<table>
<thead>
<tr>
<th>EASA</th>
<th>EMERGENCY AIRWORTHINESS DIRECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD No.: 2011-0114-E</td>
<td></td>
</tr>
<tr>
<td>Date: 16 June 2011</td>
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</tr>
</tbody>
</table>

Note: This Emergency Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

This AD is issued in accordance with EC 1702/2003, Part 21A.3B. In accordance with EC 2042/2003 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD unless otherwise specified by the Agency [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].

<table>
<thead>
<tr>
<th>Type Approval Holder’s Name :</th>
<th>Type/Model designation(s) :</th>
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</thead>
<tbody>
<tr>
<td>DASSAULT AVIATION</td>
<td>Falcon 7X aeroplanes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TCDS Number :</th>
<th>Foreign AD :</th>
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</thead>
<tbody>
<tr>
<td>EASA.A.155</td>
<td>Not applicable</td>
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</table>

<table>
<thead>
<tr>
<th>Supersedure :</th>
</tr>
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<tbody>
<tr>
<td>This AD supersedes EASA AD 2011-0102-E dated 26 May 2011.</td>
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</table>

<table>
<thead>
<tr>
<th>ATA 27</th>
<th>Flight Controls - Horizontal Stabilizer Pitch Trim - Suspension of Flight Operations / Modification / Operational Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer(s): Dassault Aviation</td>
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<tr>
<td>Applicability: All Falcon 7X aeroplanes, all serial numbers</td>
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</tr>
<tr>
<td>Reason: Recently, a Dassault Aviation Falcon 7X aeroplane experienced an uncontrolled pitch trim runaway during descent. The crew succeeded in recovering a stable situation and performed an uneventful landing. This condition, if occurring again, could lead to a loss of control of the aeroplane. To address this potential unsafe condition, pending investigations by the manufacturer, EASA issued emergency AD 2011-0102-E which prohibited further flights from its effective date. The initial results of the investigations are showing that there was a production defect in the Horizontal Stabilizer Electronic Control Unit (HSECU) which could have contributed to the cause of the event. There are two different HSECU in use: Part Numbers (P/N) 051244-02 is not affected by this production defect and P/N 051244-04 is potentially affected by this production defect. The aeroplane that experienced the uncontrolled pitch trim runaway event was equipped with a P/N 051244-04 HSECU. Investigations are continuing to confirm this cause. In the meantime, to allow re-starting flight operations and providing protection</td>
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</tbody>
</table>

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against further pitch trim runaway events, Dassault Aviation have developed two modifications (M1235 and M1236) which are implemented through accomplishment of Dassault Service Bulletin (SB) F7X-211.

In addition, it has determined that the flight envelope must be restricted, compared to the original certified flight envelope. In response, Dassault have developed the corresponding Aircraft Flight Manual (AFM) limitations and a placard, to be installed in the cockpit (part of the instructions of SB F7X-211) to remind the flight crew of the limitations. In addition, modified operational procedures have been developed for in-flight activation of the new protection.

A Certification Maintenance Requirement (CMR), to repetitively test the new Horizontal Stabilizer Trim Actuator (HSTA) electric motors reversion relays (installed with M1235 and M1236) has been developed and must be introduced into chapter 5.40 of the Aircraft Maintenance Manual (AMM).

Additionally, the Master Minimum Equipment List (MMEL) is temporarily modified by this AD to prohibit dispatch of the aeroplane with some specific identified failures.

For the reasons described above, for aeroplanes equipped with HSECU P/N 051244-02, this AD, which supersedes EASA AD 2011-0102-E, requires:

1. accomplishment of two Dassault Aviation modifications,
2. amending the AFM and installing a placard in the cockpit,
3. amending the Minimum Equipment List (MEL), and
4. implementing an operational test of the HSTA electric motors reversion relays.

For aeroplanes equipped with HSECU P/N 051244-04, the prohibition of flights is maintained.

This AD is considered to be an interim measure. Once further results of the investigations are known, it is expected that further AD action may follow to:

- recover a full certified flight envelope for the aeroplanes that are resuming flights after compliance with the requirements of this AD,
- resume flights for the other aeroplanes.

<table>
<thead>
<tr>
<th>Effective Date:</th>
<th>16 June 2011</th>
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<tbody>
<tr>
<td>Required Action(s) and Compliance Time(s):</td>
<td>Required as indicated, unless previously accomplished:</td>
</tr>
<tr>
<td></td>
<td>For aeroplanes on which HSECU P/N 051244-02 is installed, before next flight:</td>
</tr>
<tr>
<td></td>
<td>(1) Accomplish Dassault Aviation modifications M1235 and M1236 in accordance with the instructions of Dassault Aviation SB F7X-211.</td>
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<tr>
<td></td>
<td>(2) Amend the AFM in accordance with Dassault Aviation Change Proposal (CP) 055 and CP056 to AFM F7X DGT105608, attached to this AD. Inserting a copy of Dassault Aviation CP055 and CP056 is an acceptable method to comply with this requirement until publication of the AFM revision incorporating these amendments.</td>
</tr>
<tr>
<td></td>
<td>(3) Install a placard in the cockpit, in full view of the pilots, in accordance with the instructions of Dassault Aviation SB F7X-211.</td>
</tr>
<tr>
<td></td>
<td>(4) Amend the MEL by removing the following items:</td>
</tr>
</tbody>
</table>
- **item 34-9** air data systems (ADS)
- **item 30-1** Multi Function Probe (MFP) Heating system
- **item 27-3** ACMU3 and ACMU4
- **item 27-5-6** LH REAR POWER #3
- **item 27-8** Back-up Mode

The result of this removal means that dispatch of the aeroplane is prohibited with any of these inoperative situations.

Inserting a copy of this AD in the operator’s Minimum Equipment List is an acceptable method to comply with the requirement of this AD paragraph.

(5) Within 1,850 flight hours (FH) after modification of an aeroplane as required by paragraph (1) of this AD and thereafter at intervals not to exceed 1,850 FH, accomplish an operational test of the HSTA electric motors reversion relays as described in Dassault document CP009 to Chapter 5.40 of F7X AMM.

(6) If during any operational test as required by paragraph (5) of this AD, the HSTA electric motors reversion relays fail the test, before next flight, contact Dassault Aviation for approved repair instructions and, within the time period specified in those instructions, accomplish the repair accordingly.

(7) Compliance with the new CMR as required by paragraphs (5) and (6) of this AD can be demonstrated by:

(7.1) Revising as follows, the Aircraft Maintenance Programme on the basis of which the Operator or the Owner ensures the continuing airworthiness of each operated aeroplane:

Incorporate the Operational Tests of the HSTA electric motors reversion relays as described in CP009 to Chapter 5.40 of F7X AMM DGT 107838. Inserting a copy of this AD in the aircraft documentation is acceptable until publication of this AMM revision.

(7.2) Complying with the approved Aircraft Maintenance Program described in paragraph (7.1) of this AD.

**For aeroplanes on which HSECU P/N 051244-04 is installed:**

(8) From 27 May 2011 [effective date of EASA AD 2011-0102-E], all flights are prohibited.

<table>
<thead>
<tr>
<th>Ref. Publications:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dassault Aviation CP009 to F7X Aircraft Maintenance Manual DGT107838 chapter 5.40 (Attached to this AD).</td>
</tr>
<tr>
<td>Dassault Aviation CP055 and CP056 to F7X Aircraft Flight Manual DGT105608 (Attached to this AD).</td>
</tr>
</tbody>
</table>

The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.

<table>
<thead>
<tr>
<th>Remarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.</td>
</tr>
<tr>
<td>2. The safety assessment has requested not to implement the full consultation process and an immediate publication and notification.</td>
</tr>
</tbody>
</table>
3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu.

4. For any question concerning the technical content of the requirements in this AD, please contact your Dassault Falcon Technical Assistance:
   - For Europe, Middle East and Africa based operators:
     Hot Line: (33) 1 47 11 37 37 / Fax: (33) 1 47 11 89 49
   - For USA, Canada and Mexico based operators:
     Help Desk: (1) 800-2FALCON (2325266) / Fax: (1) 201 541 4740
   - All other areas:
     Help Desk: (1) 201 541 4747 / Fax: (1) 201 541 4740
FALCON 7X - CHAPTER 5-40-00 after Rev01

SECTION 5. CMRs AND OTHER ALI THAN FATIGUE and DAMAGE TOLERANCE’s (scheduled ALI CDCCLs and ALI from qualification tests)

**Before CP009 dated 10/Jun/2011:**

- No task for OPERATIONAL TEST OF THE HSTA ELECTRIC MOTORS REVERSION

**After CP009 dated 10/Jun/2011:**

<table>
<thead>
<tr>
<th>MPD task</th>
<th>Code Oper</th>
<th>Origin</th>
<th>Title</th>
<th>Max Limit</th>
<th>comment effectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-40-00-710-801</td>
<td>01</td>
<td>CMR</td>
<td>OPERATIONAL TEST OF THE HSTA ELECTRIC MOTORS REVERSION</td>
<td>1850 FH</td>
<td>A/C with M 1236 or with SB 211 embodied</td>
</tr>
</tbody>
</table>
Pitch Trim Runaway

Possibly:
- FCS: TRIM LIMIT,
- FCS: THS DEGRAD,
- FCS: ALTN LAWS ACTIVE

and
- AFCS: AP FAIL

messages in CAS.

- Counteract using Side Stick
- Counteract using the manual pitch trim
- Emergency panel: TRIM EMERG pushbutton .............................................................. Push
  - Status light ...................................................................................................... Amber ON
  - FCS: THS DEGRAD, FCS: ALTN LAWS ACTIVE and AFCS: AP FAIL appear
INTENTIONALLY LEFT BLANK
VMO / MMO ENVELOPE

Unless otherwise specified, limits are expressed in terms of indicated values. Instrument error is assumed to be zero.

MAXIMUM OPERATING LIMIT SPEED: VMO / MMO

**VMO / MMO ENVELOPE**

Unless otherwise specified, limits are expressed in terms of indicated values. Instrument error is assumed to be zero.

**MAXIMUM OPERATING LIMITS**

- **MMO** = 0.85
- **VMO** = 320 kt
WARNING

OVERSPEED PROTECTIONS AND AURAL WARNINGS ARE NOT TRIGGERED AT MMO / VMO.

CAUTION

The maximum operating limit speed MMO / VMO must not be deliberately exceeded in any regime of flight (climb, cruise, descent) unless a higher speed is authorized for flight tests or pilot training.
AUTOMATIC PILOT

Autopilot must not be engaged for take-off or landing.
- Minimum height to engage autopilot after take-off .............................................................. 400 ft
- Minimum height for autopilot operation except during approach ........................................ 400 ft
- Minimum height for autopilot operation during approach without path reference .............. 120 ft
- Minimum height for autopilot operation during approach with vertical path reference (ILS-CAT1) ................................................................. 80 ft

CAUTION

- Above 35,000 ft and airspeed below 230 KIAS
  Do not use airbrakes AB1 position while automatic pilot is in use in roll mode with a bank angle above 28.

- Above 25,000 ft and airspeed below 250 KIAS
  Do not use airbrakes AB2 position while automatic pilot is in use.
The autothrottle must not be engaged for take-off, go-around and landing.

- Minimum height to engage autothrottle in climb after take-off ...................................................... 400 ft
- Minimum height to disengage autothrottle at landing ...................................................................... 50 ft
OPERATION BARO-SETTING

Below transition altitude or level, altimeter setting must be set to QNH to use VNAV and VSD.

FMS

Barometric VNAV guidance during approach including the approach transition, final approach segment, and the missed approach procedure is not temperature compensated. Unless a temperature limitation is reflected on the approach chart, operating at uncompensated minimum IFR altitudes will not provide expected terrain and obstacle clearance for temperatures below ISA.

AVIONICS WINDOW

FMS SPEED TAB
- AUTO Spd Tab:
  - In descent, the crew must not select “Vmo/Mmo”,
  - Crew must ensure that selected speeds are below 0.85/320 kt.

FLIGHT MANAGEMENT WINDOW

- Alt/Spd Tab:
  - If CRZ Spd is in “manual”, the crew must check that selected speeds are below 0.85/320 kt.
  - If CRZ Spd is in “LRC” or “Max End”, the crew must check that selected speeds are below 0.85/320 kt.
  - The crew must not use “Max Spd”.

SENSORS WINDOW

FMS OPERATING MODE

FMS support synchronous and single-mode operation. Selecting synchronous for an FMS which is in single operation will result in the synchronization of that FMS with the Pilot Flying FMS (Master FMS).

NAVIGATION MODE AND PERFORMANCE

GPS: GPS, as installed, has been found to comply with the requirements for the use of GPS for IFR oceanic, domestic en route, and terminal area operations, as defined in JAA Leaflet No. 3 REV 1, when used in conjunction with the Pre-flight Integrity Prediction Software, part number 050-03462-0003 or later approved prediction program. The statements here-above are valid if there is no FMS and/or GPS related failure message/label on the PDU / MDU.

GPS updating must be disabled when operating in countries whose national airspace is not referenced to the WGS-84 reference datum in accordance with the criteria of AC20-130A, unless other appropriate procedures are used.

NAVIGATION

RNP flight operations are subject to GPS satellite availability and/or navaid coverage for the selected route. Navigation based on DME/DME or VOR/DME updating modes is permitted but may be
restricted by the availability or performance of the applicable ground nav aids. Crews should deselect (NOTAM) ground nav aids that are not to be used for navigation.

**NAVIGATION MAP (INAV, VSD) AND LOG (WPT LIST):**

**INAV AND VSD DATA LAYERS**

INAV including VSD (obstacle, terrain) are provided for advisory purpose only. AIRWAYS layer should be used for flight planning on ground to avoid cluttering INAV display in flight. INAV including VSD must not be displayed with amber DGR in HSI or displayed EPU above 15NM.

**GRAPHICAL FLIGHT PLANNING**

Hold dialog box:
- The FMS does not always take into account the published maximum Holding Pattern speed. Only the protection area calculated in accordance with the FAA (7130-3) model is taken into account.
- Adapt and stabilize the airplane speed 2 minutes prior to the airplane over flies the fix for the first time.
- Check that the FMS message HIGH HOLDING GRD SPD is out when passing the fix.

**CRUISE PERFORMANCE**

FUEL, TIME and SMART PERF prediction information are provided for advisory purpose only and must not be used for flight planning.

**SID / STAR / APPROACHES / TERMINAL PROCEDURES**

**WARNING**

INSERTING AND ACTIVATING A NEW APPROACH OR A NEW FPLN WILL RESET MINIMUMS SELECTIONS. THEREFORE, THEY SHOULD BE VERIFIED AFTER SUCH ACTION.

**CAUTION**

- It is crew responsibility to check the system-proposed VGP angle against the chart-published descent angle.

- Once VGP is armed, no pilot intervention should be made to ease the capture.

Steep App check box must only be used during steep approach operation.

**NOTE**

During holding pattern Flight Director mode may revert from VPATH to PATH mode.

- It is crew responsibility to check procedures retrieved from data base with SID / STAR / approach charts.
- Approach procedures retrieved from database cannot be modified by the crew.
- For approach procedures retrieved from database where only one approach transition (IAF) is proposed, this transition will not be automatically selected by the system. It is crew responsibility to select this approach transition or not (vector to FAF), depending on the intended trajectory to execute the approach.
- Some approaches and STAR procedures are not in the database. This is because of the way some procedures are defined by the controlling agency and the limitations of the FMS.
FMS-BASED APPROACHES

The following table describes the approach procedures approved for automatic execution with the FMS (i.e. use of LNAV/VNAV flight director guidance, either flown manually or coupled to the autopilot).

FMS navigation mode must be checked prior to IAF.
Performing a Vertical Direct TO (VDTO) on an altitude constrained FAF will lead to a late activation capability, and may result in a steep flight path angle up to minus 10 degrees.
Whatever the kind of FMS-based approach, following one of the 3 events, the approach must be discontinued:
- **UNABLE RNP** in FMS message window (I-NAV),
or
- Green **APPR** not displayed prior to FAF (ADI),
or
- Amber **DGR** displayed (HSI).

Observing the Minimum Safe Altitude and obstacle clearances remains crew responsibility.
Prior to executing an FMS based approach, the RNP Value on the sensor page shall be set to the value indicated in the first column. The FMS navigation and synchronization modes shall be checked against the second and third columns.

<table>
<thead>
<tr>
<th>Approach type and RNP</th>
<th>Approved FMS navigation mode</th>
<th>Special considerations</th>
<th>Specific events following which the approach must be discontinued</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDB or NDB-DME RNP 0.6 (or lower)</td>
<td>GPS Dual FMS synchro</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in the HSI</td>
<td>NAV: FMS...-GPS 1+2 POS MISC NAV: FMS/GPS 1+2 MONIT message in CAS</td>
</tr>
<tr>
<td>DME-DME</td>
<td>Dual FMS synchro</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in the HSI</td>
<td>NAV: FMS...-GPS 1+2 POS MISC message in CAS</td>
</tr>
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<td>Approach type and RNP</td>
<td>Approved FMS navigation mode</td>
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</tr>
<tr>
<td>VOR</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...GPS 1+2 POS MISC</td>
</tr>
<tr>
<td></td>
<td>RNP 0.5 (or lower)</td>
<td></td>
<td>NAV: FMS/GPS 1+2 MONIT message in CAS</td>
</tr>
<tr>
<td></td>
<td>GNC</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
<tr>
<td>DME-DME</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...GPS 1+2 POS MISC message in CAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GNC</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
<tr>
<td>VOR, DME, provided the procedure-specified NAVAID has DME capability</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...GPS 1+2 POS MISC message in CAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GNC</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
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<td>Approach type and RNP</td>
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<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>VOR-DME or TACAN</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td><strong>NAV: FMS...-GPS 1+2 POS MISC</strong>&lt;br&gt;<strong>NAV: FMS/GPS 1+2 MONIT</strong> message in CAS</td>
</tr>
<tr>
<td>RNP 0.5 (or lower)</td>
<td></td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
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<td></td>
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<tr>
<td>DME-DME</td>
<td>Dual FMS synchro</td>
<td></td>
<td><strong>NAV: FMS/GPS 1+2 MONIT</strong> message in CAS</td>
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<tr>
<td>VOR-DME</td>
<td>Dual FMS synchro</td>
<td></td>
<td><strong>NAV: FMS...-GPS 1+2 POS MISC</strong> message in CAS</td>
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<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
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<tr>
<td>RNAV</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td><strong>NAV: FMS...-GPS 1+2 POS MISC</strong>&lt;br&gt;<strong>NAV: FMS/GPS 1+2 MONIT</strong> message in CAS or GPS RAIM UNAVAILABLE or GPS RAIM ABOVE LIMIT FMS message</td>
</tr>
<tr>
<td>RNP 0.3</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td><strong>NAV: FMS/GPS 1+2 MONIT</strong> message in CAS</td>
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<td>GPS</td>
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<td>Dual FMS synchro</td>
<td><strong>NAV: FMS...-GPS 1+2 POS MISC</strong>&lt;br&gt;<strong>NAV: FMS/GPS 1+2 MONIT</strong> message in CAS or GPS RAIM UNAVAILABLE or GPS RAIM ABOVE LIMIT FMS message</td>
</tr>
<tr>
<td>RNP 0.3</td>
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<td></td>
</tr>
<tr>
<td>Approach type and RNP</td>
<td>Approved FMS navigation mode</td>
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<tr>
<td>----------------------</td>
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</tr>
<tr>
<td>NDB or NDB-DME GPS</td>
<td>Dual FMS synchro</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td>NAV: FMS...-GPS 1+2 POS MISC NAV: FMS/GPS 1+2 MONIT message in CAS</td>
</tr>
<tr>
<td>RNP 0.6 (or lower) DME-DME GPS</td>
<td>Dual FMS synchro</td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td>NAV: FMS...-GPS 1+2 POS MISC message in CAS</td>
</tr>
<tr>
<td>Approach type and RNP</td>
<td>Approved FMS navigation mode</td>
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<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>VOR</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td><strong>NAV: FMS..-GPS 1+2 POS MISC</strong>&lt;br&gt;<strong>NAV: FMS/GPS 1+2 MONIT</strong>&lt;br&gt;message in CAS</td>
</tr>
<tr>
<td>RNP 0.5 (or lower)</td>
<td></td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
<tr>
<td>DME-DME</td>
<td>Dual FMS synchro</td>
<td><strong>NAV: FMS..-GPS 1+2 POS MISC</strong>&lt;br&gt;message in CAS</td>
<td></td>
</tr>
<tr>
<td>VOR-DME provided the procedure specified NAVAID has DME capability</td>
<td>Dual FMS synchro</td>
<td><strong>NAV: FMS..-GPS 1+2 POS MISC</strong>&lt;br&gt;message in CAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
</tbody>
</table>
### Approach type and RNP

<table>
<thead>
<tr>
<th>Approach type and RNP</th>
<th>Approved FMS navigation mode</th>
<th>Special considerations</th>
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</thead>
<tbody>
<tr>
<td>VOR-DME or TACAN</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...-GPS 1+2 POS MISC NAV: FMS/GPS 1+2 MONIT message in CAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
<tr>
<td>RNP 0.5 (or lower)</td>
<td>DME-DME</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS/GPS 1+2 MONIT message in CAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VOR-DME</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...-GPS 1+2 POS MISC message in CAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single FMS and procedure-specified NAVAID available and displayed in HSI</td>
<td></td>
</tr>
<tr>
<td>RNAV</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...-GPS 1+2 POS MISC message in CAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GPS RAIM UNAVAILABLE or GPS RAIM ABOVE LIMIT FMS message</td>
<td></td>
</tr>
<tr>
<td>RNP 0.3</td>
<td>DME-DME (unless otherwise indicated on the approach chart)</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...-GPS 1+2 POS MISC message in CAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GPS RAIM UNAVAILABLE or GPS RAIM ABOVE LIMIT FMS message</td>
<td></td>
</tr>
<tr>
<td>GPS</td>
<td>GPS</td>
<td>Dual FMS synchro</td>
<td>NAV: FMS...-GPS 1+2 POS MISC message in CAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GPS RAIM UNAVAILABLE or GPS RAIM ABOVE LIMIT FMS message</td>
<td></td>
</tr>
</tbody>
</table>
LOCALIZER-BASED APPROACHES

The use of FMS guidance (lateral and vertical) on the final approach segment of a localizer-based approach (LOC, LOC-DME, LOC B/C, LDA, SDF, ILS, ILS-DME) is prohibited. The final part of these approaches shall be executed on LOC or LOC/GS guidance only (depending on the type of procedure).

However, the FMS LNAV / VNAV can be used up to interception of the localizer. For these phases (initial approach and intermediate approach), the limitations associated with the following events (UNABLE RNP in FMS message window, amber DGR on HSI, NAV:FMS ..-GPS 1+2 POS MISC and NAV: FMS/GPS 1+2 MONIT in CAS message) are applicable.
EMERGENCY DESCENT

**CAUTION**

The following procedure assumes structural integrity of the airplane.
If structural integrity is questioned:
- Limit airspeed to lowest practicable value,
- Avoid high maneuvering load factors.

- **FASTEN BELT** pushbutton................................................................. Push
- Status light ........................................................................................................... Blue ON
- Autopilot ............................................................................................................ Disconnect
- Power levers (all 3) ............................................................................................ Idle
- AIRBRAKES .................................................................................................. AB2
- Descent airspeed: ......................................................................................... 0.85 / 320 kt, smooth air conditions
- ATC transponder ........................................................................................... Mayday code
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MASTER + gong with 66 FCS: DIRECT LAWS ACTIVE in Crew Alerting System

"DIRECT LAWS" voice warning
Loss of protection, autotrim and autopilot.

- Operating technique DIRECT LAWS procedure (section 2-100-15) .............. Applied
- Maneuver with caution.

CAUTION

Loss of protections (low speed, high speed, G load), autotrim, autopilot.
Loss of airbrakes auto retraction and inboard slats auto retraction.
Do not use AB 2 in flight while flaps are extended.
Use autothrottle until Minimum Use Height.

- Airspeed ................................................................. Below 260 KIAS or MI 0.80
- Manual trims ...................................................................................................................... Use
- FASTEN BELT pushbutton ................................................................. Push
  ☑ Status light ............................................................................ Blue ON
- A/B AUTO EXT pushbutton ................................................................. Push
  ☑ Status light ...................................................................................... Amber OFF
- Maximum landing crosswind 10 kt.
- If FCS: BOTH AILERONS FAIL NOT in CAS:
- If FCS: BOTH ELEVATORS FAIL NOT in CAS:
  - If FCS: MFCC FAULT NOT in CAS:
    - Perform a long stabilized approach.

- APPROACH
  - SLATS/FLAPS handle ................................................................. SF 3
  - Approach speed (zero wind) ................................................................. VREF
  - Increase landing distance by 23% (multiply by 1.23).

- AT 50 FT
  - Reduce progressively flight path angle to approximately minus 1.5° at touch down.

WARNING

PILOT MUST MINIMIZE SIDE STICK INPUTS AND TRIM ACTIVITY DURING FLARE.
> **AIRPLANE ON GROUND**
> - Manual airbrakes only when nose gear is maintained firmly on ground.
> - End of procedure.

- If **FCS: MFCC FAULT** in CAS:
  - Airplane stabilized.
  - Wait at least one minute or MFCC 1 or 2 or 3 green lighted in FCS synoptic page.
  - Fasten belt pushbutton ................................................................. Blue ON – Check
  - Release pressure on flight controls.
  - Norm [FCS ENGAGE] pushbutton ......................................................... Push

- If blue status light **ENGAGE** does not light:
  - ST-BY [FCS ENGAGE] pushbutton ................................................. Push

- If **66 FCS: DIRECT LAWS ACTIVE** goes out:
  - A/B AUTO EXT. pushbutton ................................................................. Push
  - Status light ......................................................................................... Unlighted - On
  - End of procedure.

- If **66 FCS: DIRECT LAWS ACTIVE** remains on:
  - Perform a long stabilized approach.

> **APPROACH**
> - SLATS/FLAPS handle ........................................................................ SF 3
> - Approach speed (zero wind) ................................................................. VREF
> - Increase landing distance by 23 % (multiply by 1.23).

> **AT 50 FT**
> - Reduce progressively flight path angle to approximately minus 1.5° at touch down.

**WARNING**

PILOT MUST MINIMIZE SIDE STICK INPUTS AND TRIM ACTIVITY DURING FLARE.

- **AIRPLANE ON GROUND**
  - Manual airbrakes only when nose gear is maintained firmly on ground.
  - End of procedure.
If **FCS: BOTH AILERONS FAIL** in CAS:

### CAUTION

Roll control is accomplished only through rudder pedal inputs.

Roll trim is inoperative: Use Rudder trim.

- Airplane stabilized.
- **FASTEN BELT** pushbutton................................................................. Blue **ON** – Check

### CAUTION

Be prepared to counteract roll tendency in case of effective FCS engage.

- Release pressure on flight controls.
- NORM [**FCS ENGAGE**] pushbutton...................................................... Push

- If blue status light [**ENGAGE**] does not light:
  - ST-BY [**FCS ENGAGE**] pushbutton...................................................... Push

- If **66 FCS: DIRECT LAWS ACTIVE** goes out:
  - [**A/B AUTO EXT**] pushbutton................................................................. Push
  - Status light................................................................. Unlighted - On

  - End of procedure. ❌

- If **66 FCS: DIRECT LAWS ACTIVE** remains on:
  - Perform a long stabilized approach.

#### APPROACH

- SLATS/FLAPS handle................................................................. SF 3
- Approach speed (zero wind) ................................................................. VREF
- Increase landing distance by 23 % (multiply by 1.23).

#### AT 50 FT

- Reduce progressively flight path angle to approximately minus 1.5° at touch down.

### WARNING

PILOT MUST MINIMIZE SIDE STICK INPUTS AND TRIM ACTIVITY DURING FLARE.

#### AIRPLANE ON GROUND

- Manual airbrakes only when nose gear is maintained firmly on ground.
- End of procedure. ❌
If **FCS: BOTH ELEVATORS FAIL** in CAS:

**CAUTION**

Pitch control is accomplished only through the manual pitch trim.

Manual airbrakes only when nose gear is on ground.

- Airplane stabilized.
- **FASTEN BELT** pushbutton ................................................................. Blue ON – Check
- Release pressure on flight controls.
- NORM **FCS ENGAGE** pushbutton ......................................................... Push

If blue status light **ENGAGE** does not light:
- ST-BY **FCS ENGAGE** pushbutton ......................................................... Push

If **66 FCS: DIRECT LAWS ACTIVE** goes out:
- **A/B AUTO EXT** pushbutton ................................................................. Push
  - Status light .............................................................................................. Unlighted - On
- End of procedure. ❏

If **66 FCS: DIRECT LAWS ACTIVE** remains on:
- Perform a long and flat stabilized approach (path angle approximately minus 1.5°).

**APPROACH**
- SLATS/FLAPS handle ............................................................................... SF 3
- Approach speed (zero wind) ....................................................................... VREF + 20kt
- Increase landing distance by 120 % (multiply by 2.20).

**AT 50 FT**
- Maintain flight path angle until touch down.

**WARNING**

PILOT MUST MINIMIZE SIDE STICK INPUTS AND TRIM ACTIVITY DURING FLARE.

**AIRPLANE ON GROUND**
- Apply brake pressure then manually extend airbrakes at AB 2.
**IN FLIGHT RELIGHT ENVELOPE: WINDMILLING**

**WARNING**

STARTER ASSISTED RELIGHT procedure must be applied before attempting a WINDMILLING RELIGHT.

For corresponding engine:
- Engine .. FUEL switch ................................................................. OFF
- Establish airplane within windmilling envelope.
NOTE

Wait for N2 below 45 % before attempting a windmilling relight.

- **BOOST** status light ......................................................................................... Unlighted - On - Check
- **ANTI-ICE:** **ENG** and **WINGS** status lights ........................................ Unlighted - Off - Check
- **BLEED** status light ......................................................................................... Amber OFF - Check
- Power lever ......................................................................................................... Idle - Check
- Engine .. FUEL switch ......................................................................................... ON
  ☑️ On PDU ......................................................................................... Green START and amber IGN
- Monitor ITT and N2.

- **If engine is relighted (N2 stabilized):**
  - **IGN** annunciation ......................................................................................... Out
  - **START** annunciation ......................................................................................... Out
  - Engines parameters ......................................................................................... Check

- **If engine 2 is operative:**
  - **BUS TIE** pushbutton ......................................................................................... Push
    ☑️ Status light ......................................................................................... Unlighted - Untied
  - Release pressure on flight controls.
  - **NORM** **FCS ENGAGE** pushbutton ......................................................................... Push

- **If blue status light ENGAGE does not flash:**
  - **ST-BY** **FCS ENGAGE** pushbutton ......................................................................... Push
  - **GALLEY MASTER** and **CABIN MASTER** pushbuttons ................................ As required
  - **ANTI-ICE:** **ENG** and **WINGS** pushbuttons ................................ As required
  - **TA/RA** ........................................................................................................ Select
  - **BLEED** pushbutton ........................................................................................ Push to set On
    ☑️ Status light ......................................................................................... Unlighted - On
  - **WINDSHIELD HEAT:** **LH** and **RH** pushbutton ........................................ Push to set On
    ☑️ Status lights ......................................................................................... Unlighted - On
IN FLIGHT RELIGHT ENVELOPE: STARTER ASSIST

### STARTER ASSISTED RELIGHT

**NOTE**

If possible, wait 1 minute between engine shutdown and engine start.

- **BUS TIE** pushbutton ................................................................. Push
- Status light ............................................................................... Amber TIED

For corresponding engine:
- Engine .. FUEL switch ................................................................. OFF
Establish airplane within starter assist envelope (below 35,000 ft).
- BOOST status light ................................................................. Unlighted - On - Check
- ANTI-ICE: ENG and WINGS status lights ........................................ Unlighted - Off - Check
- BLEED status light ............................................................................ Amber OFF - Check

Maintain N1 above 70 % on other engines.
- Engine .. FUEL switch ................................................................................. ON
- MAN START / MOTORING ENG pushbutton ........................................ Push and hold (0.75 sec.)
  - On PDU .......................................................................... Green START and amber IGN
- Monitor ITT and N2.

If engine is relighted (N2 stabilized):
- IGN annunciation .................................................................................... Out
- START annunciation ................................................................................. Out
- Engines parameters .................................................................................. Check

If engine 2 is operative:
- BUS TIE pushbutton ................................................................................. Push
  - Status light ......................................................................................... Unlighted - Untied
- Release pressure on flight controls.
- NORM FCS ENGAGE pushbutton ............................................................... Push

If blue status light ENGAGE does not flash:
- ST-BY FCS ENGAGE pushbutton ............................................................ Push
- GALLEY MASTER and CABIN MASTER pushbuttons ......................... As required
- ANTI-ICE: ENG and WINGS pushbuttons ........................................... As required
- TA/RA ........................................................................................................ Select
- BLEED pushbutton ................................................................................. Push to set On
  - Status light ......................................................................................... Unlighted - On
- WINDSHIELD HEAT: LH and RH pushbutton .................................... Push to set On
  - Status lights ......................................................................................... Unlighted - On

If engine is not relighted:
- Relight engine with WINDMILLING RELIGHT procedure (section 3-200-15A). ➔
MASTER + gong with FCS: THS DEGRAD in Crew Alerting System

FCS: ALTN LAWS ACTIVE and AFCS: AP FAIL messages in CAS.

- Maneuver with caution.
- Use the manual pitch trim.
- Airspeed ...................................................................................................... Below 260 KIAS or MI 0.80
- Emergency Panel: TRIM EMERG pushbutton........................................................................... Push
  ☑ Status light ...................................................................................................... Amber ON
  
If the manual pitch trim is operative:
- Maximum landing crosswind ....................................................................................................... 15 kt
- End of procedure. ❌

If the manual pitch trim is inoperative:

CUISRE
- Recover speed for which side stick forces are acceptable.

CAUTION
SLATS/FLAPS in clean configuration is forbidden at airspeed below 160 kt.

APPROACH
- Maximum landing crosswind ....................................................................................................... 15 kt
- A/B AUTO EXT pushbutton ................................................................................................. Push
  ☑ Status light .................................................................................................................. Amber OFF
- SLATS/FLAPS handle ........................................................................................................ SF 2
- Airspeed ......................................................................................................................... VREF + 25 kt
- Landing gear handle ........................................................................................................... Down
  ☑ On HSI: GEAR symbols (all 3) .............................................................................. Green
  
If in this configuration airplane has a nose up tendency:
- SLATS/FLAPS handle ......................................................................................................... SF 3
- Approach speed (zero wind) ............................................................................................... VREF
- Increase landing distance by 24 % (multiply by 1.24).

CAUTION
Manual airbrakes extension at landing is not authorized.
If in this configuration airplane has a nose down tendency or is steady:

- SLATS/FLAPS handle ............................................................................................................. SF 2
- Approach speed (zero wind) .............................................................................................. VREF + 25 kt
- FMW window: Arrival POF: Landing Config tab ............................................................ Select Flaps Override
- Increase landing distance by 120 % (multiply by 2.2).

CAUTION

Manual airbrakes extension at landing is not authorized.

CAUTION

The landing gear not extended aural warning may not sound.

NOTE

This procedure incorporates the procedure for: **FCS: ALTN LAWS ACTIVE**.

Do not complete the procedure for **FCS: ALTN LAWS ACTIVE**.
BEFORE PARK BRAKE IS RELEASED

NOTE
For the first flight of the day COCKPIT CHECK must start from an electrical power off condition.

Before APU is started, safety area must be verified, nav lights must be turned on.

Before engines are started, park brake must be set, safety area must be verified, anticol red lights must be turned on.

Before park brake is released, following actions must be performed:
- Verifications of cabin and cockpit fire extinguishers and smoke hoods.
- Closure of all doors,
- Verification of cargo and loose items,
- Verification of cockpit lights, including emergency panel.
- Verification of rain repellent level,
- Verification of hydraulic, and oxygen quantities,
- Verification of circuit breaker status,
- Verification of extinction of all "emergency panel" lights,
- Verification of tire pressure,
- Verification of no smoking and fasten seat belts signs,
- Verification of the accessibility of emergency handles for RAT and gear free fall extension,
- Verification of crew seat adjustment, rudder pedals and fastening of crew seat belts,
- Verification of CCD pilot and copilot, outer position must be checked after verification,
- Test of Fire Control Panel
- Test of hydraulic Backup pump
- Test of RAT
- Test of emergency lights
- Test of windshield heat
- Test of cockpit oxygen masks
- Test of conditioning system
- Test of Anti Ice
- Verification that flight controls move freely up to full deflection of the stick,

NOTE
Flight controls verification must be done without any other verification in progress and one axis after the other.
Test of Airbrakes ➔,
Test of TRIM EMERG pushbutton ➔,
Test of FCS ➔,
Setting of ELT in AUTO position,
Activation of fasten seat belt sign.

MEL when applicable must be checked for all failures indicated by CAS messages in CAS window or status page, as well as for failures identified by the crew independently of CAS messages.

**FIRE CONTROL PANEL TEST**

This test must be performed before starting the APU or the first engine once status page has been checked.

**Initial conditions:**
- After LH and RH INIT performed, LH and UP DU available.

**Test description:**
- 1. Overhead panel: depress FIRE TEST, maintain, and check:
  - white CAS message **FIRE: TEST IN PROGRESS** is displayed.
  - illumination of all fire control panel and the throttles lights
- 2. If amber CAS message **FIRE: TEST FAIL** is displayed: it must be determined which item has failed before entering MEL.

**HYDRAULIC BACKUP PUMP TEST**

This test must be performed before each flight.

**Initial conditions:**
- 1. Airplane on ground,
- 2. Engine 1 running.

**Test description:**
- 1. Overhead panel: set BACKUP pump to ON,
- 2. Check hydraulic # B pressure to 2900 PSI
- 3. If pressure does not increase it must be determined which item has failed before entering MEL,
- 4. Overhead panel: set BACKUP pump to AUTO.

**RAT TEST**

This test must be performed before each flight.

**Initial conditions:**
- 1. Electrical initialization completed.

**Test description:**
- 1. Synoptic / test page: select RAT soft key until white CAS message **RAT: TEST IN PROGRESS** is displayed.
- 2. If amber CAS message **RAT: TEST FAIL** is displayed: it must be determined which item has failed before entering MEL.
EMERGENCY LIGHTS TEST
This test must be performed before each flight.
Initial conditions:
- 1. Always available.
Test description:
- 1. Overhead panel: set EMERG LIGHTS on ON position.
- 2. Check correct illumination of the emergency lights in the cockpit and the cabin.

WINDSHIELD HEAT TEST
This test must be performed before each flight.
Initial conditions:
- 1. Airplane on ground
Test description:
- 1. Synoptic / test page: select WSHIELD soft key until white CAS message WSHIELD: TEST IN PROGRESS is displayed
- 2. If amber CAS message WSHIELD: TEST FAIL is displayed: it must be determined which item has failed before entering MEL.

COCKPIT OXYGEN MASK TEST
This test must be performed before each flight.
Initial conditions:
- 1. Crew stowage box switch must be ON
- 2. Essential buses must be connected.
Test description:
- 1. Crew stowage box rotary switch on Normal position then press to test
- 2. Yellow blinker is displayed within 4 sec.
- 3. Repeat sequence on EMERG and 100% position
- 4. If Yellow blinker is not displayed: it must be determined which item has failed before entering MEL.

CONDITIONING SYSTEM TEST
This test must be performed before the first take-off of the day.
Initial conditions:
- 1. Airplane on ground
- 2. APU running, BLEED auto or ENG 1 running, N2 > 60% and ENG 2 running, N2 > 60%
- 3. Air conditioning mode: NORMAL, or PAX OFF, or CREW OFF.
Test description:
- 1. Synoptic / test page: select COND soft key until white CAS message COND: TEST IN PROGRESS is displayed
- 2. After 15sec, when white CAS message COND: TEST WAITING EMER is displayed select EMERG mode.
- 3. After 20sec, when white CAS message **COND: TEST WAITING NORM** is displayed select NORMAL mode.
- 4. If amber CAS message **COND: TEST FAILED** is displayed: it must be determined which item has failed before entering MEL.

**TEST OF ANTI ICE**
This test must be performed before each flight.

**Initial conditions:**
- 1. TLA at idle.

**Test description:**
- 1. ANTI-ICE: ENG1, ENG2 and ENG3 pushbuttons set to ON,
- 2. Wait for 20 seconds,
- 3. Check of absence of any **A/I: ENG .. XX PRESS** message in crew alerting system,
- 4. ANTI-ICE: ENG1, ENG2 and ENG3 pushbuttons set to off.

**AIRBRAKES TEST**
This test must be performed before each flight.

**Initial conditions:**
- 1. Airplane on ground and after verification of flight controls
- 2. Hydraulic pressure established.

**Test description:**
- 1. Extend airbrakes to AB 1 then AB 2 position then AB 0.
- 2. Check proper operation of airbrakes and absence of CAS message.

**TRIM EMERG TEST**
This test must be performed before each flight.

**Initial conditions:**
- 1. Airplane on ground, flaps SF0 position, before TRIM EMERG test
- 2. Park brake is ON
- 3. All engines running
- 4. Side stick released.

**Test description:**
- 1. Emergency panel: Set **TRIM EMERG** pushbutton to ON
- 3. Check in FCS synoptic page that THS can be moved up and down by using manual pitch trim control
- 4. Set THS 0° nose, release the manual pitch trim and check the THS does not move in FCS synoptic page.
- 5. Emergency panel: Set **TRIM EMERG** pushbutton to OFF
FCS TEST

This test must be performed before each flight.

Initial conditions:
- 1. Airplane on ground, THS at rest, slats not extended and after verification of flight controls and test of airbrakes
- 2. Park brake is On,
- 3. All engines running,
- 4. Sidestick released.

Test description:
- 1. Synoptic / test page: select FCS soft key until white CAS message **FCS: TEST IN PROGRESS** is displayed,
- 2. Test is completed when white CAS message **FCS: TEST IN PROGRESS** goes out,
- 3. If amber CAS message **FCS: TEST FAIL** is displayed: it must be determined which item has failed before entering MEL.
NORMAL
BEFORE TAXI
Before park brake is released

INTENTIONALLY LEFT BLANK