NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF AVIATION SAFETY
WASHINGTON, D.C. 20594

January 16, 2009

Maintenance Factors Factual Report

A. ACCIDENT: DCA08MA076

LOCATION: San Francisco, California

DATE/TIME: June 28, 2008, 10:15 p.m. PDT

AIRCRAFT: ABX Air, Inc. Boeing 767-281, N799AX, S/N 23432

B. GROUP MEMBERS:

Group Chairman: Pocholo Cruz
National Transportation Safety Board
Washington, DC

Member: Brian Glenn
Federal Aviation Administration
Cincinnati, Ohio

Member: Paul Tremback
Airline Professionals Association – Teamsters Local 1224
Wilmington, Ohio

Member: Robert Zitney
ABX Air, Inc.
Wilmington, Ohio

C: SUMMARY

On June 28, 2008, about 2215 Pacific daylight time (PDT),[1] an ABX Air Boeing 767-200, registration N799AX, operating as flight 1611 from San Francisco International Airport (SFO), San Francisco, California, experienced a ground fire before engine startup. The fire was located in the supernumerary area,[2] so the two pilots had to egress the airplane through the cockpit windows. No injuries were reported, and the airplane was substantially damaged. The cargo flight was operating under the provisions of 14 *Code of Federal Regulations* (CFR) Part 121. At the time of the fire, the airplane was parked near the DHL loading facility and all of the cargo had been loaded.

D: DETAILS OF THE INVESTIGATION

The Maintenance Records Group met with ABX Air, Inc. representatives in Wilmington, Ohio on July 8, 2008 to review the maintenance records of the airplane. The Maintenance Records Group departed on July 9, 2008. Additionally, mechanic interviews were conducted on July 31, 2008.

1.0 Air Carrier Certificates

ABX Air, Inc., 145 Hunter Drive, Wilmington, Ohio, 45177, Certificate Number ABXA001A, was originally issued by the Federal Aviation Administration (FAA) Detroit Flight Standards District Office (FSDO), Great Lakes Region on November 28, 1979 (reissued February 2, 1989).

ABX Air Inc, also received a Part 145 Repair Station Certificate (Certificate Number ABXR001A) on March 18, 1982 (recently amended on January 13, 2008) from the FAA's Detroit FSDO. The repair station, which is located at 145 Hunter Drive, Wilmington, Ohio, 45177 was approved with the following ratings: Limited Airframe, Limited Powerplant, Radio (I, II and III), Accessory (I, II and III), Instrument (I, II, III and IV), Limited Emergency Equipment and Specialized Service.

See ABX Air, Inc. Certificates - Attachment 1

[1] All times in this report are PDT based on a 24-hour clock unless otherwise noted.
[2] The supernumerary area is the portion of the airplane that is located directly aft of the cockpit and forward of the main deck cargo compartment. This area is where the lavatory, galley, and three non-flight crew seats are located.

2.0 Operations Specifications (OpSpecs)[3]

ABX Air, Inc. has a Part 121 Certificate, which included the standards, terms, conditions, and limitations contained in the FAA approved Operations Specifications (Parts D and E) were reviewed.

(a) Air carrier was authorized as a 14CFR Part 121 operation.

(b) Per section D072 of the OpSpecs, the Continuous Airworthiness Maintenance Program (CAMP), authorized ABX Air, Inc. to use the manufacturer/ABX Air, Inc. maintenance and engine maintenance programs to maintain the airplanes.

(c) Per section D074 of the OpSpecs, ABX Air, Inc. is authorized to use the provisions of a maintenance reliability program for their fleet

(d) Per section D076 of the OpSpecs, ABX Air, Inc. was authorized to use short-term escalations of maintenance intervals on their fleet.

(e) Per section D085 of the OpSpecs, ABX Air, Inc. has 3 DC-8, 59 DC-9, 42 767 aircraft in its fleet.

(f) Per section D090 of the OpSpecs, ABX Air, Inc. was authorized to utilize CASE[4] as a means of qualifying a vendor for services, parts, and materials to satisfy the requirements of 14 CFR Section 121.373.

(g) Per section D091 of the OpSpecs, ABX Air, Inc. was authorized to make arrangements with other organizations to perform substantial maintenance.

(h) Per section D095 of the OpSpecs, ABX Air, Inc. was authorized to use an approved Minimum Equipment List (MEL).

(i) Per section D097 of the OpSpecs, ABX Air, Inc. was authorized to have an approved repair assessment program incorporated into the continuous airworthiness maintenance program.

(j) Per section D485 of the OpSpecs, ABX Air, Inc. had an Aging Aircraft Inspection and Records Review accomplished on the airplane in January 31, 2006.

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[3] Operations Specifications contains the authorizations, limitations, and certain procedures under which each kind of operation, if applicable, is to be conducted by the certificate holder.

[4] The Air Carriers section of the Nonprofit Coordinating Agency for Supplier Evaluations (C.A.S.E.) was organized as a means of sharing non-prejudicial supplier quality approval data among the membership airlines. This increases surveillance coverage of suppliers and thereby upgrades their quality programs. It also has an economic impact on each C.A.S.E. member by decreasing the cost of supplier surveillance and making their surveillance programs more effective.

(k) Per section E096 of the OpSpecs, ABX Air, Inc. was authorized for a Weight and Balance Program.

3.0 Aircraft Information

ABX Air, Inc. purchased the airplane from Marubeni Aerospace Corporation on September 22, 2003. The airplane had 40,088.12 total hours and 36,626 total cycles at the time of the purchase. Previously the airplane was flown by ANA (All Nippon Airways) and returned to Marubeni Aerospace after the lease expired (September 21, 2003).

The airplane was manufactured by the Boeing Company in July 8, 1986. The airplane had 47,068 total hours with 38,708 total cycles at the time of the accident.

The airplane was equipped with two General Electric CF6-80A turbofan engines and a Garrett Auxiliary Power Unit. The engines and APU had accumulated the following operating times at the time of the accident:

		No.1 Engine	**No.2 Engine**	**APU**
Manufacturer		GE	GE	Garrett
Part Number		CF6-80A	CF6-80-A	3800298-1-6
Manufacture Date		4/84	4/87	2/97
Date Installed		9/14/03	9/13/03	12/30/07
Serial Number		580222	580343	P2394
Location of Engine /APU Installation		TYO (Haneda)	TYO (Haneda)	ILN (Wilmington)
Total Time (Engine / APU hours) at installation		38,912:23	35,838:54	14,907
Total Cycles (Engine / APU cycles) at installation		35,425	31,414	12,515
Total Time of Airframe during engine / APU installation (hours)		40,902:39	40,088:12	46,038.41
Total Cycles of Airframe during engine / APU installation		36,855	36,626	38,401
Time Since Overhaul (hours)		6,979:36	6,983:46	2,479:8
Hours since last installation (cycles)		6,169:21 (1,855)	6,979:48 (2,082)	97:8 (19)
Total Time in hours and (Cycles) as of 6/29/08		45,081:44 (37,280)	42,818:02 (33,496)	15,004:8 (12,534)

4.0 Maintenance and Inspection Programs

Summary of Maintenance Program

Airworthiness Directives and Manufacturer Service Bulletin compliance were written into the program when applicable. Additionally, all Zonal and Structural tasks were written into ABX Air, Inc.'s maintenance program.

Daily Service – accomplished when the scheduled ground time exceeds 2 hours, and a Service Check is not due. Only one Daily Check is required per flight day. Flight Day means a 24-hour period (from midnight to midnight) GMT during which at least one flight is initiated for affected aircraft. A daily service walk around check consists of superficial inspections and essential servicing.

Service Check – accomplished when a Service Check has not been accomplished in the past three days, and scheduled ground time is three hours or more. A walk-around check consists of superficial inspections and essential servicing. It includes all the Daily Check items plus additional system check items.

A Check – The accident airplane was in a Low Utilization Program. This program contains fifteen tasks numbered 1 through 15, with each task being accomplished every 500 flight hours. These tasks are designed to be sequentially scheduled in this numeric sequence and meet all A-Check interval requirements. Service Check and Daily Check requirements are not incorporated into the A-Check program.

C Check - The 767 C-Check is a Continuous Maintenance Visit (CMV) program, not a block or a segmented maintenance visit. C-Check visits are numbered C1 through C999, which means a 767 C-Check will never repeat itself (the C-Check never reverts back to C1). The C-Check is accomplished at 6000 flight hours, 3000 flight cycles or 20 months, whichever comes first. The C-Check consists of aircraft Systems, Zonal, CPCP, and Structure Inspections. Typically, A-Check tasks are not included in the C-Check. Systems and Zonal C-Check task intervals are 6,000 flight hours or 20 months, whichever comes first. Structures C-Check task intervals are 3,000 flight cycles or 20 months, whichever comes first.

The following is a listing of the previous inspections accomplished on airplane N799AX. This information was retrieved from the airplane maintenance records:

Check	Date	Location	Total Time	Total Cycles
Daily Service	6/26/08	Boston (BOS)	47,058:37	38,704
Service Check	6/28/08	San Francisco (SFO)	47,068:00	38,708
A Check (A-3)	3/1/08	Boeing Field (BFI)	46,424:37	38,528
C Check (C-16)	7/23/07	Wilmington (ILN)	45,070:49	38,069

See Attachment 2 – ABX Air, Inc. Service Check for further information.

5.0 Continuing Analysis And Surveillance Program (CASP)[5]

ABX Air, Inc. conducts daily meetings to review the previous days maintenance discrepancies on the fleet. The CASP is an accepted program by the FAA. The program was in place to provide surveillance and analysis of ABX's Continuous Airworthiness Maintenance Program (CAMP) for performance and effectiveness and to implement corrective action for any deficiencies noted.

ABX Air, Inc. conducted monthly CASP and Reliability meetings. The Quality and Reliability Departments respectively collects, analyzes and presents the data. The CASP meeting primarily deals with Quality Assurance topics such as processes, policies and procedures. The Reliability meeting reports on the airlines operational performance. It typically covers the previous month's operating activity. The Reliability report is a statistical analysis of maintenance data collected from the following sources: (1) Departure delays; (2) Flight cancellations; (3) Pilot reports; (4) Component removals and (5) Engine data. A review of the Reliability Minutes (10/31/2008, 12/3/2007, 1/9/2008, 4/11/2008 and 6/12/2008) revealed that there were no alert notices on the B767 oxygen system. According to Manager of Quality, the FAA Principal Maintenance Inspector or representative's attempt to attended most of the scheduled meetings.

According to ABX Air, Inc. manuals, the Reliability Department is responsible for alerting the maintenance organization of operational trends within the flying fleet via the use of Advisory Notices. The department relies on an automated Maintenance Alert Review Program to review Pilot and Maintenance write-ups for trends. An Advisory Notice is generated (with consultation with Maintenance Control) when deficiencies in reliability are detected and when an airplane's system has three events/defects in 15 days and/or five events/defects in 30 days. According to the Reliability Manager, reliability analysts do not recommend corrective actions to issues. They present data and let the different maintenance organizations (i.e. Maintenance Control, Line Maintenance, Engineering, etc.) develop and implement the corrective actions to discrepancies.

[5] As established by 14 CFR Part 121.373, each certificate holder shall establish and maintain a system for the continuing analysis and surveillance of the performance and effectiveness of its inspection program and the program covering other maintenance, preventative maintenance and alterations and for the correction of any deficiency in those programs, regardless of whether those programs are carried out by the certificate holder or by another person.

6.0 Minimum Equipment List (MEL)[6]

ABX Air, Inc. was authorized to use an approved MEL on its 767-281 airplane per its OpSpecs. At the time of the accident, there were no open MEL items in the airplane logbook. Of note are the following previous MEL issues:

> 1/7/08-1/13/08 - The supernumerary reading lights were an issue corrected by replacing the reading light switch.
>
> 1/08/08-01/18/08 - Supernumerary Heat was an issue corrected by replacing the left heater.

See Attachment 3 – ABX Air, Inc. MEL Defect Log for further information.

7.0 Supplemental Type Certificates (STC)[7]

Supplemental Type Certificates (STC), supplied by air carrier, were reviewed. A total of 10 STCs were documented by the operator.

STC ST01433SE, EA 005000015, dated 7/23/04, Conversion of a Boeing 767-200 passenger airplane configuration into a Special Freighter. The conversion was installed on N799AX on November 29, 2004 prior to ABX Air, Inc. putting the airplane in service. ABX Air, Inc. contracted Israel Aircraft Industries (IAI) to accomplish the cargo conversion on the airplane. A review of the ABX Air, Inc. and IAI job cards revealed no discrepancies. It could not be determined if the supernumerary area and the oxygen system in the supernumerary area were installed properly per the job cards because of the intense fire in the area.

See Attachment 4– ABX Air, Inc. STC Cargo Conversion for further information.

8.0 Airworthiness Directive (AD)[8] and Service Bulletin (SB) Summary

The air carrier provided an AD summary for review. The AD summary contained the applicable Service Bulletins. The air carrier does not have a Service Bulletin Summary sheet. A review of Airworthiness Directive status lists for the aircraft and all installed CF6-80A powerplant engines were conducted. All ADs applicable to this airplane were implemented. No discrepancies were found during the review of the listing.

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[6] The FAA approved Minimum Equipment List contains a list of equipment and instruments that may be inoperative on a specific aircraft for continuing flight beyond a terminal point.

[7] The FAA issues Supplement Type Certificates, which authorize a major change or alteration to an aircraft, engine or component that has been built under an approved Type Certificate.

[8] Airworthiness Directive (AD) is a regulatory notice sent out by the FAA informing the operator of an action that must be taken for the aircraft to maintain its airworthiness status.

Boeing released Alert Service Bulletin 767-35A0034, which replaced low pressure oxygen hoses located in the crew oxygen mask boxes. The replacement of these hoses with a new non-conductive low pressure hoses would help prevent damage to the low pressure oxygen hoses that may be subjected to electrical current. According to Boeing, an electrical grounding condition can cause the hoses to burn or melt. The Alert Service Bulletin was not accomplished on the airplane nor was it required. The Federal Aviation Administration did not mandate the Alert Service Bulletin.

See Attachment 5 – ABX Air, Inc. AD Status Report for further information.

9.0 Aircraft Maintenance Logbook

The Airplane Maintenance Logbooks contained daily flight and maintenance information. The logbooks were reviewed from January 2007 through July 2008. The review indicated that the maintenance check records were up to date and complete. No discrepancies were noted.

10.0 Weight and Balance Summary

Per the ABX Air Inc OpSpecs, the airplanes were to be weighed every forty-eight (48) calendar months.

The last documented weight and balance summary was accomplished on November 11, 2004 in Tel Aviv, Israel.

Basic Empty Weight:	165,720.80 pounds
Arm:	951.34 inches
Moment:	157 656 916.75 lb-inches

Some airplanes in the ABX fleet use a fleet weigh instead of the individual weigh. The airplane was part of the sampling program and the last fleet weigh was accomplished on June 9, 2008.

11.0 Service Difficulty Reports (SDR)[9] and Mechanical Interruption Summary Report (MISR)[10]

ABX Air, Inc. reported six Service Difficulty Reports (January 2007 thru July 2008) and 21 Mechanical Interruption Summary Reports (July 2007 thru July 2008) to the FAA for aircraft N799AX. The attachment showed that ABX Air, Inc. filed an SDR for this accident. There were no chronic or systemic issues and all discrepancies to the airplane were rectified.

See Attachment 6 – ABX Air, Inc. SDR/MISR Reports for further information.

12.0 Major Repairs and Alterations

A total of 26 Major Repairs (June 2004 thru July 2007) were reviewed and documented by the operator. The most recent major repair was accomplished to replace a cracked pivot pin on the right horizontal stabilizer on July 9, 2007 via Repair Engineering Authorization (REA) B655-56063-MR.

A total of 21 Major Alterations (January 1989 thru July 2008) were reviewed and documented by the operator. The most recent alteration was accomplished on the airplane on March 17, 2008. The alteration entailed the installation of the emergency locator transmitter (ELT) on the airplane via Engineering Authorization (EA) 52548 and STC ST02929AT. The majority of the Major Alterations to the airplane were accomplished during the passenger-to-cargo modification in November 2004.

See Attachment 7 – ABX Air, Inc. Major Repairs and Alterations for further information.

13.0 Time Limit Control Components

Time limited component status for the airplane and two installed CF6-80A powerplant engines and APU were reviewed in the PMI (Purchasing, Maintenance and Inventory) system. The compliance status was satisfactory. There were no discrepancies noted.

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[9] As required under 14 CFR 121.703, each scheduled operator is to report the occurrence or detection of each failure, malfunction or defect concerning (a) fires during flight, (b) false fire warning during flight, (c) engine exhaust system that causes damage during flight, (e) an aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes during flight, (f) engine shutdown during flight, (g) a propeller feathering, (h) aircraft structure requiring major repairs, (i) cracks, corrosion, (j) other safety critical issues as stated in the FAR part. These occurrences must be reported within 72 hours of the event.

[10] Each scheduled operator is required under 14 CFR Part 121.705 to submit a summary of any (a) interruption to flight, (b) unscheduled change of aircraft en route, or unscheduled stop or diversion from a route caused by known or suspected mechanical difficulties or malfunctions that are not reported as service difficulty reports.

14.0 Vendors

The Maintenance Records Group reviewed the Approved Vendor List provided by ABX Air, Inc. On the average, ABX Air, Inc. accomplished audits of the approved vendors on a two-year basis. All substantial maintenance vendors were listed in the operator's D091 OpSpecs. As previously stated, ABX Air, Inc was authorized to use CASE. There were no discrepancies in the listing.

15.0 Method of Record Keeping

ABX Air Inc uses a computerized system to manage the various aspects of the maintenance program and configuration of their aircraft. The system is referred to as PMI (Purchasing, Maintenance and Inventory). The PMI system consists of several integrated modules or grouping of program relating to specific areas of the operation. Logbook pages, data from components installed, deferred item records, engine records, etc., and were entered into the aircraft computer records on a daily basis. A computer file history was maintained so that all inspections and checks were monitored for time limitations. The computer files were backed up daily to prevent total loss of history files. All hard copies of the paperwork were also kept by ABX Air Inc.

16.0 Manuals

ABX Air Inc used the following manual to maintain the airworthiness of its fleet and management of the airline.

General Maintenance Manual (GMM) – Company policies and procedures to be followed by all persons performing maintenance and inspection services on company aircraft.

Maintenance & Inspection Program Manual – FAA approved time limits for the accomplishment of the overhaul, replacement, periodic inspection and routine checks of the aircraft, and its component parts, accessories and appliances.

ABX Maintenance Manual – Operator owned manual used in lieu of manufacturer's maintenance manual.

ABX Illustrated Parts Catalog – Operator owned catalog used in lieu of manufacturer's Illustrated Parts Catalog.

ABX Wiring Diagram Manuals – Operator owned manual used in lieu of manufacturer's Wiring Diagram Manuals.

Minimum Equipment List (MEL) – list of equipment and instruments that may be inoperative on a specific aircraft.

Weight and Balance Manual – Weight and balance procedures to be followed by maintenance and flight operations personnel on all aircraft operated by ABX Air Inc.

Manufacture Supplied Manuals - Aircraft/Engine Maintenance Manuals, Structural Repair Manuals, Overhaul Manuals, Illustrated Parts Catalog, Corrosion Program Manual, NDT Manual, Significant Structure Items Manual, Service Bulletins and Engine Manuals.

17.0 Oxygen System

The following information describes the maintenance program of the oxygen system, the number of oxygen servicing write-ups for the airplane since January 2007, oxygen system log pages from January 2007 thru June 2008 and Company Advisories regarding the oxygen system

Maintenance Program

Description	Task	Frequency	Dates Accomplished on Accident Airplane
Operational Check of the Supernumerary Oxygen Line	Operational Check	1C	2/7/2006
Functionally Check (off a/c) the Observers oxygen mask	Functional Check	4C	7/21/2007
Inspect the Supernumerary Area oxygen indication	Inspect	1A	10/7/2007
Operational check of the Crew Oxygen Low Pressure Line	Operational Check	1C	2/7/2006
Check portable oxygen bottles for proper pressure and condition	Inspect	1A &1C	10/7/2007 & 2/7/2006
Visually Inspect the crew oxygen discharge indicator disc for presence	Inspect	Daily & 1C	6/26/2008 & 2/7/2006
Pressure check of crew oxygen low pressure line by pulling one mask out of box and observing proper inflation of harness	Operations Check	1C	2/7/2006
Operationally Check the crew oxygen mask/regulator	Operations Check	3A	3/2/2008
Visually Inspect the crew oxygen system pressure	Inspect	Service Check *& 1C	6/28/2008 & 2/7/2006

* Service Check cards revealed the crew oxygen system bottles were to be serviced when the pressures fall below 1,300 psi.

Oxygen System Repairs

On August 14, 2007, the crew reported that a crew mask was not working properly so they swapped out the crew mask with the second observer's position and it was placed on MEL.

On August 15, 2007, the second observer's mask and box assembly was replaced. Note after this box assembly replacement the oxygen then required servicing on August 23, 2007 and again on September 2, 2007.

On September 27, 2007, Reliability Department ordered an inspection of the oxygen system via 799REL005-2007 and the mechanics found the number two oxygen bottle transducer regulator leaking. They replaced the regulator. On October 4, 2007, the oxygen system again required servicing.

On November 8, 2007, the oxygen system was serviced and a mechanic stated that the quick disconnect at the supernumerary seat was leaking. The disconnect was reset by the mechanic. On November 11, 2007, the oxygen system again required servicing.

On November 22, 2007, Maintenance Control requested that the center seat oxygen mask be replaced due to previous history. The hose and mask was replaced. On November 24, 2007, the oxygen system required servicing.

On June 25, 2008, the oxygen required servicing and the corresponding leak check found the adapter from the bottle to the regulator leaking. This was corrected by tightening the adapter.

Out of the 50 oxygen servicing write-ups that took place from January of 2007 to June 2008 only 3 leaks (shown above) were found and corrected by the mechanics.

Company Advisory Notices

The alert criteria according to the ABX Air, Inc. Reliability Process Manual is as follows; three defects within 15 days, five defects with in 30 days or one or more defects within 2 days of close date for an Advisory Notice. Four Advisory Notices were found in the records and they are as follows: September 25, 2007, November 16, 2007, February 27, 2008 and April 11, 2008. These Notices are in an email format. To manage repetitive aircraft discrepancies identified through the Advisory Notice system, Reliability Department held weekly meetings to review open Advisory Notices. Maintenance Control, Line Maintenance, Base Shops, Engineering and other departments within the Aircraft Maintenance organization attended as required. Previous and current corrective actions accomplished were discussed and a more in depth action plan may be identified to correct the chronic aircraft discrepancy.

A review of the meeting minutes from the four Advisory Meetings revealed that N799AX was being tracked and discussed. According to the Reliability Manager the Advisory Notice on N799AX issued on September 25, 2007 was closed on September 27, 2007. Therefore, was not included in the Advisory Notice meeting minutes for September 27, 2007. Some entries had no specific action items in the meeting minutes to resolve the issues. Also, even after having four Advisory Notices, ABX Air has no specific policy to take an airplane out of service to determine repetitive or chronic issues.

Oxygen Servicing Data

The Team reviewed the servicing data for the airplane from January 2007 through June 2008. Advisory Notices were issued to alert maintenance personnel of issues with the Oxygen System (see below for further details of Company Advisory Notices). The following show the results:

Date		**# Of Oxygen Servicing Write-Ups on N799AX**
1/24/07-2/11/07		1
2/11/07-3/01/07		1
3/01/07-3/21/07		1
3/22/07-4/11/07		0
4/11/07-5/02/07		1
5/02/07-5/19/07		1
5/21/07-8/10/07*		0*
8/10/07-9/02/07		2
9/02/07-9/22/07		5
9/22/07-10/10/07		3 (Advisory Notice Issued)
10/11/07-10/30/07		2
10/31/07-11/19/07		5 (Advisory Notice Issued)
11/20/07-12/07/07		2
12/08/07-12/28/07		1
12/28/07-1/08/08		1
1/09/08-2/28/08		9 (Advisory Notice Issued)
2/29/08-3/27/08		3
3/28/08-4/29/08		6 (Advisory Notice Issued)
4/30/08-5/18/08		3
5/19/08-6/25/08		3
TOTAL		50

*The airplane was in a C16 check from June 25, 2007 thru July 20, 2007. The oxygen system for both crew and supernumerary were tested and the mask/regulators and mask hose were also replaced. No non-routine issues were noted pertaining to this work

See Attachment 8 – ABX Air, Inc. Oxygen System for further information.

18.0 Supernumerary

Logbook Pages

A review of the logbook pages in January 2008 revealed several discrepancies with the supernumerary reading lights and heater. These two issues triggered an Advisory Notice. The reading light discrepancy was corrected by replacing a switch and the heater issue was corrected by replacing the left heater. There were no other discrepancies in the logbook in this area up to the time of the accident.

Maintenance Program

Description	Task	Frequency	Last Accomplished
General Visual Inspection of the Supernumerary Area's Air Distribution Ducting for condition and security, Inspection	Inspection	4C	7/21/2007
General visual inspection of the Supernumerary Area	Zonal	1C	2/7/2006
Supernumerary Area Seats and seat attachments	Zonal	1C	2/7/2006
Supernumerary Area above ceiling area	Zonal	4C	7/21/2007

See Attachment 9 – ABX Air, Inc. Supernumerary Log Pages for further information.

19.0 PSION Weight and Balance Computer Installation

In the area of the supernumerary seats, ABX installed a Weight and Balance Computer called PSION. This was accomplished in June of 2006. There were no discrepancies/issues in the maintenance records pertaining to this system.

See Attachment 10 – ABX Air, Inc. Weight and Balance Computer Installation for further information.

20.0 Galley Light Installation

ABX installed a galley light under an Engineering Order 54802 in the area of the supernumerary seats on the airplane on March 18, 2008. The wiring for the new light ran in close proximity to the supernumerary oxygen line. There were no discrepancies/issues in the maintenance records pertaining to the galley light installation.

See Attachment 11 – ABX Air, Inc. Galley Light Installation for further information.

21.0 Mechanic Statements/Maintenance at the time of the Accident

According to the interviews, mechanics accomplished a Service Check, which included a check of the crew oxygen system, when the airplane arrived in SFO the morning of June 28, 2008. One mechanic recalled the #1 (top bottle) pressure to be around 1,220-1,230 psi and the #2 (bottom) bottle pressure was around 1,560 psi. According to the Service Check paperwork the bottles were to be serviced when the pressures fall below 1,300 psi. The mechanic stated that he did not service the crew oxygen bottles.

The same mechanic that accomplished the Service Check in the morning was present to accomplish the pre-departure check of the airplane prior to departure later that evening. The pre-departure check calls for a recheck of the pressures of the crew oxygen system. According to the mechanic, he believed that the pressures were still within limits (1,220-1,230 psi). However, the mechanic decided to service the bottles as he thought the flight crew would write it up for being low. When asked why he did not service the crew oxygen system earlier, he responded by saying since he knew he was going to be working the pre-departure check on the airplane, he decided he would wait to service the system at that time. According to the mechanic, he removed the #1 or top bottle from the aircraft and went to the servicing shed to refill the bottle. Once at the shed, he noticed that the cylinder in the servicing shed had approximately the same pressure as the bottle removed from the aircraft; hence he could not add more oxygen into the bottle. He then reinstalled the bottle back on the aircraft and performed a leak check. He stated he did not generate a write up and put it in the logbook to remove the bottle from the aircraft as no maintenance was conducted on the airplane.

The mechanic then left the airplane and waited until the crew arrived. The mechanic further stated that the crew did not request any maintenance prior to departure.

See Attachment 12 - ABX Mechanic Interviews for further information.

E: ABX Air, Inc. corrective actions

Since the accident, ABX Air, Inc. revised and enhanced their procedures to prevent future occurrences. The operator's corrective actions can be seen in Attachment 13 – ABX Air, Inc. Corrective Actions

Pocholo Cruz
Aerospace Engineer

Attachments:

Attachment 1 - ABX Air, Inc. Certificates
Attachment 2 – ABX Air, Inc. Service Check
Attachment 3 – ABX Air, Inc. MEL Defect Log
Attachment 4 – ABX Air, Inc. STC Cargo Conversion
Attachment 5 – ABX Air, Inc. AD Status Report
Attachment 6 – ABX Air, Inc. SDR/MISR Reports
Attachment 7 – ABX Air, Inc. Major Repairs and Alterations
Attachment 8– ABX Air, Inc. Oxygen System
Attachment 9– ABX Air, Inc. Supernumerary Log Pages
Attachment 10 – ABX Air, Inc. Weight and Balance Computer Installation
Attachment 11 – ABX Air, Inc. Galley Light Installation
Attachment 12– ABX Air, Inc. Mechanic Interviews
Attachment 13 – ABX Air, Inc. Corrective Actions