THE FISK AWA RADIOLA

Models 88 and 190

FIVE VALVE, TWO BAND, VIBRATOR OPERATED SUPERHETERODYNES

Technical Information & Service Data

ELECTRICAL SPECIFICATIONS.

TUNING RANGES
"Standard Medium Wave"—1600-550 K.C.
"Short Wave"— 13.65-45 M.

R.F. ALIGNMENT SETTINGS.
"Standard Medium Wave"—600 K.C. (Osc.), 1500 K.C. (Osc. and Aer.)
"Short Wave"—15 M. (Osc. and Aer.)

INTERMEDIATE FREQUENCY ..... 455 K.C.

BATTERY ..... 6 volt Accum.

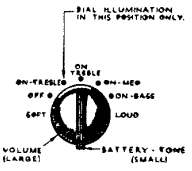
CURRENT CONSUMPTION ..... 1.4 amps.

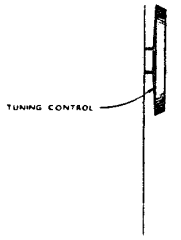
REPLACEMENT FUSE ..... 3.0 amp.

VALVE COMPLEMENT
(1) 6J8G Frequency Converter
(2) 1D5G I.F. Amplifier
(3) 1D5G I.F. Amplifier
(4) 1K7G 2nd Det., A.V.C. and A.F. Amp.
(5) 1G5G Output Pentode

VIBRATOR ..... Oak Type, 65UT

CONTROLS.





LOUDSPEAKER (Permanent Magnet)
Model 88—7-inch Type AY2
Model 190—12-inch Type AU6.

Loudspeaker Transformer—
Loudspeaker Type AY2—XA4
Loudspeaker Type AU6—TU21

Voice Coil Impedance—
Loudspeaker Type AY2—3 ohms at 400 C.
Loudspeaker Type AU6—2.2 ohms at 400 C.

UNDISTORTED POWER OUTPUT ..... 550 milliwatts

The Models 88 and 190 are Table and Console Receivers respectively. The chassis employed in both are identical and interchangeable, but the loudspeakers differ, as will be seen by reference to the above data.

ALIGNMENT PROCEDURE.

Alignment should only be necessary when adjustments have been altered from the factory setting or when repairs have been made to the tuned circuits. Climatic conditions should not seriously affect the receiver.

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 C1070. An output meter is necessary with both these instruments. If the Type C1070 test oscillator is used, see that a 250,000 ohms resistor is connected between the output terminals and, for Short Wave alignment, a 400 ohms non-inductive resistor in series with the active output lead of the instrument.

Connect the ground connection of the test instrument to the receiver chassis.

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

When the receiver has been satisfactorily aligned, seal the adjusting screws with a small quantity of celluloid cement to eliminate the possibility of them shifting and also to indicate whether they have been tampered with after servicing.

ADJUSTING TOOLS.

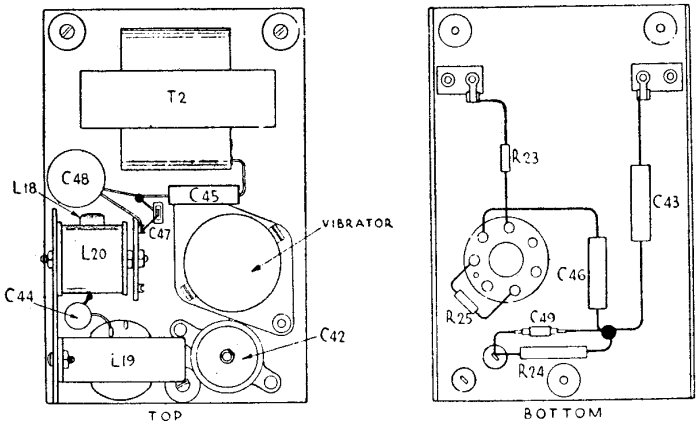
Two tools, which have been specially designed for alignment purposes, may be obtained from the Service Department of the Company. One is for adjusting and locking air-trimmer condensers, and the other is a non-metallic screwdriver for adjusting the cores within the I.F. transformers and the broadcast oscillator coil. The part number of the former is No. 5371 and the latter No. 5372.

VIBRATOR POWER UNIT.

The silent and efficient operation of this unit is the result of the care taken in its development. In servicing, therefore, the following advice may be followed to ensure continued satisfaction.

Don't tamper with or attempt to adjust a vibrator suspected of being faulty. Replace it with one known to be in good order, and of the type specified under "Electrical Specifications." Make sure before installing the replacement that the clips attached to the socket will press firmly and make good contact against the vibrator case.

If a component is removed during servicing, replace it in its original position and connect it to the original points. It will be noticed that there is only one earth connection between the Vibrator Power Unit and the Receiver chassis, and that it terminates in the Vibrator Unit at a point on the chassis near where the components of the unit are earthed. That this be the only earth lead and that the earthing point should not be changed is most important.



Vibrator Power Unit Layout Diagrams.

ALIGNMENT TABLE

Alignment Order.	Test Inst. Connection to Receiver.	Test. Inst. Setting.	Receiver Dial Setting.	Circuit to Adjust.	Adjustment Symbol.	Adjust to Obtain
1	*6J8G Grid Cap	455 Kc/s.	Past 550 Kc/s.††	3rd I.F. Trans.	L13	Max. (Peak)
2	*6J8G Grid Cap	455 Kc/s.	Past 550 Kc/s.††	2nd I.F. Trans	L12	Max. (Peak)
3	*6J8G Grid Cap	455 Kc/s.	Past 550 Kc/s.††	2nd I.F. Trans.	L11	Max. (Peak)
4	*6J8G Grid Cap	455 Kc/s.	Past 550 Kc/s.††	1st I.F. Trans.	L10	Max. (Peak)
5	*6J8G Grid Cap	455 Kc/s.	Past 550 Kc/s.††	1st I.F. Trans.	L9	Max. (Peak)
		Repeat the above adjustments before proceeding.				
6	Aerial Term	600 Kc/s.	600 Kc/s.†	Oscillator	Core L6	Max. (Peak)
7	Aerial Term	1500 Kc/s.	1500 Kc/s.	Oscillator	C5	Max. (Peak)
8	Aerial Term	1500 Kc/s.	1500 Kc/s.	Aerial	C2	Max. (Peak)
		Repeat adjustments 6, 7, and 8.				
9	Aerial Term	15M.	15M.	Oscillator	C7	Max. (Peak)**
10	Aerial Term	15M.	15M.‡	Aerial	C3	Max. (Peak)***

* With grid clip connected. A .001 mfd. condenser should be connected in series with the active 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.

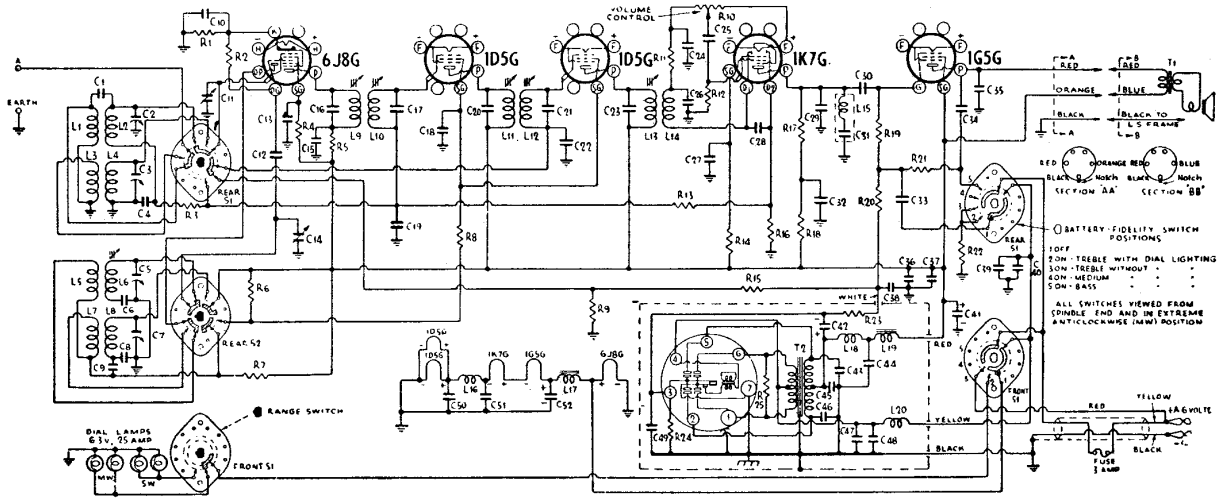
** Use minimum capacity peak if two peaks can be obtained.

*** Use maximum capacity peak if two peaks can be obtained. Check for image signal by tuning the receiver to approx. 16M. It may be necessary to increase the output of the test oscillator to receive the signal.

‡ Rock the tuning control back and forth through the signal.

†† With tuning condenser plates in full mesh.

CIRCUIT DIAGRAM AND CODE—MODELS 88 AND 190

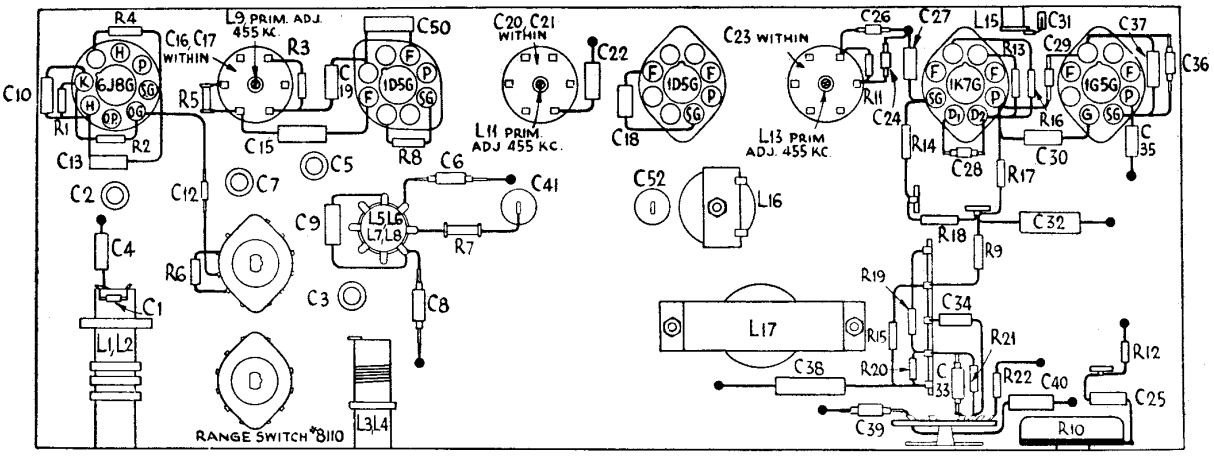


Code No.	Part No.	COILS.
L1, L2	7974	Aerial Coil 1600-550 K.C.
L3, L4	7975	Aerial Coil 13.65-45M
L5, L6	8237	Osc. Coil 1600-550 K.C.
L7, L8	8237	Osc. Coil 13.65-45M.
L9, L10	6076	1st I.F. Transformer
L11, L12	5688	2nd I.F. Transformer
L13, L14	5759	3rd I.F. Transformer
L15, C31	4924	Filter Unit
L16	3149	Choke
L17	TU20	Choke
L18	3136	Choke
L19	8321	Choke
L20	3149	Choke

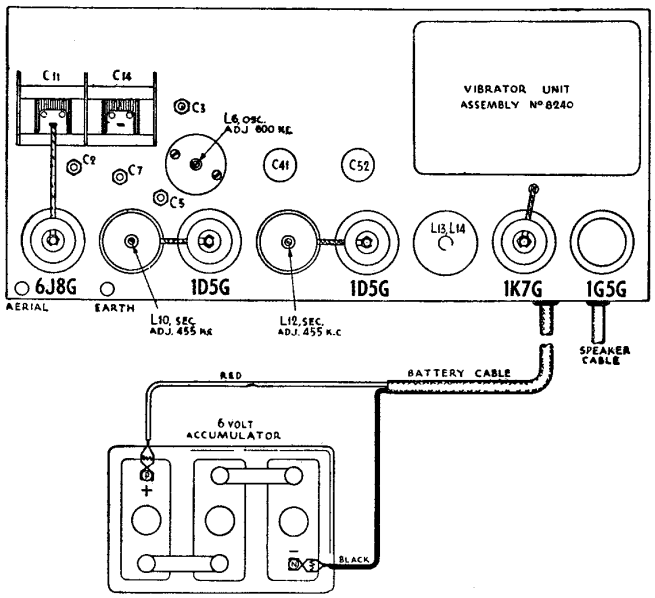
		TRANSFORMERS.
T1	XA4	Loudspeaker Trans. (88)
	TU21	Loudspeaker Trans. (190)
T2	8319	Vibrator Trans.

Code No.	Part No.	RESISTORS.
R1		400 ohms 1/3W
R2		50,000 ohms 1/3W
R3		100,000 ohms 1/3W
R4		20,000 ohms 1W
R5		300 ohms 1/3W
R6		100,000 ohms 1W
R7		600 ohms 1/3W
R8		70,000 ohms 1W
R9		500,000 ohms 1/3W
R10	7903	500,000 ohms Vol. Control
R11		20,000 ohms 1/3W
R12		1.75 megohms 1/3W
R13		1.75 megohms 1/3W
R14		500,000 ohms 1W
R15		2.3 megohms 1/3W
R16		2.3 megohms 1/3W
R17		250,000 ohms 1W
R18		20,000 ohms 1W
R19		390,000 ohms 1/3W
R20		100,000 ohms 1/3W
R21		200,000 ohms 1/3W
R22		15,000 ohms 1/3W
R23		100,000 ohms 1/3W
R24		450 ohms 3W
R25		400 ohms 1/3W

Code No.	Part No.	CONDENSERS.
C1		4 mmfd mica
C2	3661	2-20 mmfd air trimmer
C3	3411A	11-29 mmfd air trimmer
C4		.05 mfd paper
C5	4853A	16-34 mmfd air trimmer
C6		440 mmfd mica (padder)
C7	3658	2-10 mmfd air trimmer
C8		4000 mmfd mica (padder)
C9		.05 mfd paper
C10		.05 mfd paper
C11	7985B	Tuning Condenser
C12		70 mmfd mica (N)
C13		.1 mfd paper
C14	7985B	Tuning Condenser
C15		.1 mfd paper
C16		115 mmfd mica (A)
C17		130 mmfd mica (H)
C18		.1 mfd paper
C19		.05 mfd paper
C20		115 mmfd mica (A)
C21		130 mmfd mica (H)
C22		.05 mfd paper
C23		70 mmfd mica (N)
C24		110 mmfd mica (L)
C25		.02 mfd paper
C26		110 mmfd mica (L)
C27		.1 mfd paper
C28		50 mmfd mica (D)
C29		200 mmfd mica (J)
C30		.02 mfd paper
C31		700 mmfd mica
C32		.5 mfd paper
C33		2000 mmfd mica
C34		.05 mfd paper
C35		.0025 mfd paper
C36		1000 mmfd mica
C37		.5 mfd paper
C38		.5 mfd paper
C39		1000 mmfd mica
C40		.5 mfd paper
C41		8 mfd., 525 P.V. electro.
C42		8 mfd., 525 P.V. Electro.
C43		.01 mfd paper
C44		.01 mfd paper
C45		.01 mfd paper
C46		.01 mfd paper
C47		300 mmfd mica
C48		.5 mfd paper
C49		200 mmfd mica (J)
C50		.1 mfd paper
C51		.1 mfd paper
C52		400 mfd., 12 P.V. Electro.



Layout Diagram (Underneath View)



Layout Diagram (Top View), Showing Battery Connections.

SOCKET VOLTAGES.

VALVE.		Bias Volts	Screen Grid to Chassis Volts	Plate to Chassis Volts	Plate Current to M.A.	Filament Chassis Volts
6J8G Converter	M.W.	3†	93	138	1.0	6
	S.W.	3†	93	134	1.3	—
Oscillator	M.W.	—	—	135	4.5	—
	S.W.	—	—	132	4.5	—
1D5G I.F. Amp.	M.W.	0	27	140	1.2	2.0
	S.W.	0	35	135	1.7	—
1D5G I.F. Amp.	M.W.	-2‡*	27	140	0.7	2.0
	S.W.	0	35	135	2.0	—
1K7G 2nd Det.		-2‡	30	22	0.35	4.0
1G5G Output	M.W.	-13.5	140	134	9.8	6.0
	S.W.	-13.5	135	130	9.0	—

Measured with 1000 ohms per volt meter.

† Cathode to chassis.

‡ Control grid to negative filament.

* Cannot be measured with ordinary voltmeter.

Measured with Volume Control maximum clockwise. No signal input.

MECHANICAL REPLACEMENT PARTS

TUNING MECHANISM.

DESCRIPTION.	Part No.
Pointer (Red) and Saddle, with Drive Wire	6629
Drive Wire Tension Spring	6641
Drive Wire Jockey Pulleys—Large	6246
Drive Wire Jockey Pulleys—Small	7885
Pointer Drive Drum	8030
Main Drive Segment	8039
Main Drive Spindle Assembly	8035
Intermediate Drive Gear Assembly	8037
Dial Scale	8155
Dial Lamp Sockets	4195

MISCELLANEOUS.

DESCRIPTION.	Part No.
Range Switch	8110
Battery-Tone Switch	8111
Battery Cable	6212
Loudspeaker Cable	6475
Tuning Knob	8075
Tuning Knob Clip	7686
Range Switch Knob—Outer	5625
Range Switch Knob—Inner	4589
Volume-Battery-Tone Control Knob—Outer	5625
Volume-Battery-Tone Control Knob—Inner	4589
Knob Clips	7929
Valve Sockets (4)	4704
Valve Socket (Cushion)	7327
Vibrator Socket	8498
Valve Clips	7459
Loudspeaker Cone Assembly—Model 88	8588
Loudspeaker Cone Assembly—Model 190	7251