BOMBARDIER CUSTOMER SERVICES BUSINESS AIRCRAFT

Customer FORUM & Newsletter

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LEARJET, CHALLENGER, AND GLOBAL SERIES CUSTOMERS
Large Aircraft Security Program (LASP) Update

Update - Since the final public feedback session held by the TSA into its LASP Notice of Proposed Rule Making (NPRM) on January 28th, 2009, the TSA panel has been reviewing the comments and feedback submitted. The panels is expected to provide direction regarding a possible way forward and likely respond to requests regarding the formation of a joint aviation rulemaking committee.

Numerous general and business aviation associations, including NBAA and GAMA -- which Bombardier is a member and represented -- continue to work with TSA officials on modifying the proposed rulemaking and in ensuring that any planned legislation minimize adverse effects on our industry while addressing TSA safety concerns. In this regard, GAMA released the following memo that is reproduced, in part, here:

> *"The Committee understands that TSA is currently working with stakeholders to develop a modified Large Aircraft Security Program rule that minimizes adverse effects on general aviation while addressing security concerns. We also understand that after this consultation TSA plans to issue a new notice of proposed rulemaking to ensure additional public comment. The Committee applauds TSA for taking a deliberative approach to this issue and urges TSA to weigh all the costs and benefits associated with new security mandates for general aviation operators and airports."*

This GAMA memo can be read in its entirety at the following link:
http://www.gama.aero/memo/content/lasp-report-language

Bombardier, through associations and representatives, continues to monitor the situation and as soon as the TSA issues a decision or declaration, we will provide an update to our customers and operators. At this time, the TSA has not indicated a timeline for when it will issue a revised NPRM.

LEARJET, CHALLENGER, AND GLOBAL SERIES CUSTOMERS
Bombardier Service Center - Customer Round Table Meetings - JULY

Join the Bombardier Service Center Team for the Customer Round Table Meetings at the following locations:

07/08/09 Nashville, TN Hosted by Dallas and Wichita Service Centers
07/13/09 White Plains, NY Hosted by Hartford Service Center (Includes Golf Outing)
07/22/09 Los Angeles, CA Hosted by Tucson Service Center
07/29/09 Teterboro, NJ Hosted by Hartford Service Center

These informal lunch meetings are designed to provide you with the opportunity to share with us your thoughts, experiences and any suggestions you may have regarding your maintenance visits and how they can be improved.

Space is limited, so please R.S.V.P. to Krista Blaes by calling 316-946-6448 or 316-644-2340. Or, e-mail: *krista.blaes@aero.bombardier.com*. Hope to see you there!

LEARJET, CHALLENGER, AND GLOBAL SERIES CUSTOMERS
406 ELT/NAV Interface operation during PLANNED DITCHING / FORCED LANDING - ATA 25

There have been some concerns raised by operators that in the case of planned ditching or forced landing, upon activation of 406 ELT/NAV Interface particularly at high altitudes, the aircraft position that will be transmitted may be up to a significant distance away from the actual touchdown point due to the potential long descent gliding capability.

This article is intended to inform operators on how the 406 ELT/NAV Interface functions during planned ditching or forced landing and how COSPAS-SARSAT handles the transmitted position signal.

In the case of planned ditching or forced landing, according to pertinent Airplane Flight Manual/Quick Reference Handbook (QRH) procedure, the 406 ELT/NAV Interface shall be activated shortly after the decision is made and Air Traffic Control notified. The 406 ELT/NAV Interface, once activated will derive the actual aircraft position from aircraft GPS and embed it into a digital message and then start transmitting. Thereafter, from that time, the 406 ELT/NAV Interface does not continue to update the aircraft position when transmitting.

Almost instantaneously, COSPAS - SARSAT GEO (Geostationary Earth Orbit) satellite will receive the planned ditching or forced landing signal with the embedded aircraft position data at the time of activation and send that to LUT (Local User Terminal) and further to SAR (Search and Rescue) team. In its turn, SAR team will decode the signal and contact the aircraft owner to find out if the aircraft is in flight at the location captured from GPS. However, the GEO satellite cannot locate transmitting 406 ELT since the satellite is on a geostationary orbit, therefore radio location positioning techniques (Doppler Effect) could not be used. Then once the LEO (Low Orbit Satellite) will pass over the ditching or landing site, it derives the accurate position based on the Doppler Effect. In some cases a second pass of the satellite may be required to pinpoint the location. The time may vary from few minutes to few hours depending on the exact location. For instance, any location above 70 degrees latitude, north or south, is not very well captured by GEO satellites, hence the LEO satellite is the most efficient way to receive the signal and correctly locate the ditching or landing site.

COSPAS-SARSAT clearly advised that the aircraft position transmitted upon activation of 406 ELT/NAV Interface is acceptable to them to activate the SAR process, even if the touchdown point will be much further from the point where the beacon was first activated. In any case SARSAT-COSPAS will have to wait for LEO satellite to pass over the ditching or landing site, in order to pinpoint the exact location. Though, in some circumstances the SAR team will initiate the process regardless of knowing or confirming the exact location. For instance, once the signal received with the aircraft position somewhere in the middle of area where there is no airport nearby, they will dispatch the SAR team immediately, and then will narrow their search based on updated ditching or landing site location picked up by LEO satellite.

Therefore, operators are advised to follow the procedures outlined in the latest revision of QRH, as SARSAT-COSPAS has clearly pointed out that updating the aircraft location by cycling the ELT switch from ON to ARM/RESET, waiting for few seconds and then placing it back to ON position, is not recommended as this will bring unnecessary confusion over the updated aircraft location versus initially reported position.

Operators are particularly reminded that proper ELT registration is paramount as this will significantly reduce the time spent by COSPAS-SARSAT for false alarm verification process, thus greatly improving the SAR team response time.

More information is available on the following websites:
- 406 ELT/NAV Interface *http://www.artex.net/support-resources/ELT-technology.php*
- ELT registration process and requirements *http://www.artex.net/support-resources/ELT-registration-requirements.php*
- SAR concept *http://www.cospas-sarsat.org/Description/concept.htm*

LEARJET 60/60XR
Engine Diagnostic Unit Downloads

Two cable download ports for use with a laptop via the RS 232 port are located just inside the aft equipment door of the aircraft and at the EDU Central Display Unit. The use of a "Flash Card" is not discouraged if that is the Customers preferred method. However, the "Flash Card" may not be the most efficient way to retrieve the data.

Advantages of using the aft download port are:

- Faster downloads
- Ability to e-mail downloaded file to Pratt & Whitney
- No wait for return of flashcard

If you require information regarding the above, please contact your local Pratt & Whitney or Bombardier *Field Service Representative*.

LEARJET 60
Hydraulic Reservoir Bleed Air Pressure Regulator

Recently, a Learjet 60 aircraft experienced a rupture of the hydraulic pressure line at the engine driven pump, resulting in a loss of hydraulic fluid. While troubleshooting, the hydraulic reservoir bleed air pressure regulator was found to be inoperative. The regulator pressurizes the hydraulic reservoir with bleed-air to prevent pump cavitation at altitude. As the investigation continued, hydraulic fluid was discovered inside the regulator. Hydraulic fluid introduction when mixed with engine bleed air may render the pressure regulator inoperative.

The engine driven hydraulic pump utilized on the Learjet 60 is designed to vary displacement to maintain a constant 1500-psi hydraulic system pressure. If hydraulic reservoir pressurization is lost, the pump may operate erratically causing cavitation and/or significant discharge pulsations. Without pump inlet pressure, the pump compensator will not function correctly (acting like a fixed displacement pump). As a fixed displacement pump, the pump outlet pressure is nearly unlimited. Under these conditions, damage to system components, and/or the pump, is likely.

The effects described above underscore the importance of servicing the aircraft hydraulic reservoir per approved Aircraft Maintenance Manual procedures to avoid introduction of hydraulic fluid into the pressure regulator.

LEARJET 60XR
DVD Player Ventilation Improvement - ATA 25

Learjet has received reports from operators that excessive heat build-up can occur within the DVD player housing assembly. This condition can arise during sustained high cabin interior heat periods and extended duration of DVD operation. The DVD player has, in some instances, shutdown or failed prematurely due to these environmental and operating conditions.

Learjet has certified an installation to provide increased ventilation to the DVD player to increase life cycle and reliability. This change is effective for production aircraft starting at 60-348. Field aircraft incorporation of this change is available via *Service Bulletin* 60-25-19 for aircraft 60-294, 60-307, and 60-319 through 60-347.

For ordering, please contact your Parts Logistics Customer Service Representative.

ALL LEARJET AIRCRAFT
New Receiver Autonomous Integrity Reporting (RAIM) requirements in the United States - ATA 34

After July 1, 2009, the FAA is mandating that all operators filing RNAV 1 routes (Q and T), RNAV 1 STARs, and RNAV 1 DP's will need to perform a RAIM prediction as part of their preflight planning for all aircraft that use GPS as the primary means of navigation. The RAIM prediction is required regardless if it is an ATC radar monitored route or the RNAV departure/arrival procedure has an associated "RADAR REQUIRED" note charted. This applies to all Learjet aircraft equipped with GPS/FMS equipment that meets TSO-C129 ( ) (UNS-1( ) with 600.x software or higher and the FMS-5000) in accordance with AC 90-100A, paragraph 10.a. (5).

Learjet operators that have GPS/FMS equipment that meet TSO-C145/C146 (UNS-1EW) installed with WAAS enabled are not required to file a RAIM prediction if WAAS coverage is confirmed to be available along the entire route.

Operators may use any of the following to satisfy the RAIM requirements:

1. Operators may monitor the status of each satellite through NOTAMs or NANUs and compute RAIM availability using model specific RAIM prediction software.

2. Operators may contact a Flight Service Station (not DUATS) to obtain non-precision approach RAIM.

3. Operators may use the FAA en route and terminal RAIM prediction website *http://www.raimprediction.net*

4. Operators may use a third party interface, incorporating FAA/VOLPE RAIM prediction data without altering performance values, to predict RAIM outages for the aircraft's predicted flight path.

5. Operators not using model-specific software or FAA/VOLPE RAIM data will need FAA operational approval.

For more detailed information regarding the GPS RNAV operations in the United States, please refer to AC 90-100A.

LEARJET 55/LEARJET 60
Frame 7 Optional Service Bulletin

Learjet has just recently released two optional Service Bulletins, SB55-53-10 and SB60-53-17. They are in response to frame 7 cracks that have been found during 12 year X-ray inspection of the windshield support structure. The Service Bulletins provide an approved repair and reinforcement for frame 7.

CHALLENGER 300
Paint Products and Finishes - Frequently Asked Questions - PART 2

As identified in the last issue of the Forum Newsletter we have dedicated this section to the Frequently Asked Questions that our Customer Support organization have received from customers regarding Exterior Paint. This week's issue covers both the Paint Products and Paint Finishes topics.

Paint Products:

Q: Why do you use Axon Paint?
A: Axon paint meets and supersedes the Bombardier standards. To be able to produce an exceptional result you need to know and understand the product you are using. We chose Axon because their turn around time is very short and their support is exemplary. Cooperative efforts in developing new and improved products are also exemplary.

Q: I like Sherwin-William paint. Why can't I have it on my aircraft?
A: Many standards have to be met to become an approved paint in the Bombardier system. Unfortunately, Sherwin-William is not meeting many of our standards such as reverse impact, Skydrol resistance and low temperature flexibility.

Paint Finishes:

Q: How come I see dust on the paint?
A: The complete application of the color is composed of two coats of color and one coat of clear. The process takes about 3 hours on a large surface and dust can be trapped between coats. Many steps are done to eliminate the dust, the paint bays are completely cleaned once every 4 weeks, the peel-offs on the wall are changed twice a year, the filters are changed every two aircraft and we are also in the process of adding a filtration jast **(Joint Advanced Strike Technology) b**efore the paint shop to eliminate all rust particles that the system can generate. All aircraft are completed with a coat of clear, without damaging the quality and color of the paint.

Q: Do you sand in the paint bays?
A: All the heavy sanding is done in the sanding room (prep-bay), but there is still some reactivation (paint abrasion) that needs to be done while the aircraft is in the paint shop like the stripes, logos or flags, only reactivation is allowed to be done in the paint booth.

Q: What do you do to remove the dust?
A: A buffing process will remove most of the residual dust. We are using only approved aircraft component from 3M, which has been developed to meet our standards.

Q: How does buffing affect the durability of the paint?
A: With the application of a clear coat, the buffing will not affect your paint.

In the next issue of the Forum newsletter we will be covering "Support and Warranty".

CHALLENGER 300
Elevator / Aileron Paint Touch-Ups - ATA 27

Recently the Aircraft Maintenance Manual (AMM) was revised to allow the omission of the elevator/aileron balancing when paint touch-ups have a total area of less than 12 in^2.

AMM TASK 27-11-17-400-801 (Aileron) and TASK 27-31-17-400-801 (Elevator) specify that balancing of the aileron and the elevator should be performed every time that the surface is re-painted, repaired or prior to the installation of a new aileron or a new elevator surface to validate the Out-of-Balance Moment (OBM). However, with Revision 24 of the Challenger 300 AMM, the Tasks were revised to reduce the return-to-service time and cost following minor paint touch-ups on the aileron or the elevator surfaces.

Due to its negligible impact, it is deemed acceptable to not perform the balancing of these surfaces if a small paint touch-up (in areas of less than 12 in^2) is done. Otherwise, the balancing of the aileron (TASK 27-11-17-820-802) or the elevator (TASK 27-31-17-820-801) is required.

Balancing requires GSE 27C-31-03 and some ballast (weight) in case the surface OBM needs adjustment. Ballast (weight) part numbers are identified in the Aircraft Illustrated Parts Catalog (AIPC) (Aileron 57-60-00 and Elevator 55-20-01).

A preventive investigation was done by Bombardier engineering on all the repairs (REOs) done in-service on the aileron and the elevator. No service corrective action is required for the repairs that were done through an REO. The impact on the OBM was determined to be negligible.

Please feel free to contact your *Field Service Representative* (FSR) for any questions concerning the balancing of the aileron or the elevator.

GLOBAL SERIES
Passenger Door Troubleshooting - ATA 52

This article is being issued to raise awareness of areas that may contribute to poor operation of the passenger door. Starting at the top of an open door, this article will list the areas to be aware of; a combination of things may be impacting the door's operation.

1) Handrails:

a) Correct handrail rigging (length adjustment in accordance with AMM Task 52-11-21-820-801) should not be underestimated for possible impact on door operation. It has been observed that if the telescoping tubes do not collapse and extend in unison, there is a possibility of a force fight between the forward and aft handrail…this condition may be the result of uneven adjustment, in turn causing uneven wear in the handrails.

What happens is that the handrails are joined together through the bottom handrail shaft. As the door is closed, the handrails compress and fold, rotating the shaft a little to unlock the bottom step. If the telescoping tubes on one handrail don't compress like those of its mate, the rotational force through the shaft, may place a side load into the other handrail's tubes, further binding up the telescoping tubes and adding friction to the handrail/door movement.

In addition to rigging, cleaning and lubricating the handrails in accordance with AMM Task 12-22-00-640-836 may improve their operation.

b) Bowed or dented handrails will also add resistance to door closure. Bowed handrails may indicate handrail support pin bushing migration. Please refer to S.B. 700-52-031 or 700-1A11-52-008 for corrective action.

2) Top Step Assembly:

a) The hinge halves in the top step assembly may bind or seize, adding friction to the door's movement. These halves may be lubricated I/A/W AMM Task 12-22-00-640-808.

Note: The IPC 52-11-53 has been revised to list alternative hinge half assemblies (KGC991-1302-1/-2) as the future procurement part. These assemblies include a self lubricating Karon lined bushing and move the hinge line approximately .020" outboard.

b) Recently it was reported that an accumulation of FOD (sand and small gravel bits) in the Top Step assembly piano hinge could be heard moving around and being crushed in the hinge as the door was closing. Should this occur the loading on the actuator will increase.

3) Tensator Springs:

The springs may weaken over time and/or suffer from cracks and break.

Note: AW700-52-0227 was released for Tensator Spring Failure.

The springs are pre-tentioned to 1 ½ turns (in the door closed position). When the door is open, the springs are wound out to 6 ½ turns.

Proper rigging of the springs will ensure the correct pre-tension. Note: Exceeding the pre-tension value may allow one or more springs to slip off its holding drum.

The AMM is being revised (GX Rev. 42, G5000 Rev. 23 & XRS Rev. 20) scheduled for release in July) to include "Functional Test of the Passenger Door Tensator Springs Task 52-11-41-720-801". This test will evaluate the output of the springs. These springs should require a force between 50 - 85 lbf. to extend and hold at the 1 ½ turn pretension position.
Weak tensator springs will increase the burden on the door actuator, making the door heavier due to the lost counterbalance.

Passenger Door Troubleshooting... Cont'd

4) Passenger Door Actuator:

Heavy doors and a lost margin in -7 actuators have resulted in doors that stall ½ way up.

Note: *Advisory Wire* AW700-52-0229 released.

SB 700-52-037 will introduce Variable Radius Pulleys (VRP) together with a -9 actuator. The VRP will provide an approx. 20% increase in lifting capacity, although it will take a few seconds longer for the door to close, as the slow down mode of the actuator will kick in a little earlier.
Note: The -7 actuator can not be used with the VRP, because during door deployment the motor is spun faster, which would cause a -7 actuator to burn out.

Pre-installation rigging of the actuator is still a concern. The coarse rigging mark may be inconsistent from actuator to actuator due to the various actuator modifications and assembly techniques. It is not necessary to have the pointer align directly onto the coarse rigging mark (Line with "D"). Should the actuator be miss-rigged, the timing of the actuator will be off and the slowdown mode (the door slows as it approaches the aperture) occurring too soon or too late, this will also impact how fast the door opens. The actuators are pre-rigged by the supplier, so rigging should not be necessary. If rigging is required, rotate the sprocket until the coarse rigging pointer goes to its extreme down position. From the extreme down position, continue to turn the sprocket slowly until the coarse rig pointer starts moving up towards the D, the first time the red marks on the sprocket and actuator body align, will be the correct rigging position (the coarse rig pointer will now be in the vicinity of the "D"), and the actuator is now ready for installation.

AMM Task 52-11-25-820-801 will be revised to clarify the pre-installation rigging technique.

Note: Due to possible lost margin in -7 actuator assemblies, *IS Modsum* IS700-52-0003 allows removal of the bottom step actuator to lighten the door. IS700-52-0004 allows the removal of the aesthetic side covers installed by SB 700-52-021/700-1A11-52-001.

The following items (5 & 6), address the possibility of water ingress causing the door to become heavier, which may result in an inability to close the door or a door that opens quickly (heavier doors open faster).

5) "T" Abutment Fittings:

Located on the door, under the bottom step, the voids around these fittings may collect water; this water may find a way into the door. Water deflectors can be installed in accordance with IS700-52-0001.

6) Vent Flap:

May have a migrated bearing or worn stops causing an over travel condition.
Compliance with SB 700-52-029 or 700-1A11-52-006 will correct these conditions.

If the aircraft is parked outside in inclement weather or when washed, an improperly seated vent flap may allow excessive water into the door. Water entering through the vent flap will saturate the insulation bags inside the door, adding weight to the door.

Vent flap rigging may be verified via AMM Task 52-11-69-820-801.

Note: Water spray should not be directed directly to the door for evaluation purposes. Rather water droplets should fall down upon the door. It is permissible to apply Dow Corning 4 (DC4) to the vent flap seal to prevent it from leaking.

Recent Releases

ADVISORY WIRES / COMMUNIQUES

AW700-23-0276 - Global Series - Cockpit Telephone - Handset Cord Assembly, dated Jun 19/09

AW300-78-0099 - Challenger 300 - Thrust Reverser Panel Corrosion, dated Jun 17/09

AW600-34-2324 - Challenger 604/605 - Flight Management System- ICAO Holding Speed Racetrack Pattern Size, dated Jun 12/09

BCSBA COM 0228 - Challenger 600/601 - New Payment Schedule to Facilitate Conversion to MSG-3, dated Jun 22/09

BCSBA COM 0227 - Learjet, Challenger and Global - Hot Topic: European Union Emission Trading Scheme (EU ETS), dated Jun 12/09

SERVICE BULLETINS

Learjet Series (May 27/09 to Jun 09/09)

SB35/36-31-3, Rev. 1 (LJ35/36) [Rec.] - Indicating/ Recording System - Installation of Cabin Altitude Warning System (Aircraft Without Auto Emergency Air)

SB45-28-6, Rev. 1 (LJ45) [Rec.] - Fuel - Inspection of Fuel Tubes Adjacent to the Toilet Servicing Panel

SB45-25-8, Rev. 1 (LJ45) [Opt.] - Equipment and Furnishing - Installation of Fire Seal Baggage Compartment Accessory Kit

SB45-31-4, Rev. 1 (LJ45) [Opt.] - Indicating/Recording Systems - Improved Removal/Installation of the #1 Data Acquisition Unit (DAU)

AMK55-84-03, Rev. 1 (LJ55) [Rec.] - Doors - Modification of Emergency Exit/Baggage Door Damper Mechanism

Challenger Series (May 27/09 to Jun 09/09)

A100-21-08 [**ALERT**] - Modification – Cabin Pressure Control System – Cleaning and Replacement of the Safety Valve Cabin Pressure-Sensing Port Plug

100-29-01, Rev. 2 [Rec.] - Modification - Left and Right Hydraulic Systems - Upgrade of the EDP Check Valves in the Hydraulic Pressure Manifolds

100-53-02 Info Sheet (Limited Effectivity)- Modification - General - Installation of the Cabin Inverter Cooling Fan

605-25-001, Rev. 3 [Rec.] - Modification - Insulation - Installation of the Entry Headliner Structure, the Cabin Primary Insulation Blankets and the Top Cover

604-24-014 Info Sheet - Special Check/Rework - Emergency AC Generation System - Rework Air Driven Generator (ADG) and Test Aircraft Interface Harness

600-0721 Info Sheet - Special Check/Rework - Extension and Retraction - End Caps on Nose Landing Gear (NLG) Selector Valve and Nose Gear Door Selector Valve could have been Incorrectly Lockwired during Assembly

601-0558 Info Sheet - Special Check/Rework - Extension and Retraction - End Caps on Nose Landing Gear (NLG) Selector Valve and Nose Gear Door Selector Valve could have been Incorrectly Lockwired during Assembly

604-32-021 Info Sheet - Special Check/Rework - Extension and Retraction - End Caps on Nose Landing Gear (NLG) Selector Valve and Nose Gear Door Selector Valve could have been Incorrectly Lockwired during Assembly

100-25-22 Info Sheet - Modification – Passenger Compartment – Installation of the Passenger Seat Leg Rest

Global Series (May 27/09 to Jun 09/09)

700-25-030, Rev. 1 [Rec.] - Modification - Passenger Compartment – Replace Passenger Service Unit (PSU) Latch with a more Robust Latch

700-52-036 / 700-1A11-52-013 [Rec.] - Modification – Baggage Door – Installation of a Mechanical Stop on the Door Handle

Calendar of Events

- **Latin American Business Aviation Conference & Exhibition (LABACE)**
  August 13th to 15th
  São Paulo, Brazil

- **Asian Aerospace International Expo & Congress**
  September 8th to 10th
  AsiaWorld-Expo, Hong Kong (SAR China)
  http://www.asianaerospace.com/en

- **Challenger 600 Series Advisory Committee**
  September 1st & 2nd
  http://www.cic.bombardier.com

- **NBAA Learjet Technical Committee**
  September 24th & 25th
  Wichita, Kansas
  http://www.cic.bombardier.com

- **U.S. Safety Standdown**
  September 28th to October 1st
  Wichita, Kansas
  www.safetystanddown.com

- **NBAA 62nd Annual Meeting & Convention (NBAA2009)**
  October 20th to 22nd
  Orange County Convention Center, Orlando, Florida