



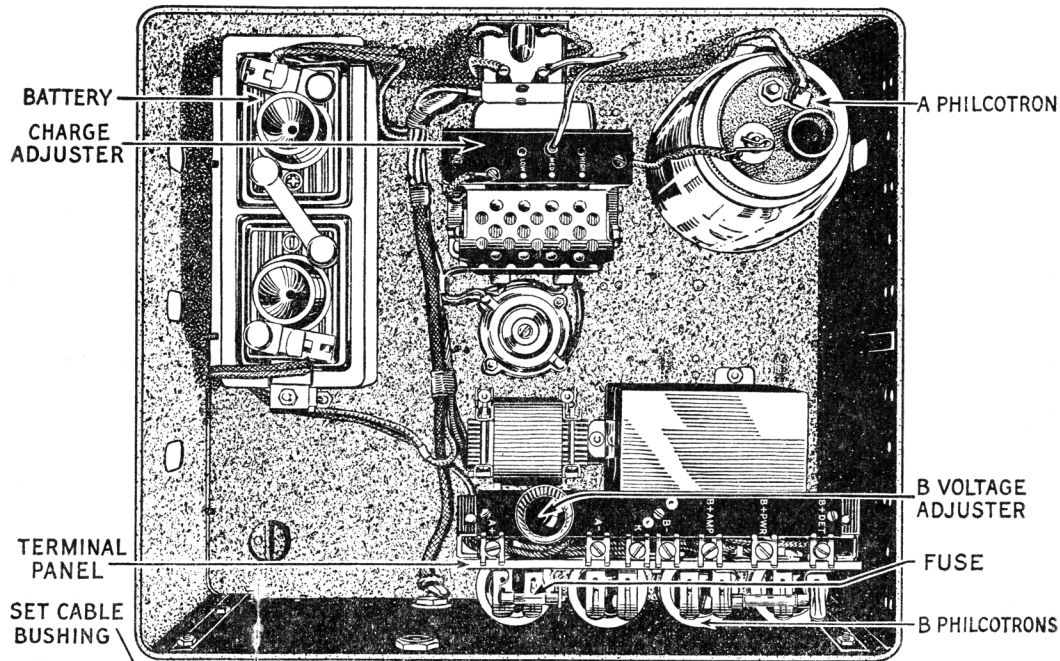
PHILADELPHIA STORAGE BATTERY CO.  
ONTARIO AND C STREET, PHILADELPHIA, PA.

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COMPLETE INSTRUCTIONS INSIDE  
*For* PHILCO SOCKET POWERS  
TYPES AB-463 AND AB-423

# Philco Socket Power AB Instructions

## Alternating Current Types AB-463 and AB-423



Philco Socket Power AB with Cover Removed

### Putting New Socket Power Into Commission

The dealer must make sure that the customer receives the correct type of Socket Power for the current supply in his house. If in doubt, call up the local electric company.

Type AB-463 is correct for 50 or 60-cycle, 105 to 125-volt alternating current and must not be used where the frequency is below 50 cycles. Type AB-423 is correct for 25, 30, 40, 50 or 60-cycle, 105 to 125-volt alternating current. **These types will not operate on, and may be ruined if connected to a direct current supply.**

Open the lid of the Socket Power. Remove all packing material from inside the unit.

Place a 50-watt inside-frosted Mazda lamp in the lamp socket inside the Socket Power for all sets using six or more tubes. Use a 15-watt Mazda lamp for all sets with less than six tubes.

### B Philcotrons

The four B Philcotron rectifier cells are in place in the Socket Power when received. They are correctly filled and tightly corked at the factory. It is only necessary to **push in the corks**. **Never put a Socket Power into operation before opening the vent hole in each B Philcotron by pushing the cork down into the cell, using the stick supplied with the Socket Power for the purpose.**

## A Philcotron

The large rectifier cell (Type A Philcotron) is packed outside of the Socket Power in a compartment at the end of the shipping box. It is partly filled at the factory with concentrated solution and is tightly corked. To prepare it for use remove the cork and add pure water to bring the solution level (bottom of oil layer) to  $\frac{1}{2}$  inch below the narrow neck of the jar. Do not put the cork back. Fit the Philcotron cell into place in the Socket Power and connect the two loose wires to the Philcotron cell terminals. The Philcotron terminals are so arranged that the wires cannot be connected wrong.

## Filling Battery with Electrolyte

The Type UD-44 Philco Battery used in the A part of Socket Power AB is shipped Dry-namic, that is, dry with the plates in a partially charged condition. The dealer should prepare it for service as follows: Unscrew and remove the two vent tubes and fill each cell exactly to the high level line ( $\frac{1}{2}$  inch above top of lead plates) with Philco Electrolyte. (This is high-grade sulphuric acid solution of 1.285 specific gravity packed with the unit.) Use a small glass or china pitcher—never metal—for pouring the electrolyte into the battery cells. Pour slowly and do not overfill. If any electrolyte is spilled on top of the battery or elsewhere, neutralize and remove it with a cloth dampened in a weak solution of ammonia or soda, after which replace the vent tubes, screwing them down tight. Instruct that the vent tubes be left in place in the future. Water when needed should always be added through the vent tubes so as to wash back any acid film that may tend to form in the vents.

**Do not allow any of the battery electrolyte to get into the Philcotron cells. A very small amount will ruin them.**

## Connecting Up

The Socket Power should be connected to the alternating current electric light line with the Socket Power switch in the OFF position for at least 16 hours before it is used by the customer. This is to give the battery a freshening charge to put it in the best of condition for service. Have the charge adjuster on the HIGH tap during this charge.

In connecting the radio set to the Socket Power, follow the usual practice of removing all tubes from the set and trying the power on a single tube with the completed connections before replacing other tubes. Pass the cable from the set through the bushing in the back of the Socket Power and connect to the terminals in accordance with the markings. If in doubt as to connections, consult a Philco dealer.

Insert the attachment plug in a wall receptacle or light socket. If connected to a light socket, make sure the light socket switch, if present, is turned on.

The Charge Adjuster inside, near the front of the Socket Power, is provided to permit adjusting the trickle charge rate to the conditions of use so that current will not be wasted and the water in the battery needlessly used up. The charge indicator will tell whether the battery is getting enough charge. If the two little balls are found to be at the top of the holding cage at the beginning of the day's use of the radio set, the battery is being kept charged. If one ball is up and one down or if both balls are down at the beginning of the day's use the battery is not being kept up as it should be even though there is no noticeable difference in the operation of the set.

Set the charge adjuster at HIGH to start with. If, after two weeks' use with the Socket Power plugged into the house socket at all times, it is found that both indicator balls are always up at the *beginning* of the day's use, change to the MED. or LOW tap and continue to observe the indicator balls. In most cases the LOW tap will keep up the balls and will be the one to use. If for any reason both charge indicator balls drop, change to the HIGH tap setting immediately, using it until both balls have been brought up and have remained up for several days. Then change to the MED. or LOW tap as required to keep them up. The following table will serve as a guide in determining which tap to use for various requirements:

Filament Current Amperes	Equivalent Tube Combinations	Average Hours per Day Each Tap will Operate Set Keeping Battery Charged		
		LOW	MED.	HIGH
.06	1 199 . . . . .	12.8	16.6	19.6
.12	2 199 or 1 120 . . . . .	7.75	12.7	16.6
.18	3 199 or 1 120 and 1 199 . . . . .	6.59	10.3	14.4
.24	4 199 or 1 120 and 2 199 . . . . .	5.30	8.01	12.7
.30	5 199 or 1 120 and 3 199 . . . . .	4.44	7.50	11.4
.36	6 199 or 1 120 and 4 199 . . . . .	3.82	6.59	10.3
.42	7 199 or 1 120 and 5 199 . . . . .	3.33	5.88	9.44
.48	8 199 or 1 120 and 6 199 . . . . .	2.98	5.30	8.69
.54	9 199 or 1 120 and 7 199 . . . . .	2.69	4.83	8.05
.60	10 199 or 1 120 and 8 199 . . . . .	2.44	4.44	7.50

### Radio Operation

The main Socket Power switch controls the filament current. Therefore, leave switch of radio set turned on and filament rheostat in operating position at all times. Throw switch on Socket Power AB to ON. If the Socket Power has not been used before, or has been out of use for several hours, there will then be seen, through the ventilating holes, a bright light coming from the protective lamp inside. Normally, this light will dim in less than a minute. No signals will be heard until this dimming occurs.

With the filaments turned up for distant reception and the volume control set for loud volume, tune in a weak or distant station. If only a strong local station can be tuned in, either detune the set slightly or, if a loop is used, turn the loop so that in any case the received signal is weak and the filaments must be turned up as for distant reception. Then turn the B Voltage Adjuster first one way, then the other, until the best results are obtained. Once the best setting for a particular radio set has been made in this way, the B Voltage Adjuster should be left alone. If no signals are heard in the beginning, it may be that the B Voltage Adjuster has been unscrewed so far as to open the circuit.

If a distinct hum is heard when the set is turned on without being tuned to receive broadcasting, proceed as follows to eliminate the hum:

(a) Pull the attachment plug from the socket and re-insert it with the prongs turned the opposite way.

(b) Move the Socket Power further away from the radio set or turn it to a different angle, always keeping it right side up. If used alongside or close below the set, place it as far as possible from the audio frequency tubes.

If neither (a) nor (b) eliminates the hum, the K terminal connection is probably needed. So:

(c) Connect the K terminal of Socket Power AB to the B- terminal right next to it, using a small piece of bare wire or the bared end of the wire that connects to the B- terminal. Be careful not to disconnect set wire from the B- terminal when adding this connection. If this does not eliminate the hum pull the attachment plug from the socket and re-insert it with the prongs reversed. With the connection in place and the plug inserted the right way the hum should disappear.

When through using the radio set, throw switch on Socket Power AB to OFF. This turns off the tubes as well as the A and B power and connects the A battery to the Trickle Charger so that it automatically absorbs the charge it needs while the radio set is out of use.

### Care

The battery and the large Philcotron cell should be inspected at least once a month to see if water is needed. Water is required less often when LOW or MED. tap is used than when HIGH tap is used.

Always keep the solution level between the high and low level lines in the battery cells and Philcotron cell.

In the Philcotron cell the high level (bottom of oil layer) is  $\frac{1}{2}$  inch below the narrow neck of the jar. The low level is  $1\frac{1}{2}$  inches below the narrow neck. In the battery the high level line is  $\frac{1}{2}$  inch above the tops of the lead plates. The low level line is  $\frac{1}{4}$  inch below the tops of the lead plates.

**When the upper ball in the charge indicator floats at a point  $\frac{1}{2}$  inch below the top of the holding cage, it shows that the solution levels are low.**

If the battery cells are filled with water higher than the high level line, or if the levels are allowed to fall very low before adding water, several days' use may be required to mix in the added water before the lower indicator ball will rise.

It is never necessary to add water to B Philcotrons even though the solution level may drop considerably after long use.

### **A Philcotron Replacement**

When the large A Philcotron rectifier cell is operating normally the aluminum electrode will be free of any growth. The solution normally turns brown with use. Eventually, when the rectifier cell ceases to work, the aluminum electrode usually will show a white growth. Failure to keep up the charge indicator balls even when the HIGH rate tap is used is also an indication that the Philcotron cell has failed. This cell is easily removed by disconnecting the terminals and lifting it out. It must be discarded and a complete new Type A Philcotron cell put in.

### **B Philcotron Replacements**

Eventually the small B Philcotron rectifier cells will cease to work. This will be indicated by absence of signals in the radio set usually accompanied by failure of the protective lamp in Socket Power AB to dim very much when left turned on for several minutes. When this occurs all four of the Philcotrons must be discarded and replaced with new complete Type B Philcotrons.

To change the Philcotrons, pull the attachment plug from the socket, then remove the seven screws holding the panel which forms the back of the Socket Power case. After removing these screws the panel can be lifted straight up exposing the four Philcotrons to view. Remove Philcotrons from the connection rack by raising each pair of contact springs in turn from the terminals and tipping the Philcotron outward until it can be lifted out.

Insert the new Philcotrons in the connection rack as follows: (a) Place the bottom of the glass jar in position over the spacing button of the rack, having the high and low Philcotron terminals in a position corresponding to the high and low contact springs at the top of the rack; (b) Push the top of the Philcotron inward so that the tips of its terminals slide along the grooves and enter the holes in the contact springs; (c) Make sure that BOTH terminal tips of each Philcotron enter and project through the holes and that EACH contact spring is bearing down on the terminal tip with considerable pressure. If necessary, bend down slightly the contact springs, before inserting the Philcotron, to increase the pressure on the terminal tips.

Replace the panel in the back of the housing and secure in place with the screws.

### **Important**

**Keep Socket Power AB connected to a live house socket at all times, day and night, unless it is to remain out of use for a week or more, in which case the plug should be pulled from the socket leaving the Socket Power switch in the off position.**

**If Socket Power is placed in a closed compartment, provision for ventilation must be made by drilling a few large holes, or otherwise.**

**Don't place any value upon voltage readings of Socket Power AB taken with an ordinary voltmeter. Such meters draw so much current that the voltage readings are of no value unless corrected for the meter current. Judge by radio results.**