

## ***What the Boeing 737 Max 8 Says About America***

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Why is that two identical Boeing airplanes went down within a few months of each other under very similar circumstances? Is this just a coincidence or some problem with the airplane software?

In the interest of full disclosure, until recently I was a shareholder of Boeing. I was also an officer at a quality control engineering company for six years that served the defense industry to assure that machinery and equipment operated to approved tolerances.

Boeing is America's most important exporter and manufactures a great deal of military equipment crucial to our nation's security. Boeing tankers refuel our jet fighters around the world. Boeing's drones fight wars for us in Afghanistan, Iraq and other places. Boeing has been the darling of the Dow Jones industrial average and its profits are through the roof. At a time when air travel is expanding throughout the world, the two hemispheres of the commercial airplane industry are controlled by Boeing and by the European Consortium known as Airbus.

Boeing is more than a manufacturer and exporter of commercial planes. Boeing is one of the nation's largest defense contractors, a fact that has caused many gripes and complaints by Airbus. While the United States claims that Airbus is subsidized by European Nations so they can sell its airplanes less expensively to the world's airlines, Boeing is the recipient of an enormous amount of military business. Airbus claims that the military contracts received by Boeing are an American subsidy. Many countries that receive American aid around the world just happen to buy Boeing airplanes.

Boeing's relationship with the federal government is Dwight Eisenhower's quintessential example of the military industrial complex at its best and at its worst. Boeing has as many tax lawyers as the Internal Revenue Service.

Boeing is not the evil empire. The company employs thousands of workers in the United States and around the world and helps the United States with its many intertwined political and economic alliances. Boeing is also cozy with every component of the United States government from the Defense Department through the Immigration and Nationalization Service. Boeing desperately needs qualified workers from around the world and manages to get them into the United States.

What Dwight Eisenhower was worried about as the Cold War ramped up was what he had witnessed in Europe prior to the end of World War II. In Fascist societies, the government and big industry worked together to accomplish their goals of world domination. In Communist societies, the industrial base became a component of the government.

It was Theodore "Teddy" Roosevelt who first made attempts to reign in the big corporate trusts which were running America during the Industrial Revolution. The corporate structure learned how to play ball with the government as the years progressed towards World War II and during the heat of the arms race with the Soviet Union.

There is no question that Boeing has a cozy relationship with the regulators. Companies like Boeing get to do their own self-regulation. The experts at the Federal Aviation Authority have less resources, time and money than Boeing has.

The rumor about the Boeing Max planes is that a small software fix will keep the airplane's nose up and out of the ground. However, it is my prediction that the root of the problem with Boeing's airplanes is much more severe.

For a long time, it was difficult for the commercial airplane manufacturers to make money. Hence, all of the big airplane developers made their money on lucrative armaments contracts. Boeing had a better idea; it would make money from both private sector and the military. The cost of developing new jet planes is absolutely enormous. Just consider that from 1903 when the Wright brothers first flew a few feet in their glorified kite, until the first 747 jumbo jet pulled off the assembly lines was only about 65 years. It has been almost 50 years since that first 747 jumbo jet flew. Have we made the strides in those 50 years that were produced in the first 50 years of flight? The answer is absolutely not.

In order to save development costs, Boeing developed a better approach than inventing new technology. Stretch the old designs and add computers. When airplanes are stretched to carry more people in more crowded space, wind configurations and lift potentials are changed dramatically. The question is whether a longer fuselage, with the same design specifications, will fly as reliably as the original design? What Boeing and Airbus have done to make those stretched limousines fly is to create computer programs that adjust lift potential. The technology in airplanes is no different than what makes a bird fly. It is all in the Bernoulli affect. A curved wing, like the sail on the sloop, creates lift because air passes at a different speed when it has longer to travel over the top of the wing than under the bottom. This positive and negative airstream causes lift. As my first flight instructor said to me every time the plane lifted off, "She wants to fly."

The problem with the paradigm of lift is that when old designs are extended by toying with the fuselage and not making other substantial adjustments, lift is affected. Computers are supposed to come to the rescue to adjust the control surfaces on the tail so that the plane stays level or responds to instructions to climb or descend.

What does all of this mean for the consumer? We are essentially being asked to fly in old planes that are not redesigned but rather are enlarged to stuff in more passengers. Lighter materials may be added such as carbon fiber to save weight and new engines to use less fuel. Combine these attempts to make the sales of planes

more profitable and the cost of airlines usage lower and what the consumer gets is an inferior product.

Boeing has plenty to worry about. The stretched airplanes, whether the 737, the 777, and a variety of other airplanes may be fundamentally flawed in a way that software patches cannot account for. This is a problem inherent in a government approach that equates economic success with less oversight. President Trump was wise to intervene in grounding the Boeing aircraft, but now he must ask himself whether the government will assume what conservative economist Milton Friedman saw as the government's role as assuring the safety of its citizens.

We all depend on air travel, but we also rely upon the integrity of government regulators and the honesty of American manufacturers.

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