

ABX Air Aircraft Quick Access Recorder (QAR) Removal/Replacement of Compact Flash Card (CFC) and Data Uploading

DESCRIPTION

The aircraft Quick Access Recorder (QAR) records flight data on a Compact Flash Card (CFC). Flight data recorded on the CFC is used to support the ABX Flight Operational Quality Assurance Program (FOQA). The FOQA program is a safety program that analyzes data generated during flight operations. The aim of the program is to improve safety, evaluate and enhance training practices, revise operating procedures and performance, and assist aircraft maintenance and engineering. Successful and timely uploading of the data on a regular basis is required to support the safety program.

GENERAL PROCESS AND PROCEDURE

1. This document and referenced documents can be found on the [ABXTranet](#) in [ABX FOQA QAR Procedures](#).
2. The QAR is installed to the aircraft DFDR Test Plug in the P61 panel. See FIGURE 1.
3. The QAR CFC is to be removed, replaced and data uploaded at aircraft Service Check intervals.
4. IMPROTANT - Power must be removed from the QAR or aircraft before removing/installing CFCs. Failure to remove power to the QAR while removing/installing a CFC will corrupt the recorded flight data.
5. After the replacement CFC is inserted into the QAR, apply power to QAR and verify the fault light comes on then extinguishes. This will confirm the test status of the QAR.
6. The CFCs are serialized for tracking. The Serial Numbers will allow CFCs to be identified if problems are noted during use. If a CFC S/N is required, use the QAR Compact Flash Card Serial Number Spreadsheet. Spreadsheet location is located on the [ABXTranet](#) in [ABX FOQA QAR Procedures](#). Also See FIGURE 1.
7. The data on the CFCs is uploaded to Flight Data Services (FDS) for analysis by the Polaris Transfer computer program installed on a line station computer.
8. ABX Stations at LGG, CVG, MIA, LAX, & ILN have the Polaris Transfer Program installed.
9. Reference - Polaris program ID numbers: ILN – ABX_1, LGG – ABX_2, CVG – ABX_3, MIA – ABX_4, LAX – ABX_5.
10. If sending CFCs to ABX Maintenance Control for uploading, send to ABX Maintenance Control, ILN/2061C. Tag the CFC with Aircraft Number and Date removed.
11. When the data is uploaded through the Polaris Transfer Program the data on the CFC is cleared and the CFC is formatted with the Polaris program for reuse.
12. If a CFC is removed from an aircraft and found not to contain data, additional troubleshooting is required. The card may be defective; there may be a problem with the aircraft and/or a problem with the installed QAR.
13. The installed QAR S/N is matched to the aircraft registration number through the Flight Data Services (FDS) system. CFCs are identified to the aircraft by the QAR S/N which is recorded to the CFC along with the flight data.
14. When uploading data from the CFC, verify that the CFC is reading and aircraft registration number identified. When upload is completed verify data is sent to FDS as indicated in the Polaris program.
15. Procedures for using the Polaris Transfer program can be found in the [Flight Data Services Polaris Transfer Software Installation & User Manual](#) located on the [ABXTranet](#).
16. When the recorded flight data is uploaded to FDS, the data is matched with uploaded ABX logbook data. The data is analyzed and feedback provided to the ABX Safety Program.
17. After completion of the flight data upload from the CFC complete the [QAR Compact Flash Card Log Spreadsheet](#). The spreadsheet log is used to help track identify aircraft, CFC and/or QAR problems in the fleet.

PRECAUTIONS, DO's and DON'Ts

1. **DO NOT** remove or replace a CFC with power applied to the QAR. Removing or inserting a CFC with power applied will corrupt the data on the CFC.
2. CFCs are inserted into the QAR with the pin sockets facing down and CFC front label facing INBD. Ensure CFC is fully seated in QAR. See FIGURE 1.
3. All CFCs are serialized. If a CFC is found without a serial number, use the [Compact Flash Serial Number Spreadsheet](#) on the [ABXTranet](#) to obtain a serial number and apply the number to the card. Be sure to save spreadsheet after logging use of a CFC S/N. See FIGURE 1.
4. The CFCs are formatted with a proprietary Polaris formatting that cannot be read or seen by Microsoft Windows. **DO NOT** attempt to read or format the card through Microsoft Windows.
5. If the formatting of the CFC is suspect it can be reformatted by running the card through the Polaris Transfer program and formatting for a L3 uQAR. See [Flight Data Services Polaris Transfer Software Installation & User Manual](#)
6. Use of the Polaris Transfer Program requires the User to have ADMIN rights on the computer. Contact ATSG I.S. through your management to obtain ADMIN rights if needed.
7. When the CFCs are uploaded through the Polaris Transfer Program complete the [ABX QAR Compact Flash Log Spreadsheet](#) through the link on the [ABXTranet](#). This log is used to assist Aircraft Maintenance with troubleshooting CFCs, aircraft, and/or QARs.
8. The CFCs are to be uploaded within 1 day after removal from the aircraft. Timely data uploading and data analysis is required in order to support the safety program.
9. Verify that the CFC is read by the Polaris program and data is sent. If there are problems with the Polaris Transfer program contact ATSG I.S. Department for support.
10. If CFCs are found damaged, the CFC should be tagged as damaged and returned to ABX Materials Management for replacement.
11. Industrial type CFCs are being introduced into the ABX system. This will be the new standard moving forward as CFCs are replaced on attrition.
12. The installed QAR S/N is matched to the aircraft registration number through the Flight Data Services system. If a QAR is replaced Flight Data Service must be notified of the new QAR S/N installed on a specific aircraft.
13. When installing a CFC into the QAR ensure CFC is fully seated in the QAR.

Network Location of QAR Compact Flash Card Log Spreadsheet and QAR Compact Flash Card Serial Number Spreadsheet. Microsoft Excel required with ABX Network access. Copy/Paste links to access spreadsheets.

- **QAR Compact Flash Card Log Spreadsheet**

Location: (Copy-Paste Link)

<Y:\WORK\ABX-AMES\QAR Compact Flash Logs\ABX QAR Compact Flash Log>

- OR -

<\\LNCDC05\root\ATSG\WORK\ABX-AMES\QAR Compact Flash Logs\ABX QAR Compact Flash Log>

- **QAR Compact Flash Card Serial Number Spreadsheet**

Location: (Copy-Paste Link)

<Y:\WORK\ABX-AMES\QAR Compact Flash Logs\Compact Flash Card Serial Number>

- OR -

<\\LNCDC05\root\ATSG\WORK\ABX-AMES\QAR Compact Flash Logs\Compact Flash Card Serial Number>

TROUBLESHOOTING

1. Use of the ABX [QAR Compact Flash Card Log Spreadsheet](#) is required to track and communicate problems and issues with CFCs, QARs, and aircraft.
2. If CFCs are removed from the aircraft and are found blank (no data on the CFC) the CFC should be held for follow up verification. If the subsequent CFC is not blank there is likely a problem with the original CFC. The defective CFC should be replaced.
3. If the subsequent CFC is found to be blank the QAR and or aircraft is suspect. Additional troubleshooting is required.
4. ABX has experienced bent and damaged pins in the QARs. If a QAR is suspect, inspect the QAR card slot for bent or damaged CFC pins. Replace QAR if required.
5. The QAR status is to be checked each time a replacement CFC is inserted. Check the QAR by observing that LED (Status Indicator) on the front of the QAR comes on and extinguishes with 15 seconds after power is applied. If the status light does not come on and extinguish aircraft troubleshooting and/or QAR replacement is required.
6. Aircraft troubleshooting can be accomplished by power and electrical ground checks through the DFDR test plug with the QAR removed.
7. If data is being read by the Polaris Transfer program, but not being sent, troubleshooting of the Polaris Transfer program and/or PC is required. Contact ATSG I.S. for support.
8. ABX has experienced loose/rotating QAR cannon plugs and loose/rotating aircraft cannon plugs.
9. If a CFC is found not fully seated , installed incorrectly or not installed after completion of a flight generate logbook entry to record finding and corrective action.

WORKSTEPS – REMOVE & REPLACE COMPACT FLASH CARD, CHECK QAR STATUS

Applicable to 219, 220, 226, 312, 315, 317, 362, 363, 371, 740, 744, 750, 767 and 795.

1. Obtain P/N TP2GCF100I-P or interchangeable Compact Flash Card (CFC) from stock. Verify CFC has a S/N such as ABX-XXX. If not, obtain S/N from the [QAR Compact Flash Card Serial Number Spreadsheet](#) and apply to CFC with a label.
2. Locate QAR at the DFDR Test Plug in the P-61 panel.
3. Remove power from QAR per A. or B. below as applicable to aircraft.

NOTE: DO NOT remove and replace the QAR Compact Flash card with power applied to the QAR as the CFC and recorded flight data will be corrupted.

- A. Applicable to 312, 315, 317, 362, 363, 371, 740, 744, 750, 767, 795.

Remove power to QAR by opening the following circuit breakers.

- (1) 11J7, FLIGHT RECORDER AC
- (2) 11J8, FLIGHT RECORDER DC

- B. Applicable to 219, 220, 226.

Verify power is not applied to QAR by the FLT REC Switch located on the Flight Recorder Control Panel (FRCP) on the P-61 Panel.

- (1) Verify FLT REC Switch is in the OFF or NORM position and the OFF light is illuminated.

- C. Remove Compact Flash card from QAR and tag card with aircraft tail number.
- D. Install replacement card into QAR with the front label facing you (INBD), and card pin sockets facing down. Ensure card is fully seated in QAR.
- E. Re-apply power to QAR and verify QAR Status per F. or G. below as applicable to aircraft.
- F. Applicable to 312, 315, 317, 362, 363, 371, 740, 744, 750, 767, 795.

Reapply power to QAR by closing circuit breakers.

- (1) 11J7, FLIGHT RECORDER AC
- (2) 11J8, FLIGHT RECORDER DC

- (a) Verify that the LED (Status Indicator) on the front of the QAR comes on and extinguishes within 15 seconds when CBs are closed.

- G. Applicable to 219, 220, 226

Verify status of QAR by applying power to QAR.

- (1) Position the FLT REC Switch to the ON position.
 - (a) Verify that the LED (Status Indicator) on the front of the QAR comes on and extinguishes within 15 seconds when switch is placed in the ON position.
- (2) Return FLT REC Switch to NORM position and verify OFF light illuminates.

WORKSTEPS – UPLOAD COMPACT FLASH CARD, POLARIS TRANSFER

LGG, CVG, MIA, LAX, and stations with upload capability.

- A. Login into computer with the Polaris Transfer program installed.
- B. Reference the [Flight Data Services Polaris Transfer Software Installation & User Manual](#) located on the ABX Intranet.
- C. Open the [Polaris Transfer Program](#).
- D. Verify Polaris Transfer displays the following after the program opens and initializes.
 - (1) Read Data with “Waiting to read” on the left side of the window.
 - (2) Send Data with “Waiting to transmit” on the right side of the window.
- E. Insert CFC into CFC reader. Polaris Transfer will start processing media once it has been inserted.
 - (1) If the aircraft registration can be identified from the CFC, the aircraft number will be displayed and Polaris will start the CFC reading process.
 - (2) If the aircraft registration cannot be identified from the CFC, the Aircraft Registration window will appear. Select the aircraft registration number.
 - (3) If the CFC inserted is blank, you will be notified to remove the CFC. If the blank CFC was removed from an aircraft troubleshooting is required.
 - (4) If the CFC does not contain valid data the Unknown Media window will appear. Check Send Image, Continue, Select L3 uQAR and Send and Initialize Media.
 - (5) When the Reading process has completed the upload process will be initiated.
 - (6) Verify data was uploaded by sent by message noted on the right side of the Polaris Transfer window.
 - (7) Complete [QAR Compact Flash Card Log Spreadsheet](#).
 - (8) If data uploading was unsuccessful troubleshooting is require to resolve problem. Note issue in the ABX QAR Compact Flash Card Log and initiate troubleshooting.
 - (9) Return acceptable CFC to stock.
 - (10) Logoff computer when finished.



Quick Access Recorder (QAR)



Insert Compact Flash Card As Shown

Compact Flash Card Fully Seated



Compact Flash Card Serial Numbers

FIGURE 1