

The Automobile Simplified

By FREDERICK C. GUERRLICH, M. E.
Make This Your Automobile Correspondence School

A N intimate talk on the working units of the automobile discussed in such a way that the layman can easily understand them. If in reading these articles, as they appear in the Palladium each Saturday, there is anything not clear to you, ask Mr. Guerrlich about it. An answer will be published on the completion of the articles on the section of the automobile under discussion.

Copyrighted, 1917, by Frederick C. Guerrlich.

Before taking up the magneto and starting and lighting system, there are a few questions which I wish to answer, as they are interesting.

Question from A. J. B.: The motor in my Buick car does not have the valves placed as those shown in the engine in your first lesson. They call my engine a valve in head engine. Could you explain its action to me?

Question from F. B. P.: My engine has not got valves on both sides, they are all on one side. Is the action the same as the engine you showed?

Answer: For convenience, when I explained the cycle and valve action of the engine, I used what is known as a T Head motor; that is, one in which the valves are placed on top.

Figure 1 shows this motor, when I

put under the valve caps, also some grinding compound, such as for example, Clover Leaf or Old Dutch, and a valve-spring lifter.

First—Get a new set of gaskets to

put under the valve caps, also some

grinding compound, such as for ex-

ample, Clover Leaf or Old Dutch, and

a valve-spring lifter.

Second—Remove spark plugs, com-

pression cock and valve caps.

Third—Scratch the carbons off one

of the valves and note if it is num-

bered. If not, number the valves by

making center-punch marks on them.

Fourth—Remove the valves as fol-

lows: With the valve-spring lifter

press up the spring. As you do this

the valve will probably also raise, if

not, raise it with a screwdriver. In-

sert a fine wire under the valve head.

Force down the valve and remove the

valve-spring lifter. With the wire

pull out the valve. Remove the

spring. If you do the above, as given,

you will find it comparatively easy,

otherwise you may find getting the

valve out a tedious task.

Clean All Carbon.

Fifth—Clean the carbon off all of

the valves, but do not touch the valve

seats. (The valve seat is the portion

against which the valve rests in the

cylinder.)

Sixth—Put a very thin coat of the

compound on the valve, replace it, and

with a screwdriver revolve the valve

back and forth, raising it and giving

it a half turn about every tenth oscillation.

Periodically remove the valve and see if the little holes (pits) have disappeared. When they have disappeared, or a fine bright ring appears, the valve is properly ground.

Seventh—Re-assemble the parts.

Hints: Always, when assembling, put a little graphite on threaded parts

subject to heat, so as to keep the

threads from fusing together.

A mixture of graphite and brown

shellac placed on the threads of the

valve caps will help to make them

tight, but this must not be put on the

spark plug threads.

After grinding the valves will usually

require to be readjusted.

When grinding or adjusting be sure

that the valve lifter is fully down and

not resting on any portion of the off-

set of the cam. If so, revolve the

shaft by cranking a half-turn.

The valve adjusting should be

checked up when the engine is hot, as

the expansion may result in the valve

not seating properly.

mentioned the great importance of having the valves ground. Can this be done by the ordinary owner, and, if so, how is it done?

Answer: Valve-grinding is not a difficult job, and I think it would be well for every owner to know how to do it. Many will find it a recreation. I give the way to do this in a series of steps.

First—Get a new set of gaskets to put under the valve caps, also some grinding compound, such as for example, Clover Leaf or Old Dutch, and a valve-spring lifter.

Second—Remove spark plugs, com-

pression cock and valve caps.

Third—Scratch the carbons off one

of the valves and note if it is num-

bered. If not, number the valves by

making center-punch marks on them.

Fourth—Remove the valves as fol-

lows: With the valve-spring lifter

press up the spring. As you do this

the valve will probably also raise, if

not, raise it with a screwdriver. In-

sert a fine wire under the valve head.

Force down the valve and remove the

valve-spring lifter. With the wire

pull out the valve. Remove the

spring. If you do the above, as given,

you will find it comparatively easy,

otherwise you may find getting the

valve out a tedious task.

Clean All Carbon.

Fifth—Clean the carbon off all of

the valves, but do not touch the valve

seats. (The valve seat is the portion

against which the valve rests in the

cylinder.)

Sixth—Put a very thin coat of the

compound on the valve, replace it, and

with a screwdriver revolve the valve

back and forth, raising it and giving

it a half turn about every tenth oscillation.

Periodically remove the valve and see if the little holes (pits) have disappeared. When they have disappeared, or a fine bright ring appears, the valve is properly ground.

Seventh—Re-assemble the parts.

Hints: Always, when assembling, put a little graphite on threaded parts

subject to heat, so as to keep the

threads from fusing together.

A mixture of graphite and brown

shellac placed on the threads of the

valve caps will help to make them

tight, but this must not be put on the

spark plug threads.

After grinding the valves will usually

require to be readjusted.

When grinding or adjusting be sure

that the valve lifter is fully down and

not resting on any portion of the off-

set of the cam. If so, revolve the

shaft by cranking a half-turn.

The valve adjusting should be

checked up when the engine is hot, as

the expansion may result in the valve

not seating properly.

Valve Grinding.

Question by S. R. F.: You have

