"TRADER" SERVICE SHEET

1036

VIDOR "REGATTA"

Battery Portable, Type CN420

THE Vidor "Regatta" portable, model CN420, is a 4-valve, 2-band all-dry battery superhet covering 180-550 m and 1,150-1,900 m. The receiver is housed in an attache-case type of carrying case whose lid-stay operates the on-off switch, switching off the receiver when the lid is closed.

Release date and original price: January, 1952; £9 12s. 7d. without batteries. Purchase tax extra.

CIRCUIT DESCRIPTION

Tuned frame aerial input on L.W. by **L2** and **C19** to heptode valve **(V1, Mullard DK91)** which operates as frequency changer with electron coupling. For M.W. operation, **S1** closes and shunts **L1** across **L2.**

A single oscillator tuning coil **L3,** tuned by **C20,** is used for both M.W. and L.W. bands. **C21** is the M.W. trimmer, and for L.W. operation **C7** is shunted across the circuit by the closing of **S3.** The series tracker **C6** is in the high potential side of the circuit. Reaction coupling from anode by **L4.**

Second valve **(V2, Mullard DF91)** is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **C3, L5, L6, C4** and **C9, L7, L8, C10.**

Intermediate frequency 475 kc/s.

Diode signal detector is part of diode pentode valve **(V3, Mullard DAF91).** Audio frequency component in rectified output is developed across volume control **R6,** which acts as diode load, and passed via **C13** to control grid of pentode section, which operates as A.F. amplifier. I.F. filtering by **C11, R5** and the capacitance of the screened leads to the volume control.

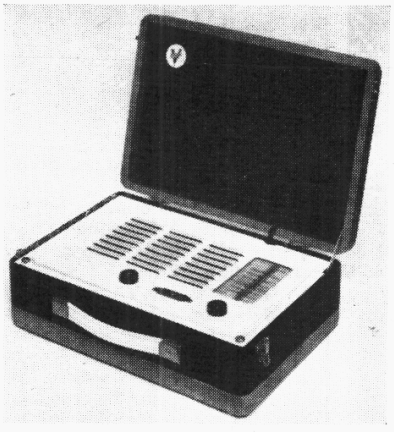
D.C. potential developed across **R5, R6** is fed back as bias via decoupling circuit

(Continued col. 1 overleaf)

COMPONENTS AND VALUES

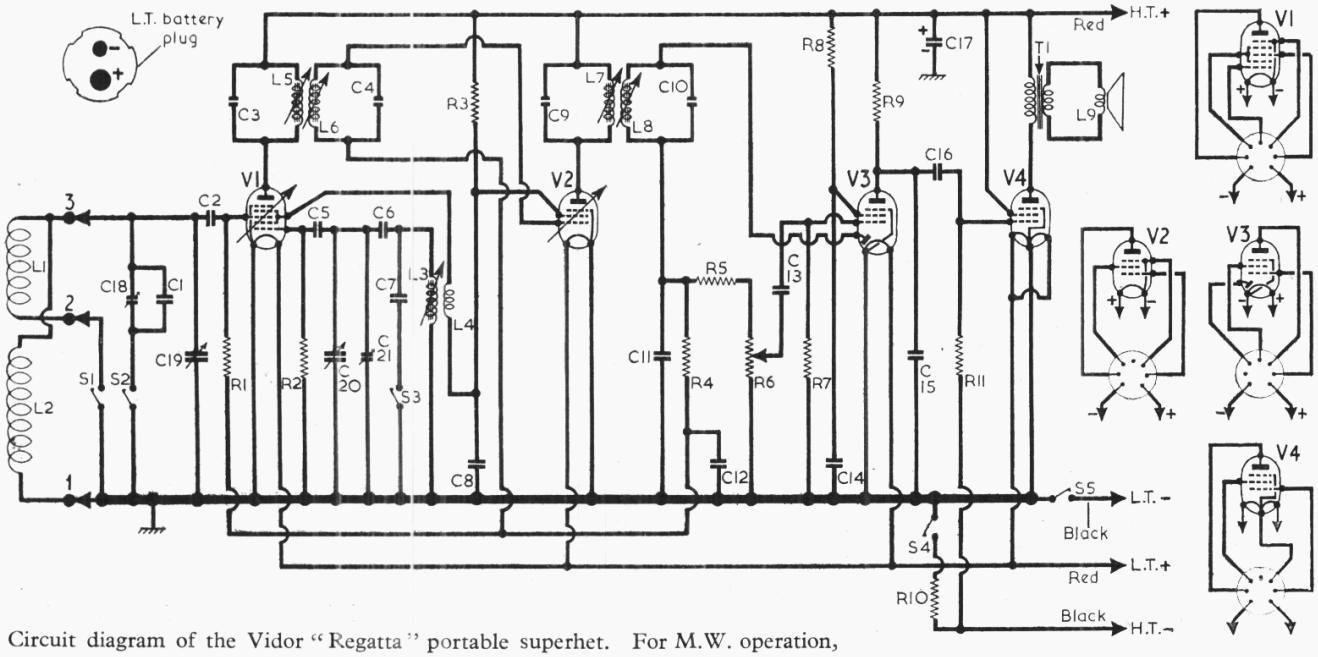
	CAPACITORS	Values	Locations
C1	L.W. aerial trim.	150pF	F2
C2	V1 C.G.	100pF	F2
C3	1st I.F. trans.	65pF	B1
C4	tuning	65pF	B1
C5	V1 osc. C.G. ...	100pF	F2
C6	Osc. tracker ...	635pF	F2
C7	L.W. osc. trim. ...	515pF	F2
C8	S.G. decoupling ...	0·1μF	B1
C9	2nd I.F. trans.	65pF	C1
C10	tuning	65pF	C1
C11	I.F. by pass ...	100pF	E2
C12	A.G.C. decoupling	0·05μF	E2
C13	A.F. coupling ...	0·001μF	E2
C14	V3 S.G. decoup. ...	0·05μF	D2
C15	I.F. by-pass ...	200pF	D2
C16	A.F. coupling ...	0·01μF	D2
C17*	H.T. by-pass ...	2μF	B1
C18‡	L.W. aerial trim. ...	70pF	A1
C19†	Aerial tuning ...	§523pF	A1
C20†	Oscillator tuning ...	§523pF	A1
C21‡	M.W. osc. trim. ...	70pF	A1

* Electrolytic. † Variable. ‡ Pre-set.
§ "Swing" value, min. to max.



Appearance of the receiver with its lid open.

	RESISTORS	Values	Locations
R1	V1 C.G.	470kΩ	E2
R2	V1 osc. C.G. ...	100kΩ	F2
R3	S.G. feed	12kΩ	E2
R4	A.G.C. decoupling	2·2MΩ	E2
R5	I.F. stopper ...	100kΩ	E2
R6	Volume control ...	1MΩ	—
R7	V3 C.G.	4·7MΩ	D2
R8	V3 S.G. feed ...	4·7MΩ	D2
R9	V3 anode load ...	1MΩ	D2
R10	V4 G.B.	560Ω	E2
R11	V4 C.G.	2·2MΩ	D2



Circuit diagram of the Vidor "Regatta" portable superhet. For M.W. operation, the M.W. frame winding **L1** is shunted across the L.W. winding **L2.** In the oscillator circuit a single tuning coil **L3** is used for both wavebands. The two sections of **V4** filament are connected in parallel for 1.4V operation. Its G.B. is obtained from **R10.**

OTHER COMPONENTS			Approx. Values (ohms)	Locations
L1	M.W. frame aerial ...		2·0	—
L2	L.W. frame aerial ...		15·0	—
L3	Osc. tuning coil ...		1·4	E2
L4	Osc. reaction coil ...		1·0	E2
L5	1st I.F. trans.	Pri.	22·0	B1
L6		Sec.	22·0	B1
L7	2nd I.F. trans.	Pri.	22·0	C1
L8		Sec.	22·0	C1
L9	Speech coil ...		3·0	—
T1	O.P. trans.	Pri.	530·0	—
		Sec.	0·2	
S1-S3	Waveband switches		—	F2
S4, S5	Battery switches ...		—	—

Circuit Description—*continued*

R4, C12 to F.C. aand I.F stages, giving automatic gain control.

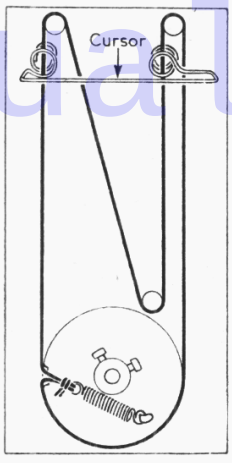
Resistance-capacitance coupling by **R9, C16** and **R11** between **V3** pentode anode and control grid of pentode output valve **(V4, Mullard DL94).** Further I.F. filtering by **C15.** Grid bias for **V4** is obtained from the voltage drop across **R10** in the H.T. negative lead to chassis, and as this resistor is not by-passed, a degree of negative feed-back is developed across it and applied to the valve, giving tone correction. The two halves of **V4** filament are connected in parallel for 1.4 V operation. **C17** by-passes the H.T battery.

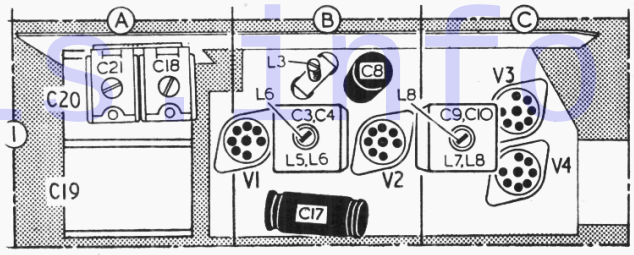
CIRCUIT ALIGNMENT

All the core and trimmer adjustments are made accessible by unscrewing the two captive bolts in the front corners of the receiver escutcheon and raising the escutcheon. The chassis need not be removed.

I.F Stages.—Switch receiver to M.W, tune to 200 m and turn volume control to maximum. Connect signal generator leads to junction of **C18** and **C2,** and to chassis, feed in a 475 kc/s (631.6 m) signal and adjust the cores of **L8** (location reference C1), **L7** (E2), **L6** (B1) and **L5** (E2) for maximum output, reducing the input as the circuits come into line to avoid A.G.C. action. Repeat these adjustments.

RF and Oscillator Stages.—Check that with the gang at maximum capacitance, the cursor is in the centre of the 550 m mark on the tuning scale. The signal generator should be coupled to the frame aerials by laying the leads near the lid of the receiver. If insufficient coupling is obtained in this way, the "live" signal generator lead may be connected to the chassis frame.





Above: Plan view of the chassis. *Left*: Drive cord system, as seen from the front.

M.W.—Switch receiver to M.W., tune to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust **C21** (A1) for maximum output. Tune receiver to 500 m, feed in a 500 m (600 kc/s) signal and adjust the core of **L3** (B1) for maximum output, rocking the gang slightly to obtain maximum output. Repeat these adjustments until the calibration is correct at both ends of the band.

L.W.—Switch receiver to L.W., tune to 1,200 m, feed in a 1,200 m (250kc/s) signal and adjust **C18** (A1) for maximum output. If the calibration at the high wavelength end of the band is badly out, **C6** should be checked and replaced if its value is outside the stated ±1 per cent tolerance.

DISMANTLING

The majority of the chassis components can be made accessible by unscrewing the two captive bolts in the front corners of the receiver escutcheon and raising the escutcheon.

Removing Chassis.—Remove tuning control knob (recessed grub screw) and disconnect battery plugs;
unsolder three leads from volume control tags and two from speaker transformer tags;
remove two wood screws with spacers from inside corners of lid and carefully prise out the felt-covered board from the lid, carrying the frame windings;
remove three leads from frame aerial tags on back of felt-covered board;
remove two wood screws securing battery switch unit to side of carrying case below lid stay;
release battery switch leads from clamp on rear edge of carrying case;
remove three 4BA nuts with shakeproof washers securing chassis and spacing pillars to escutcheon, and withdraw chassis.

When replacing, check that the spacers are in position on the chassis fixing bolts. Viewing the volume control from the rear, with the tags at the top, the yellow lead should go to the left-hand side tag, the red lead to the centre tag and the black lead to the right-hand tag.

The tags on the battery switch should point downwards. Make sure that the waveband switch lug on the escutcheon engages in the switch unit by placing them both in the M.W. position (towards tuning spindle) before replacing the chassis.

Connect the frame aerial lead numbered 2 in the under-chassis view (location reference D2) to the centre tag on the felt-covered board, the lead numbered 1 to the tag nearest the lid stay and the lead numbered 3 to the remaining tag.

GENERAL NOTES

Switches.—**S1-S3** are the waveband switches, ganged in a simple slide-type unit. In the M.W. position (slider towards the tuning spindle) **S1** closes; on L.W., **S2** and **S3** close.

S4 and **S5** are the battery circuit switches, mounted in a special spring-loaded unit on the side of the carrying case. It is so positioned that the lid-stay depresses the spring loaded bar when the lid is closed, switching off the receiver. When the lid is raised, the spring brings the bar into contact with the two isolated tags, closing the switches.

Batteries.—The L.T. unit is a Vidor type L.5041, rated at 1.5 V. It is fitted with a 2-pin socket, whose plug diagram, as seen from the free ends of the pins, is inset in the top left-hand corner of the circuit diagram. The H.T. battery is a Vidor type L.5039, rated at 90 V.

Cursor Drive Cord Replacement.—About 30 inches of high-grade fishing line, plaited and waxed, is required for a new drive cord. It is run as shown in the sketch in col 2, where it is drawn as seen from the front when the gang is at maximum capacitance.

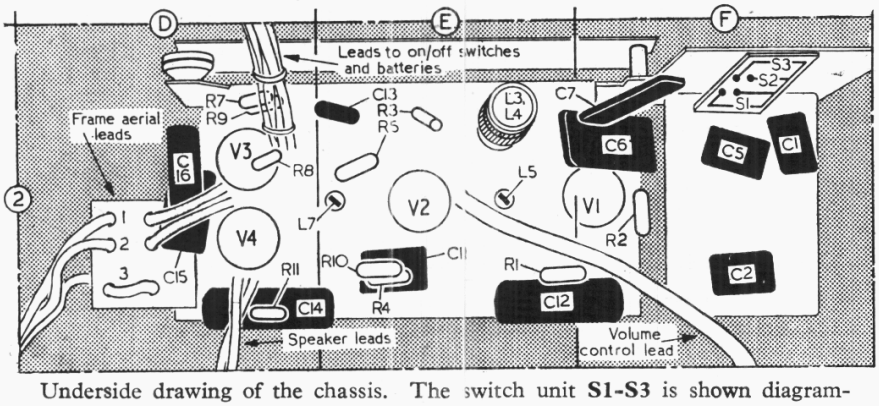
To fit the cord it is necessary to remove the chassis from its mounting, although it may not be necessary to unsolder all the leads. The work is facilitated by the removal of the metal tuning scale panel, which is held by three 8BA round-head screws, with lock-washers. The cursor can be fitted afterwards.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating from a new set of batteries. The volume control was turned to maximum, and the receiver was tuned to the highest wavelength end of M.W., but there was no signal input.

Voltage readings were measured with an Avo Electronic TestMeter, which draws no appreciable current, and allowance should be made for the current drawn by other types of meter. Chassis was the negative connection.

Valve		Anode		Screen	
		V	mA	V	mA
V1	DK91 ...	87	1·1	56	1·8
V2	DF91 ...	87	2·1	56	0·8
V3	DAF91 ...	19	0·08	19	0·07
V4	DL94 ...	84	5·0	87	1·0



Underside drawing of the chassis. The switch unit **S1-S3** is shown diagrammatically. The volume control **R6** is mounted on the battery cover.

Printed in England by Cornwall Press Ltd., Paris Garden, London, S.E.1.