

Models N72, N72A

Radio Receivers

Specifications

Frequency Range:

Buff—.528 to 1.530 megacycles
Green—1.408 to 3.965 megacycles
Red—2.960 to 9.375 megacycles
Blue—7.20 to 20.75 megacycles

I.F.:

463 K.C.

Tubes:

Type	Position
56	Oscillator
57	1st Detector
58	1st I.F. Amplifier
58	2nd I.F. Amplifier
2A6	2nd Detector; A.V.C.; 1st A.F. Amplifier
2A5	Output Amplifier
80	Power Rectifier

Power Supply:

Model N72—105 to 125 volts A.C. 60 cycle
Model N72A—105 to 125 volts A.C. 25 and
60 cycles

A.V.C.:

Tube type 2A6 supplies A.V.C. action on 1st
Detector and 1st I.F. tubes

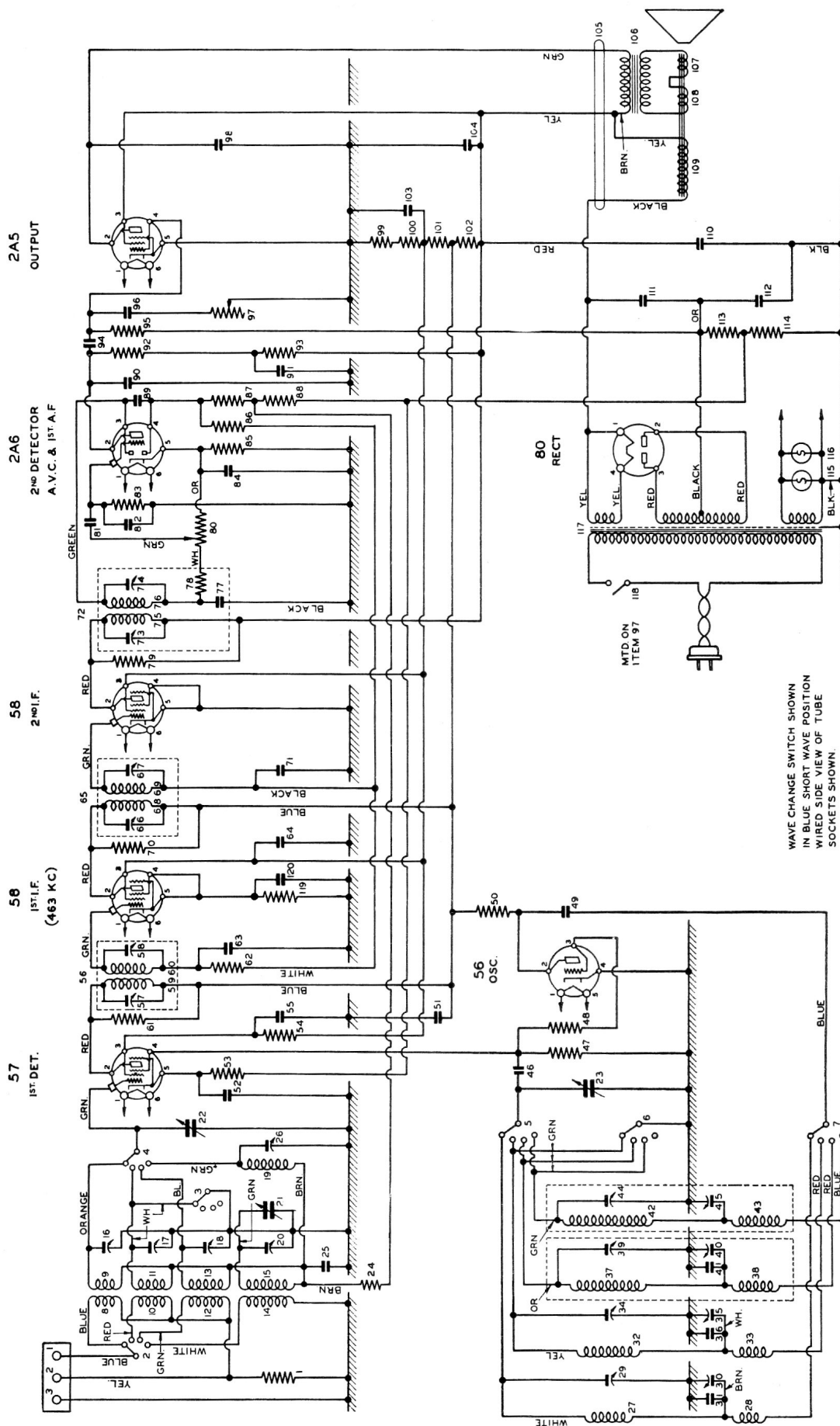
Controls:

From left to right—volume control; A.C.
switch and tone control; wave change switch;
tuning control.

Loudspeaker:

Ten inch electro-dynamic loudspeaker.

MODELS N72—N72-A RADIO RECEIVERS



Schematic Diagram—Model N-72 Receiver.

REPLACEMENT PARTS LIST

Schematic Designation	Value and Description	Part Number
1	Resistor, 1/10 meg; 1/2 watt...	K-2226-5
2	Switch section, ant. primary..	K-1377
3	Switch section, sec. shorting..	
4	Switch section, ant. secondary	
5	Switch section, osc. grid.....	
6	Switch section, osc. grid shorting.....	
7	Switch section, osc. plate.....	K-2143
8	Ant. Trans. primary {Blue band	
9	Ant. Trans. secondary {band	
10	Ant. Trans. primary {Red band	K-2144
11	Ant. Trans. secondary {band	
12	Ant. Trans. primary {Green band	K-2145
13	Ant. Trans. secondary {band	
14	Ant. Trans. primary {Broad-	K-2146
15	Ant. Trans. secondary {cast	
16	Trimmer; 3-20 mmf. (single)...	K-1458-1
17	Trimmer; 3-20 mmf. (single)...	K-1458-1
18	Trimmer; 3-20 mmf. (single)...	K-1458-1
19	Pres. Coil; broadcast.....	K-2147
20	Trimmer.....	K-1372-1
21	Tuning; broadcast {Three gang	
22	Tuning; secondary {var. 370.7	
23	Tuning; oscillator {mmf. max.}	
24	Resistor; 1/2 meg; 1/2 watt....	K-2226-3
25	Capacitor; .05 mf; 175 volts....	K-1831-8
26	Trimmer; 3-20 mmf. (single)...	K-1458-1
27	Osc. grid coil } Blue band....	K-2140
28	Osc. plate coil }	
29	Trimmer; 1.5—10 mmf. (single)	K-1458-5
30	Trimmer; 1000-2000 mmf (single).....	K-1028-3
31	Capacitor; mica; 1000 mmf....	K-1611-23
32	Osc. Grid Coil }	K-2140
33	Osc. Plate Coil }	
34	Trimmer; 1.5—10 mmf (single)	K-1458-5
35	Trimmer; 1000-2000 mmf (single).....	K-1028-3
36	Capacitor; 2500 mmf; mica....	K-1952-7
37	Osc. grid coil }	K-2141
38	Osc. plate coil }	
39	Trimmer 7-70 mmf }	Dual... K-1368-2
40	Trimmer; 270-700 mmf }	
41	Capacitor; 1400 mmf; mica....	K-1952-12
42	Osc. grid coil }	Broadcast.... K-2142
43	Osc. plate coil }	
44	Trimmer; 7-70 mmf }	Dual... K-1368-2
45	Trimmer; 270-700 mmf }	
46	Capacitor; 100 mmf; mica....	K-1611-2
47	Resistor; 50,000 ohms; 1/2 watt.	K-2226-6
48	Resistor; 100 ohms; 1/2 watt....	K-2226-24
49	Capacitor; .05 mf; 350 volts....	K-2228-8
50	Resistor; 25,000 ohms; 1 watt..	K-2363-9
51	Capacitor; .1 mf; 350 volts....	K-2228-9
52	Capacitor; .05 mf; 175 volts....	K-2227-8
53	Resistor; 2000 ohms; 1/2 watt..	K-2226-14
54	Resistor; 75,000 ohms; 1/2 watt.	K-2226-27
55	Capacitor; .1 mf; 175 volts....	K-2227-9

Schematic Designation	Value and Description	Part Number
56	1st I.F. Trans. (includes items 57-60).....	K-1232-3
57	Trimmer; 20-100 mmf }	Dual... K-1244-1
58	Trimmer; 20-100 mmf }	
59	1st I.F. Trans. primary.....	K-1365-3
60	1st I.F. Trans. secondary.....	
61	Resistor; 1/2 meg; 1/2 watt....	K-2226-3
62	Resistor; 1/10 meg; 1/2 watt....	K-2226-5
63	Capacitor; .05 mf; 175 volts....	K-2227-8
64	Capacitor; .05 mf; 175 volts....	K-2227-8
65	2nd I.F. Trans. (includes items 66-69).....	K-1232-3
66	Trimmer; 20-100 mmf }	Dual... K-1244-1
67	Trimmer; 20-100 mmf }	
68	2nd I.F. Trans. primary.....	K-1365-3
69	2nd I.F. Trans. secondary....	
70	Resistor; 1/4 meg; 1/2 watt....	K-2226-4
71	Capacitor; .05 mf; 175 volts....	K-2227-8
72	Third I.F. Trans. (includes items 73-78).....	K-1232-4
73	Trimmer; 20-100 mmf }	Dual... K-1244-1
74	Trimmer; 20-100 mmf }	
75	Third I.F. Trans. primary....	K-1365-4
76	Third I.F. Trans. secondary }	
77	Capacitor; 100 mmf. mica....	K-1611-2
78	Resistor; 50,000 ohms; 1/2 watt	K-2226-6
79	Resistor; 1/2 meg; 1/2 watt....	K-2226-3
80	Volume Control; 1/2 meg.....	K-1092-7
81	Capacitor; .05 mf; 175 volt....	K-2227-8
82	Capacitor; 100 mmf; mica....	K-1611-2
83	Resistor; 1 meg; 1/2 watt.....	K-2226-2
84	Capacitor; .5 mf; 175 volts....	K-2227-8
85	Resistor; 5,000 ohms; 1/2 watt..	K-2226-12
86	Resistor; 1/2 meg; 1/2 watt....	K-2226-3
87	Resistor; 1 meg; 1/2 watt....	K-2226-2
88	Resistor; 150,000 ohms; 1/2 watt	K-2226-36
89	Capacitor; 100 mmf; mica....	K-1611-2
90	Capacitor; 100 mmf; mica....	K-1611-2
91	Capacitor; .1 mf; 350 volts....	K-2228-9
92	Resistor; 1/4 meg; 1/2 watt....	K-2226-4
93	Resistor; 50,000 ohms; 1/2 watt	K-2226-6
94	Capacitor; .01 mf; 350 volts....	K-2228-6
95	Resistor; 1/2 meg; 1/2 watt....	K-2226-3
96	Capacitor; .05 mf; 350 volts....	K-2228-8
97	Tone Control; 1/2 meg (variable).....	K-1142-5
98	Capacitor; .002 mf; 350 volts....	K-2228-2
99	Resistor; 6000 ohms }	Tapped wire wound } K-1174
100	Resistor; 8000 ohms }	
101	Resistor; 12000 ohms }	
102	Resistor; 1000 ohms }	
103	Capacitor; .25 mf; 175 volts....	K-2228-10
104	Capacitor; .1 mf; 350 volts....	K-2228-9
105	Loudspeaker Cable.....	K-1399-1
106	Output Transformer.....	K-1065-5
107	Voice Coil and Diaphragm Assembly.....	K-1091

REPLACEMENT PARTS LIST—continued

Schematic Designation	Value and Description	Part Number
108	Humbucking Coil.....	K-1462-1
109	Loudspeaker Field; 1800 ohms..	K-1462-1
110	Filter Capacitor; 4 mf; 350 volts D.E.....	K-1374
111	Filter Capacitor; 8 mf; 450 volts D.E.....	
112	Filter Capacitor; 20 mf; 25 volts D.E.....	
113	Resistor; 400 ohms; 5 watt....	K-1461-1
114	Resistor; 100 ohms; 1/2 watt....	K-2226-24
115-16	Dial Lamps; 2-5 volts.....	K-1024-6
117	Power Transformer (60 cycles only).....	K-1249-4
117-A	Power Transformer (25-60 cycles).....	K-1249-3
118	A.C. Switch.....	Mounted on No. 97
119	Resistor; 2000 ohms; 1/2 watt..	K-2226-14
120	Capacitor; .05 mf; 175 volts...	K-2227-8

MISCELLANEOUS:—

Knob for tuning (base only)....	K-1447-1
Knob for tuning (vernier only)...	K-1447-2
Knob for volume control.....	K-1447-3
Knob for wave change or tone control.....	K-1447-4
Dial guide.....	No. 106378
Dial indicator.....	No. 107014
Dial Cable (bronze 30").....	K-1473
Dial Spring.....	No. 103164

Schematic Designation	Value and Description	Part Number
Dial Scale.....		K-1505-3
Dial lamp socket assembly.....		K-1428-4
Tuning reduction drive.....		K-1481
Thumb Screws for chassis mounting.....		K-1519-8
Tube sockets, six hole, (1 1/2")..		K-1221-4
Tube sockets, six hole (large)...		K-1221-3
Tube sockets, four hole.....		K-1221-2
Antenna terminal strip.....		K-1479-1
Set screws for antenna terminal strip.....		No. 61523
Tuning Wrench (all models).....		K-836
Replacement tube for tuning wrench.....		K-836-A
Weston Model 692 Signal Generator.....		
Set screw for K-1447-1, 2, and 4 knobs.....		K-1521-5
Set Screw for K-1447-3 Knob....		K-1521-7
Rubber Grommets.....		IS-1002
Spacers.....		SR-959
Bracket (dial bracket to gang)...		K-1630
Bracket (dial rack).....		K-2171
Spacer (1/4" x 3/16").....		K-1037-1
Switch & Coil Assembly complete.....		K-2138
Broadcast Osc. Coil Assembly complete.....		K-2167
Green Band Osc. Coil Assembly complete.....		K-2166

SOCKET VOLTAGE READINGS (Weston 663 Volt ohmmeter)

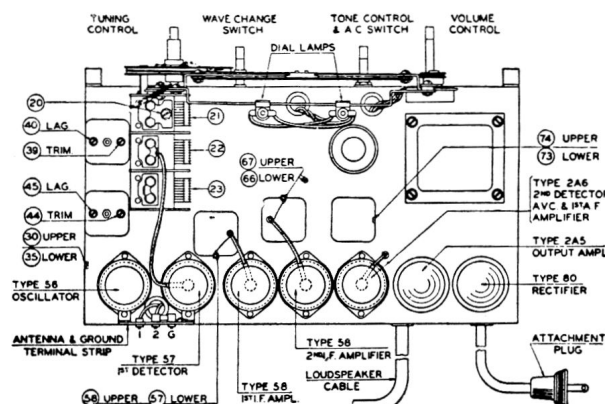
TUBE	Heater	Voltages		Cathode	Grid	Screen	Plate Current	
		Plate	Screen				Normal Bias	Bias Red. 4.5 volts
57 (1st Det.)	2.5	250	50	1.4	..	0.2	0.6	0.8
56 (Osc.)	2.5	100	..	0	—25	...	5.5	6.0
58 (1st I.F.)	2.5	250	105	0	...	1.5	6.0	1.0
58 (2nd I.F.)	2.5	260	105	0	...	1.5	7.0	1.1
2A6 (2nd Det.)	2.5	100	...	1.2	...	...	0.25	0.6
2A5 (Audio)	2.5	255	260	0	—26	2.5	15.	19.
80 (Rect.)	5.3	...	...	...	...	...	24 ma. per plate	

The Models N-72 and N-72-A All-Wave Super-heterodyne A.C. operated radio receivers have improved features not present in the original 72 model. Chief of these is the assembly of coils, wave change switch, tuning condenser and dial in such a manner as to form a "Centromatic" Unit. The circuit is essentially the same as the model 72. The first detector tube has been changed from a 58 to a 57.

The four wave bands have the following ranges:—

Broadcast	- - -	.528—1.530 mcs.
Red	- - -	2.960—9.375 mcs.
Green	- - -	1.408—3.965 mcs.
Blue	- - -	7.20—20.75 mcs.

The tubes used are indicated in the schematic diagram, figure 3.



Corrected Chassis Layout Drawing Showing Aligning Positions.

DIAL ADJUSTMENT NOTES:—Chassis should not be removed from cabinet with dial in blue band position, or toothed rack at bottom may be bent. When this occurs, dial and rack should be removed and straightened. If dial bends at sides, two machine screws at each side of bar carrying pointer should be loosened and guides (small metal pieces with rounded ends) adjusted until dial slides smoothly. Care should be taken that sliding pointer does not scratch dial. If it does, bar carrying it should be bent out very slightly.

REALIGNING DETAILS:

1. I.F. ADJUSTMENTS:—

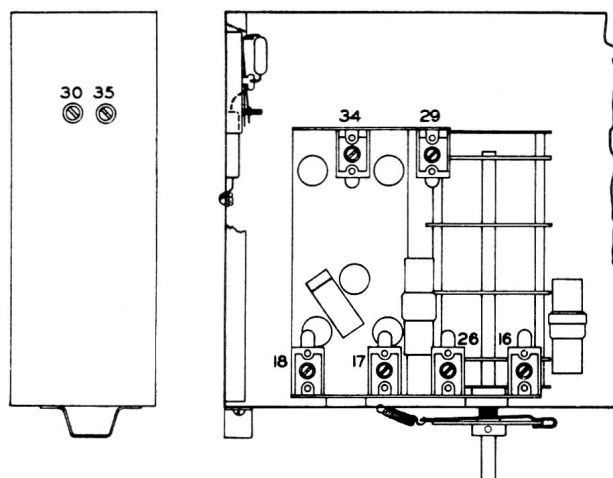
- Set signal generator to 463 K.C.; connect output through 0.1 mf. capacitor to grid cap of first detector.
- Adjust trimmers items 57, 58, 66, 67, 73, 74.
- Reduce output from oscillator to low value output reading and check adjustments. All trimmers should peak properly.

2. BROADCAST BAND:—

- Set signal generator and receiver to 1300 K.C.; connect through 200 mmf. capacitor to antenna terminal No. 1. Strap terminals 2 and 3 together for all alignment. Ground chassis.
- Align trimmers items 44, 20 and 26.
- Set receiver and signal generator to 600 K.C.
- Align lag capacitor item 45, at the same time slowly rocking tuning gang back and forth until point of maximum sensitivity found.
- Return to 1300 K.C. and realign items 44, 20 and 26.

3. GREEN BAND:—

- Wave change switch to green band. Receiver and signal generator to 3.5 megacycles. with



Chassis Underside View.

input to antenna terminal 1 through 400 ohms (non-inductive resistance such as carbon).

- Adjust trimmers items 39 and 18.
- Set receiver and generator to 1.7 megacycles; adjust lag condenser item 40; at same time slowly rock tuning condenser back and forth until point of maximum sensitivity found.
- Go back to 3.5 megacycles and realign items 39 and 18.

4. RED BAND:—

- Wave change switch to red band. Receiver and generator to 7 megacycles with antenna connected as above.
- Adjust trimmers items 34 and 17.
- Set receiver and generator to 3.4 megacycles; adjust lag capacitor item 35, at same time rock gang slowly back and forth until maximum sensitivity obtained.
- Go back to 7.0 megacycles and realign items 34 and 17.

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5. BLUE BAND:—

- (a) Wave change switch to blue band. Receiver and generator to 16 megacycles; antenna connected as above.
- (b) Adjust trimmer item 29.
- (c) Adjust trimmer item 16; at same time rock gang slowly back and forth until point of maximum sensitivity found.
- (d) Set receiver and generator to 8 megacycles; adjust lag capacitor item 30; at same time rock gang slowly back and forth until point of maximum sensitivity obtained.
- (e) Go back to 18 megacycles and check alignment.

RESISTANCE VALUES:—

Taken with wave change switch in broadcast position and power off. All readings to ground.

1st Detector (57):—

Control Grid.....	650,000 ohms
Plate.....	26,000 ohms
Screen.....	89,000 ohms
Cathode.....	2,100 ohms
Suppressor.....	50,000 ohms

1st I.F. Amplifier (58):—

Control Grid.....	1.75 megs
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Plate.....	26,000 ohms
Screen.....	14,000 ohms
Suppressor.....	zero
Cathode.....	zero

2nd Detector (2A6):—

Control Grid.....	1 meg
Plate.....	327,000 ohms
Cathode.....	5,000 ohms
Diode (detector).....	555,000 ohms
Diode (AVC).....	1,150,000 ohms

Oscillator (56):—

Grid.....	50,100 ohms
Plate.....	51,000 ohms
Cathode.....	zero

2nd I.F. Amplifier (58):—

Control Grid.....	1.65 megs
Plate.....	27,000 ohms
Screen.....	14,000 ohms
Suppressor.....	zero
Cathode.....	zero

Output (2A5):—

Control Grid.....	½ meg.
Plate.....	27,400 ohms
Screen.....	27,000 ohms
Cathode.....	zero