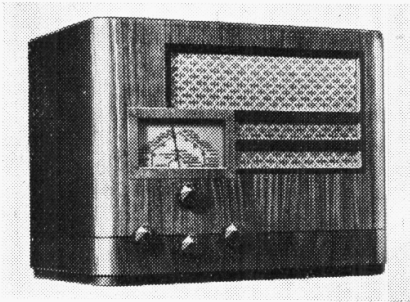


'TRADER' SERVICE SHEET

312

PYE Q70

3-VALVE BATTERY RECEIVER



CIRCUIT DESCRIPTION

Two alternative aerial input sockets, **A1** via series condenser **C1** or **A2** via Drotiwch filter **L1**, **C2**, to coupling coil **L2** and inductively coupled band-pass filter. Primary coils **L3**, **L4** are tuned by **C9**; secondaries **L5**, **L6** by **C11**.

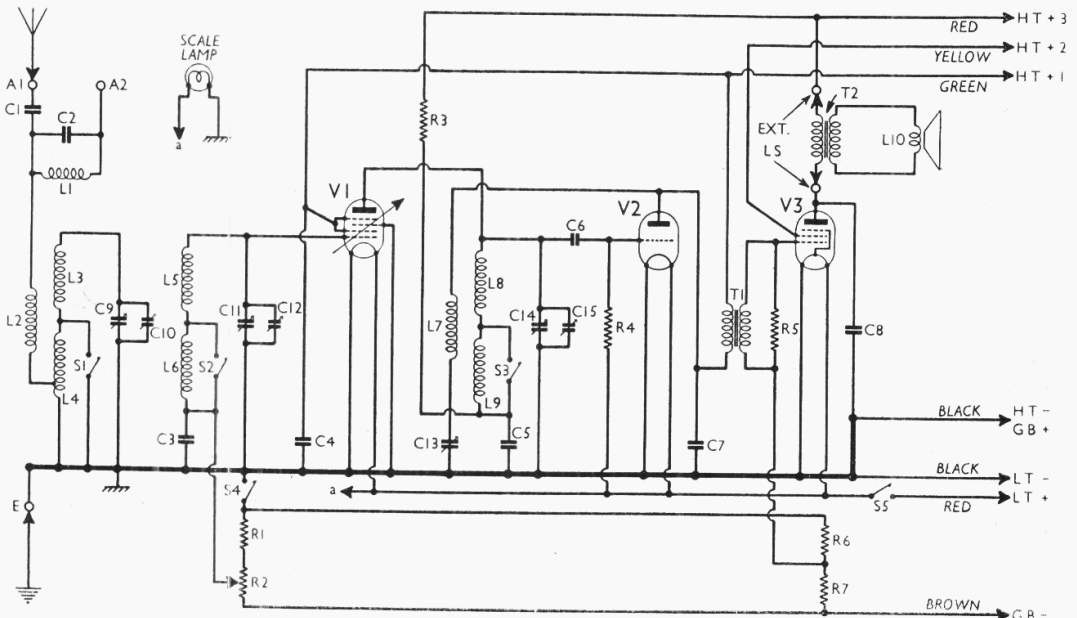
First valve (**V1**, Ever Ready metallised **K50N** or Mullard **VP2B**) is a hexode operating as RF amplifier with gain control by **R2**, which varies GB applied.

Tuned-anode coupling by **L8**, **L9** and **C14** between **V1** and triode detector valve (**V2**, Ever Ready metallised **K30K** or Mullard **PM2HL**) which operates on the grid leak system with **C6** and **R4**. Reaction is applied from anode by coil **L7** and controlled by variable condenser **C13**. RF filtering in anode circuit by condenser **C7**.

Directly-fed transformer coupling by **T1**, **R5** between **V2** and pentode output valve (**V3**, Ever Ready **K70B** or Mullard **PM22A**). Fixed tone correction in anode circuit by condenser **C8**. Provision for connection of high-impedance external speaker in anode circuit by means of socketed plugs used for connection of primary of speaker transformer **T2**.

GB potential for **V3** is obtained from junction of resistances **R6**, **R7** which form a potential divider across GB section of HT battery and, together with **R1**, **R2**, discharge the GB cells at approximately the same rate as those of the HT section.

Circuit diagram of the Pye Q70 battery receiver. Note the Drotiwch filter **L1**, **C2**.



COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 fixed GB resistance	3,000
R2	V1 gain control	50,000
R3	V1 anode HT feed	3,000
R4	V2 CG resistance	2,000,000
R5	T1 secondary damping	500,000
R6	V3 GB potential divider	500
R7		750

CONDENSERS		Values (μF)
C1	A1 aerial series condenser	0.0002
C2	A2 Drotiwch filter tuning	0.00015
C3	V1 CG decoupling	0.1
C4	V1 SG and V2 anode RF by-pass	0.1
C5	V1 anode decoupling	0.1
C6	V2 CG condenser	0.00007
C7	V2 anode RF by-pass	0.0003
C8	Fixed tone corrector	0.005
C9†	Band-pass pri. tuning	—
C10†	Band-pass pri. MW trimmer	—
C11†	Band-pass sec. tuning	—
C12†	Band-pass sec. MW trimmer	—
C13†	Reaction control	0.0005
C14†	V1 anode circuit tuning	—
C15†	V1 anode MW trimmer	—

† Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Drotiwch filter coil	30.0
L2	Aerial coupling coil	8.5
L3	Band-pass primary coils	3.7
L4		15.0
L5	Band-pass secondary coils	3.7
L6		15.0
L7	Reaction coil	2.7
L8	V1 anode circuit tuning coils	2.6
L9		18.2
L10		1.7
L10	Speaker speech coil	—
T1	Intervalve { Pri.	1,200.0
	{ Sec.	2,600.0

OTHER COMPONENTS (Continued)		Approx. Values (ohms)
T2	Speaker input { Pri.	600.0
	{ trans. { Sec.	0.2
S1-S3	Waveband switches	—
S4	GB circuit switch	—
S5	LT circuit switch	—

DISMANTLING THE SET

Removing Chassis. — Remove the knobs (recessed grub screws) and the felt washers from the four control spindles, and the two bolts (with washers) holding the chassis to the bottom of the cabinet. The chassis can now be withdrawn to the extent of the speaker leads.

If it is desired to free the chassis entirely, unplug the speaker leads from the sockets at the back of the chassis.

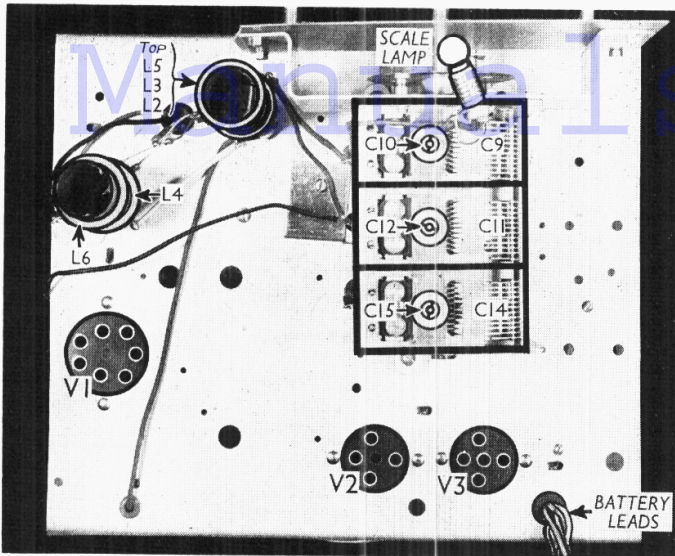
Removing Speaker. — Remove the four screws (with spring washers) holding it to the sub-baffle. When replacing, see that the transformer is on the left.

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 K50N	105	3.7	64	1.4
V2 K30K	64	0.4	—	—
V3 K70B	117	2.2	91	0.4

Valve voltages and currents given in the table above are those measured in our receiver when it was operating with a new HT battery reading 128 V overall, on load. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

Voltages were measured on the 400 V



Plan view of the chassis. Two un-screened coil units can be seen. The three trimmers on the gang condenser are the only ones in the receiver.

scale of a model 7 Universal Avometer, chassis being negative.

GENERAL NOTES

Switches.—S1-S3 are the waveband switches and S4, S5 the battery circuit switches, ganged together in a single unit beneath the chassis. The switches are all indicated in our under-chassis view. S1-S3 are all closed on MW and open on LW. S4, S5 are open in the "off" position and closed on MW and LW.

Coils.—These are all unshielded. L1 is beneath the chassis; L2, L3, L5 and L4, L6 are in two units on the chassis deck; while L7-L9 are in a single unit beneath the chassis.

Scale Lamp.—This is an Ever Ready MES type, rated at 2.0 V, 0.1 A.

External Speaker.—A high impedance (15,000-20,000 Ω) type can be connected to the socketed plugs of the internal speaker, at the rear of the chassis.

Condenser C1.—This is stated to be 0.0003 μF by the makers, but was 0.0002 μF in our chassis.

Batteries.—LT, Pye 2 V 45 AH mass-type glass-cased cell. HT and GB, Pye

126 V dry battery, tapped at 1.5 V intervals from negative to 12 V positive, and thence at larger intervals.

Battery Leads and Voltages.—Black lead, spade tag, LT negative; red lead, spade tag, LT positive, 2 V; black lead and plug, HT negative and GB positive, in 9 V positive socket of battery; brown lead and plug, GB negative, in negative socket of battery; green lead and plug, HT positive 1, +72 V socket; yellow lead and plug, H.T. positive 2, voltage according to letter on V3 (A, 124.5 V; B, 117 V; C, 108 V; D, 99 V); red lead and plug, HT positive 3, +126 V socket.

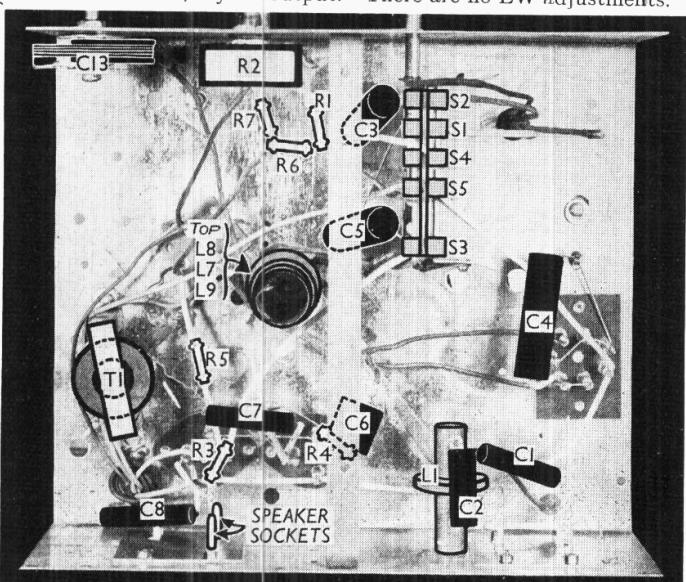
CIRCUIT ALIGNMENT

When the gang is fully in mesh, pointer should cover dot at higher wavelength end of scale.

Volume control should be at maximum and reaction at minimum. Connect signal generator, via dummy aerial, to A1 and E sockets.

Switch set to MW, feed in a 200 m (1,500 KC/S) signal, tune to 200 m on scale, and adjust C10, C12, C15 for maximum output. There are no LW adjustments.

Under-chassis view. L1, and L7-L9 are both unshielded. All the switches are indicated.



Continued from page VIII

Receiver	No.
Mullard MA3 (AC) ...	63
MAS3 (AC) ...	170
MB3 (Battery) ...	24
MB3B (Battery) ...	137
MAS4 (AC) ...	192
MB4 (Battery) ...	83
MBS4 (Battery) ...	218
MAS6 (AC) ...	272
MAS8 (AC) ...	290
MU35 (AC/DC) ...	48
Philco A53, A537BG, A537CG, A537RG (AC) ...	256
233 (Battery) ...	27
255 (Battery) ...	82
260, 261 (AC) ...	6
269, 444 (AC) ...	146
280, 1280, 1280X (AC/DC) ...	62
290 (AC/DC) ...	112
295 (Battery) ...	134
333 (Battery) ...	165
P337 (Battery) ...	233
471 (AC) ...	190
U427 (AC/DC) ...	211
P538 (Battery) ...	306
Philips V5A (AC) ...	220
213U (AC/DC) ...	156
575A (AC) ...	128
577A (AC) ...	68
580A (AC) ...	36
588A (AC) ...	26
634A (AC) ...	7
716B (Battery) ...	294
747A, 747AX (AC) ...	268
821B (Battery) ...	183
838U (AC/DC) ...	87
Pilot U225, CU225, RU225, RGU226, RGAU226 (AC/DC) ...	186
B344, CB344 (Battery) ...	234
U355, CU355, RU355 (AC) ...	212
U357, CU357, LM357, RGU357, RGAU357 (AC/DC) ...	299
U385, CU385, LM385, RGU385, RGAU385 (AC) ...	259
U650, CU650, RGU650, RGAU650 (AC) ...	168
Portadyne B72 (Battery) ...	12
J/AC (AC) ...	42
Pye Baby Q (Battery) ...	277
P/B (Battery) ...	1
QSM, T/M (AC) ...	89
QTRF (Battery) ...	251
QAC2 (AC) ...	207
QAC3 (AC) ...	228
QAC38 (AC) ...	303
Q70 (Battery) ...	312
SE/AC (AC) ...	34
TQ (Battery) ...	50
T9, T9C, T9/RG (AC) ...	72
T10A (AC) ...	120
T18 (AC) ...	178
T20 (AC) ...	150
T21 (AC) ...	38
T61 (Battery) ...	140
R.A.P. Continental (AC/DC) ...	44
Regentone AC56 (AC) ...	88
Telsen 474, 1240 (AC) ...	15
TruPhonic UW5, RG/UW5 (AC/DC) ...	110
Ultra Tiger (AC) ...	3
22 (AC) ...	19
25 (AC) ...	66
47 (AC) ...	216
48 (AC) ...	194
50 (AC) ...	236
66 (AC) ...	85
77 (Battery) ...	109
95, 97, 102 (AC/DC) ...	126
96, 99, 101 (AC) ...	148
103 (Battery) ...	171
115, 125 (AC) ...	278
121, 133, 140, 150 (AC) ...	300
Varley AP46 (AC) ...	5
Vidor 212 (Battery) ...	125
216, 217 (AC) ...	105
232 (Battery) ...	67
253 (and Burndept 251) (Battery) ...	157
254 (and Burndept 252) (AC/DC) ...	155
258 (AC) ...	179
268 (and Burndept 270) (Battery) ...	197
269 (and Burndept 271) (AC/DC) ...	199
272 (and Burndept 274) (Battery) ...	289
273 (Battery) ...	223
275 (and Burndept 266) (Battery) ...	239
277, 280, 291 (and Burndept 267) (AC) ...	219
278, 282 (Battery) ...	253
279, 283 (AC) ...	275
284 (and Burndept 276) (AC/DC) ...	269