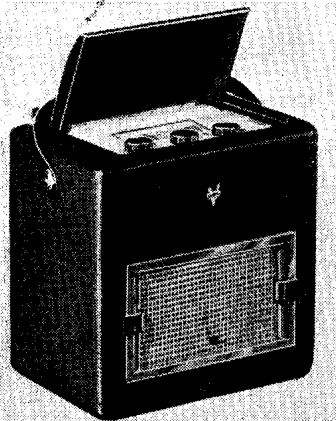


"TRADER" SERVICE SHEET

873

VIDOR
CN360 & 360A



C9 (L.W.). Reaction coupling to grid by coils L7 (S.W.), L8 (M.W.) and L9 (L.W.).

Second valve (V2, Mullard DF91) is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned-transformer couplings.

Intermediate frequency 456 kc/s. Diode second detector is part of single diode pentode valve (V3, Mullard DAF91). Audio frequency component in rectified output is developed across manual volume control R10, which is the diode load resistor, and passed via A.F. coupling capacitor C17 and grid resistor R12 to C.G. of pentode section, which operates as A.F. amplifier.

I.F. filtering by C15, R9, C16 in diode circuit and C20 in pentode anode circuit, and voltage negative feedback from anode to control grid of V3 via the isolating capacitor C18 and attenuating resistor R11.

D.C. potential developed across R9, R10 is tapped off and fed back, via a decoupling circuit, as G.B. to F.C. and I.F. valves, giving automatic volume control.

Resistance-capacitance coupling by R14, C21, R15 between V3 pentode and pentode output valve (V4, Mullard DL92), whose dual filament sections are wired in parallel. Fixed tone correction in anode circuit by C23.

| CAPACITORS | | Values (μF) † | Locations |
|------------|------------------------|---------------|-----------|
| C1 | Aerial L.W. trim... | 0-000015 | D3 |
| C2 | V1 pent. C.G. ... | 0-0001 | H4 |
| C3 | S.W. neutralising... | 0-000006 | G4 |
| C4 | 1st I.F. trans. tuning | 0-000065 | F3 |
| C5 | ing ... | 0-000065 | F3 |
| C6 | V1 osc. C.G. ... | 0-0001 | H4 |
| C7 | Osc. S.W. tracker | 0-005 | E2 |
| C8 | Osc. M.W. tracker | 0-000635 | C3 |
| C9 | Osc. L.W. tracker | 0-00023 | C3 |
| C10 | A.V.C. decoupling | 0-1 | H5 |
| C11 | Osc. H.T. decoup. ... | 0-1 | I5 |
| C12 | V2 S.G. decoup. ... | 0-1 | I5 |
| C13 | 2nd I.F. trans. tuning | 0-000065 | B2 |
| C14 | ing ... | 0-000075 | B2 |
| C15 | I.F. by passes ... | 0-0001 | L4 |
| C16 | ... | 0-0001 | K4 |
| C17 | A.F. coupling ... | 0-01 | N4 |
| C18 | F-B. coupling ... | 0-01 | N6 |
| C19 | V3 S.G. decoup. ... | 0-1 | L4 |
| C20 | I.F. by-pass ... | 0-0001 | M4 |
| C21 | A.F. coupling ... | 0-01 | N4 |
| C22 | V4 S.G. decoup. ... | 0-1 | M5 |
| C23 | Tone corrector ... | 0-003 | M5 |
| C24* | G.B. by-pass ... | 50-0 | J4 |
| C25 | H.T. reservoir ... | 1-0 | J4 |
| C26† | Aerial S.W. trim... | 0-00004 | D3 |
| C27† | Aerial L.W. trim... | 0-00008 | D3 |
| C28† | Frame aerial tuning | 0-000532 | C1 |
| C29† | Oscillator tuning ... | 0-000532 | C2 |
| C30† | Osc. M.W. trim ... | 0-00008 | D2 |
| C31† | Osc. L.W. trim ... | 0-00024 | D2 |

* Electrolytic. † Variable. ‡ Pre-set.

THE Vidor CN360 and 360A are 4-valve 3-band all-dry battery superhets with a S.W. range of 16-50 m. The small differences between the two are explained under "Chassis Divergencies" overleaf. An entry slot is provided in the back cover to permit a mains unit to be conveniently fitted.

The export versions CN364 and 364A are identical with the CN360 and 360A. This Service Sheet was prepared from a CN360A. Release date and original price: October 1947; £15 15s, with batteries, plus purchase tax.

CIRCUIT DESCRIPTION

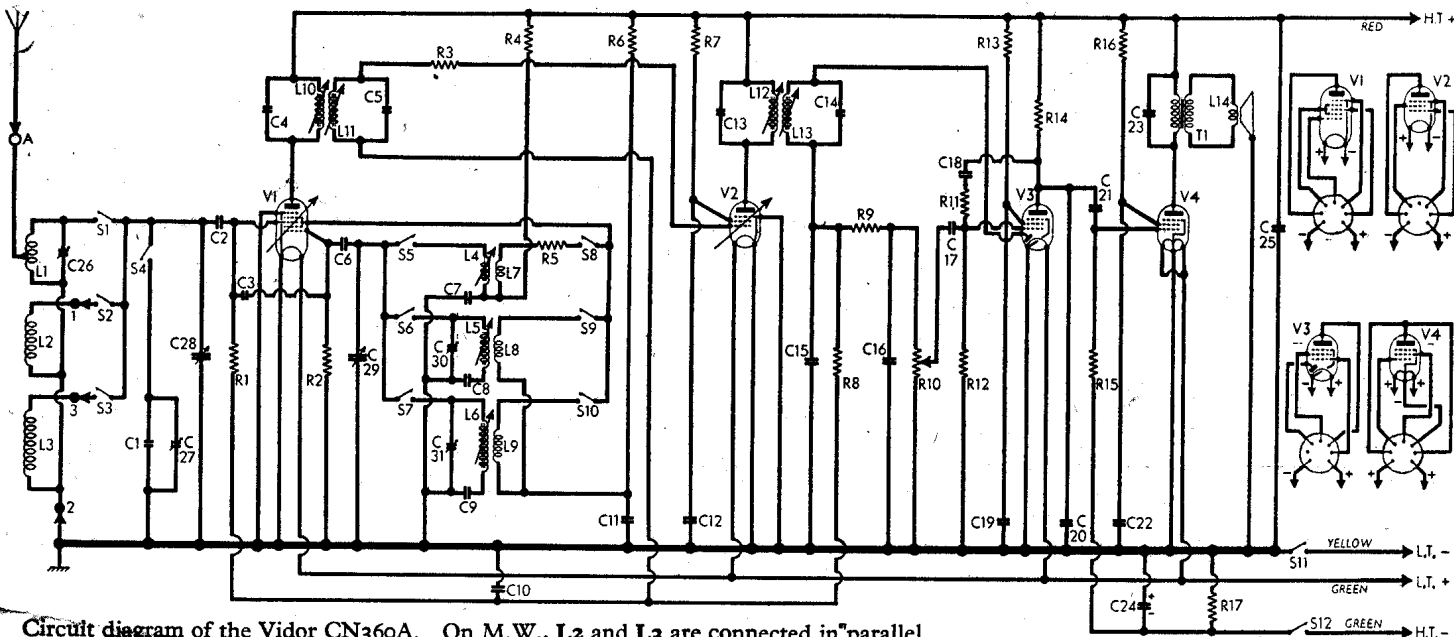
Tuned frame aerial input by L1, C28 (S.W.), L2, L3 (in parallel, C28 (M.W.) and L3, C28 (L.W.) which precede a heptode valve (V1, Mullard DK91) operating as frequency changer with electron coupling. For S.W. operation only, provision is made for the connection of an external aerial to a tapping on L1.

Oscillator grid coils L4 (S.W.), L5 (M.W.) and L6 (L.W.) are tuned by C29, with parallel trimming by C30 (M.W.) and C31 (L.W.), and series tracking by C7 (S.W.), C8 (M.W.) and

COMPONENTS AND VALUES

| RESISTORS | | Values (ohms) | Locations |
|-----------|----------------------|---------------|-----------|
| R1 | V1 pent. C.G. ... | 1,000,000 | G5 |
| R2 | V1 osc. C.G. ... | 100,000 | H5 |
| R3 | V2 C.G. Stopper ... | 820 | H5 |
| R4 | Osc. S.W. H.T. feed | 10,000 | J4 |
| R5 | Osc. S.W. stabilizer | 33 | E2 |
| R6 | Osc. H.T. feed ... | 15,000 | J5 |
| R7 | V2 S.G. H.T. feed... | 68,000 | J5 |
| R8 | A.V.C. decoupling | 2,200,000 | L4 |
| R9 | I.F. stopper ... | 47,000 | L5 |
| R10 | Volume control ... | 1,000,000 | B1 |
| R11 | F-B. coupling ... | 8,200,000 | N5 |
| R12 | V3 pent. C.G. ... | 2,200,000 | M4 |
| R13 | V3 S.G. H.T. feed... | 4,700,000 | M4 |
| R14 | V3 pent. anode load | 1,000,000 | M5 |
| R15 | V4 C.G. resistor ... | 2,200,000 | N5 |
| R16 | V4 S.G. H.T. feed... | 15,000 | M5 |
| R17 | V4 G.B. resistor ... | 820 | K4 |

| OTHER COMPONENTS | | Approx. Values (ohms) | Locations |
|------------------|-------------------------------|-----------------------|-----------|
| L1 | S.W. frame aerial... | Very low | G4 |
| L2 | M.W. frame aerial | 1-3 | D1 |
| L3 | L.W. frame aerial... | 22-0 | E1 |
| L4 | Oscillator tuning coils ... | Very low | E2 |
| L5 | | 0-4 | D3 |
| L6 | | 2-7 | C3 |
| L7 | Oscillator reaction coils ... | Very low | E2 |
| L8 | | 1-5 | D3 |
| L9 | | 2-5 | C3 |
| L10 | 1st I.F. trans. ... | 8-25 | F3 |
| L11 | | 8-25 | F3 |
| L12 | | 8-25 | B2 |
| L13 | 2nd I.F. trans. ... | 10-0 | B2 |
| L14 | | 2-5 | — |
| T1 | Speaker coil | 360-0 | — |
| S1-S10 | trans. { Pri. ... | 0-8 | — |
| S11 | W/band switches ... | — | E1 |
| S12 | L.T. circuit switch | — | B1 |
| S13 | H.T. circuit switch | — | B1 |



Circuit diagram of the Vidor CN360A. On M.W., L2 and L3 are connected in parallel.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating from a set of new batteries. The receiver was tuned to the lowest wavelength on the M.W. band.
Voltages were measured on the 400 V scale of a model 7 Avometer, chassis being the negative connection.

| Valve | Anode Voltage (V) | Anode Current (mA) | Screen Voltage (V) | Screen Current (mA) |
|----------|-------------------|--------------------|--------------------|---------------------|
| V1 DK91 | 82 | 1.25 | 55 | 1.85 |
| V2 DF91 | 82 | 1.1 | 47 | 0.38 |
| V3 DAF91 | 6 | 0.06 | 3 | 0.01 |
| V4 DL92 | 78 | 4.6 | 64 | 1.0 |

GENERAL NOTES

Switches.—S1-S10 are the waveband switches, ganged in two rotary units beneath the chassis. These are indicated in our rear (plan) view of the chassis by the numbers 1 and 2 in diamonds, and shown in detail in the diagrams in col. 2 where they are drawn as seen from the bottom edge of the chassis. The table below gives the switch positions for the three control settings, starting from the fully anticlockwise (L.W.) position of the control knob. A dash indicates open, and C closed.

| Switch | L.W. | M.W. | S.W. |
|--------|------|------|------|
| S1 | — | — | C |
| S2 | — | — | — |
| S3 | — | C | — |
| S4 | C | — | — |
| S5 | C | — | C |
| S6 | — | C | — |
| S7 | — | — | C |
| S8 | — | — | C |
| S9 | — | C | — |
| S10 | C | — | — |

S11, S12 are the Q.M.B. battery switches, ganged with the volume control R10.

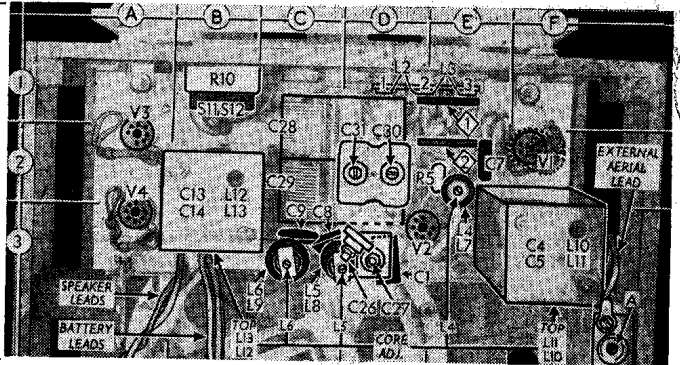
Frame Windings.—The S.W. frame winding L1 runs round the edge of the main wooden support, which forms the sub-baffle, and is indicated in our front (under) chassis view. The M.W. and L.W. windings L2, L3 are on a separate frame which is held to the main support by brackets and are terminated at a tag strip indicated in our rear view (D1, E1) where they are numbered 1, 2, 3 to agree with the circuit diagram.

The oscillator circuit coils L4, L7, L5, L8; and L6, L9 are in three unscreened tubular units. All have adjustable cores, and their positions are indicated in our rear view of the chassis.

Batteries and Leads.—The H.T. battery is a Vidor type L5039 90 V unit with two sockets only for the positive and negative wander plugs. The L.T. unit is a Vidor large-capacity 1.5 V dry battery, type L5050 with a two-pin socket outlet. The larger pin is positive. The lead colours are indicated in the circuit diagram, but in some cases the L.T. negative lead may be blue, and the H.T. negative lead black.

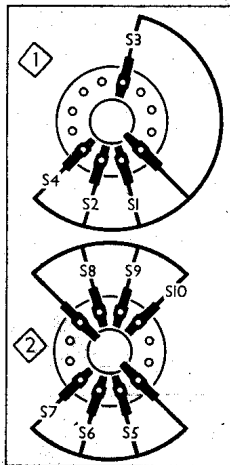
Chassis Divergencies.—Early models had an 8 pf. (0.000008 µF) capacitor in parallel with L4,

Plan view of the chassis. The frame aerial connections 1, 2, 3 just above the tuning gang are on a tag strip mounted on the M.W. and L.W. frame assembly. V1 has a close-fitting shield.



mounted on the metal bracket above C28, and C26 was a Mullard type concentric trimmer mounted above the gang.
Our sample was a model 360 A. In the 360, the frame aerial assembly was differently

Diagrams of the two waveband switch units, drawn as seen from the rear (below). The associated table is on the left, in the next column.



arranged, and was similar to that in the "Riviera" model 351 (Service Sheet 781). The dismantling instructions are modified accordingly.

CIRCUIT ALIGNMENT

Before carrying out these operations the complete receiver must be removed from the carrying case and assembled on the bench.

I.F. Stages.—Connect signal generator, via an 0.0001 µF capacitor in the "live" lead, to control grid (pin 6) of V1 and chassis. Switch set to L.W., tune to 2,000 m on scale, turn volume control to maximum, short-circuit C29 (location reference C2), and feed in a 456 kc/s (657.8 m) signal. Adjust the cores of L13, L12, L11 and L10 (B3, F3) for maximum output, progressively attenuating the input as the circuits are aligned to avoid A.V.C. action. Finally, remove short-circuit from C29 and

disconnect signal generator leads from receiver.
R.F. and Oscillator Stages.—For these operations the batteries must be in their normal positions in the assembly, and the signal generator leads should be secured on the bench, close to the assembly. With the gang at maximum capacitance the pointer should be horizontal and coincident with the high wavelength ends of the three scales.

S.W.—Switch set to S.W., tune to 17 m on scale, feed in a 17 m (17.64 Mc/s) signal, and adjust C26 (D3) for maximum output. Tune to 50 m on scale, feed in a 50 m (6.0 Mc/s) signal, and adjust the core of L4 (E2) for maximum output whilst rocking the gang. Repeat the 17 m and 50 m adjustments.

M.W.—Switch set to M.W., tune to 200 m on scale, feed in a 200 m (1,500 kc/s) signal, and adjust C30 (D2) for maximum output. Tune to 550 m on scale, feed in a 550 m (545.4 kc/s) signal, and adjust the core of L5 (D3) for maximum output. Repeat the 200 m and 550 m adjustments.

L.W.—Switch set to L.W., tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C31 (D2) and C27 (D3) for maximum output. Tune to 2,000 m on scale, feed in a 2,000 m (150 kc/s) signal, and adjust the core of L6 (C3) for maximum output. Repeat the 1,000 m and 2,000 m adjustments.

DISMANTLING THE SET

The chassis, speaker and S.W. frame aerial should be removed from the carrying case as a complete assembly, but before this can be done the M.W. and L.W. frame aerial must be removed.

Removing M.W. and L.W. Frame Aerial.—Remove batteries and lay the carrying case, face downward, on a felt pad;

unsolder the three rubber covered leads from the tag panel at the top of the frame assembly and the systoflex covered lead from the external aerial connection on the right-hand side of the frame;

remove the 4BA nut (with lock washer) securing a vertical metal bracket from the chassis to the left-hand side of the frame, and the 6BA nut (with lock washer) securing a similar bracket mounted on the first I.F. transformer to the right-hand side of the frame;

loosen the 4BA nut of the clamp securing the bottom of the frame to the carrying case and lift out the frame aerial assembly, taking care not to damage the windings.

Removing Chassis Assembly.—Remove the M.W. and L.W. frame aerials as previously described;

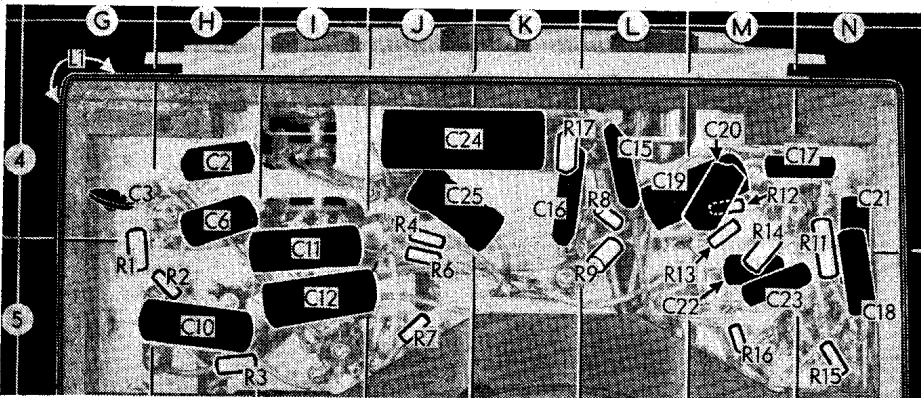
remove the 4BA screw (with nut, lock washer and metal clamp) securing the bottom edge of the assembly to the carrying case;

if the two carrying handle studs (with one nut and washer each) are now removed, the complete assembly may be withdrawn from the case.

When replacing, resolder the frame aerial leads as follows, numbering the three tags on the connecting panel from left to right when viewed from the rear: 1, red; 2, long green rubber covered lead; 3, short green rubber covered lead. The stiff green systoflex covered lead goes to the external aerial connecting tag.

Removing Speaker.—Remove batteries and unsolder the two leads from tags on the speaker input transformer connecting panel; remove the three 4BA nuts (with washers) securing the speaker to the sub-baffle.

When replacing, the transformer should point to the bottom left-hand corner of the carrying case, and a black earthing lead must be fitted beneath the left-hand fixing nut.



Under-chassis view. C18 and C21 are enclosed in sleeving.