Brake Bleeding using Gary's Aircraft Method- part 1

by Gary Tillstrom

Air is not a good thing.
(Unless of course you're trying to breathe)

It was really good to see everyone this year at the Christmas party and catch up with what's going on.

Upon talking with Charlie Swann, he mentioned that he is adding disc brakes to one of his cars. I have Rockies and don't care for them as much as the disc set up that many of you have. From talking with others, these can be a bear to bleed the air out of.

I was doing an annual on an airplane this weekend and wanted to show the process I use on a small airplane that makes it a one man job but didn't get that far into it for other reasons.

I basically pressure bleed from the caliper pushing the fluid up to the master cylinder. Air bubbles are pushed up hill and when the master cylinder is full, the pedal will be hard.

There are small differences between what I commonly do and the T disc brake setup. My advice would be to pressure bleed the caliper by itself since it is four piston before installing it. Doing this will fill all four piston chambers with fluid eliminating all air. Then once installed, hook your pressure source up to the lowest bleed port and pump in fluid to purge the lines. I would take the line loose at the "T" fitting and once fluid leaks out, repeat on the other side. Once both sides are purged, tighten the connections and fill the master cylinder (pumping fluid from either caliper up hill).

You can make your own pressure source. I use a weed sprayer but you can use an oil can with the pressure trigger. Either way, you only need about 3-4 PSI. I have linked a decent YouTube video that shows the process.
https://www.youtube.com/watch?v=bZlq87VXybU

There are other ways of pressure bleeding that push the fluid from the top down. Trust me, it's easier and makes less mess pushing it in from the bottom until the master cylinder is full. Besides the less mess issue, it only takes one person! Give it a try, I think you'll like it better than the traditional way. ***Gary***

Brake Bleeding using Gary's Aircraft Method- part 2

by Bill Robinson

Time- the last week of January 2021.
After John Z and I replaced the 2 rear axles on my '21 Depot Hack, I decided to bleed the SURE-STOP Disc Brakes that the Model T vendors sell. My pedal had become slightly "soft" and would require an additional pump on the brake pedal to firm things up. Maybe bleeding will cure this.

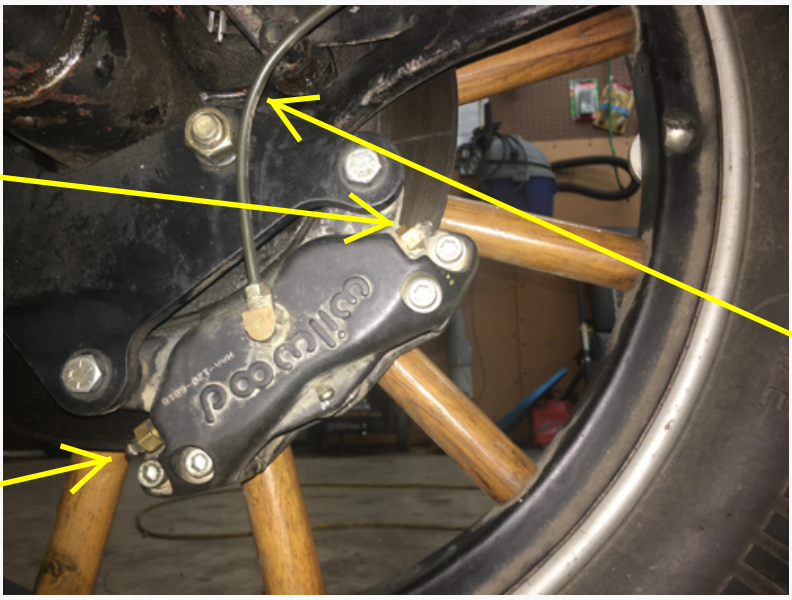
I have bled the same brand/type brakes on a number of Model T's using the traditional method of pumping the fluid from the master cylinder down toward the caliper. There is nothing wrong with this method other than 2 shortcomings. The first being it is a 2-person job, and secondly, as the fluid travels downhill to the caliper so does the air, and air prefers to float rather than sink and will try to find little places in the system to hide. Any trapped air tends to cause the very problems that I have been having on my Hack.

So, this time I decided to try Gary's aircraft method which works just the opposite, and pushes the fluid "uphill" from the caliper to the master cylinder, then into the reservoir. Makes sense to me- the bubbles get to float upwards this way.

Note: from this point on the system will be referred to as Wilwood. They made the brake parts, while SURE-STOP made the mounting brackets and parts that make things fit and work together. It's a great kit! Very well planned.

Here's what I did: (Important- this is a re-bleed- not a first time bleed)

Using a bleeder pump, oil can, weed sprayer (new- not used) attach a tight fitting hose.



Caliper's Upper bleeder port

Caliper's lower bleeder port

Tube that connects the caliper to the master cylinder

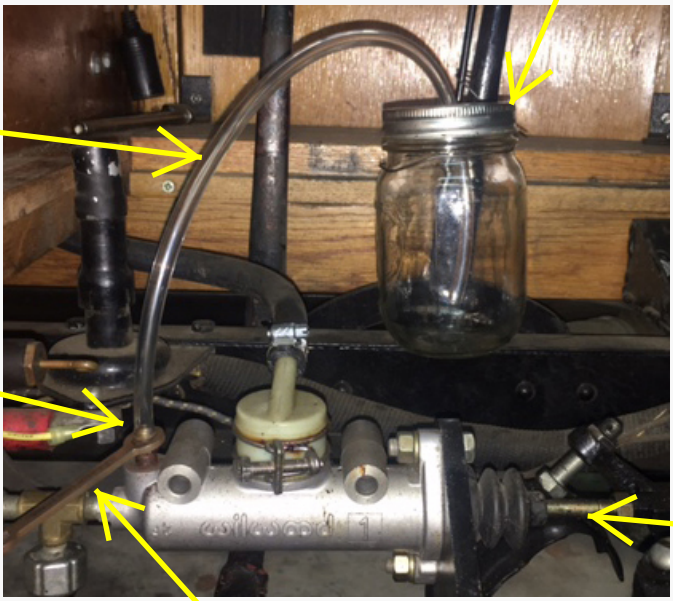
At this point refer to Gary's part 1 of this document.

To paste Gary's instructions:

- Bleed from the caliper pushing the fluid up to the master cylinder. Air bubbles are pushed up hill and when the master cylinder is full, the pedal will be hard.
- Pressure bleed the caliper by itself since it is four piston before installing it. Doing this will fill all four piston chambers with fluid eliminating all air.
- Then once installed, hook your pressure source up to the lowest bleed port and pump in fluid to purge the lines.
- I would take the line loose at the “T” fitting and once fluid leaks out, repeat on the other side. Once both sides are purged, tighten the connections and fill the master cylinder (pumping fluid from either caliper up hill).

To me, the most important part of gary's article is this sentence is "take the line loose at the “T” fitting and once fluid leaks out, repeat on the other side".
I missed this part and regret it. Time was lost, to my regrets.

FINAL STEP---- to clear any air that may be trapped in the master cylinder (see image below) open the master cylinder bleed port valve and press the brake pedal. Close the valve before slowly releasing the pedal. If no air entered the jar, you're done. If there was air, open the valve, press the pedal, close the valve, release pedal. Repeat if necessary.



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