



**Electric Lighting
For
Automobiles
Carriages
Motor-Boats, Etc.**

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PHILADELPHIA STORE
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This booklet is intended to help you in the selection of proper equipment for auto and boat lighting.

It also contains useful tables, diagrams, operating instructions and prices.

We will gladly advise you on your particular requirements.

ELECTRIC lighting for automobiles, carriages, motor-boats, etc., is rapidly supplanting all other forms of lighting. It is the cheapest, cleanest and most reliable system of lighting :

The wind cannot blow out the lights.

There is no smoke or soot to obscure the lenses and reflectors.

There is no odor and practically no heat.

And think of the convenience of lighting the lamps by simply pushing a button, without leaving your seat and without stopping the car!

Tungsten lamps are the most efficient and undoubtedly the most satisfactory for this class of service. In placing bulbs in headlights, care should be taken to have them in the focus of the reflectors. Six-volt lamps are generally used.

THE PHILADELPHIA BATTERY

THE storage battery is, in all cases, the direct source of power for lighting, and it is of the utmost importance to select a battery which will be reliable in its action, which will have sufficient capacity, long life, and which will withstand all the vibrations and shocks incident to this kind of service.

It should be thoroughly sealed.

Its terminals should be easy of access and non-corrosive.

The handles should be compact and conveniently placed.

The battery elements should be assembled in individual hard rubber jars in a hard-wood case. This form of construction gives the best and most reliable service and is also the most durable.

THE PHILADELPHIA BATTERY

THE Philadelphia Battery is manufactured in various sizes and capacities to meet all the demands of this kind of service.



Only first-class materials and the best workmanship are used in the manufacture of **Philadelphia Batteries**.

Every battery is tested before leaving the factory and is guaranteed to have full rated capacity.

Batteries can be supplied with terminals on top if desired.

THE PHILADELPHIA BATTERY

SIX-VOLT lighting systems have come into general use; six volts being a convenient pressure for both ignition and lighting.

The following tables are based on this voltage.

Table showing amperes consumed by six-volt Tungsten lamps of various candle-power.

Candle-power	Amperes
2	.45
4	.85
6	1.20
8	1.70
10	2.10
12	2.40
16	3.40
20	4.20

THE PHILADELPHIA BATTERY

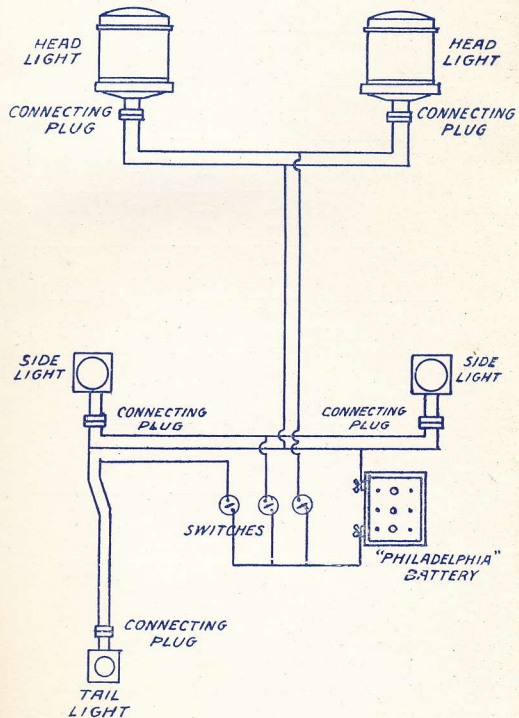
Table giving number of hours of service obtainable on one charge of battery with six-volt Tungsten lamps.

Total Candle-power Obtained by adding together the candle-power of the lamps in the circuit.	2	4	6	8	10	15	20	25	30	35	40	45	50
56-L Battery	120	54	31	22	17	11							
76-L Battery	180	92	54	36	27	17	13	10					
96-L Battery	120	120	80	54	40	24	17	13	11	9			
116-L Battery	110	110	76	54	31	22	17	14	12	10	9	8	

Batteries can also be furnished of lower or higher capacity.

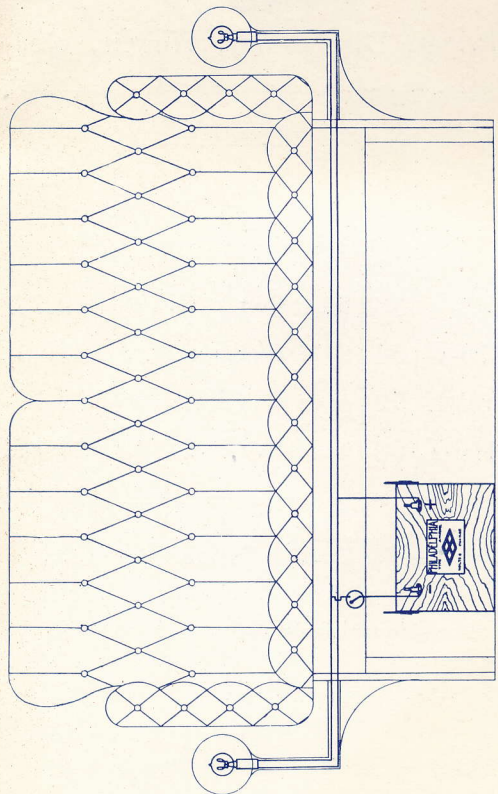
THE PHILADELPHIA BATTERY

Diagram of connections for automobile wiring



THE PHILADELPHIA BATTERY

Diagram of connections for carriage wiring



The "Philadelphia" Auto-Lighting Battery

Prices, Dimensions, Weight, etc.

Catalogue Number	Ampere hours discharge, at 10 hour rate	Volts	Charge rate Amperes	Outside dimensions of case (See note)			Weight complete Pounds	Price complete f. o. b. Phila.
				Height Inches	Width Inches	Length Inches		
56-L	36	6	4	$8\frac{1}{8}$	$6\frac{3}{16}$	$6\frac{11}{16}$	26	\$19.75
76-L	54	6	6	$8\frac{1}{8}$	$6\frac{3}{16}$	9	35	26.25
96-L	72	6	8	$8\frac{1}{8}$	$6\frac{3}{16}$	$11\frac{1}{16}$	45	29.75
116-L	90	6	10	$8\frac{1}{4}$	$6\frac{1}{16}$	$13\frac{3}{8}$	56	34.75

NOTE :—For handles add $\frac{5}{8}$ inch to length.

For top terminals add $\frac{7}{8}$ inch to height.

For side terminals add $\frac{5}{16}$ inch to width.

Condensed instructions for the care of the Philadelphia Auto-Lighting Battery

Keep the battery right side up. Keep the terminals, top and case clean. Wipe off occasionally with a little oil or grease.

A little vaseline or grease on the terminals and wire ends after making connections will prevent corrosion of the wires and maintain a clean connection.

Do not wait until the lights become dim before recharging the battery.

Recharge at least once a month regularly, whether battery is weak or not. This will maintain the battery in good condition and tend to increase its life.

The plates should be kept covered with solution. It will be necessary to add distilled water occasionally, but DO NOT ADD ACID.

THE solution should be about one-quarter inch above the tops of the plates. It can be readily seen by removing the vent cap.

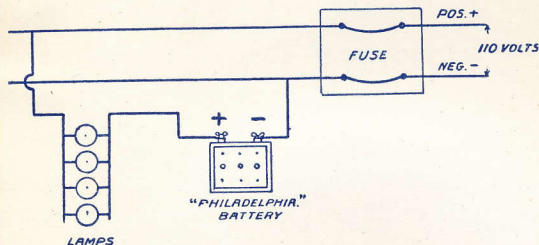
If you do not recharge the battery yourself, send it to a reliable garage or repair station. A battery can be injured by careless and improper charging.

If you recharge the battery yourself, here are a few pointers :

The charging current in amperes is stamped on the name-plate. This charging rate should not be exceeded.

The *minimum* length of charge at normal rate is about ten hours. If half the normal rate is used, the duration of charge will be doubled and the *minimum* will be about twenty hours.

BATTERIES must be charged with direct current. The diagram below shows a simple method of charging from a direct current lighting circuit.



The lamps take the place of a rheostat or resistance, the proper amount of current flowing being proportional to the number of lamps in circuit. Each 32 c.p. carbon lamp in circuit on a 110-volt system will contribute about eight-tenths (0.8) ampere for charging a three-cell battery. So that if four amperes are required, five 32 c.p. lamps will be necessary.

BEFORE starting the charge, unscrew and take out the vent plugs; see that the solution covers the plates; if not, add pure water (preferably distilled).

In making charging connections be sure that the positive charging wire is connected to the positive battery terminal and the negative charging wire to negative battery terminal.

The voltage of the battery and specific gravity of the acid increase while charging.

When fully charged, the voltage will be *about* $7\frac{1}{2}$ to $7\frac{3}{4}$ volts for a three-cell battery.

The charge should be continued until both the voltage and the specific gravity of the acid show no further rise for three to four hours while charging at normal rate.

THE temperature of the cells must never exceed 100° F. while charging.

When *fully charged* the acid should be adjusted to the proper height (one-quarter inch above the plates) and to 1.300 specific gravity. A syringe hydrometer is a valuable instrument for this purpose. If gravity of acid is above 1.300, add pure water, distilled if possible. If below 1.300, add a little 1.320 specific gravity sulphuric acid.

Never add acid unless you *know* that battery is fully charged and in good condition.

THE PHILADELPHIA BATTERY

For further instructions or in
case of trouble communicate with

DIAMOND GRID



TRADE MARK