ENGINEERING AUTHORIZATION APPROVAL FORM

EA no.	B737NG-EA-21-795
Subject	CABIN PRESSURE LEAK TEST AND FLEXIBLE DUCT P/N AS1505-18A0032 INSPECTION
Type	NON AD
Method of Compliance	INSPECTION
Applicability	xxx B737-800/900ER FLEETS
Material Needed	NO
Priority	NORMAL
Estimate MH	± 2.0 EST.MANHOURS
Special Tools	YES
Affected Document	NO
Required Inspection Item Task	NO

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

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SUBJECT : **CABIN PRESSURE LEAK TEST AND FLEXIBLE DUCT P/N AS1505-18A0032 INSPECTION**		NO	: B737NG-EA-21-795
		DATE	: June 29, 2015
		REFERENCE	: *SEE REFERENCES*
CATEGORY	: RECOMMENDED	A/C TYPE	: B737-800/900ER
SECTION	: LINE MAINTENANCE	EFFECTIVITY	: *SEE EFFECTIVITY*
TYPE	: INSPECTION		
DUE DATE	: *SEE COMPLIANCE*	WT/ARM CHANGE	: NONE
PRIORITY	: NORMAL		
ATTENTION	: LM, PPC, QA, STORE	EST. MAN HOURS	: *SEE EST. MAN-HOURS*

REASON

Subsequently, after Lion Air and Batik Air have received several direct experiences of cabin pressurization issues (commonly in FC30) and AUTO FAIL occurrences that have been difficult to troubleshoot and/or determine the root cause of the occurrence.

DESCRIPTION

In advance of the Engineering Authorization **B737NG-EA-783, Digital Cabin Pressure Controller (DCPCS) Non-Volatile Memory (NVM) Download Procedure** implementation **if frequently Fault Code 30** are displayed in NVM data download, EXISTING FAULTS, or FAULT HISTORY, it will be an additional maintenance is required.

If NVM data download confirm the **Fault Code 30**, verify **Cabin Pressure Leak Test** to pressurize the airplane as determined on ***Boeing Aircraft Maintenance Manual AMM 05-51-91, Task 05-51-91-790-801, Revision 56, February 15, 2015).*** This test will provide the leakage rate analysis and possible leakage that may be happened from the area of electronic colling system, bilge drain valve, all door and hatch seal, flight deck window, outflow valve, cabin pressure negative relief valve, water service panel seal, air conditioning and APU duct seal, ball valve drain, nose wheel well access panel, and all areas which are difficult to access.

To understand the airplane condition after pressurization events or for trends in the pressurization of the airplane, this Engineering Authorization (EA) provides instruction to verify **Cabin Pressure Leak Test and Flexible Duct P/N AS1505-18A0032 (Boeing P/N BOE202936001406) Inspection** to encourage assist and support the maintenance and development of credible and effective flexible duct installation.

PREPARED BY

Renni Ekaputri

DISTRIBUTION	LM	PPC	QA	STORE	FILE

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

COMPLIANCE
Cabin Pressure Leak Test and Flexible Duct P/N AS1505-18A0032 (Boeing P/N BOE202936001406) Inspection may be performed **in imminent (shortly)** after many times **Fault Code 30** was appeared on the NVM data download.

EST.MAN-HOURS

Task	Number of Persons	Task Hours	Note
• Cabin Pressure Leak Test • Flexible Duct Inspection	2	2	
TOTAL FOR EACH AIRPLANE		**2**	

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
None

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.

NO	DESCRIPTION	PERFORMED BY	DATE
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.			
A. CABIN PRESSURE LEAK TEST Note: Perform this test after several Fault Codes 30 was found on the NVM data donwload as resulted on B737NG-EA-21-783.			
1.	After on-wing NVM data download and pressure controller performs a series of buit-in-tests (BIT) to determine self health; soon afterwards **if a Fault Code 30 (LO INFL/HI LEAKG) is detected**, perform **a leakage test** to the airplane fuselage. ***(Ref. Boeing Aircraft Maintenance Manual AMM 05-51-91, Task 05-51-91-790-801, Revision 56, February 15, 2015)***		
B. FLEXIBLE DUCT INSPECTION			
1.	Do a check of the flexible duct **P/N AS1505-18A0032 (Boeing P/N BOE202936001406)** [36] that is connected to the high pressure water separator condenser for any of the conditions *(Figure 2 and 3)*: **Fraying, Discoloration, Rips, Splits, Tears, Rupture defects.** If any of the above conditions are found, remove the flexible duct [36] from the condenser as follows: 1) Loosen the clamp [37] that attaches the flexible duct to the water separator condenser. 2) Remove the flexible duct from the water separator condenser. 3) Discard the flexible duct. ***(Ref. Boeing Aircraft Maintenance Manual AMM 21-51-04, Subtask 21-51-04-210-003, Revision 56, February 15, 2015)***		

2.	If the flexible duct [36] was discarded after inspection, install a new flexible duct [36] as follows *(Figure 2 and 3)*: a. Loosely position the two clamps [37] onto the flexible duct [36]. b. Install the new flexible duct [36] onto the water separator condenser. c. Position the forward clamp [37] to retain the flexible duct onto the water separator condenser. d. Tighten the forward and aft clamp [37] to **13 to 17 in.-lbs (1.5 to 1.9 Nm.)**. **NOTE**: The aft clamp is connected in the installation of the HPWS (High Pressure Water Separator) Mix Muff. ***(Ref. Boeing Aircraft Maintenance Manual AMM 21-51-04, Subtask 21-51-04-420-004, Revision 56, February 15, 2015)*** ***(Ref. Boeing Aircraft Maintenance Manual AMM 21-51-17, Subtask 21-51-17-020-003, Revision 56, February 15, 2015)***		
3.	Put the airplane back to its usual condition.		

Please provide a copy of all Cabin Pressure Leak Test result and Flexible Duct P/N AS1505-18A0032 condition to **SYSTEM ENGINEERING BAT-CAM**. 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***

All above steps have been done without any deviation.

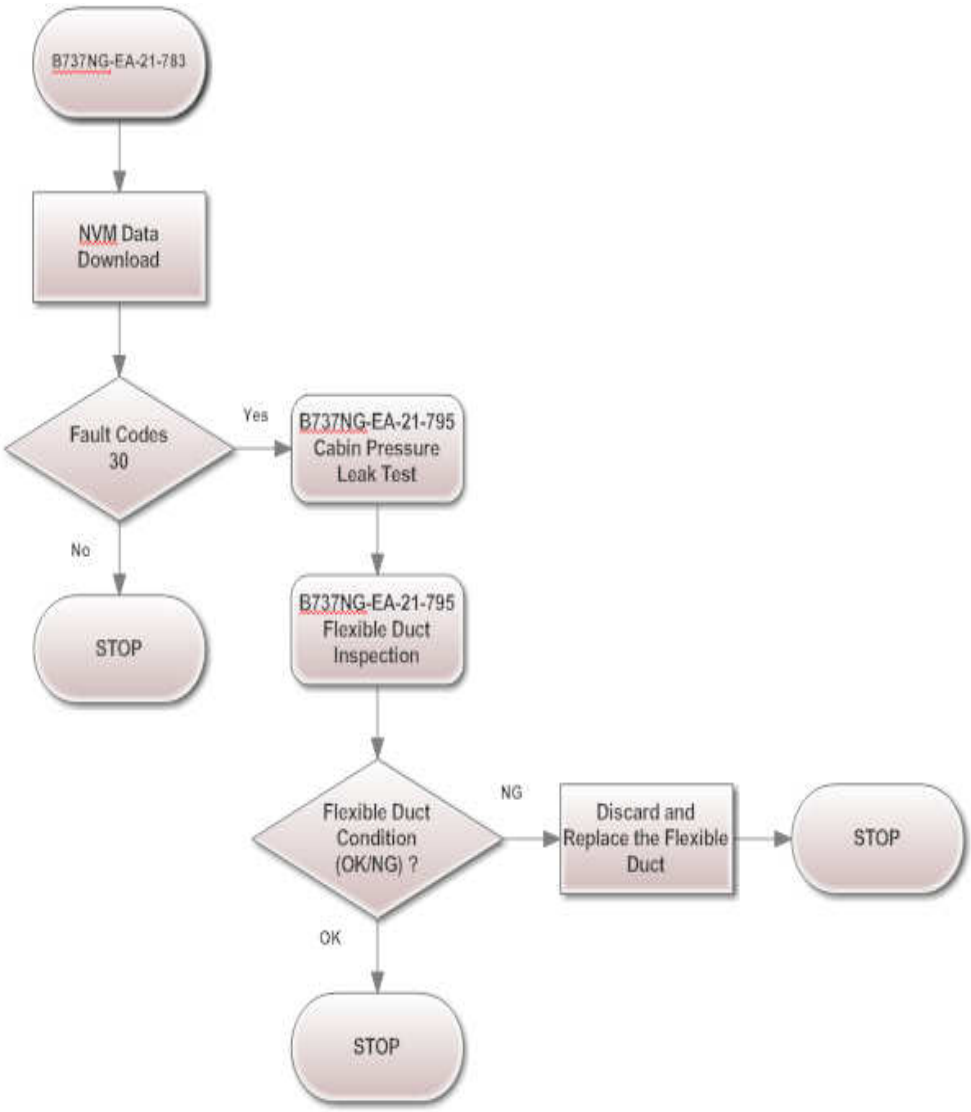


FIGURE 1: FLOW CHART

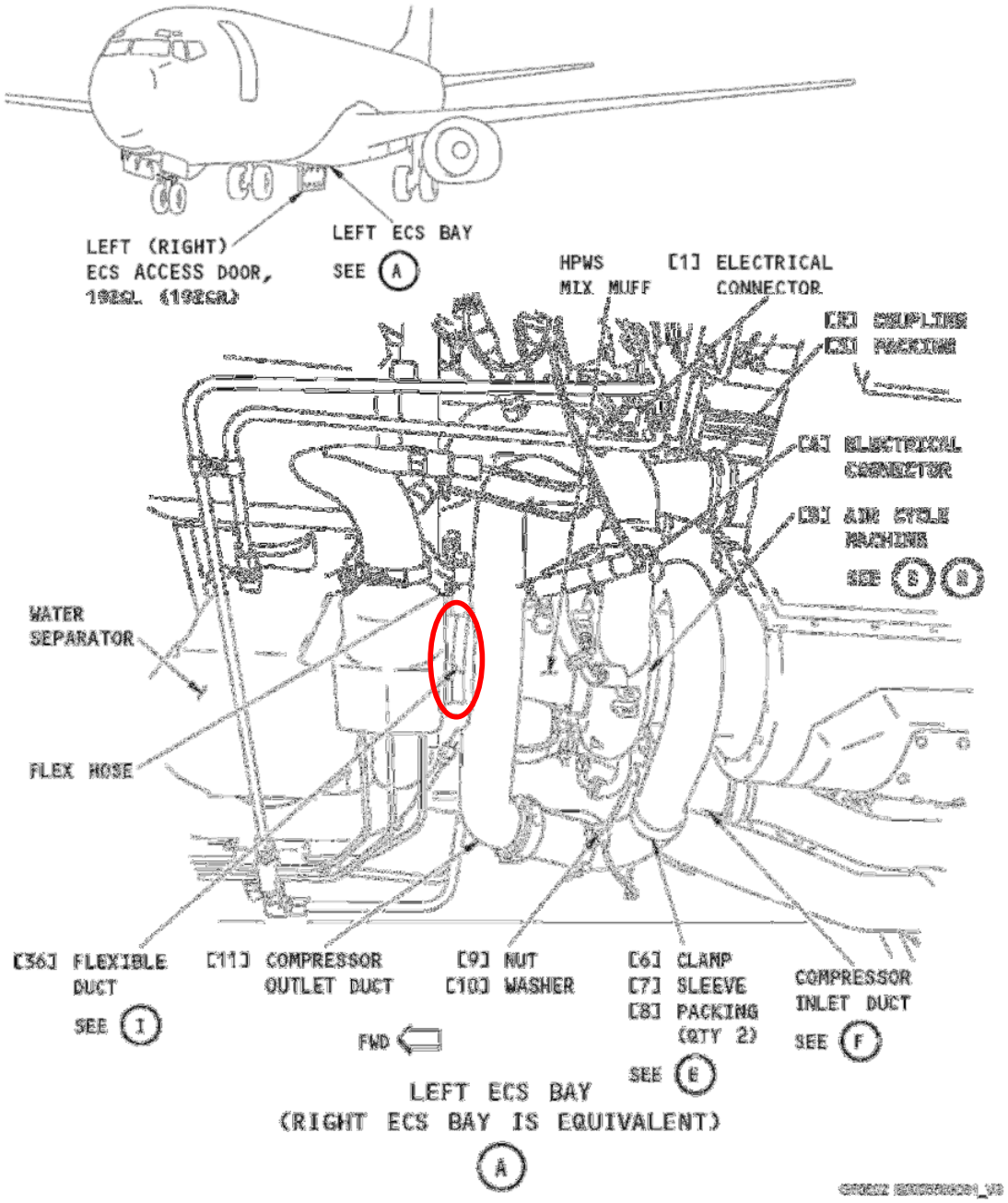


FIGURE 2: AIR CYCLE MACHINE INSTALLATION
(SHEET 1 OF 3)

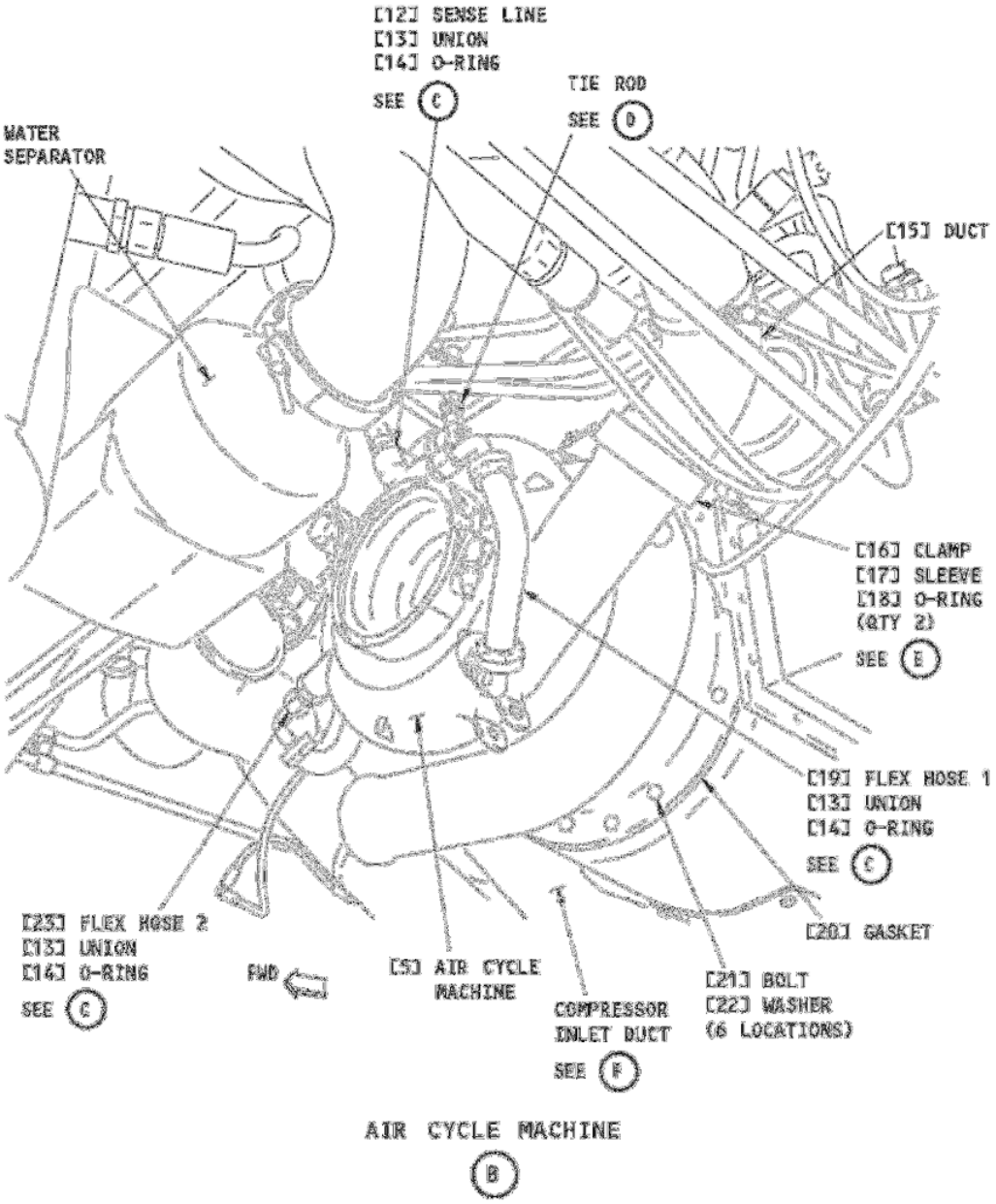


FIGURE 2: AIR CYCLE MACHINE INSTALLATION (SHEET 2 OF 3)

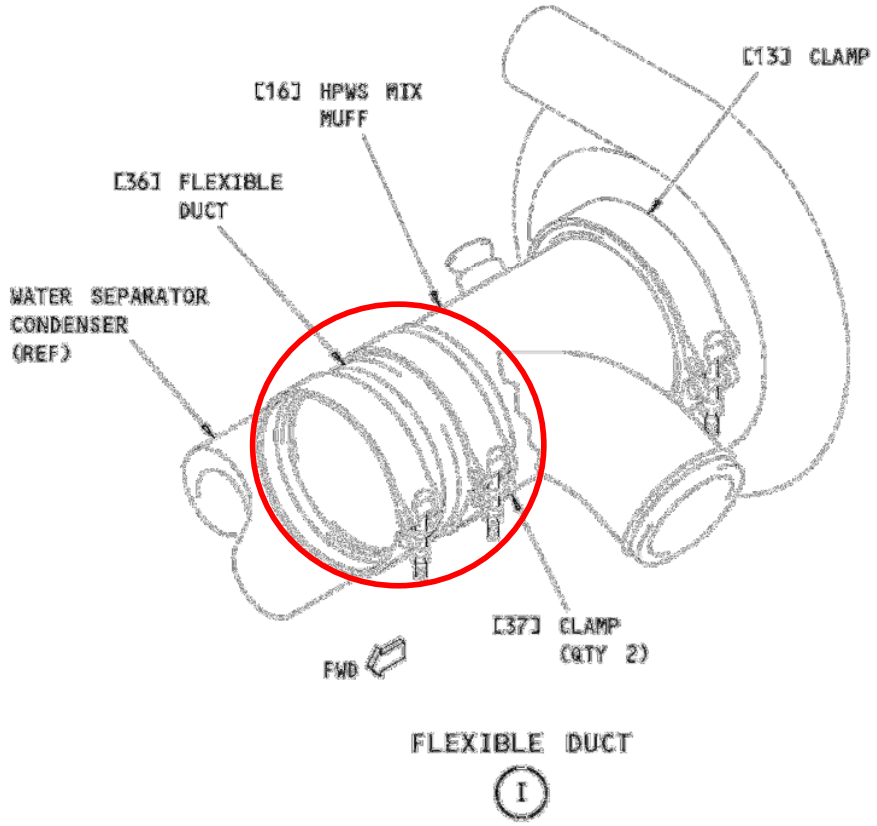
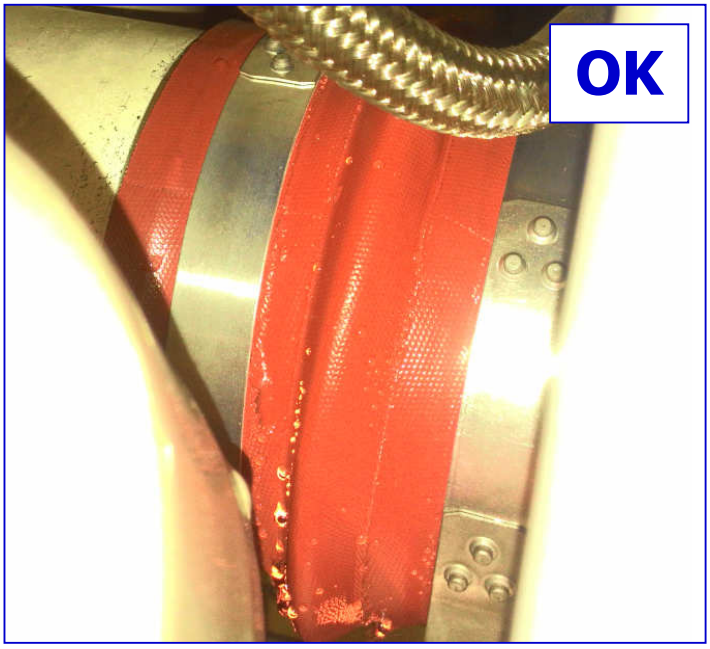
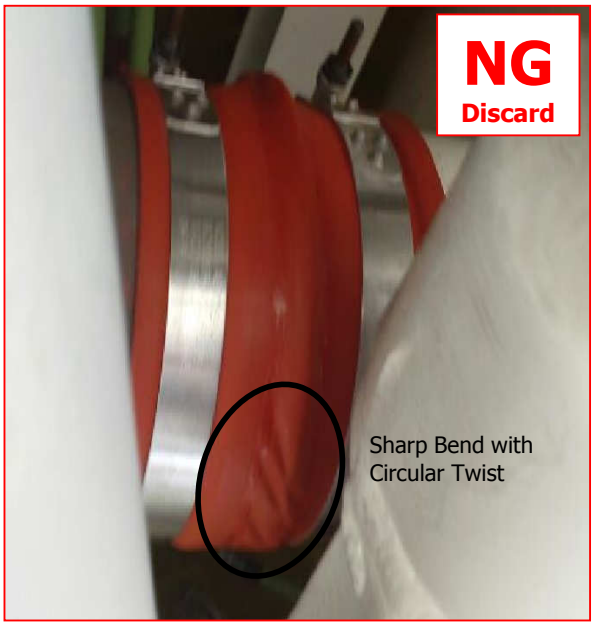


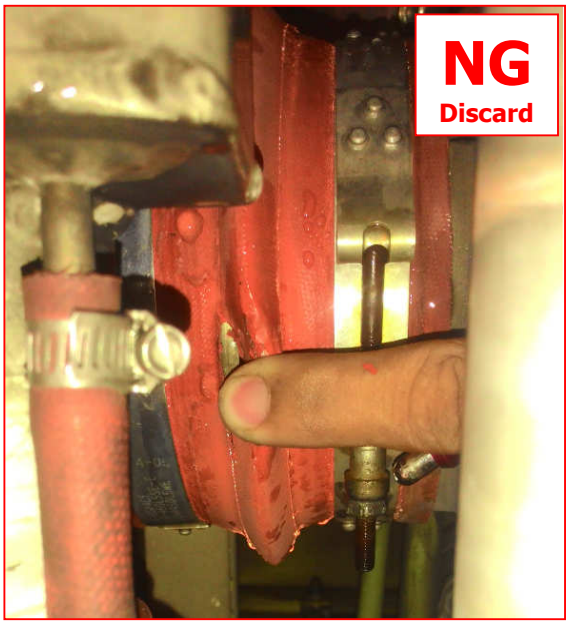
FIGURE 2: AIR CYCLE MACHINE INSTALLATION (SHEET 3 OF 3)



Avoid bending ducts across sharp corners or incidental contact with metal fixtures. All connections should be made in accordance with the manufacturer's installation instructions **(SAE-AS1505)** that generally refer to an "Aerospace Standard".

NOTE: Tighten the forward/aft clamp to **13 to 17 in.-lbs (1.5 to 1.9 Nm.)**





If found any defects, remove the flexible duct from the water separator condenser, and discard the flexible duct.

FIGURE 3: FLEXIBLE DUCT CRITERIA

ENGINEERING AUTHORIZATION

NO. : B737NG-EA-21-795	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