

KOLSTER-BRANDES LIMITED

FOOTSCRAY

SIDCUP

KENT

MODEL
PGT 10



ISSUED DEC. 1958

SERVICE DATA



SPECIFICATION

The PGT10 is a 5 valve transportable radiogramophone with long and medium wavebands. A high Q self contained ferrite aerial unit for long and medium waveband reception is incorporated. For gramophone operation a 4 speed B.S.R. Auto changer (type UA 8) is fitted. Service information on this latter unit should be obtained from the manufacturers.

VOLTAGE RATING: 200-250 volts A.C. 50 c/s.

POWER CONSUMPTION: Receiver 40 watts.
Motor 15 watts.

POWER OUTPUT: 2 watts for 10% distortion.
Total H.T. current 60 mA.
Mains current 150 mA.

WAVERANGES: Long waveband 160-280 kc/s. (1875-1070 metres)
Medium waveband 500-1620 kc/s. (600-185 metres)

CONTROLS: Front: OFF/ON Volume.
Tuning.
Gram/Radio Switch.
(Three position—Gram—Medium—Long).
Top: Tone.

VALVE COMPLEMENT:

Type	Function
Brimar 6BE6 ...	Frequency changer.
„ 6BJ6 ...	I.F. Amplifier.
„ 6AT6 ...	2nd Detector, 1st Audio Amplifier.
„ 6AQ5 ...	Audio Output.
„ EZ80 ...	Rectifier.

DIMENSIONS: Width: 15 inches.
Height: 8½ inches.
Depth: 17¼ inches.

WEIGHT: 20 lbs. (Approximately).



SETTING UP PROCEDURE

1. Remove the 3 screws holding the cover plate in position. These are situated along the top edge of this plate.
2. Set the mains voltage adjustment pin to the correct position.
3. Check that all valves are firmly pressed down in their sockets.
4. Replace the cover plate and screws.
5. Release transit fixing screws on record changer (i.e., screw down until heads are flush with motor plate).

REMOVAL OF CHASSIS FROM CABINET

1. Remove the 3 screws holding the cover plate in position. This is then easily removed.
2. Unsolder pick-up leads from pick-up transformer.
3. Remove the 2 4BA nuts holding the baffle board to the front of the cabinet. These are situated at the top of the baffle board assembly about 3 inches in from either end.
4. Tilt the baffle board assembly backwards until top fixing screws are clear of the board and then withdraw the complete assembly.
5. If access to the wiring side of the printed board is desired this may be achieved by removing the knobs and the 4 4BA nuts securing this to the baffle board.

NOTE: Care should be taken when replacing the baffle board assembly into the cabinet that—

- (a) the lower end is fitted into the slot at bottom of cabinet and—
- (b) the two trapped screws which come through the assembly at the top do not damage the plastic weave during the operation.

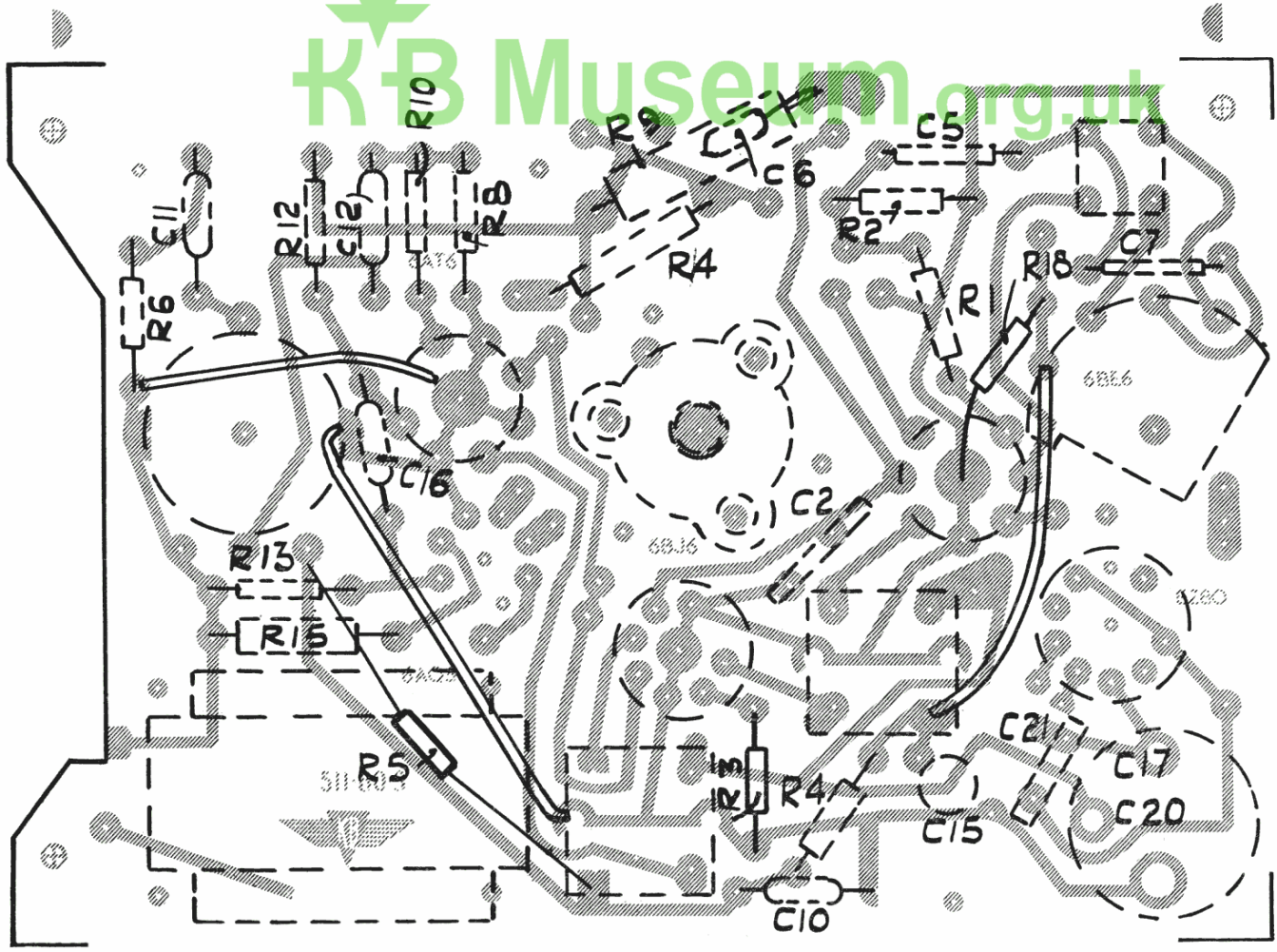
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SPARES LIST

PRICES ARE SUBJECT TO ALTERATION WITHOUT NOTICE.

Component	Colour Code	Circuit Ref.	Part No.	Price	Component	Colour Code	Circuit Ref.	Part No.	Price
Cabinet			555/220	155/3	Scale			555/200	1/-
COILS					Vent Cover			555/219	2/3
Rod Aerial Assy.			511/130	1/6	Vent Grill			522/197	1/3
I.F. Assy.			511/50	6/9	Wave Change Switch			555/203	5/3
Osc. Coil Assy.			511/23	2/3	Screening Can			511/209	6d.
CONDENSERS					Speaker Assy.			555/251	28/-
.01 μ F. 500V.		C19	KT 62/A	9d.	Pointer			511/204	Plus P.Tax 3d.
.01 μ F. 150V.		C11, 12, 16	KPM 19/B	9d.	RESISTORS				
.01 μ F. 300V. A.C.		C14	KT 21/T	1/-	47 Ω $\frac{1}{2}$ W.	R3		R470HE	1/-
.03 μ F. 500V.		C2, 21	KC 113	1/9	220 Ω $\frac{1}{2}$ W.	R1		R221HE	1/-
.05 μ F. 350V.		C15	KT 47/A	1/3	240 Ω 1W.	R15		R241HFT	1/-
6.8 pF. 3000N.		C6	KC $\frac{1}{2}$ 37	1/-	1.8 K Ω \pm 10% 1W.	R14		R182FFT	1/-
120 pF. \pm 5% 350V.		C1	KST 88	6d.	15 K Ω \pm 10% 2W.	R9		R153FHT	1/-
320 pF. \pm 1% 350V.		C7	KST 240	9d.	22 K Ω $\frac{1}{2}$ W.	R2, 6		R223HE	1/-
330 pF. 500V.		C10	KC 21	6d.	220 K Ω $\frac{1}{2}$ W.	R10, 12		R224HE	1/-
390 pF. \pm 1% 350V.		C5	KST 239	9d.	470 K Ω $\frac{1}{2}$ W.	R5, 11, 13		R474HE	1/-
3000pF. 350V.		C13	KC 93	6d.	2.2 M Ω $\frac{1}{2}$ W.	R4		R225HE	1/-
Elec. 32 + 64 μ F. 250V.		C17, 20	KEM 138	6/9	4.7 M Ω $\frac{1}{2}$ W.	R18		R475HE	1/-
Elec. 25 μ F. 25V.		C18	KEM 17	2/-	10M Ω $\frac{1}{2}$ W.	R8		R106HE	1/-
Dial Lamp Clip			511/215	1/3	Wirewound 75 Ω	R16		511/211	1/-
Dial Assy.			511/160	5/3	TRANSFORMERS				
Dial Lamp 6.5V. 15 Amp.			511/205	1/9	Mains Trans.			555/85	19/-
Ganged Condenser			511/212	17/3	P.U. Trans.	Orange Blue		407/90/1	13/-
Knob Assy.			511/151/2	1/9	Output Trans.			511/95	9/6
Knob (Pre-set)			247/260/2	6d.	Mains Tapping Panel			555/191	3d.
POTENTIOMETERS									
$\frac{1}{2}$ M Ω $\frac{1}{2}$ W. INV. LOG.		R17	P504AA12F	3/9					
$\frac{1}{2}$ M Ω LIN. (DPST)		R7	P504S17F	7/-					
Record Changer B.S.R.			487/215/1	187/6					
				Plus P.Tax					

PRINTED CIRCUIT



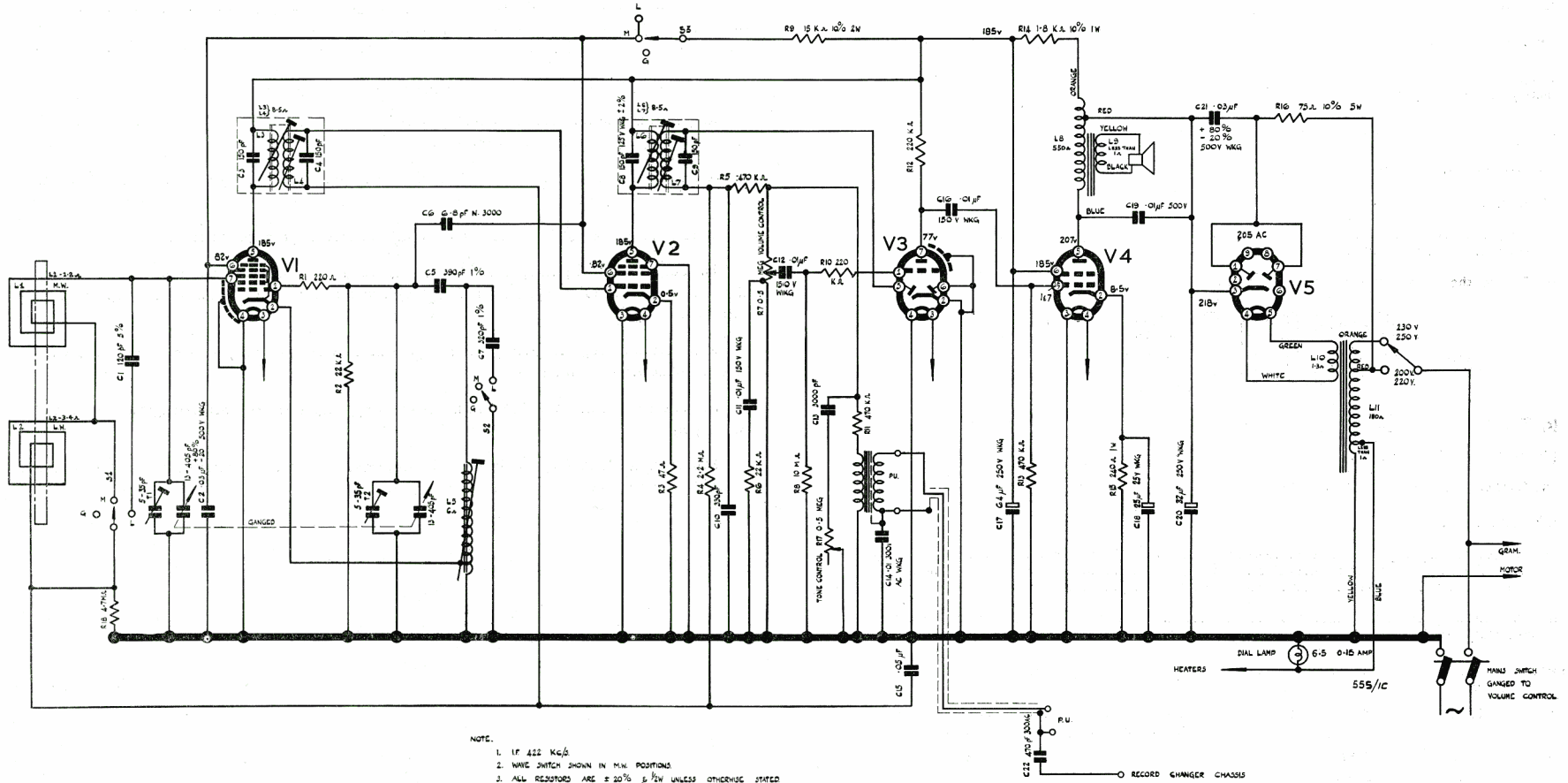
V1 6BE6

V2 6BJ6

V3 6AT6

V4 6AQ5

V5 EZ 80



- NOTE.
1. IF 422 Kc/s
 2. WAVE SWITCH SHOWN IN M.W. POSITIONS
 3. ALL RESISTORS ARE ± 20% & 1/2W UNLESS OTHERWISE STATED
 4. ALL CONDENSERS ARE ± 20% & 250 V.M. UNLESS OTHERWISE STATED

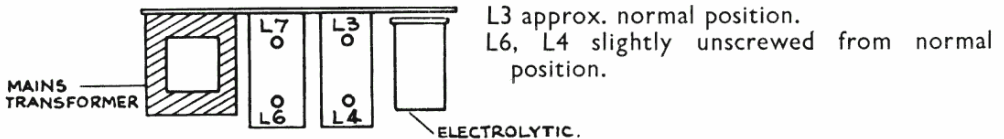
WAVE RANGES M.W. 1620 - 500 Kcs
 L.W. 280 - 160 Kcs

The following equipment will be required:—

- (a) A.M. signal generator covering the range 140-1700 kc/s.
- (b) Power output meter.

1. Set the tuning pointer to datum with the gang condenser at maximum capacity.
2. Progressively reduce signal input as the sensitivity increases with alignment, maintaining approximately 50 mW. output.
3. All measurements made with R.F. signal modulated 30% at 400 c/s.
4. The oscillator operates at a higher frequency than the input signal on both bands.
5. I.F. ALIGNMENT:

- (a) Set generator to 422 kc/s. and connect via 0.1 μ F. to the signal grid of V1 B6E6 (between gang condenser frame and aerial section).
- (b) Pre-set the I.F. transformer cores as follows:—



- (c) Trim for maximum gain by adjusting cores in the following order: L7, L6, L3, L4.
 - (d) Readjust L6 for maximum.
- No further adjustment should be made without complete re-alignment.

6. R.F. ALIGNMENT:

- (a) Connect the signal generator to a shielded test coil (twelve turns of P.V.C. insulated connecting wire on a 2-inch diameter former) situated axially in relation to the aerial coils on the ferrite rod. This is necessary as no aerial or earth terminals are provided.
- (b) The following operations should be carried out in the order indicated, being repeated as necessary, until scale accuracy with maximum sensitivity is attained.

Operation	Input Frequency	Waveband	Pointer Position	Adjustment
1	600 kc/s.	M.W.	500 M.	Osc. core L5 and move M.W. aerial coil on ferrite rod to position of maximum gain.
2	1400 kc/s.	M.W.	214 M.	Osc. trimmer T2. Aerial trimmer T1.
3	Repeat operations 1 and 2.			
4	225 kc/s.	L.W.	1333 M.	Move L.W. aerial coil, on ferrite rod, to the position of maximum gain.

The gang condenser should be rocked for maximum gain whilst adjusting the aerial trimmer.

CIRCUIT DESCRIPTION

With the use of a high Q ferrite aerial unit no aerial or earth terminals are provided. This is an 8 inch rod and has 2 coils one of which is used for M.W. and the 2 in series for long wave reception.

The 6BE6 is used as a conventional frequency changer with a temperature compensated oscillator circuit (C6 6.8pF.—ve 3000 gives this compensation). A single tapped oscillator coil is used and for L.W. operation C7 (320pF.) is connected in parallel with the coil.

I.F. amplification is by 6BJ6 feeding into 6AT6 diode as 2nd detector.

R5 (470 K Ω) and the volume control ($\frac{1}{2}$ M Ω) form the diode load and A.G.C. is taken via R4 (2.2 M Ω) and C15 (.05 μ F.) to 6BJ6 and 6BE6 valves.

A tapped volume control (linear $\frac{1}{2}$ M Ω) is used to provide increasing bass lift as the control is retarded.

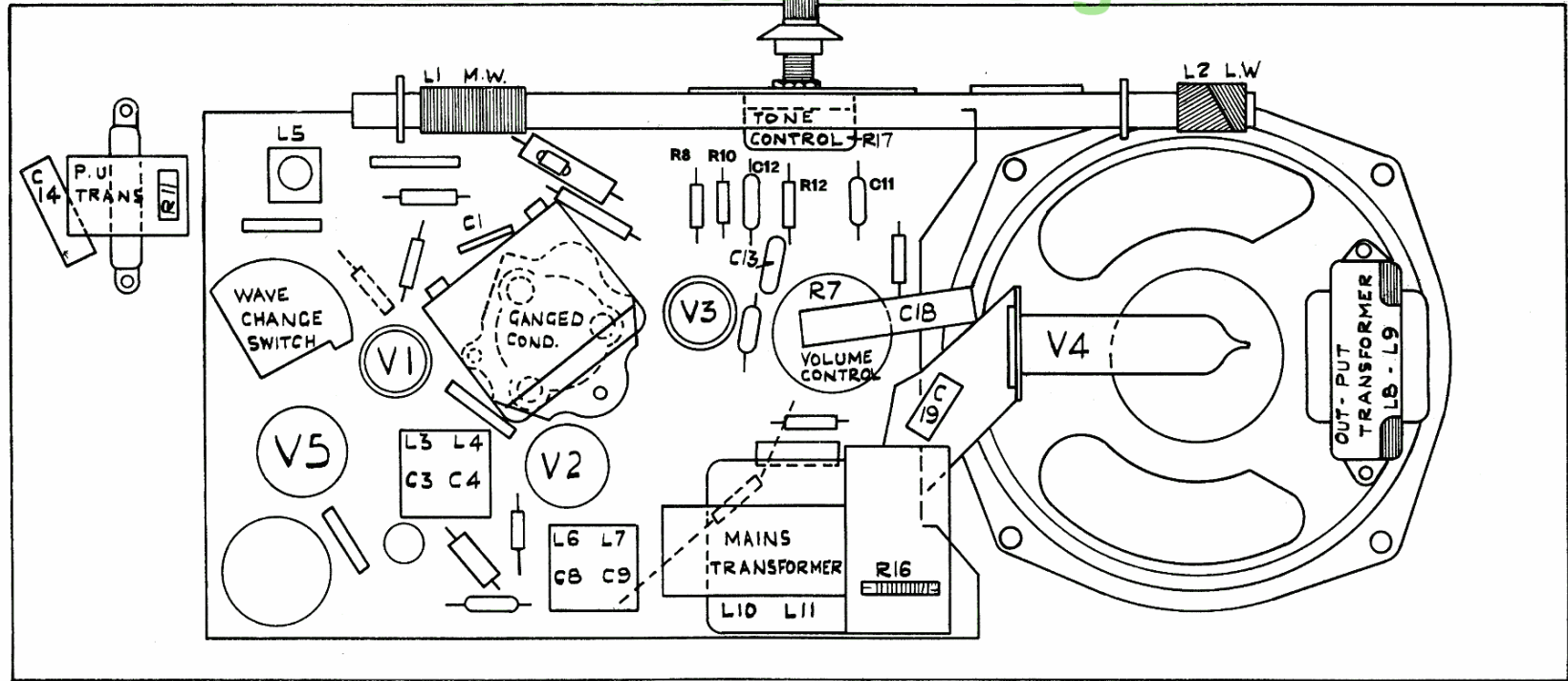
6AT6 triode and 6AQ5 form audio stages which are used on gramophone as well.

The output from the pick-up is fed via a pick-up transformer and then via R11 (470 K Ω) to the top of volume control. C13 (3000pF.) and R17 ($\frac{1}{2}$ M Ω) form the tone control circuit which is operative on both radio and gram.

Radio break-through on gram position is prevented by disconnecting the screen H.T. supply for 6BJ6 and 6BE6 valves. (Switch S3).

An auto-transformer and EZ80 with hum-bucking output transformer arrangement form the H.T. supply.

R16 (75 Ω) is a fusible type resistor and affords protection to mains transformer and rectifier under certain fault conditions.



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