

Pilot Radio Corp.

Model: 103

Chassis:

Year: Pre November 1935

Power:

Circuit:

IF:

Tubes:

Bands:

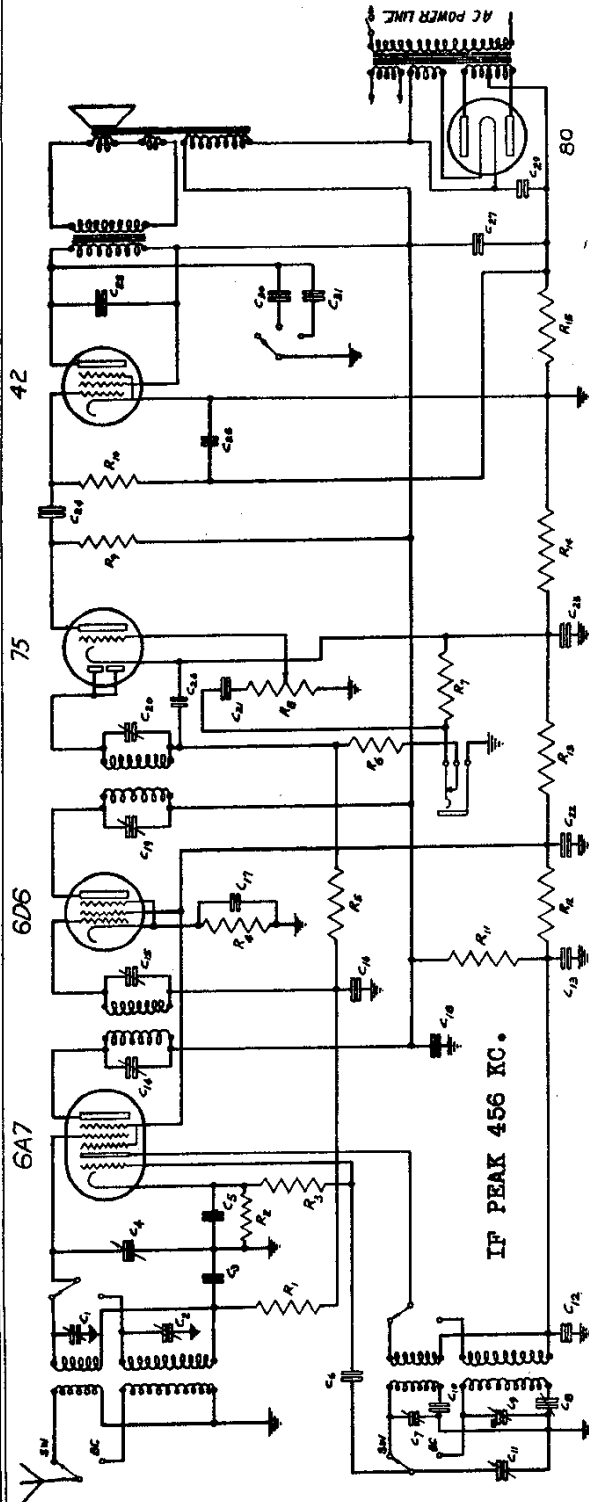
Resources

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MODELS 103, 105
Schematic, Voltage

PILOT RADIO CORP.



RECEIVER DESCRIPTION

Operating Voltages—115, 125, 150, 220, 240 volts, Alternating Current.
Frequency Rating —50 to 60 cycles.
Power Consumption—60 Watts.
Tubes—
—1 type 6A7, 1 type 6D6, 1 type 75, 1 type 42, 1 type 80.
Wavelength Range —16 meters to 32.6 meters—178.5 meters to 550 meters.
Undistorted power output—5 watts.
Intermediate Frequency—456 kc.
Tube Functions —Type 6A7: Electron emission control oscillator-detector.
Type 6D6: I. F. Amplifier.
Type 75: Duo-diode detector amplifier.
Type 42: Class "A" power pentode.
Type 80: Full-wave rectifier for power supply.

VOLTAGES

The D. C. Voltages measured at the tube sockets of the set should be read with a high resistance voltmeter of at least 1000 ohms per volt.

OSC. DET.	I. F.	DIODE DET.	POWER RECTIFIER
Type 6A7	Type 6D6	Type 75	Type 80
230	230	105*	205
4.	3.8	1.4	**
85	85	230	230
6.3	6.3	6.3	6.3

* Voltages measured through 250,000 ohm plate resistor.
† Speaker field voltage 90 volts. All plate voltages measured to cathode.

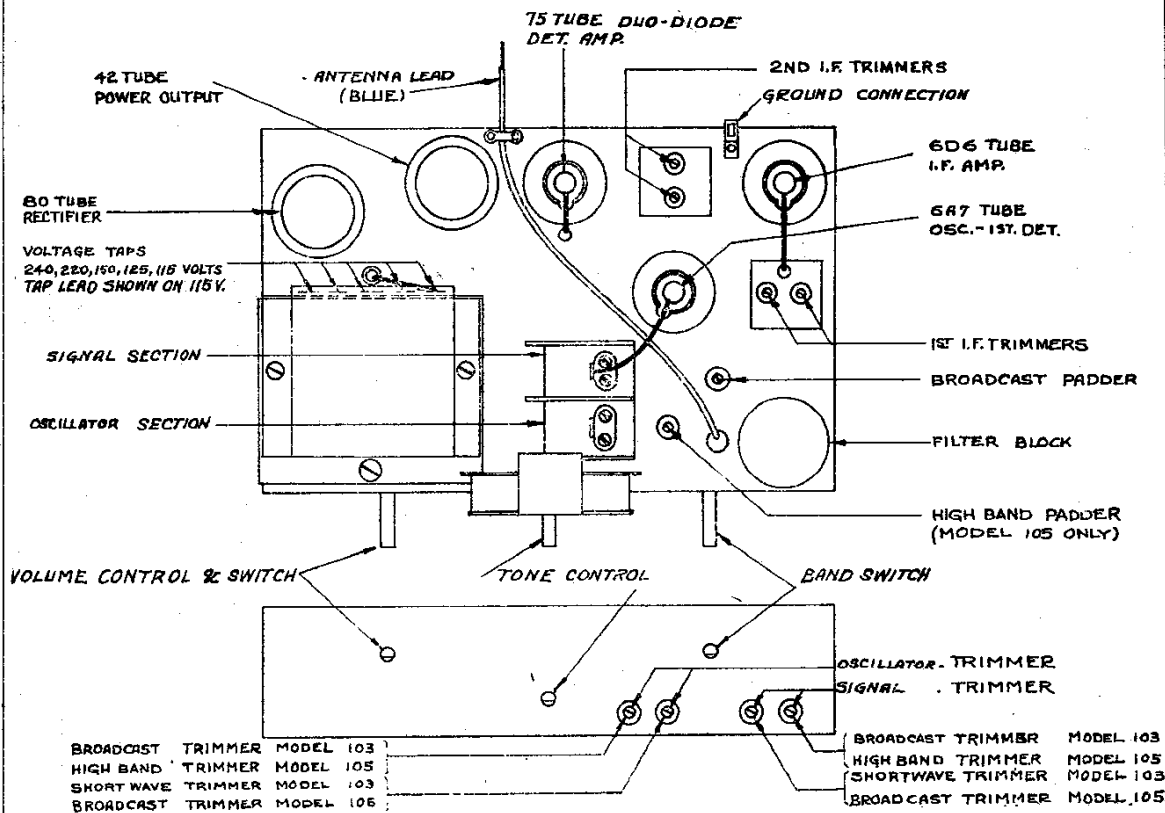
RESISTORS	RESISTORS
DEFINITION	DEFINITION
R1	150K 1/2W
R2	150K 1/2W
R3	150K 1/2W
R4	150K 1/2W
R5	150K 1/2W
R6	150K 1/2W
R7	150K 1/2W
R8	150K 1/2W
R9	150K 1/2W
R10	150K 1/2W
R11	150K 1/2W
R12	150K 1/2W
R13	150K 1/2W
R14	150K 1/2W
R15	150K 1/2W

CONDENSERS	CONDENSERS
DEFINITION	DEFINITION
C1	100,000 OHMS .25 WATT
C2	100,000 OHMS .25 WATT
C3	100,000 OHMS .25 WATT
C4	100,000 OHMS .25 WATT
C5	100,000 OHMS .25 WATT
C6	100,000 OHMS .25 WATT
C7	100,000 OHMS .25 WATT
C8	100,000 OHMS .25 WATT
C9	100,000 OHMS .25 WATT
C10	100,000 OHMS .25 WATT
C11	100,000 OHMS .25 WATT
C12	100,000 OHMS .25 WATT
C13	100,000 OHMS .25 WATT
C14	100,000 OHMS .25 WATT
C15	100,000 OHMS .25 WATT
C16	100,000 OHMS .25 WATT
C17	100,000 OHMS .25 WATT
C18	100,000 OHMS .25 WATT
C19	100,000 OHMS .25 WATT
C20	100,000 OHMS .25 WATT
C21	100,000 OHMS .25 WATT
C22	100,000 OHMS .25 WATT
C23	100,000 OHMS .25 WATT
C24	100,000 OHMS .25 WATT
C25	100,000 OHMS .25 WATT
C26	100,000 OHMS .25 WATT
C27	100,000 OHMS .25 WATT

All screen voltages measured to cathode. All cathode voltages measured to chassis frame.
* Grid bias voltage for No. 42 tube obtained across R-15 (250 ohm resistor).
† Filament to chassis ground 315 Volts D. C.
Anode grid of 6A7 to cathode—175 Volts.

MODELS 103, 105 Socket, Trimmers Alignment

PILOT RADIO CORP.



REALIGNMENT: Should the receiver require realignment, the outlined procedure below should be followed. In the service information sheet, the location and function of the various alignment capacitors are clearly illustrated. For best results an external modulated oscillator with adequate frequency range, and a visual output meter, should be used.

Before connecting the chassis to the power line, reconnect the speaker cable in its socket at the rear of the chassis.

I. F. ALIGNMENT: When aligning the intermediate Frequency Amplifier, the external oscillator must be set at 456 kc. The Band Switch should be in the position marked "Broadcast" and the tuning condenser should be set at maximum capacity. Connect the "antenna" lead of the external oscillator to the control grid of the type 6D6 tube in the I. F. Amplifier stage through a .002 mfd. fixed condenser. Connect the "ground" lead of the external oscillator to the receiver ground lead. The I. F. alignment capacitors are located at the top of the shielded I. F. Transformers. Rotate the adjusting screw of each capacitor on I. F. Unit No. 2 slowly until maximum output is noted. On completion of this operation, remove the external oscillator leads from the type 6D6 I. F. Amplifier tube and connect it in the same manner to the control grid at the top of the type 6A7 tube.

Now rotate each adjustment screw on I. F. Unit No. 1 for maximum output. During these operations, use the least possible input to prevent broadening of the resonance peaks.

In order to obtain the most accurate realignment of the I. F. Amplifier, it is essential to repeat the alignment process in both I. F. units with the external oscillator leads connected across the control grid of the 6A7 tube.

BROADCAST ALIGNMENT: After the I. F. amplifier is completely realigned, connect the external oscillator leads to the receiver antenna and ground leads. Set the Band Switch in the "Broadcast" position and place the tuning control pointer at the 1400 kc. mark. Adjust the broadcast band oscillator trimmer to maximum response. Adjust the signal section trimmer in the same manner.

Next adjust the 600 kc. padder condenser. Set the external oscillator at 600 kc. Rotate the receiver tuning control until resonance is indicated. Then rock the tuning control back and forth about this resonance position, and at the same time adjust the padder condenser for the highest resonance peak.

Now repeat the 1400 kc. trimmer adjustment, following in every detail the procedure previously described.

ALIGNMENT OF THE SHORT-WAVE BANDS: The procedure in aligning the short wave-bands is identical with that for the broadcast with the exception of the adjustment of the padder condenser. The alignment frequency is:

16.8 Meters—(17,800 kc.)

Turn the Band Switch to the right. Tune the external oscillator to 16.8 meters. Tune the receiver so that the dial pointer is in a position coincidental with the 16.8 meter indication on the dial scale. Adjust the short wave oscillator trimmer for maximum response. Next adjust the signal circuit trimmer for maximum resonance. Repeat all adjustments to assure correct alignment, rocking the gang condenser to right or left for maximum gain.

THE HIGH BAND ALIGNMENT: Procedure in the Model 105 is similar to the Broadcast section of that receiver. Align at 375 k.c. Adjust the padder at 160 k.c.

Should it be necessary to remove the band switch assembly, it is advisable to realign the receiver after reinstalling.

MODEL 103 SHORTWAVE—BROADCAST RECEIVER. The Model 103 is a Shortwave and Broadcast receiver. The Shortwave band embraces all of the internationally assigned Shortwave transmission frequencies from 18800 kc. to 5700 kc., (16 meters to 52.6 meters). The Broadcast band includes all frequencies from 1680 kc. to 545 kc., (178.5 meters to 550 meters).

MODEL 105 HIGHBAND—BROADCAST RECEIVER: (For sale in European area only). The Model 105 is a Highband and Broadcast receiver. The Highband range extends from 380 kc. to 140 kc., (789 meters to 2142 meters). The operation procedure of the Model 105 is similar to the Model 103 except for the Band Switch position. To operate this receiver on the Highband section, rotate the Band Switch knob to the counter-clockwise position. With this knob in the clockwise position, the receiver will function on the standard broadcast band. The Highband calibration may be observed on the lower portion of the dial scale.