# Sprinter Fuel Filter Installation

This document is based on my experience with a **2002 Sprinter**, and created because of the lack of manuals for the Sprinter in the US that reflects basic maintenance guidelines. The pros, no doubt, have better ideas. But this is what I have learned; and I did enough mistakes to give others a heads-up if they want to try this normal maintenance function. The 2004 Sprinter has a redesigned (and much more expensive) fuel filter. And, of course, this is all at your own risk.

| Supplier | Part number | Comments |
|---|---|---|
| Mercedes/Freight 01-03 | 612-092-00-01<br>5103577AA | About $20 |
| Dodge/Freight 04> | 5117492AA 04 | About $85. See picture at the end of the article. |
| Baldwin | BF7756 (Cargo van w/o water sensor and w/o water drain) | Baldwin is a construction machinery filter supplier. Locate dealers at www.baldwinfilter.com |

If this is the first time you have worked on the fuel filter on this van, also have:

1. a set of Torex tools, both male and female
2. one 5/8 – 3/8 inch hose clamp
3. a couple of feet of 3/8 interior diameter fuel hose and a way to pump/flow diesel through it
4. about a pint/500 ml of diesel fuel.

Location: left side of motor located on the motor mount in a cup-type bracket.

**Disassembly:**

Because of the design of the bracket holding the filter and the location of the fuel lines, sensor and drain valve on the filter, there is a definite order of disassembling the fuel filter. I don't know the official version, but here is my shot at it:

1. Remove the electrical connector to the water sensor at the bottom of the fuel filter. [Note that the 2004 fuel filter appears to have the sensor on top of the filter.] This

is a blind job requiring right hand dexterity, working from the top of the engine compartment down (no access that I could see from below). The connector requires squeezing across the broad part of the back end to disengage the clips. There are some similar connectors on the big hose near the radiator to give you an idea of what your fingers must look for. Here is a picture of the bottom of the filter with the bracket off to give an idea of what your fingers must find. (Don't take the bracket off. I did this because I couldn't figure out what was under the filter and how to disassemble it blind.) DO NOT REMOVE THE SENSOR ITSELF AT THIS TIME.

2. Remove the supply line from the filter. That is black hose coming into the filter from the back of the van. If this is the first time the filter has been changed, it has the Mercedes one-time use hose clamp, which, even if replaced with a new one, would still 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 (that is why the filter bracket still needs to be tightly holding onto the filter, as that hose holds on tight!). Bend the supply line up to keep from leaking and (horrors yet to come) get air in the line. If you have a pinch-clamp, use it.

3. Loosen the side fuel bracket screw quite a bit, but not out. Strange: Mercedes uses a metric Allen bolt at this place, with Torex everywhere else. I found that one of the male Torex worked just fine. From the first picture above, note the need for about a 3" extension on the wrench to get some working room.

4. Remove the fuel line to the fuel pump. That is the clear line in the middle of the fuel filter. 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 parts of the legs on the U-clip are 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 removed subsequent to operation and reinstalled. My guess is that the fittings go in dry at the factory, but are lubricated with diesel on maintenance, thus come out easier on later jobs. Try to store the line in a way that reduces leakage and (worse) air into the line. If you have a pinch-clamp, use it.

5. Remove the re-circulation lines. This step requires removing two Torex screws (don't loose, the replacement filter does not provide a new set of screws!!!!). Once the screws are removed, twist the line to get the fitting out from under the bracket (that is

why the fuel filter>fuel pump line must be removed first, otherwise there is no room to twist the fitting). This return line does double duty. In the block with the fuel return lines is a bimetal valve that directs the returned and warmed fuel[1] into the filter when it is cold (below 80 degrees F), or back to the tank when the filter is warm (over 80 degrees F). The picture here was taken on reassembly, so the line to the pump (step 4 above) is already in place.

6. Remove the water drain plug from the lower side of the filter. If this is not removed, the valve will hang-up on the fuel-filter bracket, possibly damaging it. [The water drain plug is shown on the second picture above .] Keep the drain plug, as the replacement filter does not provide a new one. At this point, the filter will start leaking water and fuel. Move quickly to the next step.

7. Remove the filter from the bracket and relocate over a bucket or something to catch the fuel that is coming out and more yet to come.

8. Over a bucket, remove the water sensor from the bottom of the fuel filter. It is removed by a quarter twist, then a spring in the filter pops it out. At this point, fuel will be coming out of all orifices in the filter. The picture shows the sensor out of the filter (as is the water draining valve sitting on top of the filter).

[1] Why warm? Not just from the engine heat – but mostly from the very high fuel pressure that CDI engines require. Note that there is a fuel cooling near the fuel tank.

**Reassembly**

Before starting the reassembly process, I found the sensor to connector mating to be very difficult at first. While the area around the engine is open, try reconnecting the sensor and disconnecting a couple of times. Remember, this must be reconnected one-handed and blind.

1. In reverse order, do steps 8, 7 (make sure the supply line is pointing to the back of the van, 6, 5, 4 (press the U-clip in to lock), 3 and 1 **(not 2)**.

I had to jerry-rig the following steps to bleed the fuel filter of air. I don't know what the Freightliner shop does, but what follows is my solution.

2. THE FUEL FILTER MUST BE BLED OF AIR. IF IT IS NOT, THERE IS A HIGH PROBABILITY THAT THE FUEL PUMP WILL LOSE ITS PRIME. IF THE FUEL PUMP LOSES ITS PRIME, AND YOU LACK A SMALL PUMP TO JERRY-RIG A PURGE OF THE SYSTEM OF AIR, THE VAN WILL HAVE TO BE TOWED TO A SHOP. Open the air bleed valve on the top fuel filter. Attach a temporary line to the supply side of the filter to fill the fuel filter with diesel and drive out the air. Note that this method will result in all the priming fuel becoming filtered fuel when it becomes the feed-stock for the pump and injectors.

2. Upon some fuel leaking out of the air bleed valve, tighten the valve and remove the temporary line.

3. Put the new hose clamp on the van's supply line, THE HEAD OF THE CLAMP FACING THE EXTERIOR SIDE OF THE FUEL FILTER, as there is no room for the head on the inside of the filter. Reattach hose and tighten.

4. Start the van. If the fuel pump is still primed, it should start immediately, have a few hiccups as it swallows small bubbles of air, and then smooth out.

## Newer Model of Fuel Filter (2004+):

The newer Sprinters have redesigned fuel filters with the sensor located on the top of the fuel filter.

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 is really increased the pressure of the fuel in the lines between the tank and the CDI.