

Models 514, 514A, 515, 515A

Radio Receivers

Specifications

Frequency Range:

Broadcast, Silver Grey: 530 to 1650 K.C.
Police & Aviation, Green: 1650 to 5050 K.C.
Short Wave, Red: 5400 to 16500 K.C.

I.F.:

463 K.C.

Tubes:

Type	Function
6A8	1st Detector and Oscillator
6K7	I.F. Amplifier
6Q7	2nd Detector, A.V.C., 1st A.F. Amplifier
6F6	Output
80	Rectifier

Power Supply:

Models 514, 515: 105 to 125 volts A.C.
60 cycles
Models 514A, 515A: 105 to 125 volts A.C.
25-60 cycles

A.V.C.:

On 6A8, 1st Detector and 6K7, I.F.
Amplifier

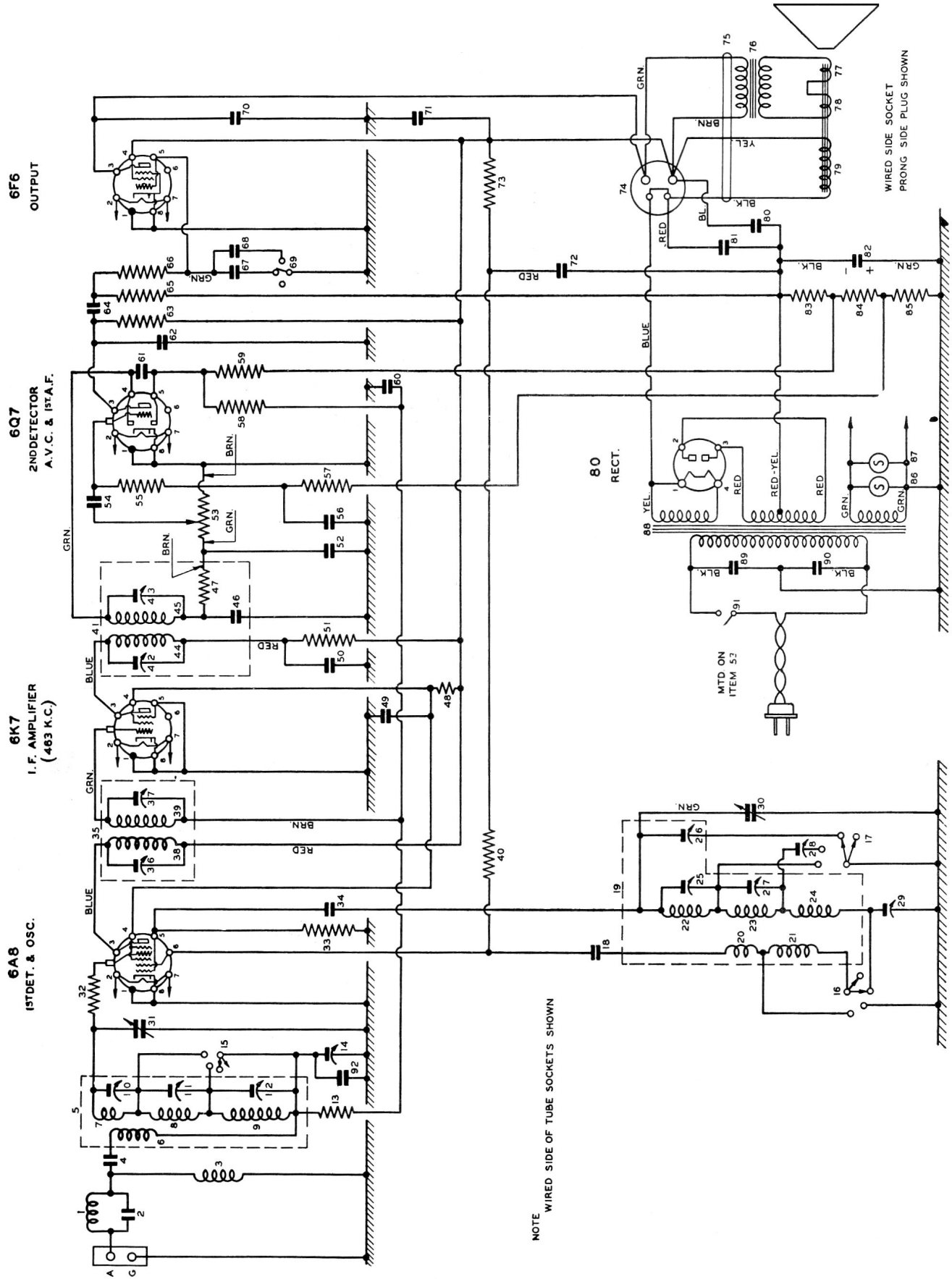
Controls:

Left—A.C. switch and volume control
Centre—Tuning control
Right—Wave change switch

Cabinets:

Models 514, 514A—Table model
Models 515, 515A—Console model

MODELS 514 AND 515 RADIO RECEIVERS



Schematic Diagram—Model 514-515 Receivers

REPLACEMENT PARTS LIST

Item	Description	Part No.	Item	Description	Part No.
1	Antenna Trap Coil.....	K-2367	48	Resistor; 40,000 ohms; 1 watt... K-2363-38	
2	Capacitor; .002 mf; mica		49	Capacitor; .1 mf; 350 volts... K-2228-9	
3	R.F. Choke Coil.....		50	Capacitor; .1 mf; 350 volts... K-2228-9	
4	Capacitor; .02 mf; 175 volts... K-2227-7		51	Resistor; 750 ohms; 1/2 watt... K-2226-17	
5	Ant. Transf. Assy. (Includes items 6-12).....	K-2325	52	Capacitor; 100 mmf; mica.... K-1611-2	
6	Ant. Transf. primary.....		53	Volume Control; 1/2 meg; variable..... K-2207	
7	Ant. Transf. secondary.....		54	Capacitor; .01 mf; 175 volts... K-2227-6	
8	Ant. Transf. Police secondary.....		55	Resistor; 1 meg; 1/2 watt..... K-2226-2	
9	Ant. Transf. Bdct. secondary.....		56	Capacitor; .05 mf; 175 volts... K-2227-8	
10	Trimmer—3-30 mmf.....		57	Resistor; 1/4 meg; 1/2 watt..... K-2226-4	
11	Trimmer—3-30 mmf.....	K-2226-5	58	Resistor; 2 meg; 1/2 watt..... K-2226-1	
12	Trimmer—3-30 mmf.....		59	Resistor; 1 meg; 1/2 watt..... K-2226-2	
13	Resistor; 1/10 meg; 1/4 watt... K-2226-5		60	Capacitor; .1 mf; 175 volts... K-2227-9	
14	Trimmer; 1500-3000 mmf.... K-2304-1		61	Capacitor; 100 mmf; mica.... K-1611-2	
15	Wave Change Switch—Ant. Sect.....	K-2369	62	Capacitor; 100 mmf; mica.... K-1611-2	
16	Wave Change Switch—Osc. Plate Sect.....		63	Resistor; 1/4 meg; 1/2 watt..... K-2226-4	
17	Wave Change Switch—Osc. Grid Sect.....		64	Capacitor; .01 mf; 350 volts... K-2228-6	
18	Capacitor; .002 mf; 350 volts... K-2228-2		65	Resistor; 1/4 meg; 1/2 watt..... K-2226-4	
19	Osc. Coil Assy. (includes items 20-27).....	K-2333	66	Resistor; 1/4 meg; 1/2 watt..... K-2226-4	
20	Osc. S.W. Plate Coil.....		67	Capacitor; 500 mmf; mica.... K-1952-3	
21	Osc. Bdct. Plate Coil.....		68	Capacitor; .001 mf; 350 volts... K-2228-1	
22	Osc. S.W. Grid Coil.....		69	Tone Control Switch..... K-2373	
23	Osc. Pol. Grid Coil.....		70	Capacitor; .005 mf; 350 volts... K-2228-5	
24	Osc. Bdct. Grid Coil.....		71	Capacitor; .1 mf; 350 volts... K-2228-9	
25	Trimmer; 3-30 mmf.....		72	Filter; D.E.; 8 mf; 300 volts... K-2404	
26	Trimmer; 3-30 mmf.....		73	Resistor; 10,000 ohms; 1/2 watt... K-2226-10	
27	Trimmer; 1.5-10 mmf.....	K-1567-6	74	Loudspeaker Plug..... K-2007	
28	Trimmer; 850-1650 mmf., dual		75	Loudspeaker Cable..... —	
29	Trimmer; 300-600 mmf., dual.		76	Output Transformer (Model 514-515)..... K-2217-2	
30	Osc. Sect. Cap. Gang { 495	K-2324	77	Voice Coil & Diaphragm Assy. (Model 514)..... K-2212	
31	Ant. Sect. Cap. Gang { mmf. max.		77-A	Voice Coil & Diaphragm Assy. (Model 515)..... K-2329	
32	Resistor; 50 ohms (flex. lead)... K-2444-1		78	Hum Bucking Coil (Includes Field Coil)..... —	
33	Resistor; 50,000 ohms; 1/2 watt... K-2226-6		79	Field Coil; 1800 ohms (Model 514)..... K-2419	
34	Capacitor; 100 mmf.; mica.... K-1611-2		79-A	Field Coil; 1800 ohms (Model 515)..... { Part of K-2328-2 Loudspeaker assem. }	
35	First I.F. Transf. Assy (includes items 36-39)..... K-2376		80	Filter; Wet. E. Reg.; 18 mf; 300 volts..... K-2403	
36	Trimmer; 25-100 mmf; dual... K2073-1		81	Filter; Wet. E. 12 mf; 450 volts... K-2402	
37	Trimmer; 25-100 mmf; dual... K2073-1		82	Filter; D.E. 10 mf; 25 volts (Part of item 72)..... K-2404	
38	I.F. Transf. primary..... K-2378-1		83	Resistor; 230 ohms; 1 watt... K-2363-37	
39	I.F. Transf. secondary..... K-2378-2		84	Resistor; 65 ohms; 1/2 watt... K-2226-31	
40	Resistor; 10,000 ohms; 1/2 watt... K-2226-10		85	Resistor; 25 ohms; 1/2 watt... K-2226-32	
41	2nd I.F. Trans. Assy. (includes items 42-47)..... K-2382		86	Dial Lamp; 6.3 volt..... K-1024-4	
42	Trimmer; 25-100 mmf; dual... K-2073-1		87	Dial Lamp; 6.3 volt..... K-1024-4	
43	Trimmer; 25-100 mmf; dual... K-2073-1				
44	I.F. Transf. primary..... K-2378-2				
45	I.F. Transf. secondary..... K-2378-2				
46	Capacitor; 100 mmf; mica.... K-1611-2				
47	Resistor; 50,000 ohms; 1/2 watt... K-2226-6				

REPLACEMENT PARTS LIST—continued

Item No.	Description	Part No.	Description	Part No.
88	Power Transformer—60 cycle . . .	K-2385-1	Small Hand Indicator Pointers . . .	K-2395
88-A	Power Transformer—25 cycle . . .	K-2385-2	Pulley & Sleeve Assembly (Main pointer drive)	K-2400
89	Buffer Capacitor; .025 mf; 1100 volts	K-1750	Fabric Belts	K-2393
90	Buffer Capacitor; .025 mf; 1100 volts		Dial Cables	K-1694-7
91	A.C. Switch mounted on item No. 53	—	Dial Cable Fastening Screws (RHM No. 4-36 x 3/16")	K-1203-1
92	Capacitor; 1500 mmf; mica . . .	K-1952-5	Dial Lamp Sockets	K-1428-5
MISCELLANEOUS: —(Not included in item designations)			Escutcheon Label	K-2474
Sockets, 8 contact, octal base			Pins for Mounting Escutcheon Label . . .	PP-2453
Sockets, 4 contact, (rectifier)			Large Tuning Knob	K-2406-1
Antenna Terminal Strip			Small Tuning Knob	K-2406-2
Loudspeaker Socket			Knob—Volume Control, Wave Change and Tone Switches	K-2405
Pulley; main gang shaft			Chassis Mounting Screws—Model 514	K-2503-10
Pulley; gang rotor shaft			Chassis Mounting Screws—Model 515	K-2503-7
Set Screw for rotor shaft pulley— 6-32 x 11-32"			Washers for Chassis Mounting Screws	K-1725-1
Dial Scales			Celluloid Dial Covers	K-2445
Dial Masks			Loudspeaker assem. (Model 514) . .	K-2202-2
Main Indicator Pointers			Loudspeaker assem. (Model 515) . .	K-2328-2

SOCKET VOLTAGE AND CURRENT READINGS

TUBE	Heater A.C. Volts	Plate Volts	Screen Volts	Cathode Volts	Screen Current MA	Plate Current M.A.	
						Normal Bias	Bias. Red. 4½ Volts
6A8 Oscillator & 1st Det.	6.5	250†	90	0	3.5	3.5‡	8.0
6K7 I.F. Amplifier	6.5	250	90	0	1.5	5.5	9.0
6Q7 2nd Detector A.V.C. & 1st Audio	6.5	80	—	0	—	0.6	0.75
6F6 Outout	6.5	220	250	0	5.5	32	39
80 Rectifier	5.15	—	—	375	Plate 28	28	—

†Anode-grid—160 volts. ‡Anode-grid current—4.5 ma.
Power Transformer centre-tap to ground—16 volts.

REALIGNING INSTRUCTIONS

To secure full advantage of the performance characteristics of this receiver, any realignment necessary should be carried out carefully. A reliable test-oscillator or signal generator should be employed, and an output meter. (Do not use an oscillator that relies on harmonics to cover the short-wave bands.)

I. F. ALIGNMENT:

- (a) Set the signal generator at 463 kc., and connect its output through a 0.1 mf. capacitor to the grid cap of the first detector (type 6A8 tube).
- (b) Adjust trimmers 36, 37, 42, 43 for maximum output.
- (c) Reduce the output from the signal generator to as low a value as will give an output reading, and check the adjustments. Volume control of receiver should be adjusted to maximum for all alignment. All trimmers should peak properly.

R. F. ALIGNMENT—SHORT-WAVE, or RED BAND:

- (a) Check position of pointer with gang all in. It should be about 1/16 inch below the 1700 kc. end of the police band calibration.
- (b) Couple the signal generator to the first detector grid through a 400 ohm carbon resistor, and connect the ground terminal to ground.
- (c) Set the generator and receiver at 15.0 megacycles. Adjust the oscillator trimmer, item 25, to bring in the signal. (Make sure the correct peak is obtained and not that due to the image, with the gang turned out more.)
- (d) Adjust the antenna trimmer, item 10, while rocking the gang back and forth.
- (e) Set the generator at 6.0 megacycles and tune the receiver to it. Adjust lagging capacitor, item 14 (connected to the antenna coil) for maximum output.
- (f) Recheck at 15.0 megacycles.

POLICE AND AVIATION, OR GREEN BAND:

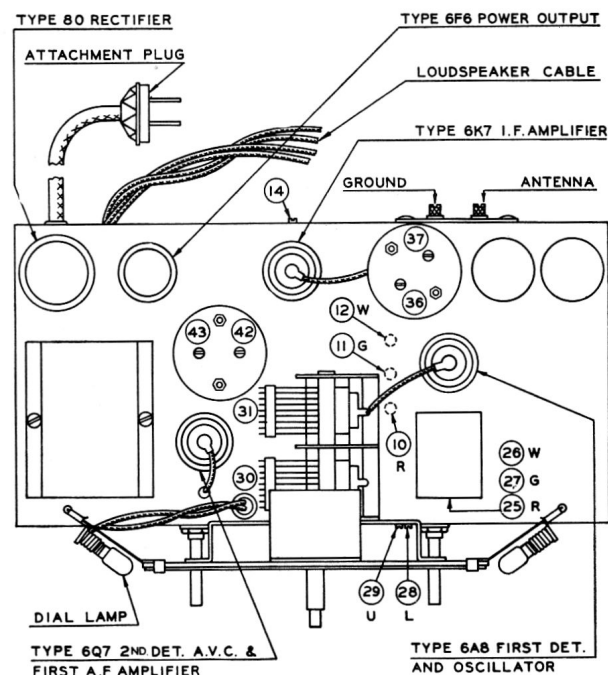
- (a) Using the same 400 ohm dummy antenna, set the generator and receiver at 4.8 megacycles. Adjust the oscillator trimmer, item 27, to bring in the signal (The wrong peak, due to the image, is now that with the gang turned farther in than for the correct one.)
- (b) Adjust the antenna trimmer, item 11, for maximum output, while rocking the gang.

- (c) Set the generator at 1.7 megacycles and tune the receiver to it. Adjust trimmer, item 11, for maximum output.
- (d) Recheck at 4.8 megacycles.

BROADCAST, OR SILVER-GRAY BAND:

- (a) Replace the 400 ohm resistor in the generator lead with a 200 mmf. mica capacitor.
- (b) Set the generator at 1400 kilocycles and the receiver at 1.4 megacycles. Adjust oscillator trimmer, item 26, to bring in the signal.
- (c) Adjust the antenna trimmer, item 12, for maximum output.
- (d) Set the generator at 600 kilocycles, and tune the receiver to the signal. Adjust the lagging trimmer, item 29, for maximum output, while rocking the gang.
- (e) Recheck at 1400 kilocycles.

NOTE:—If trimmer, item 26, is changed greatly while adjusting the broadcast band, the oscillator settings at 4.8 and 15.0 megacycles will change slightly. Therefore, these two points should be rechecked after the broadcast band has been aligned.



Chassis Layout showing Aligning Positions