ENGINEERING AUTHORIZATION APPROVAL FORM

EA no.	B737NG-EA-21-783
Subject	DIGITAL CABIN PRESSURE CONTROLLER NON-VOLATILE MEMORY (NVM) DOWNLOAD PROCEDURE
Type	NON AD
Method of Compliance	INSPECTION
Applicability	xxx B737-800/900ER FLEETS
Material Needed	NO
Priority	NORMAL
Estimate MH	± 0.5 EST.MANHOURS
Special Tools	YES
Affected Document	NO
Required Inspection Item Task	NO

Approved By: **Date:** **June 29, 2015**

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ENGINEERING AUTHORIZATION

SUBJECT : **Digital Cabin Pressure Controller Non-Volatile Memory (NVM) Download Procedure**	NO : B737NG-EA-21-783 DATE : June 29, 2015 REFERENCE : *SEE REFERENCES*
CATEGORY : RECOMMENDED	A/C TYPE : B737-800/900ER
SECTION : LINE MAINTENANCE TYPE : INSPECTION	EFFECTIVITY : *SEE EFFECTIVITY*
DUE DATE : *SEE COMPLIANCE* PRIORITY : NORMAL	WT/ARM CHANGE : NONE
ATTENTION : LM, PPC, QA, STORE, FES	EST. MAN HOURS : *SEE EST. MAN-HOURS*

REASON

Lion Air and Batik Air have received several direct experiences of cabin pressurization issues and AUTO FAIL occurrences that have been difficult to troubleshoot and/or determine the root cause of the occurrence.

DESCRIPTION

On all configurations of the DCPCS (Digital Cabin Pressure Controllers), there is a connector on the face of the controller that is located under the BITE instruction plate (identified as Test Connector J1 on some system schematics). The connector is installed to allow read-only access to the NVM data via a standard ARINC 429 interface while the DCPC is installed on the airplane. Boeing and Nord-Micro have developed software that will download the data on an installed controller using the Test Connector J1 port and a standard ARINC 429 interface. This method of downloading NVM data from a controller that remains installed on an airplane can save significant time during troubleshooting of pressurization issues. The Boeing NVM download software provides on-wing download of the complete fault details for up to 42 faults as well as visualization tools to assist with event analysis. The software will allow sharing of NVM data with Boeing and Nord-Micro Service Engineering to facilitate enhanced remote troubleshooting support.

This Engineering Authorization (EA) provides instruction to download NVM data with procurable cables and compatible ARINC 429 interface. The NVM data download is recommended to understand the airplane condition after pressurization events or for trends in the pressurization of the airplane. It does not constitute Instructions for Continued Airworthiness (ICA) and cannot be used in place of the AMM or FIM.

PREPARED BY

Renni Ekaputri

DISTRIBUTION	LM	PPC	QA	STORE	FES	FILE

EFFECTIVITY
All Lion Air and Batik Air B737-800/900ER.

COMPLIANCE
On-wing NVM data download may be performed **in imminent (shortly)** after significant pressurization events.

EST.MAN-HOURS

Task	Number of Persons	Task Hours	Note
• Close The Circuit Breaker on P6-4 • Open E/E Compartment Access Panel • NVM Data Download • Close E/E Compartment Access Panel	1	0.5	
TOTAL FOR EACH AIRPLANE		**0.5**	

WEIGHT AND BALANCE
None

REFERENCES
1. Boeing Aircraft Maintenance Manual AMM 21-31-00 Task 21-31-00-970-802, Revision 57, June 15, 2015.
2. Nord Micro Component Maintenance Manual CMM 21-33-21, Revision 8, March 18, 2014.

PUBLICATION AFFECTED
None

MATERIAL REQUIREMENTS
None

SPECIAL TOOL AND EQUIPMENT

Part Number	Name	Quantity	Note
UA1420	Ballard Technology USB 429 *(with on six-wire phone cable with RJ-12 modular plugs; and one adapter for ARINC 429 transmit/receive connector to RJ-12 modular jack)*	1	
-	Portable Computer *(Windows XP 32-bit version; Microsoft .Net Framework version 2.0 or later installed; USB or PCMCIA port for the selected ARINC interface)*	1	

ACCOMPLISHMENT INSTRUCTION

CAUTION: KEEP THE WORK AREA, WIRES AND ELECTRICAL BUNDLES CLEAN OF METAL PARTICLES OR CONTAMINATION WHEN YOU USE TOOLS. UNWANTED MATERIAL, METAL PARTICLES OR CONTAMINATION CAUGHT IN WIRE BUNDLES CAN CAUSE DAMAGE TO THE BUNDLES. DAMAGED WIRE BUNDLES CAN CAUSE SPARKS OR OTHER ELECTRICAL DAMAGE.

<table>
<tr><th>NO</th><th>DESCRIPTION</th><th>PERFORMED BY</th><th>DATE</th></tr>
<tr><td colspan="4">Read all step of this EA making sure that you have understood of the work to be performed. If you have any discrepancy or if any step is not clear consult to engineer that originated this EA.</td></tr>
<tr><td colspan="4">ON-WING NON-VOLATILE MEMORY (NVM) DATA DOWNLOAD</td></tr>
<tr><td>1.</td><td>Make sure the laptop computer has the software loaded that is listed in Fleet Team Digest article 737NG-FTD-21-10002.</td><td></td><td></td></tr>
<tr><td>2.</td><td>Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-4
<table>
<tr><th>Row</th><th>Col</th><th>Number</th><th>Name</th></tr>
<tr><td>F</td><td>3</td><td>C01270</td><td>Pressurization Control Auto 1</td></tr>
<tr><td>F</td><td>5</td><td>C01271</td><td>Pressurization Control Auto 2</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>3.</td><td>Open this access panel:
<table>
<tr><th>Number</th><th>Name/Location</th></tr>
<tr><td>117A</td><td>Electronic Equipment Access Door</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>4.</td><td>Make sure that cabin pressure controllers No.1 (M1653) and No.2 (M1654) are powered:
a. Press the ON/OFF button.
b. Press the MENU button.
c. If the MENU is displayed, the controller is powered.</td><td></td><td></td></tr>
<tr><td>5.</td><td>Remove the two thumbscrews that attach the BITE INSTRUCTIONS plate to the face of the controller.</td><td></td><td></td></tr>
<tr><td>6.</td><td>Connect the six wire modular phone cable to the connector on the face of the cabin pressure controller and to the ARINC 429 to USB interface Analyzer, COM-12762. (Figure 2)</td><td></td><td></td></tr>
</table>

7.	Connect the USB cable to the ARINC 429 to USB interface and the computer. *(Figure 3)*		
8.	Write and put down the operator, airplane ID, CPC Part Number, CPC Serial Number and Job Reference tab on Digital Cabin Pressure Controller. *(Figure 4)*		
9.	Resets and initializes the ARINC 429 interface device. A message box will appear indicating whether or not the ARINC 429 interface. *(Figure 4)*		
10.	Push the START button on the NVM window to initiates download of the NVM data if valid user information has been entered and a valid. *(Figure 5)*		
11.	After the download is complete, export the data file in *.nvx and *.xls extension of a semicolon-delimited processed data. *(Figure 6)* **Note**: During an NVM download, the *.nvm extension is created automatically.		
12.	Disconnect the six wire modular phone cable from the controller.		
13.	Install the BITE INSTRUCTIONS plate on the front of the controller.		
14.	Do the NVM download procedure on the other Cabin Pressure Controller.		
15.	Close this access panel: **Number** / **Name/Location**: 117A – Electronic Equipment Access Door		
16.	Put the airplane back to its usual condition.		

Note:

If NVM data download confirm several **Fault Codes 30**, verify **Cabin Pressure Leak Test** to pressurize the airplane and **Fexible Duct P/N AS1505-18A0032 (Boeing P/N BOE202936001406) Inspection** as determined on ***B737NG-EA-21-795***.

And provide the NVM data download to **System Engineering BAT-CAM:**
E-mail: ***renni.ekaputri@lionair.co.id***

All above steps have been done without any deviation.

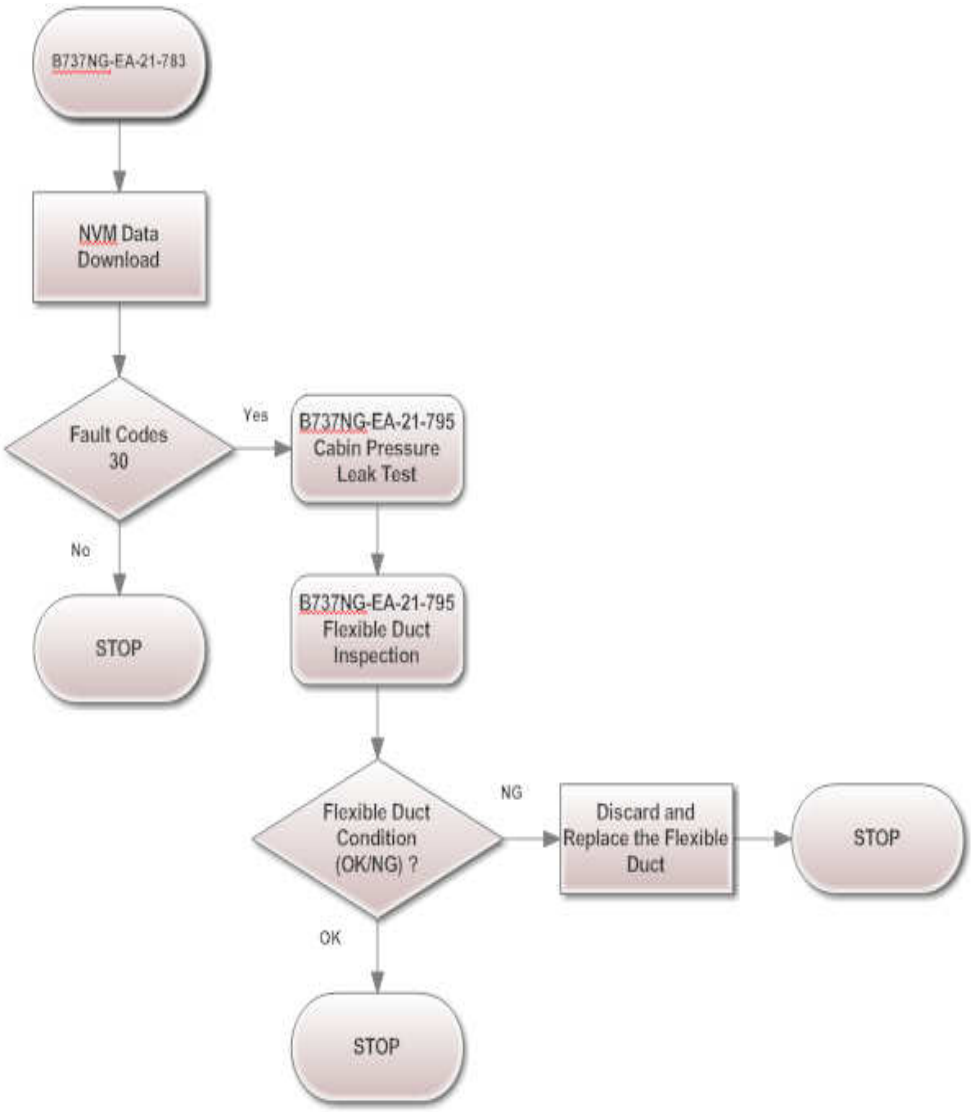

FIGURE 1: FLOW CHART

FIGURE 2: SIX WIRE MODULAR PHONE CABLE CONNECTION ON CPC AND ARINC 429

FIGURE 3: CONNECTION BETWEEN ARINC 429 TO USB INTERFACE AND THE COMPUTER

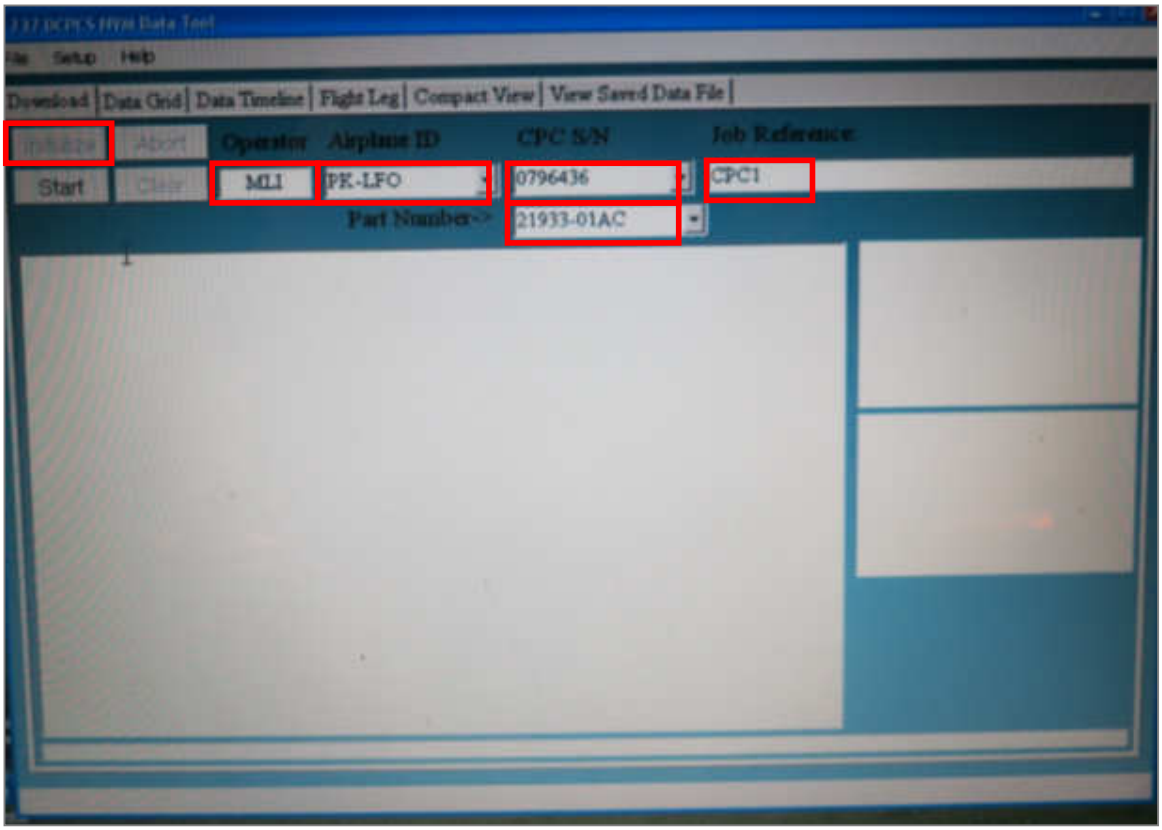

FIGURE 4: NVM DATA INITIALIZATION PROCESS

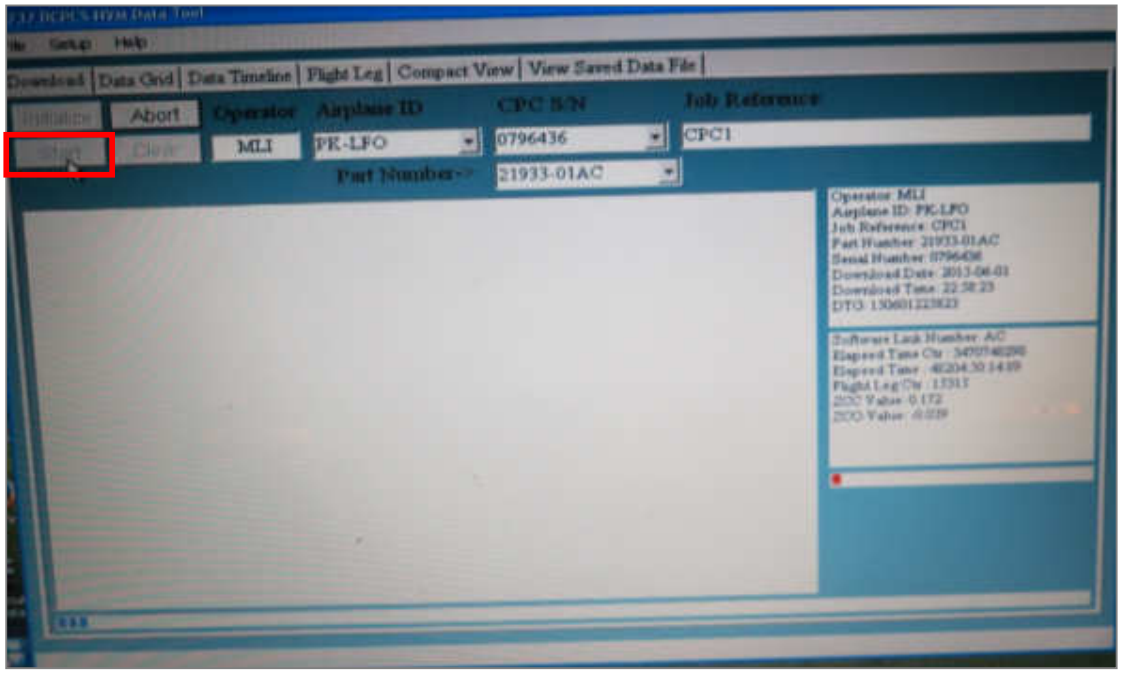

FIGURE 5: NVM DATA START PROCESS

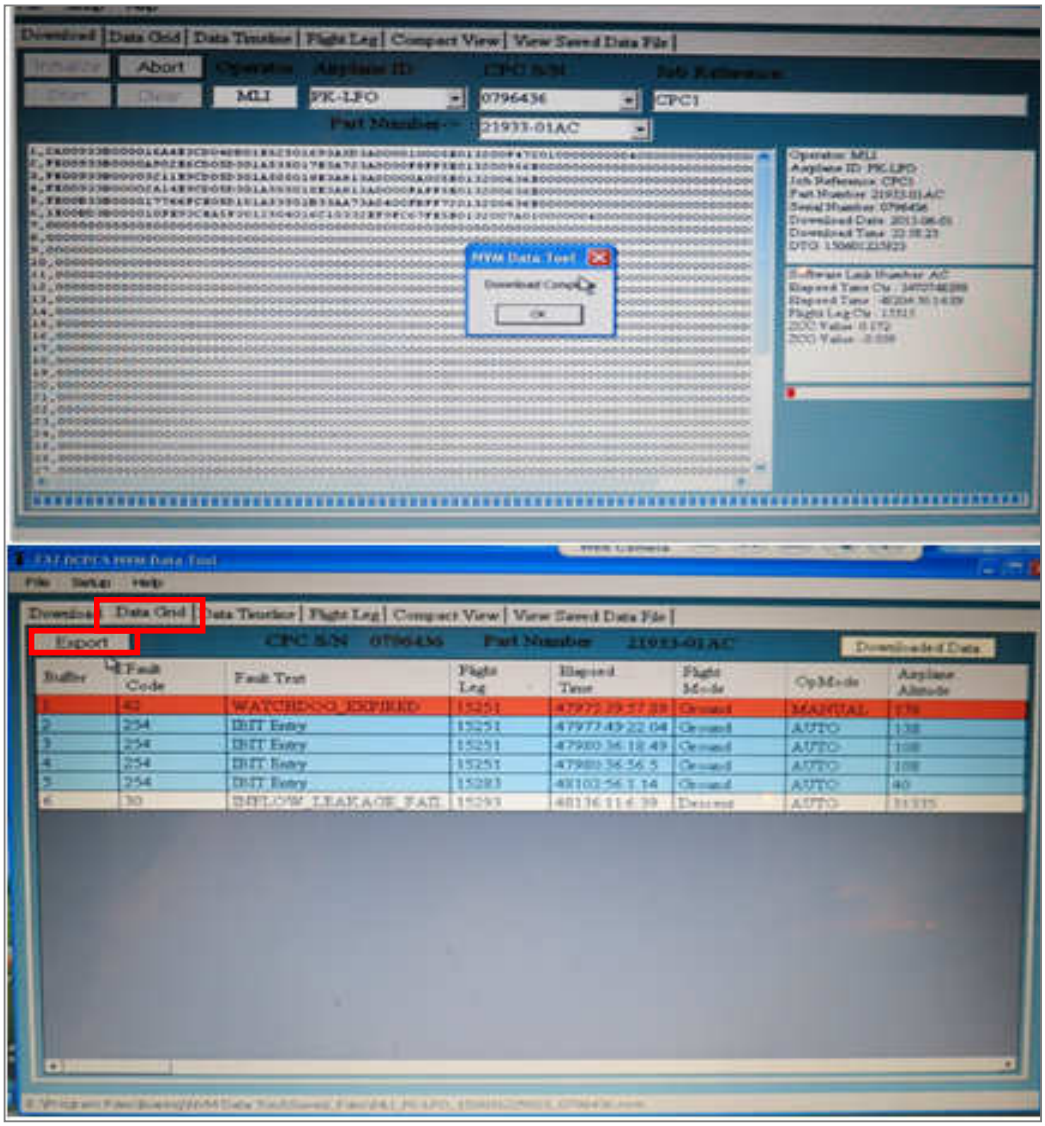

FIGURE 6: DATA SAVING PROCESS

Please provide a copy of the downloaded data (*.nvm,*.nvx,*.xls) for **SYSTEM ENGINEERING BAT-CAM** records and analyses. Engineering plans to monitor this data for indications of Lion Air and Batik Air fleet pressurization health trends. Data can be submitted by below e-mail:

BATAM AERO TECHNIC
SYSTEM ENGINEERING TEAM
E-mail: ***renni.ekaputri@lionair.co.id***

ENGINEERING AUTHORIZATION

NO. : B737NG-EA-21-783	DATE : June 29, 2015
Aircraft Reg:	

STATION:			STARTED TIME:		FINISHED TIME :
RII : YES ☐ NO ☒			ACTUAL MAN HOURS		
INSPECTED BY			RELEASED BY		
SIGN	STAMP	DATE	SIGN	AUTH. NO. STAMP	DATE