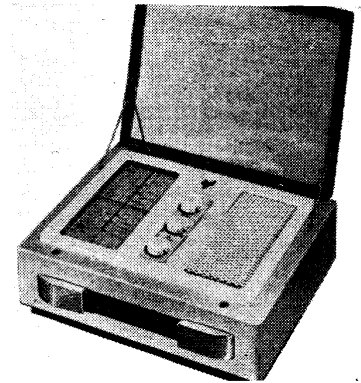


"TRADER" SERVICE SHEET
1060

VIDOR "LIDO"

Model CN411 Portable



AN unusual feature of the Vidor CN411 "Lido" portable is that it has an all-metal carrying case. Another feature is the provision of an alarm switch to warn the user when the lid is closed while still working. The receiver is a 4-valve (plus metal rectifier) superhet designed to operate from heavy-duty or lightweight batteries, or from A.C. mains of 200-250 V, for which a double-wound transformer is used. The waveband ranges are 190-550 m and 1,075-1,825 m.

Release date and original price: November 1950, £16 12s 8d without batteries. Purchase tax extra.

Filament current is taken from the H.T. circuit, the filaments being connected in series and fed via ballast resistors R19, R20. R2, R7, R12 and R17 are filament shunts to by-pass H.T. current past the heater chain.

When the lid of the carrying case is closed S10 also closes, causing positive feed-back via C23 between V4 anode and V3 screen grid, and producing a warning note in the speaker if the set is still switched on.

COMPONENTS AND VALUES

CAPACITORS		Values	Locations
C1	M.W. aerial trim.	100pF	F4
C2	L.W. aerial trim.	190pF	F3
C3	V1 C.G. ...	0.001μF	B2
C4	A.G.C. decoupling ...	0.05μF	F3
C5	1st I.F. trans. ...	100pF	B2
C6	tuning ...	100pF	B2
C7	V1 osc. C.G. ...	100pF	F4
C8	Osc. tracker ...	532pF	F4
C9	L.W. osc. trim. ...	400pF	B1
C10	H.T. decoupling ...	0.1μF	H3
C11	Filament by-pass ...	0.1μF	G3
C12	V2 C.G. decoup. ...	0.01μF	G3
C13	2nd I.F. trans. ...	100pF	C1
C14	tuning ...	100pF	C1
C15	I.F. by-passes ...	100pF	F3
C16	I.F. by-passes ...	100pF	F3
C17	A.F. coupling ...	500pF	G4
C18*	H.T. decoupling ...	2μF	D2
C19	S.G. decoupling ...	0.05μF	H3
C20	I.F. by-pass ...	65pF	G3
C21	A.F. coupling ...	500pF	G3
C22*	H.T. reservoir ...	32μF	A1
C23	Alarm coupling ...	0.005μF	D2
C24	Tone corrector ...	0.01μF	C2
C25*	Filament by-pass ...	100μF	D2
C26*	Filament smoothing ...	25μF	A1
C27*	H.T. smoothing ...	32μF	A1
C28†	L.W. aerial trim. ...	40pF	F3
C29†	M.W. aerial trim. ...	40pF	F3
C30†	Aerial tuning ...	528pF	F3
C31†	Oscillator tuning ...	528pF	F4
C32†	M.W. osc. trim. ...	40pF	F3
C33†	L.W. osc. trim. ...	80pF	B2

RESISTORS		Values	Locations
R1	V1 C.G. ...	4.7MΩ	F3
R2	Filament shunt ...	120Ω	F3
R3	V1 osc. C.G. ...	100kΩ	F3
R4	Osc. stabilizer ...	2.2kΩ	B1
R5	H.T. decoupling ...	8.2kΩ	G3
R6	V2 C.G. ...	4.7MΩ	G3
R7	Filament shunt ...	150Ω	G3
R8	A.G.C. decoupling ...	2.2MΩ	F3
R9	I.F. stopper ...	47kΩ	G3
R10	Volume control ...	2MΩ	G4
R11	V3 C.G. ...	4.7MΩ	G3
R12	Filament shunt ...	100Ω	G4
R13	H.T. decoupling ...	56kΩ	H3
R14	V3 anode load ...	1MΩ	G3
R15	V3 S.G. feed ...	4.7MΩ	H3
R16	V4 C.G. ...	2.2MΩ	G3
R17	Filament shunt ...	330Ω	G3
R18	V4 G.B. ...	100Ω	G4
R19	Filament ballast ...	680Ω	A1
R20		1.5kΩ	A1
R21	H.T. smoothing ...	1.8kΩ	A1

CIRCUIT DESCRIPTION

Tuned frame aerial input L1, L3, C30 (M.W.) or L2, C30 (L.W.) precedes a heptode valve (V1, Mullard DK91) which operates as frequency changer with internal coupling. Oscillator grid coil L4 (M.W.) is tuned by C31. For L.W. operation C9, C33 are shunted across L4. Parallel trimming by C32 (M.W.); series tracking by C8 (M.W. and L.W.). Inductive reaction coupling on M.W. and L.W. by L5.

Second valve (V2, Mullard DF91) is an R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings C5, L6, L7, C6 and C13, L8, L9, C14.

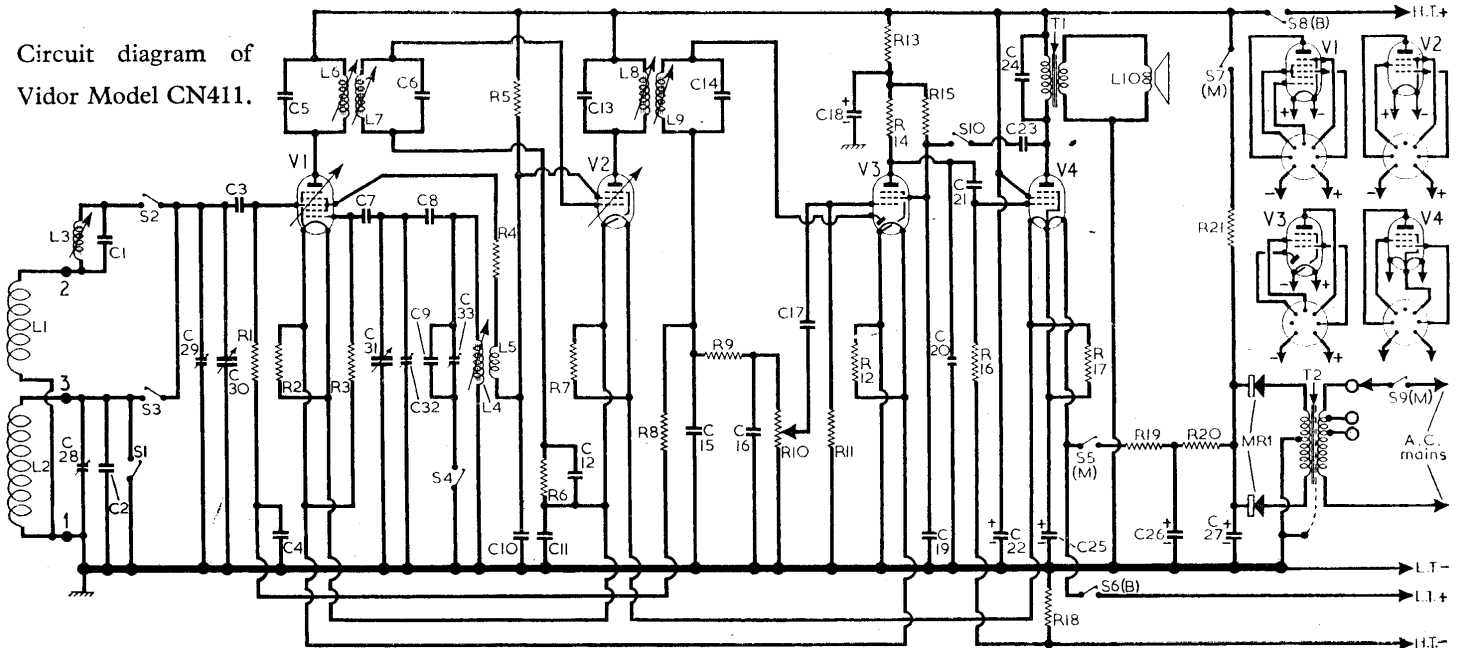
Intermediate frequency 475 kc/s. Diode signal detector is part of diode pentode valve (V3, Mullard DAF91). Audio frequency component in rectified output is developed across volume control R10, which acts as diode load, and passed via S17 to control grid of pentode section, which operates as A.F. amplifier. I.F. filtering by C15, R9, C16 in diode circuit and C20 in pentode circuit. D.C. potential developed across R9, R10 is fed back as bias to F.C. valve, giving automatic gain control. The I.F. bias is fixed.

Resistance-capacitance coupling by R14, C21 and R16 between V3 pentode and pentode output valve (V4, Mullard DL94). Fixed tone correction by C24 in anode circuit.

For battery operation, power supplies are carried by switches S6(B) and S8(B) which close in the battery positions. For A.C. mains operation S5 (M), S7 (M) and S9 (M) close instead. H.T. current is then supplied by full-wave metal rectifier (MR1, Sentec RM2). H.T. smoothing by R21 and electrolytic capacitors C22 and C27.

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

Circuit diagram of Vidor Model CN411.



OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	M.W. frame aerial	2-0	—
L2	L.W. frame aerial	15-0	—
L3	M.W. loading coil	1-6	F4
L4	Osc. tuning coil ...	1-2	B1
L5	Osc. reaction coil ...	1-0	B1
L6	1st I.F. trans. {	Pri. ...	B2
L7		Sec. ...	B2
L8	2nd I.F. trans. {	Pri. ...	C1
L9		Sec. ...	C1
L10	Speech coil	2-9	—
T1	O.P. trans. {	Pri. ...	D2
		Sec. ...	0-5
T2	Mains trans. {	Pri., total	E4
		Sec., total	240-0
S1-S4	Waveband and power switches	—	G4
S5-S9		—	—
S10	Alarm switch	—	—
MR1	Metal rectifier RM2	—	A2

VALVE ANALYSIS

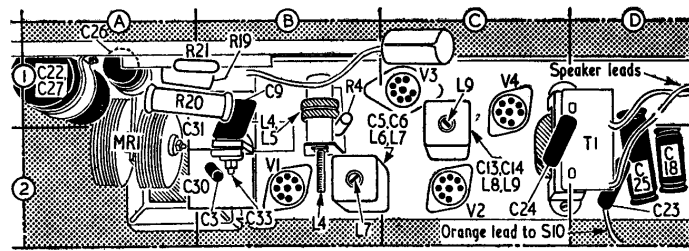
Valve voltages and currents given in the table below are those measured on our receiver when it was operating from a new set of batteries. Readings taken with the receiver operating from 230 V A.C. mains were about 10% higher. The receiver was tuned to the high wavelength end of M.W. and the volume control set to maximum, but there was no signal input.

Volume readings were measured with an Avo Electronic TestMeter, and as this instrument has a very high resistance allowance should be made for the current drawn by other types of meter. Chassis was the negative connection.

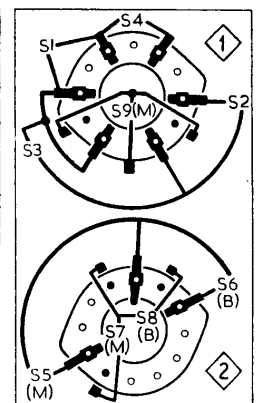
Valve	Anode		Screen	
	V	mA	V	mA
V1 DK91 ...	93	0.4	53	2.0
V2 DF91 ...	93	3.0	67	1.0
V3 DAF91 ...	19	0.07	20	0.012
V4 DL94 ...	89	5.0	93	1.0

DISMANTLING

Removing Chassis.—Slacken off the two knurled-head screws securing the base cover, and, hinging it open, remove it from the carrying case; open lid of carrying case and remove knobs (recessed grub screws) together with transparent name-plate; remove wood screws and spacers from inside ends of lid, prise out the frame aerial cover and unsolder the three frame aerial leads; unsolder leads from speech coil tags on speaker; unsolder orange lead from tag on lid-operated alarm switch beside speaker; unsolder blue alarm switch lead from chassis tag indicated in chassis illustration at location (H3); unplug leads from batteries (if fitted) and remove four 4BA nuts (with shake-proof washers) securing front and rear edges of main scale and control mounting plate; slacken two 4BA nuts near speech coil tags securing end of vertical portion of chassis to side of carrying case and withdraw chassis.



Above: Plan view of chassis. The scale and control panel is seen at top left. MR1 and C30, C31 are actually below the level of the deck.



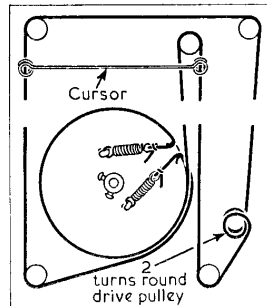
Right: Waveband switch diagrams as seen from rear of an inverted chassis, with associated switch table below. The table starts with knob pointer at 10 o'clock.

When replacing, the frame aerial leads which are numbered 1 to 3 in the under-chassis illustration should be reconnected in this order, from left to right, to the tags in the lid.

GENERAL NOTES

Switches.—S1-S4 are the waveband switches, and S5 (M), S6 (B), S7 (M), S8 (B), S9 (M) are the mains/battery/off switches, all ganged together in two 6-position rotary units. These are indicated by arrows in our chassis illustration, and shown in detail in the diagrams inset beside the upper chassis illustration, where they

Switch	Battery			A.C. Mains		
	L.W.	M.W.	Off	L.W.	M.W.	Off
S1 ...	—	C	—	—	C	—
S2 ...	—	C	—	—	C	—
S3 ...	C	—	—	C	—	—
S4 ...	C	—	—	C	—	—
S5(M) ...	—	—	—	—	C	—
S6(B) ...	—	—	—	—	C	—
S7(M) ...	C	—	—	C	—	—
S8(B) ...	C	—	—	C	—	—
S9(M) ...	—	—	—	—	C	—



Sketch showing tuning drive system as seen from front with tuning scale removed.

The same 2-pin plug is used for both L.T. batteries, but when lightweight types are used, both H.T. and L.T. batteries are held by a webbing strap, and the H.T. wander plugs are inserted into parking sockets.

Tuning Drive Cord Replacement.—About 6 feet of high-grade fishing line is required for a new drive cord, which should be run as shown in the accompanying sketch, where the gang is at maximum capacitance. The scale plate must be removed (four 6BA nuts, bolts and lock-washers). The cursor can be fitted afterwards and adjusted as explained under "Circuit Alignment."

Chassis Divergencies.—The values and circuit arrangement shown here are as we found them in our sample receiver, but the following differences may be found in other chassis: R19 may be 900 Ω, R20 2.15 kΩ, R21 2.7 kΩ, R2 150 Ω, R7 220 Ω, R12 120 Ω and R17 470 Ω. Further, L7 may instead of being returned to V2 filament via R6, C12 as we show it, be connected via a 1.8 MΩ resistor to the A.G.C. line, and via a 4.7 MΩ resistor to the positive end of V4 filament.

CIRCUIT ALIGNMENT

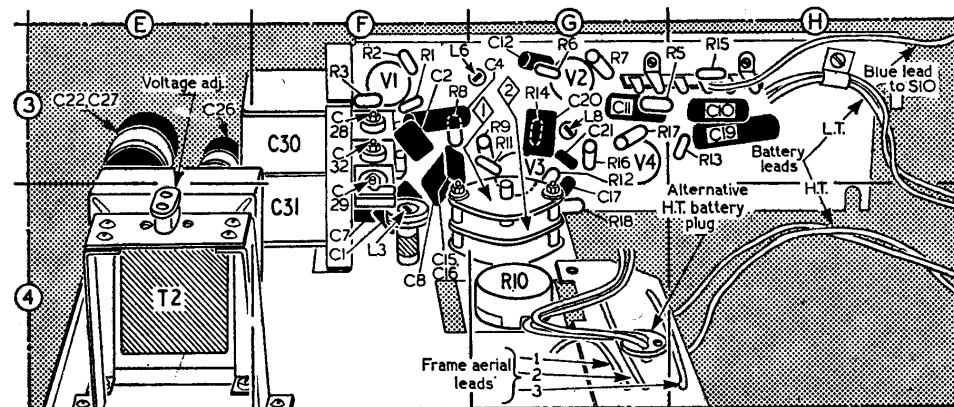
To gain access to the core and trimmer adjustments, the chassis should be removed from its carrying case. Before aligning the I.F. stages, the cores should be freed by carefully melting the wax with which they are sealed.

I.F. Stages.—Switch receiver to M.W., and turn gang to minimum capacitance. Connect signal generator output across C30 (location reference F3), feed in a 475 kc/s (631.6 m) signal and adjust the cores of L9, L3, L7 and L6 (C1, G3, B2) in that order for maximum output, reducing the input as the circuits come into line to avoid A.G.C. action. Reseal the cores with soft wax.

R.F. and Oscillator Stages.—Check that with the gang at maximum capacitance, the cursor is horizontal and coincides with the calibration point above the 550 m mark on the M.W. tuning scale. Transfer signal generator leads to frame aerials, placing them in close proximity to the windings in the lid of the carrying case.

M.W.—Switch receiver to M.W., tune to 500 m, feed in a 500 m (600 kc/s) signal and adjust the cores of L4 (B2) and L3 (F4) for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust C32 (F3) and C29 (F3) for maximum output. Repeat these adjustments until no further improvement results.

L.W.—Switch receiver to L.W., tune to 1,200 m, feed in a 1,200 m (250 kc/s) signal and adjust C33 (B2) and C28 (F3) for maximum output. Repeat these adjustments.



Underside view of chassis showing the numbered frame aerial leads referred to in "Dismantling". The H.T. battery plug is shown "parked".