



# Fire Extinguishers and your Model A

...a safety bulletin prepared for all Model A'ers by Eric Shogren of the Shade Tree A's, Augusta, GA. December 2009

For your tool box...

## Fire Extinguishers and your Model A

In the nine years I've been a member of the Shade Tree A's I know of two fires involving club members' Model As. In both instances the fire originated in the vicinity of the carburetor. Let's look at why.

We all know how easy it is to detect a gasoline leak by the smell. That is because gasoline readily evaporates at 45 degrees BELOW zero! To give you a sense of how it flashes to a vapor, here is a comparison of the flashpoint of gasoline and other common products:

Substance	Flash Point	Intended Use
Gasoline	-45 degrees F.	Fueling an engine ONLY
Acetone	-4 degrees F.	Nail polish remover, solvent
Turpentine	95 degrees F.	Paint thinner, brush cleaner
Mineral spirits	104 degrees F.	Paint thinner, brush cleaner
Charcoal lighter	160 degrees F.	Starter fluid for grills
Some mineral-oil	380 degrees F.	Multi-purpose remover/solvent products

Now, gasoline will auto ignite at about 536 degrees F., so it essentially vaporizes itself and will auto ignite at less than 550 degrees F. So all you need is vapors and a hot surface.

Looking at Figure 1, you can see you've got a carburetor and an exhaust manifold in close proximity.



Figure 1: Model A Carburetor Arrangement

If the car backfires through the carburetor all the gasoline-air mixture that should be heading for the engine cylinders is now heading right for the exhaust manifold/muffler. Not a good situation. The good news is with reasonable timing the exhaust manifold and muffler shouldn't be above 550 degrees F. However, if you're backfiring through the carburetor, your timing is probably out of whack and your manifold could be above 550 degrees F. OOPS.

That's why I carry a fire extinguisher in both my Model As.

Fire extinguishers are divided into four categories, based on different types of fires. Some classes of fire extinguishers also have a numerical rating that serves as a guide for the amount of fire the extinguisher can handle. The higher the number, the more fire-fighting power. The following is a quick guide to help choose the right type of extinguisher.

- **Class A** extinguishers are for ordinary combustible materials such as paper, wood, cardboard, and most plastics. The numerical rating on these types of extinguishers indicates the amount of media it holds and the amount of fire it can extinguish.
- **Class B** fires involve flammable or combustible liquids such as gasoline, kerosene, grease and oil. The numerical rating for class B extinguishers indicates the approximate number of square feet of fire it can extinguish.
- **Class C** fires involve electrical equipment, such as appliances, wiring, circuit breakers and outlets. Never use water to extinguish class C fires - the risk of electrical shock is far too great! Class C extinguishers do not have a numerical rating. The C classification means the extinguishing agent is non-conductive.
- **Class D** fire extinguishers are commonly found in a chemical laboratory. They are for fires that involve combustible metals, such as magnesium, titanium, potassium and sodium. These types of extinguishers also have no numerical rating, nor are they given a multi-purpose rating - they are designed for class D fires only.

So, for a Model A, the primary concern is getting a fire extinguisher that is **Class B** to extinguish flammable liquids. But because other things in the engine compartment may catch on fire a fire extinguisher rated for both **Class A and B** or for **Class A, B and C** is a good investment. Don't get a CO<sub>2</sub> extinguisher because they are only **Class B and C** and would be ineffective against burning paint or rubber. A fire extinguisher rated for **Class A, B and C** is most often a dry chemical powder which comes in a variety of types and is suitable for a combination of **Class A, B and C fires**. These are filled with foam or powder and pressurized with nitrogen.


TYPES OF FIRES			TYPES OF EXTINGUISHERS		
LETTER SYMBOL		PICTURE SYMBOL			
<b>A</b>	For wood, paper, cloth, trash and other ordinary materials.				
<b>B</b>	For gasoline, grease, oil paint and other flammable liquids.				
<b>C</b>	For live electrical equipment.				
<b>D</b>	For combustible metals.	No Current Symbol			

Figure 2: Common labeling of fire extinguishers.

It is also important to understand **how** to use a fire extinguisher. Use this acronym as a quick reference:

**P A S S**

**Pull the Pin** at the top of the extinguisher. The pin releases a locking mechanism and will allow you to discharge the extinguisher.

**Aim at the base of the fire**, not the flames. This is important - in order to put out the fire, you must extinguish the fuel.

**Squeeze the lever slowly**. This will release the extinguishing agent in the extinguisher. If the handle is released, the discharge will stop.

**Sweep from side to side**. Using a sweeping motion, move the fire extinguisher back and forth until the fire is completely out. Operate the extinguisher from a safe distance, several feet away, and then move towards the fire once it starts to diminish. Be sure to read the instructions on your fire extinguisher - different fire extinguishers recommend operating them from different distances.

**Remember:** Aim at the base of the fire, not at the flames!!!!

Figure 3, below, helps illustrate this:

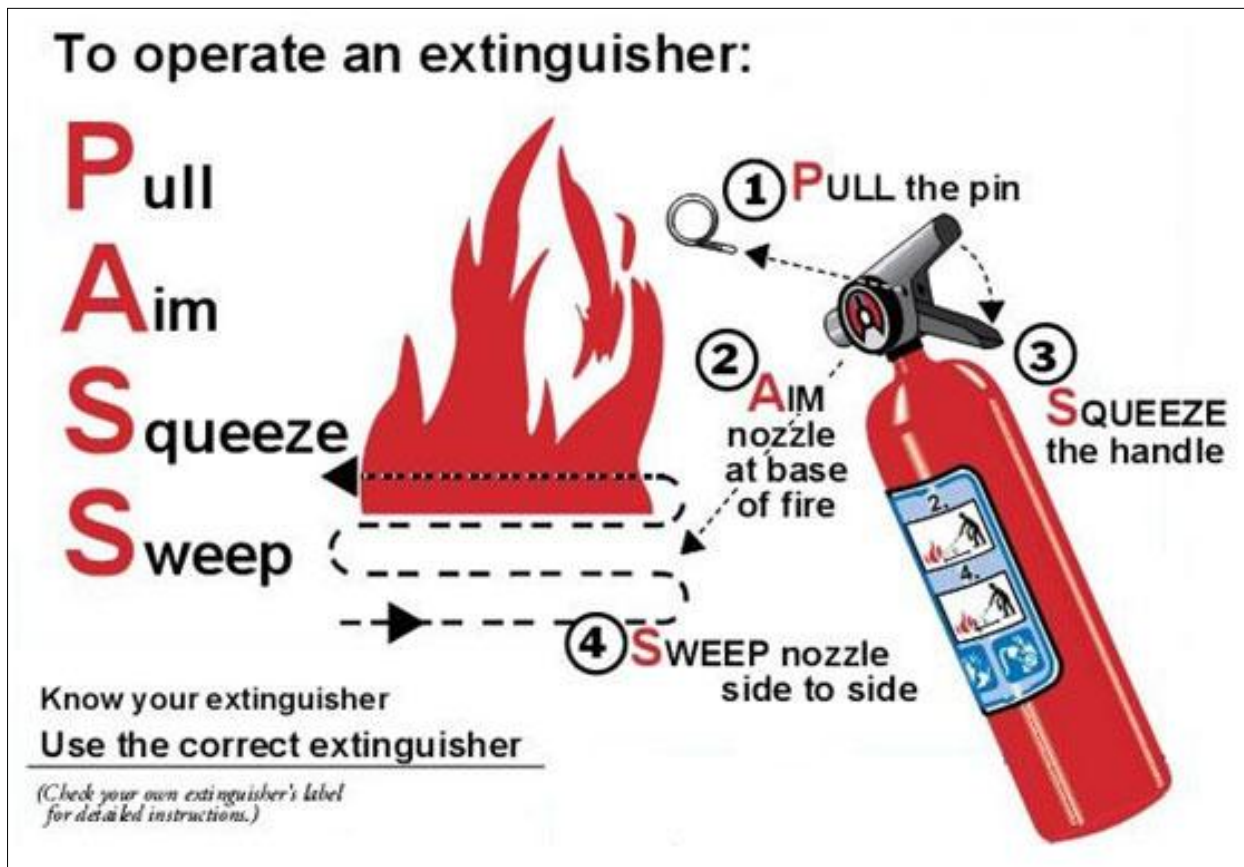


Figure 3: Correct Operation of a Fire Extinguisher

Just as important as “**how**” to use a fire extinguisher is “**when**” to use one. Fires have several stages. We’re concerned with the first three stages; incipient, growth, and free burning.

- In an **incipient** fire, flames may be visible, but it’s not very large yet.
- In the **growth** phase, flames can be seen and the fire is starting to spread.
- In the **free burning** stage a fire will double itself every second if enough fuel is available.

So when do you use a fire extinguisher to fight a fire? First, never use a fire extinguisher to fight a fire if you have the slightest doubt about your safety. If you do have the slightest concern about your safety, call for help, warn others in the vicinity and evacuate the area. Only attempt to fight a fire:

- **If it is small and contained.** The time to use a fire extinguisher is in the early or incipient stage. Once the fire starts to grow or spread, it’s time to evacuate the area.
- **If you are safe from the toxic smoke.** If the fire is producing large amounts of thick black smoke or chemical smoke, do not try to extinguish the fire, especially if indoors. If outdoors, approach the fire with the wind at your back. All fires produce toxic gases that can be fatal.
- **If you have a means of escape.** You should only fight a fire when you have a means of escape at your back. If the fire is not extinguished quickly you need to be able to get out quickly and avoid becoming trapped.
- **If your instincts tell you it’s OK.** If you don’t feel comfortable fighting the fire, don’t try. Get out and let the fire department do its job.

Never attempt to fight a fire that is in the growth phase and spreading beyond the region of ignition. If it’s crawling out of the engine compartment, run away!

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*How much does the type of fire extinguisher that Eric recommends in this safety bulletin cost?  
At Lowe’s, we found (and bought) one (A,B,C) for \$16.98 + tax.  
It’s a small price to pay for peace of mind—and a ‘fire-resistant’ Model A!*



***Meet the Author:***

Shade Tree A’s member **Eric Shogren** prepared this article for all of us who love our Model As and want to keep them as safe as possible (*and who want to be safe ourselves*)! In his ‘day job’, Eric is a Safety Engineer with a national firm. The article may be found on our website, [www.shadetreeas.org](http://www.shadetreeas.org) — and all comments are welcome at