

Models 516, 517

Battery Operated Radio Receivers

Specifications

Frequency Range:

Broadcast, Black—530 to 1750 K.C.
Short Wave, Red—5500 to 16600 K.C.

I.F.:

463 K.C.

Tubes:

Type	Function
1C7G	1st Detector and Oscillator
1D5G	I.F. Amplifier
1F6	2nd Detector, A.V.C., and 1st A.F. Amplifier
1H4G	2nd A.F. Amplifier
2-1J6G	Output Class "B" Push-Pull

Power Supply:

"A" Battery: 2 volts, or 3 volts dry cell
"B" Battery: 135 volts, or 90 volts

"C" Battery: One 4½ volts when 90 volts
"B" supply; two 4½ volt when
135 volt "B" supply used.

A.V.C.:

On 1C7G, 1st Detector and 1D5G, 1st I.F.

Controls:

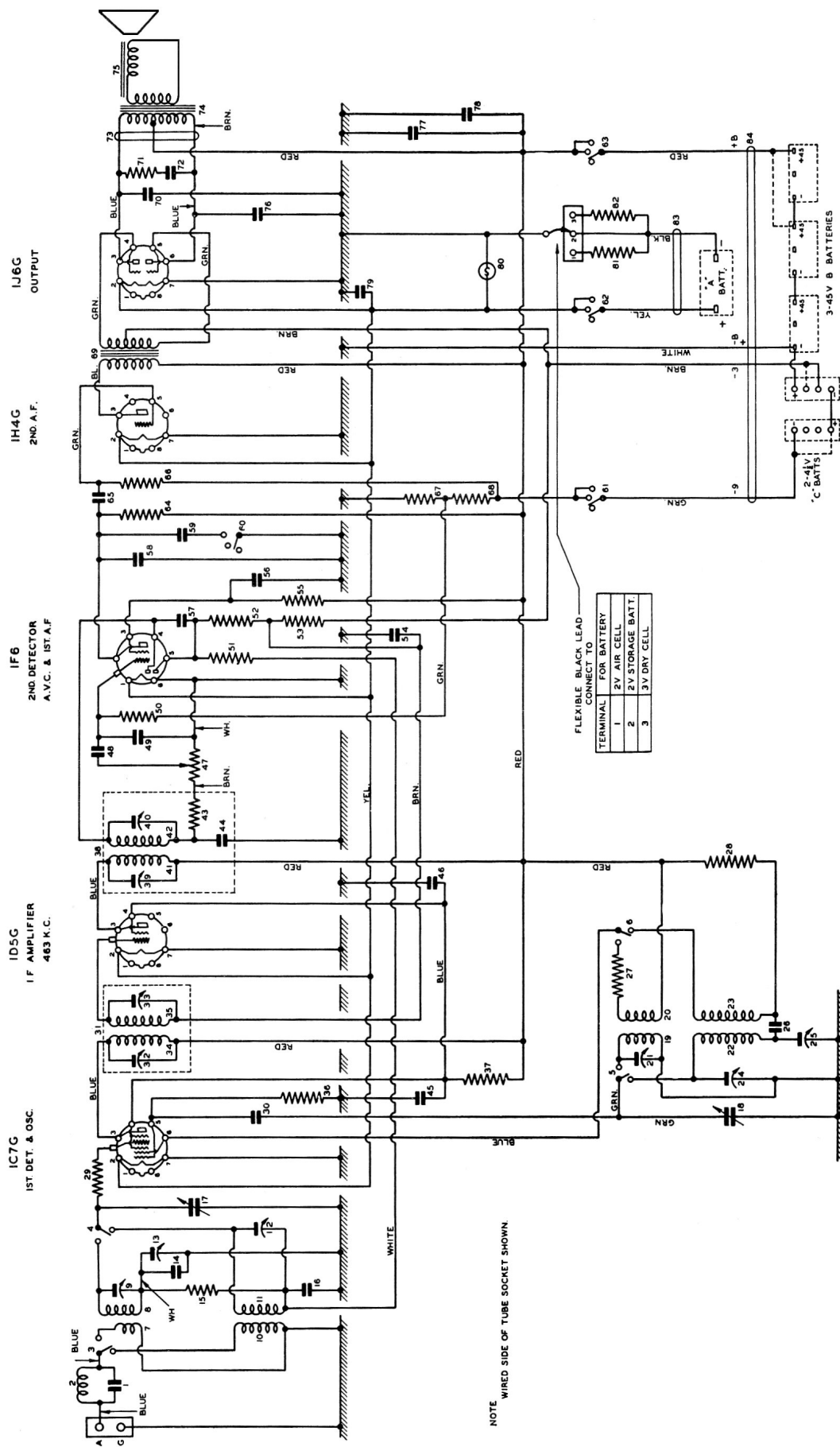
Left—Volume control
Centre—Tuning control
Right—Battery switch and tone control

Loudspeakers:

Models 516—6 inch permanent magnet
Models 517—8 inch permanent magnet

Cabinets:

Model 516—Table model
Model 517—Console model



Schematic Diagram of the Model 516-517 Receiver.

REPLACEMENT PARTS LIST

Item No.	Description	Part Number
1	Antenna Trap Coil.....	K-2367
2	Capacitor, mica, .002 mf.....	
3	Ant. Trans. Pri. Sect. } Wave	
4	Ant. Trans. Sec. Sect. } Change	K-2463
5	Osc. Coil Grid Sect.. } Switch	
6	Osc. Coil Plate Sect.. }	
7	S.W. Ant. Trans. Pri.....	K-2459
8	S.W. Ant. Trans. Sec.....	
9	3-25 mmf. Trim. Cap.....	K-1458-6
10	Bdct. Ant. Trans. Pri.....	K-2460
11	Bdct. Ant. Trans. Sec.....	
12	3-25 mmf. Trim. Cap.....	K-1458-6
13	Capacitor, 1500-3000 mmf, Trim.....	K-2483-2
14	Capacitor, mica, 4000 mmf....	K-1952-14
15	Resistor, 15,000 ohms, 1/2 watt	K-2226-9
16	Capacitor, .1 mf, 175 volts...	K-2227-9
17	R.F. Section Cap. } Max. } Gang..... } Cap. }	K-2446
18	Osc. Section Cap. } 455 } Gang..... } mmf. }	
19	S.W. Osc. Coil Grid Winding	
20	S.W. Osc. Coil Plate Winding	K-2461
21	1.5-10 mmf. Trim. Cap.....	K-1458-5
22	Bdct. Osc. Coil Grid Winding	K-2501
23	Bdct. Osc. Coil Plate Winding	
24	3-25 mmf. Trim. Cap.....	K-1458-6
25	Capacitor, 300-600 mmf. Trim.	K-2483-1
26	Capacitor, .001 mmf, 350 volts	K-2228-1
27	Resistor, 35 ohms, 1/2 watt...	K-2226-39
28	Resistor, 15,000 ohms, 1/2 watt	K-2226-9
29	Resistor, 75 ohms, flexible lead	K-2444-2
30	Capacitor, 100 mmf, mica....	K-1611-2
31	1st I.F. Trans. (includes items 32-35).....	K-2487
32	Capacitor; 25-100 mmf, var. trim.....	K-2073-1
33	Capacitor; 25-100 mmf, var. trim.....	
34	I.F. Trans. Primary.....	K-2378-1
35	I.F. Trans. Secondary.....	
36	Resistor, 50,000 ohms, 1/4 watt	K-2226-6
37	Resistor, 40,000 ohms, 1/4 watt	K-2226-34
38	2nd I.F. Trans. (Includes item 40-45).....	K-2488
39	Capacitor, 25-100 mmf. var. trim.....	K-2073-1
40	Capacitor, 25-100 mmf. var. trim.....	
41	I.F. Trans. Primary.....	K-2378-3
42	I.F. Trans. Secondary.....	
43	Resistor, 50,000 ohms; 1/2 watt	K-2226-6
44	Capacitor, 100 mmf, mica....	K-1611-2
45	Capacitor, .1 mf, 175 volt....	K-2227-9
46	Capacitor, 2 mf, dry elect. 150 volt.....	K-2568
47	Volume Control; 1/2 meg, var.	K-2462
48	Capacitor, .02 mf, 175 volts..	K-2227-7

Item No.	Description	Part Number
49	Capacitor, 100 mmf, mica ...	K-1611-2
50	Resistor, 2 meg, 1/2 watt.....	K-2226-1
51	Resistor, 1 meg, 1/2 watt.....	K-2226-2
52	Resistor, 1 meg, 1/2 watt.....	K-2226-2
53	Resistor, 1/2 meg, 1/2 watt....	K-2226-3
54	Capacitor, .05 mf, 175 volts..	K-2227-8
55	Resistor, 1 meg; 1/2 watt.....	K-2226-2
56	Capacitor, .1 mf, 175 volts...	K-2227-9
57	Capacitor, 100 mmf, mica	K-1611-2
58	Capacitor, 100 mmf, mica	K-1611-2
59	Capacitor, .003 mf, 175 volts.	K-2227-2
60	Tone Control Switch } Battery }	K-2464
61	"C" Battery Switch } Con-	
62	"A" Battery Switch } trol }	
63	"B" Battery Switch } Switch }	
64	Resistor, 1/4 meg, 1/2 watt....	K-2226-4
65	Capacitor, .02 mf, 175 volts..	K-2227-7
66	Resistor, 1 meg, 1/4 watt.....	K-2226-2
67	Resistor, 580 ohms, 1/2 watt..	K-2226-37
68	Resistor, 4620 ohms, 1/2 watt.	K-2226-38
69	Input A.F. Transformer.....	K-2496-1
70	Capacitor, 500 mmf, mica	K-1592-3
71	Resistor, 20,000 ohms, 1/2 watt	K-2226-8
72	Capacitor, .003 mf, 175 volts.	K-2227-2
73	Loudspeaker Cable.....	
74	Output Transformer (Model 516).....	K-2499-1
74	Output Transformer (Model 517).....	K-2499-2
75	Loudspeaker Voice Coil (Imp. 3.2 ohms—Model 516)....	K-2469
75	Loudspeaker Voice Coil (Imp. 1.8 ohms—Model 517)....	K-2470
76	Capacitor, 500 mmf, mica	K-1952-3
77	Capacitor, .1 mf, 175 volts...	K-2227-9
78	Capacitor, 4 mf, dry elect., 150 volts.....	K-2254
79	Capacitor, .5 mf, 175 volts...	K-2227-11
80	Dial Lamp, 2.0 V.....	K-1024-3
81	.35 ohm Wire Wound Res., 1/2 watt.....	K-2252-5
82	1.40 ohm Wire Wound Res., 1/2 watt.....	K-2252-6
83	"A" Battery Cable.....	
84	"B" & "C" Battery Cable...	

MISCELLANEOUS: (Not included in item designations)

Sockets, Octal base.....	K-1924-1
Sockets, six contact.....	K-1194-5
Tube Shield bases.....	K-2390
Antenna Terminal Strips.....	K-2455
Battery Terminal Strip.....	K-2456
Dial Scale.....	K-2480
Spring Clip for Dial Scale.....	K-2436
Reduction Drive.....	K-2484
Pulley (lower).....	K-2360
Pulley (upper).....	K-2477

REPLACEMENT PARTS LIST—continued

Description	Part Number
Belt.....	K-2478
Indicator.....	K-2481
Set Screw for Indicator Assembly..	K-2502-6
Lamp Socket Assembly.....	K-2511
Dial Lamp.....	K-1024-3
Tube Shield.....	K-2267-2
Tube Shield.....	K-2267-1
Grid Clip.....	K-1747
Chassis Mounting Screws.....	K-2570-11

Description	Part Number
Chassis Mounting Washers.....	K-1725-1
Knob (tuning, battery control and volume.....	K-2405
Knob (wave change switch) (with white line).....	K-2231-1
Escutcheon Label.....	K-2489
Escutcheon Pins.....	PP-2453
Tuning Wrench.....	K-836

REALIGNING INSTRUCTIONS

To secure full advantage of the performance characteristics of these receivers, any realignment necessary should be carried out carefully. A reliable test oscillator or signal generator should be used, and an output meter. Oscillators employing harmonics for the high frequency band should not be used.

I.F. ALIGNMENT:

- Set the generator at 463 k.c., and connect its output through an 0.1 mf. capacitor to the grid of the type 1C7G, first detector tube.
- Adjust trimmer capacitors, items 32, 33, 39 and 40 for maximum output.
- Reduce the output from the signal generator to as low a value as will give an output reading from the receiver, and check the adjustments. All trimmers should peak properly.

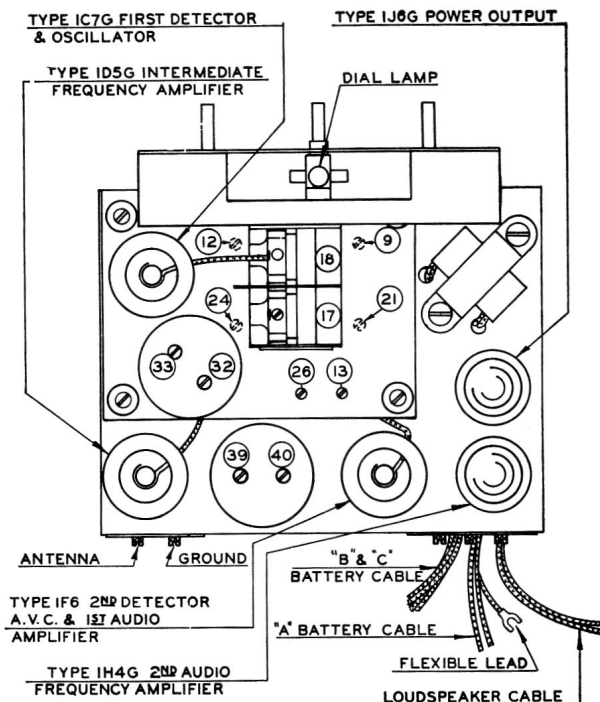
R.F. ALIGNMENT—BROADCAST BAND:—

- Connect the output of the signal generator to the antenna terminal through a 100 mmf. mica capacitor. Connect ground terminal to ground.
- Check that the indicator is at the small mark at the end of the short wave-band when the gang is turned all in.

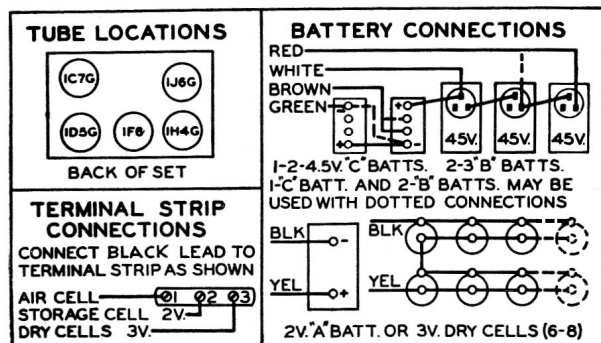
- Set the signal generator and adjust the set to 1600 kilocycles. Adjust trimmer, item 24, to bring in the signal. Then adjust trimmer, item 12, for maximum sensitivity.
- Set generator at 600 k.c. and tune the receiver to it. Adjust trimmer, item 25, for maximum sensitivity while rocking the gang.
- Recheck at 1600 k.c.

R.F. ALIGNMENT—SHORT-WAVE BAND:—

- Substitute a 400 ohm resistor in place of the capacitor in the lead from the signal generator.
- Set the signal generator and the receiver at 15 megacycles. Adjust the trimmer, item 21, to bring the signal in. (Make sure that the set is not tuned to the image frequency, which should come in with signal generator at approximately 14.1 m.c.)
- Adjust trimmer, item 9 for maximum sensitivity while rocking the gang.
- Set the generator at 6.0 m.c., and tune the receiver to the signal. Adjust trimmer, item 13, for maximum response.
- Recheck at 15.0 m.c.



Chassis showing aligning positions.



Battery Connections.

SOCKET VOLTAGES AND CURRENT READINGS

These readings were taken using a "B" battery voltage of 140 volts and a 2-volt storage "A" battery.

TUBE	VOLTAGE			CURRENT M.A.		
	Filament	Plate	Screen	Screen	Plate Bias Normal	Plate Bias Red. 4½ V.
1C7G 1st Det. & Oscillator	1.95	140x	59	1.5	3.5X	5.05
1D5G I.F. Amplifier	1.95	140	59	.35	1.9	3.75
1F6 2nd Det. A.V.C. & 1st A.F. Ampl.	1.95	23	23	.1	.35	.39
1H4G 2nd A.F. Amplifier	1.95	137	—	—	3.1	6.5
1J6G Output Class "B" Push-Pull	1.95	138	—	—	1.5	5.5

x Anode—grid voltage—72 volts

X Anode-grid current—4.0 ma.