



NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, D.C. 20594

AIRWORTHINESS GROUP FACTUAL REPORT ADDENDUM 3
LMLG MAINTENANCE INFORMATION

May 30, 2008

A. ACCIDENT DCA06FA058

Location: Memphis, Tennessee
Date: July 28, 2006
Time: 1125 Central Daylight Time (CDT)
Aircraft: FedEx Express Flight 630, McDonnell-Douglas (Boeing) MD-10-10F,
 N391FE

B. AIRWORTHINESS GROUP

Chairman: Clinton R. Crookshanks
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 Denver, Colorado

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 FedEx
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Member: Vikki Anderson
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Member: Sudhir Sheth
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Member: Sunil Jinadasa
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C. DETAILS OF THE INVESTIGATION

1.0 LMLG History

The group went through all of the maintenance records for the LMLG from the accident airplane in order to trace the history. In many cases, discrepancies were found between various records, which have been documented as found. The LMLG outer cylinder from the accident airplane, P/N ARG7002-505, S/N CPT0125HT, entered overhaul at Hawker Pacific, Inc. in Burbank, CA on November 17, 1996. It was released after final inspection on July 8, 1997. The FAA Form 8130-3 for the outer cylinder assembly is dated July 8, 1997.

The outer cylinder overhaul workorder traveler¹ shows the following work being completed on the inner diameter (ID) seal area on Serial Number CPT0125HT.

<u>ACTION</u>	<u>MEASUREMENT</u>	<u>LIMITS</u>	<u>DATE</u>
Grind ID Seal	ID 12.244	12.260 max	Jan 13, 1997
Grind ID Seal	ID 12.253/12.252	12.254 max	Jan 31, 1997
Chrome plate ID Seal	ID 12.206/12.205	n/a	Feb 8, 1997
Grind Chrome ID Seal	ID 12.227	12.2264/12.2300	Feb 14, 1997
Cad Plate and Bake	n/a	n/a	Feb 18, 1997
Prime and Paint	n/a	n/a	Feb 22, 1997
Final Assembly/Inspect	n/a	n/a	Feb 26, 1997
Remove Paint & Cad plate	n/a	n/a	Mar 18, 1997
Grind ID Seal	ID 12.242	12.260 max	Mar 19, 1997
Strip Chrome ID Seal	n/a	n/a	Mar 24, 1997
Chrome Plate ID Seal	ID 12.219	n/a	Mar 26, 1997
Grind ID Seal	ID 12.2275/12.2270	12.2264/12.2300	Mar 26, 1997

¹ See Attachment 1 to this report for a copy of the workorder traveler and outer cylinder FAA Form 8130-3.

<u>ACTION</u>	<u>MEASUREMENT</u>	<u>LIMITS</u>	<u>DATE</u>
Cad Plate	n/a	n/a	Mar 27, 1997
Remove paint and strip	n/a	n/a	April 8, 1997
Strip Chrome ID Seal	n/a	n/a	April 11, 1997
Su-Nickel Plate ID Seal	ID 12.185/12.180	n/a	April 22, 1997
Grind Nickel ID Seal	ID 12.231	12.231-12.233	April 24, 1997
Chrome Plate (0.002 Thick)	not recorded	n/a	May 23, 1997
Cad Plate	n/a	n/a	May 23, 1997
Prime & Paint	n/a	n/a	July 4, 1997
Final Inspection and Ship	n/a	n/a	July 8, 1997

In an attempt to determine the number of aircraft and landing gear cycles at the time of the accident, numerous documents that are part of the aircraft maintenance history were reviewed². FedEx Engineering Authorization (EA) 8-3210-26482, dated 11/1/95, details a major repair to the ID bore of MLG outer cylinder S/N LCO179DA48. The EA indicates 22,107 cycles on the outer cylinder. The installation records for this same outer cylinder indicate it was installed as part of a LMLG assembly on FedEx airplane tail number 055 on 11/30/95 with 22,107 cycles since new. The FedEx Assembly Bill of Material for aircraft 055, dated 9/5/96, indicates that outer cylinder S/N LCO179DA48 was installed on 11/30/95 with 22,674 cycles since new and 0 cycles since overhaul.

FedEx EA 8-3210-31395, dated 2/03/97, details a major repair to the boss threads for the side brace on outer cylinder S/N CPT0125HT. The EA indicates 22,595 cycles on the outer cylinder. The Hawker Pacific Record Sheet for the LMLG, dated 8-16-97, indicates that outer cylinder S/N CPT0125HT was removed from aircraft N68055 in 4/97 with 22,678 cycles since new and the LMLG was released with an overhauled outer cylinder with the same S/N. The FAA Form 8130-3 for the Main Gear Assembly S/N CPT0125HT, dated 9/05/97, indicates 22,628 cycles since new. The Hawker Pacific Record Sheet for the LMLG, dated 9/12/97, has a hand written note at the top "correction to times". This sheet indicates that outer cylinder S/N LCO179DA48HT was removed from N68055 in 4/97 with 22,678 cycles since new and was replaced with outer cylinder S/N CPT0125HT during the overhaul. A note indicates that S/N CPT0125HT was removed from aircraft 051 with 22,107 cycles since new.

The Federal Express Assembly Bill of Material documents received for aircraft N391FE all indicate outer cylinder S/N CPT0125HT was installed. The following information was recorded for the airplane and outer cylinder. The time and cycle deltas between reports are consistent with how FedEx historically operated their aircraft.

² See Attachment 2 to this report for the documents referenced.

11 Feb 98

Total Aircraft Cycles:	20896
Total Aircraft Time:	59738:30
Outer Cylinder Cycles since New:	22678
Outer Cylinder Cycles since overhaul (05 Sept 97):	0

23 May 02

Total Aircraft Cycles:	23828
Total Aircraft Time:	66402:12
Outer Cylinder Cycles since New:	25039
Outer Cylinder Cycles since overhaul (05 Sept 97):	2932

06 Aug 02

Total Aircraft Cycles:	23837
Total Aircraft Time:	66420:20
Outer Cylinder Cycles since New:	25619
Outer Cylinder Cycles since overhaul (05 Sept 97):	2941

03 Jun 04

Total Aircraft Cycles:	25244
Total Aircraft Time:	69261:02
Outer Cylinder Cycles since New:	26455
Outer Cylinder Cycles since overhaul (05 Sept 97):	4348

2.0 Service Bulletin and CMM Revision

As a result of preliminary investigation findings, Boeing issued Alert Service Bulletin DC10-32A259 on October 30, 2007. The Bulletin instructs the operator to perform an inspection of the MLG shock strut cylinder air filler valve bore for the presence of stray nickel or chrome plating deposits, corrosion, or cracks. If any of these conditions are found, the service bulletin provides instructions for repair or replacement of the MLG shock strut cylinder assembly. Prior to the release of the Service Bulletin, Boeing issued a revision to the Component Maintenance Manual (CMM) Chapter 32-11-01 on September 15, 2007. The revision added instructions for a video probe inspection of the air filler valve bore for corrosion, sulfamate nickel or chrome plating splatter, tool marks, or other defects followed by an eddy current inspection of the bore for cracks. Instructions for repair of allowable damage were also included. Several Temporary Revisions to CMM 32-11-04 were also issued to add instructions for inspection and repair of the air filler valve bore.

3.0 Airworthiness Directive (AD)

On May 2, 2008 the FAA issued AD 2008-09-17 requiring that operators perform a video scope inspection of the air filler valve bore for the presence of stray nickel or chrome plating deposits and requiring them to perform the investigative and corrective actions per the Boeing Alert Service Bulletin. The AD becomes effective on June 6, 2008. The required inspections and corrective actions must be performed within 24 months for all passenger

airplanes and those freighter airplanes with less than 7,200 flight cycles in the freighter configuration. They must be performed within 6 months for those freighter airplanes that have accumulated more than 7,200 flight cycles in the freighter configuration.