EUROPEAN AVIATION SAFETY AGENCY

Operational Evaluation Board Report

Dassault Aviation

Falcon 2000

Report, Version 1

28 June 2012

European Aviation Safety Agency
Postfach 10 12 53
D-50452 Köln
Germany

Dassault Aviation Falcon 2000

Operational Evaluation Board (OEB)

Captain Thierry Bouchez
OEB Chairman
DGAC

Captain Frank Van de Broek
OEB Coordinator, Operational Suitability - Fixed Wing - Section
Experts Department, EASA Certification Directorate

Captain Herbert Meyer
Section Manager, Operational Suitability - Fixed Wing -
Experts Department, EASA Certification Directorate

Revision Record

Revision No.	Section	Pages No.	Date
First Issue Draft	All	All	13 April 2012
First Issue Final	Editorial changes to draft	-	28 June 2012

Contents

Acronyms

AFM ..... Airplane Flight Manual
AMC ..... Acceptable Means of Compliance
AOC ..... Air Operator Certificate
ATPL ..... Airline Transport Pilot Licence
ATO..... Approved Training Organisation
CODDE ..... Crew Operational Document for Dassault Aviation EASy
DGAC..... Direction Générale de l'Aviation Civile (French Civil Aviation Authority)
EASA ..... European Aviation Safety Agency
EU-OPS ..... Appendix to COMMISSION REGULATION (EC) No 859/2008
FSTD..... Flight Simulation Training Device
FT..... Feet
HUD ..... Head Up Guidance Display
IEM ..... Interpretative and Explanatory Material
KIAS..... Knots Indicated Air Speed
MEL ..... Minimum Equipment List
MMEL..... Master Minimum Equipment List
NADP ..... Noise Abatement Departure Procedure
ODR ..... Operator Differences Requirements
OEB ..... Operational Evaluation Board
PF ..... Pilot flying
PNF..... Pilot not flying
TRTO ..... Type Rating Training Organisation
SOP ..... Standard Operating Procedures

Dassault Falcon 2000 OEB Composition

Name	Capacity	Task
Thierry BOUCHEZ	EASA	OEB Chairman
Frank VAN DE BROEK	EASA	OEB Coordinator
Herbert MEYER	EASA	OEB Section Manager

Note on references and reference texts:
Where references are made to requirements and where extracts of reference texts are provided, these are at the amendment state at the date of publication of the report. Readers should take note that it is impractical to update these references to take account of subsequent amendments to the source documents.

Executive Summary

1. Manufacturer Application

Dassault Aviation has made an official request to EASA for an OEB of the Steep Approach Landing Procedure for the Falcon 2000.

2. Evaluation

Dassault Aviation has proposed the Steep Approach Landing Procedure which can be found in the CODDE2 Operating Manual and AFM Annexes.

An Operational Suitability Evaluation of Falcon 2000 Steep Approach, using a Falcon 2000 full flight simulator was performed by EASA OEB on 28 October 2011. No flight testing in the aeroplane was deemed necessary by the EASA OEB.

3. OEB Recommendations

The EASA OEB found that Falcon 2000 is operationally suitable for steep approach landing operations up to an approach path angle of 6.65 degrees, using associated CODDE2 procedures provided by Dassault Aviation.

The EASA OEB has determined that the conduct of steep approach landing operations requires no higher piloting skill level than that of normal 3° approaches. However, the EASA OEB requires flight training, including briefing (no formal academic training, i.e. no classroom training), for competency in conducting steep approach landing operations.

Prior to performing Steep Approach Landing Procedures, the EASA OEB recommends adherence to this report.

3.3 There is no Falcon 2000 OEB Report assessing the full training course and the type rating determination for this aeroplane

Captain Herbert Meyer
Section Manager, Operational Suitability - Fixed Wing -
Experts Department, EASA Certification Directorate

Operational Evaluation Report

Steep Approach Landing Procedure

1 General Description of the Steep Approach

1.1 A Steep Approach is used primarily when there are obstacles in the approach path that are too high to allow a normal 3° approach path. An approach path angle of 4,5 degrees or more is considered a steep approach.

1.2 The EASA OEB has determined that the conduct of steep approach landing operations requires no higher piloting skill level that than of normal 3° approaches. However, since steep approach landing operations are often tailored to demanding airports - located in mountainous areas, having short runways - the EASA OEB requires flight training, including briefing (no formal academic training, i.e. no classroom training), for competency in conducting steep approach landing operations.

1.3 The EASA OEB found that Falcon 2000 is operationally suitable for steep approach landing operations up to an approach path angle of 6.65 degrees with aircrew trained in accordance with the requirements set in this paragraph, and using associated CODDE2 procedures provided by Dassault Aviation.

2 The Operational Suitability Evaluation process

An Operational Suitability Evaluation of Falcon 2000 Steep Approach, using a Falcon 2000 full flight simulator was performed by EASA OEB on 28 October 2011. No flight testing in the aeroplane was deemed necessary by the EASA OEB.

3 EU-OPS Requirements for Steep Approach Procedures

The following EU-OPS and associated AMC references relate to steep approaches:

- Appendix 1 to OPS1.515(a)3: Steep approach procedures
- EU-OPS1.975: Route and aerodrome competence qualification
- AMC OPS1.975 §5 (TGL44): Route and aerodrome competence qualification (Category C aerodrome)

4 Falcon 2000 References

Refer to appropriate CODDE 2 and AFM Annexes.

5 Steep Approach Aerodrome Requirements

Operators must comply with any aerodrome specific requirements for steep approaches (e.g. in London City - EGLC).

Note: Pilots performing steep approaches at Lugano airport (LSZA) must be informed about the Dassault letter titled "Falcon - Lettre de non-objection pour les approches de Lugano" (Reference DGT-DTC/CER 568463 dated 22 June 2006). This letter specifies that Dassault has no objection regarding the initial phase of the approach flown at 6.65º provided that the aircraft is operated in accordance with the AFM or the associated operating manual, and that the operator has obtained operational approval from the competent Authority.

6 Specifications for Training

6.1 Pilot Training Prerequisite

No prerequisite is required before entering the Steep Approach pilot course except a current type rating on the aeroplane, or full initial type rating training up to, but excluding, the check ride.

6.2 The crew must be trained in using the procedure provided in the Dassault Aviation CODDE2 Operating Manual (Normal Operations – Special Procedures – Operations) or in the equivalent company SOP's.

The Steep Approach pilot training course can be included as an integral part of the aeroplane type rating training course.

6.3 Steep Approach Pilot Training Programme

6.3.1 Flight Training

Flight training (as PF or PNF) may be conducted in a Falcon 2000 Level C or D FFS or in the aircraft with a Type Rating Instructor (TRI) and must address the following:

- Briefing prior to the simulator session, or during the flight preparation to include: AFM/ CODDE2 Limitations, Normal / Abnormal Procedures, Performance with special emphasis on increased landing distance.
- Phases of the Steep Approach, to include: Stabilized approach concept as a key success for steep approach landing, appropriate slats / flaps configuration, approach speed, and flare initiation.

6.3.2 Initial Training

The initial training should comprise, as a minimum, three Steep Approaches:

- one approach following a 5.5° Approach Path Angle with full stop landing to comply with normal procedures; and
- one approach following a 6.65° Approach Path Angle with engine anti-ice management introducing an abuse in speed, managed by crew using AB1 and AB2 alternatively (pilot has to demonstrate his ability to be stabilized at 1000 ft), until touchdown followed by a go-around; and
- one approach following a 5.5° or 6.65° Approach Path Angle with an engine failure below 400 ft, followed by a full stop landing or a go-around at pilot discretion.

When a HUD is installed, the OEB recommends to perform the first approach using the HUD (final phase is VMC), and in accordance with the CODDE2/AFM Limitations section applicable for steep approaches. In flight, the OEB recommends HUD use during the VMC phase.

6.3.3 Recurrent Training

The Recurrent Steep Approach training should be performed every 6 months, and should include, as a minimum, one Steep Approach and a second Steep Approach where non-normal situations are introduced during the Approach.

6.3.4 Training Areas of Special Emphasis

The approach briefing should include all aspects of the Steep Approach, including as a minimum:

- normal and abnormal procedures during the Steep Approach;
- transition from a glide path reference system to a visual glide path indicating system; and
- computation of the field length data when using steep approach criteria.

The crew should become proficient on the task sharing described in the Special Procedure for Steep Approach, in particular regarding go-around. Both pilots shall be trained in the procedure as PF and PNF, as applicable.

7 Recent Experience / Currency

The OEB determined that there are no specific recent experience or currency requirements for Steep Approach.

8 Training Credit

Training credit (Initial and Recurrent) can be given for Steep Approaches training performed on either Falcon 2000EX, Mystère-Falcon 900, Falcon 900C, or Falcon 900EX provided a briefing covering the steep approach procedures avionics differences is taken.

9 Period of Validity of Competence

Before performing Steep Approach Landing Operations, an operator shall ensure that the commander fulfils the same requirements of EU-OPS1.975(b)(c) and (d).

10 Checking Requirements

There is no requirement for knowledge checking or flight proficiency testing for Falcon 2000 steep approach qualification.

Proof of completion of Falcon 2000, Falcon 2000EX, Mystère-Falcon 900, Falcon 900C, or Falcon 900EX steep approach training is sufficient to demonstrate qualification.