SECTION III

EDISON SCREEN-GRID MODELS R-6 AND R-7

Socket Reading Analysis Charts and Instructions for Their Use

PLATE NO. 1
Schematic Circuit for Receiver Unit and Power Unit

PLATE NO. 2
Detector R. F. and A. F. Filter Units

Instructions for the Use of Socket Reading Analysis Charts

For the convenience of the Radio Service Engineer, the following charts are furnished. These charts classify abnormal socket readings, as taken with any approved screen-grid radio set tester, under three headings, viz.:

No Reading. Low Reading. High Reading.

These charts diagnose each socket for abnormal filament voltage, grid voltage and cathode voltage, screen grid voltage, screen grid current, plate voltage, plate current and grid test. The normal readings are shown in the first column to the left.

If, for instance, a low voltage filament reading is obtained at the first R. F. socket, reference to the chart under the heading "FIRST R. F. SOCKET," column No. 3 and opposite "FILAMENT VOLTAGE" in column No. 1 will show the following possible causes:

Low line voltage.

Incorrect location of primary fuse.

Shorted turns in filament winding (L-33).

Shorted turns in primary winding of Power Transformer (L-34).

Short circuit in filament wiring.

The symbols L-33 and L-34 designate the filament and power transformer windings appearing on the schematic diagram Plate No. 1 and the diagrammatic layout Plate No. 3.

The next step towards solving the trouble is to measure the line voltage to ascertain whether the line fuse is located in the proper clips. If the fuse is properly located in the position designated for the existing line voltage, then examine the filament wiring for short circuits or grounds. If tests do not reveal the defect it may be assumed that the cause is "shorted" turns in the filament winding. The solution is, of course, to replace the power transformer assembly.

It is necessary to point out that the SOCKET READING ANALYSIS CHARTS simply point the directions in which to investigate in locating troubles. The actual tests involved in making these investigations are outlined in the Continuity and Diagnosis Charts, in which symptoms such as "No Reception," "Excessive Hum," "Oscillation," etc., are diagnosed for possible causes and remedies are suggested.

Persistence in the use of these charts, so that it becomes a matter of routine, will make surprisingly simple the solution of many apparently baffling problems.

FIRST R. F. SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.			
FILAMENT VOLTAGE 2.2 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-33). Shorted filament winding of Power Transformer (L-33). Open primary winding of Power Transformer (L-34). Open circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformer (L-33). Shorted turns in primary winding of Power Transformer (L-34). Short circuit in filament wiring.	High line voltage. Incorrect location of primary fuse.
CONTROL GRID VOLTAGE 0.2 Volts CATHODE VOLTAGE 2.5 Volts	No plate voltage. Open grid circuit. Open winding, secondary of 3rd R. F. coil (L-6). Open 1st R. F. grid isolating resistor (R-2). Open 1st and 2nd R. F. grid isolating resistor (R-15). Open automatic volume control resistors (R-10 or R-11). Shorted 1st R. F. bias by-pass condenser (C-24). Shorted 1st screen grid by-pass condenser (C-25). Shorted 2nd and 3rd screen grid by-pass condenser (C-21).	Low emission tube. Low value 1st R. F. bias resistor (R-24).	Open 1st R. F. bias resistor (R-24). Open circuit at cathode socket terminal. Shorted preselector coupling condenser. Located in channel (C-42).
SCREEN GRID VOLTAGE 80 Volts	Open 1st screen grid isolating resistor (R-25). Shorted 1st screen grid by-pass condenser (C-25). Shorted 2nd and 3rd screen grid by-pass condenser (C-21). Shorted 2nd A. F. plate by-pass condenser (C-23). High potential end, screen grid voltage divider grounded. (Located in R. F. filter unit) (R-22). "A" choke grounded (L-26). "A" choke open (L-26). "B" choke grounded (L-17). Shorted filter condenser section (C-51 or C-52). Rectifier filament winding of Power Transformer grounded or open (L-28). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorect location of primary fuse. Low potential end, screen grid voltage divider shorted. Located in A. F. filter unit (R-34). Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Shorted 3rd R. F. plate by-pass condenser (C-14). Shorted hum bucking condenser. Located in A. F. filter unit (C-31). "A" choke grounded (L-27). Shorted filter condenser section (C-51). Speaker field winding shorted (L-25). High potential side of speaker field winding grounded (L-25). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). Grounded R. F. "B" cable lead or R. F. plate lead. Open radio-phono. switch contacts (S-6).	High line voltage. Incorrect location of primary fuse. High potential end, screen grid voltage divider shorted. Located in R. F. filter unit (R-22). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). "B" choke shorted (L-17). Open 1st A. F. bias resistor (R-35).

SCREEN GRID CURRENT 0.9 Mil.	No screen grid voltage.	Low screen grid voltage.	R. F. plate lead grounded. R. F. plate lead open. Open circuit, control grid. Open radio-phono. switch contacts (S-6).
PLATE VOLTAGE 190 Volts	Open plate lead. Open cathode lead. Grounded 1st or 2nd R. F. plate lead. Open 1st and 2nd R. F. plate isolating resistor (R-20). Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Open low frequency or high frequency primary windings of 4th R. F. coil (L-7 or L-8). "A" choke open (L-26). "A" choke grounded (L-26). "B" choke grounded (L-17). Open R. F. voltage divider resistor (R-5). Located in power unit. Shorted filter condenser section (C-50 or C-52). Rectifier filament winding of Power Transformer grounded (L-28). Open radio-phono switch contacts (S-6). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Low emission rectifier tube. Grounded 3rd R. F. plate lead. Shorted 3rd R.F. plate by-pass condenser (C-14). Speaker field winding shorted (L-25). "B" choke shorted (L-17). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). One plate lead to 280 socket open. Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One half of high voltage secondary winding of Power Transformer open (L-29 or L-30). Shorted filter condenser section (C-51). Short circuit between 3rd R. F. filter condenser (C-14) and Auto. V. C. by-pass condenser (C-11). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). Shorted turns in primary winding of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse. Shorted 1st R. F. screen grid by-pass condenser (C-25). Shorted 2nd A. F. plate by-pass condenser (C-23).
PLATE CURRENT 3.5 Mils.	No filament voltage. No plate voltage. No screen grid voltage.	Low emission tube. Low plate voltage. Low screen grid voltage. 1st preselector coupling condenser shorted (C-42). Located in channel.	High plate voltage. Shorted 1st R. F. bias by-pass condenser (C-24). Open connection, control grid. Open winding, secondary 3rd R. F. coil (L-6). Open 1st R. F. grid isolating resistor (R-2). Open 1st and 2nd R. F. grid isolating resistor (R-15). Open automatic volume control resistor (R-10 or R-11). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34).
GRID TEST 2.5 Mils.	No filament voltage. No plate voltage.	Low emission tube. 1st R. F. bias by-pass condenser shorted (R-24).	

SECOND R. F. SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
	Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.		
FILAMENT VOLTAGE 2.2 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-33). Shorted filament winding of Power Transformer (L-33). Open primary winding of Power Transformer (L-34). Open circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformer (L-33). Shorted turns in primary of Power Transformer (L-34). Short circuit in filament wiring.	High line voltage. Incorrect location of primary fuse.
CONTROL GRID VOLTAGE 0.2 Volts **CATHODE VOLTAGE** 2.5 Volts	No plate voltage. Open grid circuit. Open winding, secondary 4th R. F. coil (L-9). Open 1st and 2nd R. F. grid isolating resistor (R-15). Open automatic volume control resistor (R-10 or R-11). Shorted 2nd and 3rd R. F. bias by-pass condenser (C-20). Shorted 1st screen grid by-pass condenser (C-25). Shorted 2nd and 3rd screen grid by-pass condenser (C-21).	Low emission tube. Low value 2nd and 3rd R.F. bias resistor (R-21).	Oper 2nd and 3rd R. F. bias resistor (R-21). Open circuit at cathode socket terminal. Shorted 4th R. F. circuit blocking condenser (C-44).
SCREEN GRID VOLTAGE 80 Volts	Shorted 2nd and 3rd screen grid by-pass condenser (C-21). Shorted 2nd A.F. plate by-pass condenser (C-23). High potential end, screen grid voltage divider grounder. Located in R. F. filter unit (R-22). "A" choke grounded (L-26). "A" choke open (L-26). "B" choke grounded (L-17). Shorted filter condenser section (C-50 or C-52). Rectifier filament winding of Power Transformer grounded or open (L-28). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted 1st R. F. screen grid by-pass condenser. Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Shorted 3rd R.F. plate by-pass condenser (C-14). Shorted hum buckling condenser. Located in A.F. filter unit (C-31). Shorted filter condenser section (C-51). Speaker field winding shorted (L-25). "A" choke grounded (L-27). High potential side of speaker field winding grounded (L-25). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). Grounded R.F. "B" cable lead or R.F. plate lead. Open radio-phono. switch contacts (S-6).	High line voltage. Incorrect location of primary fuse. High potential end, screen grid voltage divider shorted. Located in R. F. filter unit (R-22). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). "B" choke shorted (L-17). Open 1st A. F. bias resistor (R-35).

SCREEN GRID CURRENT 0.9 Mil.	No screen grid voltage.	Low screen grid voltage.	R. F. plate open or grounded. R. F. plate lead open. Open circuit, control grid. Open radio-phono. switch contacts (S-6).
PLATE VOLTAGE 190 Volts	Open plate lead. Open cathode lead. Grounded 1st or 2nd R. F. plate lead. Open 1st R. F. plate isolating resistor (R-20). Shorted 1st and 2nd plate by-pass condenser (C-22). Open low frequency or high frequency primaries (L-10 or L-11). "A" choke open (L-26). "A" choke grounded (L-26). "B" choke grounded (L-17). Open R. F. voltage divider resistor. Located in power unit (R-5). Shorted filter condenser section (C-50 or C-52). Rectifier filament winding of Power Transformer grounded (L-29 or L-30). Open radio-phono. switch contacts (S-6). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Low emission rectifier tube. Short circuit between 3rd R. F. filter condenser (C-14) and Auto. V. C. by-pass condenser (C-11). Grounded 3rd R. F. plate by-pass condenser (C-14). Speaker field winding shorted (L-25). "B" choke shorted (L-17). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). One plate lead to 280 socket open. Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One half of high voltage secondary winding of Power Transformer open (L-29 or L-30). One half of high voltage secondary winding of Power Transformer open (L-29 or L-30). Shorted filter condenser section (C-51). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). Shorted turns in primary of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse. Shorted 1st R. F. screen grid by-pass condenser (C-25). Shorted 2nd A. F. bias by-pass condenser (C-23).
PLATE CURRENT 3.5 Mils.	No filament voltage. No plate voltage. No screen grid voltage.	Low emission tube. Low plate voltage. Low screen grid voltage. Shorted 4th R. F. circuit blocking condenser (C-44).	High plate voltage. Shorted 1st and 2nd R. F. bias by-pass condenser (C-20). Open connection, control grid. Open winding, secondary 4th R. F. coil (L-9). Open 1st and 2nd grid isolating resistor (R-15). Open automatic volume control resistor (R-10 or R-11). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34).
GRID TEST 2.5 Mils.	No filament voltage. No plate voltage.	Low emission tube. Shorted 1st and 2nd R. F. bias by-pass condenser (C-20).	

THIRD R. F. SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
	Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.		
FILAMENT VOLTAGE 2.2 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-33). Shorted filament winding of Power Transformer (L-33). Open primary winding of Power Transformer (L-34). Open circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformer (L-33). Shorted turns in primary winding of Power Transformer (L-34). Short circuit in filament wiring.	High line voltage. Incorrect location of primary fuse.
CONTROL GRID VOLTAGE 0.2 Volts **CATHODE VOLTAGE** 2.5 Volts	No plate voltage. Open grid circuit. Open winding, secondary of 5th R.F. coil (L-12). Open 3rd R. F. grid isolating resistor (R-14). Open automatic volume control resistor (R-11). Shorted 1st and 2nd R. F. bias by-pass condenser (C-20). Shorted 1st R. F. screen grid by-pass condenser (C-25). Shorted 2nd and 3rd R. F. screen grid by-pass condenser (C-21).	Low emission tube. Low value 2nd and 3rd R.F. bias resistor (R-21).	Open 2nd and 3rd R. F. bias resistor (R-21). Open circuit at cathode socket. Shorted 5th R. F. circuit blocking condenser (C-46).
SCREEN GRID VOLTAGE 80 Volts	Shorted 2nd and 3rd R. F. screen grid by-pass condenser (C-21). Shorted 2nd A.F. plate by-pass condenser (C-23). High potential end, screen grid voltage divider grounded. Located in R. F. filter unit (R-22). "A" choke open (L-26). "A" choke grounded (L-26). "B" choke grounded (L-17). Shorted filter condenser section (C-50 or C-52). Rectifier filament winding of Power Transformer grounded (L-28). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted 1st R. F. screen grid by-pass condenser (C-25). Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Shorted 3rd R.F. plate by-pass condenser (C-14). Shorted hum bucking condenser. Located in A. F. filter unit (C-31). "A" choke grounded (L-27). Shorted filter condenser section (C-51). Speaker field winding shorted (L-25). High potential side of speaker field winding grounded (L-25). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). Grounded R.F. "B" cable lead or R.F. plate lead. Open radio-phono. switch contacts (S-6).	High line voltage. Incorrect location of primary fuse. High potential end, screen grid voltage divider shorted. Located in R.F. filter unit (R-22). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). "B" choke shorted (L-17). Open 1st A. F. bias resistor (R-35).

SCREEN GRID CURRENT 0.8 Mil.	No screen grid voltage.	Low screen grid voltage.	R. F. plate lead grounded. R. F. plate lead open. Open circuit, control grid. Open radio-phono. switch contacts (S-6).
PLATE VOLTAGE 190 Volts	Open plate lead. Open cathode lead. Grounded 3rd R. F. plate lead. Open 3rd R. F. plate isolating resistor (R-13). Shorted 3rd R. F. plate by-pass condenser (C-14). Open primary of coupling transformer (L-13). "A" choke open (L-26). "A" choke grounded (L-26). "B" choke grounded (L-17). Open R. F. voltage divider resistor. Located in power unit (R-5). Shorted filter condenser section (C-50 or C-52). Rectifier filament winding of Power Transformer grounded (L-28). Open radio-phono. switch contacts (S-6). Open or short circuit in either connecting cable or six prong connecter.	Low line volltage. Incorrect location of primary fuse. Low emission rectifier tube. Grounded 1st or 2nd R. F. plate lead. Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Speaker field winding shorted (L-25). "B" choke shorted (L-17). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). One plate lead to 280 socket open. Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One half of high voltage secondary winding of Power Transformer open (L-29 or L-30). Shorted filter condenser section (C-51). Short circuit between 3rd R. F. filter condenser (C-14) and Auto. V. C. by-pass condenser (C-11). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). Shorted turns in primary winding of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse. Shorted 1st R. F. screen grid by-pass condenser (C-25). Shorted 2nd A. F. plate by-pass condenser (C-23).
PLATE CURRENT 3.5 Mils.	No filament voltage. No plate voltage. No screen grid voltage.	Low emission tube. Low plate voltage. Low screen grid voltage. Shorted 5th R. F. circuit blocking condenser (C-46).	High plate voltage. Shorted 1st and 2nd R. F. bias by-pass condenser (C-20). Open circuit, control grid. Open winding, secondary 5th R.F. coil (L-12). Open 3rd R. F. grid isolating resistor (R-14). Open automatic volume control resistor (R-11). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34).
GRID TEST 2.5 Mils.	No filament voltage. No plate voltage.	Low emission tube. Shorted 1st and 2nd R. F. bias by-pass condenser (C-20).	

DETECTOR SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.			
FILAMENT VOLTAGE 2.2 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-33). Shorted filament winding of Power Transformer (L-33). Open primary winding of Power Transformer (L-34). Open in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformer (L-33). Shorted turns in primary winding of Power Transformer (L-34). Short circuit in filament wiring.	High line voltage. Incorrect location of primary fuse.
GRID VOLTAGE		NOTE:—A grid voltage reading of 8 to 10 volts may be produced by the rectified signal of a strong local station or oscillator.	Short circuit between 3rd R. F. filter condenser (C-14) and Auto. V. C. by-pass condenser (C-11). NOTE: Under this condition radio "motor-boats"; no reception; plate voltage of R. F. tubes is very low, and screen current is reversed. THE DETECTOR TUBE SHOWS A READING OF SEVERAL MILLIAMPERES. Normally this tube should not show any plate current reading.

FIRST A. F. SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.			
FILAMENT VOLTAGE 2.2 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-33). Shorted filament winding of Power Transformer (L-33). Open primary winding of Power Transformer (L-34). Open circuit in either connecting cable or six prong connector.	Low Line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformed (L-33). Shorted turns in primary winding of Power Transformer (L-34). Short circuit in filament.	High line voltage. Incorrect location of primary fuse.

GRID VOLTAGE 0.5 to 2.5 Volts* **CATHODE VOLTAGE** 3.0 Volts	No plate voltage. Open grid circuit. Volume control resistor open (R-3). Shorted 2nd A. F. bias by-pass condenser (C-35). High potential end, screen grid voltage divider open. Located in R. F. filter unit (R-22). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34).	*NOTE:—With volume control turned to maximum volume position, meter reading will be approximately 0.5 volts. With volume control turned to minimum volume position, meter reading will be approximately 2.5 volts.	Open 1st A. F. bias resistor (R-35). Open circuit at Cathode socket terminal.
PLATE VOLTAGE 40 Volts	Open plate lead. Open cathode lead. Open 1st A. F. plate coupling resistor (R-33). Open 1st A. F. plate isolating resistor (R-23). Shorted 2nd A.F. plate by-pass condenser (C-23). Shorted 1st A. F. plate by-pass condenser (C-33). "A" choke open (L-26). "A" choke grounded (L-26). "B" choke grounded (L-17). Shorted filter condenser section (C-50, C-51 or C-52). Rectifier filament winding of Power Transformer grounded (L-28). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Low emission rectifier tube. Grounded R. F. or 2nd A. F. plate lead. Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Shorted 3rd R.F. plate by-pass condenser (C-14). Shorted 1st A. F. bias by-pass condenser (C-35). Speaker field winding shorted (L-25). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). One plate lead of 280 socket open. Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One half of high voltage secondary winding of Power Transformer open (L-29 or L-30). Open 1st A. F. bias resistor (R-35). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34). Shorted 1st R. F. screen grid by-pass condenser (C-25). Shorted 2nd and 3rd R. F. screen grid by-pass condenser (C-21). Open R. F. "B" lead. (May be open radio-phono. switch contacts.) Shorted turns in primary winding of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse. "B" choke shorted (L-17).
PLATE CURRENT 1.1 Mils.	No filament voltage. No plate voltage.	Low emission tube.	High plate voltage. Cathode socket terminal grounded. Shorted 1st A.F. bias by-pass condenser (C-35). Volume control resistor open (R-31). High potential end, screen grid voltage divider open. Located in R. F. filter unit (R-22). Low potential end, screen grid voltage divider open. Located in A. F. filter unit (R-34).
GRID TEST 0.3 Mil.	No filament voltage. No plate voltage.	Low emission tube.	

SECOND A. F. SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
	Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.		
FILAMENT VOLTAGE 2.2 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-33). Shorted filament winding of Power Transformer (L-33). Open primary winding of Power Transformer (L-34). Open circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformer (L-33). Shorted turns in primary of Power Transformer (L-34). Short circuit in filament wiring.	High line voltage. Incorrect location of primary fuse.
GRID VOLTAGE 0.5 Volts CATHODE VOLTAGE 6.0 Volts	No plate voltage. Open grid circuit. Shorted 2nd A. F. bias by-pass condenser (C-32).	Low emission tube. Low value 2nd A. F. bias resistor (R-32).	Open 2nd A. F. bias resistor (R-32). Open circuit at cathode socket terminal.
PLATE VOLTAGE 115 Volts	Open plate lead. Open cathode lead. Open R. F. choke (L-16). Grounded R. F. choke (L-16). Open shunt feed resistor (R-7). Shorted 2nd A. F. plate by-pass condenser (C-23). "A" choke open (L-26). "A" choke grounded (L-26). "B" choke grounded (L-17). Shorted filter condenser section (C-50 or C-52). Rectifier filament winding of Power Transformer grounded (L-28). Open or short circuit in either connecting cable or six prong connector.	Low line voltage. Incorrect location of primary fuse. Low emission rectifier tube. Grounded R. F. plate lead. Shorted 1st and 2nd R. F. plate by-pass condenser (C-22). Shorted 3rd R. F. plate by-pass condenser (C-14). Shorted 2nd A. F. bias by-pass condenser (C-32). Shorted filter condenser section (C-51). Speaker field wonding shorted (L-25). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). One plate lead of 280 socket open. Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One half high voltage secondary winding of Power Transformer open (L-29 or L-30). Shorted turns in primary winding of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse. "B" choke shorted (L-17).
PLATE CURRENT 3.8 Mils.	No filament voltage. No plate oltage.	Low emission tube.	High plate voltage. Shorted 2nd A. F. bias by-pass condenser (C-32). Cathode socket terminal grounded.
GRID TEST 1.0 Mil.	No filament voltage. No plate voltage.	Low emission tube.	

THIRD A. F. SOCKET

FILAMENT VOLTAGE 2.48 Volts	Open filament lead to socket. Open filament winding of Power Transformer (L-31 or L-32). Shorted filament winding of Power Transformer (L-31 or L-32). Open primary winding of Power Transformer (L-34).	Low line voltage. Incorrect location of primary fuse. Shorted turns in filament winding of Power Transformer (L-31 or L-32). Shorted turns in primary of Power Transformer (L-34). Short circuit in filament wiring. Low emission rectifier tube.	High line voltage. Incorrect location of primary fuse.
GRID VOLTAGE 46 Volts	Open 3rd A. F. bias voltage divider resistor. Located in power unit (R-50). Speaker field winding shorted (L-25). High potential end of speaker field winding grounded (L-25). High voltage secondary winding of Power Transformer grounded (L-29 or L-30). 3rd A. F. bias by-pass condenser shorted. Located in power unit (C-53). 3rd A. F. bias by-pass condenser grounded. Located in power unit (C-53). Shorted filter condenser section (C-50, C-51 or C-52). Open lead to center of push pull transformer.	Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One half of high voltage secondary winding of Power Transformer open (L-29 or L-30). One plate lead of 250 socket open.	3rd A. F. bias voltage divider resistor open. Located in power unit (R-51). Incorrect value of 3rd A.F. bias voltage divider resistor. Located in power unit (R-50).
PLATE VOLTAGE 260 Volts	Open primary winding of speaker input transformer (L-21 or L-22). Open plate lead. Grounded plate lead. "A" choke open (L-26). "A" choke grounded (L-26). Shorted filter condenser section (C-50, C-51 or C-52). Open ground lead to filament center tapped resistors (R-8 or R-9).	Low line voltage. Incorrect location of primary fuse. Low emission rectifier tube. "B" choke grounded (L-17). Half of high voltage secondary winding of Power Transformer open (L-29 or L-30). Shorted turns in high voltage secondary winding of Power Transformer (L-29 or L-30). One plate lead to 280 socket open. Open grid lead. Shorted turns in primary winding of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse. Shorted 3rd A. F. bias voltage divider resistor. Located in power unit (R-51).
PLATE CURRENT 31.0 Mils.	No filament voltage. No plate voltage.	Low emission tube. Low plate voltage. High "C" bias.	Shorted 3rd A. F. bias voltage divider resistor. Located in power unit (R-50). Open 3rd A. F. bias voltage divider resistor. Located in power unit (R-51). Open grid lead. Speaker field winding shorted (L-25). Speaker field winding grounded (L-25).
GRID TEST 5.0 Mils.	No filament voltage. No plate voltage.	Low emission tube.	

RECTIFIER SOCKET

Normal Readings	No Reading Indicates	Low Reading Indicates	High Reading Indicates
	Readings taken with fuse in 115 volt position with line voltage adjusted to 115 volts.		
FILAMENT VOLTAGE 4.85 Volts	Open filament lead to socket. Open rectifier filament winding of Power Transformer (L28). Shorted rectifier filament winding of Power Transformer (L-28). Open primary winding of Power Transformer (L-34).	Low line voltage Incorrect location of primary fuse. Shorted turns in rectifier filament winding of Power Transformer (L-28). Shorted turns in primary winding of Power Transformer (L-34).	High line voltage. Incorrect location of primary fuse.
PLATE CURRENT 48.0 Mils.	High voltage secondary winding of Power Transformer shorted (L-29 or L-30). Open primary winding of Power Transformer (L-34). No reading on one plate indicates open lead or open half of high voltage winding (L-29 or L-30). "A" choke open (L-26). Open lead to center of high voltage secondary winding of Power Transformer (L-29 or L-30). Open speaker field winding (L-25).	Low emission tube.	If one plate is grounded, high reading appears on other plate. If one half of high voltage secondary winding or Power Transformer is open, high reading appears on other plate. "A" choke grounded (L-26 or L-27). Filter condenser section grounded (C-50, C-51, or C-52). Filter condenser section shorted (C-50, C-51 or C-52). Shorted 3rd A. F. bias by-pass condenser (C-53).

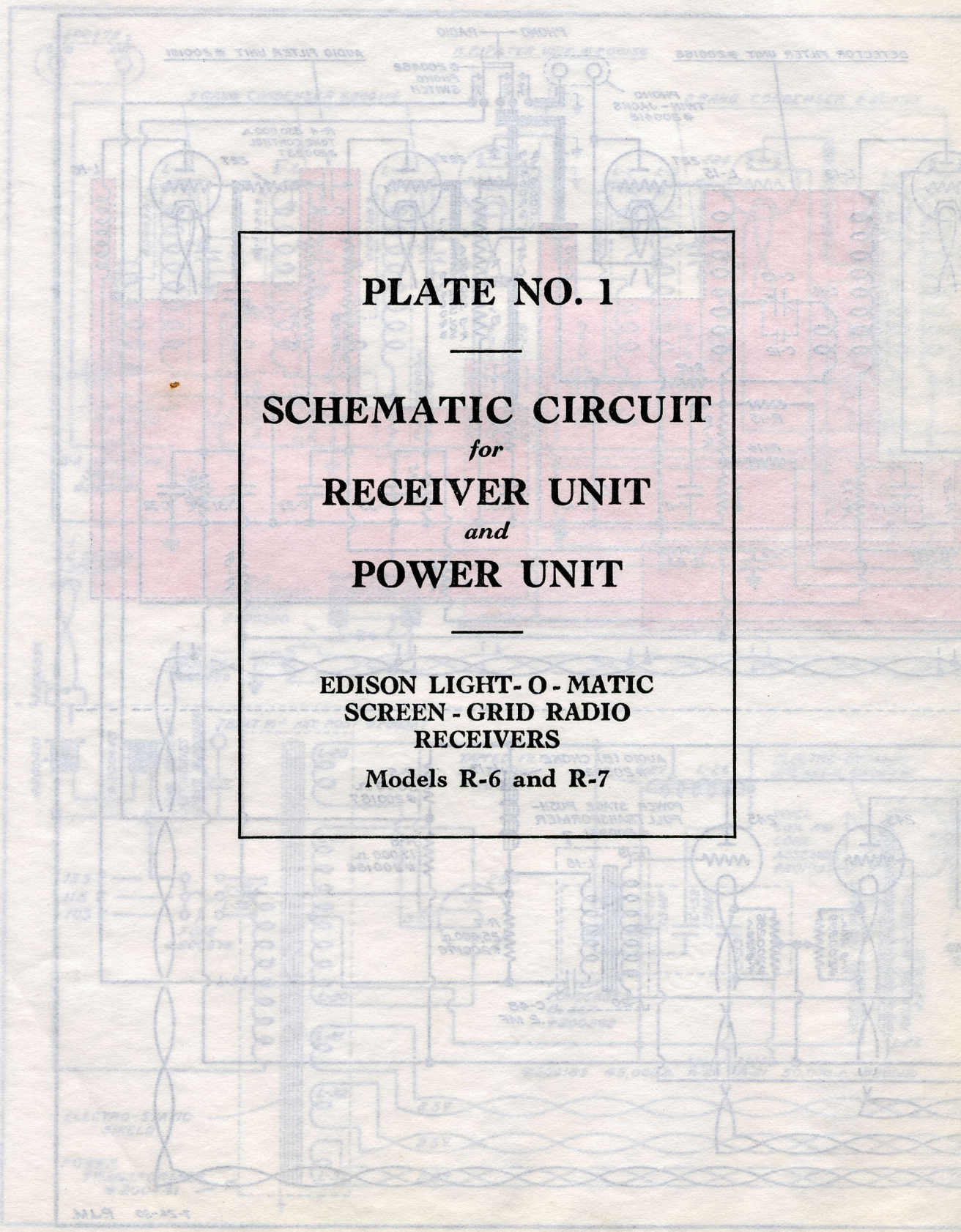

PLATE NO. 1

SCHEMATIC CIRCUIT
for
RECEIVER UNIT
and
POWER UNIT

EDISON LIGHT-O-MATIC SCREEN-GRID RADIO RECEIVERS

Models R-6 and R-7

SCHEMATIC CIRCUIT FOR RECEIVER UNIT AND POWER UNIT

EDISON SCREEN-GRID RADIO RECEIVERS — Models R-6 and R-7

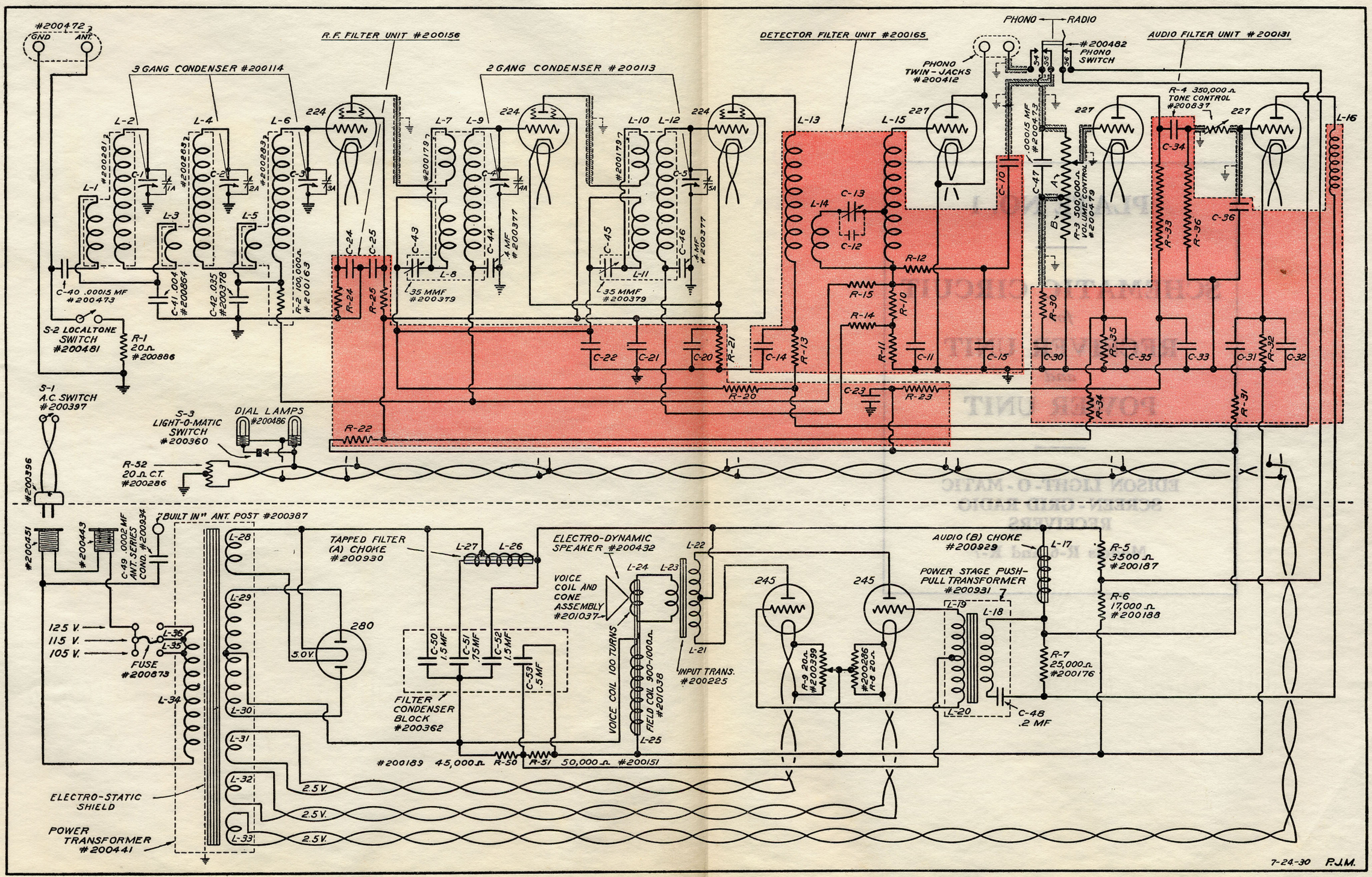

PLATE NO. 2

FIGURES
1, 1-A, 2, 2-A, 3, 3-A

DETECTOR, R. F. and A. F. FILTER UNITS

EDISON LIGHT-O-MATIC
SCREEN-GRID RADIO
RECEIVERS

Models R-6 and R-7

BOTTOM VIEW OF RECEIVER UNIT SHOWING FILTER UNIT TERMINALS AND RESISTORS

R-10 AUTOMATIC VOLUME CONTROL VOLTAGE DIVIDER
R-11 " " " " "
R-12 DETECTOR OUTPUT FILTER RESISTOR
R-13 3RD R.F PLATE ISOLATING "
R-14 " " GRID " "
R-15 IST + 2ND R.F. GRID " "

R-20 IST + 2ND R.F. PLATE ISOLATING RESISTOR
R-21 2ND + 3RD " BIAS "
R-22 HIGH POTENTIAL END S. G. VOLTAGE DIVIDER
R-23 IST A.F. PLATE ISOLATING RESISTOR
R-24 IST R.F. BIAS "
R-25 IST SCREEN GRID ISOLATING "

R-30 TONE BALANCE RESISTOR
R-31 HUM BUCK "
R-32 2ND A.F. BIAS "
R-33 PLATE COUPLING "
R-34 LOW POTENTIAL END S.G. VOLTAGE DIVIDER
R-35 IST A.F. BIAS RESISTOR
R-36 GRID LEAK

#200165 DETECTOR FILTER UNIT
(WITH RESISTORS)

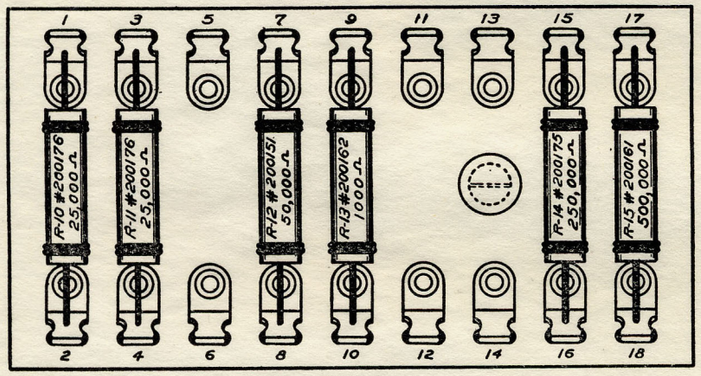

FIG. 1

#200156 R.F. FILTER UNIT
(WITH RESISTORS)

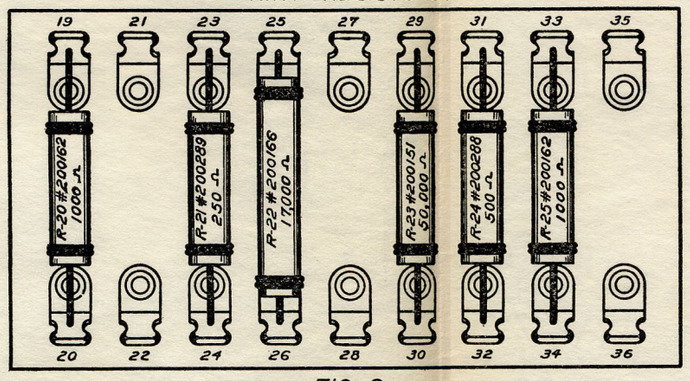

FIG. 2

#200131 A.F. FILTER UNIT
(WITH RESISTORS)

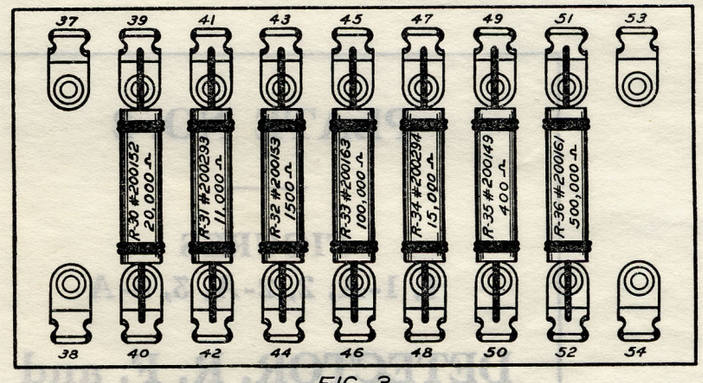

FIG. 3

SCHEMATIC DIAGRAM FOR FILTER UNITS (RESISTORS NOT SHOWN)

#201046 DETECTOR FILTER UNIT

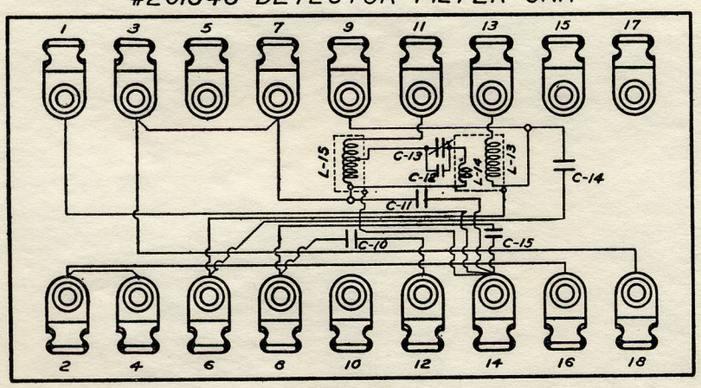

FIG. 1-A

C-10	0.25 MF	#200130	DETECTOR COUPLING	CONDENSER
C-11	.0001 "	#200803	AUTO. V.C. RES. BY-PASS	"
C-12	40 MMF	#201000	FIXED COUPLING	"
C-13	80 MMF	#200373	ADJUSTABLE "	"
C-14	.05 MF	#200369	3RD R.F. PLATE BY-PASS	"
C-15	.0005 "	#200169	DETECTOR OUTPUT FILTER	"
L-15		#200170	AUTO TRANSFORMER	
L-13 + L-14		#200172	COUPLING "	

#201045 R.F. FILTER UNIT

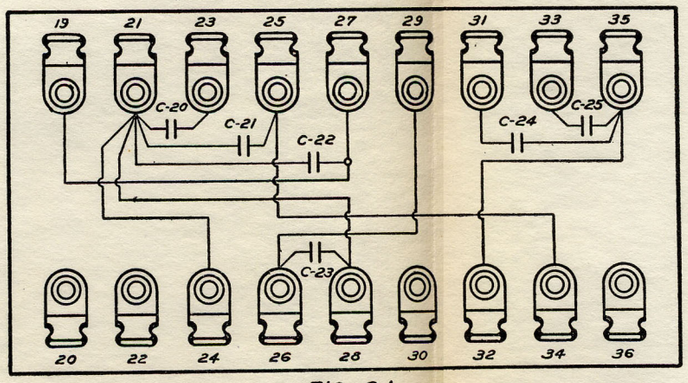

FIG. 2-A

C-20	0.5 MF	2ND + 3RD R.F. BIAS	BY-PASS CONDENSER	
C-21	1.0 "	" " SCREEN GRID	"	"
C-22	.05 "	IST + 2ND R.F. PLATE	"	"
C-23	1.0 "	2ND A.F. PLATE	"	"
C-24	0.5 "	IST R.F. BIAS	"	"
C-25	0.1 "	" SCREEN GRID	"	"

#201044 A.F. FILTER UNIT

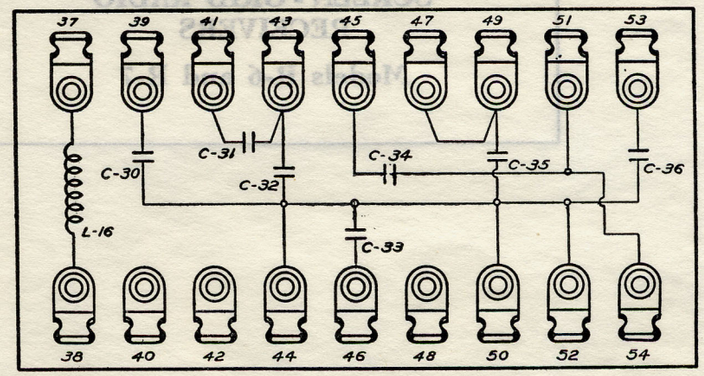

FIG. 3-A

C-30	.025 MF	TONE BALANCE CONDENSER #1	
C-31	0.5 "	HUM BUCK "	
C-32	1.0 "	2ND A.F. BIAS BY-PASS CONDENSER	
C-33	1.0 "	IST " PLATE "	"
C-34	0.25 "	" " PLATE COUPLING	"
C-35	1.0 "	" " BIAS BY-PASS	"
C-36	.0005 "	TONE CONTROL	"
L-16		#200167 R.F. CHOKE	

7-23-30 P.J.M.