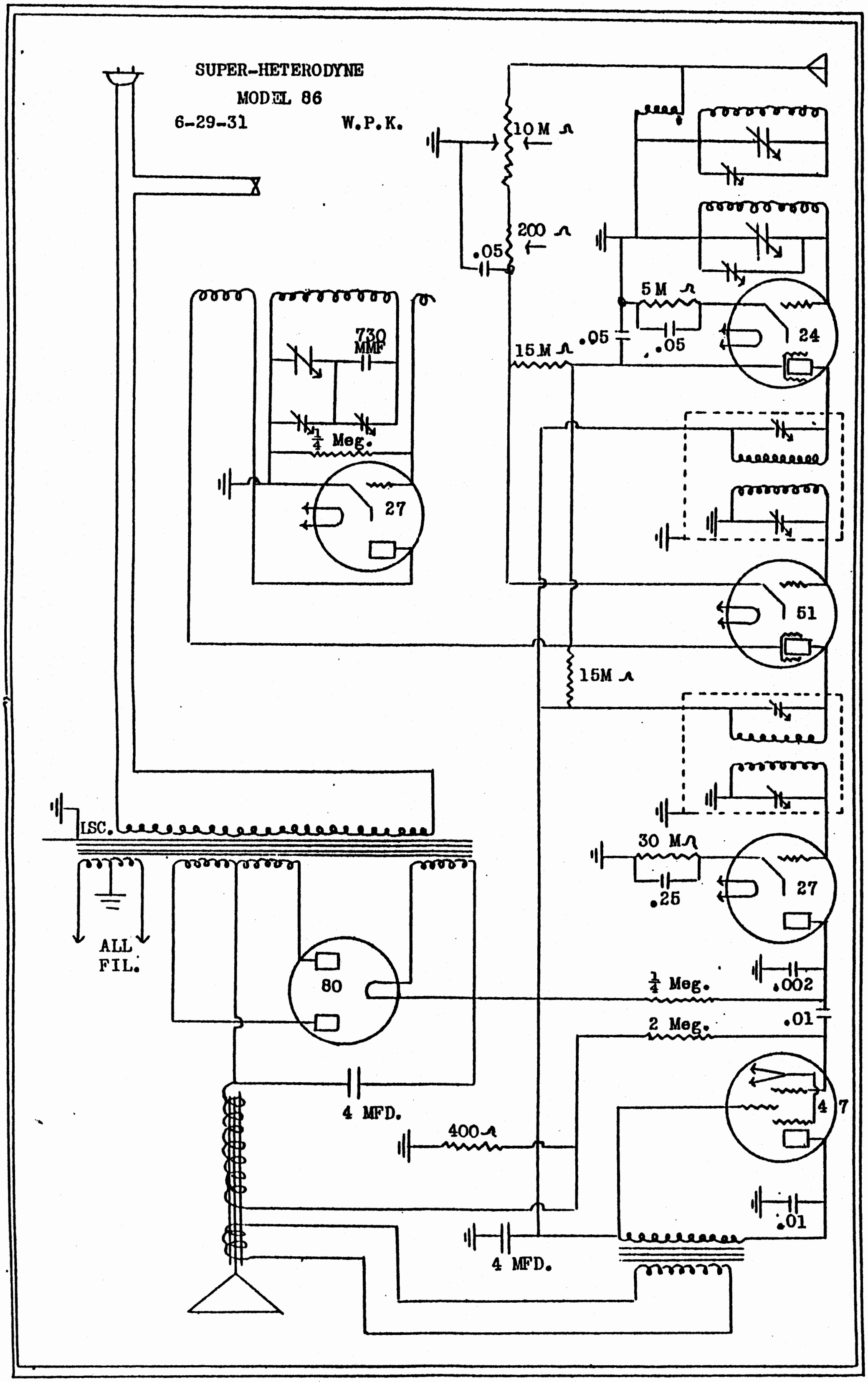
JB-86_ServcieInfo.pdf

Richard Gray



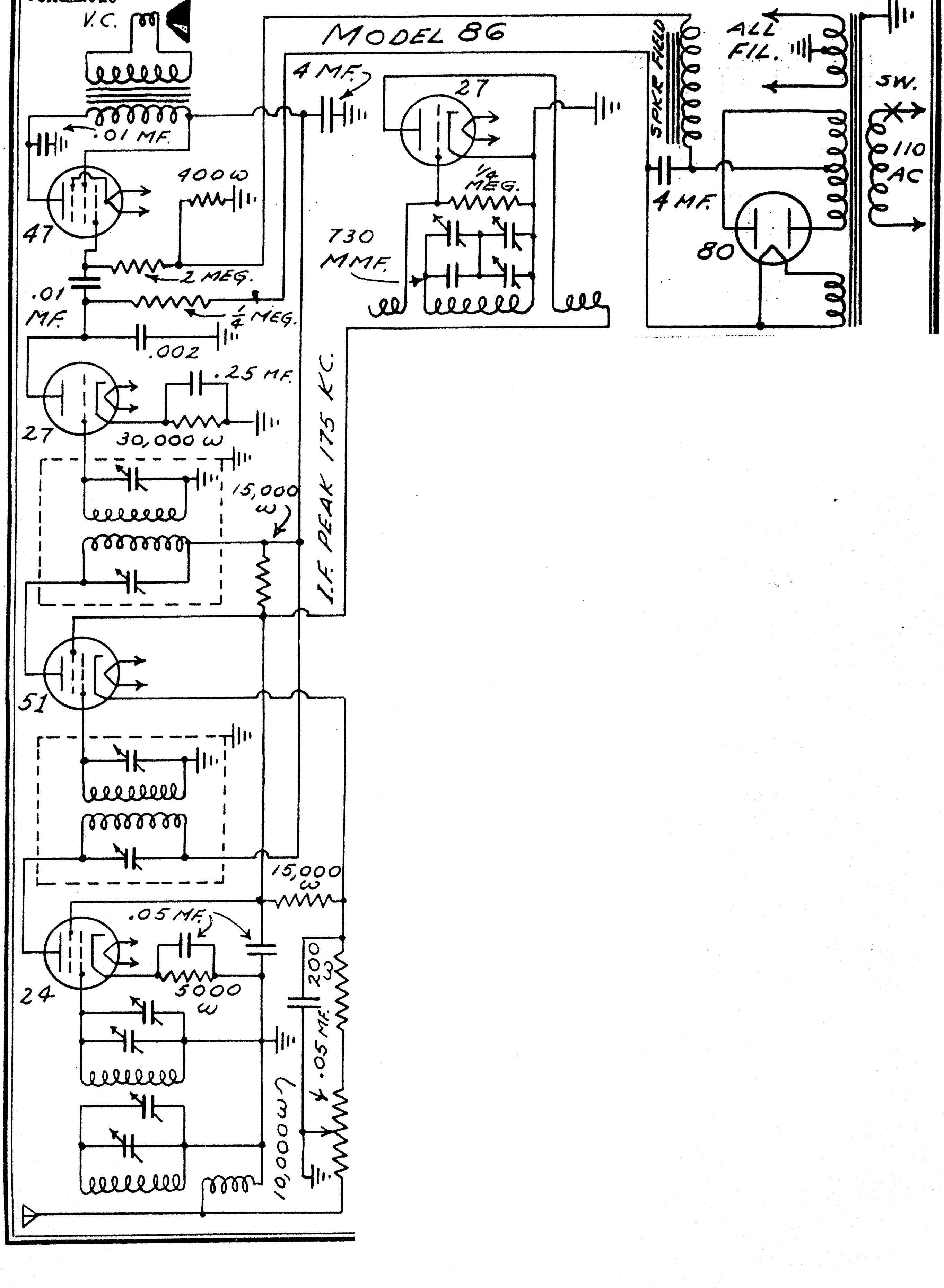
Form 53, 1M 7-31

RESISTOR COLOR CODE

200 Ohm Wire Wound			
400 " " " 3 watt			
5000 "	Green,	Black end,	Red Dot.
15000 "	Brown,	Green "	Orange Dot.
30000 "	Orange,	Black "	" "
¼ Meg	Red,	Green "	Yellow "
2 "	"	Black "	Green "

MODEL 86
MODEL 96
Schematic

JACKSON-BELL CO., LTD.



R

(RJ) DIFFERENT DATE ! ?

JACKSON BELL, Ltd.

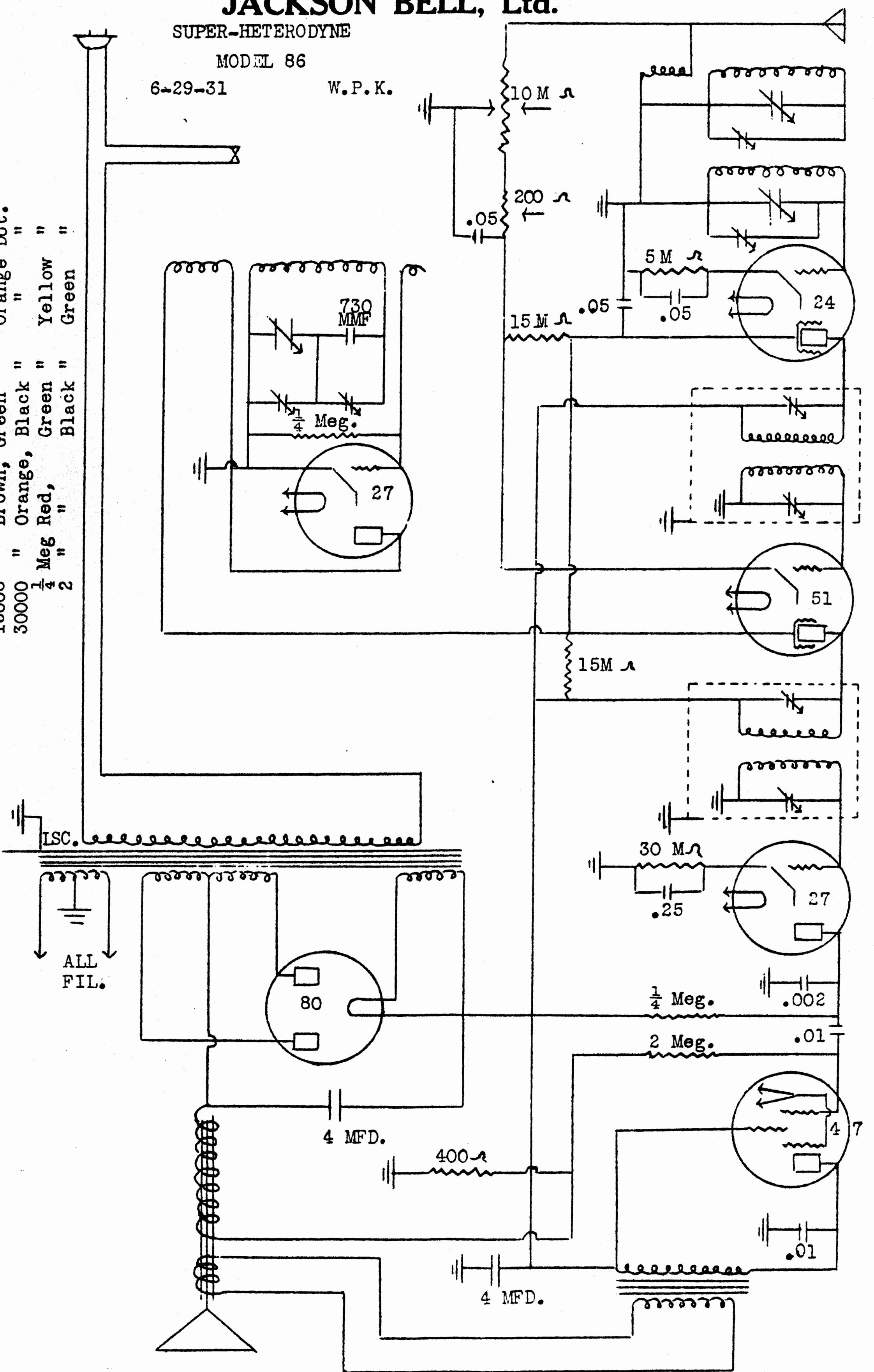
SUPER-HETERODYNE

MODEL 86

6-29-31 W.P.K.

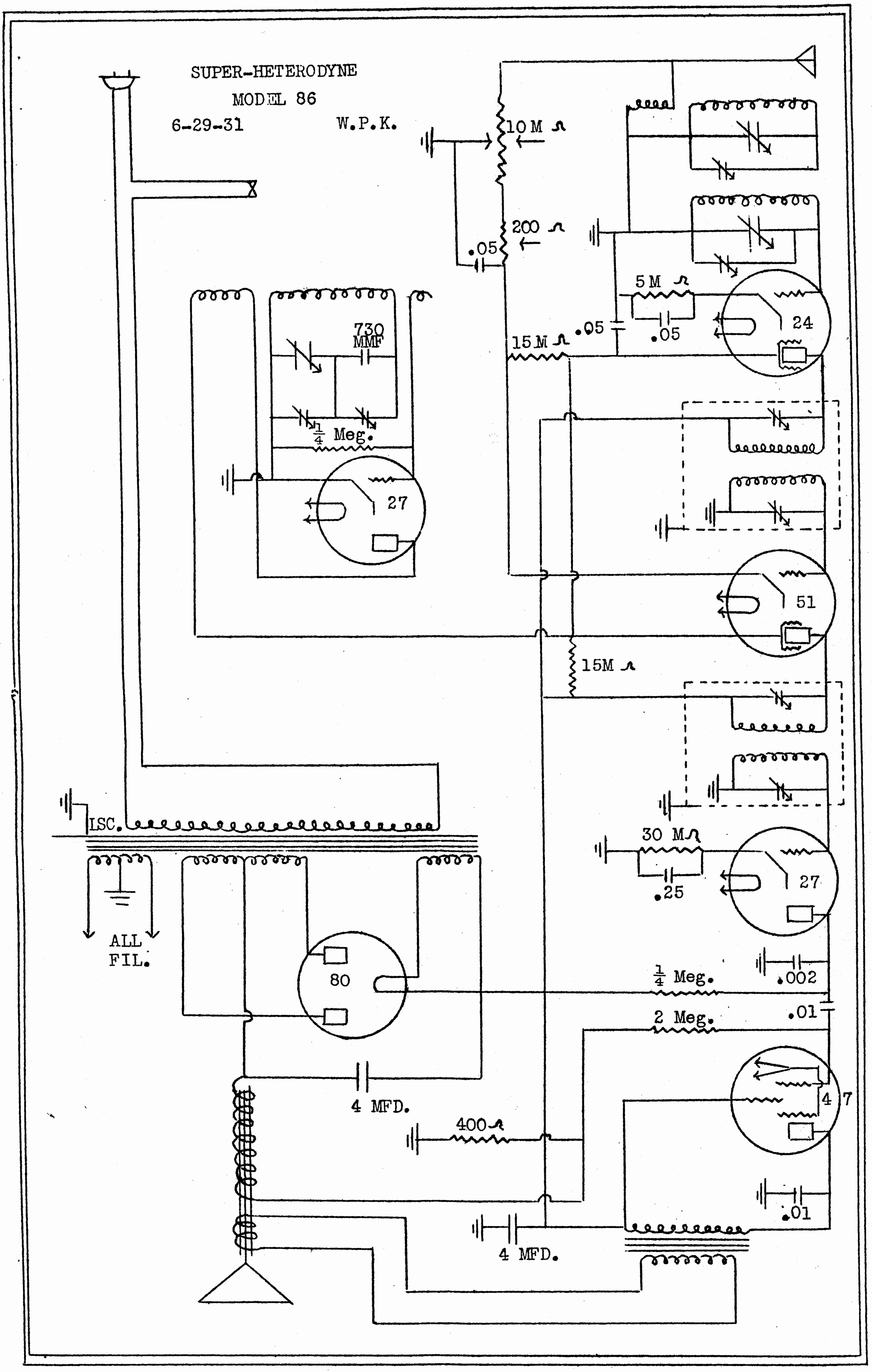
OSCILLATOR SAME AS FLINT !

175KC I.F.



RESISTOR COLOR CODE

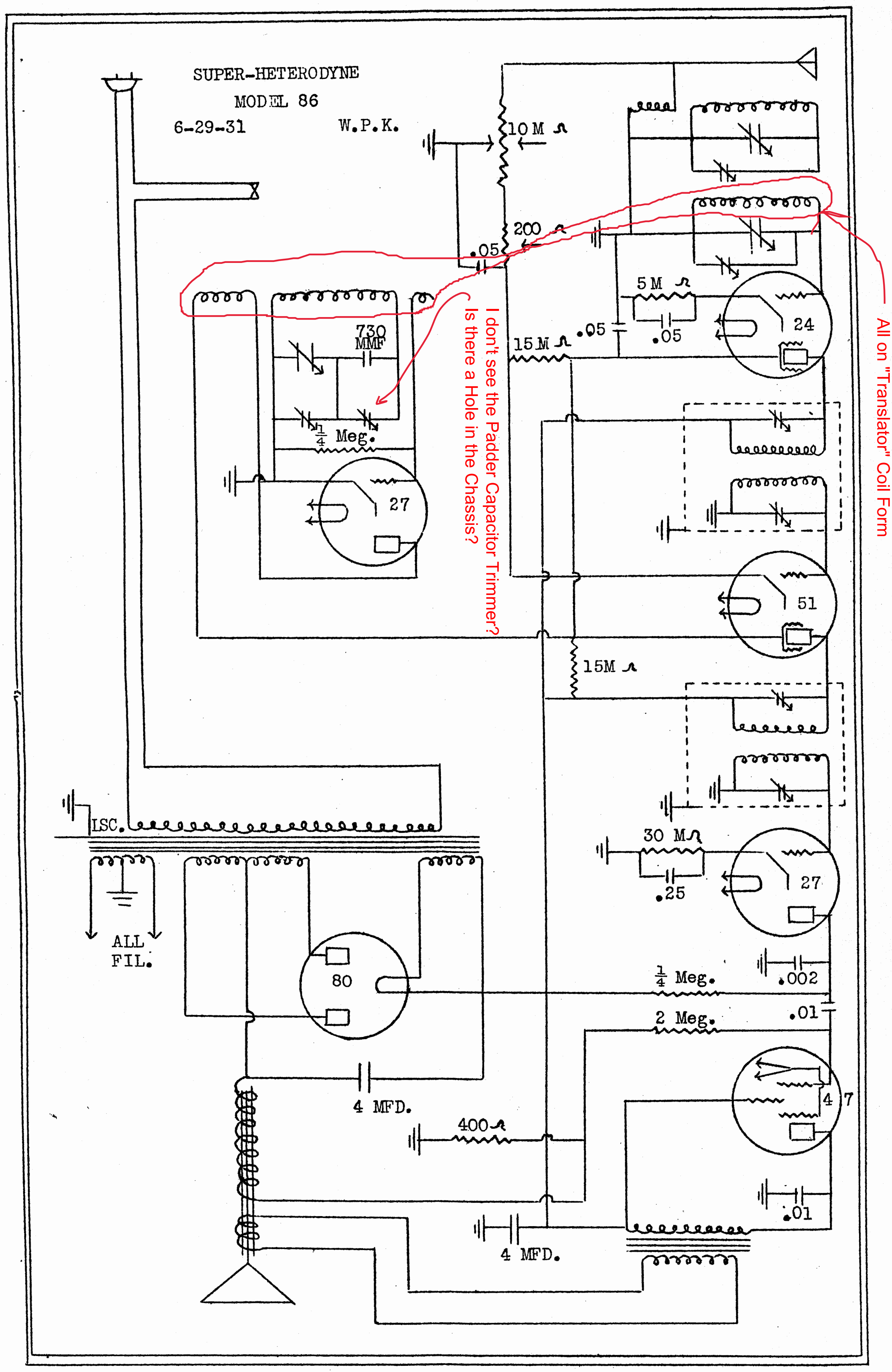
200	Ohm Wire Wound			
400	"	"	" 3 watt	
5000	"	Green,	Black end,	Red Dot.
15000	"	Brown,	Green "	Orange Dot.
30000	"	Orange,	Black "	" "
1/4	Meg	Red,	Green "	Yellow "
2	"	"	Black "	Green "



Form 53, 1M 7-31

RESISTOR COLØR CODE

200	Ohm Wire Wound			
400	" " "	3 watt		
5000	"	Green,	Black end,	Red Dot.
15000	"	Brown,	Green "	Orange Dot.
30000	"	Orange,	Black "	" "
¼ Meg		Red,	Green "	Yellow "
2 "		"	Black "	Green "

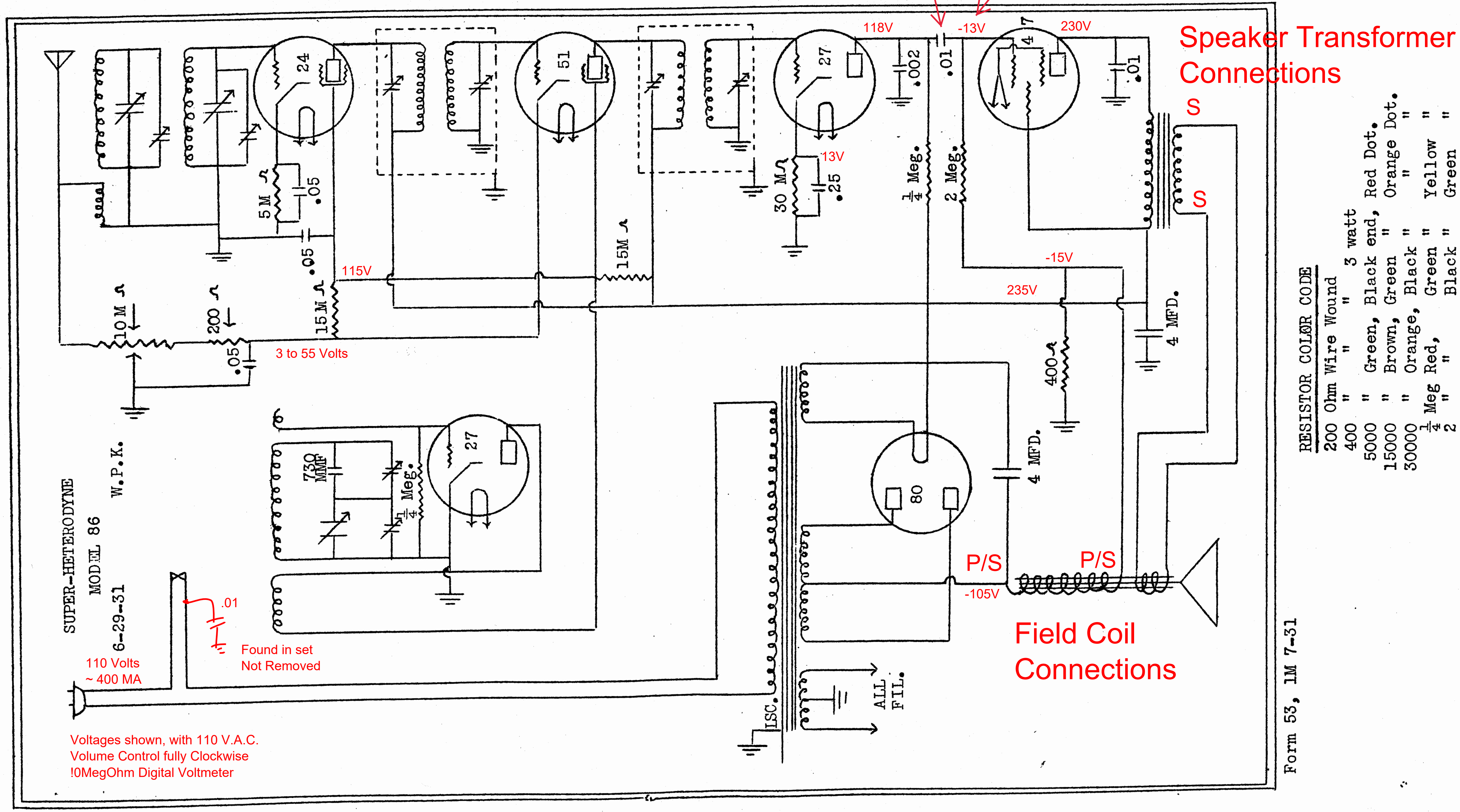


Form 53, 1M 7-31

RESISTOR COLOR CODE

200	Ohm	Wire Wound		
400	"	" "	3 watt	
5000	"	Green,	Black end,	Red Dot.
15000	"	Brown,	Green "	Orange Dot.
30000	"	Orange,	Black "	" "
1/4	Meg	Red,	Green "	Yellow "
2	"	"	Black "	Green "

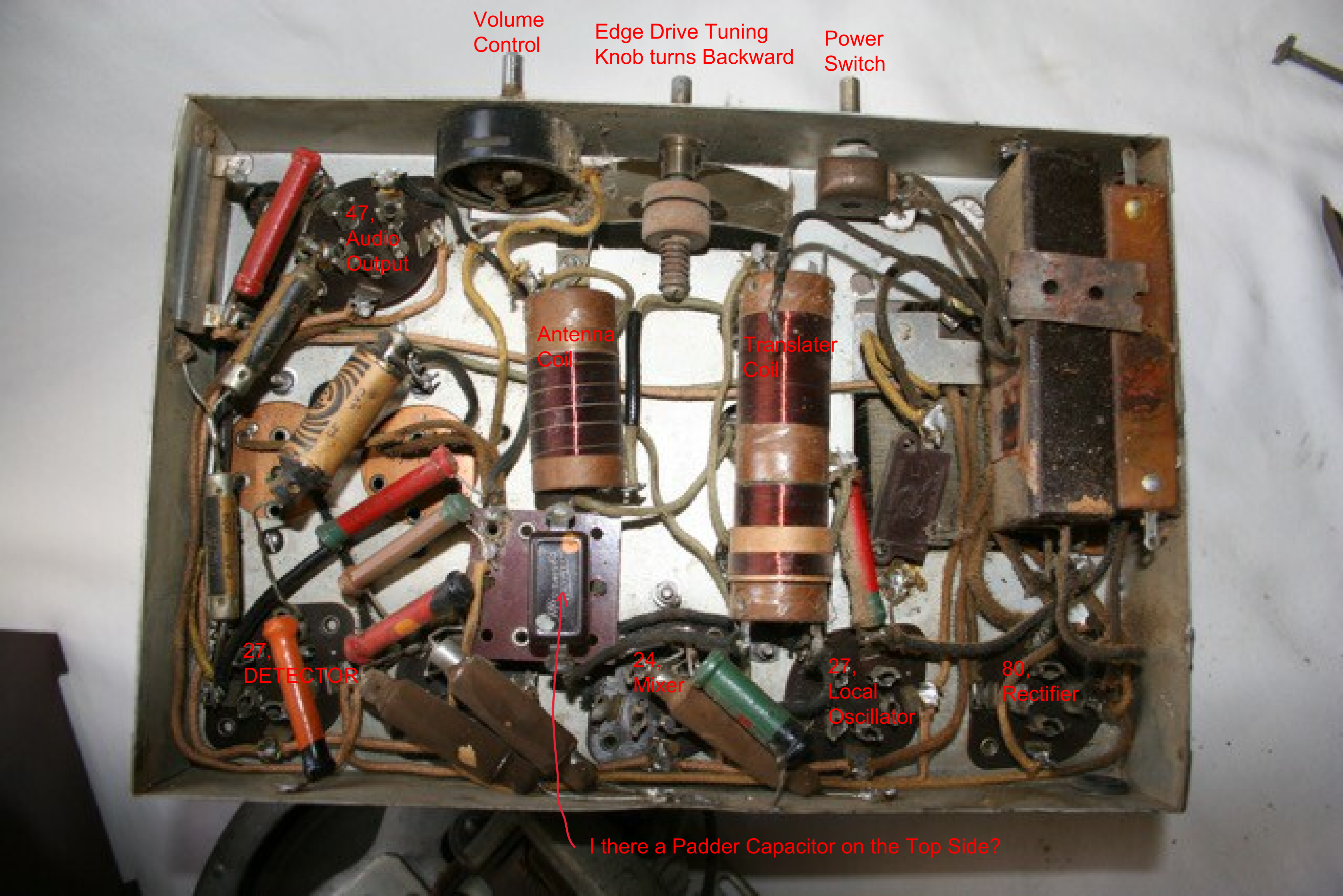
Schematic from Jackson-Bell (Not on the Radio)



Nothing on the metal chassis identifies it as "Jackson-Bell"


NATIONAL UNION
MADE IN U.S.A.
27
NATIONAL UNION
MADE IN U.S.A.


Soldered Speaker Wires
RF TRIM
LOCAL OSC TRIM
MIXER TRIM
1st IF
2nd IF Detector

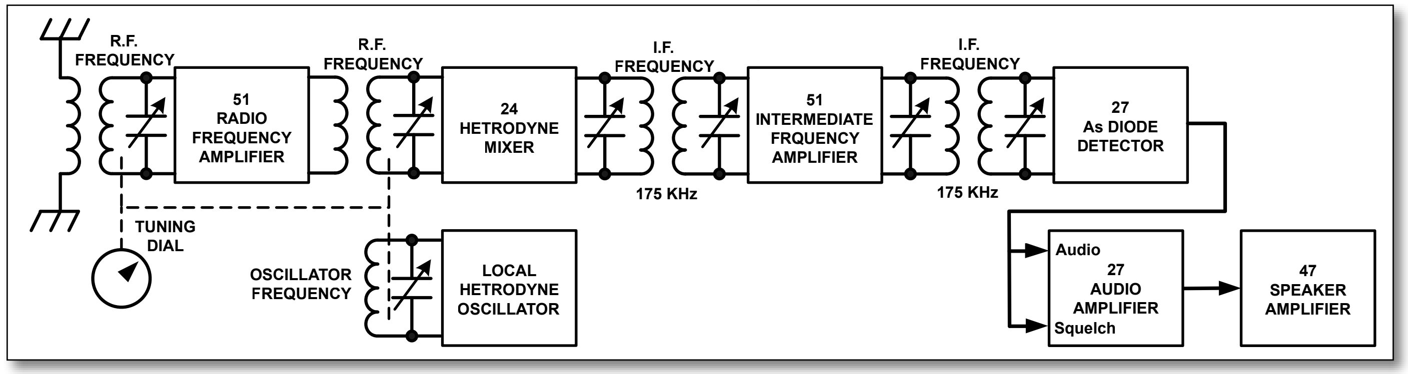

Volume Control
Edge Drive Tuning Knob turns Backward
Power Switch
47, Audio Output
Antenna Coil
Translater Coil
27, DETECTOR
24, Mixer
27, Local Oscillator
80, Rectifier
I there a Padder Capacitor on the Top Side?

Block Diagrams

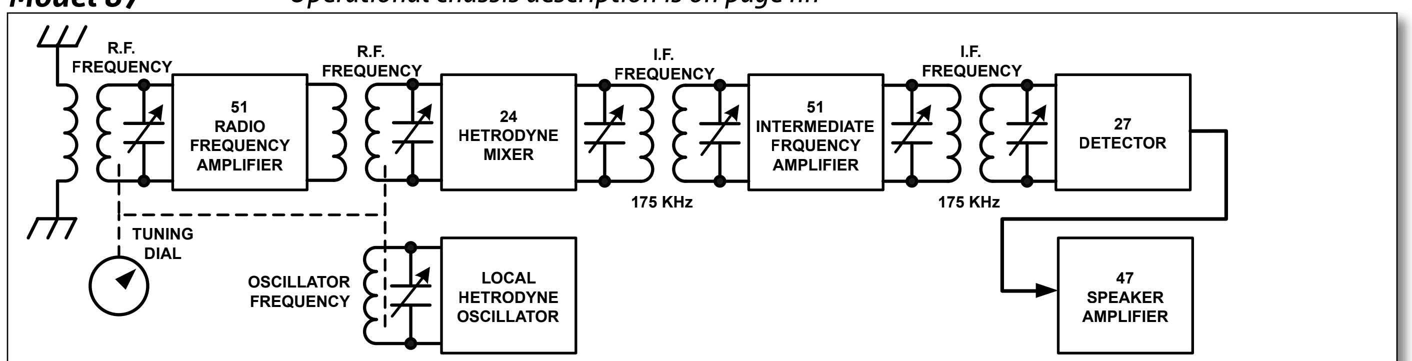
The diagrams below are presented in the order in which they are covered in the article. Refer to the descriptor accompanying the article on the page associated with these chassis.

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

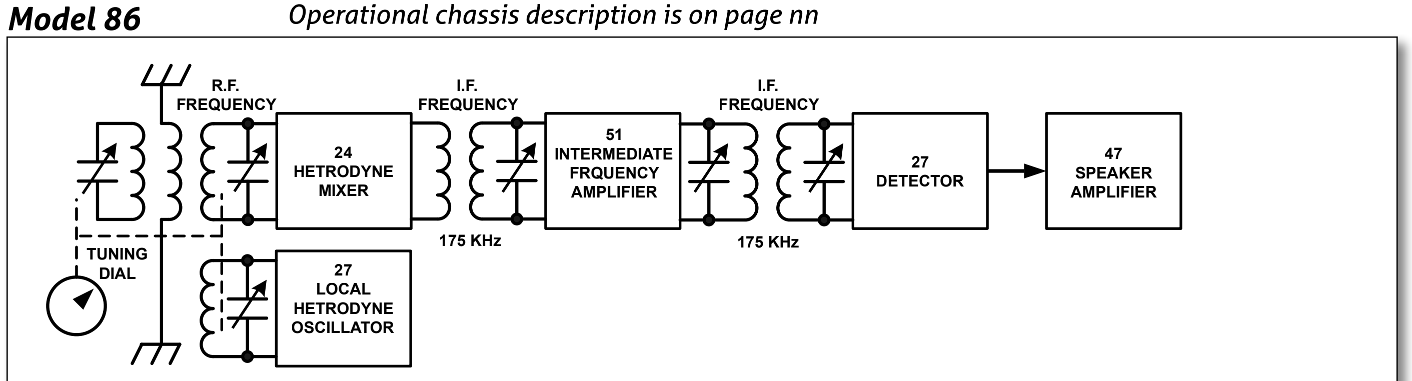
Model 88 *Operational chassis description is on page nn*



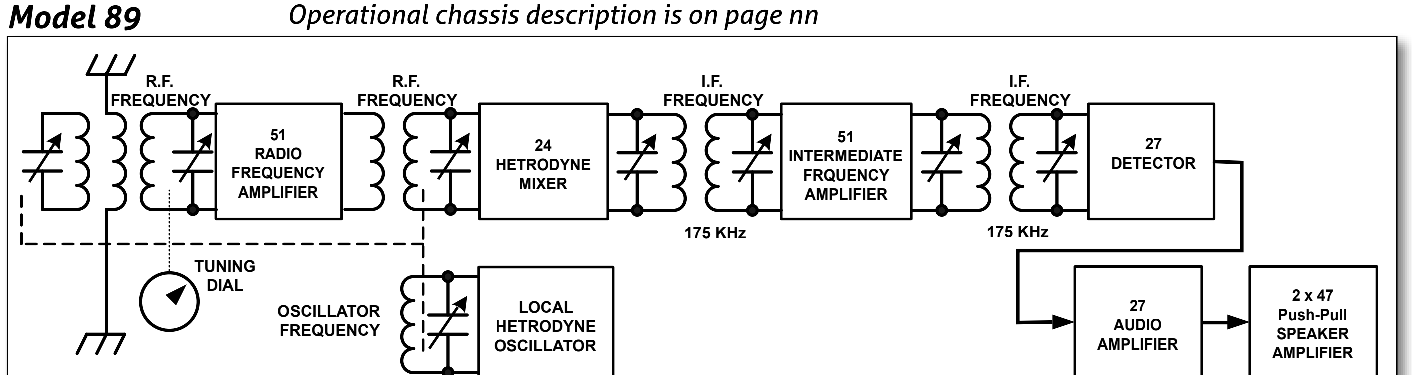
Model 87 *Operational chassis description is on page nn*



Model 86 *Operational chassis description is on page nn*



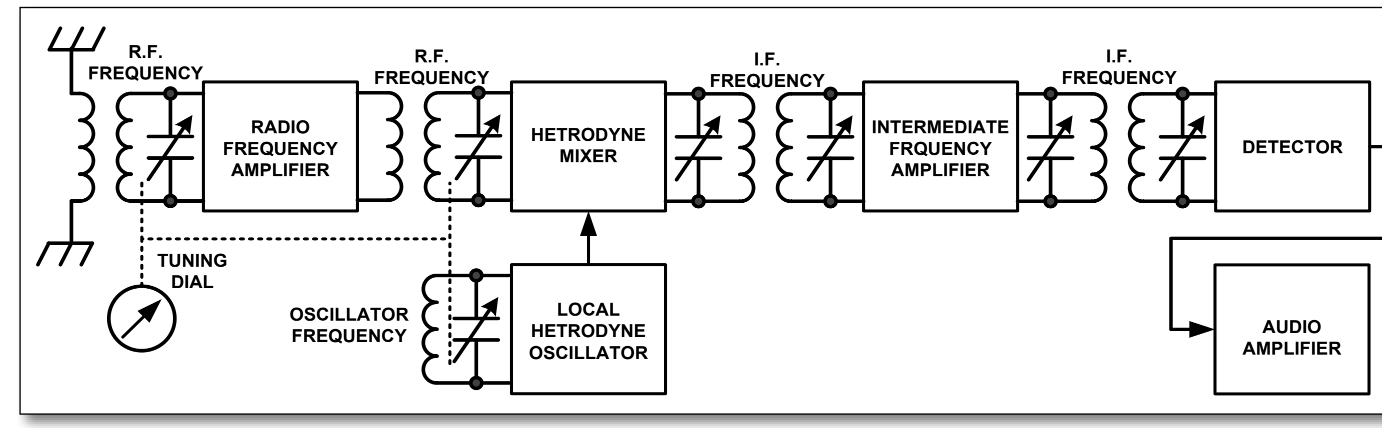
Model 89 *Operational chassis description is on page nn*



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.

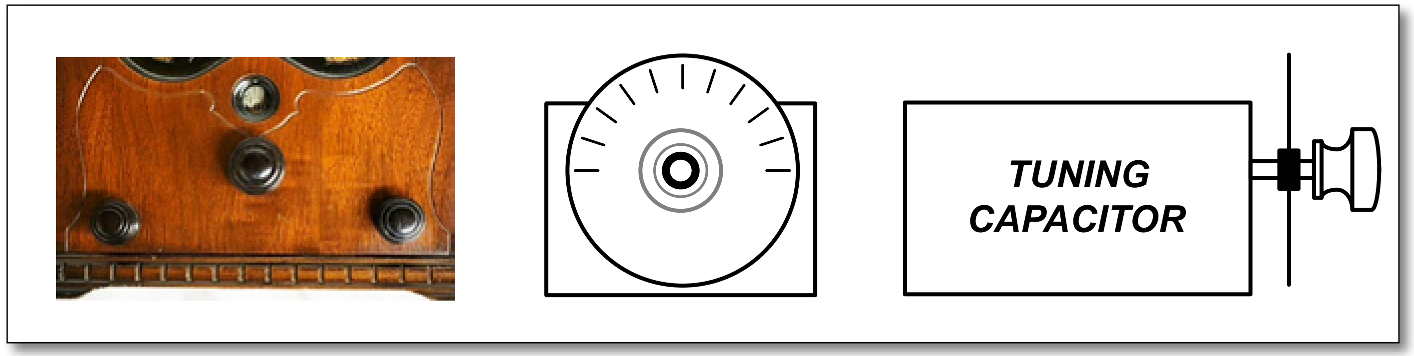
In General:

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

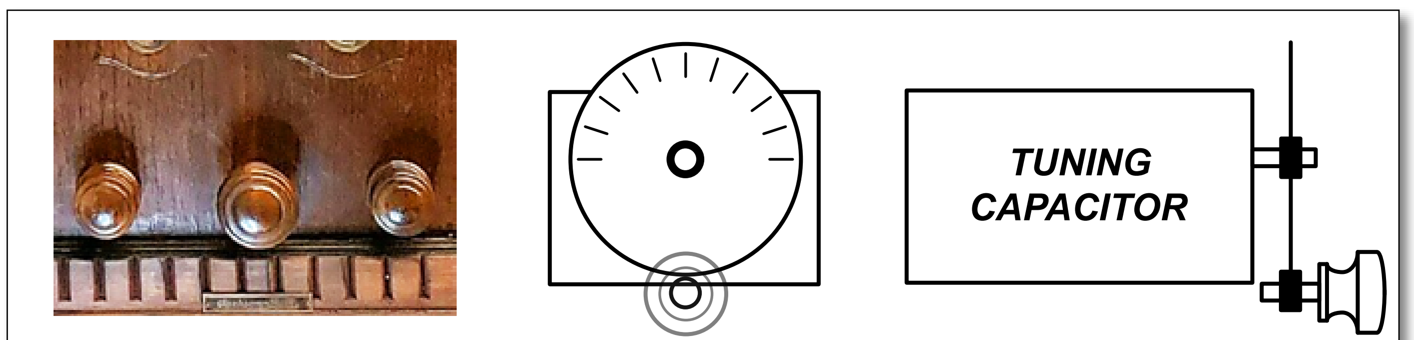
The dial can be viewed through an escutcheon or peephole opening. The dial can be front-lit or if the dial is transparent, it can be back-lit. In some cases, the dial can be fixed and the visible pointer is the only thing that moves. The basic drive types are covered below.

Direct Drive:



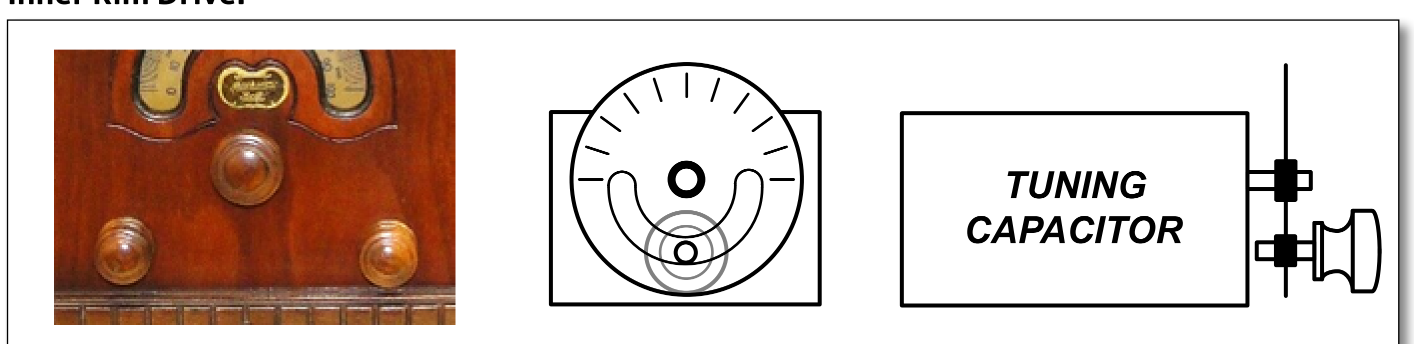
In line, Direct Drive is used on some Jackson-Bell radios. The tuning capacitor, dial (Pointer), and knob share the same shaft. The tuning Knob is often larger than the others, to give more precise control. Accurate positioning of the dial is difficult to achieve. This setup is only suitable for radios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