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AIR PILOTS - COMMERCIAL AIR TRANSPORT
SAFETY BRIEFING NOTE 05
[Issued 10 NOVEMBER 2021]

NON PRECISION APPROACH USING GROUND AIDS

The Context
Non precision (2D) approaches are today increasingly based on RNAV (GNSS) procedures which are able to be flown and monitored accurately using a flight director system linked to a pre loaded FMS copy of the procedure. However non precision approaches based on ground aids, with or without an associated DME, are still in use, and frequently so in some parts of the world. Whether or not these can be flown with FMS assistance if this equipment is available varies widely, with not all operators pre-loading non precision approaches based on ground aids, even those with an associated DME, into the FMS. Many operators also now no longer permit time-based non precision approaches - the most challenging - to be flown at all because it makes for a more efficient use of simulator training time and many younger pilots have little or no experience of them. The 'own navigation' transition from a holding pattern to a ground aid based non precision approach has also become a rarity for many.

Challenging non precision approaches require an effective risk assessment at the aircraft operator level and timely risk awareness and risk mitigation on the part of the crews who fly them. The key to both of these is ensuring that pilots are trained for and assessed on their competence to fly whatever types of non precision instrument approach they are approved for. Once such proficiency has been demonstrated at suitable intervals, it is then essential that the actual performance by flight crew pairings of all non precision approaches is tracked and any necessary action follows. When determining how much recurrent training is required to re-qualify pilots to perform a defined range of non precision approach procedures, the regularity with which they have been performing them since their previous qualification is likely to be a factor.

An example of the consequences of attempting an unfamiliar non-precision approach when inadequately prepared
In January 2015, a Boeing 737-800 on a scheduled passenger flight from London Stansted to Bergerac, France descended prematurely in IMC and without any visual reference whilst attempting to fly a timed NDB approach at Bergerac with the autopilot engaged[1]. When more than 8 nm from the runway and turning onto finals, an EGPWS 'TERRAIN' Alert was annunciated as descent continued through 840 feet agl at a rate of descent of almost 1000 fpm. The crew responded by commencing a missed approach as an EGPWS 'PULL UP' followed. The experienced Captain was familiar with NDB approaches through past experience but not current and the 430 hour First Officer had been released from initial training the previous month having had little or no training on or experience of timed NDB approaches. The crew were aware prior to departure from London that both the ILS and DME were out of service and were using the NDB procedure because the Captain incorrectly believed that the absence from the Company Bergerac Brief of any reference to the RNAV(GNSS) approaches available there

[1] https://www.bea.aero/fileadmin/uploads/tx_elydbrapports/BEA2015-0037.en.pdf

meant that they were not to be used. The time-based NDB procedure was not pre-loaded into the FMS but was explicitly permitted.

Discussion

All pilots should be familiar in principle with any type of instrument approach procedure they may have to fly in the event of unexpected ground equipment outage or the unavailability of a landing runway. This should include how to use the approach procedure plate for both hold entry and positioning to and descent on final approach and awareness of all associated aircraft operator procedures applicable to the type of non precision approach involved. When an aircraft operator permits crews to programme the FMS if a procedure is not stored in its memory, they must have a clear understanding of how to achieve this.

Safety Recommendations

To Aircraft Operators

- It is important that the required pilot proficiency in respect of all types of non precision approaches which are authorised by the operator to be flown and any associated requirements relating to the use, availability and serviceability of an FMS are defined and that the associated training to demonstrate proficiency is provided to the extent required.
- Both operational safety and training costs may make it appropriate to limit the number of pilots authorised to make the most challenging non precision approaches - those reliant on timing rather than distance.
- If a potentially required instrument approach procedure is not pre-loaded into the FMS where installed, then whether or not this procedure can be flown, by whom and how should be clearly documented.
- It may be considered that some of the appropriate restrictions can be dealt with by use of the aerodrome classification system to only qualify selected pilots for category ‘B’ and/or ‘C’ aerodromes where potentially challenging non precision approaches exist.
- Whatever system of pilot authorisation for restricted non precision approach types is adopted, it is essential that both pilots conducting such an approach are trained so that they can demonstrate their individual proficiency to the same standard. Without this, the effectiveness of monitoring of the PF by the PM during an approach cannot be assured.
- Since there is widespread evidence that demonstrated individual proficiency does not automatically translate into corresponding performance in everyday operations, it is essential that all sources, particularly but not only the system for routine operational monitoring of flight data, are used to detect any significant performance deviations during the conduct of non precision approach procedures.
- NOTAMed unavailability of a normally available precision approach at a relevant destination or alternate should be monitored by Operations Control so that, if necessary, crews approved for such operations are allocated. Any notified long-term precision approach unavailability should invite a review of whether airport operator pressure might be effective.

To Pilots

- If the aircraft operator you fly for does not directly restrict pilots either individually or as a pairing from flying any available non precision approach to an aerodrome which they are authorised to fly into, then it is particularly important that, if a challenging and/or unfamiliar non precision approach is a possibility, sufficient time should be found to discuss an outline plan for such an approach prior to as preparation for the en route approach briefing. For short sectors, this discussion should occur prior to departure but for long haul, a suitable time en-route may be more appropriate. Any such preparatory discussion must have been completed prior the approach brief being conducted.
- A careful pre-departure check of NOTAMs is important if unexpected absence of normally available precision approaches is to be identified in time to address any consequences.
- Unless both pilots are equally experienced and wholly confident about the conduct of a potentially required non precision approach procedure, then it is particularly important that sufficient time is made for a comprehensive discussion of it in advance. This discussion should particularly focus on establishing a shared understanding of the approach procedure plate.