Instructions to Users of Waterman Engines and Hints on Installation.

UNPACKING

Owing to the light weight of our Model K engines they are apt to be roughly handled or thrown around by freight handlers while in transportation. On that account we pack them for shipment (both foreign and domestic) in solid boxes instead of crates. The outfit with the engine is packed in this same box with the exception of the propeller shaft, which, if ordered, is wired and strapped to a board to prevent bending and springing. The reverse gear, if ordered, is also an exception, as it is packed in a separate box. This separate boxing of the gear also applies to our Model B and Model A-4 engines —excepting the special Yacht Model B-2 and B-4 outfits, in which the engine and gear are together on a sub-frame forming a power unit, and they are packed and shipped in that form.

For shipment to all points in the United States and Canada our Model A-4 and B engines are crated, but for export shipment they are boxed solid. With these engines the outfit is packed in a separate compartment built into one end of the crate or box and the shaft, if ordered, is attached to a board.

Care should always be observed in drawing the nails and removing the covers of the crates and boxes so as to avoid all danger of damaging the contents. Take out the items of the equipment one by one and check them off on the packer's slip, which is to be found in each shipment. Examine all packing papers carefully to avoid loss of small items.

N. B.—If any box or crate appears broken or damaged, do not receive it from the transportation company without having it noted on the freight receipt before you sign it, and also have the freight agent acknowledge it in writing on the freight bill. Then you have evidence in case the contents prove to be damaged and you have to file a claim against the transportation company.

The first thing to do is to take out the packer's slip and compare it with the invoice from the factory covering the shipment. See that it lists all the items covered by your order. That is, if you ordered equipment C (regular marine equipment), see that the packer's slip as checked covers the full equipment.

INSTALLATION

If you are to get the greatest comfort, speed and po[wer] your boat and engine you must take every possible precaution [in] installation. The first important item in this is the foundation. [It] takes all the weight and strain of the engine and also in most cas[es] the entire thrust of the propeller wheel. If you wish to push against something with all your strength your first thought is to brace your feet. The foundation is what your engine braces its feet against. For this reason your whole aim is to attach the foundation to the boat and the engine to the foundation in such a rigid manner that they are all three practically one piece.

The simplest foundation is that shown in the cut, and consists of two cross pieces curved to fit the inside of the bottom of the boat and two longitudinal pieces or stringers on which the engine rests. These stringers should be placed so that their centers are the same distance apart as the bolt holes in the engine base supporting feet—that is, so that the bolts or lag screws used to secure the engine on the foundation pass down through the centers of these stringers.

The stringers and cross pieces are preferably notched into each other and bolted together, and it is advisable to put one bolt through the center of each cross piece and through the keel as shown in the cut, so that the portion of the stringers lying between the cross pieces are resting on the ribs.

N. B.—The stringers should never be notched out for the ribs. By resting on top of the ribs they distribute the weight and vibration over a large portion of the hull, whereas if notched out so as to rest on the planking they place most of the weight and strain on the few planks they touch and are apt to cause leaks.

The cross pieces will, of course, have to be cut away or notched out in the center to give clearance for that portion of the engine crank case which projects below the level of the engine foundation.

The height of the foundation depends not only upon the height to which the engine must be raised to have the flywheel and crank case clear the ribs and bottom of the boat (and in figuring this you

GASOLINE CONNECTIONS

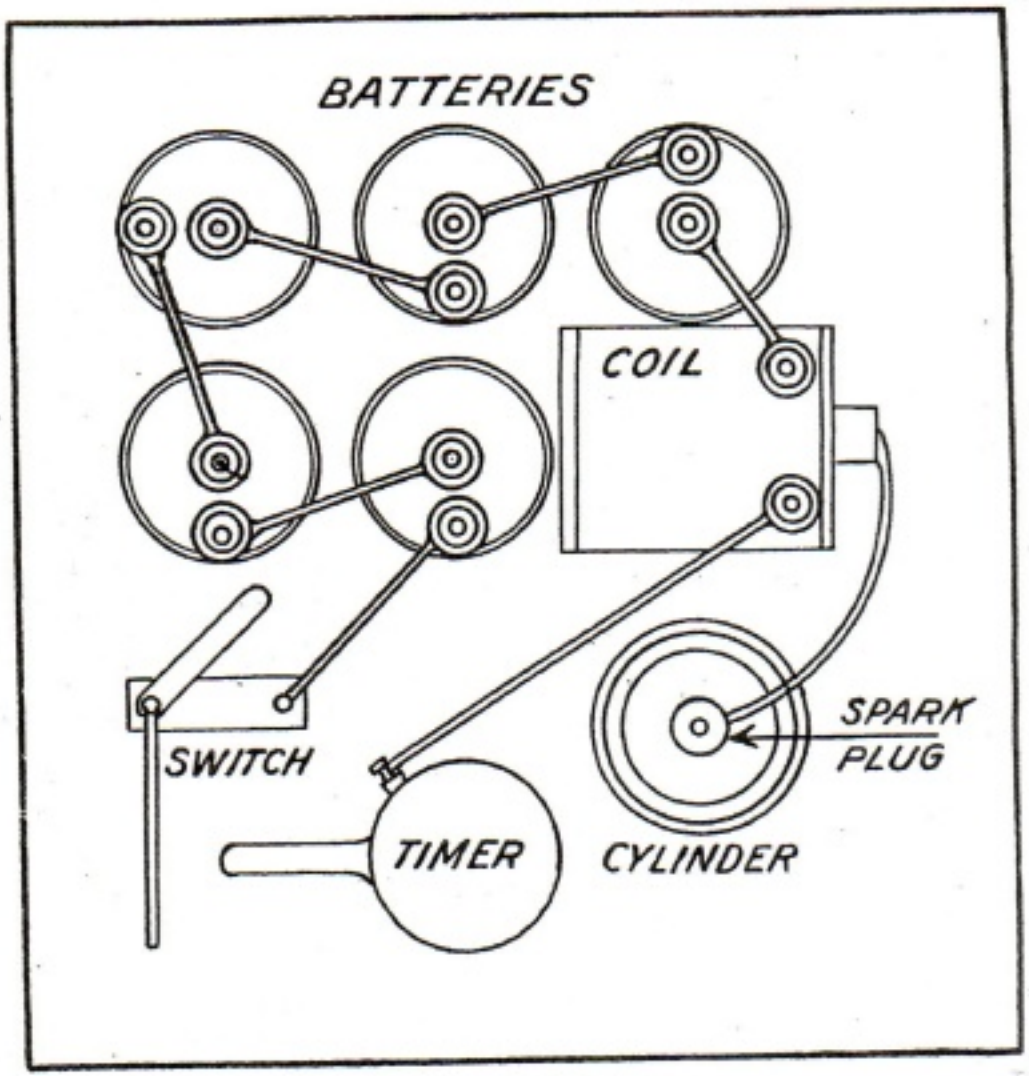
The gasoline tank should be of copper or heavy galvanized iron, and if larger than ten gallons' capacity it is well to have baffle walls or splash plates built into it. This tank may be built by the nearest tinsmith and should be as large as you have room for, and designed to fit the boat. If the tank is under the deck you should have a piece of pipe—1 or 1¼ inch diameter at least—screwed into the fill opening of the tank and coming up flush with the deck, where a filler cap may be screwed on. This cap should have a small air vent hole—a little larger than a pin hole—to allow air to pass in and take the place of the gasoline that is fed out. If this air vent ever becomes clogged the flow of gasoline to the carburetor will stop.

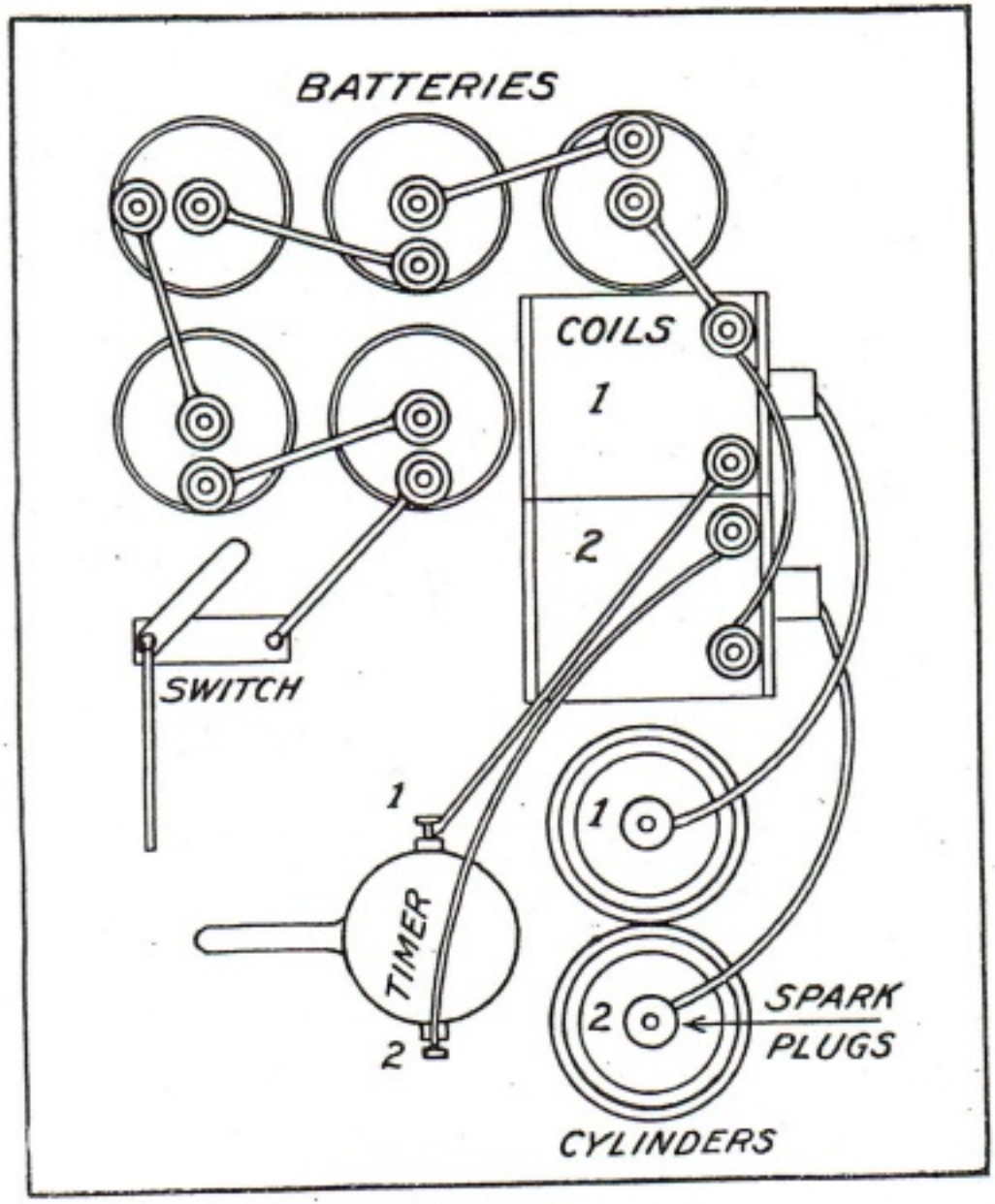
The bottom of the tank should be at least four inches above the level of the carburetor and the gasoline piping (which should be brass or copper tubing) should be at least ⅛ inch inside diameter—should have a steady fall from the tank to the carburetor. If pipe is used instead of tubing, it is well to shellac all threaded joints. If shellac cannot be obtained, common brown soap may be rubbed on the threads before connecting up—but be careful not to get either the soap or the shellac inside the pipe! A shut-off valve should be put at the tank and another at the carburetor if you wish.

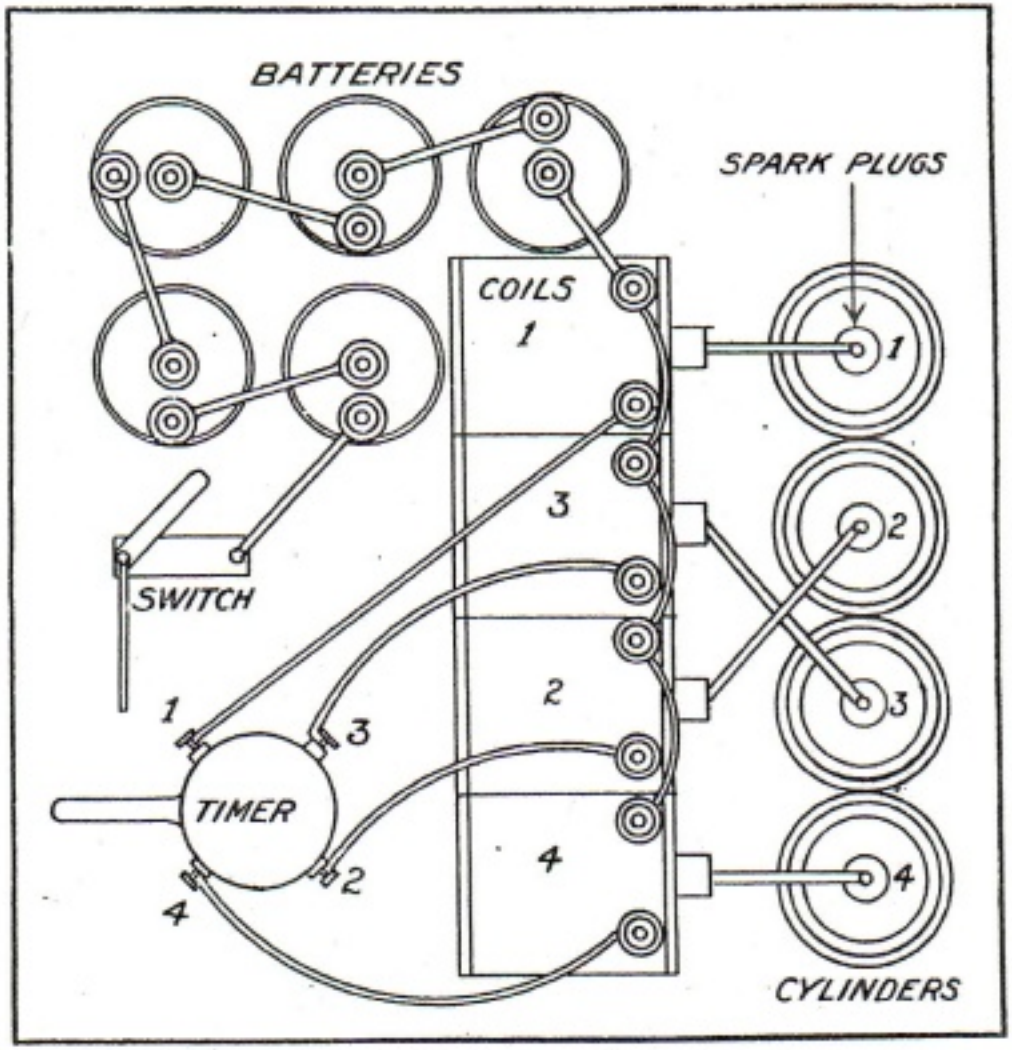
Be sure that all joints in the gasoline line are tight, but don't look for leaks with a match or any artificial light except an electric lamp, if you have one. Many a good boat has been lost because the owner lit a match or used an oil lantern to look for gasoline leaks!

BATTERIES, COIL AND WIRING

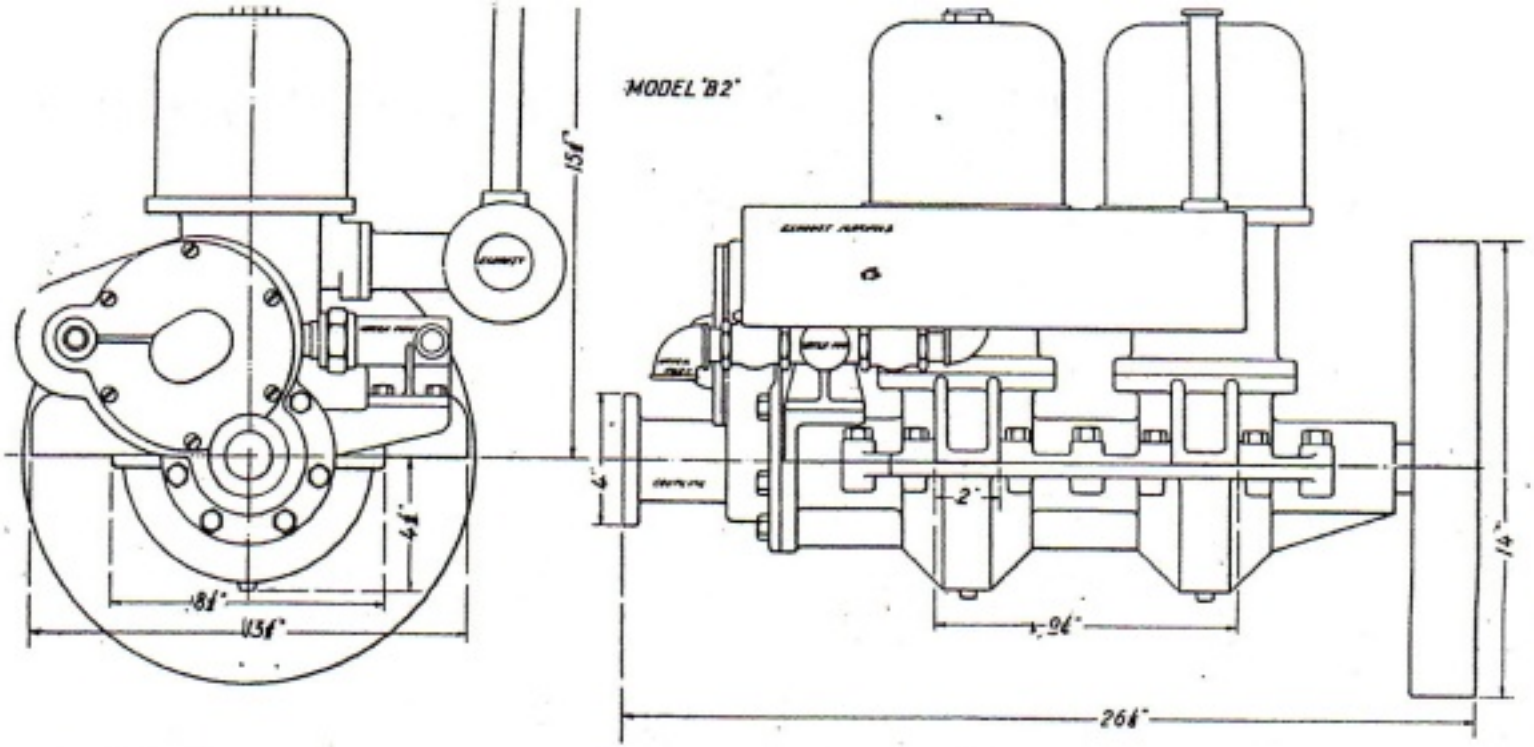
The following diagrams illustrate the proper wiring as arranged for 1, 2 and 4-cylinder engines, respectively:







Pick out a dry place for the battery. If possible, place them in a waterproof box. The coil also should be in a dry place and may be with the batteries, but the nearer the coil is to the engine the less secondary wire you will need to connect to the spark plug and the shorter the secondary wire, the less chance of a short circuit.



NOTE.—On Model K-1 the shaft line center is above the foundation line; on Model K-2 it is below the foundation line; and on Models B-2 and B-4 it is exactly on the foundation line.

FOR MODEL B-1 see A-4 diagram. Base and flywheel dimensions are the same on both A-4 and B-1, and the height is also the same.