

Choke & Carburetor Seminar

(Final version)

By Lynn Sondena

Part 1 Choke rod assembly (refer to handout)

Part 2 Choke operation

The choke operation has two purposes, one is to start the engine and the other is to enrich or lean the fuel mixture. To start a cold engine, turn the choke rod one full turn off of its seat. This would be counter clockwise or to the left. This will produce a richer mixture. The same time the starter button is depressed the choke rod is pulled back and then released as soon as the engine fires. If the engine is warm do not pull back on the rod or the engine will become flooded due to a rich fuel mixture. As the engine warms up turn the choke rod clockwise or to the right one-half turn. When the engine is warm close the choke rod to a $\frac{1}{4}$ turn or less.

NOTE: Engine bore, compression ratio, and jet orifice sizes effect this setting. If you smell a gasoline odor coming from the tailpipe you are too rich. If your spark plugs have a heavy black coating on them you are too rich. Close the choke rod a little further.

People are quick to tell you how to adjust the choke rod without any consideration to engine bore, compression ratio and jets orifice size.

A leaner mixture will produce good fuel economy. It is also useful when going up towards higher elevations where the air is thinner. A lean mixture can cause hard starting, lack of power and overheating. Too rich of a mixture can cause overheating and excessive carbon build up. There is a fine line between lean and rich mixtures. The rule of thumb is to never drive with the choke valve over $\frac{1}{4}$ turn. **Your driving style, speed, elevation, compression ratio, and jet sizes will affect this adjustment.**

Part 3 Air filter

Some folks say a Model A came from the factory and don't need an air filter. These people have tunnel vision. Henry Ford wanted to save money that is why they came without an air filter. The air filter has two main purposes: **Spark arrester and to filter the air**. Remember that if a carburetor backfires it is sending a flame to the firewall, where the sediment bulb is located. The air filter stops the flame thereby providing safety so you don't have an engine compartment fire.

I use a snowmobile air filter on my Model A's. Why a snowmobile air filter? They have 3 to 4 times the horsepower of a Model A. Their carburetor is in an enclosed area and they are used on air cooled engines so the materials they are constructed from have a very high heat and melting rating.

I use:

K&N Engineering Inc, Riverside, California 951-826-4000.

RU-1880 (KANRU-1880) Universal clamp on air filter.

This is a lifetime air filter. Clean when needed with gasoline, dry thoroughly and then reoil with the filter oil. I have used one on my Model A for 22,000 miles with no problems.

There are some people that will say you need an air balanced carburetor. I will verbally tell you about this.

Part 4 Carburetor Common Problems that are Overlooked

Refer to the following issues of The Restorer Magazine where I have had published articles:

? Not sure of the published date, it is upcoming. (The choke rod & choke operation)

March/April 2022 Vol.66 Issue 6 (Six overlooked problems on the Zenith Carburetor)

May/June 2021 Vol.66 Issue 1 (Fuel leaks with Zenith Carburetors)

May/June 2021 Vol.66 Issue 1 (The real reason my Model A acted up)

May/June 2019 Vol.64 Issue1 (A "Dusey" of a way to set the Zenith float level)

Part 5 A tad bit of info on how to clean and disassemble

To clean the carburetor:

- A: Using a metal container soak in lacquer thinner for 24 hours.
- B. Soak in ethanol gasoline for 24 hours using a plastic container.
- C. After 24 hours remove and further clean using a parts brush or wire brush.
- D. If there are stubborn dirty spots spray with lemon scented oven cleaner.

Outside inspection

- A. Check for obvious damage
 - a. Cracks in top & bottom housings.
 - b. Fuel inlet for broken bosses or pitted fuel line seat.
 - c. Mounting flange where the top attaches to the intake manifold.

Disassembly

- A. Remove the bolt that holds the upper and lower housing together.
- B. Replace with a 3/8-24 x 6" bolt.
 - a. Tighten hand tight.
 - b. Hold in one hand while striking the bolt head with a ball peen hammer.
 - c. Light striking at first then more aggressive if needed.
 - d. The venturi is the problem that is holding the carburetor together.
 - e. Usually, aggressive hammering will break the venturi and not damage the housing.
 - f. The venturi is pot metal and can easily be melting with a propane torch.
- C. I do not use a venturi puller.
 - a. A pitted or corroded venturi disrupts the air flow.
 - b. A puller can leave a groove on the bottom part of the venturi.

- c. A new venturi cost \$4.50 and they are super smooth providing excellent air flow.

Part 6 Float level

This is a very controversial area and often is misunderstood. The following is how I set my float level. Each restorer is entitled to their own thoughts on the float level.

In the horizontal position with the top housing and float being upside down the restoration books say to set the float 1" to the float seam. This is completed by adding or removing float valve gaskets. I don't do this! I set my float so it measures 1 1/8" to 1 1/4" in height. **Why?** If the gas level is too high it will be siphoned out of the main jet and it will leak out of the back of the carburetor. Second when the brakes are applied, inside the bowl is a surge of gasoline which can flood out the carburetor causing the engine to die.

Something to think about! Where does the carburetor get the gas for the jets? The cap jet and idle jet receive their gas from the compensator jet which is located in the lower left bottom of the lower float bowl casting. The main jet receives its gas from a hole and passage way on the bottom right side of the float bowl casting. This is why I think there is too much concern about the fuel level in the float bowl.

Part 7 Float Valve

There are three types of float valves made for the Model A.

1. Needle valve
2. Viton tipped needle valve
3. Gros Jet or ball bearing valve

I will show you examples. It is my opinion that a speck of dirt is less likely to plug a ball bearing than a fine point needle, so I only use the ball bearing float valve.

Part 8 Safety

Get in the habit of when you turn off the ignition switch, turn off the fuel shut-off valve (A-9189). If your float valve sticks it will not empty the fuel tank onto the ground.