circuit tuning coils	20·0
L6	Oscillator tuning coils	4·0
L7	Oscillator tuning coils	13·0
L8	Oscillator reaction coils	5·0
L9	Oscillator reaction coils	18·0
L10	1st I.F. trans. Pri.	75·0
L11	1st I.F. trans. Sec.	75·0
L12	2nd I.F. trans. Pri. total	75·0
L13	2nd I.F. trans. Sec. total	75·0
L14	Speaker speech coil	1·8
L15	Hum neutralising coil	0·1
L16	Speaker field coil	1,000·0
L17	H.T. smoothing choke	220·0
L18	Mains filter chokes	1·5
L19	Mains filter chokes	1·5
T1	Speaker input trans. Pri.	300·0
T1	Speaker input trans. Sec.	0·2
S1-S4	Waveband switches	—
S5	Mains switch, ganged R13	—

* Has internal series condenser.

Chokes L18, L19.—These are beneath the chassis, at the rear, and are wound in a single unit. The two black leads emerging are those of **L18**, and the two yellow leads, **L19**.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on A.C. mains of 225 V, using the 225 V tapping. The volume control was at maximum and the set was tuned to the lowest wavelength on the medium band, but there was no signal input, the frame connections being shorted together.

Should the receiver prove unstable when making measurements, as in our case, this can be cured by connecting 0.1 μF condensers from the **V2** anode to chassis and from the electrode concerned to chassis.

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 9D2*	126	4·6	128	1·4
V2 15D1	155	1·1	85	5·1
V3 9D2	155	5·0	130	1·3
V4 11D3	65	0·2	—	—
V5 7D3	157	32·0	157	6·2
V6 1D5	245†	—	—	—

* Osc. anode (G2) 132V, 6·9 mA

† Cathode to chassis, D.C.

GENERAL NOTES

Switches.—The waveband switches, **S1-S4**, are in a single unit, seen in the underchassis view. All are *closed* on the M.W. band and *open* on the L.W. band.

S5 is the Q.M.B. mains switch ganged with the volume control **R13**.

Coils.—These, with the exception of **L1-L3** (frame aerial), are in four screened units on the chassis deck, the two smaller ones containing the I.F. transformers, but not their associated trimmers. The **L4, L5** unit also contains **C4, C5** and **R3**.