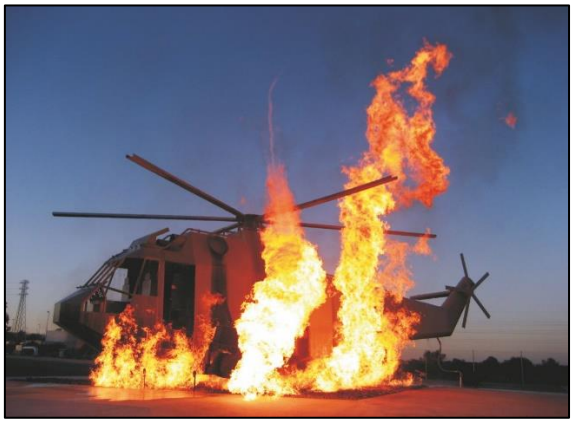
## OPERATIONAL FIRES

Online Training

An operational fire is considered to be a fire which occurs during the operation of an aircraft either in flight or on the ground.

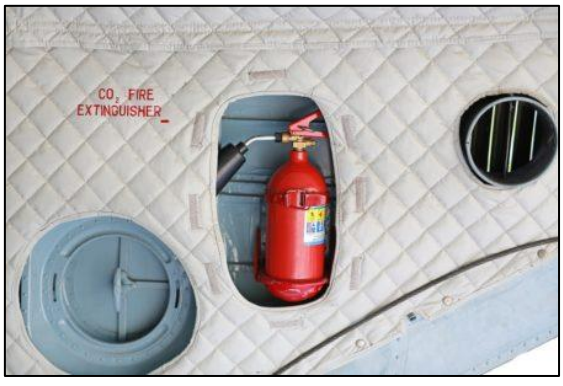
### Effects

The effect of an operational fire on an aircraft, its passengers and crew can vary from inconsequential to catastrophic depending upon the type and location of the fire, the success of the crew's attempts to identify the source of the fire, the success of the fire suppression equipment and procedures, and the ultimate outcome of any post landing event such as an Aircraft Evacuation.



### Defences

Modern aircraft are designed and equipped with the possibility of a fire in mind. Aircraft engines, including the APU have fire detection and fire extinguishing systems installed. Overheat detectors are installed in the vicinity of bleed air ducts and the bleed system is designed so it can be partially or totally isolated if required. Brake temperature indicators may be installed and will give indication of a brake or tyre fire. Lavatories are equipped with smoke detectors and lavatory waste bins have automatic fire suppression equipment. Fire-fighting equipment is carried in the flight deck and the cabin. Above all else, both flight deck and cabin crew are well trained in dealing with all fire, smoke and fume emergencies. They are well supported in this endeavour by the Crash Fire Rescue personnel manning the aerodrome fire stations.



## Typical Scenarios

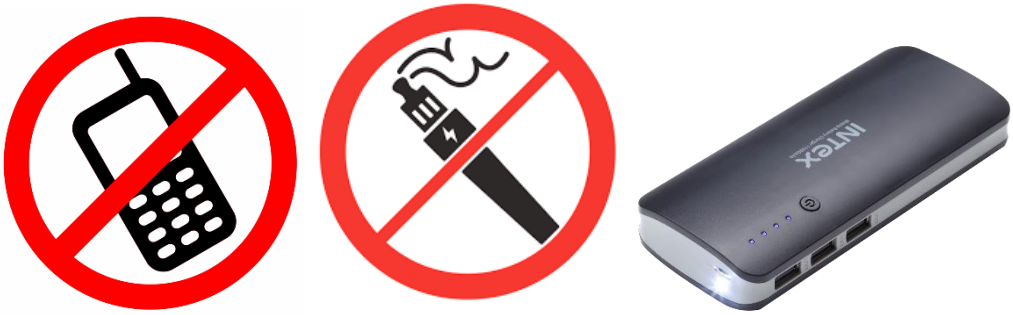
Activation of the fire detection system on the number two engine generates a fire warning in the flight deck. The crew shuts down the engine in accordance with the fire checklist and activates the fire extinguishing system. After a few seconds, the fire warning indication goes out. The aircraft is diverted to a nearby airport and lands without further incident.

Passenger meals are inadvertently put into a galley oven without having the plastic over-wrapping removed. During the heating process, the plastic melts and catches fire when it drips onto the oven heat element. The Flight Attendants electrically isolate the oven by pulling the circuit breaker and put out the fire with a BCF (halon 1211) extinguisher. The smoke dissipates quickly, and the flight continues to destination.

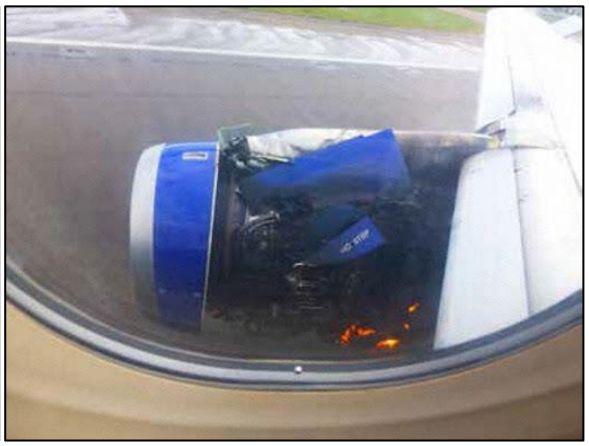
After a high speed rejected takeoff an overheated brake assembly catches fire. The aircraft is evacuated, and the airfield Crash Fire Rescue services extinguish the fire.

## Contributing Factors

- Personal electronic devices are now commonly used on aircraft. These bring a small but tangible risk of fire due to overheated batteries.




- Improper or incomplete maintenance actions can lead to an engine or airframe fire.



## Solutions

- All crew members must be aware of all potential fire risks and be fully proficient in fire fighting drills and techniques.
- 'No-smoking' regulations must be briefed and enforced. Frequent lavatory checks must be made.
- All crew, maintenance and support personnel must guard against complacency in their duties. Inappropriate or incomplete actions can lead to a fire.