CIM 2.1.3 Part B Ethics and Safety

Boeing 737 MAX

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Summary

Between 2018-2019, two Boeing 737 MAX aircraft crashed (Lion Air Flight 610 and Ethiopian Airlines Flight 302), killing all 346 people aboard both flights. Investigations revealed that a new flight control system called MCAS (Maneuvering Characteristics Augmentation System) was flawed and could push the plane's nose down based on faulty sensor data. Pilots were not adequately trained on this system, and it was not prominently disclosed in pilot manuals.

Ethical Issues & Contributing Factors

Safety Compromised for Profit

Boeing rushed the 737 MAX to market to compete with Airbus, cutting corners on safety testing and pilot training requirements

Lack of Transparency

The MCAS system was not fully disclosed to pilots, airlines, or regulators. Boeing downplayed its significance to avoid requiring expensive simulator training

Inadequate Testing

Engineers raised concerns about MCAS relying on a single sensor, but these were ignored by management

Deceptive Acts

Internal messages revealed Boeing employees knew about problems but concealed them from the FAA

Engineering Canons Violated & Prevention

Fundamental Canons That Could Have Prevented This Disaster

Violations	Preventions
• Boeing prioritized competitive advantage and profit over passenger safety	• If engineers had the authority and support to insist on comprehensive safety testing and full MCAS disclosure, both crashes could have been prevented
• Boeing extended an existing aircraft design beyond its original parameters without adequate testing of the new system	• Should have required full recertification and extensive pilot training
• Boeing misled regulators and customers about MCAS capabilities and training requirements	• Honest disclosure would have ensured proper pilot training and awareness
• Internal documents showed Boeing knew about issues but concealed them	• Transparent communication with FAA and airlines about system capabilities and limitations