



Models 203, 401, 402

SPECIFICATIONS

MODEL 401

Model 401 is a 4 tube portable, battery-operated superheterodyne receiver. Incorporated in this receiver is a self-contained loop aerial and an extremely sensitive permanent magnet dynamic speaker. In addition, terminals are provided for connection to an outside aerial and ground. The receiver is operated from a self-contained AB battery pack.

TUNING RANGE: 540 to 1550 K.C.

INTERMEDIATE FREQUENCY: 460 K.C.

PHILCO TUBES USED: 1 - 1A7EG, 1st Detector and Oscillator; 1 - 1N5EG, I.F. Amplifier; 1 - 1H5G, 2nd Detector, A.F. Amplifier and Automatic Volume Control; 1 - 1A5EG Power Output.

BATTERIES REQUIRED: Any one of the following AB packs may be used with Philco Model 401:

Burgess Battery No. 441

General Dry Battery No. 41A4FL

Eveready Battery No. X259

BATTERY CURRENT: "A" Battery - 200 Milliamps.

"B" Battery - 4.8 Milliamps.

MODEL 402

Model 402 is a portable, 5-tube battery-operated superheterodyne receiver for reception of standard and short wave broadcast stations. Other features of design incorporated in this model are: A self-contained twin loop aerial for standard broadcast and short wave reception, R.F. stage, extremely sensitive permanent magnet dynamic speaker, and the new Philco LOKTAL tubes. Outside aerial and ground terminals are provided for locations where signal strength is very weak or for permanent or semi-permanent installations. The receiver is operated from a self-contained AB battery.

TUNING RANGE: Broadcast 540 - 1600 K.C.

Shortwave 5.8 - 18 M.C.

INTERMEDIATE FREQUENCY: 460 K.C.

PHILCO TUBES USED: 1 - 1LN5E, R.F. Amplifier; 1 - 1LA6E, 1st Detector and Oscillator; 1 - 1LN5E, I.F. Amplifier; 1 - 1LH4, 2nd Detector, A.F. Amplifier and Automatic Volume Control; 1 - 1LA4E Power Output.

BATTERIES USED: Any one of the following AB packs may be used with Philco Model 402:

Burgess Battery No. 660

General Dry Battery No. 60A4L

Eveready Battery No. X260

BATTERY CURRENT: "A" Battery - 250 Milliamps.

"B" Battery - 7.6 Milliamps.

MODEL 203

Model 203 is a 5-tube battery-operated superheterodyne receiver for home reception of standard and short wave broadcast stations. Other features of design incorporated in this model are the R.F. stage and the extremely sensitive permanent magnet dynamic speaker. The receiver is operated from a self-contained AB battery.

TUNING RANGE: Broadcast - 540 to 1600 K.C.

Shortwave - 5.8 to 18 M.C.

INTERMEDIATE FREQUENCY: 460 K.C.

PHILCO TUBES USED: 1 - 1N5EG, R.F. Amplifier; 1 - 1A7EG, 1st Detector and Oscillator; 1 - 1N5EG, I.F. Amplifier; 1 - 1H5G, 2nd Detector, A.F. Amplifier and Automatic Volume Control; and 1 - 1A5EG Power Output.

BATTERIES USED: Any one of the following AB packs may be used with Philco Model 203:

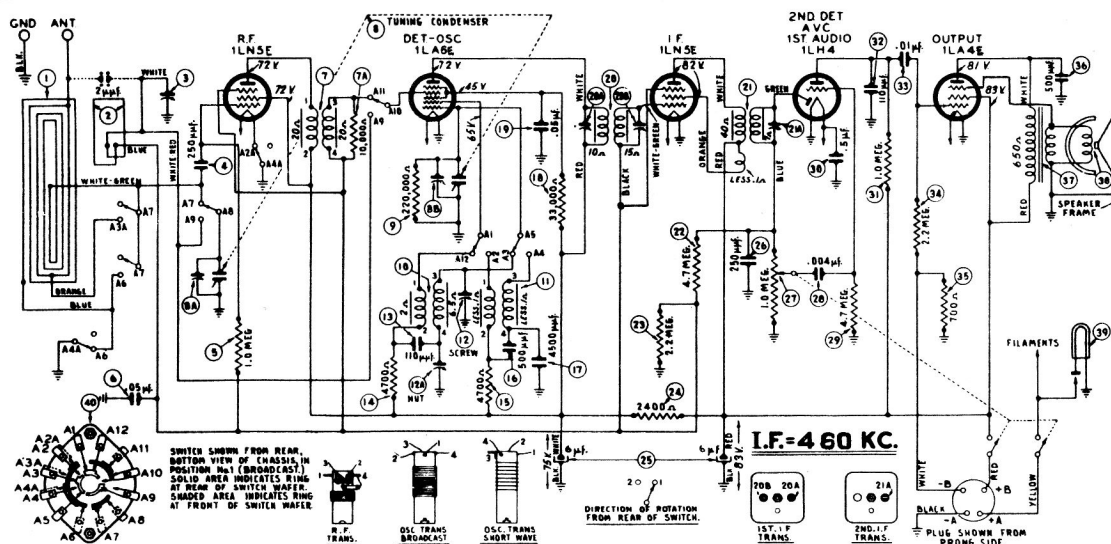
Burgess Battery No. 1860

General Dry Battery No. 6014

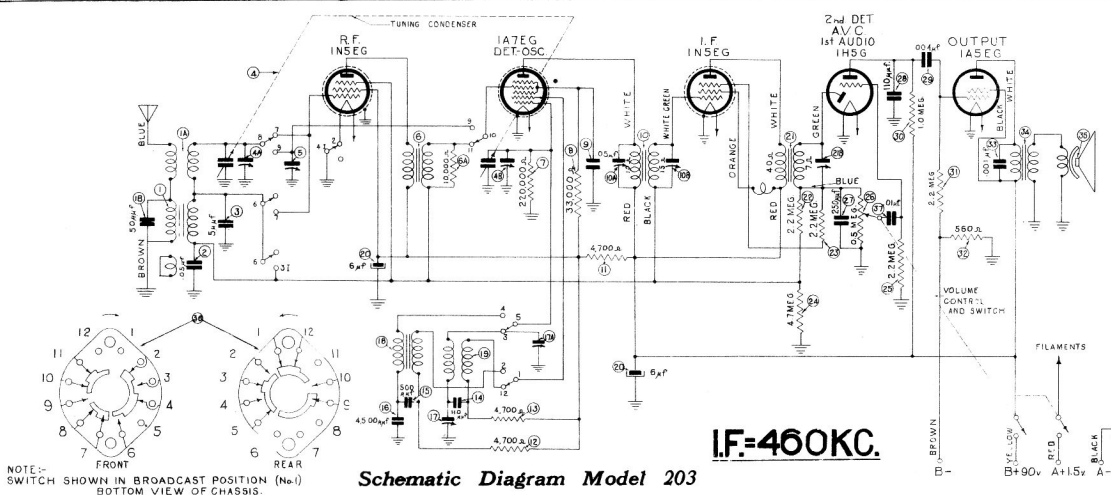
Eveready Battery No. 748C.

BATTERY CURRENT: "A" Battery - 250 Milliamps.

"B" Battery - 7.7 Milliamps.

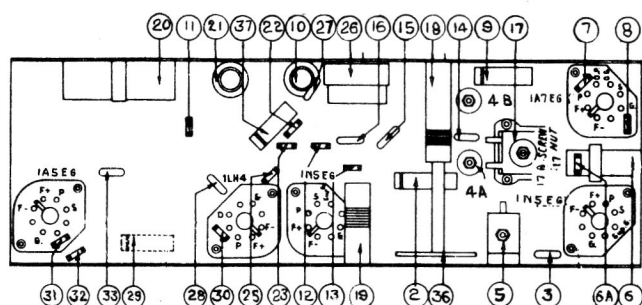


Schematic Diagram Model 402

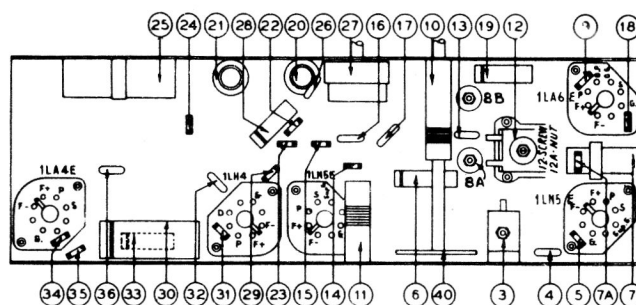


Schematic Diagram Model 203

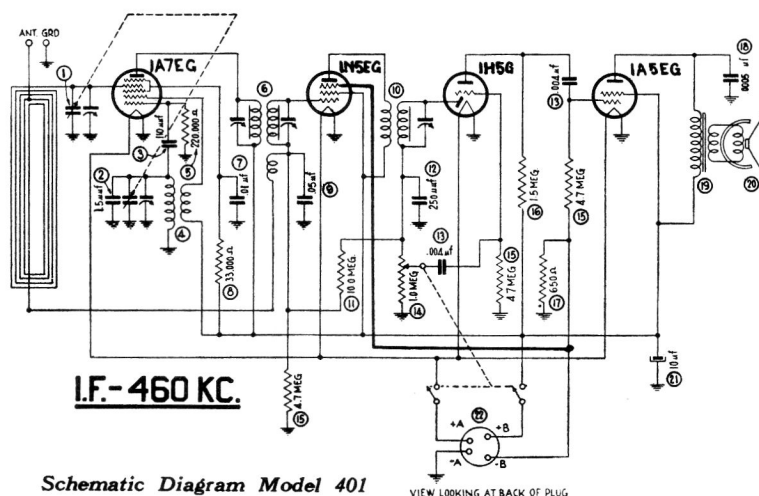
REPLACEMENT PARTS - MODEL 203					REPLACEMENT PARTS - MODEL 402						
Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Antenna Trans. (Broad- cast).....	32-3349	22	Resistor (2.2 Meg., ½ watt).....	33-522344	1	Loop Ass'y (Broadcast)	38-9917	25	Elec. Cond. (6-6 Mfd.).	30-2388
1A	Antenna Trans. (S.W. Part of 1		23	Resistor (2.2 Meg., ½ watt).....	33-522344	2	Loop Ass'y (Short Wave).....	38-9865	26	Mica Cond. (250 Mmfd.)	61-0033
1B	Mica Condenser (50 Mmfd.) Part of 1...	30-1029	24	Resistor (4.7 Meg., ½ watt).....	33-547344	3	Compensator.....	31-6288	27	Volume Control (1.0 Meg.) (and switch)..	33-5310
2	Tubular Cond. (.05 Mfd.).....	30-4519	25	Resistor (2.2 Meg., ½ watt).....	33-522344	4	Mica Condenser (250 Mmfd.).....	61-0033	28	Tubular Cond. (.004 Mfd.).....	30-4578
3	Mica Cond. (.5 Mmfd.).	30-1083	26	Volume Control (0.5 Meg.) and switch....	33-5301	5	Resistor (1.0 Meg., ½ watt).....	33-510344	29	Resistor (4.7 Meg., ½ watt).....	33-547344
4	Tuning Condenser.....	31-2378	27	Mica Cond. (250 Mmfd.)	61-0033	6	Tubular Cond. (.05 Mfd.).....	30-4519	30	Tubular Cond. (.5 Mfd.)	30-4551
5	Compensator.....	31-6288	28	Mica Cond. (110 Mmfd.)	30-1130	7	R.F. Transformer Ass'y.....	32-3219	31	Resistor (1.0 Meg., ½ watt).....	33-510344
6	R.F. Transformer Ass'y.....	32-3219	29	Tubular Cond. (.004 Mfd.).....	30-4578	7A	Resistor (10,000 ohms, ½ watt) (Part of 7).	33-310344	32	Mica Condenser (110 Mmfd.).....	30-1130
6A	Resistor (10,000 ohms, ½ watt) Part of 6...	33-310344	30	Resistor (1.0 Meg., ½ watt).....	33-510344	8	Tuning Condenser.....	31-2378	33	Tubular Cond. (.01 Mfd.).....	30-4572
7	Resistor (220,000 ohms, ½ watt).....	33-422344	31	Resistor (2.2 Meg., ½ watt).....	33-522344	9	Resistor (220,000 ohms, ½ watt).....	33-422344	34	Resistor (2.2 Meg., ½ watt).....	33-522344
8	Resistor (33,000 ohms, ½ watt).....	33-333344	32	Resistor (560 ohms, ½ watt).....	33-156336	10	Osc. Trans. (Broadcast)	32-3249	35	Resistor (700 ohms, ½ watt).....	33-170336
9	Condenser, Tubular (.05 Mfd.).....	30-4519	33	Tubular Cond. (.001 Mfd.).....	30-4592	11	Osc. Trans. (Short Wave).....	32-3220	36	Mica Cond. (500 Mmfd.)	30-1114
10	1st I.F. Trans. Ass'y.....	32-3350	34	Output Trans. (Part of Speaker).....	32-8096	12	Compensator.....	31-6100	37	Output Trans. (Part of Speaker).....	32-8096
11	Resistor (4,700 ohms, ½ watt).....	33-247344	35	Cone & Voice Coil Ass'y (Part of Speaker).....	42-1540	13	Mica Condenser (110 Mmfd.).....	30-1130	38	Cone & Voice Coil Ass'y.....	34-2246
12	Resistor (4,700 ohms, ½ watt).....	33-247344	36	Wave Switch.....	42-1540	14	Resistor (4,700 ohms, ½ watt).....	33-247344	39	Pilot Lamp.....	42-1499
13	Resistor (4,700 ohms, ½ watt).....	33-247344	37	Tubular Cond. (.01 Mfd.).....	30-4581	15	Mica Condenser (500 Mmfd.).....	30-1114	40	Wave Switch.....	
14	Mica Condenser (110 Mmfd.).....	30-1130	MISCELLANEOUS PARTS					MISCELLANEOUS PARTS			
15	Mica Condenser (500 Mmfd.).....	30-1114	16	Complete Speaker (Floor Model).....	36-1495	17	Mica Condenser (4500 Mmfd.).....	30-1109	27	Bezel.....	27-4855
16	Mica Condenser (4,500 Mmfd.).....	30-1109	17	Clip (Coil Mtg.).....	36-1482	18	Resistor (33,000 ohms, ½ watt).....	33-333344	28	Clip (Coil Mtg.).....	28-5002
17	Compensator.....	31-6100	18	Bezel.....	27-4855	19	Tubular Cond. (.05 Mfd.).....	30-4519	29	Drive Cord.....	31-2380
17A	Compensator (Part of 17).....		19	Scale.....	27-5511	20	1st I.F. Trans. Ass'y	32-3222	30	Spring.....	28-8882
18	Oscillator Trans. (Broadcast).....	32-3249	20	Pointer.....	28-4368	21	2nd I.F. Trans. Ass'y	32-3223	31	Scale.....	27-5511
19	Osc. Trans. (Short Wave).....	32-3220	21	Drive Cord.....	31-2380	22	Resistor (4.7 Meg., ½ watt).....	33-547344	32	Pointer.....	27-4868
20	Electrolytic Cond. (6-6 Mfd.).....	30-2388	22	Spring.....	28-8882	23	Resistor (2.2 Meg., ½ watt).....	33-522344	33	Flag Ass'y.....	38-9838
21	2nd I.F. Transformer	32-3223	23	Flag Ass'y.....	38-9838	24	Resistor (2400 ohms, ½ watt).....	33-224344	34	Battery Cable.....	41-3480
			24	Knobs.....	27-4362				35	Knobs.....	27-4862
				Battery Cable.....	41-3498				36	Pilot Lamp Socket	38-9839
				Tuning Shaft.....	56-5070				37	Speaker.....	36-1482
				Socket (Octal).....	27-6133				38	Sockets (Loktal).....	55-0575
									39	Tuning Shaft.....	56-6070



Part Locations, underside of Chassis, Model 203



Part Locations, underside of Chassis, Model 402

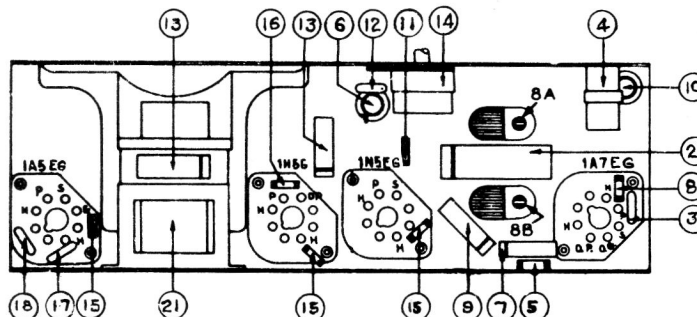


Schematic Diagram Model 401

REPLACEMENT PARTS

MODEL 401

Schem. No.	Description	Part No.
1	Tuning Condenser.....	31-2402
2	Mica Cond. (15 Mmfd.).....	61-0038
3	Mica Cond. (110 Mmfd.).....	30-1031
4	Osc. Transformer.....	32-3277
5	Resistor (220,000 ohms, $\frac{1}{2}$ watt)	33-422344
6	1st I.F. Transformer.....	32-3265
7	Tubular Condenser (.01 Mfd.)..	30-4572
8	Resistor (33,000 ohms, $\frac{1}{2}$ watt)..	33-333344
9	Tubular Cond. (.05 Mfd.).....	30-4519
10	2nd I.F. Transformer.....	32-3266
11	Resistor (10 Meg., $\frac{1}{2}$ watt)....	33-610344
12	Mica Cond. (250 Mmfd.).....	61-0033
13	Tubular Cond. (.004 Mfd.).....	30-4578
14	Volume Control (1.0 Meg.) and switch).....	33-5331
15	Resistor (4.7 Meg., $\frac{1}{2}$ watt)....	33-547344
16	Resistor (1.5 Meg., $\frac{1}{2}$ watt)...	33-515344
17	Resistor (650 ohms, $\frac{1}{2}$ watt)....	33-165336
18	Mica Cond. (500 Mmfd.).....	30-1114
19	Output Transformer.....	32-8052
20	Speaker.....	36-1481
21	Elec. Cond. (10 Mfd.).....	30-2396
22	Battery Cable.....	41-3487



Part Locations, underside of Chassis, Model 401

Miscellaneous Parts

Scale.....	27-5538
Clip (Osc. Coil Mtg.).....	28-5002
Pointer.....	56-1326
Drive Cord.....	31-2411
Spring.....	28-8751
Sockets (Octal).....	27-6133
Knob.....	27-4876

ALIGNMENT - MODEL 401

Connect output meter as given on Page 4.

I.F. - To align the I.F., set Signal Generator at 460 K.C. and the receiver at 580 K.C. Connect the high side of the Signal Generator through a .1 mfd. condenser to the grid of the detector-oscillator tube 1A7EG. The ground side of the Signal Generator connects to the chassis of the receiver. Adjust padders in top of I.F. transformers for maximum signal, adjusting single padder first and next the double padder.

R.F. - To align the R.F. set pointer to small dot below 550 K.C. with gang closed. Use loop on Signal Generator and place near loop in cabinet. Set Signal Generator to 1500 K.C. and set receiver to 1500 K.C. Adjust padders on bottom of gang for maximum signal, adjusting the oscillator or back section of the gang first.

ALIGNMENT OF COMPENSATORS

EQUIPMENT REQUIRED

1. SIGNAL GENERATOR such as a Philco Model 177.
2. ALIGNING INDICATOR: Philco Model 028 Vacuum Tube Voltmeter and Circuit Tester contains a sensitive output meter and is connected as shown below.
3. TOOLS: Aligning Screw Driver, Philco Part No. 45-2610.
Fibre Aligning Wrench, Philco Part No. 7696.

CONNECTING THE ALIGNING METERS

AUDIO OUTPUT METER: If an audio output meter is used, connect it across the plate and screen terminals of the output tubes. Adjust the meters to use the 0 to 10 scale.

VACUUM TUBE VOLTMETER: If a vacuum tube voltmeter is used as an aligning indicator, the negative (—) terminal is connected to the A. V. C. circuit of the receiver through a 2 meg. resistor. The positive (+) terminal is connected to the chassis or ground.

SIGNAL GENERATOR: When adjusting the I.F. padders the high side of the signal generator is connected through a .1 mfd. condenser to the loop tuning condenser stator lug which connects to the grid of the first tube. The ground or low side of the signal generator is connected to the chassis of the receiver.

When aligning the R.F. padders a loop aerial is made from a few turns of wire and connected to the signal generator output terminals. The signal generator is then placed a few feet from the set. The loop aerial of the receiver must be assembled in the cabinet, together with the battery when adjusting the R.F. padders.

The R.F. padding condensers can be reached from the bottom of the cabinet.

MODEL 203

Operations in Order	S I G N A L G E N E R A T O R		R E C E I V E R			Special Instructions
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators	
1	See Paragraph on Signal Generator above	460 K.C.	580 K.C.	Vol. Max.	21B,10B,10A	
2	To Blue Ant. Lead	18 M.C.	18 M.C.	Vol. Max. Range Switch "S.W."	4B	Note A Note B
3	To Ant. Lead	1500 K.C.	1500 K.C.	Range Switch "Brdcst"	17A, Screw, 4A	
4	To Ant. Lead	600 K.C.	600 K.C.	Range Switch "Brdcst"	17, Nut	Roll Tuning Cond.
5	To Ant. Lead	1500 K.C.	1500 K.C.	Range Switch "Brdcst"	17A, Screw, 4A	
6	To Ant. Lead	18 M.C.	18 M.C.	Range Switch "S.W."	5	See Paragraph on Signal Generator above

MODEL 402

1	See Signal Generator Paragraph above	460 K.C.	580 K.C.	Vol. Max.	21A,20B,20A	
2	Use Loop on Generator	18 M.C.	18 M.C.	Vol. Max. Range Switch "S.W."	8B	Note A
3	Use Loop	1500 K.C.	1500 K.C.	Range Switch "Brdcst"	12, Screw, 8A	
4	Use Loop	600 K.C.	600 K.C.	Range Switch "Brdcst"	12A, Nut	Roll Tuning Cond.
5	Use Loop	1500 K.C.	1500 K.C.	Range Switch "Brdcst"	12, Screw, 8A	
6	Use Loop	18 M.C.	18 M.C.	Range Switch "S.W."	3	See Paragraph on Signal Generator above

NOTE A - DIAL CALIBRATION: Before adjusting the R.F. padders the dial must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: With the tuning condenser in the closed position (maximum capacity) set the dial pointer on the small dot below 550 K.C.

NOTE B - In Model 203 the Ant. Lead is connected through a 100 mmfd. condenser to the high side of the signal generator to align the R.F. section. The GND lead of generator is connected to chassis.

MANY OF THE PARTS IN THIS PHILCO, SUCH AS CONDENSERS, AND RESISTORS, ARE HELD TO MUCH CLOSER TOLERANCE THAN STANDARD REPLACEMENT PARTS. GENUINE PHILCO REPLACEMENT PARTS MUST BE USED TO OBTAIN SATISFACTORY PERFORMANCE OF THIS MODEL.

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TORONTO, ONT.

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