MODEL 87

JB-87_ServcieInfo.pdf Richard Gray

3DEC2019

THERE ARE (AT LEAST) TWO VERSIONS

PERHAPS THERE WAS AN INITIAL VERSION WITH A DIAL ESCUTHEON?

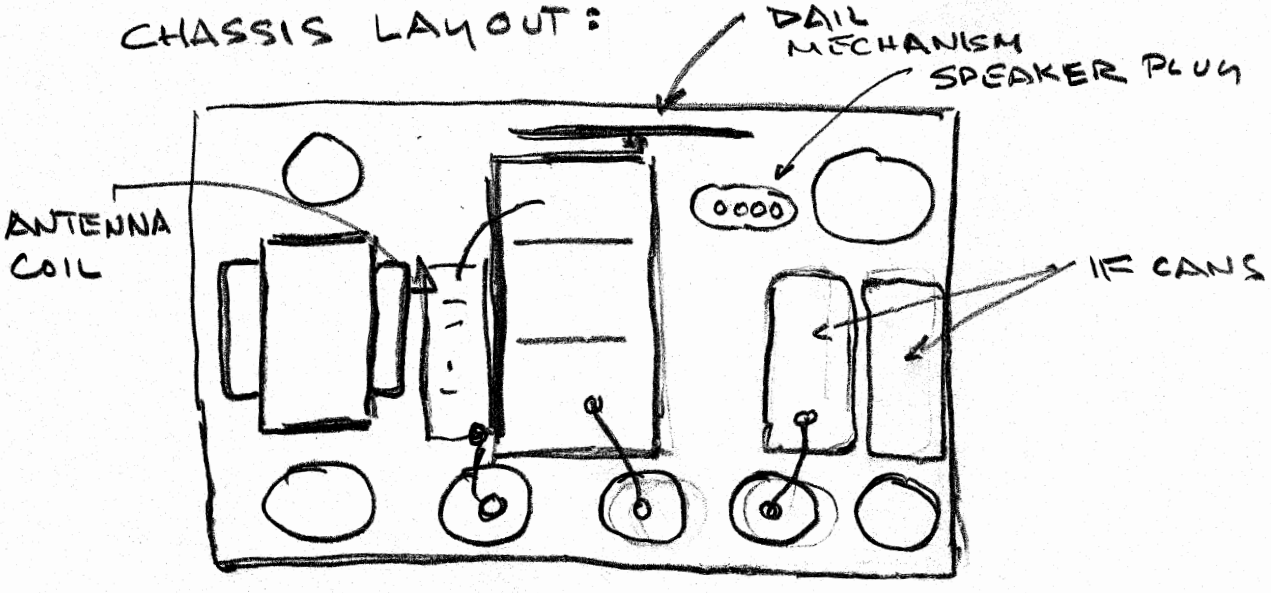
TWO VERSIONS WITH A "FULL VISION" DIAL:

FIRST: KNOBS IN A ROW —

DIAL RUNS BACKWARDS FROM KNOB

SPEAKER PLUGS IN —

CHASSIS LAYOUT:



SECOND: CENTER KNOB (TUNING) ELEVATED

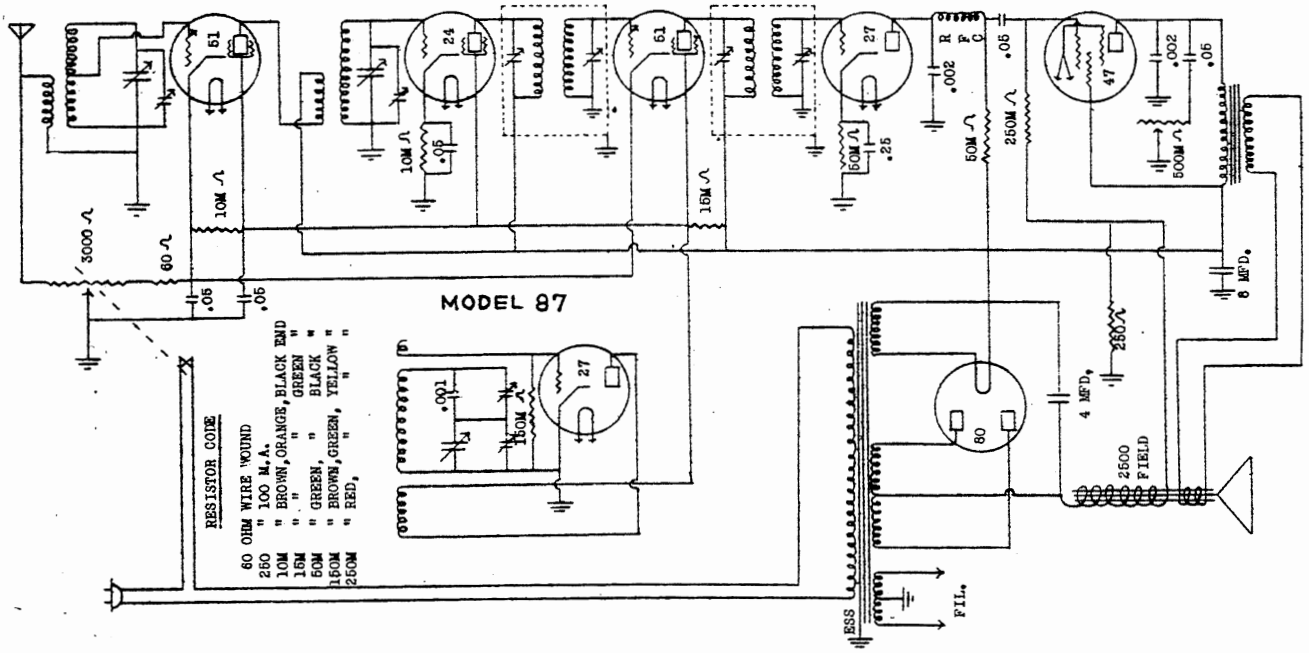
KNOBS GOES IN SAME DIRECTION A DIAL POINTER

NO SPEAKER PLUG

SOME PART VALUE DIFFERENCES

CHASSIS LAYOUT SHOWN ON SCHEMATIC

JACKSON-BELL CO.



AVERAGE VOLTAGES & CURRENTS:

	FIL. VOLTS	PLATE VOLTS	SCREEN VOLTS	VOLUME CONTROL MAXIMUM GRID VOLTS	CATHODE VOLTS	PLATE CURRENT
R.F. Tubes	2.25	195.	95	0	1.5	3.25 MILLS
First Detector Tube	2.25	195.	95	0	3.	.5 "
First I.F. Tube	2.25	195.	95	0	1.5	3.25 "
Second Detector Tube	2.25	145.	--	0	12.5	.5 "
Oscillator Tube	2.25	65.	--	0	--	3. "
Output Tube	2.25	185.	195	11	--	24. "
Rectifier Tube	4.5	260.	--	--	--	45. "

AUG 1931 ?
VERSION 2

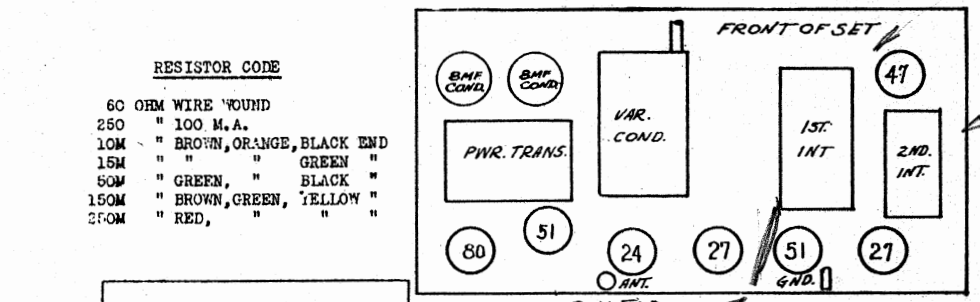
MODEL 87
Schematic, Socket
Voltage, Alignment

JACKSON-BELL CO., LTD.

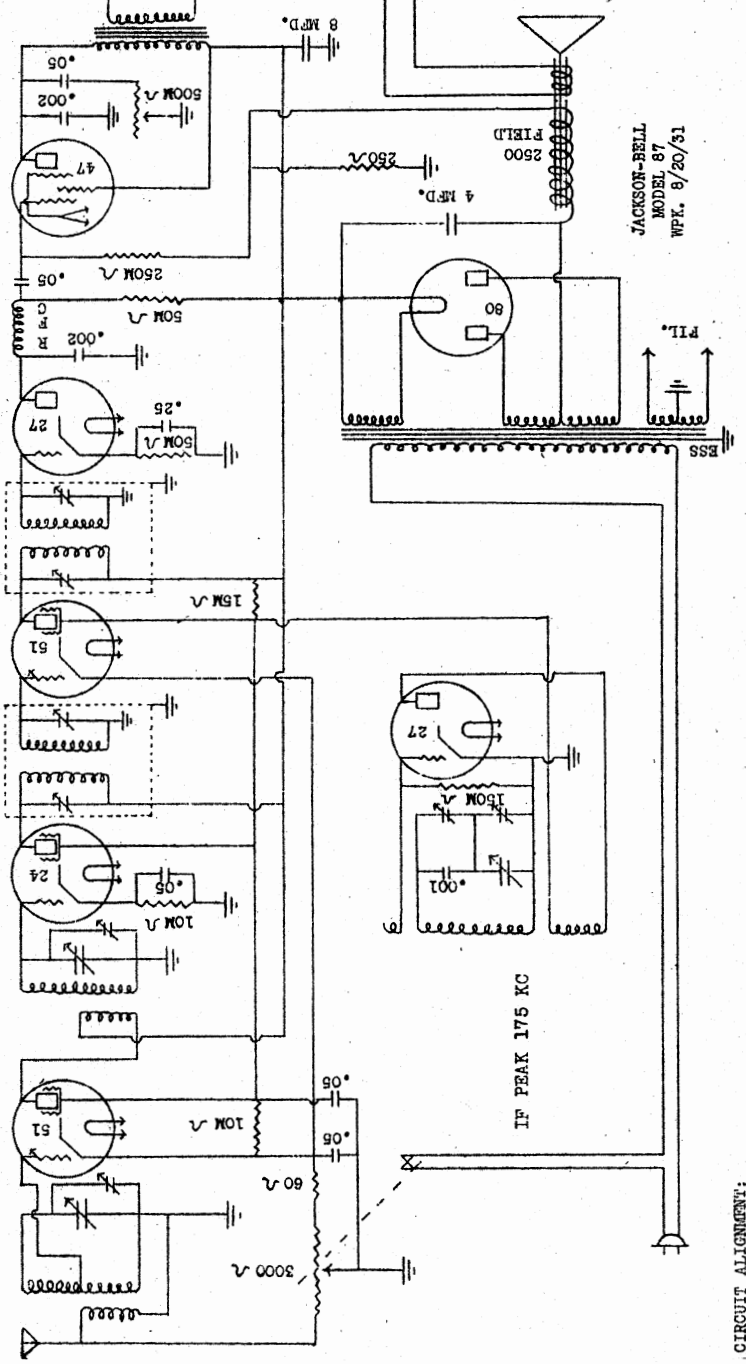
IF CANS ARE BOTH THE SAME SIZE

RESISTOR CODE

60 OHM WIRE WOUND
250 " 100 M.A.
10M " BROWN, ORANGE, BLACK END
15M " " " GREEN "
50M " GREEN, " BLACK "
150M " BROWN, GREEN, YELLOW "
250M " RED, " " "



SHIELD



OSCILLATOR SAME AS FIRST

CIRCUIT ALIGNMENT:

The first step in alignment of the receiver is to align the intermediate amplifier. This must be done with a test oscillator set at exactly 175 kilocycles, and an output indicating device. Remove the oscillator tube from the receiver and connect the test oscillator to the grid of the first detector tube. The trimming condensers for the intermediate circuit are adjusted by means of the screws accessible thru the holes in the sides of the intermediate transformer shield covers. The volume control should be at its in the maximum or full-on position. Rotate the adjusting screws until maximum response is shown in the output meter.

plished by bonding the split sections of the condenser plates to give the maximum alignment indicated by the output meter. If condenser plates have to be bent apparently too much at the low end of the band, it is advisable to start at the beginning and compensate the difference by bending the plates on the high frequency end. Or, also by shifting the dial and re-aligning so as to eliminate unnecessary bending of the plates to get the proper alignment. It is not advisable to bend the plates in, especially in the oscillator section, as this may cause a mi howl in the receiver due to the vibration of those plates if too close together.

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Rectifier Tube	4.5	280.	--	--	--	45. "

ALIGNMENT OF THE SIGNAL FREQUENCY CIRCUIT:

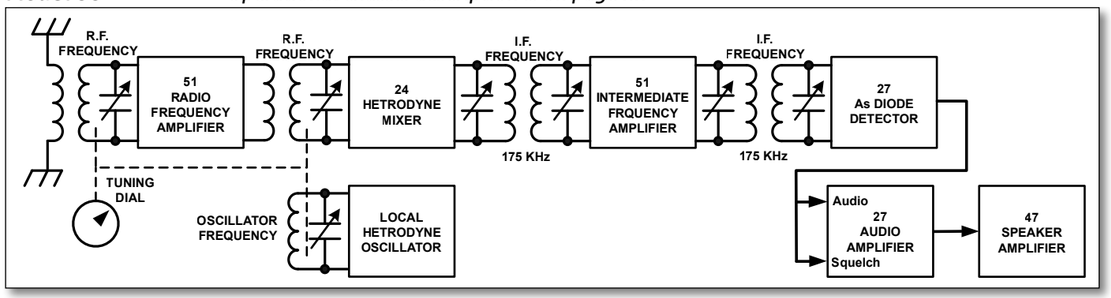
For this operation, a modulated test oscillator covering the broadcast band is required, or stations of known frequency may be used. In order to properly resonate the signal frequency circuit of this receiver, turn the dial to some known frequency on the high end of the band, adjust the oscillator trimming condenser of the tuning condenser, until the greatest response is shown in the output meter. Then adjust the first detector section and next the first R.F. circuit section of the tuning condenser. Now move up to the next known frequency, preferably located at the next split section of the condenser. The alignment from here on is accom-

Block Diagrams

The diagrams below are presented in the order in which they are covered in the article. Refer to the descriptor accompanying the article on the page associated with these chassis.

Note: All of these sets are intended for local or regional reception.

Model 88 *Operational chassis description is on page nn*



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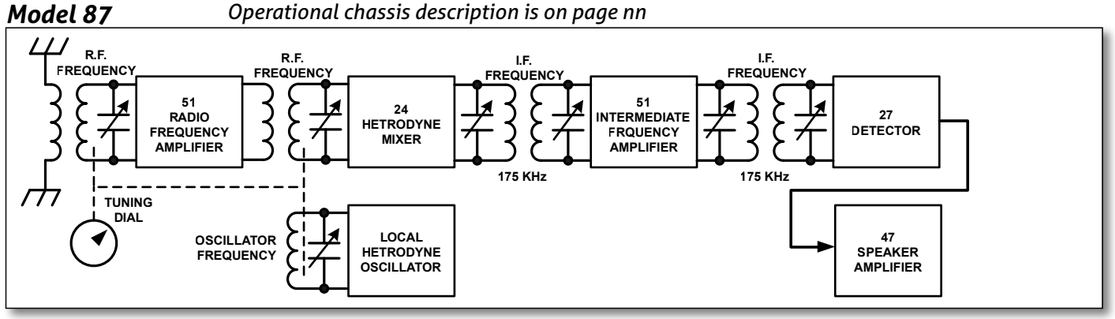
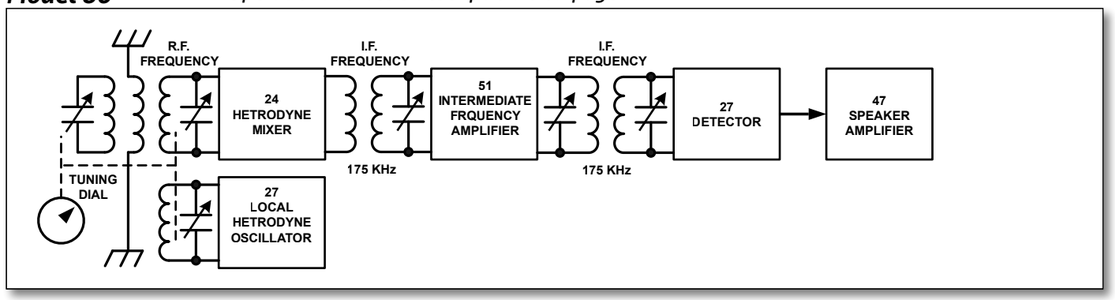
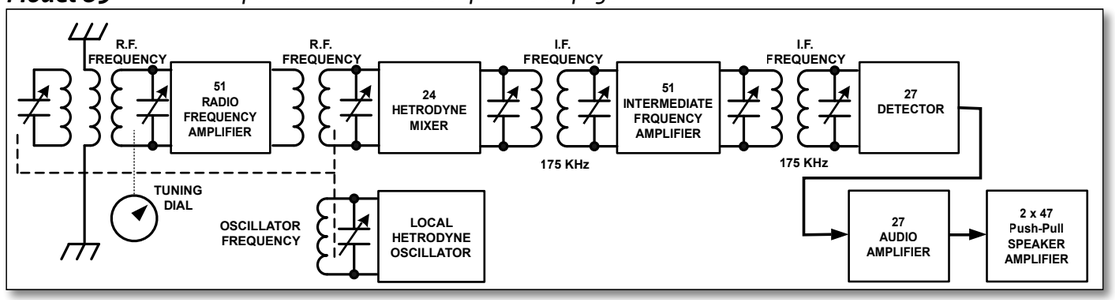


Model 86 *Operational chassis description is on page nn*



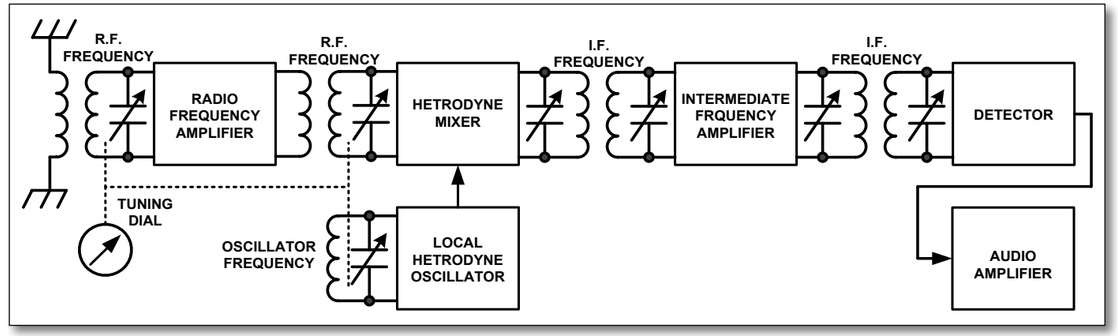
Model 89 *Operational chassis description is on page nn*



Superheterodyne Radio Basics

In the early days of vacuum tubes, radio frequencies were very hard to amplify. In 1913 Edwin Howard Armstrong invented a method for resolving that issue. The superheterodyne radio concept was to create a circuit where the incoming frequency of the radio signal shifted to a lower intermediate frequency for amplification and detection. The benefit of this design is that tuning and selectivity are independent of one another. As vacuum tube performance improved, selectivity became the primary benefit. As a result, nearly all radio receivers today employ this design principle.

Typical Superheterodyne Receiver Block Diagram



A Closer Look:

Armstrong employed a well-understood musical concept that is referred to as 'beat frequencies'. He used a local heterodyne oscillator to "beat" with the input signal to create a lower intermediate frequency before amplification and detection.

The design requires several coordinated elements working together. The R.F. stages must assure that only a small range of the broadcast band gets to the heterodyne mixer. A local heterodyne oscillator is needed to beat with the incoming signal. A tuning capacitor with multiple sections on a single shaft usually controls these stages.

The resultant intermediate frequency (I.F.) is amplified for sensitivity and tuned to provide the selectivity to reject adjacent stations.

Superheterodyne Avantages Over TRF:

There are fewer frequency adjustable stages, making it easier to achieve high gain, and the bandpass is independent of the received frequency.

Superheterodyne Shortcomings:

There are two I.F. images due to the local heterodyne oscillator creating 'Sum" & 'Difference' frequencies from the incoming signal. The Lower 'Difference' frequency is used since the greater oscillator frequency might produce local oscillator harmonics within the broadcast band.

The oscillator and heterodyne mixer can be tuned to allow higher I.F. frequencies.

The higher the I.F. frequency, the greater the spacing of the 'Difference & Sum' Image signals, making the R.F. section selectivity easier to acieve.

However, the greater the I.F. frequency, the more tuned I.F. stages are required to obtain sufficient adjacent channel selectivity.

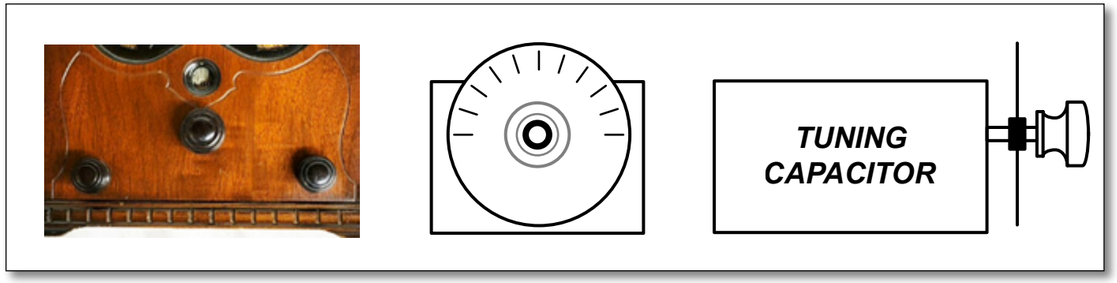
In General:

More stages in the superheterodyne design mean more gain and greater sensitivity to weak signals. With more R.F. tuned circuits, there is less sensitivity to unwanted images and spurious signals (often referred to as 'Birdies'). More I.F. tuned circuits result in better selectivity and less interference from adjacent stations.

Knob Placement, Dial Drives, and Tuning Capacitor Connection

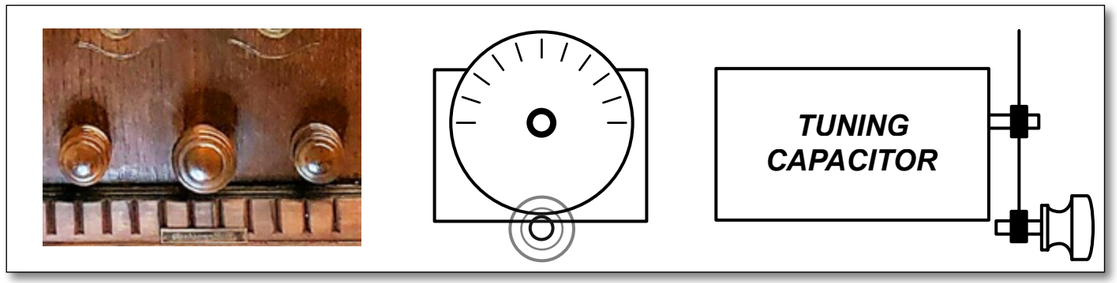
The dial can be viewed through an escutcheon or peephole opening. The dial can be front-lit or if the dial is transparent, it can be back-lit. In some cases, the dial can be fixed and the visible pointer is the only thing that moves. The basic drive types are covered below.

Direct Drive:



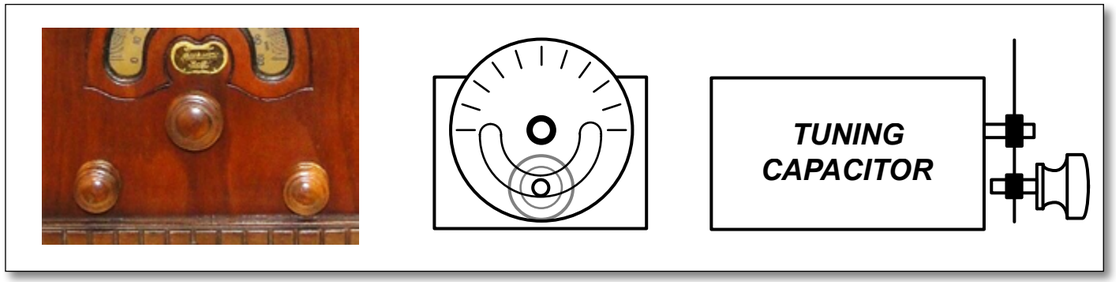
In line, Direct Drive is used on some Jackson-Bell radios. The tuning capacitor, dial (Pointer), and knob share the same shaft. The tuning Knob is often larger than the others, to give more precise control. Accurate positioning of the dial is difficult to achieve. This setup is only suitable for radios with modest selectivity.

Outer Rim Drive:



Outer Rim Drive is found on older high-end Jackson-Bell radios. The mechanism gives a large reduction ratio in a small space. This design does have a quirk, the knob turns in the opposite direction from the dial. This is due to the small wheel on the knob shaft that contacts the outer rim of the dial on the tuning capacitor shaft.

Inner Rim Drive:



Inner Rim Drive is used on most of the later Jackson-Bell upscale offerings. A small wheel on the knob shaft contacts a cutout area in the tuning capacitor shaft mounted dial. The knob and dial both turn in the same direction.

MODEL 87 CONSOLE

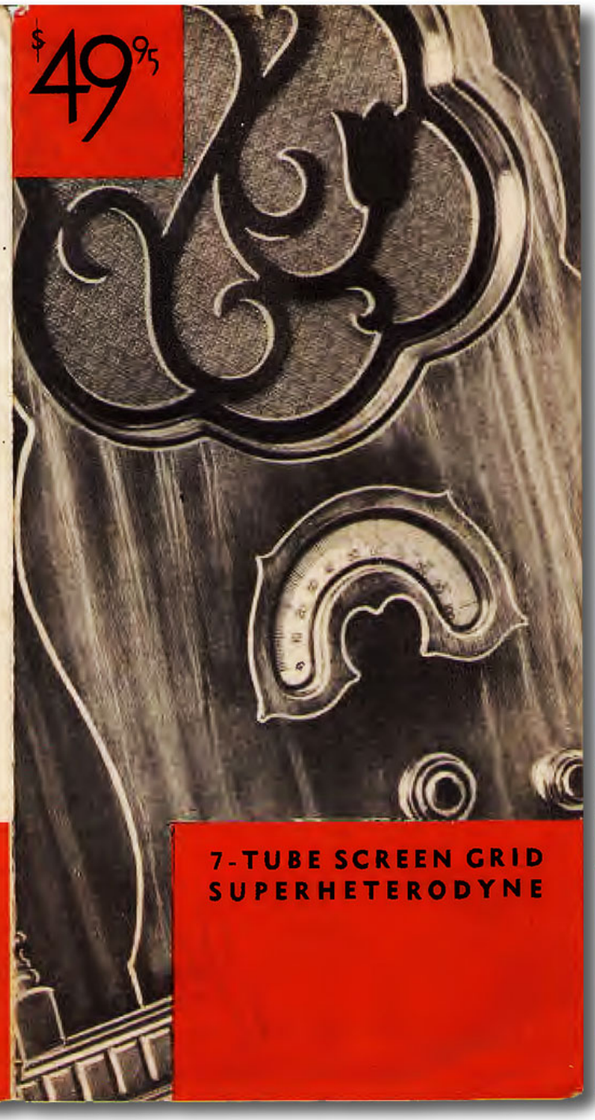
In this handsome Console, made of beautiful, selected walnut is the same 87 chassis as is used in the sensational Model 87 Jackson-Bell Midget —7 tubes, including 2 Variable-Mu tubes and 1 Pentode. So much fine radio has been unheard of at this new price, except in a Jackson-Bell. Don't wait longer for your modern radio. Get it today.

COMPLETE WITH TUBES $59.95

Jackson-Bell Radios are fully licensed under R.C.A., Hazeltine, and Latour Patents.

Back Cover

$49.95

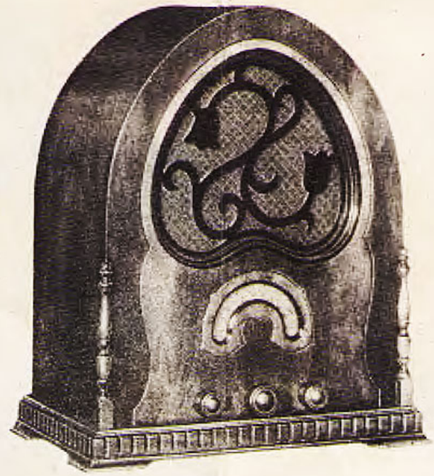


7-TUBE SCREEN GRID SUPERHETERODYNE

Front Cover

7 TUBES

Model 87 is a 7-tube screen-grid superheterodyne circuit developed by Jackson-Bell to take full advantage of the performance of the new . . . VARIABLE-MU & PENTODE tubes. Its 7 tubes consist of: 2 Variable-Mu; 1 Pentode; 2 - 27s; 1 - 80 and 1 - 24.



$49.95

COMPLETE WITH TUBES

This wonderful radio will give you reception beyond anything you have been expecting —regardless of its price. Such outstanding features as a genuine Dynamic Speaker, full-vision veneer dial with pilot light following shadow indicator, full-tone control originated by Jackson-Bell and semi-automatic volume control give value far beyond the cost.

HEAR THIS GREAT RADIO AT YOUR JACKSON-BELL DEALER'S

See the beautiful two-toned walnut cabinet which encases this marvelous Model 87—it will be at home in any surroundings. Play the radio yourself. See how easily it tunes. Learn how cleanly it clicks the stations in and out. See how it reaches out for distant places. Then you, too, will marvel that you can get so much fine radio for so small a price.

Jackson Bell
LOS ANGELES

Inside Fold

Jackson-Bell Model 87 Brochure