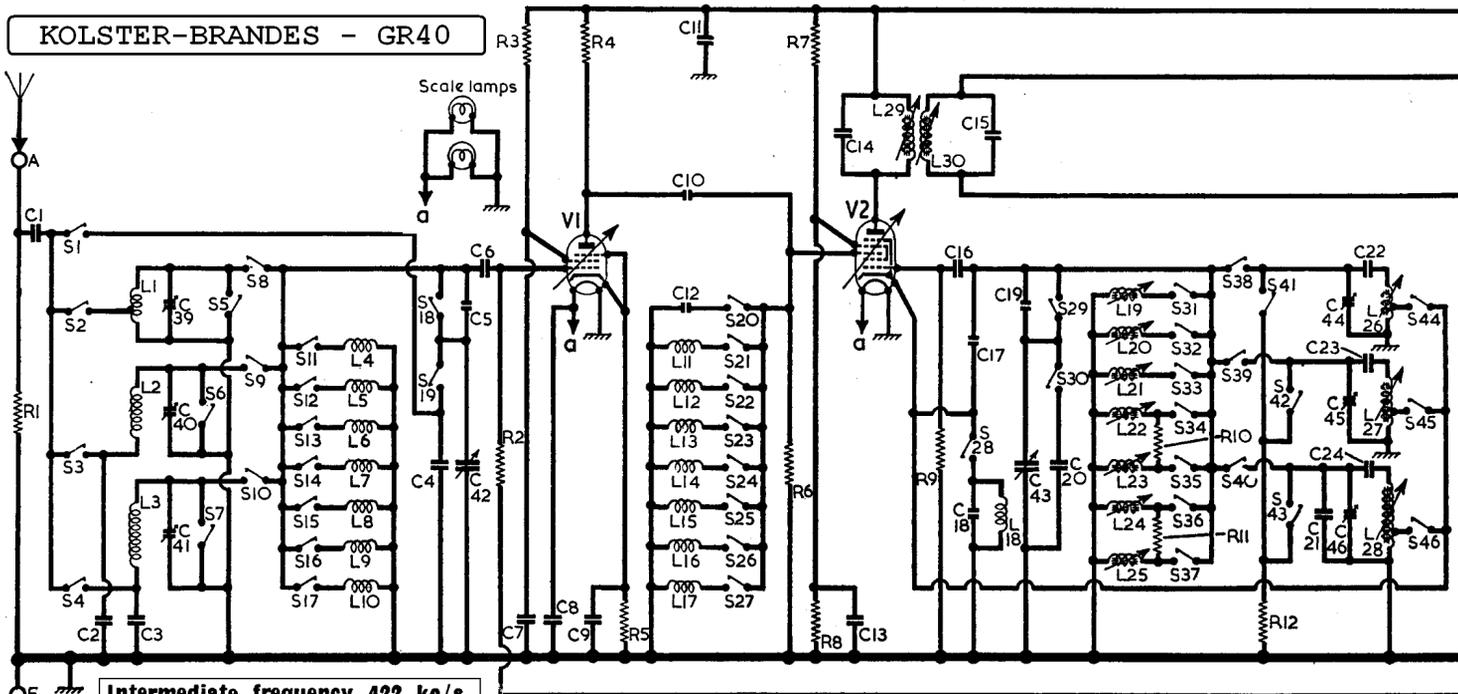
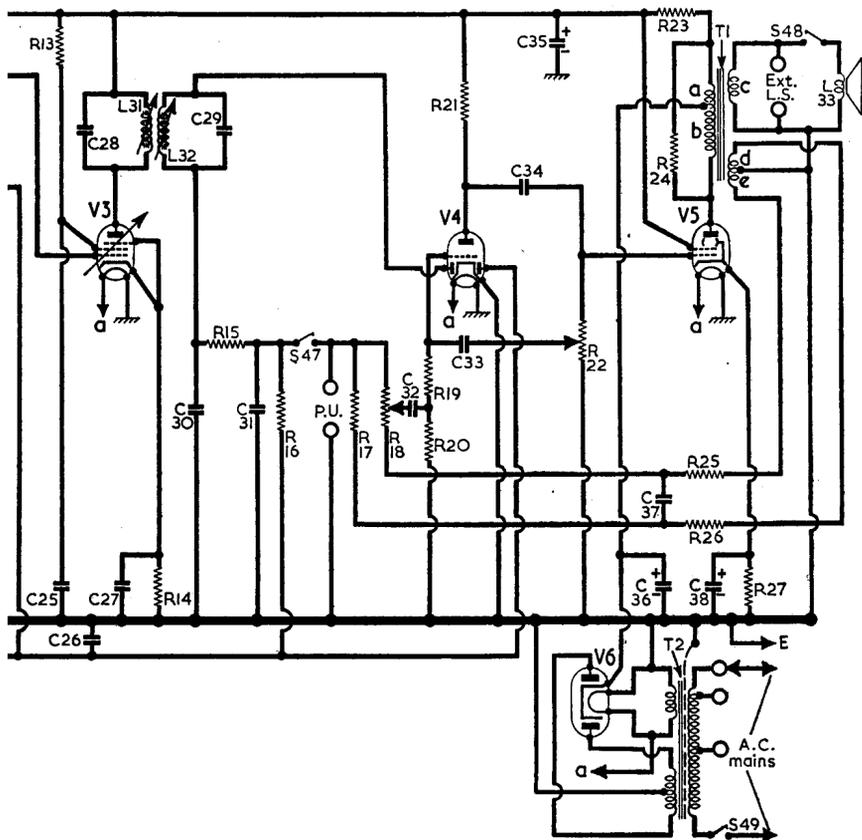


KOLSTER-BRANDES - GR40



Intermediate frequency 422 ko/s.



RESISTORS		Values	Locations
R1	Mod. hum shunt ...	10kΩ	F5
R2	V1 C.G. ...	220kΩ	E4
R3	V1 S.G. feed ...	33kΩ	E4
R4	V1 anode load ...	15kΩ	E4
R5	V1 G.B. ...	68Ω	E4
R6	V2 C.G. ...	220kΩ	E4
R7	V2 S.G. pot. divider	10kΩ	E4
R8		27kΩ	E4
R9		22kΩ	E4
R10	Oscillator damping	15kΩ	E5
R11		10kΩ	F5
R12	Oscillator shunt ...	100Ω	E5
R13	V3 S.G. feed ...	33kΩ	D4
R14	V3 G.B. ...	68Ω	D4
R15	I.F. stopper ...	47kΩ	D4
R16	A.G.C. decoupling ...	2MΩ	D4
R17	Feed-back neut. ...	4.7MΩ	D3
R18	Volume control ...	5MΩ	D3
R19	V4 C.G. ...	100kΩ	D3
R20		10MΩ	D3
R21	V4 anode load ...	470kΩ	D4
R22	Tone control ...	500kΩ	C3
R23	H.T. smoothing ...	820Ω	C3
R24	T1 shunt ...	47kΩ	C3
R25	Neg. feed-back ...	240Ω	D3
R26		2.2kΩ	C3
R27		240Ω	D3

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 6BA6	75	7.0	100	3.0	0.7
V2 6BE6	190	3.4	90	6.4	—
V3 6BA6	190	8.0	95	3.0	0.7
V4 6AT6	57	0.28	—	—	—
V5 6V6GT	220	36.0	190	3.0	9.0
V6 6X4	200†	—	—	—	223.0

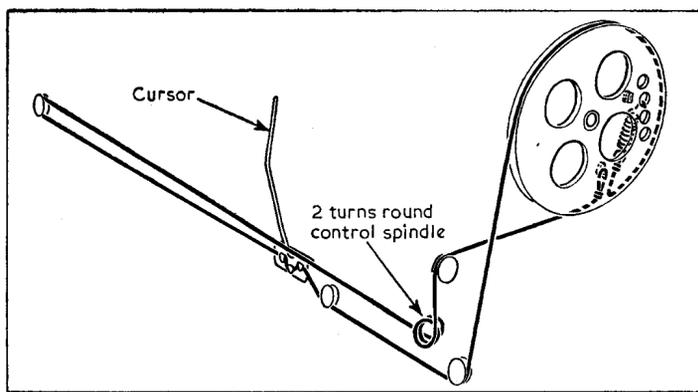
† A.C. voltage each anode.

DRIVE CORD REPLACEMENT

Six feet of nylon braided glass yarn is required for a new tuning drive cord, which should be run as shown in the accompanying sketch. Here the complete system is shown as seen when viewed from the front right-hand corner of the chassis, with the gang at maximum capacitance.

Four anchor holes are provided in the gang drum for the tension spring, so the actual length of cord is not very critical, and the length we give leaves an ample margin for tying off. The cursor can be fitted afterwards, and should be adjusted so that it covers the white dot at the high wavelength ends of the scales when the gang is at maximum capacitance.

Sketch showing the course followed by the tuning drive cord. It is drawn as seen from the front right-hand corner of the chassis, with the gang at maximum.



**KOLSTER-BRANDES
GR40**

CIRCUIT ALIGNMENT

I.F. Stages.—Remove chassis from cabinet and connect output of signal generator, via an 0.1 μ F capacitor in the "live" lead, to control grid (pin 7) of V2 and chassis. Tune receiver to highest wavelength end of M.W. and turn volume control to maximum. Feed in a 422 kc/s (710.8 m) signal and adjust the cores of L32 (location reference B1), L31 (D4), L30 (B2) and L29 (D5) for maximum output. Repeat these adjustments.

R.F. and Oscillator Stages.—The following adjustments can be made without removing the chassis from its cabinet. Check that with the gang at maximum capacitance, the cursor coincides with the white dots in the ends of the tuning scales. Connect output of signal generator via a suitable dummy aerial to A and E sockets. When adjusting aerial trimmers, "rock" gang for optimum results.

L.W.—Switch set to L.W., tune to white calibration dot at 175 kc/s, feed in a 175 kc/s (1,714 m) signal and adjust the core of L28 (A2) for maximum output. Tune set to 250 kc/s, feed in a 250 kc/s (1,200 m) signal and adjust C46 (A2) and C41 (A1) for maximum output. Repeat these operations until the calibration is correct at both ends of band.

M.W.—Switch set to M.W., tune to 500 m, feed in a 500 m (600 kc/s) signal and adjust the core of L27 (A2) for maximum output. Tune set to 214.3 m, feed in a 214.3 m (1,400 kc/s) signal and adjust C45 (A2) and C40 (A1) for maximum output. Repeat these adjustments until calibration is correct at both ends of the band.

S.W.—Switch set to Trawler band, tune to 2 Mc/s, feed in a 2 Mc/s (150 m) signal and adjust the core of L26 (A2) for maximum output. Tune set to 4.5 Mc/s, feed in a 4.5 Mc/s (66.67 m) signal and adjust C44 (A2) and C39 (A1) for maximum output. Repeat these adjustments until calibration is correct at both ends of band.

49 m.—Switch set to 49 m, tune to 6.1 Mc/s, feed in a 6.1 Mc/s (49.18 m) signal and adjust the core of L19 (A2) for maximum output.

42 m.—Switch set to 42 m, tune to 7.2 Mc/s, feed in a 7.2 Mc/s (41.67 m) signal and adjust the core of L20 (A2) for maximum output.

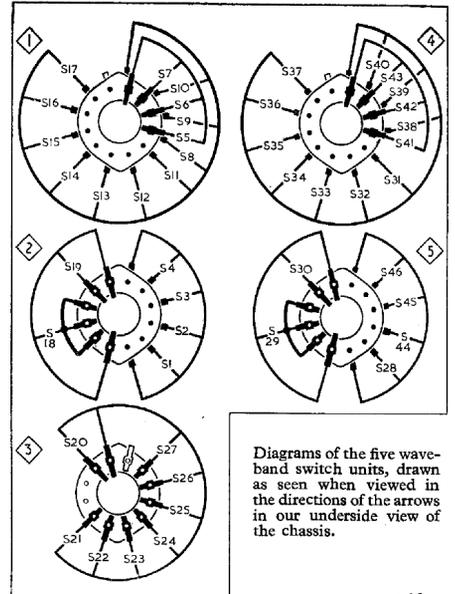
31 m.—Switch set to 31 m, tune to 9.6 Mc/s, feed in a 9.6 Mc/s (31.25 m) signal and adjust the core of L21 (A2) for maximum output.

25 m.—Switch set to 25 m, tune to 11.8 Mc/s, feed in a 11.8 Mc/s (25.42 m) signal and adjust the core of L22 (A2) for maximum output.

CAPACITORS		Values	Locations
C1	Aerial series ...	0-005 μ F	F5
C2	M.W. coupler ...	0-005 μ F	E3
C3	L.W. coupler ...	0-005 μ F	E3
C4	Band-spread trim. ...	100pF	F3
C5	Band-apreader ...	40pF	F3
C6	V1 C.G. ...	100pF	E4
C7	V1 S.G. decoup. ...	0-02 μ F	E4
C8	Heater by-pass ...	0-1 μ F	E4
C9	V1 cath. by-pass ...	0-02 μ F	E4
C10	R.F. coupling ...	25pF	E4
C11	H.T. decoupling ...	2 μ F	E3
C12	Band-spread tune...	34pF	E4
C13	V2 S.G. decoup. ...	0-02 μ F	E4
C14	1st I.F. trans. tuning ...	250pF	B2
C15		250pF	B2
C16	V2 osc. C.G. ...	100pF	E5
C17	Oscillator coupling ...	20pF	E5
C18		60pF	E4
C19	Band-spread ...	\$40pF	E5
C20	Band-spread trim. ...	100pF	F5
C21	L.W. osc. trim. ...	100pF	E5
C22	S.W. osc. tracker ...	0-002 μ F	E4
C23	M.W. osc. tracker ...	550pF	E5
C24	L.W. osc. tracker ...	200pF	E5
C25	V3 S.G. decoup. ...	0-02 μ F	D4
C26	A.G.C. decoupling ...	0-02 μ F	D5
C27	V3 cath. by-pass ...	0-1 μ F	D5
C28	2nd I.F. trans. tuning ...	250pF	B1
C29		250pF	B1
C30	I.F. by-passes ...	100pF	D4
C31		100pF	D4
C32	A.F. coupling ...	0-005 μ F	D3
C33	Part tone control ...	100pF	D3
C34	A.F. coupling ...	0-02 μ F	D3
C35*	H.T. smoothing ...	32 μ F	B1
C36*		31 μ F	B1
C37	Neg. feed-back ...	0-1 μ F	D3
C38*	V5 cath. by-pass ...	25 μ F	C4
C39†	S.W. aerial trim. ...	—	A1
C40†	M.W. aerial trim. ...	—	A1
C41†	L.W. aerial trim. ...	—	A1
C42†	Aerial tuning ...	—	A1
C43†	Oscillator tuning ...	—	A1
C44†	S.W. osc. trim. ...	—	A2
C45†	M.W. osc. trim. ...	—	A2
C46†	L.W. osc. trim. ...	—	A2

* Electrolytic. † Variable. ‡ Pre-set. § 33pF + 7pF (negative temp. coeff.), in parallel.

OTHER COMPONENTS		Approx. Values (ohms)	Locations	
L1	Aerial tuning coils	1-6	E3	
L2		3-0	E3	
L3		35-0	E4	
L4		—	F3	
L5		—	F4	
L6		—	F3	
L7		Band-spread aerial tuning coils ...	—	F4
L8			—	F3
L9			—	F4
L10			—	F3
L11	—	F4		
L12	—	F4		
L13	—	F4		
L14	Band-spread R.F. tuning coils ...	—	F4	
L15		—	F4	
L16		—	F4	
L17		—	F4	
L18	B-s osc. coup. ...	10-0	E5	
L19		—	E5	
L20	Band-spread osc. tuning coils ...	—	F4	
L21		—	F4	
L22		—	F5	
L23		—	F5	
L24	—	F5		
L25	—	F5		
L26	Oscillator tuning coils ...	1-2	E5	
L27		4-0	E5	
L28		9-5	E5	
L29	1st I.F. trans. { Pri. ...	5-0	B2	
L30		5-0	B2	
L31	2nd I.F. trans. { Pri. ...	5-0	B1	
L32		5-0	B1	
L33	Speech coil ...	2-8	—	
T1	O.P. trans. { a ...	2-0	—	
		b ...	200-0	—
		c ...	—	B1
		d ...	3-0	—
		e ...	1-0	—
T2	Primary, total ...	30-0	—	
	H.T. sec., total ...	216-0	B1	
	Heater secondary ...	—	—	
S1-	Waveband switches	—	E3	
S46		P.U. switch ...	—	D5
S47		Int. L.S. switch ...	—	D5
S48		Mains sw., g'd R22	—	C3
S49		—	—	—



Diagrams of the five waveband switch units, drawn as seen when viewed in the directions of the arrows in our underside view of the chassis.

associated switch table

Switch	L.W.	M.W.	S.W.	49 m	42 m	31 m	25 m	19 m	16 m	13 m
S1	—	—	—	—	—	—	—	—	—	—
S2	—	—	—	—	—	—	—	—	—	—
S3	—	—	—	—	—	—	—	—	—	—
S4	—	—	—	—	—	—	—	—	—	—
S5	—	—	—	—	—	—	—	—	—	—
S6	—	—	—	—	—	—	—	—	—	—
S7	—	—	—	—	—	—	—	—	—	—
S8	—	—	—	—	—	—	—	—	—	—
S9	—	—	—	—	—	—	—	—	—	—
S10	—	—	—	—	—	—	—	—	—	—
S11	—	—	—	—	—	—	—	—	—	—
S12	—	—	—	—	—	—	—	—	—	—
S13	—	—	—	—	—	—	—	—	—	—
S14	—	—	—	—	—	—	—	—	—	—
S15	—	—	—	—	—	—	—	—	—	—
S16	—	—	—	—	—	—	—	—	—	—
S17	—	—	—	—	—	—	—	—	—	—
S18	—	—	—	—	—	—	—	—	—	—
S19	—	—	—	—	—	—	—	—	—	—
S20	—	—	—	—	—	—	—	—	—	—
S21	—	—	—	—	—	—	—	—	—	—
S22	—	—	—	—	—	—	—	—	—	—
S23	—	—	—	—	—	—	—	—	—	—
S24	—	—	—	—	—	—	—	—	—	—
S25	—	—	—	—	—	—	—	—	—	—
S26	—	—	—	—	—	—	—	—	—	—
S27	—	—	—	—	—	—	—	—	—	—
S28	—	—	—	—	—	—	—	—	—	—
S29	—	—	—	—	—	—	—	—	—	—
S30	—	—	—	—	—	—	—	—	—	—
S31	—	—	—	—	—	—	—	—	—	—
S32	—	—	—	—	—	—	—	—	—	—
S33	—	—	—	—	—	—	—	—	—	—
S34	—	—	—	—	—	—	—	—	—	—
S35	—	—	—	—	—	—	—	—	—	—
S36	—	—	—	—	—	—	—	—	—	—
S37	—	—	—	—	—	—	—	—	—	—
S38	—	—	—	—	—	—	—	—	—	—
S39	—	—	—	—	—	—	—	—	—	—
S40	—	—	—	—	—	—	—	—	—	—
S41	—	—	—	—	—	—	—	—	—	—
S42	—	—	—	—	—	—	—	—	—	—
S43	—	—	—	—	—	—	—	—	—	—
S44	—	—	—	—	—	—	—	—	—	—
S45	—	—	—	—	—	—	—	—	—	—
S46	—	—	—	—	—	—	—	—	—	—

19 m.—Switch set to 19 m, tune to 15.3 Mc/s, feed in a 15.3 Mc/s (19.61 m) signal and adjust the core of L23 (A2) for maximum output.

16 m.—Switch set to 16 m, tune to 17.8 Mc/s, feed in a 17.8 Mc/s (16.85 m) signal and adjust the core of L24 (A2) for maximum output.

13 m.—Switch set to 13 m, tune to 21.6 Mc/s, feed in a 21.6 Mc/s (13.89 m) signal and adjust the core of L25 (A2) for maximum output.