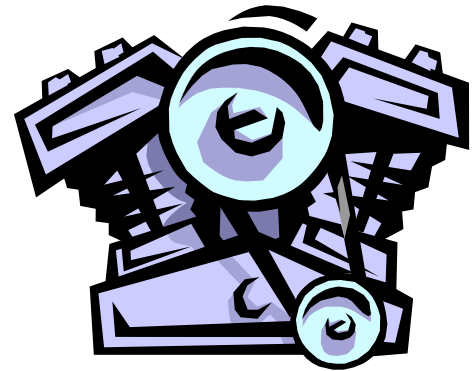


Job Introduction
~ Spark Plug & Air Cleaner ~

Maintenance is key to both engine reliability and longevity.

The job you are about to do will have you perform two common maintenance tasks, servicing your engine's spark plug and its air cleaner.

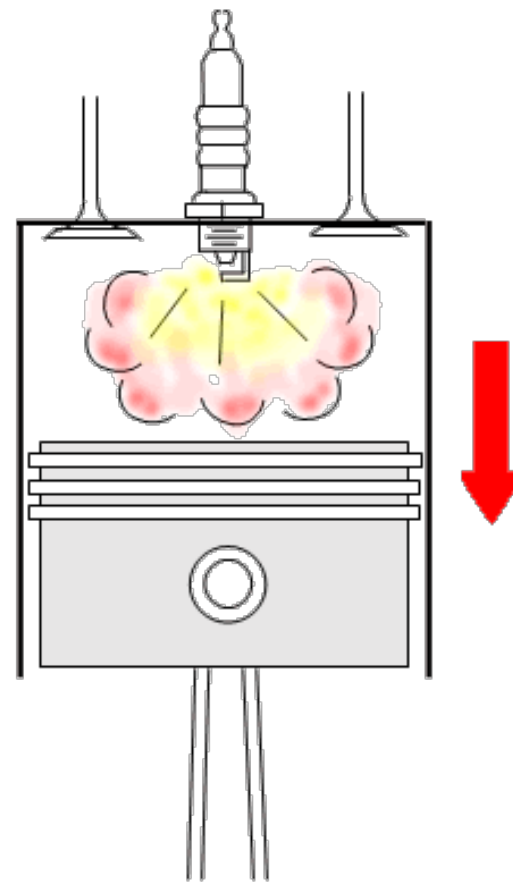


Spark Plugs



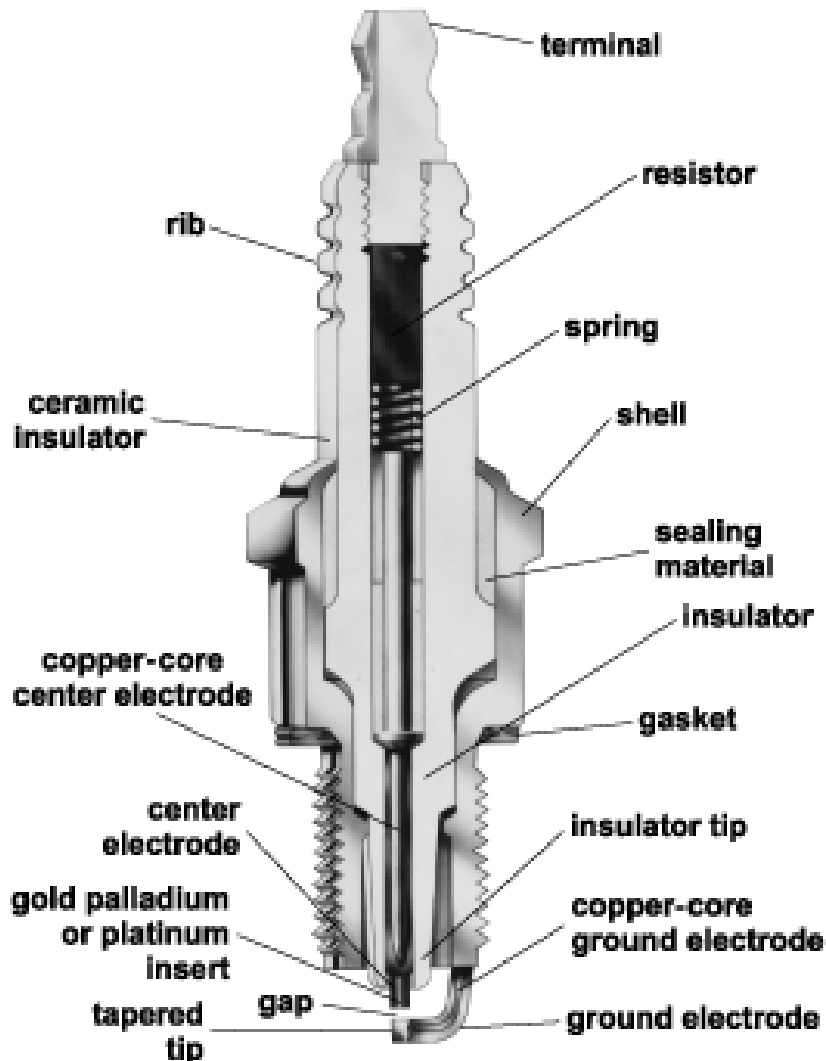
Review

As you know, your engine uses a spark to ignite the air/fuel mixture in the combustion chamber.



Anatomy of a Spark Plug

Spark plugs are more complicated than they first appear.

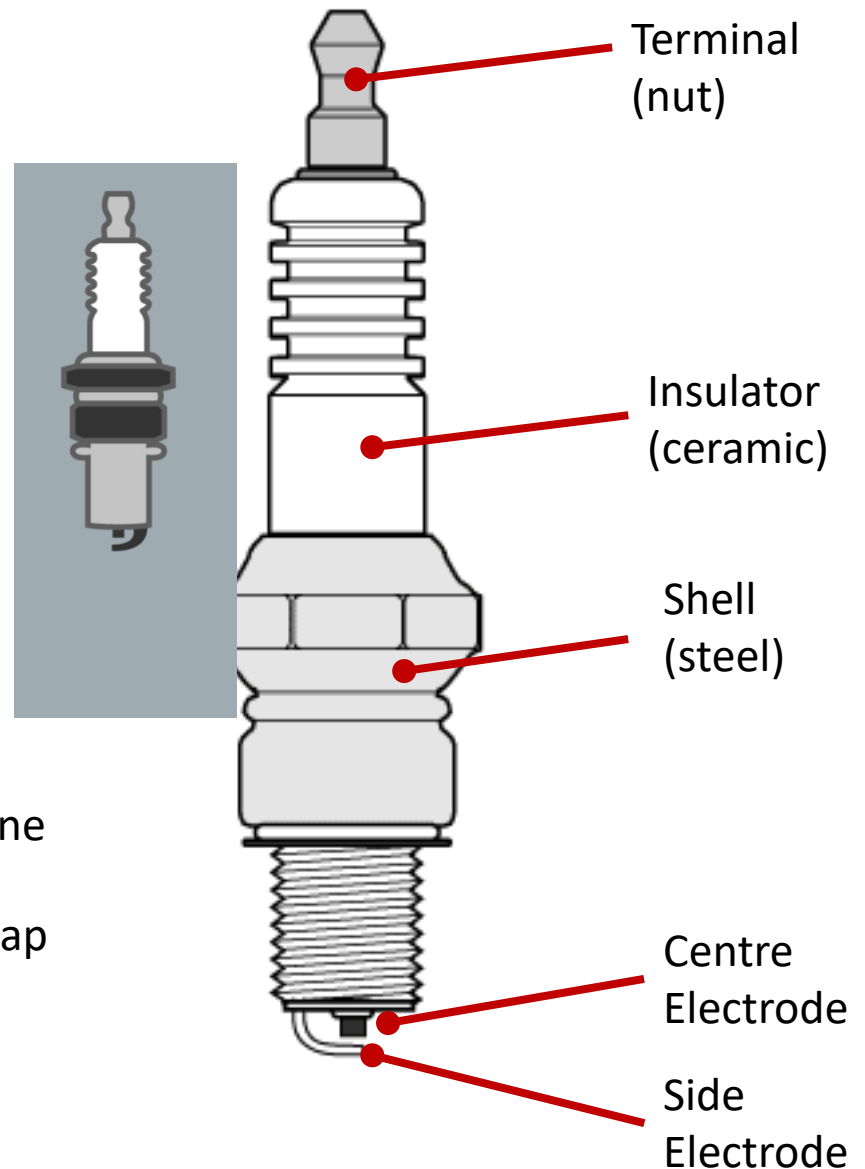


Anatomy of a Spark Plug Cont'd

Thankfully, since we aren't making spark plugs we need only concern ourselves with four key areas

4 parts to know:

1. Terminal (sometimes threaded)
2. Insulator – ceramic; easily broken
3. Shell – allows for screwing into engine
4. Electrodes – electricity arcs across gap



Spark Plug Know How

Maintenance of a spark plug involves two things:

1. *Cleaning*
2. *Gapping*

Spark Plug Know How

Cleaning the plug:

1. If oily, a suitable degreaser can be used.
2. Soot & carbon build up is removed using a soft metal (brass) brush.



Spark Plug Know How

Before spark plugs are installed the gap needs to be checked and if necessary set.



What might result if the gap is too big???

The voltage generated by the ignition system (more about this later) won't be able to 'push' the electrons across the gap.

Result:

- ❑ no spark or intermittent spark (misfire)



Spark Plug Know How Cont'd

What might result if the gap is too small?

The electrons will jump the gap too easily and not release enough energy.

Result:

- ❑ weak spark = poor/inefficient burn



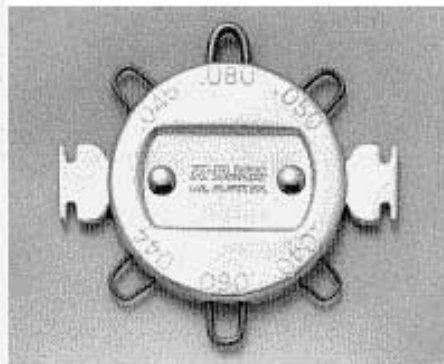
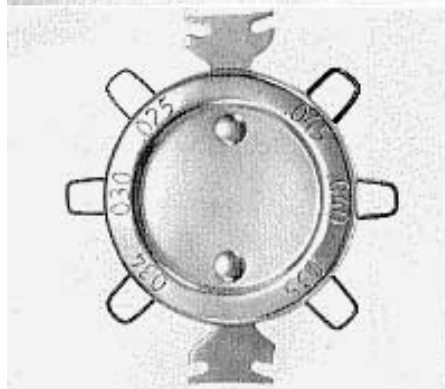
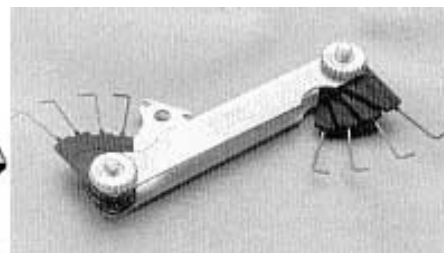
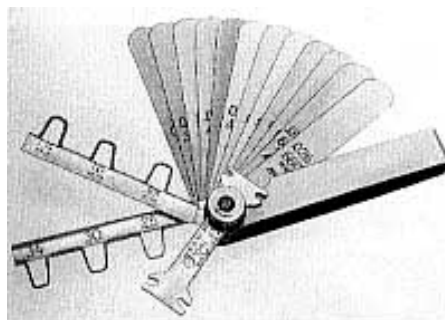
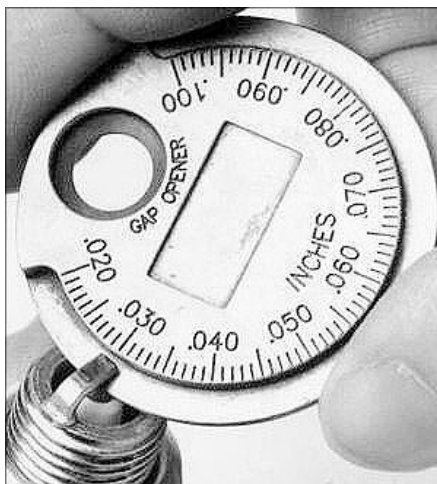
Spark Plug Know How Cont'd – Setting Plug Gap

Step 1 - Consult the service manual for correct spec.



Spark Plug Know How Cont'd – Setting Plug Gap

Step 2 - Obtain a spark plug gapping tool



Spark Plug Know How Cont'd – Setting Plug Gap

Step 3 - measure the existing gap



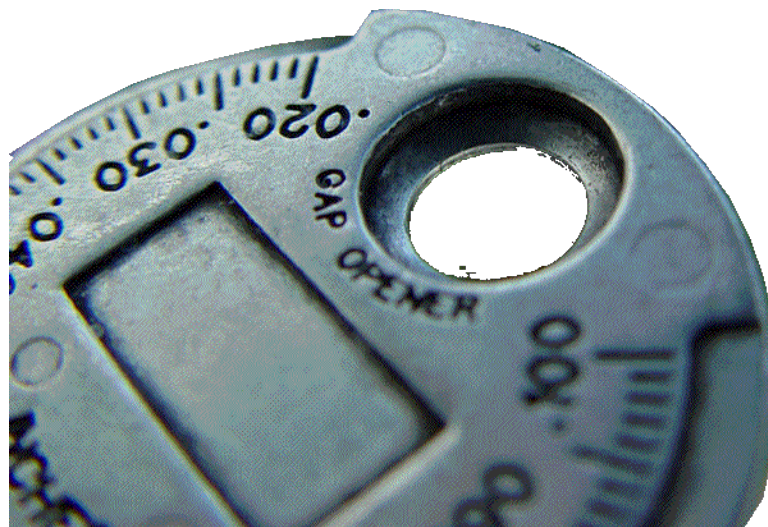
Spark Plug Know How Cont'd – Setting Plug Gap

Step 3 - tap side electrode on solid surface to adjust smaller



Spark Plug Know How Cont'd – Setting Plug Gap

Step 4 - Use expanding method on gapping tool to make gap larger



Common Maintenance - Spark Plug & Air Cleaner



Movie time: How to Gap a Sparkplug

Common Maintenance - Spark Plug & Air Cleaner



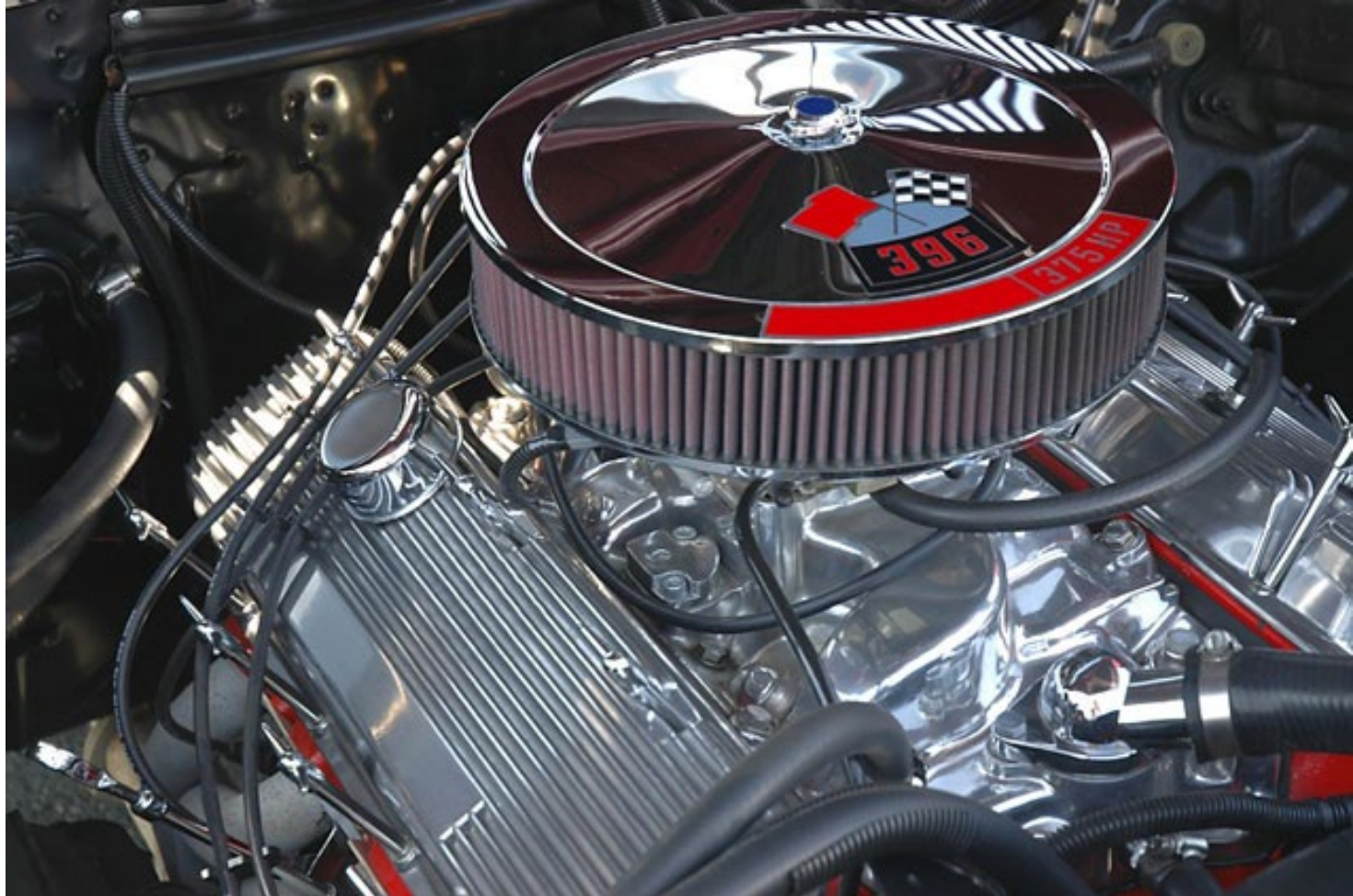
Spark Plug Know How Cont'd – Installing

When installing observe the following:

1. Use a proper spark plug socket to avoid damage to the insulator
2. Place a drop of oil on the threads to ensure accurate torque is achieved
3. Torque to proper spec.



Air Cleaners

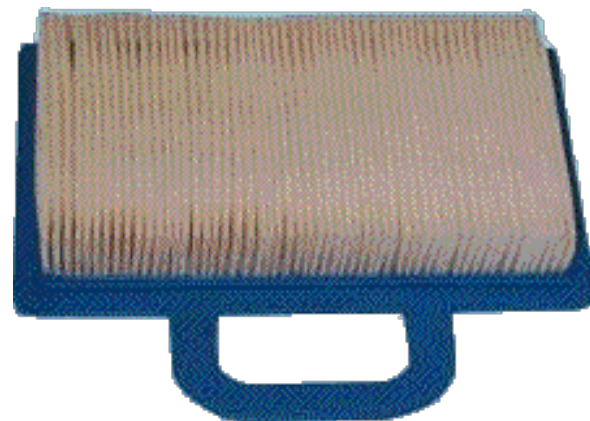


Common Maintenance - Spark Plug & Air Cleaner

Your engine has an air cleaner.

Once upon a time there weren't any air cleaners on engines.

This wasn't because they couldn't be made, but was because engine manufacturers didn't know how much good they could do!



Common Maintenance - Spark Plug & Air Cleaner

Basically, air can contain contaminants (dirt) that can harm the engine and shorten its life!

As parts in the engine work against each other they naturally wear out. If contaminants were to move through the engine's cylinder with the air the engine's parts would wear out much quicker.

By filtering the air engines last longer.



Air filters are great, until they begin to restrict air flow as they become clogged.

A dirty air filter can impede the flow of air so much that it becomes difficult to burn the fuel in the cylinder.

This situation can result in:

1. Hard Starting
2. Loss in engine power
3. Higher fuel costs
4. Contaminated/fouled spark plugs



Two types of air cleaners are generally found on small engines:

Serviceable:

- Oil-foam (ours)

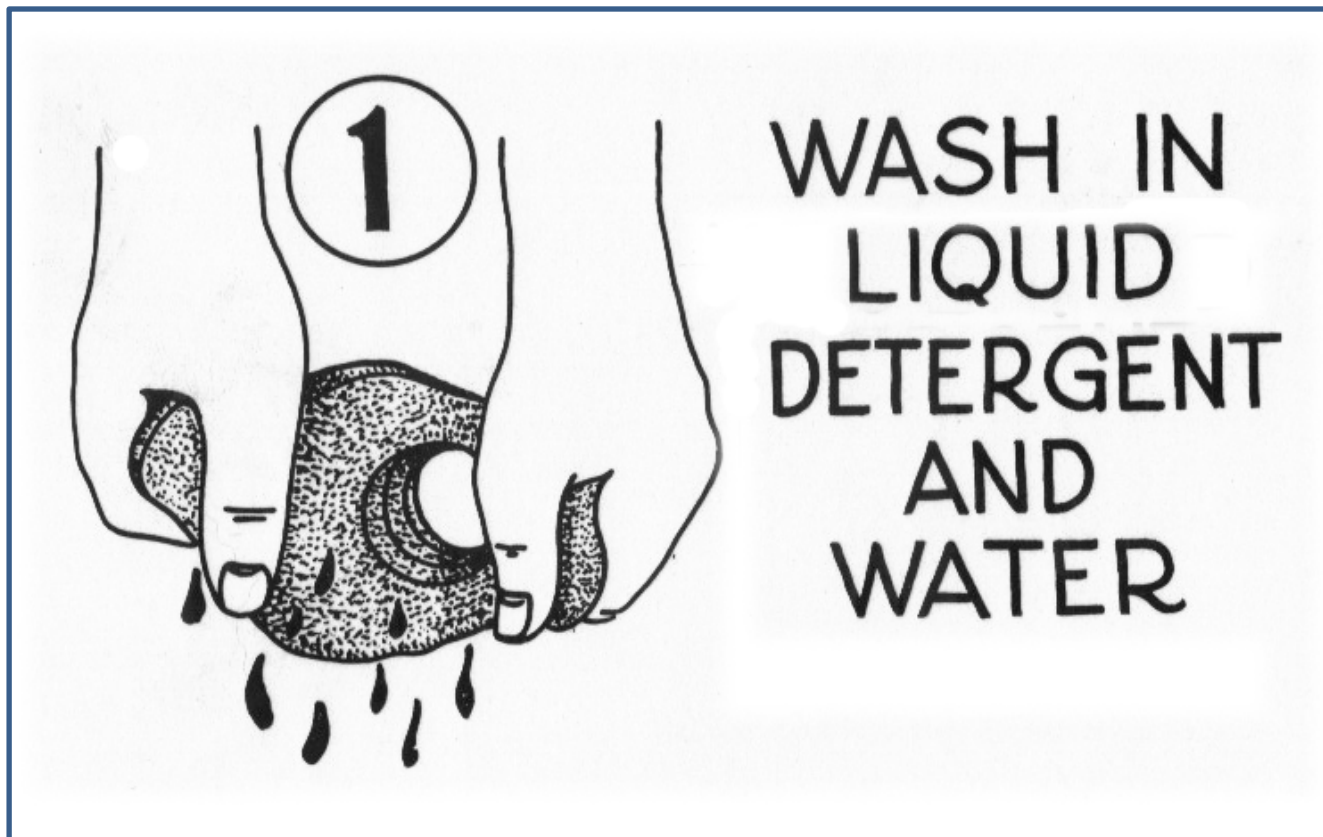


Non-serviceable:

- Cellulose (paper element)



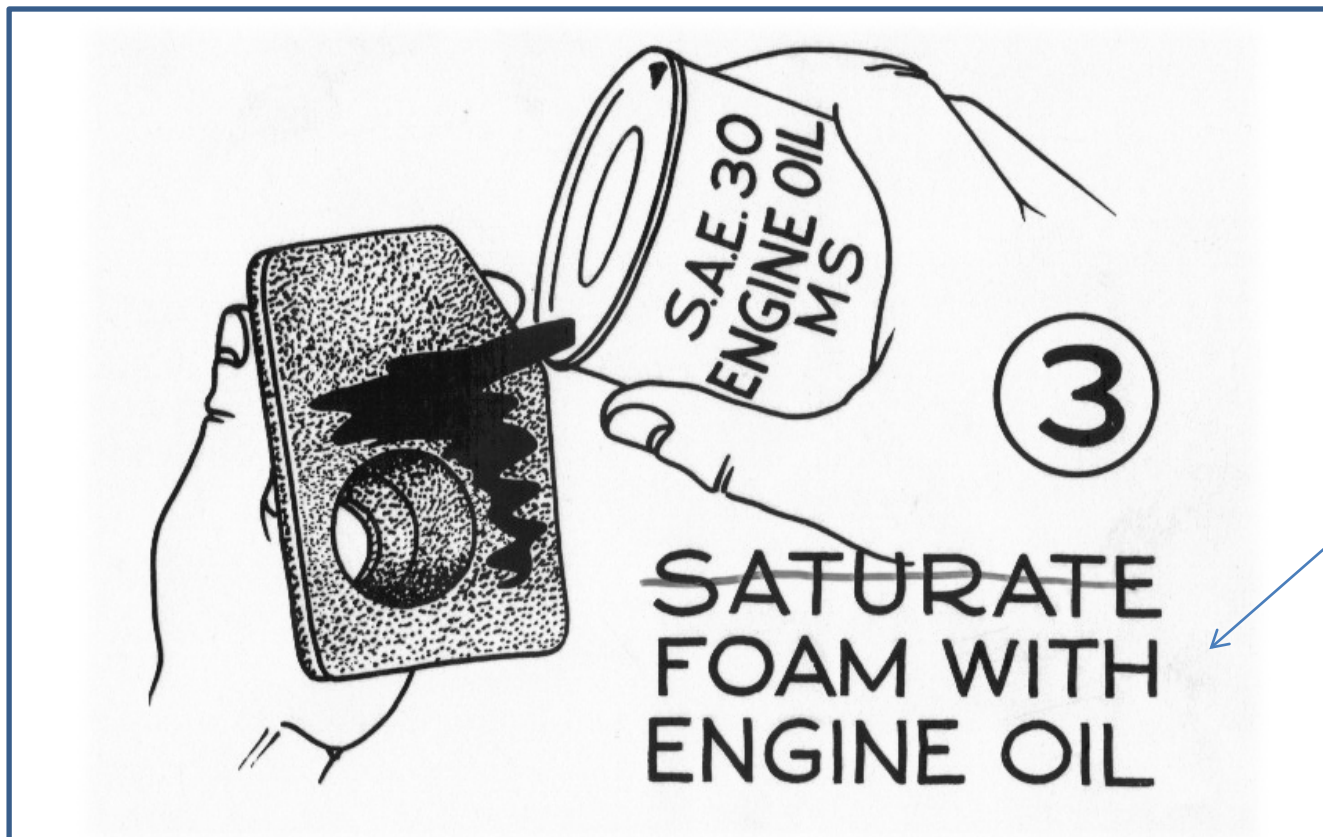
How To Service An Oil-Foam Type Air Filter



This process removes all of the old oil along with the dirt that has stuck to it.



Very important to do this well and rid the foam of all water.



The idea is to be able to obtain a light coat of oil throughout the foam filter.



Too much oil will impede air flow, exactly what we don't want.

Summary of Oil-foam Type Air Cleaner Service:

1. Wash thoroughly with detergent
2. Squeeze out all water (dry)
3. Oil foam completely and evenly with clean engine oil
4. Squeeze out any excess oil

Job Time

Spark Plug and Air Filter