Detector Amplifier

MODEL AA-1400

THE DETECTOR-AMPLIFIER is intended for use in connection with a radio receiver. It is designed particularly for operation with its companion unit, the Model AR-1300 Radio Receiver.

In addition to the DETECTOR-AMPLIFIER the following equipment will be needed. (Use standard equipment.)

Head phones and plug (or Loud Speaker)

Antenna

Radio Receiver

Batteries

One 6-volt, 40- to 80 ampere-hour storage battery to supply current for the tube filaments.

Two standard "B" or plate batteries for supplying voltage to the tube plates. One of these should have an 18-volt tap if a UV-200 tube is used for the detector.

Vacuum Tubes

Three vacuum tubes are necessary. One is used as the detector (UV-200). Two are used as audio frequency amplifiers (Radiotron UV-201.)

For best results use tubes as directed. However, UV-201 may be used in the left-hand socket as a detector. This does not give as loud signals, but is easier to adjust.

This equipment can be obtained from dealers in radio supplies. ASK FOR G-E ANTENNA EQUIPMENT AND RADIO RECEIVER SET.

INSTALLATION

Connect antenna and radio receiver in accordance with instructions furnished with the radio receiver set.

Remove the DETECTOR-AMPLIFIER from its carton and place it at the right of the radio receiver. There are holes in the base for holding down screws.

Locate the storage battery wherever convenient. If at all distant, heavy leads must be used. Locate the plate batteries as near the instrument as possible, regardless of the size of wire used.

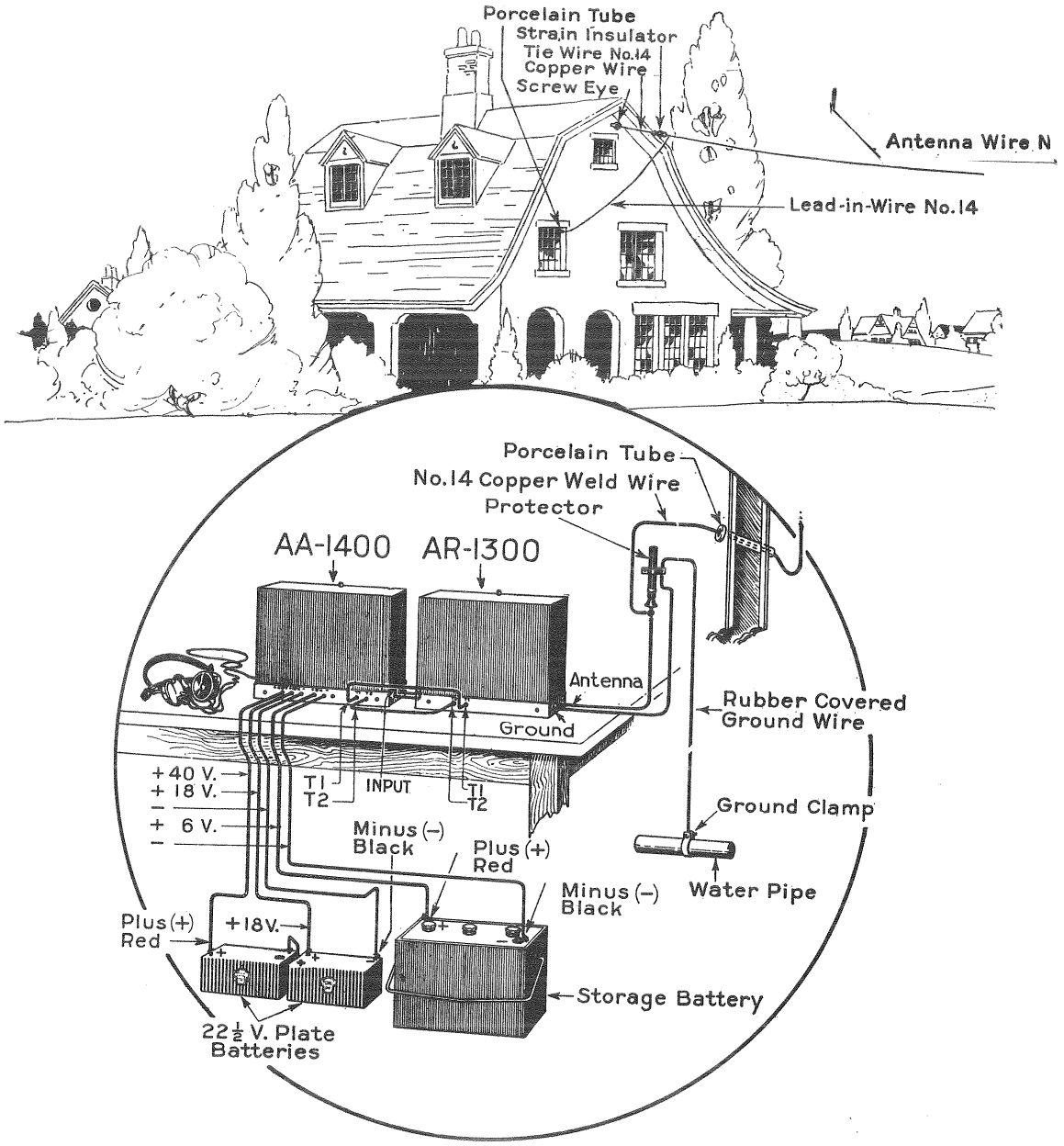
Remove the cover of the DETECTOR-AMPLIFIER by pushing up on the button and back on the cover at the same time.

Make connections as shown in the installation diagram. For wiring between units AA-1400 and AR-1300, use stiff wire (like antenna wire) about 1¼ inches long. If a Radiotron UV-200 is used as the detector, the lead from the 18-volt tap of the battery should be brought up to the "+18 V" terminal. If Radiotron UV-201 is used as the detector, connect the negative and the positive terminals of the plate batteries as indicated on the diagram and connect the "+18 V" terminal on the back of the DETECTOR-AMPLIFIER to the terminal marked "+40 V." The 18-volt tap on the battery is left unconnected.

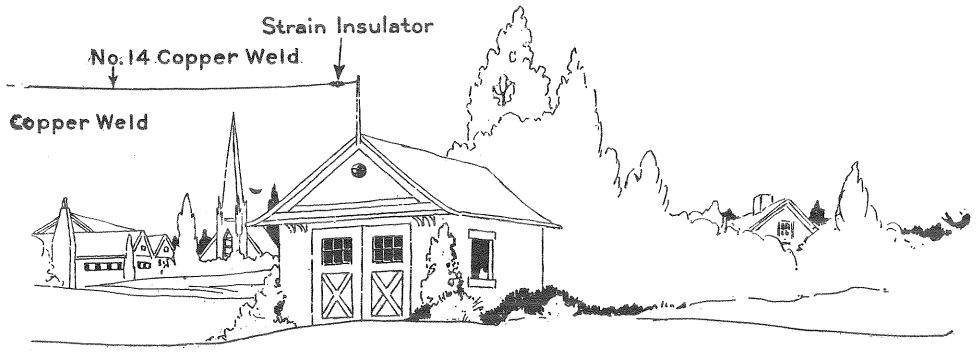
In addition to wiring in diagram, connect terminals "F" and "G" of AR-1300 to corresponding terminals of AA-1400 with 1¼-inch wire mentioned above.

August, 1922

IC86934-A
Supersedes 86934



When using Radiotron UV-200 as a detector maximum efficiency is secured by a careful adjustment of the plate voltage on the tube. This is accomplished by connecting the outside terminals of a Model PR-536 potentiometer (purchased separately) across the 6-volt storage battery and the middle terminal to the negative (—) of the 40-V. plate battery, omitting the connection from the (—) 40 terminal of the detector-amplifier to the plate battery. Pay no attention to the unused terminals on the ends of the DETECTOR-AMPLIFIER. These are for use in connecting additional stages of radio or audio frequency amplification which are built in standard sectional cases by the General Electric Company.



If the receiver unit used does not have a regenerative coil, the terminals marked "T1" and "T2" on the back of the DETECTOR-AMPLIFIER should be connected together.

The terminals marked "Output" on the right-hand end of the DETECTOR-AMPLIFIER may be used for connecting a loud speaker which will be automatically disconnected when the head telephone plug is inserted in any jack.

In making the connections, use a long screw driver. Put the wire into the hole in the terminal before loosening the screw, then back the screw out until the wire can be pushed all the way in, then tighten the screw down.

OPERATION

1. Separate the crystal detector minerals on the receiver. If they touch, poor vacuum tube detection will result.

NOTE.—The crystal detector may be used whenever wanted, by inserting the telephone plug in the jack or receptacle on the receiver and turning the knobs on the DETECTOR-AMPLIFIER to the "OFF" position.

2. Insert the three tubes in sockets by matching pin inside of tube base with slot in socket, pressing down and turning into place. The left-hand socket is for the detector, the other two for the amplifying tubes.

3. Turn all of the knobs on the DETECTOR-AMPLIFIER almost all of the way around counter-clockwise or in the direction of the arrow. This brings the tube filaments to their proper brilliancy, which is a little less bright than the ordinary incandescent lamp.

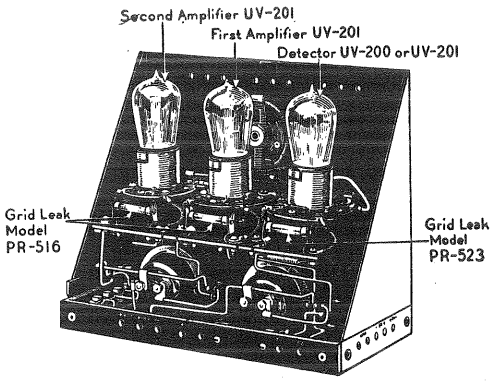
4. Adjust the telephones snugly to the ears.

5. Insert the telephone plug in the left-hand jack. A click should be heard in the head telephones when the plug is inserted or removed.

6. Set the "INTENSITY" knob on the receiver at zero.

7. Slowly rotate the "WAVELENGTH" knob on the receiver. If no signals are heard or if they are very weak, slowly rotate the "INTENSITY" knob clockwise, still searching for signals with the "WAVELENGTH" knob.

8. When signals are heard, rotate the "INTENSITY" knob, thus increasing the strength of the signals. If an external potentiometer is used, adjust it to secure maximum signal strength. At



some point the tube will start to oscillate. This condition is denoted by disappearance of the signal and the appearance of a loud mushy sound in the receivers. Turn the "INTENSITY" knob back slightly, until the signals are again loud, and the oscillation of the tube has ceased.

9. Move the telephone plug to the middle jack. The signals will now be very much louder and slight readjustment of "INTENSITY" and rheostats may be necessary. The second stage may then be added in the same manner.

10. If a loud speaker is used, remove the head telephone plug and readjust in accordance with the signals from the loud speaker.

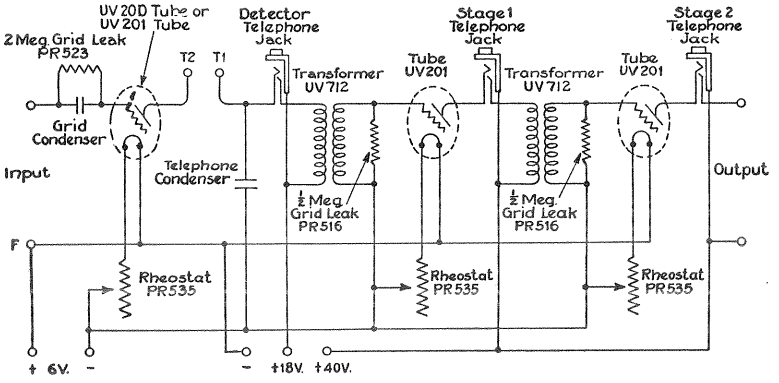
11. In some cases it may be possible to use both amplifying stages on the head telephones, but ordinarily the signals from the second stage will be too loud to be comfortable. In case the last or both stages of amplification are not used, rotate the respective filament control knobs to the "off" position.

12 If the signals being received on the loud speaker are not very loud they may perhaps be intensified by removing the ½ megohm grid leaks from the clips behind the two amplifier tubes. The purpose of these grid leaks is to improve the quality of the signal.

13. The batteries are disconnected by turning all the filament knobs clockwise to the "off" position.

CAUSES OF FAULTY OPERATION

1. Poor connections in antenna or ground wires or defective insulation of antenna.
2. Filament rheostats not properly adjusted.
3. Filament or plate batteries run down. (Indicated by weak signals and noise.)
4. Polarity of batteries reversed. (Wrongly connected.)
5. Intensity control on receiver not properly adjusted.
6. Poor or broken contacts in battery connections or telephone cord.
7. Defective vacuum tubes.
8. Coil system of receiver not properly seated in contacts.



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GENERAL ELECTRIC COMPANY, U. S. A.

for

Radio Corporation of America

WORLD WIDE WIRELESS

WOOLWORTH BUILDING ~ NEW YORK CITY