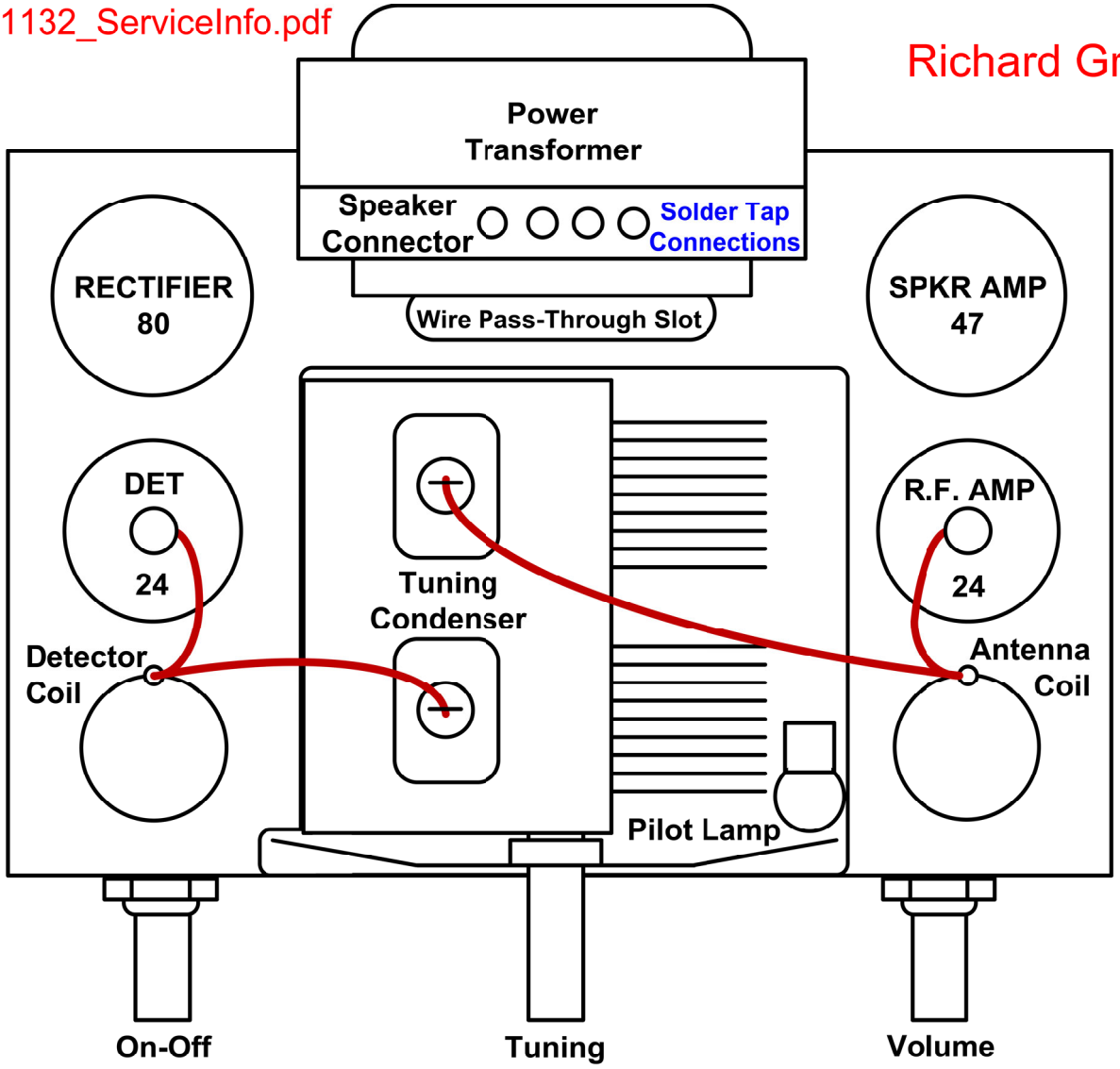
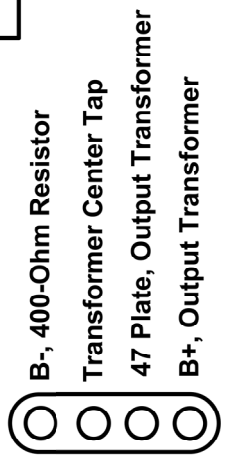
JB-84 Chassis Notes

15DEC2022RAG

JB-84-1132_ServiceInfo.pdf

Richard Gray





The Tuning Condenser is mounted through a hole in the Chassis
On a Flap bent down from the Chassis Top

Edged Lighted Aluminum Dial is both calibrated in Kilocycles
and has a Logging Scale (0 to 100)

Introduced in 20 June 1931
First Jackson-Bell "Peter Pan" Chassis

Same Chassis in Jackson-Bell Peter Pan Cabinet with "Eyebrow" & Escutcheon
introduced February 1932

The Flint "Peter Pan" (Kewpie Gril)l , with a Solder Tab Connector Strip for the Speaker
We have a Flint Peter Pan Ad, JUNE 1931 in "Western Music & Radio Trade Journal"
With a Photo, indicates May (April) Prototype (Production) from Flint

This Chassis also appears in a Domed "Peter Pan" Cabinet, with a Flint "Kewpie" Grille and Metal Escutcheon with a Backlighted Translucent Dial
Stamped in Metal 1132… November 1932… obviously blowing out old parts inventory!

We have seen some later Versions of this Chassis with a
Tone Control Pot.. All assumed to be added aftermarket.

SERVICE NOTES

PETER PAN MODEL 84

CIRCUIT:

The circuit consists of one stage of tuned radio frequency amplification, screen grid power detector, and a Pentode power-output tube. The plate supply voltage is obtained by means of a full-wave rectifier circuit.

OPERATION:

The power transformer is designed to operate from a supply source of 50-60 cycles, 100 to 135 volts A.C. Check supply line before connecting receiver. An antenna of from 15 to 50 feet, total length, should be used, depending upon the location of the receiver and the field strength of nearby broadcast stations. Too long an antenna will result in broad tuning, with consequent inability to separate stations. A ground connection is not ordinarily required, but if it is deemed advisable to use a ground to decrease electrical interference picked up in the antenna, or from the A.C. line, connection may be made to the metal chassis of the Receiver.

The knob on the left side of the receiver operates the line switch. The center knob operates the station selector, and the right hand knob operates the volume and oscillation control. As this knob is rotated to the right, the volume will increase until the point of oscillation is reached or until overloading of the detector occurs. The selectivity and sensitivity of this receiver is accomplished by allowing the radio frequency stage to be operated, by means of the volume control, at a point just before the circuit begins to oscillate. Turning the volume control beyond the point of oscillation will result in distortion and heterodyne whistles as the receiver is tuned to the frequency of incoming carriers.

The sensitivity of this receiver is not sufficient to operate on distant stations, except in cases where an antenna of from 100 to 200 feet in length may be used without causing the set to tune broadly on nearby stations. The range of the receiver may be up to 500 miles or more in good locations.

ANTENNA COIL:

The primary of the antenna coil has its greater portion wound at the low potential end of the secondary winding, and a small portion wound spirally over the secondary and finishing at the grid end of the secondary. The upper end of the secondary coil is connected to the grid of the radio frequency amplifier tube and to one section of the tuning condenser. The upper end of the primary coil is connected to the antenna terminal and to one end of the volume control potentiometer. The lower ends of both windings are connected directly to the chassis ground.

DETECTOR COIL:

The primary of the detector coil is wound over a short piece of tubing placed over the low potential end of the secondary winding. The upper ends of the primary and secondary are the plate and grid terminals respectively.

POWER SUPPLY:

The filaments of the radio frequency tube, the detector tube, the Pentode output tube, and the pilot light are all supplied by one winding of the power transformer secondary. This winding is center tapped, and the tap is connected to the chassis ground.

The rectifier tube filament is operated from an additional secondary winding, one side of which is the positive terminal of the plate voltage supply.

The high voltage secondary winding center tap is connected to ground thru the 2400 ohm speaker field and a 400 ohm wire wound resistor providing bias for the grid of the Pentode output tube.

Two dry electrolytic filter condensers are used, the positive terminals of which are connected to one side of the rectifier filament, while the negative terminal of one is connected to the high voltage center tap and the negative terminal of the other is connected to ground.

The maximum plate voltage is supplied to the plates of the radio frequency detector and Pentode tubes, and the Pentode screen grid. The radio frequency and detector screen-grids are connected to the first point on the voltage divider resistance network.

Electrolytic filter condensor cannot be tested by the method usually employed for testing paper condensers. Since these filters normally have a small amount of leakage current, the usual continuity tests will not give accurate results. Therefore, it is recommended that these condensers be tested with approximately 200 volts direct current, with a milliameter and protective resistance in series. At this voltage

the leakage current should not exceed 1/10th of a milliampere per micro-farad after ten minutes. The initial current may run as high as one milliampere per micro-farad.

RADIO FREQUENCY ADJUSTMENTS:

Should it become necessary to resonate the radio frequency circuit, proceed as follows:

Set the tuning dial to read about 5° - then with a modulated oscillator and output meter (or a grid dip meter) resonate the two circuits at this point by means of the trimmer condensers on the main tuning condenser, then check for resonance at the end of each split plate in the condenser, bending plates where necessary. When properly resonated, and using about 50 feet of antenna, the set should oscillate, with volume control at maximum, up to 700 kilocycles.

VOLUME CONTROL SYSTEM:

A 100,000 ohm carbon resistor is connected from the rectifier filament to the screen grids of the type '24 tubes, then another 100,000 ohm carbon resistor is connected from the screen grids to the cathode of the radio frequency tube. From the cathode of the radio frequency tube to one end of the 10,000 ohm volume control potentiometer, a 200 ohm wire wound resistor is connected. At maximum volume control setting the bias on the R.F. tube is the drop across the 200 ohm bias resistor. As the volume control is moved to minimum, the bias increases, equivalent to the drop across the 200 ohm fixed resistor plus the drop across that portion of the volume control potentiometer which is between the arm and the end to which the 200 ohm resistor is connected, with the volume control turned to the extreme left the antenna is shorted to ground, thus cutting out all R.F. pickup to the set. If zero volume is not obtained, check for shorted cathode or grounded cathode bias resistor. In some cases it may be necessary to connect a ground to the chassis to reduce pickup from the A.C. line.

VOLTAGE AND CURRENT VALUES

With the volume control at maximum, the following readings should be obtained, with an allowable 10% variation:-

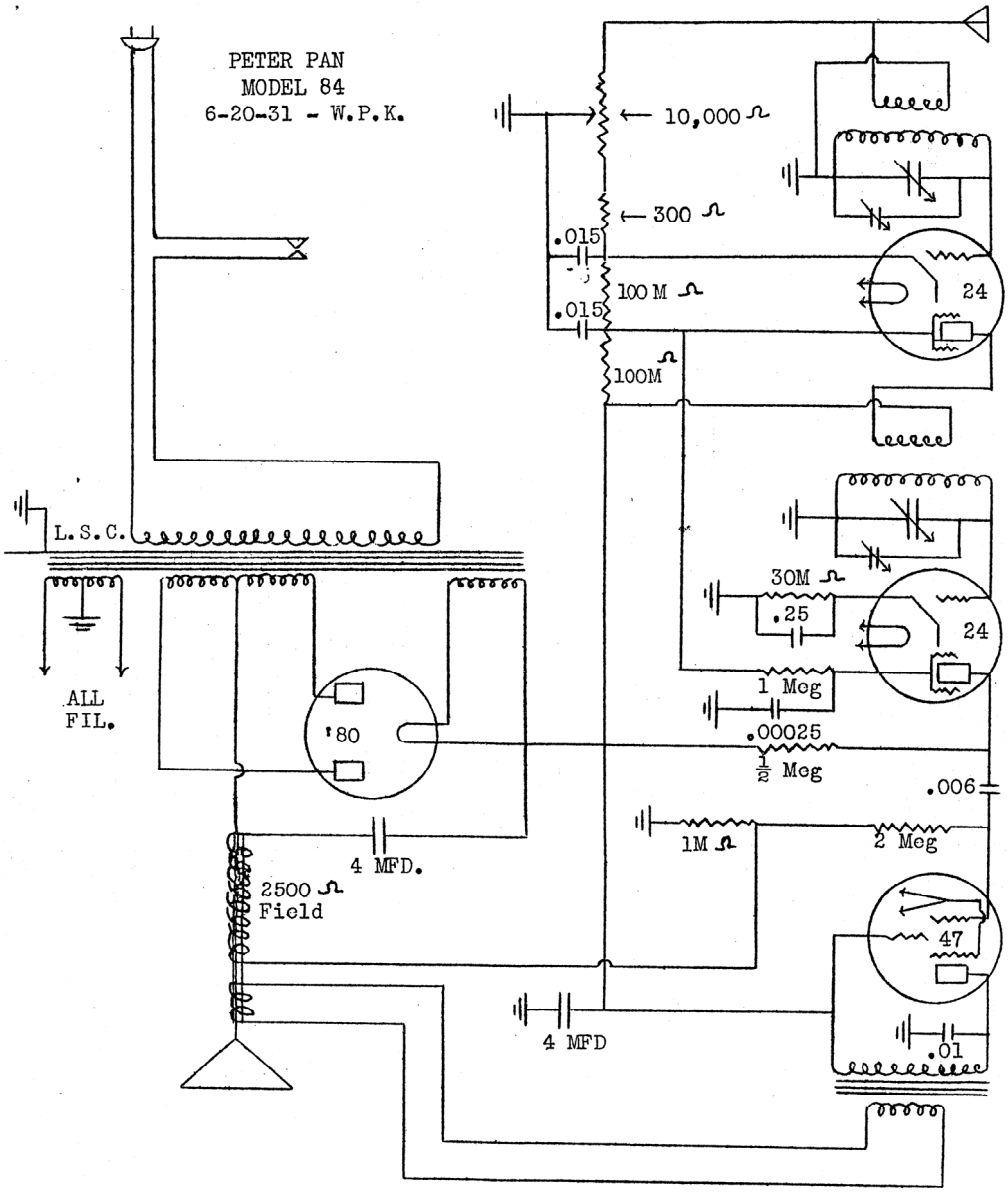
Line Voltage,	110 V.
R.F.Plate Voltage,	200 V.
R.F. Screen Voltage,	60 V. *
R.F. Cathode Bias,	1.5 V.
R.F. Plate Current,	2.2 M.A.
Detector Plate Voltage,	80 V.
Detector Screen Voltage,	60 V.
Detector Cathode,	5 V.
Detector Plate Current,	0.15 M.A.
Pentode Plate Voltage,	190 V.
Pentode Screen Voltage,	200 V.
Pentode Grid Voltage,	13 V.
Pentode Plate Current,	24.0 M.A.
R.F.Filament,	2.2 V.
Detector Filament,	2.2 V.
Pentode Filament,	2.2 V.
Rectifier Filament,	4.1 V.

*These readings made with the 300,000 ohm voltmeter in a Jewel 199 Set Analyzer are not true readings, due to the high resistances in the receiver circuit.

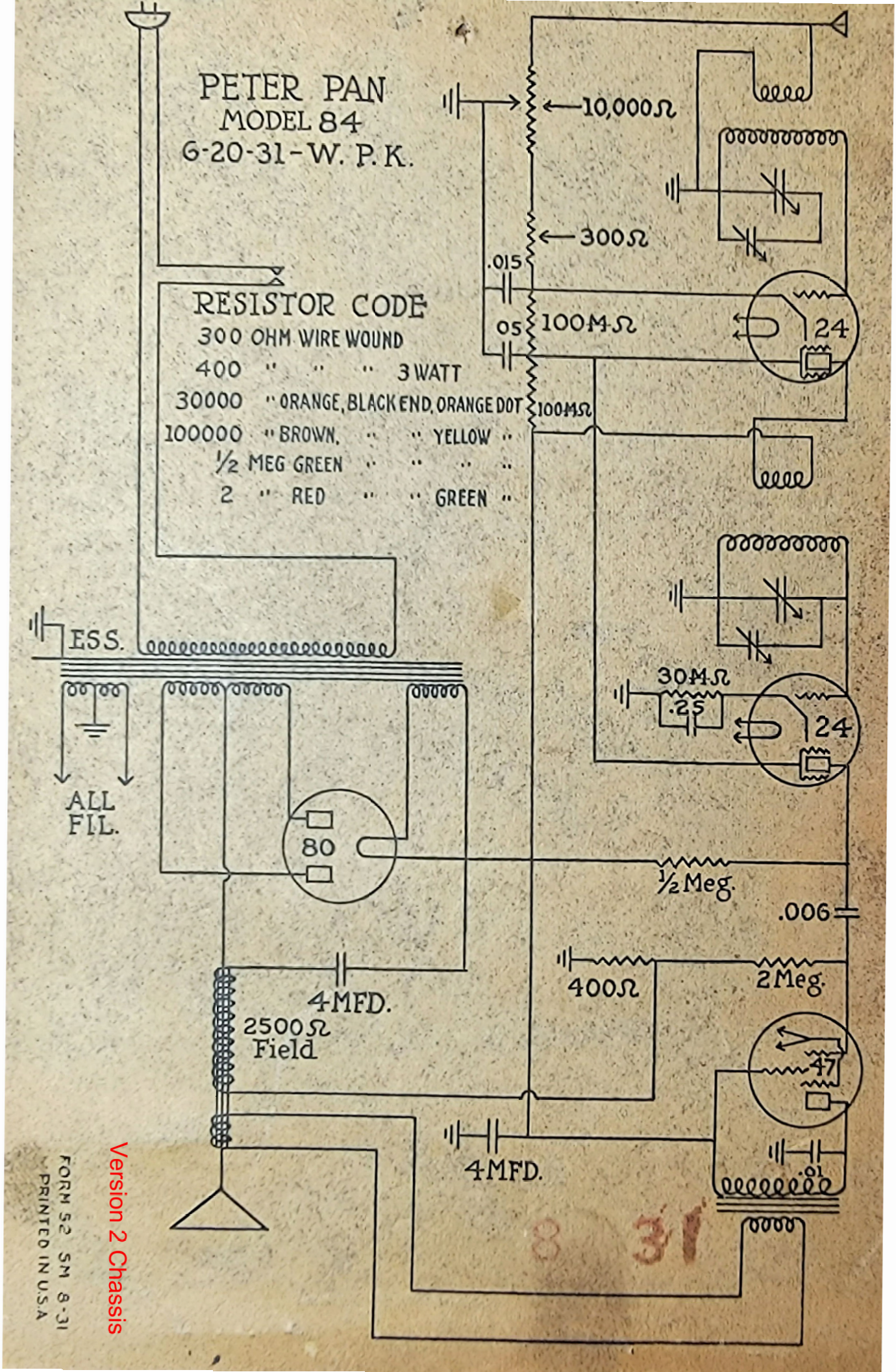
* * *

JACKSON-BELL COMPANY, LTD.,
1682 West Washington St.,
Los Angeles, Calif.

W. P. Konnedy,



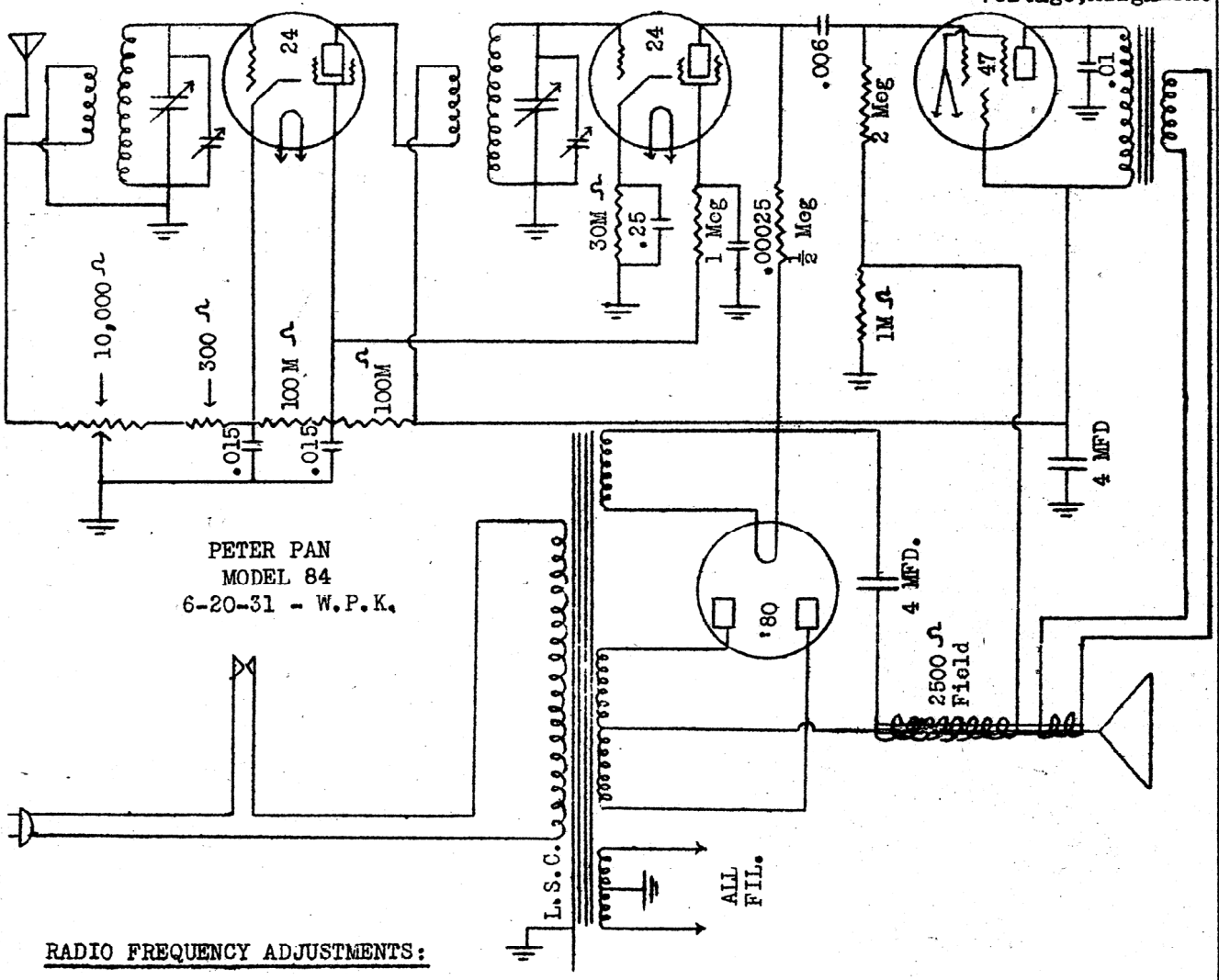
Version 1 Chassis


PETER PAN
MODEL 84
6-20-31-W. P. K.
RESISTOR CODE
300 OHM WIRE WOUND
400 " " " 3 WATT
30000 " ORANGE, BLACK END, ORANGE DOT
100000 " BROWN, " " YELLOW "
½ MEG GREEN " " " "
2 " RED " " GREEN "
10,000Ω
300Ω
.015
.05
100MΩ
100MΩ
24
24
30MΩ
.25
ESS.
ALL FIL.
80
½Meg.
.006
400Ω
2Meg.
4MFD.
2500Ω Field
47
4MFD.
.01
8 31
FORM 52 SM 8-31
PRINTED IN U.S.A.
Version 2 Chassis

FLINT USES SAME SCHEMATIC HOWEVER THE SPEAKER HAS NO PLUG 20 JUNE 31

MODEL 84
Schematic
Voltage, Alignment

JACKSON-BELL CO., LTD.



NOTICE 1000Ω RESISTOR TO GENERATE BIAS FOR THE 47 TUBE

SEE SCHEMATIC ON NEXT PAGE 4008

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VOLTAGE AND CURRENT VALUES

With the volume control at maximum, the following readings should be obtained, with an allowable 10% variation:-

Detector Plate Current,	0.15 M.A.	Line Voltage,	110 V.
Pentode Plate Voltage,	190 V.	R.F. Plate Voltage,	200 V.
Pentode Screen Voltage,	200 V.	R.F. Screen Voltage,	60 V. *
Pentode Grid Voltage,	13 V.	R.F. Cathode Bias,	1.5 V.
Pentode Plate Current,	24.0 M.A.	R.F. Plate Current,	2.2 M.A.
R.F. Filament,	2.2 V.	Detector Plate Voltage,	80 V.
Detector Filament,	2.2 V.	Detector Screen Voltage,	60 V.
Pentode Filament,	2.2 V.	Detector Cathode,	5 V.
Rectifier Filament,	4.1 V.		

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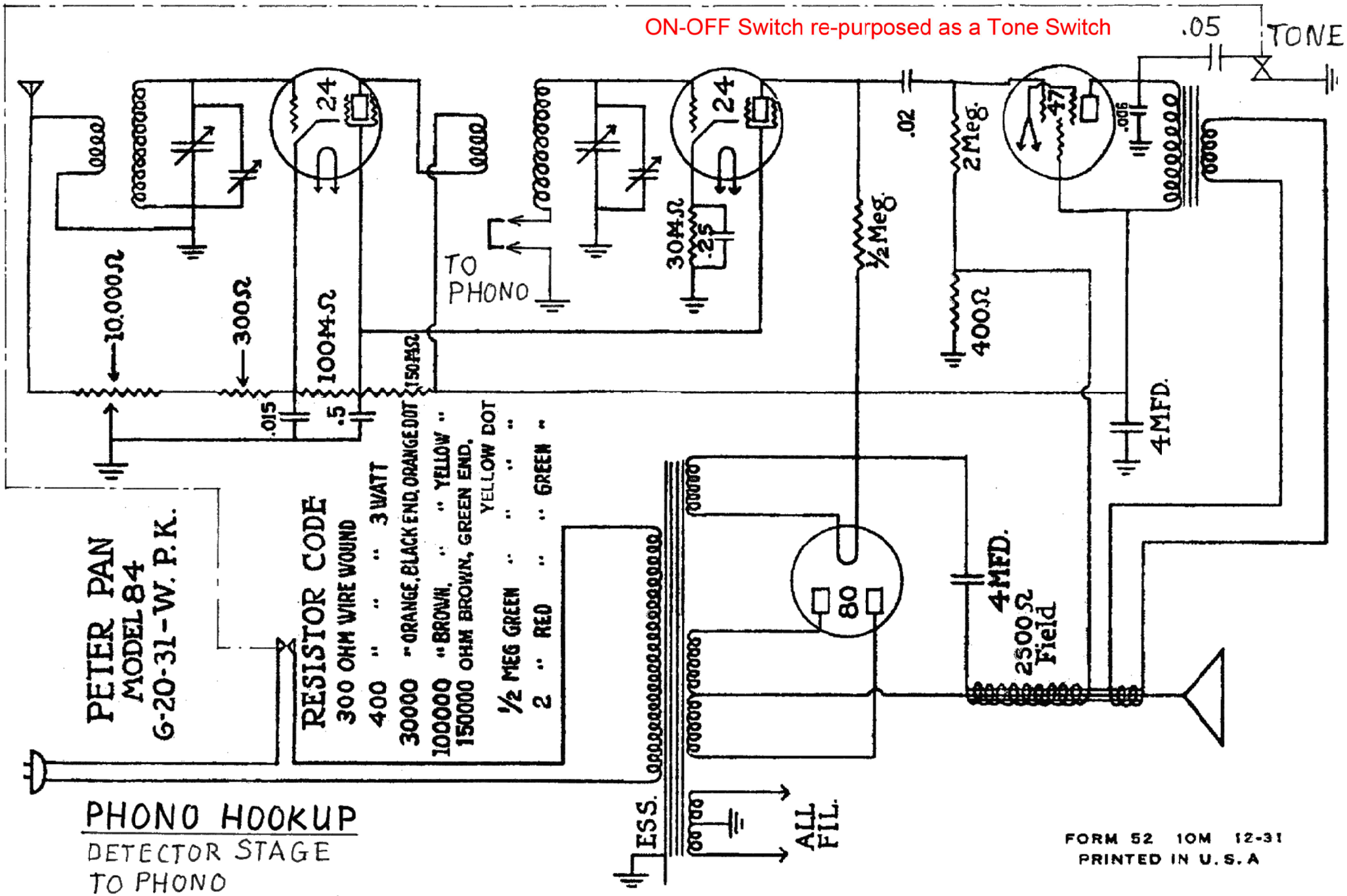
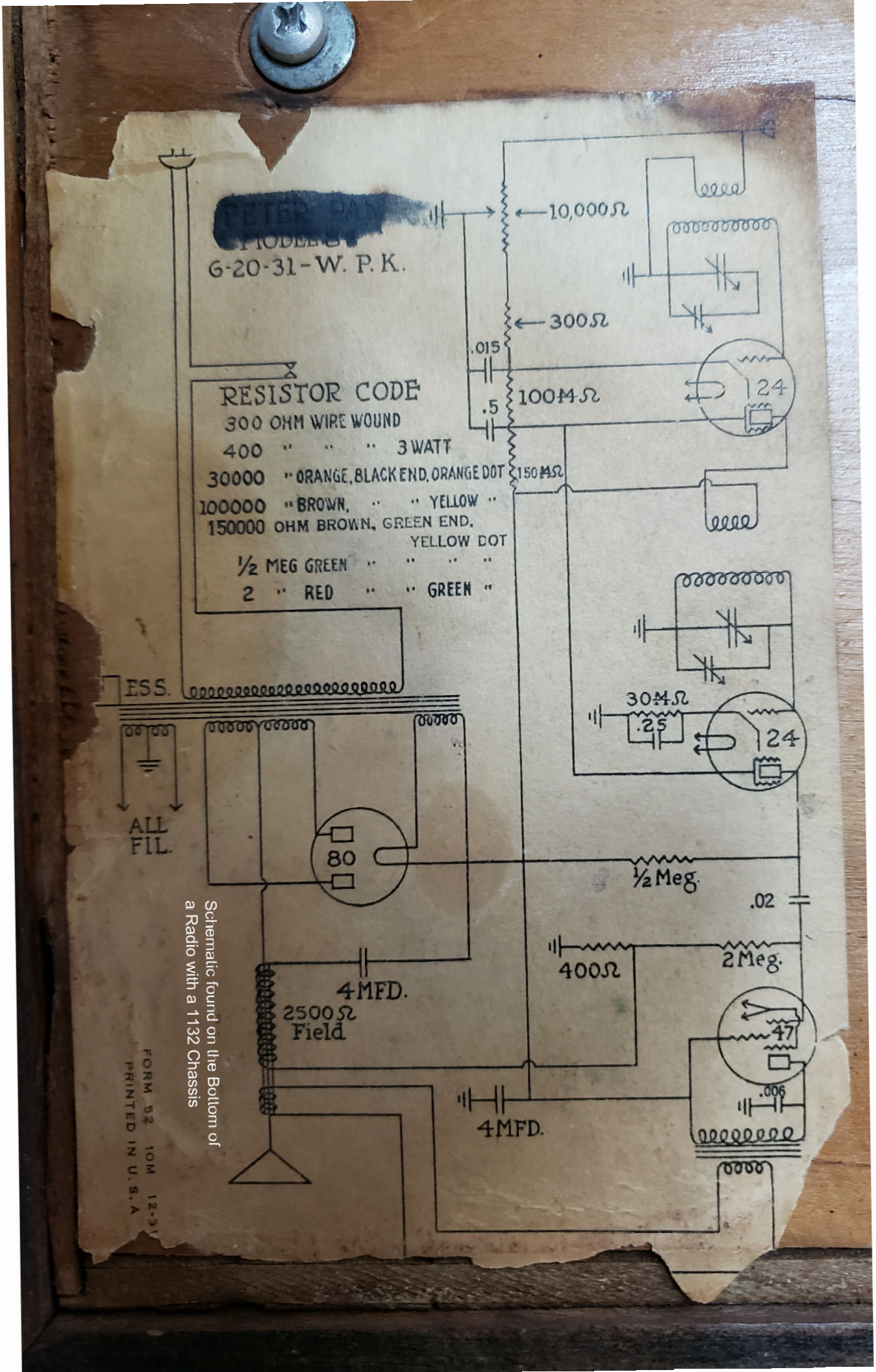
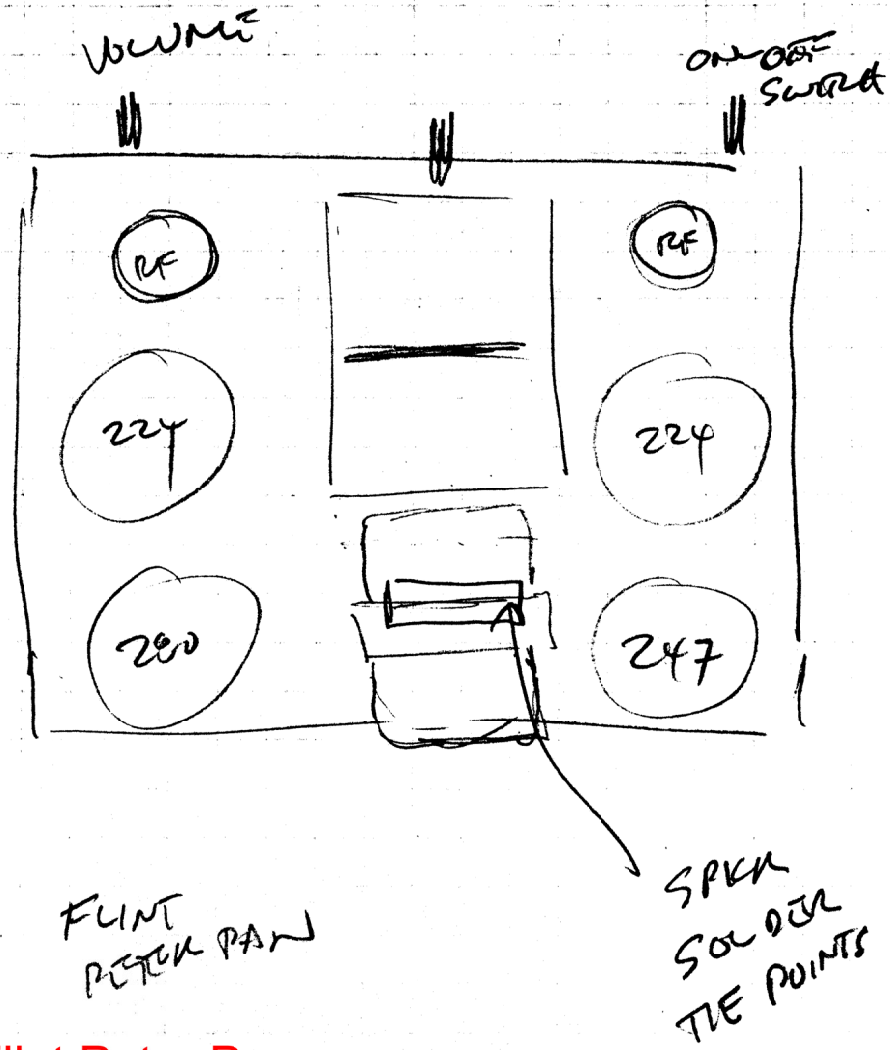
Some Peter Pans shipped to Europe had a Phonograph Input



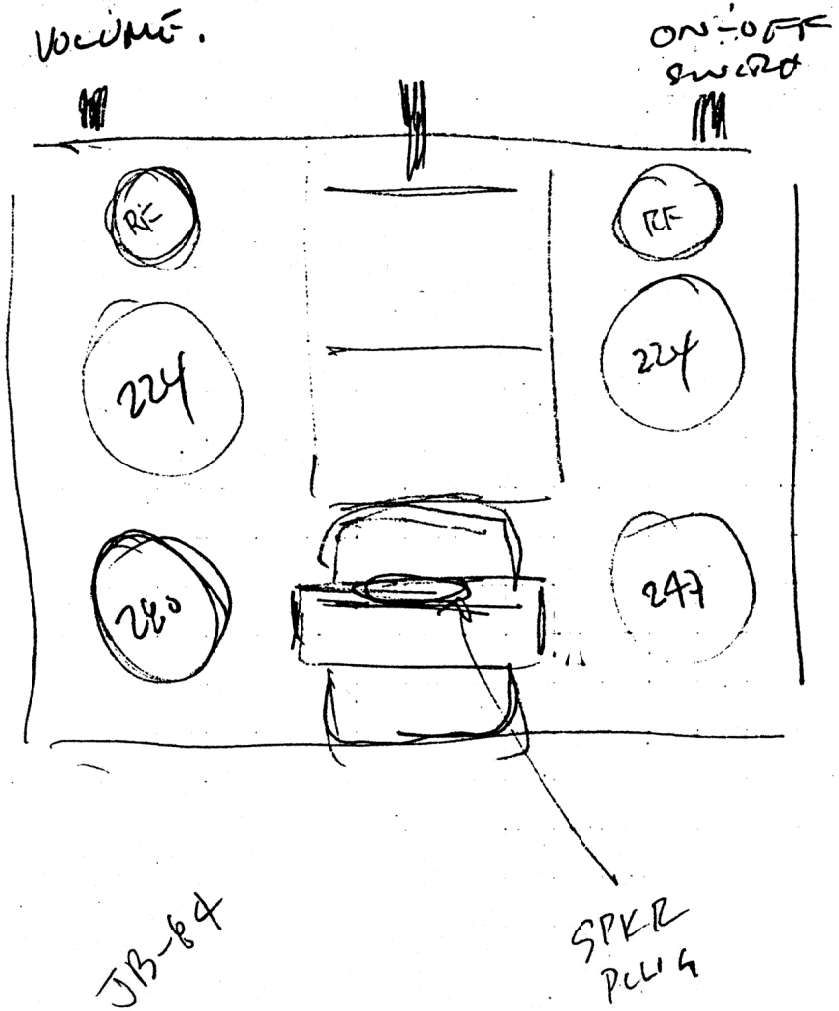


Schematic found on the Bottom of a Radio with a 1132 Chassis



Circa 1990 RAG

Flint Peter Pan



Circa 1990 RAG

Jackson-Bell Model 84, Peter Pan Chassis has a Speaker Plug