Flight Standardization Board (FSB) Report

Revision: 9
Date: 07/23/2018

Manufacturer
Dassault Aviation

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<td>Falcon 900EX EASy</td>
<td>DA-EASy</td>
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<td>Falcon 900EX</td>
<td>Falcon 900LX</td>
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2. INTRODUCTION

Aircraft Evaluation Groups (AEG) are responsible for working with aircraft manufacturers and modifiers during the development and Federal Aviation Administration (FAA) certification of new and modified aircraft to determine: 1) the pilot type rating; 2) flightcrew member training, checking, and currency requirements; and 3) operational suitability.

This report lists those determinations for use by: 1) FAA employees who approve training programs; 2) FAA employees and designees who certify airmen; and 3) aircraft operators and training providers to assist them in developing their flightcrew member training, checking, and currency.

3. HIGHLIGHTS OF CHANGE

- Head-Up Display (HUD) training requirements revised.
- Enhanced Flight Vision System (EFVS) full flight simulator (FFS) training requirements revised.
- Appendix 3 Training program objectives removed.
- Appendix 4 Aircraft Compliance checklist removed.
- FalconEye Synthetic Vision System (SVS) training requirements added to appendix 4.
- FalconEye EFVS system training requirements added to appendix 5.
- Differences tables added.
- The Dassault FAST Training course description was removed and replaced with reference to FAA Order 8900.1 guidance on Multiple Curriculum Training Program (reduced planned hour training program).
- EASy I training information removed due to no remaining aircraft in DA-EASy fleet configured with EASy I avionics.
Administrative editing throughout document for clarification, FAA writing guidelines, and revised Flight Standardization Board (FSB) report format requirements.

NOTE: Due to significant administrative changes, revision bars are not used in this revision.

4. BACKGROUND

The Seattle AEG formed an FSB that evaluated the Falcon 900EX as defined in FAA Type Certificate Data Sheet (TCDS) #A46EU. The evaluation was conducted using the methods described in the current edition of FAA Advisory Circular (AC) 120-53, Guidance for Conducting and Use of Flight Standardization Board Evaluations.

EASy designation for the Falcon 900EX does not correspond to a model designation. This is only a commercial designation for airplanes on which major modification number M3083 has been applied. Major Change Modification number M3083 to the Falcon 900EX consists of the installation of an Enhanced Avionics System (EASy) based on the Honeywell “Primus EPIC” product line. This system architecture is mainly built around two cabinets called Modular Avionics Units (MAU), two Modular Radio Cabinets (MRC), two audio panels, two reversionary panels and four 14.1-inch liquid crystal displays (LCD). The pilots have access to the system using the two Cursor Control Devices (CCD) with multipurpose knob, menu pushbutton, display switch, action pushbuttons and trackball, two alphanumeric keyboards, and the hard controls.

Serial numbers 97 and 120 through 600 include M3083 as standard (900EX EASy definition).

The DX definition of the Falcon 900EX does not correspond to a model designation. The Falcon 900DX is only a commercial designation for Falcon 900EX EASy airplanes on which the following modifications are installed at production:

<table>
<thead>
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<th>Modification number</th>
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<th>Title</th>
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<td>EASy Step 3 Configuration</td>
<td>M4000</td>
<td>Definition of 900DX</td>
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<td>M3555</td>
<td>Rear Compartment mod</td>
<td>M3755</td>
<td>Main Battery Relocation</td>
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<td>M5047</td>
<td>Feeder Routing in Rear Comp.</td>
<td>M5012</td>
<td>Fastener Change in Longitudinal Beams</td>
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<td>M5046</td>
<td>FQMC Software Update</td>
<td>M3987</td>
<td>Electronic Checklist for 900DX</td>
</tr>
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</table>

Aircraft serial number 601 and subsequent include M3083, M3876, M4000, M3555, M3755, M5047, M5012, M5046, and M3987 as standard (900DX definition).

The LX definition of the Falcon 900EX does not correspond to a model designation. The Falcon 900LX is only a commercial designation for the Falcon 900EX EASy on which modifications M5281 and M5535 (winglets) have been installed at production.
Aircraft serial numbers 240 and subsequent include M5281 and M5535 as standard (900LX definition).

Unless otherwise specified, reference to DA-EASy in this report means the Falcon 900EX EASy, Falcon 900DX, and Falcon 900LX.

The FSB conducted an evaluation of the Honeywell EASy II avionics upgrade. The EASy II avionics upgrade, as well as the associated Airplane Flight Manual (AFM) change, was found to be operationally suitable. Training and checking requirements are listed in Appendix 8, EASy II Avionics.

The FSB has determined that the Falcon 900EX EASy, Falcon 900DX, and Falcon 900LX have a different pilot type rating than previous Falcon 900EX and 50 models.

Prior to revision 9 of this report, the FSB conducted an evaluation of Special Authorization (SA) Category (CAT) I and SA CAT II operations. SA CAT I and SA CAT II operations were found to be operationally suitable. Training and checking requirements are listed in Appendix 4, Head-Up Display (HUD) System.

In April 2016, the FSB conducted flight evaluations of the FalconEye (Head-Up Display (HUD)/SVS/EFVS/combined vision system (CVS)) system. The FalconEye HUD combines Synthetic and Enhanced Vision information on the HUD display. The FalconEye system, as well as the associated AFM change, was found to be operationally suitable for situational awareness. Training, checking, and currency requirements are listed in Appendix 4 and Appendix 5, HUD with Enhanced Flight Visions Systems.

5. **ACRONYMS**

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<td>14 CFR</td>
<td>Title 14 of the Code of Federal Regulations</td>
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<td>AC</td>
<td>Advisory Circular</td>
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<td>ADM</td>
<td>Automatic Descent Mode</td>
</tr>
<tr>
<td>ADS</td>
<td>Automatic Dependent Surveillance</td>
</tr>
<tr>
<td>ADS-B</td>
<td>Automatic Dependent Surveillance-Broadcast</td>
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<tr>
<td>AEG</td>
<td>Aircraft Evaluation Group</td>
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<td>AFCS</td>
<td>Automatic Flight Control System</td>
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<tr>
<td>AFM</td>
<td>Airplane Flight Manual</td>
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<tr>
<td>AOA</td>
<td>Angle of Attack</td>
</tr>
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<td>ATC</td>
<td>Air Traffic Control</td>
</tr>
<tr>
<td>ATN</td>
<td>Aeronautical Telecommunication Network</td>
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<td>CAS</td>
<td>Crew Alerting System</td>
</tr>
<tr>
<td>CCD</td>
<td>Cursor Control Device</td>
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<td>CODDE</td>
<td>Crew Operational Documentation for Dassault EASy</td>
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<tr>
<td>CPDLC</td>
<td>Controller-Pilot Data Link Communication</td>
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<tr>
<td>CPT</td>
<td>Cockpit Procedures Trainer</td>
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<tr>
<td>CVS</td>
<td>Combined Vision System</td>
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<tr>
<td>DTS</td>
<td>Desktop Simulation</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
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<td>EFB</td>
<td>Electronic Flight Bag</td>
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<td>EFVS</td>
<td>Enhanced Flight Vision System</td>
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<td>FAA</td>
<td>Federal Aviation Administration</td>
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<tr>
<td>FAF</td>
<td>Final Approach Fix</td>
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<td>FANS</td>
<td>Future Air Navigation Systems</td>
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<td>FD</td>
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<td>FFS</td>
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<td>FMS</td>
<td>Flight Management System</td>
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<td>FPS</td>
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<td>FSB</td>
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<td>FSTD</td>
<td>Flight Simulation Training Device</td>
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<td>FTD</td>
<td>Flight Training Device</td>
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<td>GFS</td>
<td>Graphical Flight Simulator</td>
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<td>HGS</td>
<td>Rockwell Collins Head-Up Guidance System</td>
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<td>HUD</td>
<td>Head-Up Display</td>
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<tr>
<td>IMC</td>
<td>Instrument Meteorological Conditions</td>
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<tr>
<td>I-NAV</td>
<td>Interactive Navigation Display</td>
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<td>IPT</td>
<td>Instrument Procedures Trainer</td>
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<td>IR</td>
<td>Infrared</td>
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<td>LPV</td>
<td>Localizer Performance with Vertical Guidance</td>
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<tr>
<td>MEL</td>
<td>Minimum Equipment List</td>
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<tr>
<td>MDU</td>
<td>Multifunction Display Units</td>
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<tr>
<td>MDR</td>
<td>Master Differences Requirements</td>
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<tr>
<td>MMEL</td>
<td>Master Minimum Equipment List</td>
</tr>
<tr>
<td>NADP</td>
<td>Noise Abatement Departure Procedure</td>
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<tr>
<td>NSP</td>
<td>National Simulator Program</td>
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<tr>
<td>OE</td>
<td>Operating Experience</td>
</tr>
<tr>
<td>OSR</td>
<td>Operational Suitability Report</td>
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<tr>
<td>PDU</td>
<td>Primary Display Unit</td>
</tr>
<tr>
<td>PF</td>
<td>Pilot Flying</td>
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<tr>
<td>PIC</td>
<td>Pilot in Command</td>
</tr>
<tr>
<td>PM</td>
<td>Pilot Monitoring</td>
</tr>
<tr>
<td>QRH</td>
<td>Quick Reference Handbook</td>
</tr>
<tr>
<td>RAAS</td>
<td>Runway Awareness Advisory System</td>
</tr>
<tr>
<td>RNAV</td>
<td>Area Navigation</td>
</tr>
<tr>
<td>RNP</td>
<td>Required Navigation Performance</td>
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<td>RVR</td>
<td>Runway Visual Range</td>
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<tr>
<td>SBAS</td>
<td>Satellite-Based Augmentation System</td>
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<tr>
<td>SIC</td>
<td>Second in Command</td>
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<td>TCAS</td>
<td>Traffic Alert and Collision Avoidance System</td>
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<td>TCDS</td>
<td>Type Certificate Data Sheet</td>
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<tr>
<td>VMC</td>
<td>Visual Meteorological Conditions</td>
</tr>
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</table>
6. DEFINITIONS

These definitions are for the purposes of this report only.

6.1. **Base Aircraft.** An aircraft identified for use as a reference to compare differences with another aircraft.

6.2. **Current.** A crewmember meets all requirements to operate the aircraft under the applicable operating part.

6.3. **Differences Tables.** Describe the differences between a pair of related aircraft and the minimum levels operators must use to conduct differences training and checking of crewmembers. Difference levels range from A to E.

6.4. **Master Differences Requirements (MDR).** Specifies the highest training and checking difference levels between a pair of related aircraft derived from the Differences Tables.

6.5. **Mixed Fleet Flying.** The operation of a base aircraft and one or more related aircraft for which credit may be taken for training, checking, and currency events.

6.6. **Operational Evaluation.** An AEG process to determine pilot type rating, minimum crewmember training, checking, and currency requirements, and unique or special airman certification requirements (e.g., specific flight characteristics, no-flap landing).

6.7. **Operational Suitability.** An AEG determination that an aircraft or system may be used in the National Airspace System (NAS) and meets the applicable operational regulations (e.g., Title 14 of the Code of Federal Regulations (14 CFR) parts 91, 121, 133, 135).

6.8. **Qualified.** A crewmember holds the appropriate airman certificate and ratings as required by the applicable operating part.

6.9. **Related Aircraft.** Any two or more aircraft of the same make with either the same or different type certificates that have been demonstrated and determined by the Administrator to have commonality.

6.10. **Seat Dependent Tasks.** Maneuvers or procedures using controls that are accessible or operable from only one flightcrew member seat.

6.11. **Special Emphasis Area.** A training requirement unique to the aircraft, based on a system, procedure, or maneuver, which requires additional highlighting during training. It may also require additional training time, specialized training devices, or training equipment.

6.12. **Specific Flight Characteristics.** A maneuver or procedure with unique handling or performance characteristics that the FSB has determined must be checked.
7. **PILOT TYPE RATING**

7.1. Type Rating. The Falcon 900 EX EASy, 900DX, and 900LX share the same type rating designation, which is DA-EASY.

7.2. Common Type Ratings. Not applicable.

7.3. Military Equivalent Designations. Military aircraft that qualify for the DA-EASY can be found on the faa.gov website under Licenses and Certificates, Airmen Certification, Online Services, Aircraft Type Rating Designators. This webpage is kept up-to-date and can be found at [http://www.faa.gov/licenses_certificates/airmen_certification](http://www.faa.gov/licenses_certificates/airmen_certification).

8. **RELATED AIRCRAFT**

8.1. Related Aircraft with the Same Pilot Type Rating on the Same TCDS.

<table>
<thead>
<tr>
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<th>TCDS Identifier</th>
<th>Marketing Name</th>
<th>Pilot Type Rating</th>
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<td>A46EU</td>
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<td>Falcon 900EX</td>
<td>Falcon 900LX</td>
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8.2. Related Aircraft on Different TCDS. Not applicable.

9. **PILOT TRAINING**

9.1. Airman Experience.

Airmen receiving initial DA-EASy training will benefit from prior experience operating turbojet multi-engine transport category aircraft. Additionally, a working knowledge of advanced aircraft systems and highly integrated avionics systems with electronic flight displays is highly recommended. Pilots without this experience may require additional training.

9.2. Special Emphasis Areas.

9.2.1 Pilots must receive special emphasis on the following areas during ground training:

- a. Documentation, including Crew Operational Documentation for Dassault EASy (CODDE) 1, CODDE 2, quick reference handbook (QRH) 1, QRH 2, Pilot Assist List, and Master Minimum Equipment List (MMEL). This item must be included in initial, transition, differences, upgrade, and recurrent training.
b. EASy Avionics, including avionics architecture, display and panel management, Primary Display Units (PDU), Multifunction Display Units (MDU), and electronic checklists (ECL). This item must be included in initial, transition, differences, upgrade, and recurrent training.

9.2.2 Pilots must receive special emphasis on, and perform the following areas during flight training:

a. Use of documentation, including CODDE 1, CODDE 2, QRH 1, QRH 2, Pilot Assist List, and MMEL. This item must be included in initial, transition, differences, upgrade, and recurrent training

b. EASy Avionics, including avionics architecture, display and panel management, PDUs, MDUs, and ECLs. This item must be included in initial, transition, differences, upgrade, and recurrent training.


Maneuvers/Procedures required to be checked as referenced in the airline transport pilot (ATP) and Type Rating practical test standards (PTS) or Airman Certification Standards (ACS), as applicable.

There are no specific flight characteristics.

9.4. Seat Dependent Tasks. Pilots must receive training in these seat dependent tasks:

9.4.1 Passenger Oxygen System activation (right seat); initial training.

9.4.2 Manual Landing Gear Extension (right seat); initial training.

9.4.3 Operators who elect to install the optional HUD must train and check seat dependent tasks associated with the HUD (both seats); initial, recurrent training.

9.4.4 Emergency (parking) brake activation (both seats); initial training.

9.5. Regulatory Training Requirements which are Not Applicable to the DA-EASy.

None.


9.6.1 When HUD training is conducted in a full flight simulator (FFS), it must be trained in a level C or higher FFS with a HUD and an operative visual system. See additional information in Appendix 4.

9.6.2 EFVS must be trained in a Level C or higher FFS with a daylight visual system. See additional information in Appendix 5.
9.7. Training Equipment.

There are no specific systems or procedures that are unique to the DA-EASy that require specific training equipment.


Pilots must receive differences training when transitioning from any Dassault Falcon 900EX EASy/Falcon 900DX/Falcon 900LX commercial designation to another commercial designation of this type. The level of training is specified in Appendix 3, Differences Tables.

9.9. Multiple Curricula Training Programs (Reduced Planned Hour Training Programs).

The FSB has determined that the DA-EASy (900EX EASy/900DX/900LX) shares common characteristics with the Falcon 2000EX EASy (DA-2EASy and all variations). It may be possible, in accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, Paragraph 3-1078, Multiple Curricula of a Single Category, to develop reduced planned hour training programs for pilots with training and experience in the DA-2EASy aircraft.

Candidates for a reduced planned hour training program in the DA-EASy must, at a minimum, have the following qualifications and recent experience:

9.9.1 Must hold an unrestricted type rating in the DA-2EASy aircraft.

9.9.2 Must have a minimum of 150 hours pilot in command (PIC) or second in command (SIC) pilot time in the DA-2EASy aircraft.

9.9.3 Must have a current proficiency/competency check (14 CFR part 61, § 61.58, part 91, § 91.1065, or part 135, § 135.293) in a DA-2EASy, as appropriate to the operation being conducted.

9.9.4 Must pass a knowledge test approved for the training provider establishing adequate knowledge in the DA-2EASy.

10. PILOT CHECKING

There are no additional pilot checking requirements for the DA-EASy other than those already specified in parts 61, 121, and 135.

10.1. Landing From a No-Flap or Nonstandard Flap Approach.

The probability of flap extension failure on the DA-EASy is not extremely remote due to system design. Therefore, demonstration of a no-flap approach and landing during pilot certification or a § 61.58 proficiency check, § 91.1065 competency check, part 121, § 121.441 proficiency check or § 135.293 competency check is required. Refer to Order 8900.1 Volume 5 when the test or check is conducted in an aircraft versus an FFS.
10.2. Specific Flight Characteristics.

Maneuvers/procedures required to be checked as referenced in the ATP and Type Rating PTS or ACS, as applicable.

There are no specific flight characteristics.

10.3. Seat Dependent Tasks.

There are no seat dependent checking tasks.

10.4. Other Checking Items.

Not applicable.

10.5. FSTDs.

There are no specific systems, procedures, or maneuvers that are unique to the DA-EASy that require a specific FSTD for checking.

10.6. Equipment.

There are no specific systems or procedures that are unique to the DA-EASy that require specific equipment.

10.7. Differences Checking Between Related Aircraft.

Not applicable.

11. PILOT CURRENCY

11.1. There are no additional currency requirements for the DA-EASy other than those already specified in parts 61, 121, and 135.

11.2. Differences Currency Between Related Aircraft.

Not applicable.

12. OPERATIONAL SUITABILITY

The DA-EASy is operationally suitable for operations under parts 91, part 91 subpart K (part 91K), 121, and 135.
13. MISCELLANEOUS


The DA-EASy forward observer seat as installed by TCDS #A46EU has been evaluated and determined to meet requirements of § 135.75(b) and AC 120-83, Flight Deck Observer Seat and Associated Equipment.


The DA-EASy is considered Category C aircraft for the purposes of determining “straight-in landing weather minima.” Operators may be required to use Category D minimums for circling approaches or in abnormal or emergency situations when approach speed exceeds the upper limit of Category C.

13.3. Emergency Evacuation.

The FSB has not evaluated an emergency evacuation from the DA-EASy.


The DA-EASy normal “final landing flap setting” per § 91.126(c) is SF3.

13.5. Aircraft Proving Tests.

Proving tests in accordance with parts 91K, 121, and 135 are appropriate when the DA-EASy is new to an operator.


Refer to the Operational Suitability Report (OSR) titled Dassault-Aviation Electronic Flight Bag (EFB) Type B Software, Jeppesen FliteDeck, Mobile FD, and EPM for EASy cockpit Presented on the CMC CMA-1100 and iPad2.
APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

<table>
<thead>
<tr>
<th>Differences Level</th>
<th>Type</th>
<th>Training Method Examples</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Self-Instruction</td>
<td>• Operating manual revision (HO)</td>
<td>• Crew has already demonstrated understanding on base aircraft (e.g., updated version of engine).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Flightcrew operating bulletin (HO)</td>
<td>• Minor or no procedural changes required.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Crew has already demonstrated understanding on base aircraft</td>
<td>• No safety impact if information is not reviewed or is forgotten (e.g., different engine vibration damping mount).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Minor or no procedural changes required.</td>
<td>• Once called to attention of crew, the difference is self-evident.</td>
</tr>
<tr>
<td>B</td>
<td>Aided Instruction</td>
<td>• Audiovisual presentation (AV)</td>
<td>• Systems are functionally similar.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tutorial computer-based instruction (TCBI)</td>
<td>• Crew understanding required.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stand-up instruction (SU)</td>
<td>• Issues need emphasis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Systems are functionally similar.</td>
<td>• Standard methods of presentation required.</td>
</tr>
<tr>
<td>C</td>
<td>Systems Devices</td>
<td>• Interactive (full-task) computer-based instruction (ICBI)</td>
<td>• Training can only be accomplished through systems training devices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cockpit procedures trainers (CPT)</td>
<td>• Training objectives focus on mastering individual systems, procedures, or tasks versus highly integrated flight operations or “real-time” operations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Part task trainers (PTT)</td>
<td>• Training devices are required to assure attainment or retention of crew skills to accomplish more complex tasks usually related to aircraft systems.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Level 4 or 5 flight training device (FTD 4–5)</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Maneuvers Devices</td>
<td>• Level 6 or 7 flight training device (FTD 6–7)</td>
<td>• Training can only be accomplished in flight maneuver devices in a real-time environment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Level A or B full flight simulator (FFS A–B)</td>
<td>• Training requires mastery of interrelated skills versus individual skills.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motion, visual, control loading, and specific environmental</td>
<td>• Motion, visual, control loading, audio, and specific environmental conditions may be required.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>conditions are required.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Significant full task differences that require a high fidelity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>environment.</td>
<td>• Usually correlates with significant differences in handling qualities.</td>
</tr>
<tr>
<td>E</td>
<td>Level C/D FFS or</td>
<td>• Level C or D full flight simulator (FFS C–D)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aircraft</td>
<td>• Aircraft (ACFT)</td>
<td></td>
</tr>
</tbody>
</table>
## Checking Differences Legend

<table>
<thead>
<tr>
<th>Differences Level</th>
<th>Checking Method Examples</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Oral or written exam</td>
<td>• Individual systems or related groups of systems.</td>
</tr>
<tr>
<td></td>
<td>• Tutorial computer-based instruction self-test (TCBI)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interactive (full-task) computer-based instruction (ICBI)</td>
<td>• Checking can only be accomplished using systems devices.</td>
</tr>
<tr>
<td></td>
<td>• Cockpit procedures trainers (CPT)</td>
<td>• Checking objectives focus on mastering individual systems, procedures, or tasks.</td>
</tr>
<tr>
<td></td>
<td>• Part task trainers (PTT)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Level 4 or 5 flight training device (FTD 4–5)</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>• Level 6 or 7 flight training device (FTD 6–7)</td>
<td>• Checking can only be accomplished in flight maneuver devices in a real-time environment.</td>
</tr>
<tr>
<td></td>
<td>• Level A or B full flight simulator (FFS A–B)</td>
<td>• Checking requires mastery of interrelated skills versus individual skills.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motion, visual, control loading, and specific environmental conditions may be required.</td>
</tr>
<tr>
<td>E</td>
<td>• Level C or D full flight simulator (FFS C–D)</td>
<td>• Significant full task differences that require a high fidelity environment.</td>
</tr>
<tr>
<td></td>
<td>• Aircraft (ACFT)</td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE

These are the minimum levels of training and checking required derived from the highest level in the Differences Tables in Appendix 3. Differences levels are arranged as training/checking.

<table>
<thead>
<tr>
<th>Related Aircraft ↓</th>
<th>Base Aircraft</th>
<th>Falcon 900EX EASy I</th>
<th>Falcon 900DX EASy I</th>
<th>Falcon 900LX EASy I</th>
<th>Falcon 900EX EASy II</th>
<th>Falcon 900DX EASy II</th>
<th>Falcon 900LX EASy II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falcon 900EX EASy II</td>
<td></td>
<td>D/A</td>
<td>D/B</td>
<td>D/A</td>
<td>Not applicable</td>
<td>A/A</td>
<td>B/A</td>
</tr>
<tr>
<td>Falcon 900DX EASy II</td>
<td></td>
<td>D/B</td>
<td>D/A</td>
<td>D/A</td>
<td>B/B</td>
<td>Not applicable</td>
<td>B/B</td>
</tr>
<tr>
<td>Falcon 900LX EASy II</td>
<td></td>
<td>D/A</td>
<td>D/A</td>
<td>D/A</td>
<td>B/A</td>
<td>B/A</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
APPENDIX 3. DIFFERENCES TABLES

This **Design** Differences table, from the **900EX EASy** to the **900DX**, was proposed by manufacturer and validated by the Flight Standardization Board (FSB) on February 18, 2005. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

<table>
<thead>
<tr>
<th>FROM BASE AIRCRAFT: 900EX EASy</th>
<th>DESIGN</th>
<th>REMARKS</th>
<th>FLT CHAR</th>
<th>PROC CHNG</th>
<th>TRAINING</th>
<th>CHECKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO RELATED AIRCRAFT: 900DX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weights/CG</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 - Electrical Power</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 - Fire Protection</td>
<td>Design, Controls, and Indications</td>
<td>No</td>
<td>Yes</td>
<td>B</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>28 - Fuel</td>
<td>Design, Controls, and Indications</td>
<td>No</td>
<td>Yes</td>
<td>B</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>31 - Indicating/Recording Systems</td>
<td>Indications</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>34 - Navigation</td>
<td>FMS data for MTOW and MLW - Fuel management - Performance</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>35 - Oxygen</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This **Design** Differences table, from the **900EX EASy** to the **900LX**, was proposed by the manufacturer and validated by the FSB on June 11, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

<table>
<thead>
<tr>
<th>FROM BASE AIRCRAFT: 900EX EASy</th>
<th>DESIGN</th>
<th>REMARKS</th>
<th>FLT CHAR</th>
<th>PROC CHNG</th>
<th>TRAINING</th>
<th>CHECKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO RELATED AIRCRAFT: 900LX</td>
<td>Dimensions</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weight/CG</td>
<td>No</td>
<td>No</td>
<td>B</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>00 - General Documentation</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27 - Flight Controls</td>
<td>Design</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>34 - Avionics</td>
<td>Design and Indications</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>50 - Structure</td>
<td>Design</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>
This **Maneuver** Differences table, from the **900EX EASy** to the **900LX**, was proposed by the manufacturer and validated by the FSB on June 11, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

<table>
<thead>
<tr>
<th>FROM BASE AIRCRAFT: 900EX EASy</th>
<th>MANEUVER</th>
<th>REMARKS</th>
<th>FLT CHAR</th>
<th>PROC CHNG</th>
<th>TRAINING</th>
<th>CHECKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO RELATED AIRCRAFT: 900LX</td>
<td>Limitations</td>
<td>- Center of Gravity</td>
<td>No</td>
<td>No</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- SF1 Takeoff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preflight Inspection</td>
<td>No</td>
<td>Yes</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Takeoff and Go-Around Performance</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approaches</td>
<td>- Steep approach</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- HUD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Normal</td>
<td>No</td>
<td>Yes</td>
<td>B</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRUISE Performance</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Phases of Flight</td>
<td>Similar flight characteristics in all operational phases of flight.</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>
This Design Differences table, from Rockwell Head-Up Display (HUD) with Enhanced Vision System (EVS) equipped aircraft to FalconEye HUD with Enhanced Flight Vision System (EFVS)/Synthetic Vision System (SVS)/combined vision system (CVS) equipped aircraft, was proposed by a 14 CFR part 142 training provider and validated by the FSB in March 2018. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members. See Appendix 5.

<table>
<thead>
<tr>
<th>FROM BASE AIRCRAFT: Rockwell HUD equipped</th>
<th>DESIGN</th>
<th>REMARKS</th>
<th>FLT CHAR</th>
<th>PROC CHNG</th>
<th>TRAINING</th>
<th>CHECKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO RELATED AIRCRAFT: FalconEye equipped</td>
<td>Flight Deck</td>
<td>FalconEye components (projector and combiner) are installed on the left-hand side of the cockpit at the same location as the Collins components. Both systems also feature a camera control located between the Upper Center MDU and the left PDU.</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Documentation</td>
<td>Documentation collections created for FalconEye, with similar layout as for the Collins system.</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>31 - Indicating/Recording Systems</td>
<td>HUD Symbology, SVS data, and/or EVS video displayed in the HUD or in MDU.</td>
<td>No</td>
<td>No</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>31 - Indicating/Recording Systems</td>
<td>New advisory CAS messages.</td>
<td>No</td>
<td>No</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>FROM BASE AIRCRAFT: Rockwell HUD equipped</td>
<td>DESIGN</td>
<td>REMARKS</td>
<td>FLT CHAR</td>
<td>PROC CHNG</td>
<td>TRAINING</td>
<td>CHECKING</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>--------</td>
<td>---------</td>
<td>----------</td>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>TO RELATED AIRCRAFT: FalconEye equipped</td>
<td>34 - Navigation</td>
<td>New pilot’s control for HUD, SVS, EVS, CVS symbology, and video settings.</td>
<td>No</td>
<td>No</td>
<td>B</td>
<td>A</td>
</tr>
</tbody>
</table>
This Maneuver Differences table, from Rockwell HUD with EVS equipped aircraft to FalconEye HUD with EFVS/SVS/CVS equipped aircraft, was proposed by a part 142 training provider and validated by the FSB in March 2018. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members. See Appendix 5.

<table>
<thead>
<tr>
<th>FROM BASE AIRCRAFT: Rockwell HUD equipped</th>
<th>MANEUVER</th>
<th>REMARKS</th>
<th>FLT CHAR</th>
<th>PROC CHNG</th>
<th>TRAINING</th>
<th>CHECKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO RELATED AIRCRAFT: FalconEye equipped</td>
<td>Normal Procedures - Cockpit Preparation</td>
<td>HUD symbology, SVS, and EVS image preliminary settings</td>
<td>No</td>
<td>Yes</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Normal Procedures - Descent and Approach</td>
<td>HUD, SVS, and EVS approach settings</td>
<td>No</td>
<td>Yes</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Supplemental Procedures - HUD2/HUD3 Operations</td>
<td>FalconEye system not approved for HUD2/HUD3 operations</td>
<td>No</td>
<td>Yes</td>
<td>B</td>
<td>A</td>
</tr>
</tbody>
</table>
|                                          | Abnormal Procedures - New | 1. SVS or EVS image not conformal with natural vision  
2. Loss of SVS  
3. Loss of EVS | No | Yes | B | A |
|                                          | Abnormal Procedures - Modified | 1. Sensors Miscompare  
2. Loss of MAU Channel  
3. Malfunction Flag | No | Yes | B | A |
|                                          | Emergency | New Unusual Attitude symbology | No | No | B | A |
APPENDIX 4. HEAD-UP DISPLAY (HUD) SYSTEM

1. BACKGROUND

This appendix pertains to Rockwell Collins Head-Up Guidance System (HGS) 4860 and 4860i, or the FalconEye Head-Up Display (HUD) with Synthetic Vision Systems (SVS) installed in the DA-EASy. Additional training requirements for these systems equipped with Enhanced Flight Vision Systems (EFVS) are described in Appendix 5.

2. PILOT TYPE RATING

Not applicable.

3. RELATED AIRCRAFT

Not applicable.

4. PILOT TRAINING

Prior to HUD use, in any weather, by any operator, pilots should receive familiarization training in accordance with the requirements listed in this Flight Standardization Board (FSB) report. Ground and flight (full flight simulator (FFS) or aircraft) training is required. Unless covered concurrently during an initial or transition type rating course, a prerequisite to beginning this course is prior training, qualification, and currency in the DA-EASy airplane. This training focuses primarily on the pilot flying (PF), but pilot monitoring (PM) indoctrination and training is also essential. Where there are procedural differences for the PM when the PF is using the HUD, training of PM duties in the right seat is required. However, pilots who have completed PF (i.e., left seat) training need not complete any PM training since callouts in the PM position remain the same regardless of HUD use.

See Appendix 5 for EFVS/combined vision system (CVS) training requirements. Training centers may develop courses that combine HUD and EFVS/CVS training.

NOTE: Dassault documentation includes references to the pilot not flying (PNF). For the purposes of this document, the terms “PNF” and “PM” are used synonymously.

The following minimum familiarization training is recommended:

For Rockwell Collins HGS 4860 and 4860i,
HUD familiarization pilot training course:

- 2.5 hours of ground instruction, and
- 1.5 hours of FFS training (excluding 0.5-hour briefing).
For FalconEye HUD, HUD with SVS familiarization course:
- 4 hours of ground instruction, and
- 2 hours of FFS training.

For low visibility authorizations (Category (CAT) II/III) utilizing HUD, HUD (for Low Visibility Operations) pilot training course:
- HUD familiarization pilot training course, if not already taken,
- 4 hours of ground instruction,
- 2 hours of low visibility operations HUD FFS training (excluding 0.5-hour briefing), and
- 1 hour check.

Training centers may develop courses that consider prior HUD experience to reduce the duration requirement.

The training described here is generic in nature. It does not establish training requirements. Each operator has unique requirements, route structures, fleet composition, and operational policies to consider in developing their training program. Therefore, training described here is to assist an operator tailoring a HUD training program to fit their specific operation or approved operations specifications (OpSpecs).

This training can be conducted as a stand-alone course or integrated into any training curriculum (i.e., initial, transition, upgrade, recurrent). If part of a curriculum, the FSB recommends conducting this training early to allow as much use of the HUD as practical during the remaining training.

For operational approval, system limitations, normal operating procedures, and Abnormal/Emergency procedures, refer to the respective Airplane Flight Manual (AFM) Supplement, Crew Operational Documentation for Dassault EASy (CODDE) and quick reference handbook (QRH).

4.1 Ground Training. Ground training can be instructor-led or provided through computer-based training (CBT). Ground training should include the following elements.

4.1.1 General:

a. HUD equipment,

b. HUD controls,

c. HUD modes of operation,

d. HUD symbology, including the interrelationship with airplane aerodynamics, limit conditions and failures, inertial factors, and environmental conditions,

e. Operational concepts, crew duties and responsibilities, crew coordination, callouts and responses, and operational procedures including preflight, normal, and non-normal pilot activities,
f. Description of the availability and limitations of visual cues encountered on approach both before and after Decision Altitude (DA). This would include:

i. Procedures for unexpected deterioration of conditions to less than minimum Runway Visual Range (RVR) encountered during approach, flare, and rollout,

ii. Demonstration of expected visual references with weather at minimum conditions,

iii. Expected sequence of visual cues during an approach in which visibility is at or above landing minima.

g. If the HUD is used as a CAT II/III landing system, emphasis on the need for rigorous crew discipline, coordination, and adherence to procedural guidelines as is required for other CAT II/III landing systems.

h. For operators wishing credit for low visibility operations predicated on use of the HUD, additional training should include:

i. Narrative descriptions and several low weather approach demonstrations with procedural callouts and responses. All critical procedural callout possibilities should be covered.

ii. Information on the operational characteristics, capabilities, limitations of the ground facilities (i.e., Surface Movement Guidance and Control System (SMGCS)), and airborne CAT III system.

iii. Operator policies and procedures concerning low visibility operations, including the reporting process, Minimum Equipment List (MEL) issues, operation following a missed approach, Operating Experience (OE), and currency requirements.


4.1.2 Areas of Special Emphasis.

a. Rockwell Collins only (distance measuring equipment (DME) distance during localizer performance with vertical guidance (LPV) approach). The crew must be aware that the DME distance displayed in the HUD during LPV approach must be disregarded, as per AFM procedure, until a HUD fix is available (DME distance displayed in the integrated primary flight display (IPFD) remains correct).
b. FalconEye only.

i. Instrument landing system (ILS) deviations instead of expected LPV deviations. ILS frequency must not be selected when flying an LPV approach, as the course deviation indicator (CDI) information may be inaccurate. If an ILS frequency is tuned during an LPV approach, the ILS deviations will replace the LPV deviations. The crew must be aware of not tuning an ILS frequency during LPV approaches.

ii. DME distance during LPV approaches. Until a HUD fix becomes available, the crew must be aware that the DME distance displayed in the FalconEye HUD during LPV approaches is the distance to the runway threshold.

iii. Lateral deviation scale. Crew must be aware that, during a localizer interception following a Flight Management System (FMS) arrival, two lateral deviation scales (with no labels) are displayed: the lower scale is active (full pointer) for FMS deviation, and the upper scale is armed (empty pointer) until localizer interception.

iv. Thrust Director dynamic. PF must be aware that, when manually using the Thrust Director, the HUD Speed Error Tape indicator anticipates Thrust Director dynamic.

v. Possible Flight Path Vector (FPV) saturation (until a HUD fix is available). PF must be aware that, in some flight conditions (e.g., windshear), the FPV saturates early at the bottom of the HUD. The Vertical Path Reference Line may also disappear. In this case, the FPV is no longer conformal but the value of the Aircraft Path Angle can be read on the pitch scale. The main task of the PF, which is to follow the flight director (FD) with the FPV, is not affected by the saturation of the FPV. The FD is positioned relative to the FPV and is correct when FPV is saturated.

vi. FalconEye HUD must only be used in the standard inertial reference system (IRS) configuration. Until a HUD fix is available, HUD can only be used in the standard IRS configuration: (IRS 1 selected on LH side, IRS 2 selected on RH side, HUD stowed in all other configurations).

vii. SVS:
- SVS concepts,
- Database information,
- Terrain,
- Obstacles,
- Airports and other ground features,
- Display symbology,
- Pilot controls (control panel, yoke, high/low selector) and recommended settings.
viii. SVS Runway Clear Zone activation. Crew must be aware that the SVS Runway Clear Zone is not activated in HUD until V-Speeds have been sent to EASY (via the Send soft key in the FMW Landing Data tab). Otherwise, outside visual references or Enhanced Vision System (EVS) image could be masked by the SVS image.

c. Possible misalignment cases. Crew must be aware that the conformal runway may not exactly coincide with the real runway: crew should be ready to remove it when visual cues are to be acquired. Also, SVS image may be shifted: although SVS image and conformal runway can be removed, shifted runway axis remains.

4.2 Flight Training. Unless integrated with initial or transition training, flight training dedicated to HUD familiarization and proficiency is in addition to other required elements.

4.2.1 Flight training should include a variety of ground and airborne system failures requiring pilot recognition and appropriate procedural actions. Demonstrated system/component failures could include flap asymmetry problems, engine out operations, HUD sensor failures, etc. Demonstrate how HUD failure modes can reduce precision and increase pilot workload unless PF/PM duties and responsibilities are clearly delineated and understood.

NOTE: When an FFS is used, training should be conducted in an FAA-approved FFS qualified to Level C or D with HUD installed.

4.2.2 Takeoff. Emphasis should be placed on the pilot’s ability to transition from using outside visual cues to utilizing the HUD during the takeoff, roll, and departure. Emphasis should also be placed on the HUD symbology relevant to takeoff and departure operations.

NOTE: Per FAA OpSpecs, air carrier takeoff operations below 1600 RVR are only permitted with certain limitations and provisions. Title 14 CFR part 91 operators are not restricted in the same manner, but should be trained to understand the hazards associated with departing in a low visibility environment, as well as possible safety mitigations.

4.2.3 Airwork. Emphasis should be placed on HUD unique symbology (i.e., flight path, flight path acceleration, airspeed error tape, Angle of Attack (AOA) limit bracket, and excessive pitch chevrons). When this training is complete, the trainee should have a thorough understanding of the relationship between aircraft flight path parameters and the HUD symbology.

4.2.4 Visual approaches. Emphasis should be placed on the HUD symbology relevant to approach and landing operations and optimizing circling approach techniques and procedures. Approaches should begin beyond 3 nautical miles (NM) to the runway threshold.

NOTE: Approaches should be flown at various airports with dissimilar runway lighting systems.
4.2.5 Instrument approaches. Emphasis should be placed on the pilot’s ability to transition from utilizing the HUD during approach to using outside visual cues for landing. Instructors should demonstrate failures and incorrect settings on approach (e.g., incorrect runway elevation, airspeed, inbound course). Instructors should also demonstrate unique symbology characteristics in windshear conditions (e.g., erratic wind speed and direction, flight path acceleration, airspeed errors) All required instrument approaches should begin outside the final approach fix (FAF).

4.2.6 Additional operational considerations. Following initial training, pilots should gain proficiency utilizing the HUD in Visual Meteorological Conditions (VMC) prior to utilizing the HUD in low visibility operations. Although part 91 operators are not required to comply with air carrier requirements, it is worth noting the additional experience required by air carriers to utilize the HUD in line operations.

4.2.7 In all cases, air carrier operators must comply with their OpSpecs regarding authorization to conduct HUD operations. Although requirements may differ, typically air carrier pilots are required to complete OE within 60 days of completing HUD training.

4.3 Multiple Curricula Training Programs (Reduced Planned Hour Training Programs).

The FSB has determined that the Rockwell or FalconEye HUD systems installed in the DA-EASy shares common characteristics with the same HUD system installed in the DA-7X and DA-2EASY (all variations). It may be possible, in accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, Paragraph 3-1078, Multiple Curricula of a Single Category, to develop reduced planned hour HUD training programs for pilots who hold a DA-7X or DA-2EASY type rating and have completed training in the respective HUD system.

5. PILOT CHECKING

Pilot checking requirements are dependent upon the training program objectives, and operational parts and will be defined by each training program.

6. PILOT CURRENCY

For pilots who have previously completed HUD initial training, in conjunction with a pilot-in-command (PIC) proficiency check required by 14 CFR parts 61, part 91 subpart K (part 91K), 121, or 135, a PIC must demonstrate proficiency using the appropriate HUD system.
7. OPERATIONAL SUITABILITY

The FSB has evaluated the DA-EASy Rockwell Collins HGS 4860 and 4860i and the FalconEye and find them operationally suitable for HUD operations under parts 91, 91K, 121, and 135. The FSB has also evaluated the DA-EASy Rockwell Collins HGS 4860 and 4860i for use in Special Authorization (SA) CAT I and SA CAT II operations and found it operationally suitable under parts 91, 91K, 121, and 135. For SA CAT I and SA CAT II operations with the HUD, the crew must be CAT II or CAT III qualified using the HUD. Dassault Aviation CODDE 2 procedures should be followed.
APPENDIX 5. HUD WITH ENHANCED FLIGHT VISIONS SYSTEMS

1. BACKGROUND

This appendix addresses Head-Up Display (HUD) systems with Enhanced Flight Vision Systems (EFVS). Specifically, this pertains to Rockwell Collins Head-Up Guidance System (HGS) 4860 and 4860i and the FalconEye HUD installations with EFVS.

The operational goal of EFVS is to improve aviation safety during operations at night and in low visibility conditions due to weather or other environmental factors. Pilots using EFVS should be careful not to conclude that the flight path is free of hazards merely because none are visible in the HUD. In some situations, imaging sensor performance can be variable and unpredictable.

The training requirements in this report are for the use of this equipment for situational awareness only. As of the publication of Revision 9 of this FSB report, DA-EASy HUD systems with EFVS have not been evaluated and are not approved for operations below decision altitude (DA)/decision height (DH) or minimum decision altitude (MDA) under part 91, § 91.176. However, if the HUD installation is granted such approval in the future, in addition to the familiarization training outlined in this report, the training requirements defined in part 61, § 61.66 must be completed, and if required, a letter of authorization (LOA) or operations specifications (OpSpecs), as appropriate, must be issued, prior to conducting operations below DA/DH or MDA under § 91.176. The Flight Standardization Board (FSB) has no objection to a training course, which combines the training requirements of this report (both Appendix 4 and Appendix 5) with the training requirements of § 61.66, into a single HUD/EFVS course, that provides a logbook or training record endorsement for an EFVS privilege as defined in § 61.66. Such course must be approved in accordance with § 61.66.

2. PILOT TYPE RATING

Not applicable.

3. RELATED AIRCRAFT

Not applicable.

4. PILOT TRAINING

For FAA-registered aircraft, the Airplane Flight Manual (AFM) Supplement for this installation restricts HUD EFVS use, in any weather, by any operator, to qualified pilots that have received familiarization training in accordance with the requirements listed in this FSB report. Ground and flight (full flight simulator (FFS) or aircraft) training is required. Unless covered concurrently during an initial or transition type rating course, a prerequisite to beginning this course is prior training, qualification, and currency in the DA-EASy airplane. This training
focuses primarily on the pilot flying (PF), but pilot monitoring (PM) indoctrination and training is also essential. Where there are procedural differences for the PM when the PF is using the HUD, training of PM duties in the right seat is required. However, pilots who have completed PF (i.e., left seat) training need not complete any PM training since callouts in the PM position remain the same regardless of HUD use.

In order to use a HUD system with EFVS, pilots must first be trained to conduct HUD operations. See Appendix 4 for HUD training requirements. Training centers may develop courses that combine HUD and EFVS training.

NOTE: Dassault documentation includes references to the pilot not flying (PNF). For the purposes of this document, the terms “PNF” and “PM” are used synonymously.

The following minimum EFVS familiarization training is recommended:
For Rockwell Collins HGS 4860 and 4860i with EFVS or FalconEye HUD/Synthetic Vision System (SVS)/EFVS/combined vision system (CVS):

- 4 hours of ground instruction, and
- 2 hours of FFS training.

Training centers may develop courses that consider prior HUD experience to reduce the duration requirement.

All EFVS training can be conducted as a stand-alone course or integrated into any training curriculum (i.e., initial, transition, upgrade, recurrent). If part of a curriculum, the FSB recommends conducting this training early to allow as much use of the system as practical during the remaining training.

For operational approval, system limitations, normal operating procedures, and Abnormal/Emergency procedures, refer to the respective AFM Supplement, Crew Operational Documentation for Dassault EASY (CODDE) and quick reference handbook (QRH).

Flight training is required and must be provided in an aircraft or an FAA-approved FFS qualified to Level C or D with a daylight visual system and with the appropriate HUD system installed. The EFVS standards must at least meet the requirements contained in the Flight Simulation Training Device Qualification Guidance Bulletin 03-03 “Enhanced Flight Vision System (EFVS) FSTD Qualification” issued by the FAA National Simulator Program Branch or any other relevant regulation.

The FFS provides the ideal EFVS training environment, and its use is preferred for this training. FFSs provide the ability to change training locations, set specific weather minimums, and change weather rapidly and significantly to provide a greater variety of training situations. They also provide the ability to freeze the training, allowing the student to positively identify the differences between enhanced and natural vision at key times. Aircraft training is acceptable, but operators need to understand and account for these limitations. Pilots must also be aware that the visual contrast in FFSs is often better than in the aircraft.
When able, training should be conducted to/from airfields with a mountainous environment in order to demonstrate the benefit of various technologies (e.g., St. Johns, Newfoundland, Canada (CYYT), Aspen, Colorado (KASE)).

4.1 Ground Training. Ground training can be instructor-led or provided through computer-based training (CBT). Training should include the elements in § 61.66(a)(2) and the current edition of Advisory Circular (AC) 90-106, Enhanced Flight Vision Systems, as applicable. Training should address the following areas of special emphasis.

4.1.1 Applicable regulation requirements should be reviewed for the trainees (e.g., § 91.176, part 135, § 135.225).

4.1.2 Infrared (IR) theory and associated limitations. The PF should be made aware of the general IR theory and the characteristics of the EFVS image, including the dependency of the image on the weather conditions, thermal crossover (not exhaustive). The trainee should be made aware of the effect of rain (roman candles), which may degrade the EFVS image and require it to be removed.

4.1.3 Low altitude flight maneuver. Under certain meteorological conditions (night clear sky), the quality of the image gives the PF the impression that he or she can fly the aircraft trajectory through the image. The PF should be made aware that this is false. Furthermore, in bad weather conditions, if the aircraft trajectory was flown through the image, the PF would have a natural tendency to “dive” into the runway. Some approaches not aligned along the runway axis would necessitate low altitude flight maneuvers to recover runway axis, which is to be avoided using the image.

4.1.4 Precision approach path indicator (PAPI) lights. The PF should be made aware about PAPI indication through the EFVS: PAPI always shows four white lights in HUD/EVS image, indicating HIGH even if the aircraft is on the correct descent slope, which could make the PF descend for the two RED/two WHITE which never appears.

4.1.5 Crosswind approaches: The PF should be made aware of the characteristics of the EFVS display during approaches made in crosswind.

NOTE: For the purposes of this section, the acronyms “EFVS” and “EVS” are used synonymously.

4.1.6 Rockwell Collins HGS 4860 and 4860i with EFVS.

   a. HUD. See Appendix 4 for HUD training recommendations.

   b. General. Training should include:

      i. The DA-EASy operational documentation and procedures related to the Model 4860/4860i (i.e., CODDE 1, 2, 3, AFM, Master Minimum Equipment List (MMEL)) including:
         • Limitations.
         • Tasks and callouts.
• Pilot controls and operational recommendations.

ii. Rockwell Collins Model 4860/4860i handbook.

c. Areas of special emphasis. Training should emphasize the following:

i. No deviation from standard escape procedures. The pilot must be made aware that EVS image shall never be used to deviate from standard escape procedures contained in Dassault Aviation Limitations, Operating Procedures, and Performances, when enhanced ground proximity warning system (EGPWS), Traffic Alert and Collision Avoidance System (TCAS), or Windshear warnings are triggered.

ii. Crew coordination. PM in right seat should be trained with a PF in the left during the EVS pilot training course. Concerning human factors, to avoid tunnel effect or any other anomalies affecting the PF’s perception, the task of the PM is very important in the final approach phase when the real scene appears through the EVS image. The callouts from both pilots during this phase of flight are critical.

iii. Visual contrast in FFS compared to in aircraft. Pilots must be advised that the visual contrasts in the FFS are better than those in the aircraft.

4.1.7 Equivalence between Model 4860 EFVS and Model 4860i EFVS. For pilots who have trained and qualified on Model 4860 EFVS, the FSB has determined Level B training for model 4860i. This difference training applies to models that are both equipped with EFVS. Differences training should include:

a. The DA-EASy operational documentation and procedures related to the Model 4860i EVS (i.e., CODDE 1, 2, AFM, MMEL) including:
   i. Updated limitations.
   ii. Updated tasks and callouts.
   iii. Recommendations in terms of:
       • Sensor mode selection (HIGH vs. LOW).
       • HUD brightness and contrast settings.

b. Design modifications review. Design modifications from the Model 4860 EFVS to the Model 4860i EFVS should be presented, specifically:
   i. IR sensor modifications.
   ii. Introduction of a new sensor mode (HIGH/LOW instead of Auto). Benefits of the new LOW mode should be explained (designed to prevent from image saturation when approaching high-intensity lighting systems - enabled to remove the automatic diming in the HUD).
   iii. Simplified calibration logic (only long CAL remains, from initial short/long CALs).
c. HGS modifications:
   i. New EVS status labels (EVS ON, EVS DIM…), designed to improve pilot’s awareness of the system status.
   ii. IR image diming logic changes (no more automatic diming above DA/MDA, introduction of a manual diming logic, intended to ease EVS operation at low altitude, such as during flare).
   iii. Slight increase in the IR image brightness in the HUD.
   iv. IR image kill/dim logics, associated to the LH pilot’s yoke EVS switch.

d. Areas of special emphasis in section 4.1.6 c.

4.1.8 FalconEye HUD/SVS/EFVS/CVS. In addition to providing flight guidance information, the FalconEye HUD system combines synthetic, database-driven terrain mapping (SVS), along with thermal and low-light camera images (EFVS), to provide additional information to increase the pilot’s situational awareness. In order to ensure that pilots are able to safely operate the HUD in all phases of flight, training must include detailed information on the following:

a. HUD. See Appendix 4 for HUD training recommendations. Training centers may develop courses that consider prior HUD experience to reduce the duration requirement.

b. CVS:
   i. CVS concepts.
   ii. System architecture.
   iii. Pilot controls and recommended settings.

c. Areas of special emphasis:

   i. Crew coordination. PM in right seat should be trained with a PF in the left during the EVS/SVS/CVS pilot training course. Concerning human factors, to avoid tunnel effect or any other anomalies affecting the PF’s perception, the task of the PM is very important in the final approach phase when the real scene appears through the EVS/CVS image. The callouts from both pilots during this phase of flight are critical.

   ii. No deviation from standard escape procedures. The pilot must be made aware that HUD/SVS/EFVS/CVS image shall never be used to deviate from standard escape procedures contained in Dassault Aviation Limitations, Operating Procedures, and Performances, when EGPWS, TCAS, or Windshear warnings are triggered.

   iii. LH pilot perception of weather conditions. Crew must be aware that the display of a SVS or CVS image in the HUD may impair LH pilot vision of weather conditions.

   iv. HUD/EFVS yoke controls. Crew must be proficient at using without confusion the desired FalconEye HUD/SVS/EFVS/CVS control on the LH yoke.
v. EVS Contrast Setting. PF must be proficient at using EVS contrast settings in order to improve the rendering of EVS image details in various lighting and weather conditions.

vi. Possible misalignment cases. Crew must be aware that the conformal runway may not exactly coincide with the real runway: crew should be ready to remove it when visual cues are to be acquired. Also, SVS image may be shifted: although SVS image and Conformal Runway can be removed, shifted runway axis remains.

4.2 Flight Training. Should include the elements in § 61.66(b)(2) and the current edition of AC 90-106, as applicable. Training should address the following areas of special emphasis.

4.2.1 Unless integrated with initial or transition training, flight training dedicated to EFVS familiarization and proficiency is in addition to other required elements.

4.2.2 Flight training should include a variety of ground and airborne system failures requiring pilot recognition and appropriate procedural actions. Demonstrated system/component failures could include flap asymmetry problems, engine out operations, HUD/SVS/EFVS/CVS sensor failures, etc. Demonstrate how HUD/SVS/EFVS/CVS failure modes can reduce precision and increase pilot workload unless PF/PM duties and responsibilities are clearly delineated and understood.

NOTE: When an FFS is used, training should be conducted in an FAA-approved FFS qualified as Level C or D with HUD with EFVS installed.

4.2.3 Takeoff. Emphasis should be placed on the pilot’s ability to transition from using outside visual cues to utilizing the HUD/SVS/EFVS/CVS during the takeoff roll and departure. Emphasis should also be placed on the HUD/SVS/EFVS/CVS symbology relevant to takeoff and departure operations.

NOTE: Per FAA OpSpecs, air carrier takeoff operations below 1600 RVR are only permitted with certain limitations and provisions. Part 91 operators are not restricted in the same manner, but should be trained to understand the hazards associated with departing in a low visibility environment, as well as possible safety mitigations.

4.2.4 Airwork. Emphasis should be placed on HUD/SVS/EFVS/CVS unique symbology (i.e., flight path, flight path acceleration, airspeed error tape, angle of attack (AOA) limit bracket, and excessive pitch chevrons). When this training is complete, the trainee should have a thorough understanding of the relationship between aircraft flight path parameters and the HUD/SVS/EFVS/CVS symbology.

4.2.5 Visual approaches. Emphasis should be placed on the HUD/SVS/EFVS/CVS symbology relevant to approach and landing operations and optimizing circling approach techniques and procedures. Approaches should begin beyond 3 nautical miles (NM) to the runway threshold.
NOTE: Approaches should be flown at various airports with dissimilar runway lighting systems.

4.2.6 Instrument approaches. Emphasis should be placed on the pilot’s ability to transition from utilizing the HUD/SVS/EFVS/CVS during approach to using outside visual cues for landing. Instructors should demonstrate failures and incorrect settings on approach (e.g., incorrect runway elevation, airspeed, inbound course). Instructors should also demonstrate unique symbology characteristics in windshear conditions (e.g., erratic wind speed and direction, flight path acceleration, airspeed errors). All required instrument approaches should begin outside the final approach fix (FAF).

4.2.7 Additional operational considerations. Following initial training, pilots should gain proficiency utilizing the HUD/SVS/EFVS/CVS in visual meteorological conditions (VMC) prior to utilizing the HUD in low visibility operations. Although part 91 operators are not required to comply with air carrier requirements, it is worth noting the additional experience required by air carriers to utilize the HUD in line operations.

4.2.8 In all cases, air carrier operators must comply with their OpSpecs regarding authorization to conduct HUD/SVS/EFVS/CVS operations. Although requirements may differ, typically air carrier pilots are required to complete Operating Experience (OE) within 60 days of completing HUD training.

4.3 For pilots who have trained and qualified on Rockwell Collins HUD Model 4860/4860i with EFVS and EASy II avionics, the FSB has determined that pilots can safely operate the FalconEye HUD/SVS/EFVS/CVS by completing Level B differences training. See Differences Tables in Appendix 3 for additional information.

4.3.1 FalconEye HUD/SVS/EFVS/CVS Level B differences training is specific to HUD differences and is not aircraft type specific. The training is ground training only without any requirement for FFS training. Pilots must be proficient and current on the operation of the Rockwell Collins HUD Model 4860/4860i with EFVS and EASy II avionics prior to any Level B FalconEye HUD/SVS/EFVS/CVS differences training.

4.4 OE After Completion of Falconeye Training.

4.4.1 Due to the significant amount of information presented on the FalconEye HUD/SVS/EFVS/CVS, the FSB recommends that pilots limit FalconEye use in flight until the following in-aircraft flight OE using the FalconEye is obtained in sequence:

a. Approximately 5 hours above Flight Level (FL) 180, then
b. Approximately 5 hours below FL 180, then
c. Five takeoffs, five approaches (including satellite (i.e., Area Navigation (RNAV)) and ground-based (i.e., instrument landing system (ILS)) procedures), and five landings in VMC.
4.4.2 Training courses should include these recommendations and encourage pilots to increase their proficiency prior to conducting takeoffs, approaches, and landings in low Instrument Meteorological Conditions (IMC).

4.5 Multiple Curricula Training Programs (Reduced Planned Hour Training Programs).

The FSB has determined that the Rockwell or FalconEye HUD/SVS/EFVS/CVS systems installed in the DA-EASy shares common characteristics with the same HUD system installed in the DA-7X and DA-2EASY (all variations). It may be possible, in accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, Paragraph 3-1078, Multiple Curricula of a Single Category, to develop reduced planned hour HUD training programs for pilots who hold a DA-7X or DA-2EASY type rating and have completed training in the respective HUD system.

5. PILOT CHECKING

At the completion of the ground school segment, each trainee should be evaluated through a written test, checking the successful completion of the training performance objectives in compliance with the applicable regulations.

Additional pilot checking requirements are dependent upon the training program objectives and operational parts and will be defined by each training program.

6. PILOT CURRENCY

While the AFM establishes no explicit requirement regarding continuing qualification, it is strongly recommended that pilots use the EFVS, SVS, and/or CVS frequently enough in flight to retain proficiency in its operation. HUD, EFVS, and SVS proficiency can be maintained if all are used on a regular basis. Apart from the requirements listed in this Appendix, HUD/SVS/EFVS/CVS training should emphasize the need to perform HUD/SVS/EFVS/CVS operations as regularly as possible during normal operations, especially during takeoff, approach, and landing phases of flight.

Procedures should be addressed in recurrent training.

7. OPERATIONAL SUITABILITY

The FSB has evaluated the Rockwell Collins HGS 4860 and 4860i with EFVS and the FalconEye HUD/SVS/EFVS/CVS and find them operationally suitable for HUD operations with EFVS under parts 91, part 91 subpart K (part 91K), 121, and 135.
APPENDIX 6. STEEP APPROACH LANDING OPERATIONS

1. BACKGROUND

A Flight Standardization Board (FSB) was convened in October 2011 and January 2012 to evaluate operational suitability and to determine training, checking, and currency requirements for conducting steep approach landing operations for aircraft on the A50NM Type Certificate Data Sheet (TCDS). Supporting regulatory material is the FAA Issue Paper (IP) AEG-O-8 “Operational Suitability”.

FSB members completed the full flight simulator (FFS) portion of the evaluation at CAE’s Morristown, NJ, and Dallas, TX, locations along with FSI’s Moonachie, NJ, and Paris, France, locations. The flight portion of the evaluation was done at Dassault Aviation’s facilities in Istres, France. Certification activities were conducted together with FSB evaluation.

Steep approach landing operations in the DA-EASy, are defined as those glide paths greater than 4.5°. The maximum glide path is noted in the Airplane Flight Manual (AFM) limitations. Dassault Aviation modifications for steep approach landing operations are defined by Modification 5649.

The FSB evaluation included numerous steep approach landing operations, both on the FFS and on the actual aircraft. London City airport (EGLC) was only flown on the FFS, and Lugano airport (LSZA) was flown both on the FFS and with the actual aircraft. Some steep approach landing operations were also flown with the actual aircraft in Istres (LFMI).

Steep approach landing operations were conducted during day conditions using either 5.5° (similar to London City, London, England) or 6.65° approach angles (Similar to Lugano, Switzerland). Glide path abuse cases, up to 2.0° higher than the desired approach angle up to 8.65°, were conducted. Speed abuse cases (-5 kts of target speed) were also conducted but never in conjunction with the glide path abuse cases. All engines operative and one engine inoperative (OEI) steep approach landing operations were flown, terminating either with a landing, or execution of a missed approach or balked landing procedure. Inadvertent touchdown during balked landings was evaluated. Although steep approach landing operations must be conducted with all engines operative, the FSB evaluated piloting skills required to perform an OEI extraction should an engine fail at or below decision altitude (DA).

The first case of steep approach procedure (London City-like) requires following the requested glidepath angle from the initial approach fix/glide slope intercept to touchdown. The second case of steep approach procedure (Lugano-like) requires following a steep glidepath with a transition to intercept a shallower path based on a Visual Glide Slope Indicator (VGSI) or electronic (internal or external) glidepath.

The FSB has determined that the conduct of steep approach landing operations requires no higher piloting skill level that than of normal (3.0°) approaches. However, since steep approach landing operations are often tailored to demanding airports - located in mountainous areas, short runways - the FSB requires academic and flight training for competency in conducting steep
approach landing operations. This FSB report does not constitute operational approval for the execution of steep approaches. Be advised, it is common that individual airport authorities have training and documentation requirements specific to their airfields with regard to steep approaches.

2. PILOT TYPE RATING

Not applicable.

3. RELATED AIRCRAFT

Not applicable.

4. PILOT TRAINING

4.1 Prerequisites. Unless steep approach training is integrated with or occurs sequentially preceding an initial qualification pilot proficiency check, a prerequisite to steep approach training in the applicable type Falcon is prior training, qualification, and currency in the same type Falcon aircraft. Definition of “type” for this training is considered the specific type rating. Any pilot in command (PIC)/second in command (SIC) who has been properly qualified under part 61, § 61.55, part 91 subpart K (part 91K), part 121, or part 135 may conduct steep approach landing operations provided the training, checking, and currency requirements of this Appendix have been satisfactorily accomplished.

4.2 Ground Training. The following areas should be included in the training and is appropriate to any aircrew position:

4.2.1 AFM Annex and Crew Operational Documentation for Dassault EASy (CODDE 2) review to include:
   a. Limitations.
   b. Abnormal procedures.
   c. Emergency procedures.
   d. Normal procedures.
   e. Performance with special emphasis on increased landing distance.

4.2.2 Stages of the Steep approach to include:
   a. Stabilized approach concept as a key success for steep approach landing.
   b. Appropriate slats/flaps configuration.
   c. Approach speed.

4.2.3 Comparison of the steep approach sight picture to that of 3.0° (normal) approach.

4.2.4 Pilot techniques to include avoidance of abrupt control inputs and ground rush illusion.
4.2.5 Identification of airports with steep approaches to include the specificity of airports with steep approach (e.g., the landing distance safety factor for EGLC).

4.2.6 Discussion of inadvertent airbrake auto-retraction due to stall protection features. The stall protection system automatically retracts the airbrakes when the aircraft approaches a stall condition. During a steep approach, the airspeed margin between $V_{\text{REF}}$ and stall protection activation is often decreased, which increases the likelihood of activating the stall protection. Since steep approach procedures require the use of airbrakes, it is possible that the stall protection system automatically retracts the airbrakes, particularly during gusty conditions or aggressive pitch application. Pilots must be trained to recognize an auto-retraction of the airbrakes and should consider ramifications and possible actions if the airbrakes automatically retract during the approach or the landing flare (e.g., effect on landing distance, redeployment of airbrakes, missed approach).

4.3 Flight Training. Flight training for either aircrew position may be conducted in either an FFS or aircraft. Training must include steep approaches with and without the flight director (FD) displayed. Include use of the Head-Up Display (HUD), if equipped.

4.4 Training completed in one variation of the DA-EASy is adequate for all variations.

4.5 Multiple Curricula Training Programs (Reduced Planned Hour Training Programs). The FSB has determined that steep approach operations in the DA-EASy shares common characteristics with the steep approach operations in the DA-2EASy. It may be possible, in accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, Paragraph 3-1078, Multiple Curricula of a Single Category, to develop reduced planned hour steep approach training programs for pilots who hold a DA-2EASy type rating and have completed steep approach training.

5. PILOT CHECKING

Pilot checking requirements are dependent upon the training program objectives, and operational parts and will be defined by each training program.

6. PILOT CURRENCY

The FSB recommends, regardless of the number of steep approaches completed, a review of all academic and flight training items be accomplished annually and documented in a manner acceptable to the Administrator.

7. OPERATIONAL SUITABILITY

The FSB has evaluated two cases of steep approach procedures and found that Falcon 900EX EASy and variations were operationally suitable under parts 91, 91K, 121, and 135 with aircrew trained in accordance with the requirements set in this Appendix.
APPENDIX 7. CLOSE-IN NOISE ABATEMENT DEPARTURE PROCEDURE

1. BACKGROUND

Since some airports that are requiring a steep approach procedure may also require a Noise Abatement Departure Procedure (NADP), the Flight Standardization Board (FSB), at the request of Dassault Aviation, has also evaluated a close-in NADP developed by Dassault Aviation.

The NADP, as evaluated by the FSB, requires a thrust reduction at 400 feet above airport level (AAL) after takeoff (see Crew Operational Documentation for Dassault EASy (CODDE) 2).

2. PILOT TYPE RATING

Not applicable.

3. RELATED AIRCRAFT

Not applicable.

4. PILOT TRAINING

See CODDE 2.

Training completed in one variation of the 900EX EASy is adequate for all variations.

5. PILOT CHECKING

Pilot checking requirements are dependent upon the training program objectives and operational parts and will be defined by each training program.

6. PILOT CURRENCY

Not applicable.

7. OPERATIONAL SUITABILITY

This procedure has been found suitable by the FSB for operations under parts 91, part 91 subpart K (part 91K), 121, and 135, and does not contradict the current edition of Advisory Circular (AC) 91-53, Noise Abatement Departure Profiles.
APPENDIX 8. EASY II AVIONICS

1. BACKGROUND

This appendix to the Flight Standardization Board Report (FSB) report is for the Honeywell Enhanced Avionics System (EASy) II avionics upgrade to the Dassault Falcon 900EX EASy series aircraft.

Dassault Aviation has developed an upgrade to the current Honeywell avionics suite in the Falcon aircraft designated as EASy aircraft. This upgrade will be an option that may be purchased by operators with options within the upgrade that may be purchased individually. The operational suitability evaluation incorporated all options available at the time of certification of this product and the FSB found them operational suitable when operated by crewmembers trained and qualified according to the provisions of this FSB report Appendix.

The following major EASy II avionics functions were evaluated:

- Automatic Dependent Surveillance-Broadcast (ADS-B) Out.
- Runway Awareness Advisory System (RAAS).
- Automatic Descent Mode (ADM).
- Paperless charts.
- Localizer performance with vertical guidance (LPV) approach capability.
- Synthetic Vision System (SVS).
- XM™ graphical weather display.
- Air traffic control (ATC) data link.

For U.S.-registered aircraft, the Airplane Flight Manual (AFM) Supplement for this installation restricts EASy II use to qualified pilots who have been trained in accordance with the requirements listed in this FSB report. Ground school training, procedures training, and full flight simulator (FFS) training is required unless a multiple curricula training program (reduced planned hour training program) exists (see paragraph 4.7 of this Appendix).

The FSB utilized and evaluated a Level 6 flight training device (FTD) for this specific training and determined that the fidelity and installed visual system of a Level 6 training device is sufficient. However, any FTD or FFS used for training, checking, or currency is required to be qualified by the National Simulator Program (NSP) and approved for the associated training by the Training Program Approval Authority (TPAA).

All training conducted in Falcon 900EX EASy series aircraft that require the use of Desktop Simulation (DTS), Graphical Flight Simulation (GFS), Instrument Procedures Trainers (IPT), or FFS for EASy II modifications must represent the appropriate modification being taught, except under the provisions detailed in this Appendix.
2. PILOT TYPE RATING

Not applicable.

3. RELATED AIRCRAFT

Not applicable.

4. PILOT TRAINING

In addition to the requirements for ground, procedures, and flight training identified in this Appendix, to serve as a pilot on an aircraft with the EASy II avionics, that pilot must have received a minimum 1 hour of training in pilot monitoring (PM) duties, as defined by the appropriate Crew Operational Documentation for Dassault EASy (CODDE), using a device that meet the requirements in Appendix 1 for training differences Level D. Typically, the minimum acceptable training media for Level D training would be FTD Level 6.

Flight Training pilot flying (PF)/PM Considerations: For a pilot that could serve as a pilot in command (PIC), the PF flight training must be done from the left seat. The PM training may be accomplished from the right seat. For a pilot that is limited to second in command (SIC) privileges, accomplish the PF and PM training from the right seat only.

Dassault Operational Method and Crew Resource Management (CRM) practices will be applied during all phases of training.

4.1 Ground Training. To be qualified in either seat position, and to operate as either the PF or PM, in accordance with the provisions of this FSB report, both pilots must have attended 4 hours of ground school training meeting the specifications below. This ground school training should precede the flight training.

4.1.1 The modules of each of these subjects must be presented in a manner appropriate for a pilot that has little or no experience/knowledge of these technologies. The EASy II training is to show the capabilities of the system.

4.1.2 Description of EASy II options. A general overview of all available options and modifications on the EASy II software is required. The items that need to be covered, but not limited to, are as follows:

a. Basic modifications:
   i. EASy II load.
   ii. Head-Up Display (HUD) upgrade for EASy II.

b. Optional modifications:
   i. Satellite-Based Augmentation System (SBAS) Global Positioning Satellite (GPS).
   ii. ADS-B Out.
iii. RAAS.
iv. ADM.
v. Paperless charts.
vi. LPV approach capability.
vii. SVS.
viii. XM™ graphical weather display.
ix. RNP AR.
x. ATC data link.

4.1.3 Areas of special emphasis. The following items should be discussed in detail to allow the pilot to understand the capabilities of the EASy II system:

a. Temperature correction for glideslope vs temperature correction for decision height (DH).

b. LPV/Wide Area Augmentation System (WAAS).

c. Manual computation of V_{REF}. In case penalties must be applied to landing performance computations, V_{REF} is only corrected for the approach speed computations, but not during go-around. The crew must therefore be trained to manually compute landing performances.

4.2 Procedures Training. To be qualified in accordance with the provisions of this FSB report to serve as a pilot on an aircraft with the EASy II avionics, that pilot must have received a minimum 2 hours of training using a device that meets the requirements in Appendix 1 for training differences Level C. Typically, the minimum acceptable training media for Level C training is interactive computer-based training (CBT), cockpit systems simulators, or cockpit procedures trainers.

4.2.1 Training device. If a training device is used that has visuals for flight, these visuals should not be used, as they will provide a distraction for this segment of training. Additionally, the training should not be conducted in a manner that requires the pilot to manipulate the controls for the purpose of flight. This allows the pilot trainee to concentrate on the lesson versus flying the aircraft.

4.2.2 Training elements. The training elements must include, but are not limited to, the following:

a. Avionics Window - flight management system (FMS) Setup Tab.
b. Avionics Window - Autospeeds Tab.
c. Avionics Window - automatic flight control system (AFCS) Tab.
e. Flight Management Window - Departure Phase of Flight.
g. Primary Display Unit (PDU) Windows.
h. Low/high altitude transition.
i. Permanent Radio Bar Very High Frequency (VHF) Tab.
k. Avionics malfunction.
l. HUD.
m. Vertical Navigation Mode (VNAV).

4.3 Flight Training. To be qualified in accordance with the provisions of this FSB report to serve as a pilot on an aircraft with the EASy II avionics, that pilot must have received a minimum 2 hours of training as PF, as defined by the appropriate CODDE.

4.3.1 Training device. The training device used for flight training should meet the requirements in Appendix 1 for training differences Level D.

4.3.2 Training elements. The training elements must include, but are not limited to, the following:
   a. Low visibility surface operations.
   b. Crosswind takeoffs and landings.
   c. Instrument departure procedure.
   d. Flight director (FD), autopilot, and autothrottle procedures.
   e. Steep turns.
   f. Stalls - clean configuration stall prevention and recovery.
   g. Unusual attitude recovery (nose high and low).
   h. Descent.
   i. Precision approaches.
   j. Nonprecision approaches.
   k. Missed approach. Fly the entire missed approach procedure, or until established in the published missed approach hold.
   l. Holding.
   m. Visual approach - time permitting.

4.4 ATC Data Link Training.

4.4.1 ATC data link functions (both Future Air Navigation Systems 1/A (FANS 1/A) and Aeronautical Telecommunications Network (ATN) B1) are part of the EASy II avionics suite. Operators should ensure that flightcrew are thoroughly familiar with all relevant aspects of data link operations according to the International Civil Aviation Organization (ICAO) Global Operational Data Link Document (GOLD), prior to operation.

4.4.2 Training elements. Training elements must include, but are not limited to:
   a. Messages and user interface used in FANS 1/A and in ATN B1 are similar but not identical.
   b. Format of data (Flight Level (FL) and Mach) to be entered in multipurpose control and display unit (MCDU) is specific and different between FANS 1/A and ATN B1.
   c. Complete content of message may not be displayed in first page, and in this case, crew has to look at the other page(s) where a required answer from the crew to
the ATC may be displayed (with a specific mention that the acknowledge key for Oceanic Clearances is visible on first page).

d. It is recommended that the PM displays the page in his or her PDU and not in the MDU shared area.

e. There is no direct access to Oceanic Clearances via shortcut because Oceanic Clearances is part of a subpage: crew needs to navigate in the page to get the message.

f. There is no automatic handover between FANS 1/A and ATN B1. Handover should follow CODDE 2 procedure.

g. FANS 1/A clearance is to be manually loaded in the flight plan (it is not automatic).

4.5 RNP AR Training. The RNP AR training described in this section does not replace the requirements or considerations in the current edition of Advisory Circular (AC)-90-101, Approval Guidance for RNP Procedures with AR. This report’s requirements and recommendations are in addition to the current edition of AC-90-101.

4.5.1 Training prerequisites. An applicant for RNP AR training must first complete DA-EASy initial course via an EASY II initial. The check need not be accomplished. However, all ground and flight training must be satisfactorily completed prior to beginning DA-EASy RNP AR course.

4.5.2 Training requirements. The following is the recommended minimum level of training:

a. Ground training. The FSB recommends 3 hours of instructor-led ground training. The ground training should be in accordance with the current edition of AC 90-101.

b. Flight training. 3 hours of FFS training in an FAA-approved FFS qualified to Level C or higher. Flight training should be 1.5 hours performing the PF duties in addition to 1.5 hours performing the duties of the PM. A minimum of two approaches should be flown as PF and as PM.

c. Use of HUD during training. If the approved training program includes HUD training, then the use of the HUD should be incorporated into the flight training segment.

d. Completion standards. Credit for completion will be given once the applicant satisfactorily demonstrates to the instructor adequate knowledge and practical application of RNP AR operations. No checking is required.

4.6 Multiple Curricula Training Programs (Reduced Planned Hour Training Programs).

The FSB has determined that DA-EASy EASy II avionics shares common characteristics with the EASy II avionics in the DA-2EASy and DA-7X. It may be possible, in accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, Paragraph 3-1078, Multiple Curricula of a Single
Category, to develop reduced planned hour EASy II avionics training programs for pilots who hold a DA-2EASy or DA-7X type rating and have completed EASy II avionics training.

5. PILOT CHECKING

Pilot checking requirements are dependent upon the training program objectives, and operational parts and will be defined by each training program.

6. RECURRENT TRAINING AND CHECKING

6.1 For operators with RNP AR authorization, the operator should incorporate recurrent RNP training that employs the unique RNP AR characteristics of the operator’s approved procedures as part of the overall program. The FSB recommends two RNP AR approaches with recurrent training in accordance with the applicable subpart of parts 91, 121, and/or 135. One approach should be terminated via a missed approach due to navigation degradation near the final approach fix (FAF). The second approach should be completed to a landing. The FSB recommends two different approaches be conducted.

6.2 The FSB recommends that pilots use all available options of the EASy II system during recurrent FFS training.

6.3 The FSB also recommends that LPV/WAAS approaches be conducted with each check or currency event if the pilot is authorized by operations specifications (OpSpecs) to do so.

7. OPERATIONAL SUITABILITY

The FSB has found EASy II avionics, including 1st, 2nd, and 3rd certifications, to be operationally suitable for operations under parts 91, part 91 subpart K (part 91K), 121, and 135.