

EASy II Baseline and Optional Upgrades for the F2000EX EASy, F2000DX and F-2000LX



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|---------|---|
| Sec 1.0 | Introduction |
| Sec 2.0 | Baseline and Optional Packages Overview |
| Sec 3.0 | Honeywell Maintenance Service Plan |
| Sec 4.0 | Customer Support |
| Sec 5.0 | Technical Support |

Quick Reference Table

| | |
|-------------------------|-----------------------------|
| Effective Dates: | 1/1/2020 through 12/31/2020 |
|-------------------------|-----------------------------|

*****TAX INCENTIVE*****

The U.S. Government approved a tax code change, as part of TAX CUTS and JOBS ACT and President Trump signed it into law at the end of 2017. The change allows Business Jet Owners who use their aircraft for business to take a Tax write-off equal to 100% of the upgrade cost in the first year, noting a few exceptions. Please check with your Tax advisor for specific details.

EASy II Baseline and Optional Upgrades for the F2000EX EASy, F2000DX and F-2000LX

1. Introduction



MAKE THE MOST OUT OF YOUR COCKPIT WITH EASy II

The EASy II upgrade is a feature and technology-packed enhancement now available for Dassault's EASy flight deck on the F2000EX EASy, F2000DX and F-2000LX aircraft. With more safety and navigation improvements, these aircraft can now be upgraded and equipped to handle just about anything the future might bring.

Key features of EASy II are:

- Improved operational safety.
- Improved accessibility to airports.
- Improved situational awareness.
- Compliance with upcoming Air Traffic Management (ATM) regulations.
- Improved operational efficiency.
- Performance enhancements based on operator feedback.

2. Baseline and Optional Packages Overview

EASy II is both a hardware and software upgrade which is available for both new production and in-service aircraft. The upgrade is offered through a series of Dassault Service Bulletins including one for the Baseline upgrade and one for each of the available Options as outlined below in Table 2-1. Installation of the Baseline Service Bulletin is a prerequisite to any of the Optional Bulletins.

| <u>Baseline</u> | <u>Feature(s)</u> |
|---|--|
| <ul style="list-style-type: none"> - Improved Safety and Situational Awareness - Enhanced Navigation Capabilities | Integrated PFD (Primary Flight Display) SmartRunway™ – RAAS Baro VNAV Temperature compensation Circling approaches in the FMS Second ECL (redundancy) Additional Improvements Multiple hardware and equipment upgrades |
| | |
| <u>Option I</u> | <u>Feature(s)</u> |
| <ul style="list-style-type: none"> - Improved accessibility to airports - Improved operational efficiency | LPV Approaches (Localizer Performance with Vertical guidance) SBAS GPS |
| | |
| <u>Option II</u> | <u>Feature(s)</u> |
| <ul style="list-style-type: none"> - Compliance with new regulations, including Next Gen ATM - Improved operational efficiency | ADS-B Out – Automatic Dependent Surveillance Broadcast SBAS GPS |
| | |
| <u>Option III</u> | <u>Feature(s)</u> |
| <ul style="list-style-type: none"> - Improved safety - Improved situational awareness - Reduction in runway incursions and excursions - Prevention of loss of control | SmartView™ SVS – Synthetic Vision System |

Table 2-1 – EASy II Service Bulletins for Baseline Upgrade and Available Options

| | |
|--|--|
| | |
|--|--|

| <u>Option IV</u> | Feature(s) |
|---|---|
| - Improved operational efficiency during the most critical phases of the flight | Dual Jeppesen Charts |
| | |
| <u>Option V</u> | Feature(s) |
| - Improved safety and operational efficiency | XM ^R Graphical Weather |
| | |
| <u>Option VI</u> | Feature(s) |
| - Communication capabilities | ATN-B1 Datalink (Protected Mode CPDLC) |
| | |
| <u>Option VII</u> | Feature(s) |
| - Surveillance capabilities - Communication capabilities | FANS 1/A+ Datalink (CPDLC & ADS-C) ⁽¹⁾ |
| | |
| <u>Option VIII</u> | Feature(s) |
| - Improved Safety | Automatic Descent Mode (ADM) |
| | |

Table 2-1 (continued) – EASy II Service Bulletins for Baseline Upgrade and Available Options

(1) The initial FANS 1/A certification will be implemented with the Honeywell Satcom MCS 7120. See Dassault for a schedule of any additional Satcoms.

Note:

- RNP-AR approach capability will not be part of the initial certification. The aircraft compliance with RNP AR (RNP 0.3) requirements is scheduled to be approved by the end of 2013 through an Airplane Flight Manual (AFM) revision, and will be available as part of the EASy II baseline.
- Full RNP AR approach capability requires a special operator approval, as well as explicit pilot training and a specific navigation database subscription. An RNP AR approval guide is available from Dassault.

The capability to conduct RNP-AR approaches with RNP values lower than 0.3 is no longer expected to be certified as a part of EASy II.

2.1 EASy II Baseline

The EASy II Baseline includes hardware and software upgrades to the Modular Avionics Units (MAUs). New technology modules provide a reduced parts count (four fewer modules) and improvement to power, weight and reliability. Upgrades to the MAUs include:

- Replacement of the 4 AGM I modules with AGM II -1903 modules. See AGM ordering instructions depending upon configuration of aircraft to be upgraded (Section 3).
- Replacement of the 4 NIC/PROC Pentium-II modules with:
 - o 2 NIC/PROC Pentium-M modules with DB,
 - o 2 NIC/PROC Pentium-M modules without DB,
- Removal of the 2 Database modules,
- Removal of the 2 PROC Pentium-II modules,
- Replacement of 4 AIOP Pentium-II modules with 4 AIOP Pentium-M modules,
- Replacement of the CMC Pentium-II module with a CMC Pentium-M module,
- Addition of 4 Air Management Modules in the spare slots,

The MRC1/2 hardware configuration will also be modified as follow:

- Upgrade of the 2 XPDR modules with 2 ADS-B Out capable and DO-260B compliant XPDR s
- Baseline Main Features – Integrated Primary Flight Display

As a pre-requisite for the EASy II upgrade, the aircraft must be equipped with EGPWM, P/N 7028419-1904. If not already equipped, the upgrade to this configuration can be performed by Honeywell Repair & Overhaul facilities and is charged separately from the EASy II package. Please allow for 15 calendar days to accomplish the upgrade.

Additionally, a pre-requisite for EASy II upgrade, the aircraft must be equipped with Network Interface Module (NIM), P/N 7517964-910 and at a minimum audio panel P/N 7511900-94101. Please allow for 15 calendar days to accomplish the upgrades.

EASy II introduces a significant improvement to the Primary Flight Display which provides a full scale HUD-like ADI and includes new navigation information. This advanced design improves the similarities of flight information displayed head-up and head-down, and is also conformal with the optional SmartView™ SVS information, when displayed.



EASy PFD

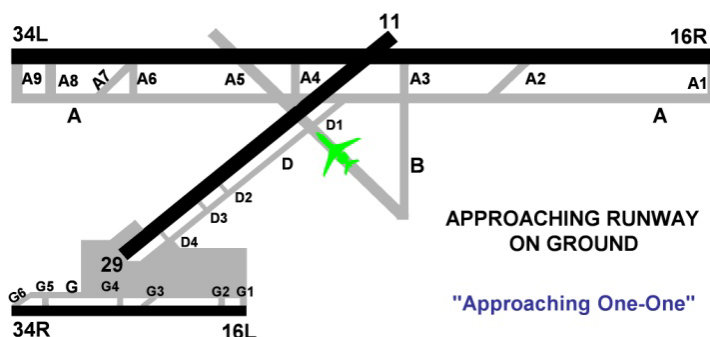


EASy II PFD

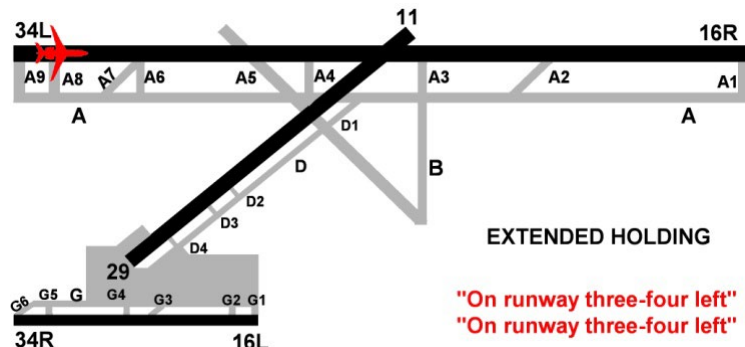
2.1.1 Baseline Main Features - SmartRunway™ – RAAS

Runway Awareness and Advisory System (RAAS) addresses the Number two National Transportation Safety Board's (NTSB) initiative - Improve Runway Safety!

Besides the number of airport operations, ATC, vehicle, pedestrian and pilot deviations have contributed to increase the rate of runway incursions and approach and landing accidents. The most frequent scenarios of incursion are taxiing across an active runway without a clearance, simultaneous approaches to the same runway, lining up on the wrong runway for takeoff or landing and, simultaneous take-off or landing on intersecting runways.



SmartRunway™ helps in reducing the risk of these incursion scenarios by providing aural alerts. It also provides some additional protection for runway overruns such as landing on short runways, intersection take-offs and distance to go during landing and a Rejected Takeoff (RTO).



The system will automatically vary the volume of the alerts depending on the particular message and related priority. Aural advisories are heard over the same aircraft audio systems as the EGPWS aural alerts and are mutually exclusive. There is no Power ON/OFF switch installed on the aircraft.

2.1.2 Baseline Main Features - Second Electronic Check List (ECL)

The Electronic Check List (ECL) is a key to efficient crew coordination in normal and abnormal operations. Integrated within the EASy avionics, it provides the crew with quick access to relevant procedures in normal and abnormal situations, as well as to the related aircraft synoptic.

In the current design, this function is lost if the MAU1A channel fails, leading the crew to transition to back-up (such as paper) checklists.

The EASy II upgrade provides a redundant design of the ECL, in order to improve the crew decision process in case of failures, or in case of specific procedures leading to switch off one of the MAU's.

2.1.3 Baseline Main Features - Flight Management System (FMS) upgrade to 7.1

2.1.3.1 FMS 7.1 - Baro VNAV Temperature Compensation

This feature allows the crew to disregard the temperature limitations for some approaches (e.g. GPS approaches, RNP AR...).

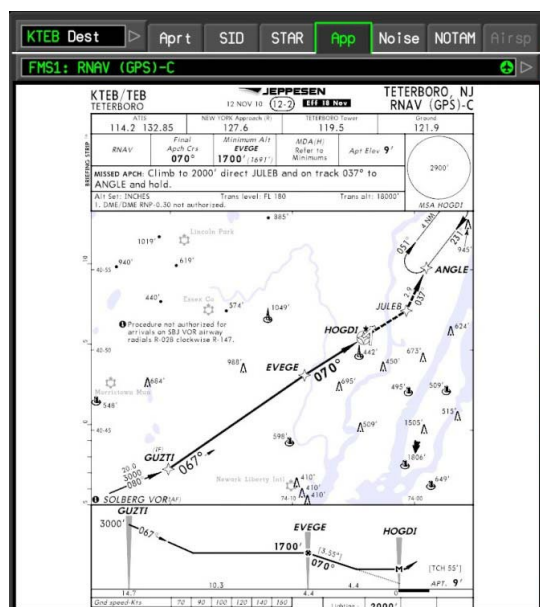


Before EASy II, you needed to manually compensate for each critical waypoint during approach and missed approach. When "Temp Comp" is activated by the pilot, all altitude constraints in the departure, approach and missed approach are compensated. Purpose of this is to raise the altitude constraint in cold weather. When the air is cold, it is condensed and the altimeter reading will be less than the true altitude. Conversely, in hot weather, the uncompensated altitude will bring the aircraft higher than the published altitude constraint. New FMS 7.1 provides means for crew to calculate temperature compensated altitude to use as minimum altitude for approach.

“Temp Comp” selection is on the “Landing Config” tab of the FMW. When activated, compensated altitudes are shown in white and “T Comp” is shown in the waypoint list.

2.1.3.2 FMS 7.1 - Circling Approaches

Circling approaches can now be retrieved from the FMS navigation database, even when not related to a given runway. When selected, the FMS will populate the waypoint list with all approach waypoints down to the missed approach point (final approach visual segments are not included), as well as missed approach waypoints if any. Below is an example of this feature now available with EASy II showing the former RNAV (GPS)-C approach to KTEB (Teterboro airport).



Electronic Approach Chart
RNAV (GPS)-C approach to KTEB



Approach Procedure



Approach and Missed Approach Flight Plan

2.1.3.3 FMS 7.1 - Automated Holding to Altitude (HA) Sequencing

Today, the pilot has to perform a manual operation during a procedure that contains an HA leg. Implementation of this feature will enhance the automatic leg sequencing ability of the FMS.

2.1.3.4 FMS 7.1 - Suffix-Type Approaches

Multiple approaches with the same guidance (RNAV, LOC, etc.) to the same runway are annotated with an alphabetical suffix beginning at the end of the alphabet and working backwards for subsequent procedures. These multiple types were added to the navigation database as they are defined and the FMS will provide these approaches for selection by the pilot. Previous application did not include correct coding so APPROACH

annunciation did not appear. Now, with the FMS upgrade to 7.1, APPROACH annunciation on PFD will appear when suffix-type approach is activated.

2.1.3.5 FMS 7.1 - LNAV on Go-Around

LNAV will automatically engage on the missed approach procedure when go around is activated after the FAF (Final Approach Fix).

2.1.3.6 FMS 7.1 - Radius to Fix (RF) Legs

FMS upgrade to 7.1 will facilitate RF legs.

2.1.4 Baseline Main Features - New Static Source Error Correction (SSEC) and machined static probes

To improve the aircraft RVSM performance, EASy II will include a new SSEC. In addition, the static pressure probes will have to be reinstalled pursuant to the application of a specific procedure.

Baseline Main Features - Central Maintenance Computer Improvements

Within the EASy II Baseline:

- A chronological CMC view will be available through the DUs, including CAS and Maintenance Messages. It will be possible to sort the information by date and time and by ATA chapter as it is currently.
- The LDI is now compatible with old & new Bleed Air System Computers (PN 92189A010600, 92189A020700 or 92189A030800)

Moreover, the operational tests of the Automatic Flight Control Systems “_AP-B1+2 CH ELEVATOR LOADED TEST”, “_YD-B1+2 CH RUDDER LOADED TEST”, “_AT-A1 CH LEFT/RIGHT TEST” (cf. maintenance task 22-10-00-710-801) have been corrected. Some parameter status as detailed in FSA2000EXEASy-45-20-00 will be displayed correctly.

2.1.5 Baseline Main Features - EASy II Head-Up Display

The EASy II baseline also includes a Head-Up Display software upgrade, designed to further improve the consistency of symbols displayed heads-up and heads-down. It also includes new indications supporting the operational capabilities introduced with EASy II (such as LPV or RNP-AR approaches).

2.1.6 Baseline Main Features - Dataloading

With new Pentium-M modules, the transfer time has slightly decreased.

Concerning the Blue CD ROM:

- If Dual Jeppesen Charts option is selected:
 - The PCMCIA card is no longer required, all Chart Data is loaded to the 4 AGMs, the Blue CD is now loaded from a Laptop and the loading time has increased (now there are 4x500MB that need to be transferred through the LAN).
- If Dual Jeppesen Charts option is not selected, there are no changes:
 - The PCMCIA is still required and the CD must be loaded from DMU

2.2 EASy II - Option 1 – Localizer Performance with Vertical Guidance (LPV) Approaches

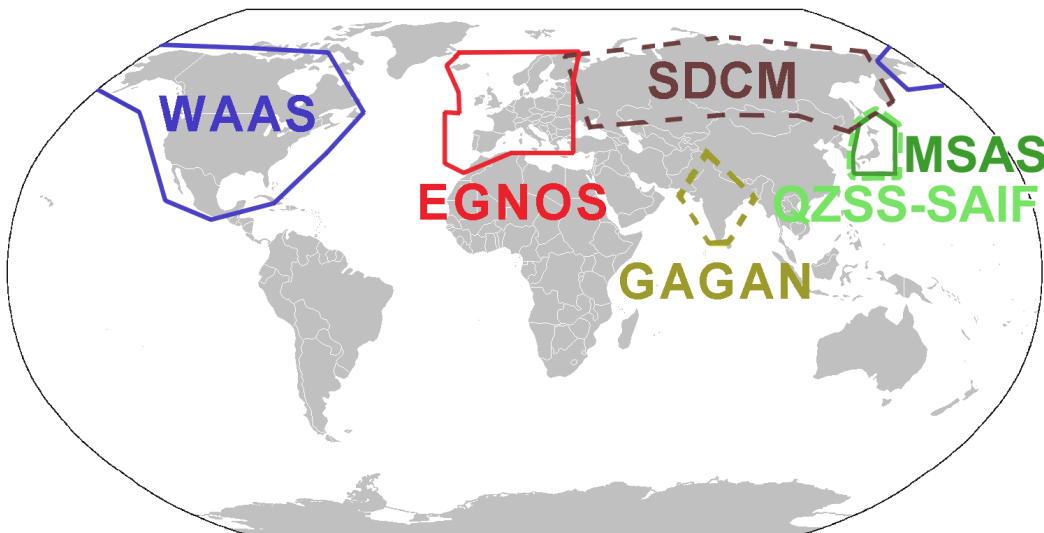
Improved Navigation Capability

LPV significantly increases the number of accessible airports, especially in adverse weather conditions.

This feature offers lower minimums than standard LNAV/VNAV GPS approaches, near ILS Category I minimums with no ILS on the field.

This capability is compatible with the Wide Area Augmentation System (WAAS) operated by the United States Federal Aviation Administration (FAA) and is planned to be compatible with the other regionalized Space-based Augmentation System (SBAS) Grids including:

- The European Geostationary Navigation Overlay Service (EGNOS), operated by the European Space Agency.
- The Multi-functional Satellite Augmentation System (MSAS) system, operated by Japan's Ministry of Land, Infrastructure and Transport (JCAB).
- The Quasi-Zenith Satellite System (QZSS), proposed by Japan.
- The GAGAN system proposed and operated by India.
- The GLONASS System for Differential Correction and Monitoring (SDCM), proposed by Russia.
- The Satellite Navigation Augmentation System (SNAS), proposed by China.



As of today, more than 3000 WAAS-LPV approaches are published in the USA and many more are on the way. Similar approaches are also being published in Europe (France, Switzerland, UK, Germany ...), since EGNOS Service of Life was declared operational (2011).

EASy II provides a unique design, intended to maximize commonality with ILS or LNAV VGP approaches supporting a much easier transition for pilots to this new type of approach.

This option includes upgraded GPS modules and GPS antennas to support SBAS services.

2.3 EASy II - Option 2 – Automatic Dependent Surveillance Broadcast – Out (ADS-B Out)

Improved Surveillance Capability Compliance with new ATM requirements



This option is fundamental to the future Air Traffic Management (ATM), as a further step after Elementary and Enhanced Surveillance.

It provides the aircraft position and intent broadcast from the onboard transponder to ADS-B receivers on the ground (or in other aircraft).

This option:

- Supports future ADS-B Out mandates (FAA in 2020 and the EASA retrofit is June 2020) and future ADS-B In applications (Cockpit Display of Traffic Information, CDTI)
- Allows a better use of the airspace, provides routing advantages for ADS-B equipped aircraft.

On airspace not covered by radar, the ADS-B infrastructure improves the ATC surveillance capability, therefore allowing reduced separation between aircraft. ADS-B infrastructure is already installed in the Gulf of Mexico, Southern Florida and will be deployed to 16 of the 20 US en route centers beginning with Jacksonville, Boston and Seattle. ADS-B infrastructure is also being deployed in Western Europe.

Included as part of this option:

- upgraded GPS modules and antennas supporting SBAS capabilities
- upgraded DO-260B compliant transponders.

2.4 EASy II - Option 3 - SmartView™ SVS – Synthetic Vision System

Improved Safety and Situational Awareness

The SmartView™ SVS capability provides a synthetic image of the surrounding terrain based on the EGPWS database. It can be independently displayed on both the pilot and copilot PFD.



EASy II Baseline



EASy II with SmartView™ SVS

SmartView™ SVS:

- Improves flight crew situational awareness and aircraft operational safety when flying over mountainous terrain or to unfamiliar destinations;
- Provides visual cues on the airport surface to reduce the risk of runway incursions.



SmartView™ SVS

High contrast water features



SmartView™ SVS

Detailed runway symbology

2.5 EASy II - Option 4 – Dual Jeppesen Charts

Improved Safety and Situational Awareness

This feature introduces redundancy for the use of the electronic Jeppesen charts. Instead of being stored on a single remote data storage device (the DMU), the Dual Jeppesen Chart option moves that data base storage to each of the four advanced graphics module (AGM II)!

This now provides 4 independent sources of data significantly reducing the probability of losing access to this function and having to revert to backup charts. Additionally, the response time to render a selected chart has been significantly improved (faster) with this feature.

2.6 EASy II - Option 5 - XM® Graphical Weather on INAV

Improved Safety and Situational Awareness



This option provides uplinked graphical weather information broadcasted by XM® (Weather Information Network) on the INAV.

XM's advanced digital satellite broadcast infrastructure provides the optimum method of transmitting the XM WX satellite weather data to aircraft flying anywhere within the contiguous United States and coastal waters. XM's advanced technology allows for dependable reception of the XM signal in any weather conditions and features affordable, unlimited-use subscription plans and wide ranging display options.

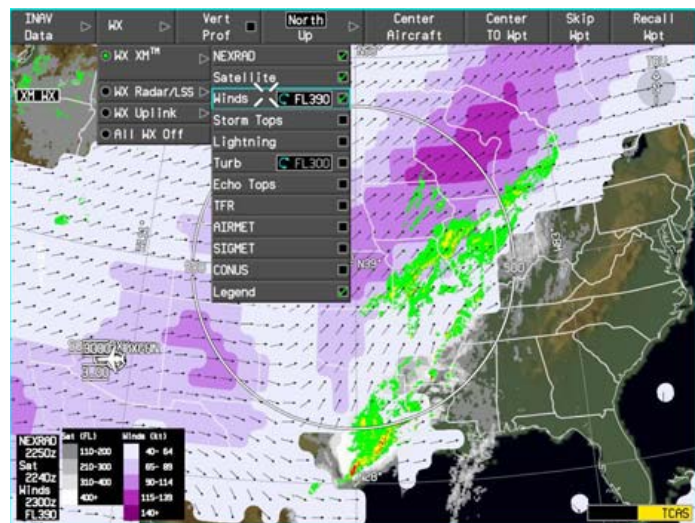
It provides the crew with the necessary weather information to optimize the route according to operational constraints in terms of comfort, safety, fuel consumption, and arrival time.

Information is automatically updated and stored until requested by the pilot for display.

Stored and displayed data is refreshed on a regular, predefined timeframe specific for each weather feature.

XM data available for display are the following:

- NEXRAD (precipitation return),
- Satellite imagery,
- Winds Aloft,
- Storm tops,
- Lightning,
- Clear Air Turbulence,
- Echo Tops,
- TFRs,
- Airmets,
- Sigmet,
- CONUS



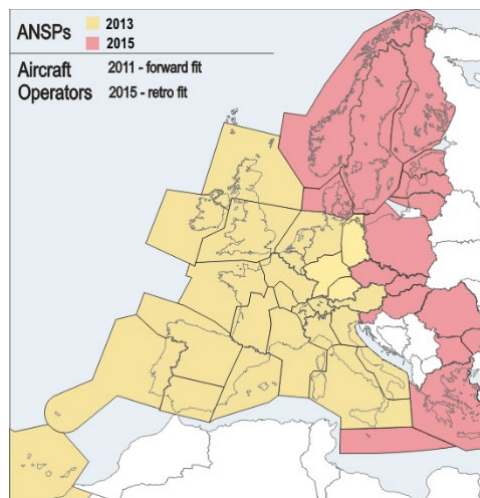
Selection of the "XM® Graphical Weather" Option includes the installation of a dedicated XM® receiver and antenna and requires a subscription to a data service plan by the operator.

2.7 EASy II Option 6 - ATN-B1 Datalink (Protected Mode CPDLC)

Improved Communication Capabilities Compliance with new ATM requirements

The ATC Data Link (ATC DTLK) function provides different sets of data communication applications between the aircraft and the ATC.

ATN-B1 – data communications over Europe



European plan for ATN-B1 CPDLC mandates on ANSPs and aircraft operators

The EASy II ATN-B1 application supports Protected Mode CPDLC (Controller Pilot Data Link Communications) services becoming available over Europe.

This CPDLC application allows the crew to communicate with ATC centers through formatted data link messages, as a complement (in the future as a substitute) to standard VHF voice communications.

The EASy II ATN-B1 CPDLC capability relies on the use of new high-speed data VHF (referred to as VDL Mode 2) replacing the existing VHF#3.

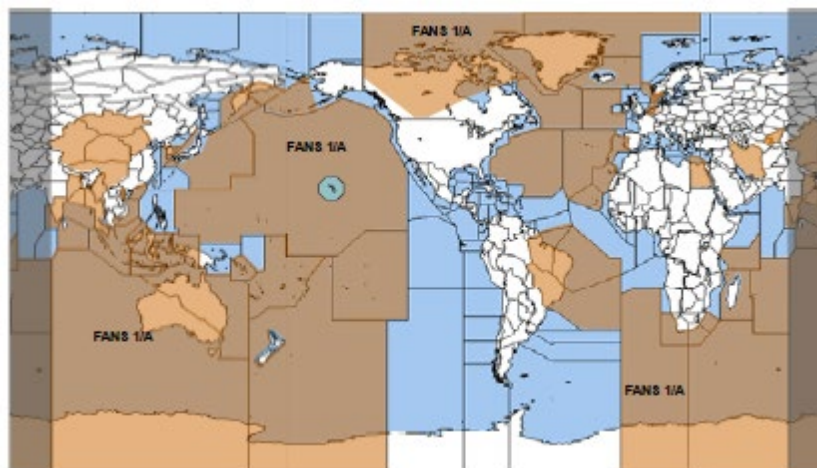


Sample clearance received
under ATN-B1 CPDLC control

2.8 EASy II Option 7 - FANS 1/A+ Datalink (CPDLC & ADS-C)

Improved Surveillance Capabilities
Improved Communication Capabilities

FANS 1/A+ – data communications over remote areas



FANS 1/A worldwide availability

FANS 1/A (Future Air Navigation Services) was initially designed to improve communication and surveillance over remote areas using data communications over Satcom networks. FANS 1/A is available in most oceanic airspaces worldwide and provides operational benefits for those aircraft so equipped today. Additionally, it is intended that FANS 1/A will offer greater routing benefits in the near future.

The EASy II capability complies with the latest FANS 1/A+ standard, and supports the following services:

- CPDLC (Controller Pilot Data Link Communications) allows the crew communicating with ATC centers through formatted data link messages, as a substitute to VHF and HF standard voice communications. Note that this service, although of similar nature, does not rely on the same standard as the European ATN-B1 Protected Mode CPDLC service.
- ADS-C (Automatic Dependent Surveillance-Contract) permits, upon request from the controlling ATC center, to automatically send aircraft reports to the ATC through datalink. These reports include information related to the aircraft position, velocity and intent as well as weather conditions. They can typically be contacted by the ATC when flying over remote areas, while the aircraft is no longer under radar coverage, and are a substitute to standard position reports made through HF.



Sample FANS 1/A+ message log

The FANS 1/A+ capability is mainly supported by the SatCom, although the system will also use the third VHF in DATA mode, when within VHF range.

Note that:

- Initially, the Honeywell MCS7120 will be the only SatCom certified supporting the FANS 1/A+ application.
- In some FANS 1/A+ airspaces, only CPDLC or ADS-C may be supported by the local Air Navigation Service Providers. The availability of these services as well as the crew operating procedures will therefore vary between routes flown.

Oceanic Clearances

| CMU OCEANIC CLX REQ | |
|---------------------|-------------------|
| ENTRY FIX | ETA |
| MALOT | 11:37 |
| MACH | FLT LEVEL |
| .85 | FL400 |
| ATC FACILITY | FLT ID |
| EGGX | F9SITS |
| REMARKS | |
| ----- | |
| ----- | |
| ----- | |
| <RETURN | DATALINK REQUESTX |
| [Empty Input Field] | |
| CMF/ATS | [Right Arrow] |

Oceanic Clearance requested using the EASy II ATC datalink

On aircraft equipped with either ATN-B1 or FANS 1/A+, the crew can use the datalink to manage Oceanic Clearance request / response transactions.

Note that EASy II does not support transfer of ATC Datalink clearances (CPDLC or Oceanic Clearance) into the FMS.

2.9 EASy II Option 8 – Automatic Descent Mode (ADM)

In case of depressurization, the time of useful consciousness at 40,000ft is 5 to 10 seconds.

This safety feature initiates an automatic descent to a safety altitude in case of depressurization at high altitudes.

It reduces crew workload in the unlikely event of a critical depressurization situation. Autopilot and Auto throttle guides aircraft to safe altitude at maximum velocity.

ADM is activated when Autopilot is engaged, aircraft is above 30,000' and cabin altitude is 9,700' or greater.

- When activated:
- Aircraft turns 90° left,
- AT will auto-engage if required and reduce thrust to IDLE
- Descend at speed 10 kts less than Vmo/Mmo,
- 15,000' is placed in altitude preselect,



- 'ADM' is annunciated in the center of the FMA panel,
- Upon reaching 15,000' maintains 250 kts.

ADM remains active until autopilot is disengaged

3. Honeywell Maintenance Service Plan (MSP Avionics)

Honeywell Maintenance Service Plan (MSP Avionics) is a maintenance service plan that offers coverage for your Honeywell Avionics. Choose the plan that best meets your needs. Specially priced plans are also available for fleet operators. Take the uncertainty out of repair and maintenance costs. A fixed-price MSP contract guarantees that your repair bills will not exceed your budget. For more information about MSP, please contact Honeywell at MSPAvionicsSales@Honeywell.com.

4. Customer Support

USA – 1-800-601-3099

International – 1-602-365-3099

5. Technical Support

US & Canada: 1-855-808-6500

All other countries: 1-602-365-6500

Fax: 1-877-484-2980

Website: www.MyAerospace.Honeywell.com

Email: AeroTechSupport@Honeywell.com

The Honeywell Aerospace Technical Support network is available 24x7 to provide global coverage with technical expertise guiding maintenance teams to fix and prevent technical issues for your avionics and mechanical needs. They also support an on-demand global network of deployable experienced field service engineers. For online 24/7 technical support, visit the technical support section of <http://www.MyAerospace.Honeywell.com> to open a case, view case status and access technical solution tutorials and troubleshooting aids.

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