

"TRADER" SERVICE SHEET

1691

LUXEMBOURG bandspread tuning is featured in the Ekco PT426/L seven-transistor portable radio receiver, in addition to conventional coverage of the medium and long wavebands. Waveband ranges are 200-500m (m.w.), 1,200-2,000m (l.w.) and a preset position centred on 208m ("Lux").

Sockets are provided for external aerial input and tape recorder output.

Operation is from a 9V dry battery and battery current consumption is 9-15mA quiescent and 78mA for 300mW output.

Release date and original price: August 1964, £14 9s 6d. Purchase tax extra.

TRANSISTOR ANALYSIS

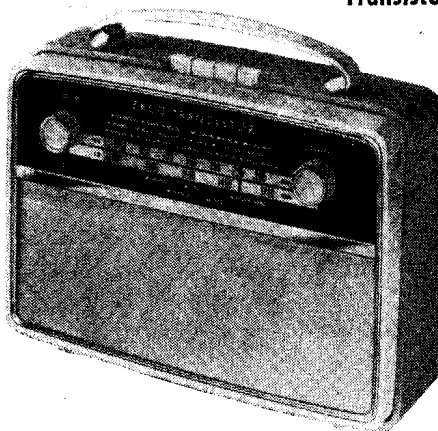
Transistor voltages given in the table in col. 2 were taken from information supplied by the manufacturer. They were measured on a receiver which was operating on a 9V nominal dry battery and tuned to a quiet spot at the l.f. end of the m.w. band.

CIRCUIT DESCRIPTION

Signals induced in the aerial tuned circuits T2 (m.w.) and T1 (l.w.) are fed via

EKCO PT426/L "Valentine"

Transistor Portable Radio Receiver



Transistor Table

Transistor	Emitter (V)	Base (V)	Collector (V)
TR1 AF117	0.97	1.22	6.3
TR2 AF117	1.02	1.2	6.7
TR3 AF117	0.7	0.92	6.0
TR4 NKT255E	0.98	0.95	4.5
TR5 NKT258	0.70	0.85	4.8
TR6 NKT753	5.0	4.9	—
TR7 NKT251	5.0	5.2	9.0

Alternative transistor types may be fitted as follows: TR1, TR2 and TR3—NKT677. TR4—NKT275E. TR5—NKT278. TR6—NKT773 and TR7—NKT271.

Resistors

R1	6.8kΩ	B1
R2	1.2kΩ	B1
R3	1kΩ	B1
R4	220Ω	B1
R5	150kΩ	E3
R6	56kΩ	C1
R7	8.2kΩ	C1
R8A	150kΩ	B2
R8B	150kΩ	E3
R9	220Ω	C2
R10	680Ω	C2
R11	10kΩ	C1
R12	2.7kΩ	C2
R13	220Ω	D2
R14	1kΩ	C2
R15	470Ω	C1
R16	470Ω	D2
R17	2.2kΩ	D2
R18	56kΩ	D2
R19	10kΩ	D2
R20	3.9kΩ	D2
R21	1kΩ	D2
R22	2.2kΩ	C2
R23	220Ω	D2
R24	82Ω	C2
R25	120Ω	C2
R26	680Ω	C2
R27	4.7kΩ	C2
R28	4.7kΩ	C2

R29	270Ω	C2
R30	VA1034	C2
RV1	5kΩ	E3
RV2	50Ω	C2

Capacitors

C1A	208pF	A2
C1B	208pF	A2
C2	—	A2
C3	60pF	E3
C4	0.01μF	B1
C5	0.01μF	B2
C6	250pF	B1
C7	245pF	E3
C8	—	A2
C9	200pF	E3
C10	30pF	E3
C11	5μF	C1
C12	0.04μF	D1
C13	250pF	C1
C14	0.04μF	C2
C15	0.04μF	D2
C16	250pF	D1
C17	0.02μF	C2
C18	0.02μF	D2
C19	0.01μF	C1
C20	0.05μF	C1
C21	0.1μF	E3
C22	2μF	D2
C23	2μF	C2

C24	64μF	D2
C25	160μF	D2
C26	64μF	C2
C27	64μF	C2
C28	320μF	B2
C29	320μF	B2
C30	0.04μF	C1
C31	0.02μF	E3
C32	0.04μF	E3
C33	30pF	A1
C34	30pF	A2
C35	4.7pF	F3

Coils and Transformers

L1	—	B1
T1	—	D1
T2	—	A1
T3	—	B2
T4	—	B2
T5	—	C2
T6	—	D2

Miscellaneous

LS1	—	—
MR1	OA70	C1
S1-S7	—	E3
S8	—	E3

the respective coupling winding and C4 to the base of the self-oscillating mixer TR1. T4 is tuned at local oscillator frequency and heterodyne signals are produced by positive feedback from collector to emitter via T4 and C5.

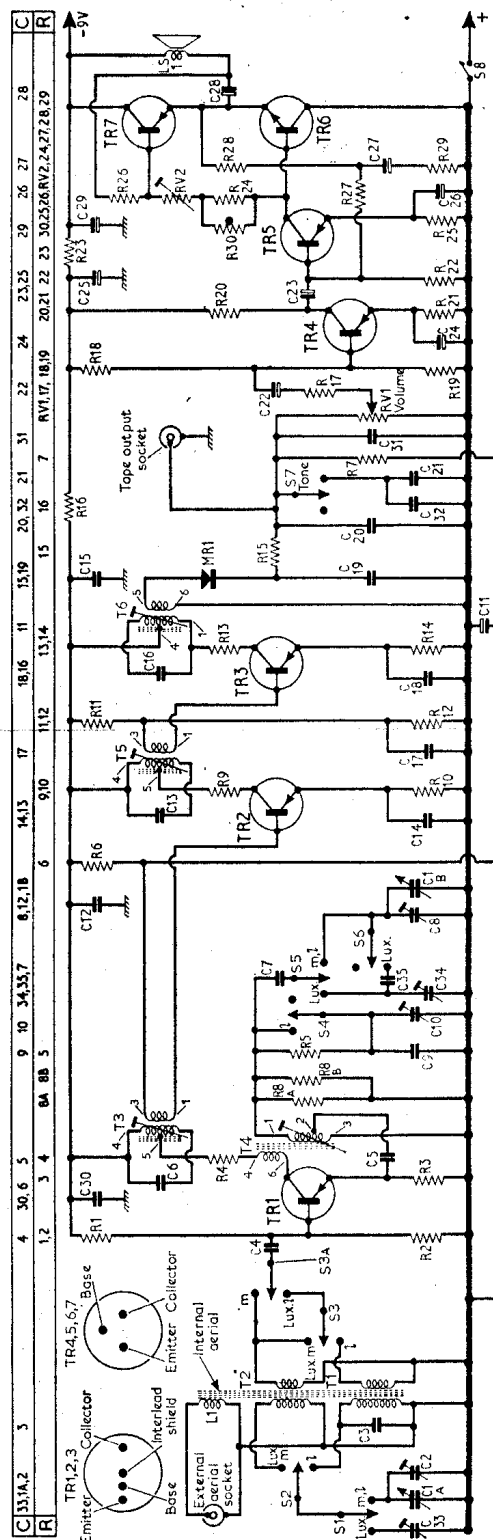
On medium and long wavebands the tuning capacitors C1A and C2 are switched by S1 across T1 or T2, the appropriate winding being selected by S2. In the "Lux" position of S1 and S2, C33 only is connected across the medium wave winding and is preset to tune the coil to 208m.

In the oscillator circuit, the tuned winding of T4 is shunted by C7 in series with

C8 and C1B on m.w. with C9 and C10 added in parallel on l.w. R8A and R8B are oscillator damping resistors. In the "Lux" position of S5 and S6, C7 is connected in series with C34 and the latter is shunted by C35 in series with C8 and C1B. This has the effect of providing bandspread tuning of a section of the h.f. end of the medium waveband centred on 208m.

The i.f. component in TR1 collector is selected by the tuned circuit load impedance comprising T3 and C6, and passed to the base of the a.g.c.-controlled i.f. amplifier TR2. Output from TR2

(Continued overleaf, col. 1)

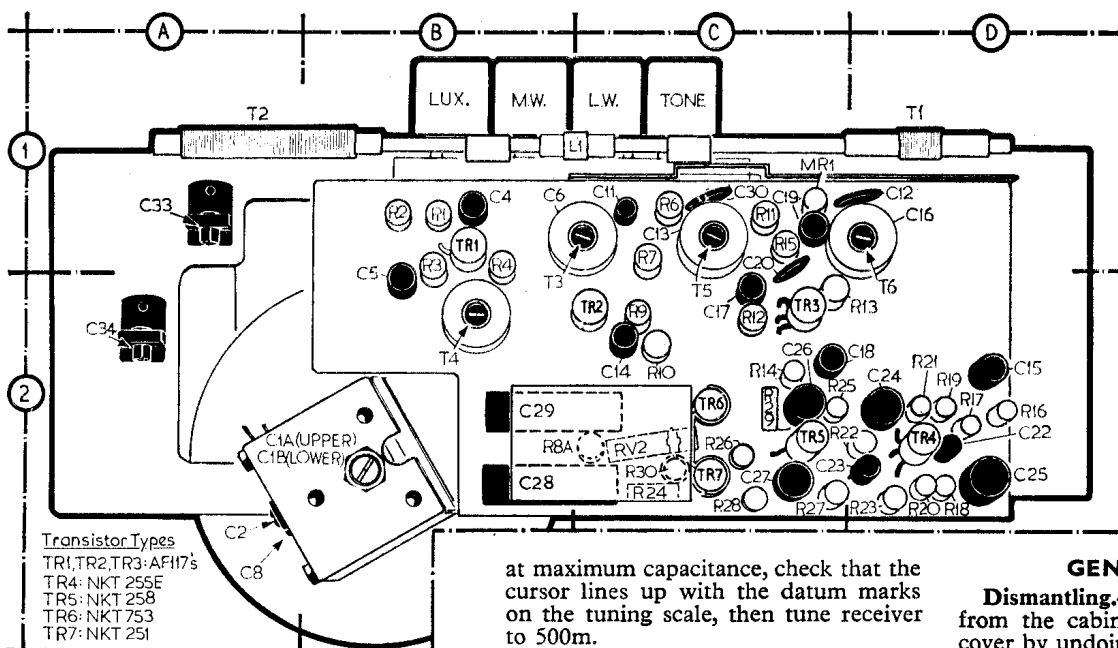


Circuit diagram of Ekco PT426/L radio receiver which incorporates a special switched m.w. position tuned to "Radio Luxembourg"

1691

EKCO
PT426/L

Supplement to Wireless &
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View of the chassis from the rear showing the component side of the printed panel. Output transistors TR6 and TR7 are mounted on the outside of a heat sink (location reference C2) and the associated thermistor R30 (shown dotted) is concealed in a clip on the reverse side of the heat sink

—continued

is fed via the single-tuned i.f. transformer T5 to TR3 base and the amplified output from TR3 is applied to the detector diode MR1.

Rectified audio output from MR1 is filtered by R15 and C20 and developed across the volume control and load resistor RV1. This output is also applied to the tape socket and is independent of the volume control. The rectified carrier positive d.c. potential developed across RV1 is fed back via R7 to the base of TR2 to reduce its forward bias and thus provide a.g.c. action.

The audio amplifier is comprised of a pre-amplifier TR4, driver TR5 and a complementary push-pull output pair TR6 and TR7. The driver and output stages are directly coupled and incorporate d.c. stabilization and negative feedback. Phase-splitting is automatic dispensing with the use of a transformer.

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator; an audio output meter with an impedance of 25Ω; an r.f. coupling coil and a narrow-bladed trimming tool.

During alignment, the input signal level should be adjusted to provide an audio output not exceeding 50mW. The printed panel and loudspeaker should be in position.

- 1.—Connect the audio output meter in place of the loudspeaker. Switch receiver to m.w. and tune to the i.f. end of the scale. Turn the volume control to maximum.
- 2.—Connect the signal generator to the switch side of C4. Feed in a 470kc/s modulated signal and adjust T6, T5 and T3 in that order for maximum output.
- 3.—Connect the signal generator to the r.f. coupling coil and place the coil 11in from the ferrite rod on T2 side of rod. With the tuning gang

at maximum capacitance, check that the cursor lines up with the datum marks on the tuning scale, then tune receiver to 500m.

- 4.—Feed in a 600kc/s signal and adjust the core of T4 and the position of T2 for maximum output.
- 5.—Tune receiver to 200m. Feed in a 1,500kc/s signal and adjust C8 and C2 for maximum output.
- 6.—Repeat operations 4 and 5 for correct tracking and calibration. Seal T2 on the ferrite rod with polystyrene dope.
- 7.—Switch receiver to l.w. and tune to 1,400m. Feed in a 214kc/s signal and adjust C10 and the position of T1 for maximum output. Seal the position of T1 on the ferrite rod with polystyrene dope.
- 8.—Switch receiver to "Lux" and set the cursor at 275m. Feed in a 1,439kc/s signal and adjust C34 and C33 for maximum output.

GENERAL NOTES

Dismantling.—To remove the chassis from the cabinet first take off the back cover by undoing two coin-slotted screws. Take off the volume and tuning control knobs (grub screws).

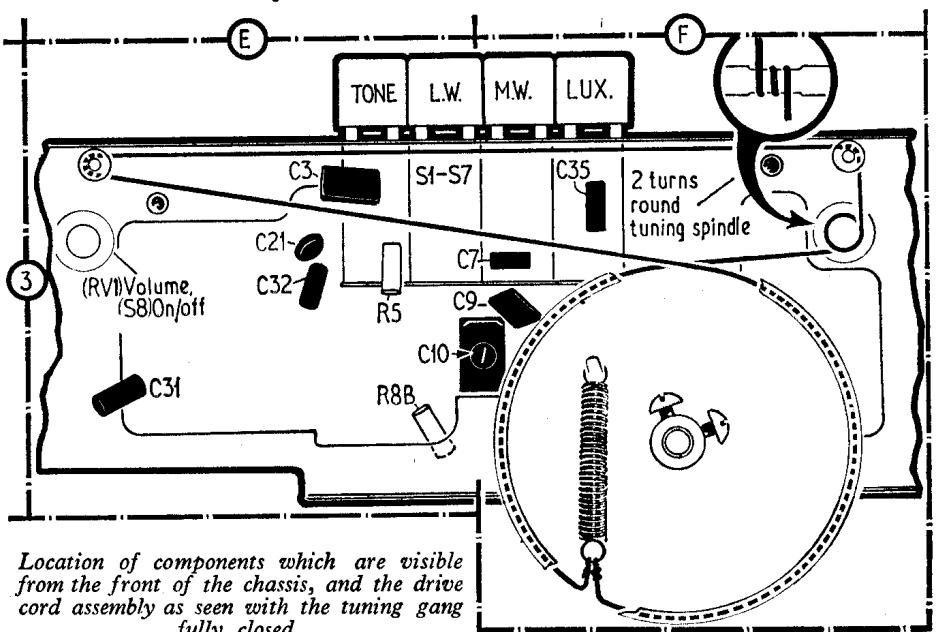
Unclip the battery retaining strap and slip out the battery.

Depress all four press-buttons and undo the two 4BA cheeschead screws at the rear sides of the chassis, and withdraw the chassis to the extent of the speaker leads.

Unsolder, if necessary, the leads to the speaker, car aerial and tape sockets.

Limiting Control Adjustment.—Limiting control preset RV2 is correctly adjusted during manufacture and should not normally require readjustment. If the setting has been inadvertently disturbed, it should be reset as follows: insert a 0-5 milliammeter in VT6 collector lead to chassis and adjust RV2 to obtain a reading of 3mA on the meter.

Battery.—9V Ever Ready PP9, Drydex DT9 or Vidor VT9.



Location of components which are visible from the front of the chassis, and the drive cord assembly as seen with the tuning gang fully closed