



Ottawa

Service Manual

1-1/2 to 22

Horsepower Engines

Service Manual

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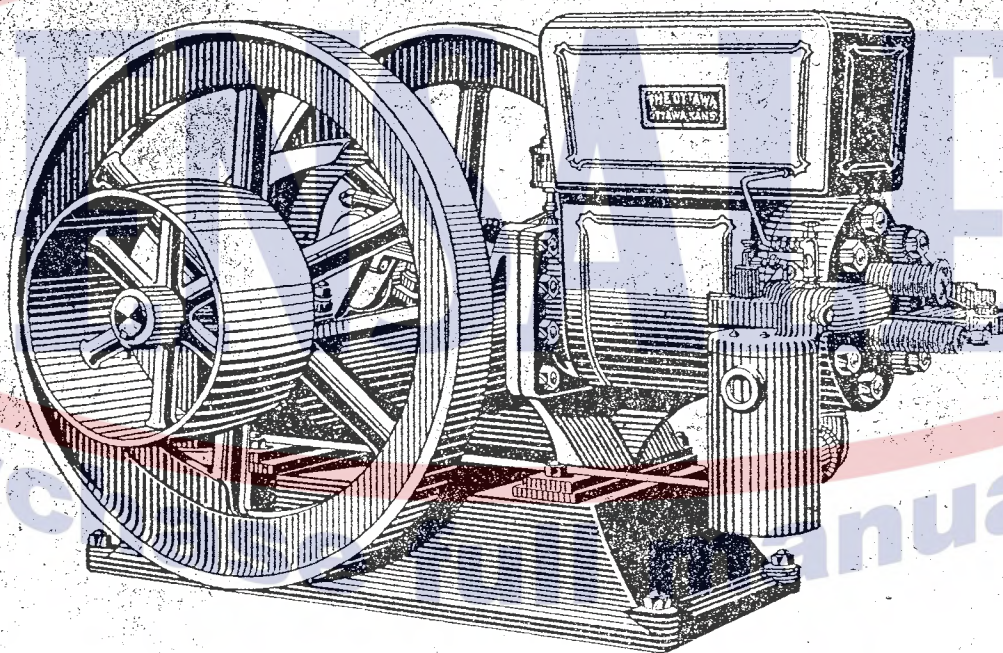
OTT-S-1 1/2-22

INSTRUCTION BOOK

How to Care For and Operate

OTTAWA ENGINES

KEROSENE, DISTILLATE, SOLAR OIL,
TOPPINGS, GASOLINE AND GAS



1½ TO 22 HORSEPOWER

INDEX ON PAGE 32

This is a valuable book. Preserve it, and keep it always
handy for reference. Apply the instructions in
running the engine and get the best results.

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5. Open fuel drain valve to drain fuel reservoir.

6. Turn fly wheel until exhaust valve closes.

In cold weather, be sure to open drain plug underneath cylinder and drain out all water. Be sure to do this, as even a slight frost may crack the cylinder or cylinder head.

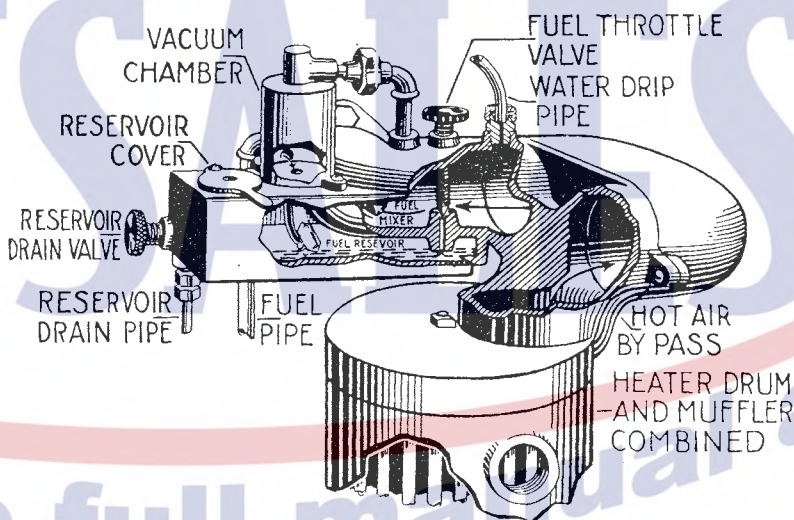
When you shut down for a few minutes at any time and start up again, when engine is hot, you can start on kerosene direct without using any gasoline and it will not be necessary to drain fuel reservoir in stopping. Be careful not to flood engine in starting up, while hot.

Customer should inspect bearings and if any are hot repair them at once by loosening the nuts holding the bearings.

The Kerosene Mixer

The kerosene mixer on kerosene engines is of our own special design and works on the Vacuum Principle.

When the piston moves forward on suction stroke the air valve opens and air rushes in through the air passage of mixer to fill up space left by piston. The rush of air through air passage creates a vacuum in vacuum chamber by closing valve in fuel reservoir. When a vacuum is created, the fuel starts to flow into vacuum chamber from fuel tank, where it is held until piston starts back on compression stroke. The moment piston starts back the vacuum valve automatically releases and fuel runs out of vacuum chamber into fuel reservoir. If more fuel is drawn up to fuel reservoir than is used by engine, it overflows back to fuel tank through the reservoir drain pipe.



Cut No. 3.

The fuel is drawn into fuel mixer from reservoir as needed. By having the fuel close to the mixer, each fuel charge is always the same without its being necessary to readjust the fuel throttle as the fuel gets mixer through this heater and added to the fuel mixture.

The heater drum of the Kerosene Mixer consists of a cast shell, containing an inside heater, similar to the boiler of a steam engine. The hot exhaust gas from the engine passes out around the heater, and when the hot air by-pass is closed, fresh warm air is drawn into the mixer through the tubes and added to the fuel mixture.

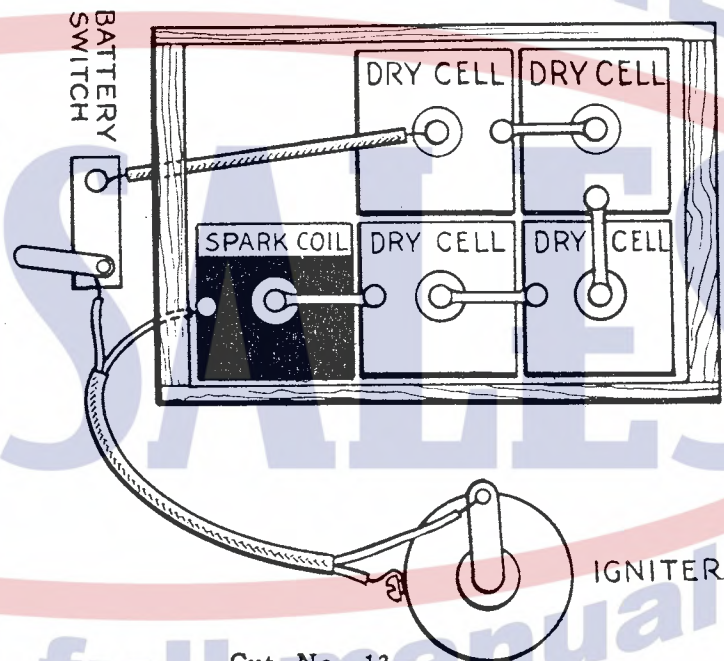
The sound of the exhaust is muffled in passing through the heater drum, and no other muffler is required or furnished on Kerosene engines.

In starting the engine you close the fuel drain valve to prevent fuel from running out of reservoir; fill reservoir with gasoline to use in getting the engine heated up.

How to Connect Up Batteries

You can connect up as many batteries in a series as you want, but care should be used to see that the uninsulated part of wiring does not touch any other part of engine or battery, except the binding post to which it is attached.

To wire up a set of batteries and coil begin by taking a piece of wire long enough to reach from igniter to spark coil, remove the insulation for about one inch from each end and attach one end to binding post of stationary electrode on igniter block and the other end to one post of coil. Next, attach a connecting wire to the other post of coil and to the outside binding post of one of the cells. Continue connecting up cells by attaching wire to center post of one cell and to the outside post of another until you have them all connected. Wire from center post of the last cell connects to one post of switch. Now take a piece of wire long enough to reach from the other post of switch to igniter block and after removing insulation from each end for about one inch attach one end to screw on edge of igniter block and the other end to the switch.



When the engine is located inside a building it is sometimes desirable to place the batteries and coil above the engine where they will be out of the way. You can place the battery box as far from the engine as you like by using a longer wire from batteries to igniter.

The switch may be removed from box and located in any convenient place.

Engine Speed and Pulleys

Each engine, when it leaves the factory, is set to run at speed it tested to do best work and in order that you get full power you should have pulleys of proper size to permit engine to run at normal speed. This speed is stamped on name plate. If the machine you are operating with engine runs at a very high speed it is better to put a smaller pulley on the machine, or line shaft where possible, rather than to increase the size of the pulley on the engine. You can increase the speed of the

engine a little if necessary without injury to engine.

When you cut down the speed of the engine, you cut down your power at the same time. The speed may be changed easily and quickly by the speed regulator, while the engine is running.

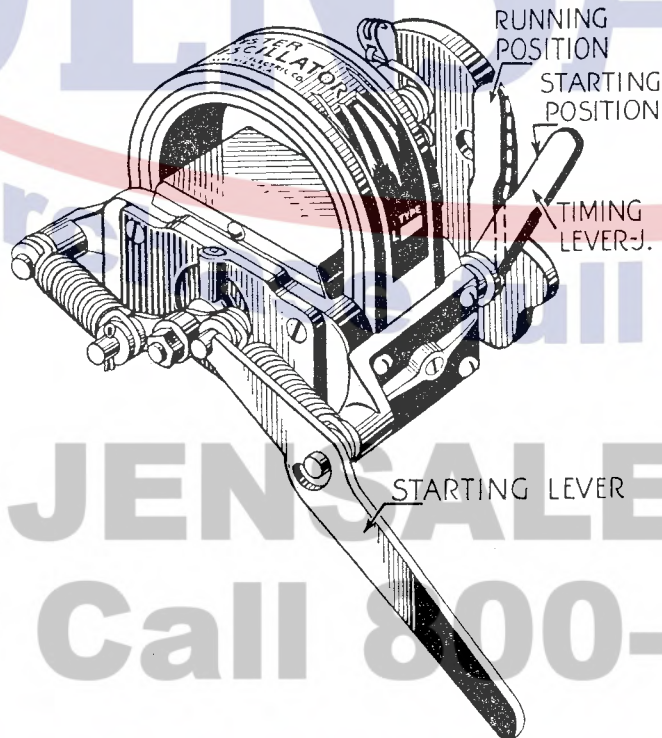
To figure the correct size of pulleys, when you have the size of pulley and speed of the machine you are going to run: Multiply the speed of the machine you are going to run with the engine by the diameter (in inches) of the pulley of the same machine, or line shaft, and divide the product by the normal speed of the engine. The quotient will be the diameter of the pulley, in inches, needed for the engine. If you want to figure the correct size of pulley to get on a machine or for a line shaft, multiply the normal speed of the engine by the diameter, in inches, of the regular pulley, and divide the product of this multiplication by the speed of the machine or line shaft.

To Tell How Fast Engine is Running

You can easily tell how fast your engine is running, by counting the number of times the cam on large gear wheel touches the roller on side bar and multiplying the count by two, as the large gear has just twice as many teeth as the smaller gear and the fly wheel will go around twice while the large gear goes around once.

The Oscillating Magneto

To test the igniter, when engine is equipped with a Magneto, remove Magneto and igniter block from engine without detaching Magneto from block. Trip Magneto with starting lever, as in starting engine. If you



do not get a good spark at igniter points, there may be a short circuit, insulation on stationary electrode may be dirty or broken, or adjustments may be wrong. See special Magneto instructions sent with this book.

In starting, timing lever J is moved to the right, which retards the spark. When engine is running, timing lever is moved to left.

If you want to run your engine with batteries, loosen lock nut P, (see special instructions), and tighten set screw E until igniter points are separated thickness of a postal card, then tighten lock nut.

Connect up a set of batteries as shown on page 23. attach wire from coil to terminal on igniter and the other wire to

Cut No. 14.
bracket bolt under Magneto. Do not take off Magneto.

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