

**Ford Pinto Collision Fire**  
**[In 1972, on Highways in the US]**

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A Ford Pinto had stalled on the highway, another car following at 30 miles/hour rear-ended the Pinto and the Pinto burst into flames. The driver of the Pinto died and the passenger was seriously burned. The main cause of this incident was design defects of the fuel tank system. One of the root causes was Ford's policy of rushing into production and ignoring the safety issues in order to compete in the strong small car market. The jury verdict awarded plaintiffs over 100 million dollars (later it was appealed and the amount was reduced).

### 1. Event

A Ford Pint stalled on a highway, and another car following at 30 miles/hour rear-ended the Pinto. The Pinto burst into flames. The driver died and the passenger was seriously burnt.

### 2. Course

Ford rushed into the production of its newest sub-compact car, Pinto, in the much less time of 25 months versus the time it usually takes (about 43 months) and introduced Pinto to the market in 1971.

In 1972, When a Pinto car stalled on a highway, another car following at 30 miles per hour rear ended the Pinto causing it to burst into flames. The driver died and the passenger was seriously burnt. As shown in Fig. 1, the fuel tank at the rear of the car was pushed forward to the differential housing when it was hit. The fuel tank was damaged and gasoline leaked. The leaked gasoline flowed inside the cabin through gaps. The impact of the accident ignited the gasoline resulting in flames.

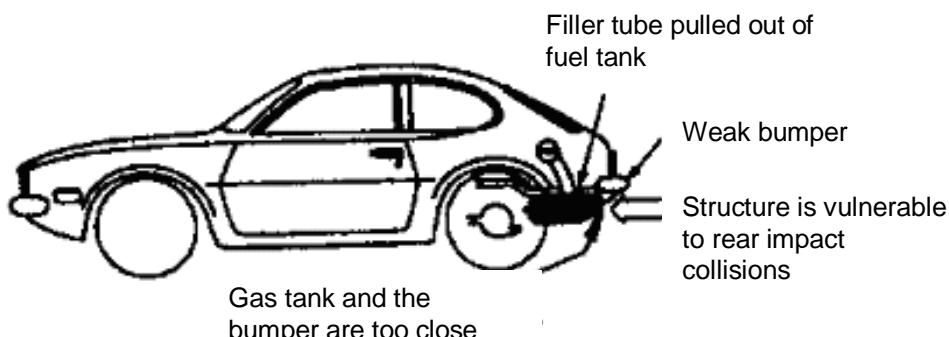


Fig. 1Defects in Ford Pinto 71 and 72 [1]

At the jury trial of this accident, Ford's ex-employees, who were against the short development period and left the company, testified against Ford and brought significant impact on the verdict.

In 1973, the US Department of Transportation proposed Federal Motor Vehicle Safety Standard 301 to Ford to improve the fuel system, but Ford filed a petition for reconsideration because of the increased costs. According to Ford's cost-benefit analysis, there is no financial benefit in complying with proposed safety standards because it would cost them \$137,000,000 ( $\$11 \times 12,500,000$  cars) that is 2.7 times of the estimated total compensation of \$49.5 million (180 burn deaths  $\times \$200,000$  per death, 180 serious burn injuries  $\times \$67,000$  per injury, 2100 burned vehicles  $\times \$700$  per vehicle). When this calculation was presented during the jury trial, it was considered as infringement of human rights and used as proof of malicious intention. It was used as evidence for being liable for compensation. This trial is famous for awarding more than one million dollars. (Compensatory damages of \$2,800,000 and Punitive Damages of \$125,000,000 [later appealed and reduced to \$3,500,000]).

### 3. Cause

- a) The direct cause was design defects in fuel tank system as shown in Fig. 1. Its original design had the fuel tank above the axles, but the position of the fuel tank was moved to the back of the axle for better appearance.
- b) One of the indirect causes was lack of protection around the fuel tank. Due to cost benefit, weak bumpers were used. However, there were no safety measures taken to prevent deformation or to reduce impact.
- c) At the root of this problem, there is a contributing factor that is the policy of the company of reducing development period and taking safety issues lightly.

### 4. Immediate Action

In 1973, the US Department of Transportation proposed Federal Motor Vehicle Safety Standard 301 to Ford to improve the fuel system, but Ford filed a petition for reconsideration because of the increasing costs. .

### 5. Countermeasures

Ford recalled the vehicles and moved the fuel tank to above the axle housing in order to secure impact absorbent space and used stronger bumpers and fuel tanks.

### 6. Summary

This is an example of failure by reducing development period and cost significantly in order to complete in the market and to profit. Contrary to the intention, the company lost credibility, product reputation, as well as significant financial loss.

Prioritizing safety versus cost and safety versus convenience is an endless assignment. For example, if a sidewalk is created along a busy street, many pedestrian accidents may be prevented. However, a large amount of tax money will be spent for it and may cause inconvenience to the drivers living on that street. If Japanese society sees evidence of comparing priority of safety versus cost as Ford did, all media will start bashing. However, in order to create a healthy society, it is necessary to clarify merits and demerits, eliminate “taboo” from the environment, and provide a climate to comfortably discuss these issues.

## 7. Knowledge

Safety first. If safety is taken lightly in order to reduce cost or quick delivery, bigger problems occurs without doubt. For safety, “Because the boss decided” is no excuse. In an ethics case study for engineers, only the engineers who protect safety and environment pass, even if it is contrary to the employer’s expectation. You may get fired by doing so. If so, you can file a civil law suit.

## 8. Background

There was strong competition for Ford in the American small-car market from Volkswagen and several Japanese companies in the 1960's. To fight the competition Ford rushed its newest car the Pinto into production in 25 months, much less time than is usually required to develop a car. (The regular time to produce an automobile is 43 months.) According to some source, although Ford engineers had discovered that Pinto's fuel system would rupture extremely easily in nearly all rear-end crash test collisions, Ford Officials decided to manufacture the cars with \$2000 in cost and 2000 pounds in weight because assembly-line machinery was already tooled. The famous Lee Iacocca was the head of development division at that time.

## <References>

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