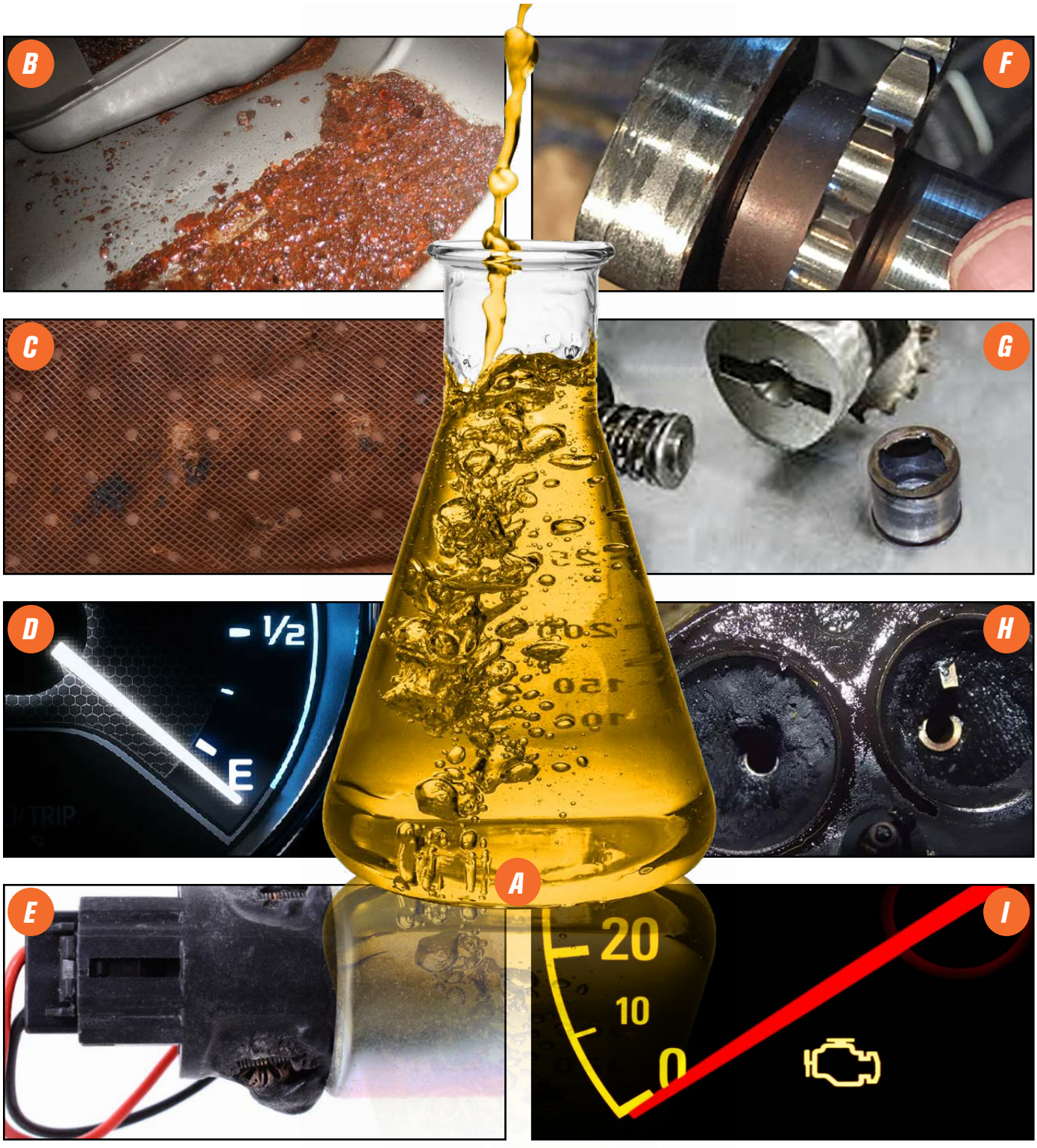
USMW
PROFESSIONAL SERIES
A US Motor Works Brand

CERTIFIED • OEM QUALITY • RELIABILITY

SUCCESS IN FUEL DELIVERY SYSTEMS

PART 2

COMMON REASONS FOR FAILURE



A LOW QUALITY FUEL

Fuel quality is important for proper function and longevity of your fuel pump. High quality fuels from top tier suppliers include additive packages that help lubricate and cool the internal components of the fuel pump and fuel system.

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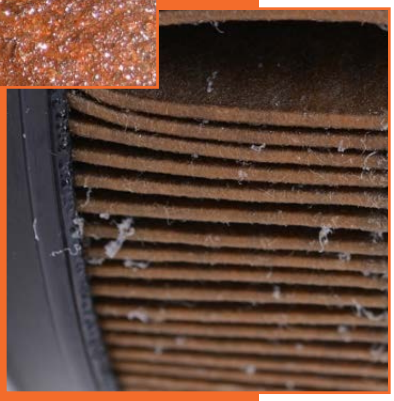
B FUEL SYSTEM CONTAMINATION



Fuel system contamination is commonly a problem with older vehicles and vehicles used in rough terrain.

Contaminants can enter the automotive fuel system when filling the tank or from the breakdown of fuel system components such as fuel lines and fuel tank liners.

Did You Know?

If you do not clean your fuel system when replacing your fuel pump that there is a 90% chance that the fuel pump will fail in under 30 days. Drain and clean your fuel tank every time you replace a fuel pump!!

C CLOGGED FILTER OR STRAINER

A fuel pump must pull fuel through a strainer attached to its inlet and push it through an external fuel filter. If either of these are clogged and cannot support the flow-rate required by the engine, there will be bogging and vehicle hesitation as well as increased strain on the fuel pump causing it to eventually fail.

Low quality fuels do not lubricate the fuel pump properly. If excessive moisture is present, it will cause premature failure of many fuel system components such as the fuel pump, fuel level sensor, fuel pressure regulator, fuel injectors, etc.

Low quality fuel can also be contaminated with small particles that will quickly clog and damage an in-tank fuel pump.

Did You Know?

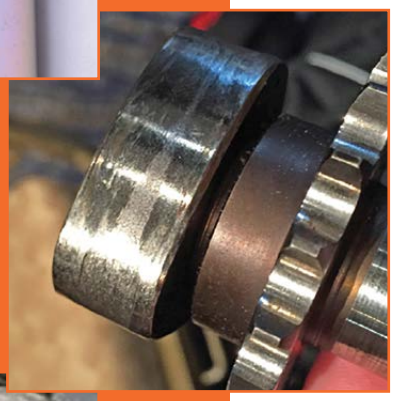
A clogged strainer and filter will decrease flow-rate requiring a fuel pump to work harder to make the proper pressure and flow. These conditions overheat the fuel pump causing it to fail. Always install a new strainer and fuel filter when replacing a fuel pump.

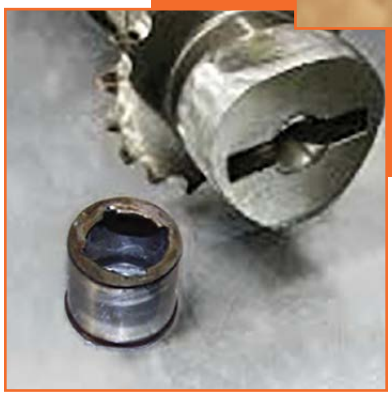
D LOW FUEL LEVELS

Running your vehicles on low levels of fuel for extended periods is extremely bad for the fuel system. The pump being submurged in fuel allows heat to be disipated. Fuel is used to cool and lubricate the internals of the fuel pump and if the tank is allowed to frequently run low, the cooling ability is compromised.

Did You Know?

Frequently running on low fuel levels allows a large amount of air to remain in the fuel tank causing potential for condensation. This will cause the internal tank liners to break down at an accelerated rate.





E OVER HEATING

Overheating of fuel pumps occurs when the pump is subjected to severe loads with minimal cooling. This can occur when the pump flow is restricted or if foreign debris gets jammed in the pump mechanisms. Overheating can cause damage to fuel pump connectors and associated wiring and electrical components. In severe cases, the fuel pump armatures can get so hot that the plastic armature material can melt.

Did You Know?

To prevent connector overheating, it is always recommended to replace the wiring connector when replacing a fuel pump. This is especially important for vehicles over 10 years old. ***USMW*** assemblies include improved harnesses and pigtail connectors to replace the OE harness when required.

F LACK OF MAINTENANCE

The main culprit of ***GDI*** pumps is a lack of oil changes. When there is wear between the pump follower and the camshaft lobes, the pump is prevented from producing enough piston movement. When there is less pump movement, there is less pressure. If the pressure is not correct the fuel mixture could become too lean. Always check the lobes on the camshaft before the installation of a new fuel pump. An issue with lack of power may be improved, however it will never be entirely corrected.

Did You Know?

Proper oil change intervals with quality oil and filters are extremely important in GDI performance.

G WRONG OIL

To avoid premature wear on the camshaft and high-pressure fuel pump follower, your engine oil must meet OE specifications. Ask your engine oil supplier to confirm if an engine oil matches the OEM's specifications. Volkswagen, GM and many other OEMs have oil standards that address wear issues on the camshaft and pump follower.

Did You Know?

A worn out Fuel Pump Follower (worn through or anti wear coating is gone) can lead to extreme damage and expensive repairs. Check Follower every 20,000 miles to prevent GDI and engine damage.

H LEAKS

Because of the high pressure, a direct injector can experience leaks. When leaks happen while the engine is resting it will lead to severe carbon buildup and a rich fuel reading. Possible wear and a longer cranking cycle can also happen because of leaks. There are tests for injector balance and leakdown usually included in an enhanced or factory scan tool. You can use these tests to detect a leaking pump.

I IGNORING THE SIGNS

There are always some who aren't afraid to drive with their check engine light on. They assume it will go out if they put better fuel in the tank, but we all know that this is not true. A direct-injection engine that has a high-pressure pump issue will go into a limp or low-pressure mode. In this mode, the in-tank pump will take over and the injector open time will increase. In a low-pressure mode, it is less precise. The car will start and run, but the performance will be reduced and the catalytic converter could be harmed. Engine wear can also occur.