TECHNICAL INFORMATION

COVERING

ALL WAVE RECEIVER TYPE 839

COLLIER & BEALE Ltd., WELLINGTON

TYPE SET.—A.C. Superhetrodyne Five-position Tone Control.

TUBES (eight)—7B7 R.F. Amp., 7S7 Converter, 7B7 I.F. Amp., 7C6 Det-A.F., 7B7 A.F. Equalizer, 7C5 Power Output, 7Y4 Rectifier, 6U5 Tuning Indicator.

POWER SUPPLY—230 v. A.C. Rating, 62 watts.

TUNING RANGE—Broadcast, 535-1630 K.C., Medium Wave, 3.2-8.2 Mc., Shortwave, 7.5-22.3 Mc.

ALIGNMENT INSTRUCTIONS

To set pointer, fully mesh variable condenser and set pointer at last reference mark at left end of dial. Set volume control at maximum and keep output from signal generator no higher than necessary to obtain output readings.

Dummy Antenna	Signal Generator Coupling	Sig. Gen Frequency	Band Switch Position	Radio Dial Setting	Output Meter	Adjust	Remarks
0.1 μfd.	High side to pin No. 6 (grid) of 7S7	455 Kc.	B.C.	High freq. end	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output
R.M.A. Standard	High side to ant. Terminal	1400 Kc.	„	1400 Kc.	„	C41	„ „
„	„	1400 Kc.	„	1400 Kc.	„	C38 & C35	„ „
„	„	600 Kc.	„	Rock Variable	„	C29	„ „
„	„	7.5 Mc.	M.W.	7.5 Mc.	„	C42	„ „
„	„	7.5 Mc.	„	7.5 Mc.	„	C39 & C36	„ „
„	„	20 Mc.	S.W.	20 Mc.	„	C43	„ „
„	„	20 Mc.	„	20 Mc.	„	C40 & C37	„ „

CAPACITORS

Ref. No.	Cap.	Volts
C1	40 μfd.	450
C2	40 „	„
C3	25 „	35
C4	25 „	„
C5	10 „	450
C6	10 „	„
C7	8 „	„
C8-13	0.1 „	600
C14-18	0.05 „	„
C19	0.03 „	„
C20-21	0.01 „	„
C22	0.0057 „	Mica
C23-24	0.005 „	„
C25	0.0035 „	„
C26	0.002 „	„
C27-28	0.001 „	„
C29	600 μμfd.	Padder
C30	500 „	Mica
*C31-*32	250 „	„
C33A	100 „	„
*C33-34	100 „	„
C35-43	3-30 „	Trimmer
C44-47	25 „	Ceramic
C48-49	5 „	„
C50	1 „	Gimmick

MISCELLANEOUS

Ref. No.	Res., Pri.	Res., Sec.	
785	17.5 ohm	2.57 ohm	Broadcast
485	69 ohm	2.4 ohm	„
185-1	2.1 ohm	2.5 ohm	„
716	0.23 ohm	0.028 ohm	Short Wave
416	0.44 ohm	0.028 ohm	„
116	0.47 ohm	0.025 ohm	„
715	0.63 ohm	0.14 ohm	Med. Wave
415	1 ohm	0.14 ohm	„
115	0.58 ohm	0.14 ohm	„
839-1	7 ohm	7 ohm	I.F.T.
839-2	7 ohm	7 ohm	„
	Volts	Volts	Volts
TR5566	230	350 a side	2 x 6.3
T2	5000 ohm output trans.		
CV	Plessey gang type 9393/L22 (437μμfd. max.)		
SW1A-H	3 pos. 8-pole band switch		
SW2A-B	2 pos. 2-pole radiogram switch		
SW3A-D	5 pos. 4-pole tone switch		
SW4	S.P.S.T. switch attached to R5		
PL	6.3 v., 0.3 amp. M.E.S. lamp		

RESISTORS

Ref. No.	Res.	Watts
R 1	10 meg.	½
R 2	5 „	„
*R 3	2 „	„
R 4	1 „	„
R 5	0.5 „	Pot.
R6-7	0.5 „	½
R8-10	250K ohm	„
*R11	100K „	„
R12-13	75K „	„
R14	50K „	1
R15	50K „	½
R16	30K „	„
R17	27K „	2
R18	15K „	½
*R19	10K „	„
R20	2K „	„
R21	1.5K „	5
R22	1.0K „	½
R23	750 „	„
*R24	600 „	„
R25-26	500 „	„
R27	300 „	1
R28	300 „	½
R29	200 „	„
R30	100 „	„
R31	75 „	„
*R32	47 „	„

* Current value shown.

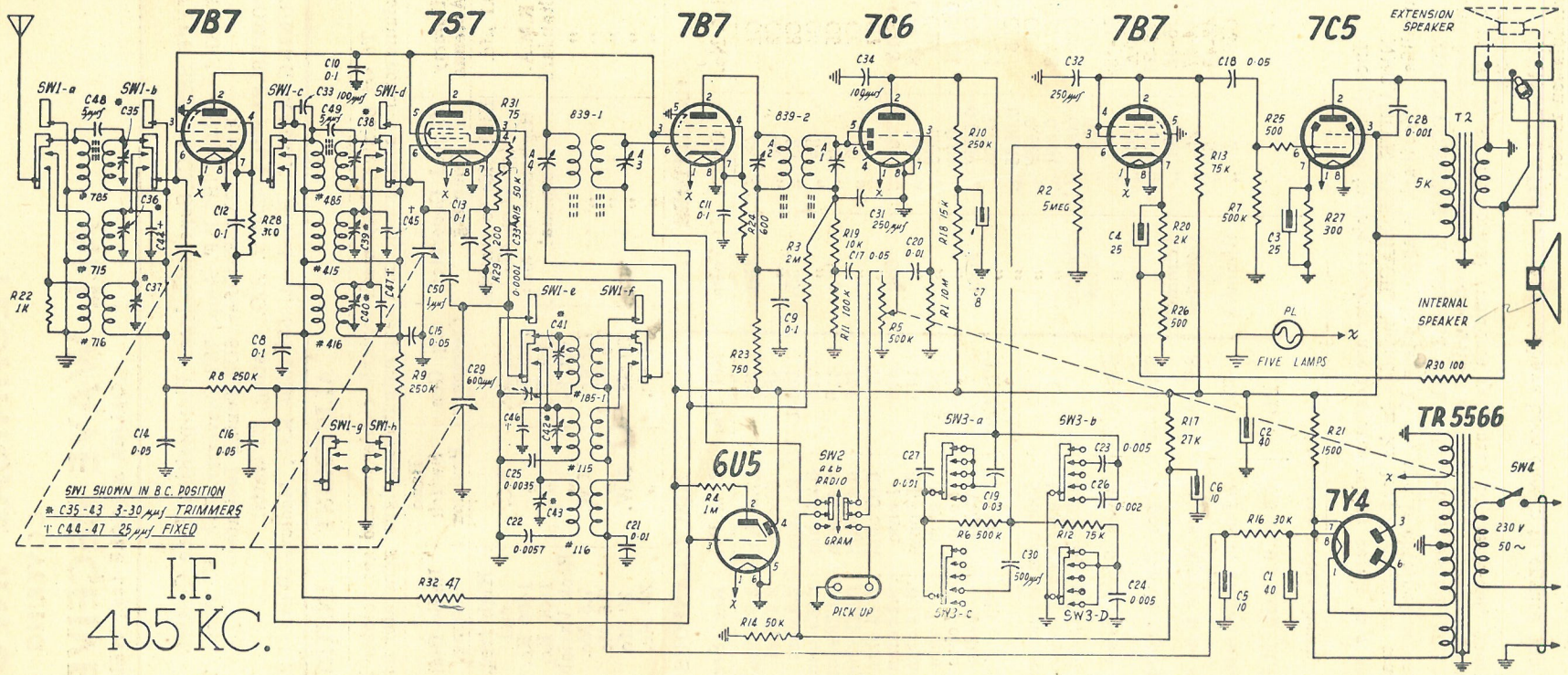
Incorporated in this receiver are features which result in a special standard of performance:

NEGATIVE FEEDBACK, includes in its loop the output transformer, the output stage and the preceding amplifier. Feedback is approximately 10 db, and is obtained across the whole secondary winding.

TONE CONTROL is achieved with a 5-position switch which selects fixed equalizers forming the coupling unit between the demodulator-amplifier and the 7B7 "equalizer"-amplifier. The response of the audio section may be varied from the normal (uniform response) to treble-cut, bass-boost, bass- and treble-boost and bass- and treble-cut.

DEMODULATOR components have been chosen to ensure the minimum distortion on signals having a high modulation factor.

A.V.C. characteristic is arranged for handling of strong BC carriers without rectification in the early amplifiers. Proportioning of stage gains by choice of optimum bias, together with C33 on the BC interstage coil primary, as a gain reduction means, ensures proper operation.



SCHEMATIC DIAGRAM MODEL 839

VOLTAGE READINGS

Use	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
R.F.	7B7	6.3A.C.	240	85	3	—	0	3	—
Conv.	7S7	6.3A.C.	240	153	-8	85	0	2.3	—
I.F.	7B7	6.3A.C.	240	85	7.3	—	0	7.3	—
Det-AF.	7C6	6.3A.C.	118	0	—	0	0	—	—
Eq'izer	7B7	6.3A.C.	72	72	72	—	0	5.5	—
Output	7C5	6.3A.C.	230	240	0	—	0	12	—
Rect.	7Y4	317	—	340A.C	153	—	340A.C.	317	317
Eye	6U5	6.3A.C.	20	0	240	—	—		

RESISTANCE READINGS

Use	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
R.F.	7B7	—	100K	50K	300	—	2.4meg.	300	—
Conv.	7S7	—	100K	140K	50K	50K	2.4meg.	200	—
I.F.	7B7	—	100K	50K	600	—	2.1meg.	600	—
Det-AF.	7C6	—	350K	10meg.	—	110K	110K	—	—
Eq'izer	7B7	—	200K	200K	200K	—	5meg.	2.1K	—
Output	7C5	—	100K	100K	500K	—	500K	300	—
Rect.	7Y4	100K	—	300	140K	—	300	—	—
Eye	6U5	—	1.1meg.	2.1meg.	100K	—	—		

1. D.C. voltage measurements are at 2,000 ohms per volt—A.C. voltage measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative. Bandswitch in B.C. position.
4. Nominal tolerance on component values make possible a variation of ± 10% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.
6. Resistance readings in B+ circuits may vary widely according to the condition of filter capacitors.

why does the 7B7 "AF equalizer" (extride) have a 5-M "grid leak" bias res, plus 2K self bias in cathode lead?

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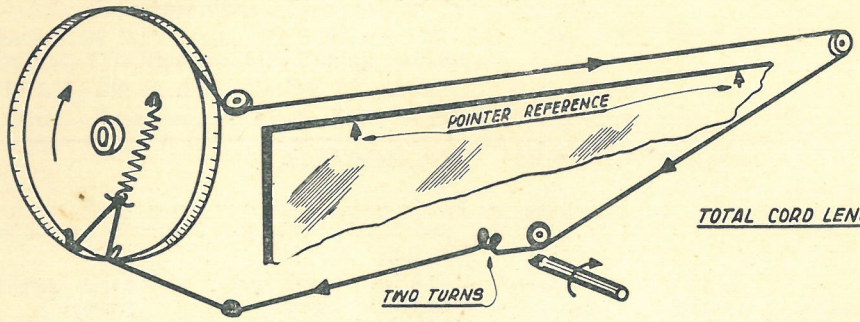
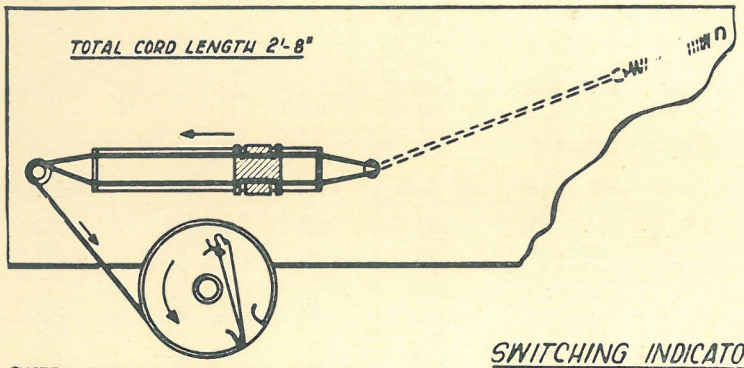
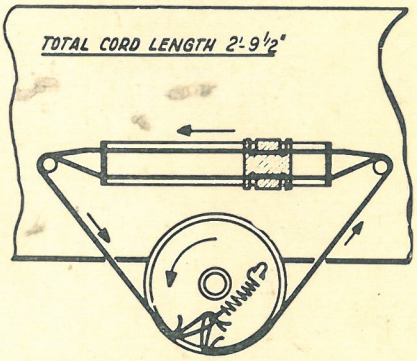


DIAL STRINGING ARRANGEMENT



SYSTEM INITIALLY EMPLOYED IN RECEIVERS



LATER CONSTRUCTION

SWITCHING INDICATORS
STRINGING DIAGRAMS

TONE SELECTOR SWITCHING

CIRCUIT CONDITION IN EACH SETTING