

# Bomb Onboard: Do you know your procedures?

OPSGROUP Team  
29 April, 2021



Airport security means the threat of a bomb onboard is greatly reduced. But if you do receive a bomb threat, or find a suspicious package onboard, what procedure does your operator have in place for you to follow?

## How much risk is there?

You have probably all heard the Shoe Bomber attempt from 2001. This was thwarted by some brave passengers and crew, and also the fact the bomber had sweaty feet – his swamp foot dampened the trigger preventing it from igniting.

In 2016, an aircraft made an **emergency at HCMM/Mogadishu airport** after a bomb exploded onboard. The bomb was likely brought on concealed within a laptop. This flight was lucky though – the impact of the bomb was minimal, limited because the bomb exploded while the aircraft was at a lower altitude (11,000ft).

In 2020 a European airline found a 'bomb note' onboard. The flight was escorted to a safe landing and passengers disembarked without incident.

So bomb threats, and attempted bombings, do occur, and while **security is getting better and better**, unfortunately terrorists are getting more creative in finding ways to bring items on board. The attempts are not always aimed at causing destruction either – threats alone cause a huge amount of **disruption to operations**. So understanding how to assess the risk and credibility of a threat is as important as knowing how to deal with a possible explosive device if one is found onboard.



The shoe bomber was thwarted by his own sweaty feet

### Is the threat credible?

Threats received regarding an aircraft need to be assessed, and the **credibility determined**. The threat classification will generally be based around how specific the threat is. Most operators will have a procedure in place for determining this, and probably take into account something along the following lines:

If a threat mentions a **specific target**, or is made by a **known terrorist organization** and is **deemed credible** then this is going to be considered more serious. Often these are referred to as a **red** threat.

On the other hand, a threat which is **vague, general, and doesn't specify targets** might be considered less credible. A hand scribbled note in the toilet for example. This would be categorized as a **green** threat.

However, regardless of the assessed credibility, a bomb threat has to be taken seriously and treated as a genuine situation.

### If you are on the ground

The simplest and safest option if you are on the ground is to **disembark and carry out a full search** of the aircraft. It might be a hassle and result in some big delays, but the possible alternative is much worse.

A serious threat may require a **precautionary disembarkation** – which will result in offloading the passengers as quickly and as safely as possible. This creates a risk to safety in itself, and generally the credibility of the threat will be communicated to the crew so that they can judge the risk of waiting (for steps) versus disembarking immediately to clear the aircraft (but have passengers hurling themselves towards the tarmac).





His face is the red threat apparently

## If you are in flight

If a threat is received against your aircraft while in flight, carry out a search checking those places which are often overlooked during security checks on the ground, but **where an article might easily be concealed** – toilets, galleys, jump seats, stowage areas, closets etc. Try and do it **discreetly to avoid unnecessary worry** for passengers.

If an article is found, **do not move it or touch it**. Move passengers away from the immediate area, and remove any flammable items and have fire extinguishers ready in case. A PA asking for anyone onboard with '**BD or EOD experience**' might help – these are terms which experts will recognize without saying "Hey, passengers, is there a **bomb** expert onboard?"

Not terrifying your passengers is probably a good call, but ensuring they are following your crew's orders, and that they are prepared for the situation on the ground, is also necessary. This means providing them with clear information, but **without dramatizing the situation**.

*"Ladies and Gentlemen, we have received a message that a threat has been made against one of our aircraft/an aircraft in this airspace. These threats do happen, however, until we can establish how credible it is, we will take all possible precautions and therefore intend to land at... in..."*

## If you find a suspicious article

Most manufacturers provide **checklists for bomb-on-board** situations. Know where this is, and understand what it says.

There are a few measures you might want to consider:

- **Talk to ATC** so they know exactly what is going on and what you need. They all assist with locating an airport with services needed, and coordinating with military if necessary.
- Try to **avoid routes over heavily populated areas**.
- Consider carefully the choice between **flying fast** to minimize airborne time **versus flying slow** to minimize air-loads and damage (in the event of fuselage rupture).
- Request **remote parking** on the ground if there isn't a **designated bomb location**.
- **Brief your crew** for a possible emergency landing, and in any event, brief them to ensure passengers are disembarked quickly and moved to at least 200m upwind from the aircraft.
- **Avoid large and rapid changes to pressure altitude** – consider using manual cabin altitude controls to minimize rapid pressure changes while still lowering the cabin altitude to reduce the differential pressure.

Aircraft are designed to not 'explode' if there is a rupture in the fuselage – that's why they tend to have a lot of smaller sections attached together. It makes the overall structure more resilient to the effects of an explosive decompression, aiming to keep it "localized".

Reducing the differential pressure to around 1 PSI will also reduce the damage if an explosion does occur. Maintaining a slight differential will ensure the blast moves outwards, but the lower differential limits the force of air from the cabin outwards.

1psi is the equivalent of about 2,500 feet difference, but flying at an altitude that allows you to manually



reduce the differential will probably mean a much lower level and much higher fuel burn.



The Mogadishu bomb exploded at low altitude so differential pressure was lower

### Where is your aircraft's LRBL?

A **Least Risk Bomb Location** is an area where the least damage will occur should a bomb explode. This should be specified in your aircraft manual. These are often near aft doors or in washroom stowage areas. The area provides the least risk, in the event of an explosion, to flight critical structures and systems.

If the article is deemed unsafe to move, **cover it in plastic** to prevent any liquids getting in, and then **pile blankets and pillows, seat cushions and soft clothing** around it. We're talking as big a pile as you can, and once done, **saturate in water** to minimize fire risk in case an explosion does occur. Don't forget the plastic sheets first though – liquid damage to electrical components is also a big risk.

If you can move it, and only if it is deemed essential to do so, then check that LRBL. Once in place, build up the barricade.

Always minimize movement to any article as much as possible, and don't put anything directly on top of it. An igloo of saturated cushions around it and the gaps stuffed with blankets etc is good. This 'cushioning' will help minimize the force if an explosion does occur. Never put inside an oven or trolley though as a sealed container will amplify the pressure and explosive force of a bomb.



Stack soft furnishings around the bomb and secure in place

### **Where to go**

You will likely be accompanied by fighter jets to an airport with a **designated bomb area** – usually a remote apron away from buildings, fuel supplies and other aircraft.



EGSS/Stansted in the U.K. is the designated “emergency” airport because of its proximity to RAF bases, and the special apron for hijacking and bomb threat parking.

### What next?

Getting your aircraft safely on the ground is **Step One**. Getting your aircraft to a safe point to disembark/evacuate your passengers and crew is **Step Two** and coordinating this with ATC and airport services is important. Knowing in advance where you will taxi to will get you there more quickly and safely. Landing, slamming on brakes and bursting tires will get you nowhere fast, so plan ahead and be prepared.

A bomb threat or bomb onboard situation is difficult to plan for because the ‘where you are and what will happen’ is not something we can prepare for, other than **being ready to follow our procedures** and **remaining calm**. Chances are this is not a situation many of us will (thankfully) find ourselves in, but understanding the resources you have to assist, and knowing the onboard procedures so you can coordinate passengers and crew will no doubt help if it ever does occur.

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## We got some checklists for you ...

Mark Zee  
29 April, 2021



## Checklist: Trip planning for Covid-19

Item	Considerations	Notes	Action
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airport planned to, and not Covid specific, but they are included as a reminder.

<b>Airport</b>	Check availability, status, restrictions, local Covid-19 cases. Read news media from that country to get a feel for current situation. Review Notes.		
<b>Opening Hours</b>	Daylight hours only? Runway lights? Any restrictions for SAT? Any Covid-19 changes to hours?		
<b>Customs</b>	International flight requires customs - is it an Airport of Entry? Are there cases, customs can be positioned to domestic airports. Worth considering? Check customs hours changes for Covid-19.		
<b>Visas</b>	Do you need a visa for tech stop? Destination? For crew?		
<b>Health</b>	Any Covid quarantine rules on arrival?		
<b>ATC</b>	Check ATC hours of availability, availability of instrument approaches, any procedure changes.		
<b>Runway Length</b>	Consider that some runways may be unavailable due to heavy use for aircraft storage. Check aircraft performance vs. length avail.		
<b>Fuel Price</b>	Compare fuel prices to current fuel prices.		
<b>Fuel Availability</b>	Any recent supply issues?		
<b>Runway/Apron Strength</b>	PCN vs. ACN. Can usually be exceeded with Airport permission but not by much.		
<b>Suitability</b>	Is this the right airport for the city? Domestic/Int'l, not military, is there a GA-dispersed airport? How busy is it?		
<b>Weather</b>	Any local factors eg. Wind irregularity, fog, winter ops.		
<b>Handling</b>	Is there a reliable ground handler? For BA, is there an FBO? Is handling mandatory?		
<b>Maintenance</b>	Availability of aircraft gate tech.		

OPSGROUP COVID-19 SUPERMANUAL, JULY 11, 2020

Item	Considerations	Notes	Action
<b>Passenger processing</b>	Customs desks avail for larger aircraft? Check in desks avail? Passenger terminal? VIP terminal?		
<b>Noise restrictions</b>	Curfew hours, APU start procedures, aircraft types banned?		
<b>Security</b>	Any risk? Crime, political instability, terrorism, kidnapping.		
<b>Fire and Rescue</b>	Compare RFF category to your requirements. Check Notes for any Covid-19 changes.		
<b>GH Equipment</b>	Any need for airlocks, JCI, cargo offload, belt conveyors. GPU required? Check avail.		
<b>Prior reports</b>	Check company reports, OPSGROUP Airport Fly (https://www.opsgroup.com/). Any comments that may cause concern?		
<b>Regulatory requirements</b>	Can we land here? Eg. USA: Border overflight rules, Mexico: Customs? Specific to the etc.		

## Enroute

Check for each FIR enroute

<b>Airspace</b>	Entry requirements. HLA North Atlantic, RVSM, etc.		
<b>Comms</b>	HF, GDS, VHF & SSB. Databases.		
<b>Navigation</b>	RNP, RNAV requirements.		
<b>Surveillance</b>	ADS-B, ADS-C, Mode S.		
<b>Permits</b>	Completely up-to-date, any Covid-19 additional documents required?		
<b>Risk</b>	Shutdown risk? Check SafetyRisk.net		
<b>Closures</b>	Any specific report or potential airspace closures due to Covid-19?		
<b>Engine failure</b>	Consider whether we want to be in this airspace in an emergency situation requiring a divert - engine fail, medical, depressurisation.		
<b>Nav fees</b>	Expensive? Better route close by?		
<b>Aircraft type, registration</b>	Some countries will not allow to land: manufactured or registered aircraft to enter the FIR or land. Some registered aircraft banned from many FIRs (political).		

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## Checklist: Aircraft supplies (Covid-19)

Item	Notes	Quantity	Checked
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## On board - additional Covid-19 stock items

<b>Surgical Masks</b>	For crew For passengers		
<b>Gloves</b>	For crew For passengers		
<b>Goggles</b>	UPK has some, if more required, load separately.		
<b>Capes</b>	UPK has some, if more required, load separately.		
<b>Hand Sanitising Gel</b>			
<b>Disinfecting Wet Tissues</b>	Eg. Sani-Com		
<b>Approved Aircraft Disinfecting Spray</b>	Eg. Bio-Gen		
<b>Infrared Thermometer (contactless)</b>			
<b>Universal Precaution Kit (UPK)</b>			
<b>Biohazard Bags</b>	Additional to those in the UPK for disposal of masks, gloves.		
<b>Passenger Locator Cards</b>			
<b>Overnight PPE Kits</b>	For crew downroute, containing: Each pack to contain: Masks (2), gloves (2), disinfecting wipes (10), spray (1).		
<b>Crew cleaning kits</b>	For restrooms, if planned to be used as crew transport downroute.		

OPSGROUP COVID-19 SUPERMANUAL, JULY 11, 2020



This is an extract from the OPSGROUP Covid-19 Supermanual, version 0.9 - May 11, 2020

## Trip planning Checklists for Covid-19

Item	Considerations	Notes	Action
<b>Airport</b>	Check for each airport planned to. Some of these are routine and not Covid specific, but they are included as a reminder.		
<b>Airport</b>	Check availability, status, restrictions, local Covid-19 cases. Read news media from that country to get a feel for current situation. Review Notes.		
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At the back of the group Covid-19 Supermanual we have 5 pages of checklists, which you can download here.





Aircraft Setup, Boarding, Temperature Checks, Baggage, Seating  
Wearing of PPE (Personal Protective Equipment)  
Additional Aircraft Equipment  
In flight Crew procedures: Pilots, Flight Attendants, In-flight Service  
Illness in Flight – Crew actions, Dispatch actions, Cleaning procedure

### **After - back home (or downroute)**

Disembarking  
Tech Stops and Turnarounds, Interim Cleaning, Walkaround  
Arrival at Destination, Waste Disposal, Cleaning at outstation  
Overnights/Layovers, Hotel guidance, Crew PPE kits  
Crew Illness away from Home base  
AOG/Unplanned overnight  
Arrival at Home base,  
Aircraft Cleaning, Cockpit cleaning  
Crew exposure, Contact tracing

### **Checklists**

Checklist: Trip planning in Covid-19  
Checklist: Aircraft supplies  
Passenger Health Screening form example

**For more about the Covid-19 Supermanual contents, and to download a copy, use [this link](#).**