



Collins Aerospace

FMC BATTERY REPLACEMENT

**(COVERS COLLINS AEROSPACE FMC-3000, FMC-4200, FMC-5000,
AND FMC-6000 FLIGHT MANAGEMENT COMPUTERS)**

Avionics Support Center
Collins Aerospace
Cedar Rapids, Iowa
Email: avionicssupport@collins.com
Phone: 319-295-5000

FMC BATTERY FAILURE



Figure 1. Example of FMS battery failure as shown on a Collins Aerospace Control Display Unit.

Operators may experience loss of data, incorrect time/date, and power up anomalies in the Flight Management Computer (FMC). FMC faults can occur due to normal depletion of the FMC battery, which is used to keep the FMC memory and real time clock active when the aircraft power is off.

The FMC uses a battery to retain aircraft performance information, v-speeds, flight plans, navigation data, and a real time clock. The FMC battery is used to retain this information when no power is applied to the avionics buss (avionics master is off, or the Integrated Avionics Processing System (IAPS) circuit breaker is pulled). A depleted battery will result in the loss of the identified data and an incorrect FMC clock. When this situation occurs return the unit for battery replacement.

The following FMC units are effected: FMC-3000, FMC-4200, FMC-5000, and FMC-6000. A complete list of individual FMC part numbers is listed in Service Information Letter FMC-XX00-13-1, CPN:523-0821781. Publications can be accessed with a registered account at the following web link: <https://portal.rockwellcollins.com/web/publications-and-training>

Typical battery life is approximately four years, unless the FMC has had Service Bulletin FMC-XX00-34-27 installed. If the FMC has SB 27 installed, the recommended battery replacement is every five years. If service bulletin FMC-XX00-34-29 is incorporated recommended battery replacement is 12 years.

VISUAL INDICATIONS

There are several visual indications of a possible failed FMC battery. For example, on the Control Display Unit (CDU), an operator may encounter the inability to scroll through the various menu pages. Also, an operator may have to reload the navigation database, or the flight plan does not divert back to the last flight plan entered each time the aircraft is powered up. Other examples would be the FMS date showing 1998 as the current year, the FMS powering up on the "TUNE" page, or the loss of the Performance or V-speed information. An FMC failed battery may also appear in the Maintenance Diagnostic Computer as well.

Battery installation dates will be marked on the front of the FMC to help operators determine when to proactively replace the batteries and avoid the impact of a depleted battery. When a faulty battery is confirmed, the FMC will need to be removed for battery replacement and sent in to a Collins Aerospace authorized repair facility, as this repair cannot be performed in the field.

REPLACEMENT OPTIONS

There are several replacement options available when sending in an FMC with a failed battery for service. FMC service bulletin FMC-XX00-34-25 installs a second FMC battery intended to significantly extend the life of the FMC batteries.

Operators with single battery FMC are encouraged to return their FMC for installation of service bulletin FMC-XX00-34-25. MOD Charts on the handle of the FMC can be used to determine if service bulletin FMC-XX00-34-25 is installed.

Service bulletin FMC-XX00-34-27 replaces currently installed SRAM with NVSRAM to further extend battery life. Service bulletins FMC-XX00-34-22,

FMC-XX00-34-23 and FMC-XX00-34-25 must be installed prior to or in conjunction with service bulletin FMC-XX00-34-27.

Service bulletin FMC-XX00-34-29 replaces the A2 Navigation Circuit Card. The new A2 card further extends battery life of units.

To minimize the impact from a depleted battery, Rockwell Collins recommends batteries installed in post service bulletin FMC-XX00-34-25 units be replaced four (4) years from the installation of the batteries. If service bulletin FMC-XX00-34-27 is incorporated recommended battery replacement is five (5) years. Rockwell Collins will replace both batteries at the same time. Battery installation dates will be marked on the front of the FMC to help operators determine when to proactively replace the batteries and avoid the impact of a depleted battery. If service bulletin FMC-XX00-34-29 is incorporated recommended battery replacement is 12 years.

REPLACEMENT INSTALLATION NEXT STEPS

A new, repaired, or updated Flight Management Computer (FMC) does not contain any databases. A Navigation Database and, in some cases, a VSpeed and/or Performance Database (as well as a Thrust Performance Database for Bombardier aircraft) must be loaded after installation. A specific load order of these databases is required due to the Dynamic Memory Allocation of the FMC memory during the loading process. The FMC may become unusable if the databases are not loaded in the proper order and will have to be returned to a Rockwell Collins Service Center for repair. If you are unsure if you have a Performance or VSpeed database, or are unsure of the correct database part number, please contact the OEM of your aircraft.

If you have a Flight Management Computer that has no databases loaded and requires Navigation, VSpeed, and Performance Databases, always load in the following order: (1) Performance Database (2) VSpeed Database (3) Navigation Database.

For those aircraft utilizing the Thrust Performance Database, the load order is (1) Performance (2) Thrust (3) VSpeed (4) Navigation

NOTE: It is important the Performance Database be loaded prior to the Vspeed and Navigation databases to prevent the FMC from locking up.

NOTE: If the FMC is pre-loaded with the Vspeed database and or Navigation Database, then remove each database first by starting the dataload, wait until the dataload process is at 1%, then press the CANCEL line select key. This will clear the memory so the Performance Database can be loaded first and allocated correctly in the FMC memory to prevent FMC lock up during the dataload process.

DATABASE DOWNLOAD ASSISTANCE

There are several documents and videos available to download and assist in the dataloading process on the Avionics Customer Support Self Help website. The website is <https://portal.rockwellcollins.com/web/support-self-service>.

Under the “Self-Help Information” heading at the top of the web page, there is a section entitled “Self-Help Videos”, as well as a section entitled “Self-Help Articles”. On the Video web page, there is a section entitled “Dataloading”. Here you will find hyperlinks to download narrated videos to a computer, which will guide you through the process of dataloading your aircraft if the aircraft has a DBU-5000 data loading system installed.

On the Articles web page, there is a document listed under the “Avionics” heading, entitled “Database Web Download”. This document will step through the process of downloading the aircraft databases from the Collins Aerospace FMS Flight Deck Content” page, and installing the databases to a USB drive to then move the USB drive to the aircraft data loading system.

If additional assistance is required beyond the aforementioned videos and articles, technical assistance is available. Collins Aerospace Customer Support Engineers (CSE) that are assigned to your area. A listing of CSE points of contact can be found at the following web link, under the “Service and Support” section: <https://www.rockwellcollins.com/Search/ContactDirectory>