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# The Subaru Fuel System: A Tank Full of Technology

Source: Subaru News, January 2003 SNS0301. Text by Hiroshi Nakabe.

When thinking about **high-tech** Subaru features, the fuel tank probably **isn't** the first component that **comes to mind**. However, beyond its most **basic role** of storing and supplying fuel to your vehicle's engine, the Subaru fuel tank features **sophisticated engineering** designed to keep you and your passengers **safe**.



**“THE MOST** critical task we face when designing a fuel tank is making it safe,” says Yoshiaki Oyamada of the Subaru Engineering Division. “Gasoline is highly flammable when it evaporates, so we must take extra precautions and pay scrupulous attention to the tank’s

## Fire Prevention

design.”

How

dangerous is gasoline vapor? We’ve all seen news reports where cars and trucks have accidentally caught fire while receiving fuel at gas stations. On vehicles with poorly engineered fuel systems, it’s possible for evaporated gasoline inside the fuel tank to come rushing out when the fuel tank cap is opened. When air is dry, even a tiny spark of static electricity transmitted by the person opening the cap can ignite this flammable vapor and cause a fire. “To prevent static-induced fires, the fuel filler lid of Subaru vehicles opens just halfway when you unlock it by pulling the lid release lever inside the car,” says Oyamada. Because the lid only partially opens, the person refueling the car has to open it the rest of the way by hand. Any static electricity transmitted dissipates through the lid, before the fuel tank cap is opened - eliminating the risk of fire. This fire prevention system is a

hallmark of the Subaru commitment to safety.

## Safer Emissions

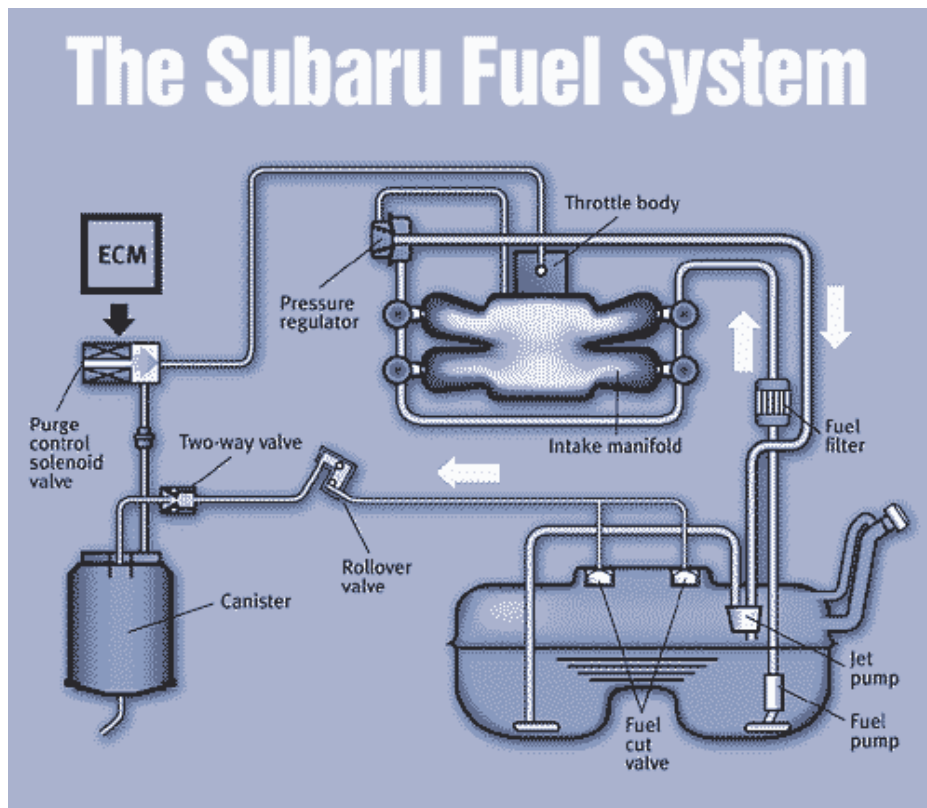
Fuel and fuel vapors move from and to the fuel tank through three lines - one for sending fuel to the engine, one for returning the fuel unused by the engine back to the fuel tank and one for handling evaporative gas (fuel vapors) from within the fuel tank. Air pressure and increased temperatures cause gasoline to evaporate inside the fuel tank. When evaporative gas is produced, the volume inside the tank increases and the vapor must be released. The vapor is drawn into a charcoal canister to store the hydrocarbons, which are hazardous to health and destructive to the environment. At the appropriate time, the Electronic Control Module (ECM) on-board computer instructs the solenoid purge valve to open and the hydrocarbons stored in the canister are released to the engine, mixed with intake gas and used as fuel. So recycling the hydrocarbons collected by the canister actually improves your vehicle's fuel consumption

## Creating Space

while protecting the environment. When designing a new Subaru model, the fuel system often endures several design changes to accommodate space requirements for other components. For instance, as a result of the all-wheel drive system used on all Subaru models, the Legacy fuel tank features a unique,



saddle-shaped design to accommodate the drive shaft for the rear wheels. A state-of-the-art jet pump transfers fuel from one side of the tank to the other to keep the fuel running efficiently through the system. "Whatever the request, our tank engineers employ the most advanced technology and do whatever it takes to ensure a safe, pleasurable driving experience," explains Oyamada. "It is our challenge - and our chance to showcase our skills."



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