BITS: TECH NOTE

164 Tech Tip: Gasoline Smell Fix

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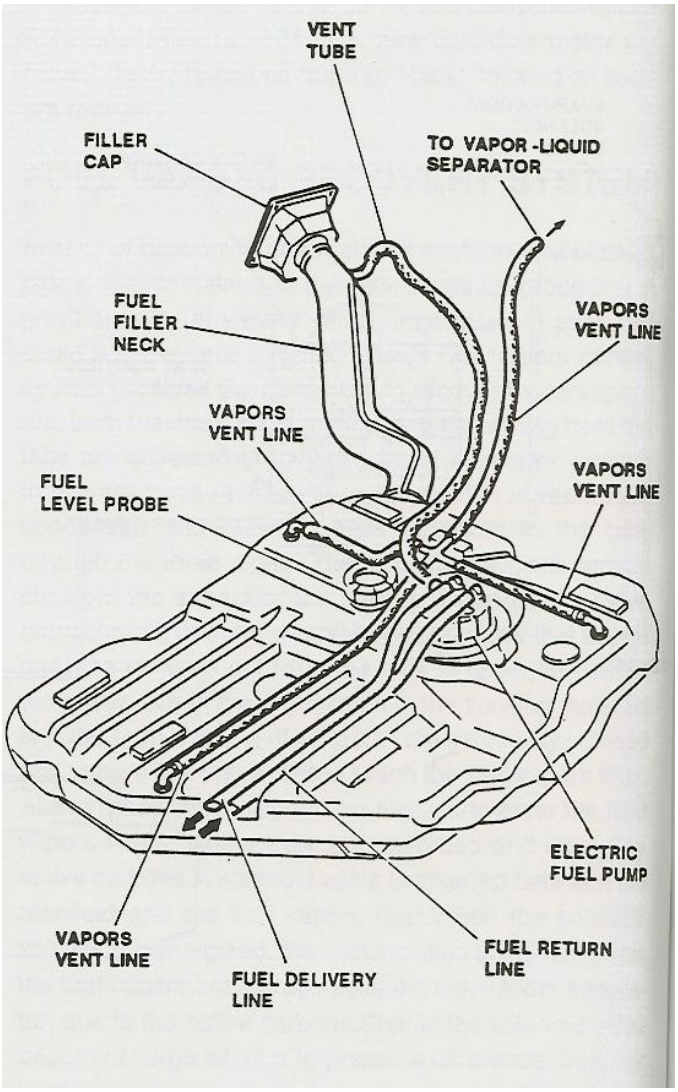
September 2006

Our 1991 164 is still running strong at 144k miles. Just passed DEQ with no problem. Original catalytic converter, but recently replaced oxygen sensor (Halsey Automotive, a Bosch Dealer) and some new spark plugs (NGK BP6ES). However, time is catching up with this car. A recent issue made my wife prefer to drive the '82 Vanagon!

Gasoline smell is something most people cannot put up with. The 164 was fuming. Always, sometimes really bad, other times not much at all. The trunk, however, always seemed to have a faint odor of gasoline. I had read about this problem. Something about cracked tubing or loose flange screws.

When executing any kind of repair in which the chance of spilling or sloshing gasoline is present always:
1. Work during the day, avoid using an A/C powered trouble lamp.
2. Use a flashlight as needed
3. Disconnect the battery BEFORE you start the work.
4. Have a fire extinguisher handy (right by the car).
5. Be extra careful.

The likely source of fuel smell is the fuel system connections in the trunk. The 164 has a lot of tubes coming and going from the fuel tank. Some carry fuel while other only carry vapor. However, when the tank is filled, liquid fuel is present in most of the tubes close to the tank. A little fuel can make a big stink.



Alfa BITS: TECH NOTE

After you remove the trunk trim and a cover, you will find see this:

There are two openings in the floor of the trunk. The larger is an access hole for the fuel pump assembly, while the smaller allows access to the tank level float. The fuel pump assembly has the following tubes attached to it:

1. Fuel out to engine
2. Fuel return from engine
3. Vapor tube to filler neck (about 0.5" in diameter)

Adjacent is a vapor recovery tube (about 0.375" in diameter) which is connected to the evaporative emissions control system. The car has a system which prevent raw gasoline vapors from escaping into the atmosphere. The vapors are collected and then burned by the engine.

Carefully examine all the hoses and tubing. Also look for evidence of fuel leaking from the flange fittings of the fuel pump or fuel level assemblies. The Alfa service manual has a testing process which uses low pressure air and sensitive pressure gages to find a potential leak. I just inspected all the parts I could and got lucky. I found a crack in one of the formed hoses.

I replaced the formed elbow with a longer piece of fuel hose, ensuring no kinks that might restrict flow. I replaced the clamps as well.

Check the flange screw tightness. Be sure to evenly torque these fasteners, a little on each at a

time to allow the gasket to evenly seal. I pulled out the fuel pump assembly and tank level sender to check the flange seals, but I found that this was unnecessary. Wasted an hour and found it tricky to remove. It just fits through the opening. The fuel pump assembly is a real piece of work. This is just as it came out of the tank!:

There is a very short piece of flexible hose between the fuel outlet nipple and the coil of copper tubing supplying pressurized fuel. If your car is hard to start, this might be cracked, leading to low fuel pressure. The one on my car was just fine.

I cleaned up all the surfaces and carefully reinstalled all the parts. I checked for leaks by starting the engine and allowing it to run while I checked the fittings.