INTRODUCTION OF IFR APPROACH TO VFR AERODROME

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This article discusses the obstacles for introduction of an instrument approach to VFR aerodromes. Here is described the whole process of changing the aerodrome from VFR to IFR, all stakeholders and also the obstacles that are necessary eliminate during this introduction.

K e y w o r d s: VFR aerodrome, IFR procedure, aerodrome status, approach

1 INTRODUCTION

Development of air transport is constantly moving forward and with this development is related continuous improvement of equipment for small aircrafts. These improvements of aircrafts equipment are also usually ahead of pilots and their licences and more importantly ahead of equipment of aerodromes at which such aircrafts are operated. All aviation stakeholders are aware of this status quo, but there are not enough efforts to change it.

In this article, we discuss the change of status of the aerodrome from VFR to IFR so it can improve the quality of its services and the development due to enabling operation even in poor weather conditions by using instrument approach.

Achieving publication of IFR procedures to currently VFR aerodrome is not easy task, because it is needed to overcome a number of obstacles. The possibility of using RNP approach, for which there is no need to build terrestrial radio navigation equipment, is an important advantage for this change.

2 PROCEDURAL OBSTACLES FOR INTRODUCTION OF INSTRUMENT APPROACH

The whole process of changing the aerodrome status and introduction of an instrument approach is technically very simple, but from a procedural point of view, this is an issue that must be tackled with all stakeholders, both regulators and airspace users. Due to each person's right to enter the airspace, the procedural obstacles are the most complex ones and it may happen that the disagreements between stakeholders will stop the implementation of IFR approach.

Procedural obstacles are listed in Table 1 and they had assigned an appropriate solver.

Table 1 - Procedural obstacles with appropriate solvers

	Process	Solver
1	Establishment of implementation team	Aerodrome operator
2	Determination of the necessary changes for the introduction of IFR approach	Implementation team
3	Determination of the method of application of changes to airspace	Implementation team
4	Application of changes to airspace	CAA
5	Determining the type of IFR procedure - classic vs. Cloud break procedure	Aerodrome operator
6	Determining the need to create a safety study for changing the status to IFR	CAA
7	Creating a safety study for VFR to IFR change	Aviation Experts
8	Ensuring documentation of the change of airports status	Aerodrome operator
9	Approval of change in aerodrome status	CAA
10	Designing the approach	ANSP + Aerodrome operator
11	Creating a safety study for the approach	Aviation Experts
12	Fulfilment of ADQ	Aerodrome operator
13	IFR approach approval	CAA

2.1 Establishment of implementation team

Implementation team for the introduction of an instrument approach to previously non-instrument aerodrome must include the aerodrome operator, representatives of all organizations which will be affected by the planned change, and experts in the relevant aviation issues. Specifically, there are regulators (in the Czech Republic Civil Aviation Authority and the Ministry of Transport of the Czech Republic) and representatives of airspace users' organizations (Light Aircraft Association of the Czech Republic, the Aero Club of the Czech Republic, Czech Air Force, and Ministry of Defence of the Czech Republic).

The aerodrome operator has the task to call up the implementation team, since he is the subject who intends to introduce the change.

2.2 Determination of the necessary changes for the introduction of IFR approach

The volume of changes that have to be done to achieve the successful implementation of instrument approach to non-instrument aerodrome must be determined by implementation team.

Among the major changes that usually occur could be included changes to legislation, regulations and aviation maps, the introduction of new type of airspace, or change their boundaries and size, establishing procedures for the new approach, e.g. communication and identifying the necessary infrastructure changes. Changes related directly to the terrestrial part of the aerodrome are in the full responsibility of the aerodrome operator, but changes concerning airspace need to be addressed by the implementation team.

2.3 Determination of the method of application of changes to airspace

The implementation team needs to determine the method for application of changes to airspace.

Here can be find serious problems in the negotiation between the members of the implementation team, as everyone has different requirements for airspace and therefore it is necessary to find a compromise. An example might be the need to protect IFR operation by introducing a requirement for two-way radio communication between aircraft in the aerodrome vicinity and AFIS. The introduction of this obligation could ensure the safety of IFR flights, since all aircraft will have the information about the IFR approach. However, this requirement is very painful to the interests of Light Aircraft Association (parachutes, hand gliders, ultralights), who according to law may not be equipped with a radio and thus will prevent them to fly into this airspace. The solution can be flexible activation time of the airspace, commonly known as HX.

2.4 Application of changes to airspace

As already mentioned, identification of changes and determination of applications are very important steps in the progress of work on the introduction of an instrument approach to the new aerodrome. The final application of these changes is in the competences of the regulator responsible for this area - airspace - the Civil Aviation Authority in cooperation with the Ministry of Transport of the Czech Republic.

Due to possibly very specific changes, it is appropriate to include aviation experts, e.g. members of the implementation team as consultants into this application process.

2.5 Determining the type of IFR procedure

In determining which type of approach should be implemented at the aerodrome, it is necessary to consider two variables; aerodrome parameters and its operator intentions. Aerodrome operator therefore must decide whether to operate the IFR airport with everything that goes with it (equipment, certification, periodic checks, IFR approach "to the ground"), or will be satisfied with VFR aerodrome (reduced supervisory burden, Cloud Break Procedure).

It is possible that this issue will solve the Civil Aviation Authority from the position of the certification authority by not approving Cloud Break Procedure.

The difference in these approaches are that for the classical IFR approach is necessary to meet the ICAO, EASA and State requirements for the instrument runway and Cloud Break Procedure approach is used mainly for descend through clouds and at a certain height above the ground is necessary to have VMC conditions, or to change to VFR, otherwise it is necessary to initiate a missed approach procedure. In this case runway does not have to meet instrument runway criteria.

2.6 Determining the need to create a safety study for changing the status to IFR

Today, safety studies are the driving force behind the creation of a change in aviation. It is necessary to create it for each, even the slightest, change. In the event that the aerodrome operator decides to stay at the VFR status, this study is not necessary. However, the introduction of the CBP only means more obstacles to the operation of the aerodrome.

Safety study for the change of status from VFR to IFR will have to capture any changes to the aerodrome as well as it should also capture changes regarding to airspace around aerodrome, which is closely related to the change of the status.

Determining the need for safety study is on the decision of the regulator - the Civil Aviation Authority.

2.7 Creating a safety study for VFR to IFR change

Creation of a safety study can be currently done by anybody, but its accuracy is always necessary to consider by CAA experts. Safety study is therefore in most cases created by aviation experts who have a good reputation and is thus likely that their safety study will be correct.

The intention for creation of safety study must come from the aerodrome operator. Until this point, each member of the implementation team worked for free, as it was in their (their organization) best interest. Creating a safety study on the other hand is activity that requires plenty of time and other resources for the successful completion and these resources must provide the client – aerodrome operator.

2.8 Ensuring documentation of the change of airport status

Due to the development of regulations in recent months, it can be concluded that the change in the status of airports do not lay down requirements for the operator to change the type of airspace (to controlled one), or to establishment of an air traffic control. However, it is necessary to ensure the requirements for IFR airport by

the regulations and provide all documents of this transformation as the basis for the status change.

These documents must be logically provided by the aerodrome operator, and submitted for approval to regulator - the CAA.

2.9 Approval of change in aerodrome status

The regulator on the basis of documents supplied by the aerodrome operator can either approve or not approve the change, which should be subsequently completed by certification for IFR operations. In the event that the changes will not be approved, it's mostly because of the lack of documents for approval.

2.10 Designing the approach

Designing approach into official form, i.e. instrument approach chart, for the selected approach is in contrast to the creation of safety studies work for certified PANS OPS designer, who in most cases work in the ANSPs. This implies the need to hire an ANSP for designing of the approach. This method seems most logical given the connection of the new procedure to the whole network of routes and waypoints in the airspace.

2.11 Creating a safety study for the approach

Creating a safety study for approach follows the need to create a safety study of the airport status change and changes in the airspace around the aerodrome. In this case is the client also aerodrome operator and the safety study is created by aviation experts.

2.12 Fulfilment of ADQ

ADQ, i.e. the quality of aeronautical data and aeronautical information, are requirements of the European Commission [4] to ensure the quality of the working process with aeronautical data and information from their acquisition to their publication. The aerodrome operator is in this case obliged to comply with these requirements. The event of a single failure in one point of the regulation make any change impossible.

2.13 IFR approach approval

After meeting all the requirements and steps 1 to 12 mentioned above, it is possible to approve all changes and implement IFR approach to the aerodrome. This approval is granted by the regulator of civil aviation - CAA.

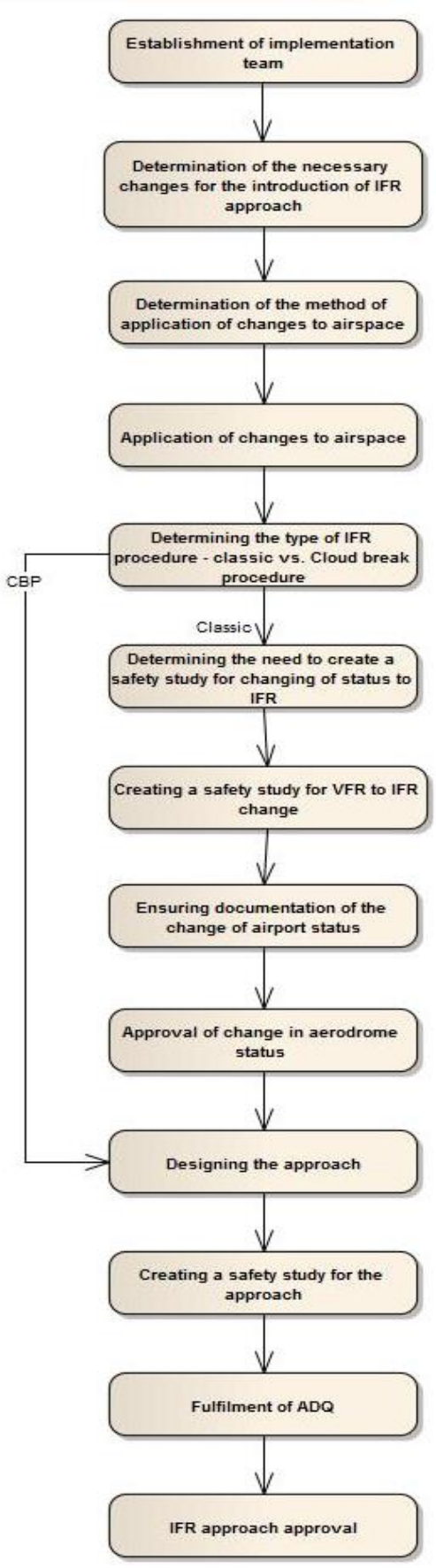

Figure 1 - The process of introducing IFR approach

3 CONCLUSION

This article describes the process of implementation of IFR approach to the new aerodrome. This process may seem very straightforward and absolutely smooth but from the perspective of the aerodrome operator, which wants to establish IFR approach is extremely lengthy. Each stakeholder has always his comments and even though the compromise is always agreed, at the next meeting there is another issue that must be done, which constantly pushes possible date of implementation further. This is mostly because at first are addressed the technical aspects of implementation, which in this case are the simplest, and is ignored the paperwork and administrative delays related to simple signing of agreements among high-ranking government officials.

However, instrument approach for small non-instrument aerodrome is currently one of the ways to encourage the growth of general aviation and to show that this part of aviation has its place in the sky and need to be count with.

ACKNOWLEDGEMENTS

This paper was supported by the Grant Agency of the Czech Technical University in Prague, grant No. SGS14/212/OHK2/3T/16.

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