



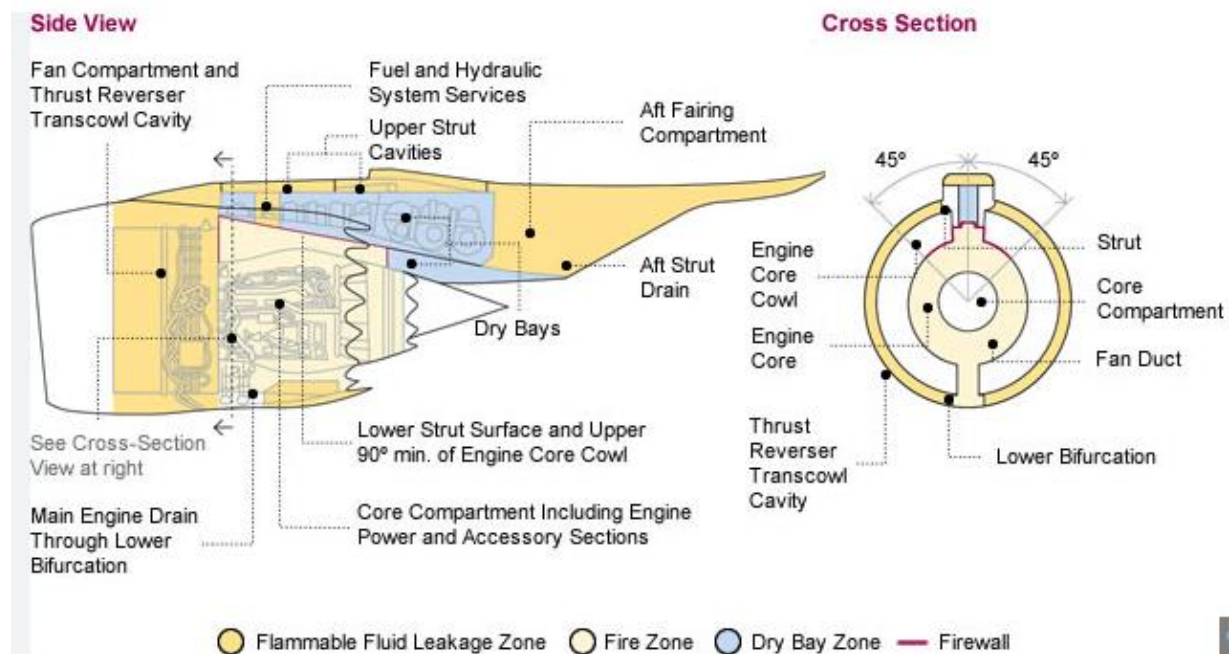
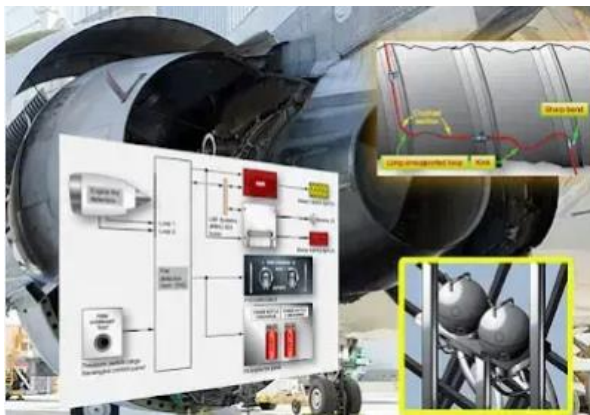
SNS COLLEGE OF TECHNOLOGY
(An Autonomous Institution)
COIMBATORE-35
DEPARTMENT OF AEROSPACE ENGINEERING



Course: 19ASB303-Aircraft Maintenance Engineering

UNIT I - Aircraft Ground Handling and Support Equipment

UNIT I: U1 LP6: Engine fire extinguishing in Aircraft Maintenance



Engine fire extinguishing is a critical aspect of aircraft maintenance as it is essential to ensure the safety of passengers, crew, and the aircraft itself. Engine fires can occur due to various reasons such as fuel leaks, overheating, or electrical faults, and if not addressed promptly, can lead to catastrophic consequences.

To extinguish an engine fire, aircraft are equipped with fire extinguishing systems that are designed to detect and suppress fires in the engine compartment. There are two main types of fire extinguishing systems used in aircraft: the fire extinguisher bottle system and the fire detection and suppression system.

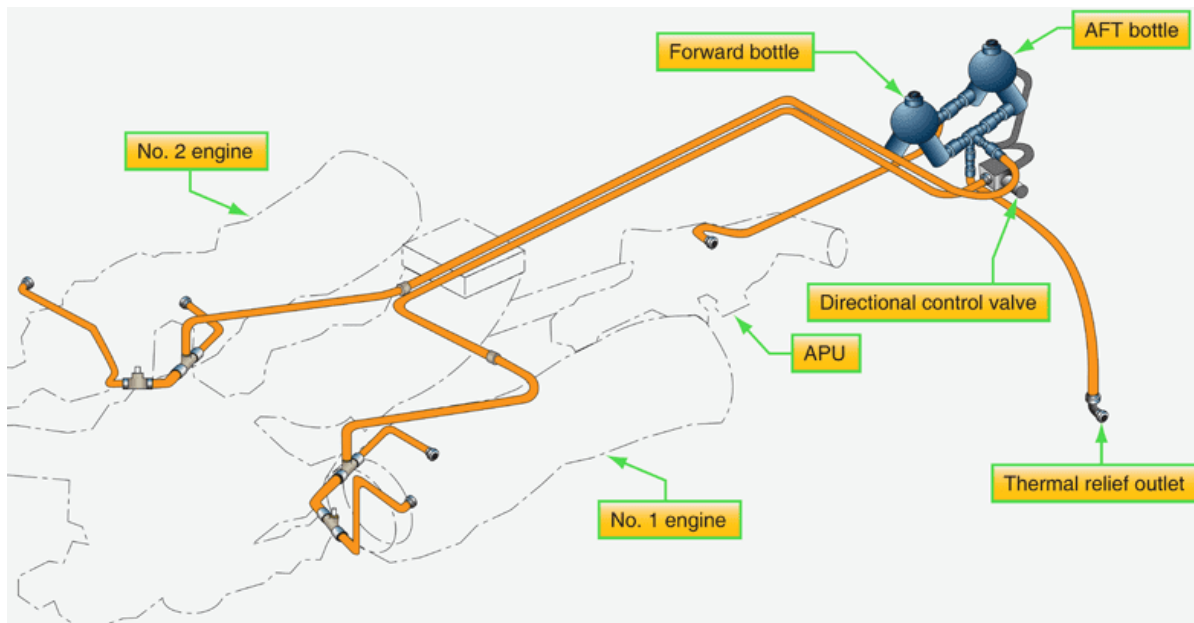
The fire extinguisher bottle system is a manually activated system that uses a mixture of dry chemical agents and carbon dioxide to extinguish the fire. The system is typically located in the engine compartment and can be activated by the pilot or the ground crew using a switch in the cockpit or on the exterior of the aircraft.

On the other hand, the fire detection and suppression system is an automatic system that uses sensors to detect fires in the engine compartment and automatically deploys the fire extinguishing agents. The system typically uses a combination of fire detection sensors, control modules, and fire suppression agents such as halon or other extinguishing agents to extinguish the fire.

In both systems, the fire suppression agents are released under high pressure, and the agent rapidly expands to smother the flames, preventing further combustion. The agent also cools the surrounding areas, preventing re-ignition of the fire.

In addition to the fire extinguishing systems, regular maintenance and inspections are essential to ensure that the systems are functioning correctly. This includes checking for leaks, ensuring that the extinguishing agents are not expired, and testing the system's activation and performance.

Because fire is one of the most dangerous threats to an aircraft, the potential fire zones of all multiengine aircraft currently produced are protected by a fixed fire protection system. A “fire zone” is an area or region of an aircraft designated by the manufacturer to require fire detection and/or fire extinguishing equipment and a high degree of inherent fire resistance. The term “fixed” describes a permanently installed system in contrast to any type of portable fire extinguishing equipment, such as a hand-held fire extinguisher.



Commuter aircraft certificated under 14 CFR part 23 are required to have, at a minimum, a one-shot fire extinguishing system. All transport category aircraft certificated under 14 CFR part 25 are required to have two discharges, each of which produces adequate agent concentration. An individual one-shot system may be used for APUs, fuel burning heaters, and other combustion equipment. For each “other” designated fire zone, two discharges (two-shot system) must be provided, each of which produces adequate agent concentration.

Ref:

<https://www.youtube.com/watch?v=cnljmKuQ8xI>

<https://www.youtube.com/watch?v=ocAsVBX26Hc>

