

## Sprinter Fuel Pump Repriming

**Note: The following discussion is for 2001>2003 Sprinters only. In 2004 Mercedes moved the low pressure fuel pump to the fuel tank. See the end of this article for Yahoo Posts for 2004> models' repriming.**

Due to ignorance, I managed to get air into my fuel system and lose the prime to the fuel pump. Repeated attempts at turning the engine over did not re-establish the prime. After a call a Freightliner mechanic, and a recommendation that I have it towed to the nearest dealer (40 plus miles – forget that), he indicated that all I needed was a means to pump in fuel to purge out the lines and pump. He also made me feel better by indicating that he had fielded other calls from Sprinter owners who had air-locked their fuel pumps.



One reason the Sprinter's 2.7 fuel system is susceptible to airlock is the fuel pump's high location on the engine. (See the picture to the left.) The location makes for great access and maintenance, but it is bad news when changing the fuel filter or you run out of fuel – gravity takes over and the pump drains. (Because of the low surface tension of diesel, the vacuum of the closed system does not hold long in the presence of air.)

The pump also does not have good self-priming capabilities. But this may not be unique to the Mercedes 2.7. See <http://www.cs.rochester.edu/u/jag/vw/engine/fi/fimisc.html>. At the time of my experience with this problem, there was no readily accessible and affordable maintenance manual for the Sprinter in the US.<sup>1</sup> Here is the benefit of my experience. Before proceeding, it seems advisable that you should be fairly certain as to the source of the air in the system. If the air did not come from running your tank dry<sup>2</sup> or from other maintenance on the fuel system, it seems advisable to do further investigation to find the source of the air before proceeding with the following steps. Follow my example at your own risk.

1. Check to see if there is air in the lines. Lucky for us Sprinter owners, the feed line from the fuel filter to the fuel pump and the line from the fuel pump to the next step of the injector process are transparent, accessible and visible. (In the picture above, the brownish feed line is visible under the blue line and the black vacuum hose.) If there is air in the lines, you should be able to see bubbles and/or foam in either line shortly after an attempted start. And those bubbles will be moving up to

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<sup>1</sup> In Europe there is <http://www.russek-manuals.com/pages/newentrance.htm>. The DC Service Manual for US 2003 Sprinters is now available for free off the web at <http://www.fossdodge.com/sprinter/Sprinter%20Service%20Manual.htm>.

<sup>2</sup> **Beware:** on all years' Sprinters the tank does not have to be "dry" empty for air to enter the fuel line system. The fuel tank is long and oriented parallel to the length of the van. The tank bottom is essentially flat. Thus, as the front or rear of the van moves off exactly horizontal, the fuel moves to the low end of the tank and away from the pickup tube. A sustained 10+ degree hill (think Rockies, Appalachia, San Francisco) or idling on a hill (many residential driveways and parking garages) can cause air to enter the fuel system even though the tank may still have 2 or 3 gallons.

the pump as the fuel obeys the law of gravity. If there is solid fuel in the lines, it is doubtful that the problem is an air-locked pump, and I would not proceed to the next steps. If there are bubbles/foam in the lines, then ...

2. Remove the outlet fuel line from the fuel pump. That is the clear line attached to the upper part of the fuel pump. (Marked "Outlet" in the picture above.) The white nylon U-clip works by pulling on the yoke until the feet on the legs of the U grab the slides of the fitting. The lower part of the legs on the U-clip is wider than the upper part, causing the black plastic flanges to spread apart. What I have found is that the fittings are very difficult to remove if they were factory installed, but fairly easy if they were removed and reinstalled after the engine went into service. My guess is that the fittings go in dry at the factory, but are lubricated with leaked diesel when maintenance is performed on an in-service engine, thus the fittings come out easier on later jobs. Try to store the line in a way that reduces leakage and prevents more air from getting into the line.



3. Remove the supply line from the filter. The supply line is the black hose coming into the fuel filter from the back of the van. If this is the first time the supply line has been removed from the fuel filter, the supply line has the Mercedes one-time use hose clamp, which, even if replaced with a new one, would require a special tool. Pop the clamp with a small screwdriver under the bigger of the two visible humps on the clamp. The picture here shows the popped Mercedes hose clamp and the new one that will replace it. Work the hose loose. Bend the supply line up to keep fuel from leaking out and to prevent more air from getting in the line.



4. Attach a temporary hose to the supply side of the fuel filter. I used 3 feet of 3/8 ID fuel line. There is no need to clamp if it fits snugly. The Freightliner shop apparently used a pump to pump fuel through the line, thus their advice to me. I have one, but I didn't want to go through the hassle and time of setting it up (basically the time to purge and prime that pump and related lines for the job of purging and priming the Sprinter's lines and pump). As diesel fuel has almost no surface tension, I instead used a baster. (See picture.)



- a. First, purge the temporary line of air. Do this by opening the fuel filter's bleed valve, then feeding diesel into the temporary line. When the air is purge, close the bleed valve.
  - b. By holding the temporary hose inlet higher than the fuel pump (thus the need for about 3 feet of hose) and feeding in diesel with the baster, gravity alone is enough to push fuel through the fuel filter, up through the feed line into the fuel pump, and through the pump.
5. Reattach the pump's outlet fitting. Make sure the fitting is all the way in before engaging the fitting's U-clip.
6. Remove temporary hose. I used a soda-straw pipette fashion to purge the black supply fuel hose of air. If the reason for the air in the system was running the tank dry, use a temporary connector to connect the black supply line with your temporary hose and back-flow diesel through the supply line into the tank. Replace and tighten the van's supply line. Remember to have a new 3/8-5/8 hose clamp handy before you start this job if you have to remove the original Mercedes clamp. The head of the new hose clamp must be located towards the outside of the fuel filter.
7. Start the van. It will take about 5 seconds (if the pump catches the prime) for it to purge the injector side of the system of air and for fuel to reach the injectors. Thereafter the engine will hiccup as it swallows the last remaining air bubbles, then the idle will smooth out.

**For those with 2004 and newer Sprinters, note the following posts:**

[11056](#)

**From:** Mike Sisk <[mike@f...](mailto:mike@f...)>  
**Date:** Wed Oct 6, 2004 1:04pm  
**Subject:** [Re: Running on Empty](#)

The manual on my 2004 says this:

"Bleeding Diesel Fuel System

If the fuel tank was run empty, the diesel fuel system must be bled after refueling before starting the engine.

-- Turn the key in the ignition lock to position 2 for at least 30 seconds.

-- Return the key to position 0.

-- Start the engine.

Note: Too many attempts to start the engine could drain the battery. If the engine does not start after several attempts, consult an authorized Sprinter Dealer."

-Mike

The manual may say that, but I believe you can save a lot of cranking if you at least purge the line of air from the tank through the fuel filter. It is similar to point 4.a above in my instructions which focuses on the bleed port located on the fuel filter. Open the bleed port on the filter, turn the key to position 2 and let the electric pump purge the line through the fuel filter. Further the post below indicates that the 2004 has a second bleed port:

[11018](#)

**From:** "A Wagner" <[amwagner2@c...](mailto:amwagner2@c...)>

**Date:** Tue Oct 5, 2004 9:31 pm

**Subject:** RE: [sprintervan] The Thong

If you have an electric fuel pump as we do, I believe it is a question of bleeding the air out, not a question of priming the pump. There should be a bleed located right at the fuel line where it enters the engine, loosen this screw slightly and turn on the ignition. The fuel pump should start when the key is turned to the accessory position; at least it does in a number of other vehicles I have worked on. I have not run out of fuel in my Sprinter yet.

AI

Also note that with the newer models the fuel lines are not clear as they are for the earlier models. This is probably due to the relocation of the low pressure fuel pump – as this really increased the pressure of the fuel in the lines between the tank and the CDI.



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