# McMICHAEL 364

*Five valve, plus rectifier, two waveband superhet mains transportable with frame aerials. Sockets are provided for external aerial and earth, pickup and low impedance external loudspeaker. Suitable for operation from AC supplies, 200-250 volts, 50-60 cycles. Marketed by McMichael Radio, Ltd., Slough, Bucks.*

THE frame aerial windings L1 (MW) and L2 (LW) are tuned by VC1 section of the ganged condenser and signals are fed direct to the grid of the HF pentode V1 which acts as an amplifying stage. Aerial and earth sockets are provided for the reception of distant signals and a lower end of the grid circuit is taken to the AVC line.

The cathode of V1 is connected to the cathode of V3 and taken to chassis via the biasing resistances R1 and R10. These provide standing bias which may be reduced for extra sensitivity by short circuiting R10 by means of the sensitivity switch S7.

An HF transformer comprising untuned primaries L3, L4 and secondaries L5, L6 tuned by VC2 couple the signal from V1 to the grid of the frequency changer V2. This valve is also AVC controlled while the oscillator circuit employs coupling coils L7 and L8 in the cathode circuit while the anode coils L9, L10 are tuned by VC3. R6 is an oscillation limiter and R7, C8 the grid leak and condenser.

IF signals from V2 are transferred by the transformer L11, L12 to the grid of the IF amplifier V3 which is AVC controlled and whose cathode is coupled to V1 cathode as previously explained.

A second IF transformer L13, L14 hands on the signal to the signal diode of the double diode V4. R27 and C26 are filter components and the load resistance is R15.

Signals are fed from this resistance via the radio-gram switch which cuts out radio when the pickup is in use and C14 to the volume control VR1, and thence to the grid of the output pentode V5.

The AVC diode of V4 is fed from the anode of V3 via C25, the load resistances being R12 and R13. Full control is applied to the grid circuits of V1 and V2 via suitable decoupling components and a smaller control is applied to the grid circuit of V3 via R23 and R11.

A permanent degree of tone correction is effected by C16, while variable tone control is effected by C15 and VR2. An output transformer L15, L16 couples the output of V5 to the energised moving coil loudspeaker of which L17 is the speech coil, L18 the hum bucking coil and L19 the field winding. Extra loudspeaker sockets are provided across the secondary of the output transformer and an internal silencing switch is operated when the extra loudspeaker plug is pushed right home in its sockets.

High tension is derived from the full-wave rectifier V6 and the usual mains transformer and smoothing effected by the field winding L19 in the positive HT circuit and condenser C23, C24.

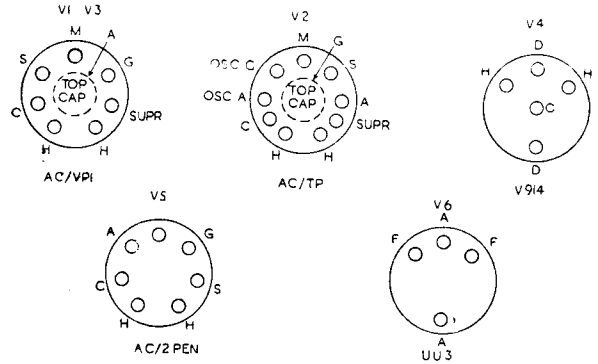
## GANGING

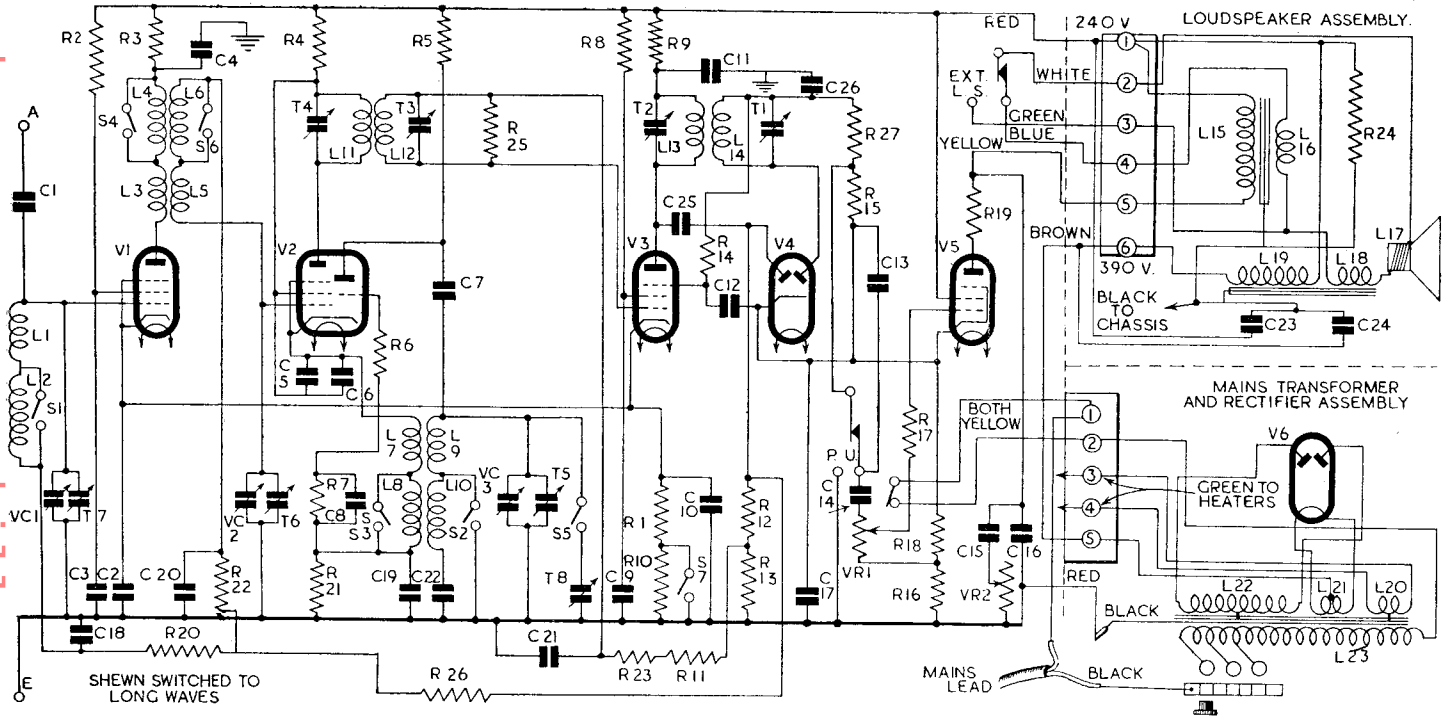
IF CIRCUITS.—Switch receiver to MW and place sensitivity switch in down position. Connect a .1 mfd condenser across VC3 to swamp local oscillator.

Inject a 128.5 kc signal into grid (top cap) of V2 and adjust T1-T4, in that order, for maximum output. Remove swamping condenser.

MW BAND.—Check calibration by adjusting tuning condenser to maximum capacity and noting

(*Continued on next page*)




## CAPACITORS

| C | | Mfds | C | | Mfds |
|---|---|---|---|---|---|
| 1 | | .00001 | 14 | | .005 |
| 2 | | .1 | 15 | | .03 |
| 3 | | .1 | 16 | | .002 |
| 4 | | .1 | 17 | | 25 |
| 5 | | .001 | 18 | | .1 |
| 6 | | 1.4 | 19 | | .1 |
| 7 | | .001 | 20 | | .1 |
| 8 | | .0002 | 21 | | .1 |
| 9 | | .1 | 22 | | 108.1 mmfd. |
| 10 | | .1 | 23 | | 8 mfds. |
| 11 | | .1 | 24 | | 8 |
| 12 | | .03 | 25 | | .0001 |
| 13 | | .0001 | 26 | | .0001 |

## RESISTORS

| R | | Ohms | R | | Ohms |
|---|---|---|---|---|---|
| 1 | | 400 | 16 | | 350 |
| 2 | | 20,000 | 17 | | 100,000 |
| 3 | | 5,000 | 18 | | 150 |
| 4 | | 10,000 | 19 | | 50 |
| 5 | | 60,000 | 20 | | 500,000 |
| 6 | | 1,000 | 21 | | 750 |
| 7 | | 50,000 | 22 | | 500,000 |
| 8 | | 20,000 | 23 | | 500,000 |
| 9 | | 5,000 | 24 | | 40,000 |
| 10 | | 750 | 25 | | 500,000 |
| 11 | | 500,000 | 26 | | 1 meg |
| 12 | | 500,000 | 27 | | 100,000 |
| 13 | | 500,000 | VR1 | | 500,000 |
| 14 | | 1 meg | VR2 | | 100,000 |
| 15 | | 500,000 | | | |

## WINDINGS

| L | | Ohms | L | | Ohms |
|---|---|---|---|---|---|
| 1 | | 2.5 | 13 | | 43 |
| 2 | | 20 | 14 | | 43 |
| 3 | | 3.5 | 15 | | 350 |
| 4 | | 2.5 | 16 | | .5 |
| 5 | | 4.5 | 17 | | 2.5 |
| 6 | | 12 | 18 | | |
| 7 | | .5 | 19 | | 2000 |
| 8 | | 1 | 20 | | Very low |
| 9 | | 3.5 | 21 | | Very low |
| 10 | | 7.5 | 22 | | 300+300 |
| 11 | | 43 | 23 | | 21+2+2 |
| 12 | | 43 | | | |

## VALVE READINGS

| V | Type | Electrode | Volts |
|---|---|---|---|
| 1 | AC VP1 | Anode | 210 |
| | | Screen | 200 |
| | | Cathode | 5 |
| 2 | AC TP | Anode | 180 |
| | | Osc. Anode | 110 |
| | | Screen | 180 |
| | | Cathode | 6 |
| 3 | AC VP1 | Anode | 210 |
| | | Screen | 200 |
| | | Cathode | 5 |
| 4 | V 914 | Cathode | 15 |
| 5 | AC 2PEN | Anode | 230 |
| | | Screen | 240 |
| | | Cathode | 15 |
| 6 | UU3 | Filament | 390 |

Voltages taken with S7 down and Universal Avometer

## McMICHAEL 364

*Continued*

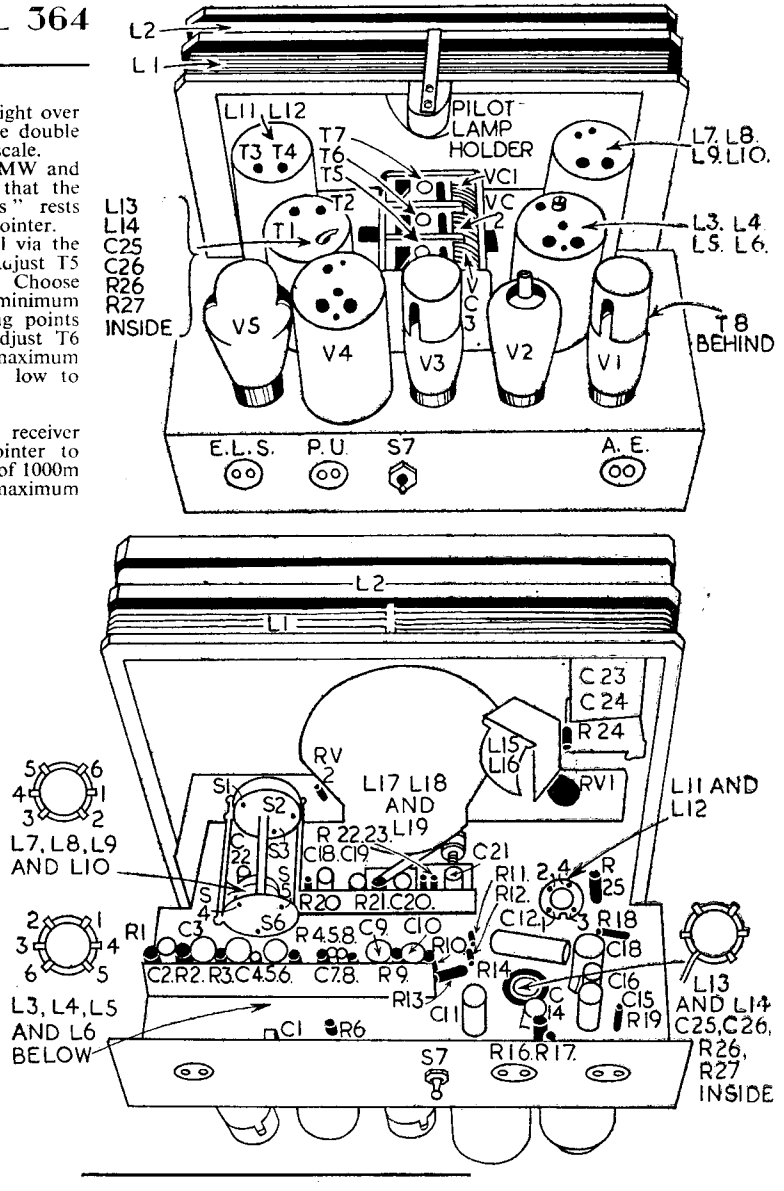
that the pointer rests right over the black mark on the double line forming the outer scale.

Switch receiver to MW and tune it to 214m so that the name "Radio Lyons" rests along the edge of the pointer.

Inject a 214m signal via the A and E sockets and adjust T5 for maximum output. Choose the setting nearer minimum capacity if two peaking points are noticed. Then adjust T6 and readjust T5 for maximum output keeping input low to avoid AVC action.

T7 is not adjustable.

LW BAND.—Switch receiver to LW and tune pointer to 100m. Inject a signal of 1000m and adjust T8 for maximum output.




**Above: top view, and below: underside view, of the chassis of the McMichael 364.**

## Lesson in Psychology

QUOTATION from the *People's Journal*, Dundee, in which a contributor describes efforts to buy a receiver:

"One point which struck me was the eagerness of salesmen to emphasise how easily this or that radio could be serviced.

"Isn't this a psychological error? The purchaser of a new set is surely expecting long and good service from his purchase before it is in need of repair."

Moral, don't talk shop in the shop!

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In the Ambassador 545H (July issue) half the AVC voltage is applied to the grid of the HL42 DD, not the full voltage as stated in our review. L17 is a 4-volt heater winding, not a 6-volt. Capacity of C7 is .006 mfd.