THE FISK AWA RADIOLA

Models 86-Z and 502-Z

FOUR VALVE, ONE BAND, DRY CELL BATTERY OPERATED SUPERHETERODYNES

Technical Information & Service Data

ELECTRICAL SPECIFICATIONS

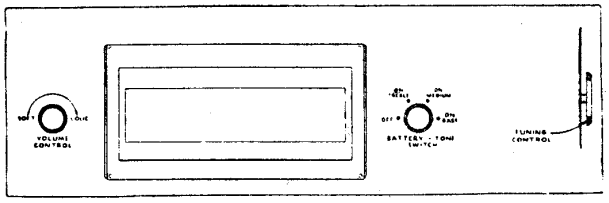
TUNING RANGE: 1600-550 Kc/s.

R.F. ALIGNMENT SETTINGS.
600 Kc/s. (L.F. Osc.), 1500 Kc/s. (H.F. Osc. and Aer.)

INTERMEDIATE FREQUENCY ..... 455 Kc/s.

CURRENT CONSUMPTION
- "A" Battery at 1.5 Volts ..... .25 Amp.
- "B" Battery at 90 Volts ..... 10 M.A.

CONTROLS



VALVE COMPLEMENT
- 1A7GT Converter
- 1P5GT I.F. Amplifier
- 1H5GT 2nd Det., A.V.C. and A.F. Amplifier
- 1Q5GT Output Tetrode

LOUDSPEAKER (Permanent Magnet)
- Model 86Z ..... 5-inch Type AC12
- Model 502Z ..... 7-inch Type AY6
  - Loudspeaker Transformer XA7
  - Voice Coil Impedance ..... 3 ohms at 400 cycles

UNDISTORTED POWER OUTPUT ..... 170 milliwatts

DIAL ILLUMINATION (502Z).

The dial of the Radiola 502Z may be illuminated if desired. A push-button on the front of the cabinet controls two 3.5-4.5-volt torch globes, situated one at each end of the dial scale, current being supplied from a separate 4½-volt "C" bias battery which fits in a receptacle on the chassis shelf inside the cabinet.

ACCUMULATOR OPERATION.

A 2-volt accumulator may be used in place of the standard 1.5-volt dry-cell for "A" supply, but only when the correct resistance is inserted in series with the A+ battery lead. An insulated resistor, Part No. 9393A, which has been designed for the purpose, may be obtained from the Service Department of the Company.

ALIGNMENT PROCEDURE.

As Radiolas are aligned at the factory with precision instruments, it is desirable that the adjustments be left at their original settings unless repairs have been made to the tuned circuits or tampering is suspected. It such is the case, complete re-alignment is advisable.

It is important to apply a definite procedure, as tabulated, and to use adequate and reliable test equipment. Instruments ideally suited to the requirements are the A.W.A. Junior Signal Generator, Type 2R3911, or the A.W.A. Modulated Oscillator, Type J6726. Greater accuracy will result if an output meter is used to give a visual indication of all adjustments made.

If an A.W.A. Modulated Oscillator is used, see that a 250,000 ohms resistor is connected between the output terminals of the instrument.

The ground connection of the test instrument should be connected to the earth terminal of the Radiola during all adjustments.

Perform alignment operations in the proper order, starting with No. 1 and following all operations across, then No. 2, etc. Adjustment points are shown in the layout diagrams. Keep the Volume Control of the Radiola set in the maximum clockwise position and regulate the output of the test instrument so that a minimum signal is introduced to give an observable indication on the output meter. This will avoid A.V.C. action and overloading.

ADJUSTMENT TOOLS.

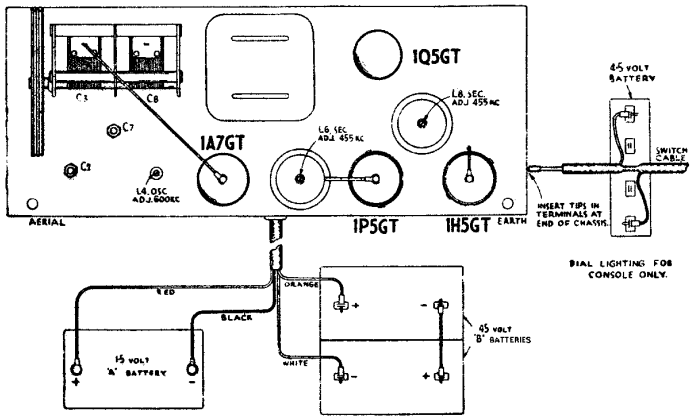
Two tools have been designed for use in the alignment of Radiolas. One is a combination tool for adjusting and locking air-trimmers (Part No. 5371) and the other is a non-metallic screwdriver for making L.F. oscillator and I.F. Transformer adjustments (Part No. 5372).

ALIGNMENT TABLE

Alignment Order.	Test Inst. Connection to Receiver.	Test Inst. Setting.	Receiver Dial Setting.	Adjust. Circuit to	Peak Output. Adjust for Max.
1.	*1A7GT Grid Cap	455 Kc/s.	550 Kc/s.	2nd I.F. Trans.	L8
2.	*1A7GT Grid Cap	455 Kc/s.	550 Kc/s.	2nd I.F. Trans.	L7
3.	*1A7GT Grid Cap	455 Kc/s.	550 Kc/s.	1st I.F. Trans.	L6
4.	*1A7GT Grid Cap	455 Kc/s.	550 Kc/s.	1st I.F. Trans.	L5
	Repeat the above adjustments before proceeding.				
5.	Aerial Terminal	600 Kc/s.	600 Kc/s.†	Oscillator	Core L4
6.	Aerial Terminal	1500 Kc/s.	1500 Kc/s.	Oscillator	C7
7.	Aerial Terminal	1500 Kc/s.	1500 Kc/s.	Aerial	C2
	Repeat adjustments 5, 6 and 7.				

* With grid clip connected. A .001 mfd. condenser should be connected in series with the "hot" output lead of the test instrument.

† Rock the Tuning Control back and forth through the signal. Reset the dial pointer to 600 Kc/s. if necessary. The pointer is soldered to the control wire and may be moved by applying a hot soldering iron to the connection.



Layout Diagram (Top View) and Battery Connections.

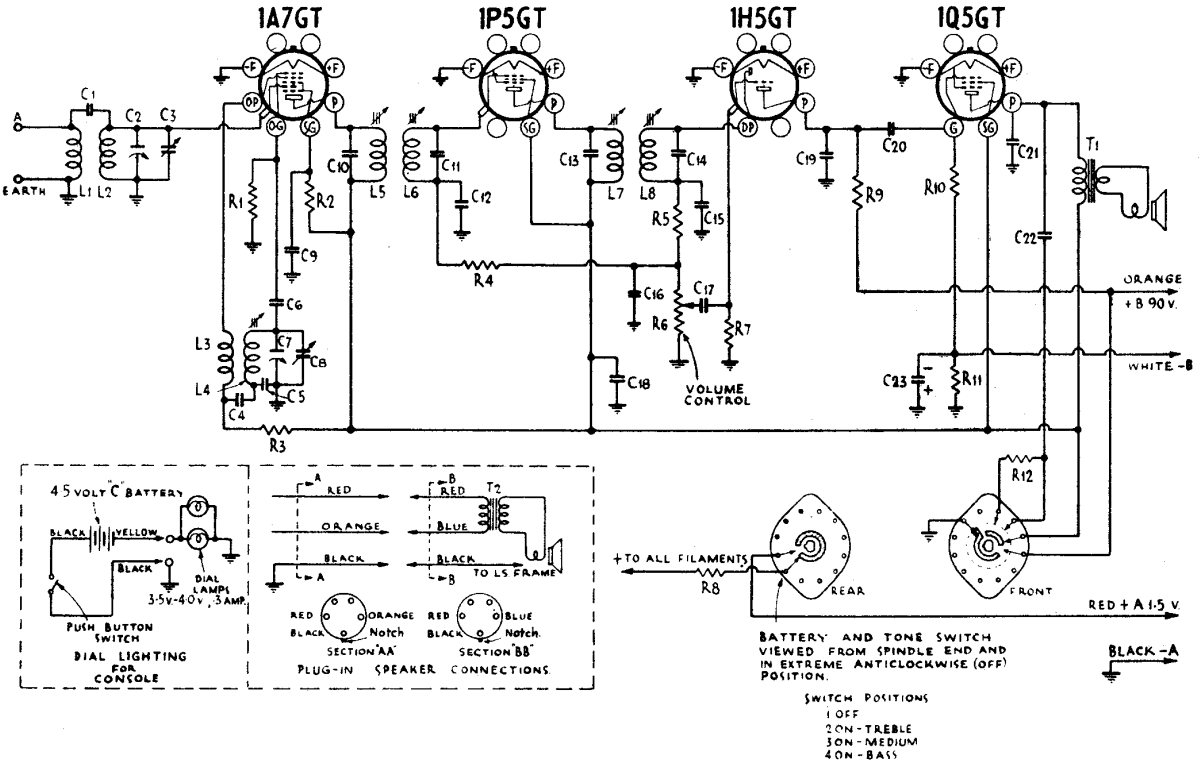
SOCKET VOLTAGES.

VALVE	Bias Volts	Screen Grid to Chassis Volts	Plate to Chassis Volts	Plate Current M.A.	Filament Volts
1A7GT Converter	0	40	84	0.2	1.4
Oscillator	—	—	55	0.8	—
1P5GT I.F. Amp.	0	84	84	1.5	1.4
†H5GT 2nd Det.	0	—	50*	.03	1.4
1Q5GT Output	−6	84	80	6.0	1.4

* Cannot be measured with ordinary voltmeter.

Measured with no signal input and Volume Control in the maximum clockwise position.

CIRCUIT DIAGRAM AND CODE

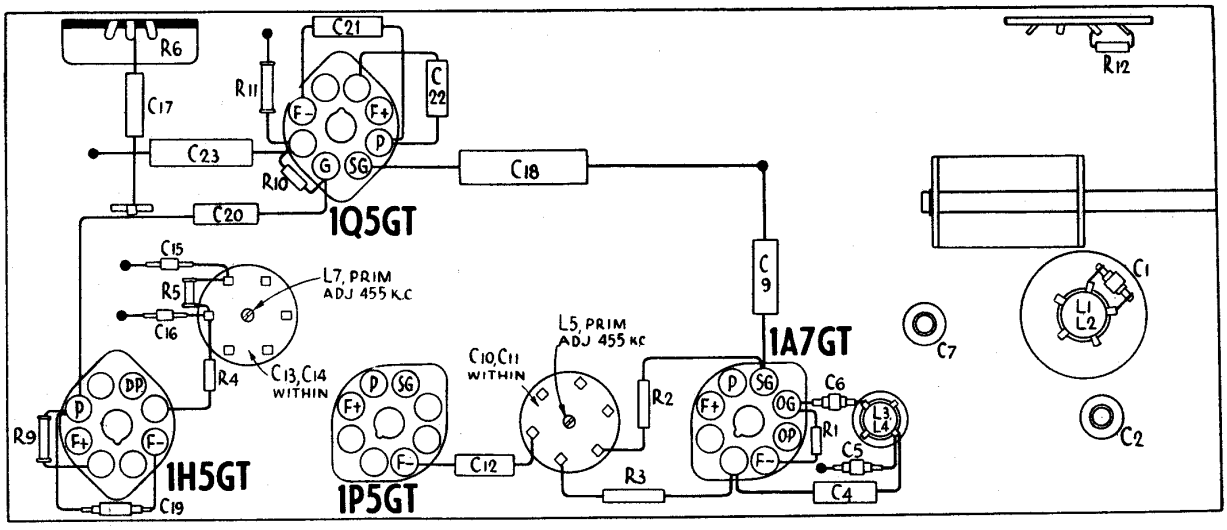


Code No.	Part No.	COILS
L1, L2	7647	Aerial Coil
L3, L4	7638	Oscillator Coil
L5, L6	9303	1st I.F. Transformer
L7, L8	7962	2nd I.F. Transformer

Code No.	Part No.	TRANSFORMERS
T1	XA7	Loudspeaker Transformer
T2	XA7	Loudspeaker Transformer

Code No.	Part No.	RESISTORS
R1		200,000 ohms 1/3 W.
R2		70,000 ohms 1 W.
R3		40,000 ohms 1 W.
R4		1.75 meg. 1/3 W.
R5		20,000 ohms 1/3 W.
R6	7927	500,000 ohms Vol. Cont.
R7		2.3 meg. 1/3 W.
R8		0.4 ohm Wire Wound
R9		1 meg. 1 W.
R10		1.75 meg. 1/3 W.
R11		600 ohms 1 W.
R12		10,000 ohms 1/3 W.

Code No.	Part No.	CONDENSERS
C1		4 mmfd Mica
C2	5462A	6-14 mmfd Air Trimmer
C3	7645	Tuning Condenser
C4		.05 mfd Paper
C5		420 mmfd Mica (Padder)
C6		110 mmfd Mica (L)
C7	9300	22-30 mmfd Air Trimmer
C8	7645	Tuning Condenser
C9		.1 mfd Paper
C10		70 mmfd Mica (N)
C11		70 mmfd Mica (N)
C12		.05 mfd Paper
C13		70 mmfd Mica (N)
C14		70 mmfd Mica (N)
C15		110 mmfd Mica (L)
C16		110 mmfd Mica (L)
C17		.02 mfd Paper
C18		.5 mfd Paper
C19		200 mmfd Mica (J)
C20		.02 mfd Paper
C21		.0025 mfd Paper
C22		.02 mfd Paper
C23		25 mfd 40 V. Electro.



Layout Diagram (Underneath View).

MECHANICAL REPLACEMENT PARTS.

DESCRIPTION.	PART No.
Dial Pointer and Drive Wire	8405
Dial Pointer Tension Spring	1741
Drive Wire Jockey Pulleys	1730
Drive Drum	5068
Tuning Control Spindle	8119
Tuning Control Extension Spindle (502-Z)	8078
Extension Spindle Coupling	8274
Dial Scale—Model 86Z	7687
Dial Scale—Model 502Z	7688
Cone Assembly for Loudspeaker—	
Type AC12	8207
Type AY6	8562

DESCRIPTION.	PART No.
Knobs—Volume and Battery Tone	7482
Knob—Tuning Control (colour to be specified)	7483
Tuning Control Knob Clip	7686
Dial Lamp Sockets (502Z)	4195
Battery—Tone Switch—	
Model 86Z	9032
Model 502Z	9031
Battery Cable	9305
Valve Sockets	4704
Valve Clips	7459
Series Resistor for 2-volt Accumulator Operation	9393A