



# *ETOPS Operations and the Minimum Equipment List*

*John Illson (PIT)  
Central Air Safety Committee*

One of the more challenging aspects of flying across the Atlantic is dealing with an inoperative aircraft component. The Minimum Equipment List, or MEL, can be confusing enough for a domestic flight. But factor in requirements pertaining to Extended Overwater Operations (ETOPS) and operations within Minimum Navigation Performance Specification (MNPS) airspace and the situation becomes more complex.

As always, there is no substitute for good judgment. Obviously, regulatory compliance does not guarantee that you are operating with a comfortable safety margin. However, it is always helpful to know what your options are, especially when a key navigation component fails as you are preparing to coast out.

This article could cover dozens of potential failures. To keep it brief, however, I will limit the discussion to IRS and FMC failures on the B-767 fleet. These components are critical for navigation through MNPS airspace and can create confusing situations when they become inoperative. My apologies to the Airbus pilots, but I am sure the general principles being covered apply to that aircraft type as well.

## **Timing is everything**

It is important to remember that the MEL provides dispatch requirements for failures that occur prior to takeoff. If, for example, the left IRS were to fail during preflight alignment on

the B-767, MEL 34-2101 would prohibit you from departing on an ETOPS flight.

But, consider how the situation changes when the same IRS failure occurs after takeoff. Again, the MEL is not applicable for failures that occur in flight. Once airborne, your ability to continue is determined by the non-normal procedures found in the QRH. Therefore, after experiencing an in-flight failure of the left IRS, the IRS FAULT checklist does not prohibit you from proceeding.

In addition, you must be sure to comply with the minimum navigation system requirements for operations within MNPS airspace. This information can be found on the Atlantic Orientation Chart, as well as in the North Atlantic Theatre of Operations. The requirements stipulate that you must have two operational long-range navigational systems (LRNSs) in order to enter MNPS airspace. In this scenario, since two IRSs and two FMCs are operating normally, the MNPS requirements are met and the flight may proceed as filed.

## **Let us go one step further . . .**

The situation changes significantly if two long-range navigational systems are not operational prior to entering MNPS airspace. If operating with a single IRS or FMC prior to reaching the oceanic boundary, you have the following options:

- Divert or return to the departure airport
- Obtain a clearance via a Special Route

*“It is important to remember that the MEL provides dispatch requirements for failures that occur prior to takeoff.”*

*“ If, in your judgement, it is safe to continue the crossing with one operational long-range navigational system, you will have to make a change in either your route or altitude. ”*

- Obtain a clearance above or below MNPS airspace

If, in your judgement, it is safe to continue the crossing with one operational long-range navigational system, you will have to make a change in either your route or altitude. The Special Routes found on the Atlantic Orientation Chart are usable, as they only require one operational LRNS. As an alternative, you may consider making the crossing beneath MNPS airspace by flying at or below FL280 (flying above MNPS airspace at FL430 is rarely a practical option for the B-767). In either case, be sure to advise OCC of the failure and coordinate any routing and/or altitude changes.

The decision to continue an oceanic crossing after experiencing a navigation component failure is always difficult. The purpose of these scenarios is to clarify what equipment you need to comply with the MEL, QRH and MNPS requirements. Ultimately, your judgement is the most important element to ensure that you choose a safe and conservative course of action.

