

# infoservice

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## infoservice...What is it?

By **Eileen Linton – Editor, Customer Information Publications**

The mandate of *infoservice* is to inform and provide Global Express operators with up-to-date technical and news articles, aircraft statistical information, abnormal aircraft situation reports (AASRs), late breaking news, as well as useful and informative aircraft data which we are sure will be a good source of reference to you.

*infoservice* is published ten times a year and we encourage our readers to submit items that they feel will be of interest to their fellow Global Express operators. ●

## Electrical System Upgrade

Eff.

By **François Pelletier – Customer Support Engineering**

### ATA 24

At the present time, the ground and flight test of the electrical system Block 2, Build 3.6 upgrade is on schedule and will be completed by December 1999.

The major changes between electrical system Block 1A+, Build 3.5 and Block 2, Build 3.6 are as follows:

1. Electrical Management System - Control Display Unit (EMS CDU)
  - Improved hardware and software
  - Remove AC and DC cabin loads status message

### 2. AC Power Center (ACPC)

- Improved hardware and software
- Remove work-around (outhouse)
- Add alternate DC power distribution (backup power from ASCA)

### 3. DC Power Center (DCPC)

- Improved hardware and software
- Add alternate DC power distribution
- Remove work-around (doghouse)
- Add chassis mounted cooling fan
- Remove Transformer Rectifier Unit (TRU) dispatch limitation

### 4. Secondary Power Distribution Assembly (SPDA)

- Improved hardware and software

### 5. APU Start Contactor Assembly (ASCA)

- Improved hardware
- Add alternate DC power distribution (backup power to ACPC)

### 6. Cockpit Circuit Breaker Panel (CCBP)

- Improved hardware

We will keep you informed of any new changes related to this electrical system upgrade. ●



## BR710 Engine Core Fairing Retrofit Campaign

*Eff. All GX aircraft*

*By Louis Legros – Customer Support Engineering*

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**ATA 72-03**

In view of an incident that occurred on a Gulfstream V aircraft where a core fairing panel became detached causing damage to the engine, both the LBA and the FAA have issued an Airworthiness Directive.

The ADs instruct operators to perform a repetitive inspection of the fasteners to ensure their secure installation as per the BMW Rolls-Royce Service Bulletin BR700-72-900062 rev. 3 issued March 24 1999 (refer to Bombardier Aerospace Advisory Wire no. GX700T-0003).

To remedy this situation, BMW Rolls-Royce have undertaken to set up a retrofit campaign by issuing a service bulletin to introduce a new standard of core fairing panels.

The new standard will incorporate a "bird beak" design, which will act as a retainer for the fairing panels in the event of fastener failures or mis-installation thus preventing panels from becoming detached from their support structure.

As the access to the engine core is very limited through the bypass duct access panels and the working position for the technicians is difficult, the preferred method for embodiment of the service bulletin is with the removal of the engines, although it can be done "on-wing".

The retrofit will be handled as an "in-service" campaign and Bombardier is working with BMW Rolls-Royce to synchronize the retrofit with each operator's scheduled "E-mod" downtime. Along with the core fairing retrofit, BMW Rolls-Royce is also planning to take advantage of the downtime to introduce other component improvements, tentative at this time are:

- FADEC software and hardware
- Fuel manifold damper
- Thrust reverser door flow discourager seal ●

## BR710 Engine Air Turbine Starter

*Eff. All GX aircraft*

*By Louis Legros – Customer Support Engineering*

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**ATA 80-11**

In view of the failures of the air turbine starters that have been observed since the beginning of the flight program on the Global Express, BMW Rolls-Royce and air turbine starter manufacturer, AlliedSignal, have been doing extensive

research to determine the cause(s) and ultimately, the correction to the existing design.

Two failure modes were initially observed:

- Output shaft decoupler failure
- Turbine failure

To correct the unwanted decoupling, a new standard of output shaft with a steel torsion bar, a circular retaining ring and Tugsten Carbide coating was introduced on the -7 starter.

The failure of the turbine blade has been determined to be caused by high cyclic fatigue (high stress occurs as the disc passes through resonant rpm) and a redesign strategy has been put forward to remove the cause through a sequential gearbox and a turbine wheel and blade redesign.

The -8 starter with these improvements is predicted to be available, for retrofit and production incorporation in the first quarter of 2000. ●

## Passenger Door Handrails

*Eff. All GX aircraft*

*By Glen Malcolm – Customer Support Engineering*

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**ATA 52-10**

In response to feedback provided by customers, Bombardier together with Shorts (the door partner) has initiated a new handrail design.

The original design has two parallel (upper and lower) handrail tubes. As the door opens the handrail support tubes unfold causing the lower third of the upper and lower tubes to extend (similar to a trombone slide), providing support for passengers on the lower steps. The support tubes also support the weight of the door through the lower rail. Customers indicated that the amount of support for passengers on the lower steps was inadequate.

The new handrail's upper section consists of two telescoping tubes, which extend further to provide additional support for passengers. The lower rail has six telescoping sections and carries the weight of the door and passengers. Because the new design has been simplified in appearance (no support tubes), most also feel it is more pleasing to the eye.

In conjunction with the new handrail, a stronger motor will be introduced to ensure the door closes satisfactorily.

One other point of interest is that when closing the door using the avionics battery, the Charge State of the battery can affect the door closure time. For consistent door operation times, the use of ground power (when available) is suggested. ●

## CAIMS Functionality Status

*Eff. All GX aircraft*

*By Chantal Mercier – Customer Support Engineering*

A common misunderstanding of the Central Aircraft Information Maintenance System (CAIMS) is that all the functional aspects of the system reside in the Portable Maintenance Access Terminal (PMAT) itself. They do not! The smart LRUs of each CAIMS Member System require specific software or firmware implementation such that they can communicate their ACTIVE FAULTS and their faults stored in NVM through the STORED FAULTS, FLIGHT FAULTS and GROUND FAULTS functions. Proper communication must also be established in order to carry out LRU TESTS and NVM downloads. For some systems, the process of system integration to ensure that the communication is done correctly, is still being carried out. Advisory wire BD700T-002 was released to inform all our operators of the status of each system. This advisory wire provides a list of all the Member System smart LRUs and the status for each function. General guidelines are provided for the cases where functionality is not complete. Please take note of this Advisory Wire before doing any system troubleshooting with CAIMS. You will be regularly informed of further developments as functionality is added. ●

## New CAIMS Software

*Eff. All GX aircraft*

*By Chantal Mercier – Customer Support Engineering*

In the spirit of improving the CAIMS system, a new software version is now available. CAIMS software 6.1 which is introduced with the PMAT part number 7023300-907, contains many new features and enhancements. The new software introduces the long awaited “technical publication link”. With this link, the operator will be able to go from an active fault or from any fault linked to a flight deck effect to the applicable AMM or FIM task and AIPC or WM figure. In response to many operators wanting to be able to print CAIMS data on their compatible cabin printer, the capability to install printer drivers has been added. CAIMS 6.1 also includes an enhanced auto-shutdown and fault history database processing which reduces file corruption resulting from improper PMAT shutdowns. Last but not least, the new CAIMS software has a revised Autoload function that enables the automatic loading of the CAIMS database called the LDI (Loadable Diagnostics Information). Upgrading the database is now as easy as simply inserting the CD-ROM containing the new database and following a few instructions displayed on the PMAT. Operators need to incorporate the Service Bulletin 700-45-004 to get CAIMS 6.1. ●

## Don't Be Late – Keep Up-to-date Always Use Latest CAIMS LDI

*Eff. All GX aircraft*

*By Chantal Mercier – Customer Support Engineering*

One of the most interesting features of the Central Aircraft Information Maintenance System (CAIMS) is its capability to evolve through its database called the LDI (Loadable Diagnostics Information). For most systems, the database is used to display various information on the PMAT. The database contains data on faults, tests, parameter displays, ARINC and ASCB definitions, Flight Deck Effect information as well as technical publication referencing data. In summary, it is a source of information which is continually enhanced for the benefit of our operators. The means of distribution of the LDI is the Technical Publication CD-ROM. The LDI name and its version number is indicated on the face of the CD-ROM. For example the LDI “Eagle.021” is more recent than the LDI “Swan.019”. When you get a CD-ROM which contains a new LDI, make sure you install the LDI on the PMAT. For PMATs which have CAIMS 6.0, you will need to load the LDI manually. A procedure which explains how to do this is distributed to all the CD-ROM users. For PMATs with CAIMS 6.1, simply insert the CD in the CD-ROM drive and follow instructions given on the PMAT. If at any time you need to confirm which LDI is being used by the CAIMS software, select “About” in the CAIMS application menu and look for the database name in the list of files given in the “About” window. ●

## Wing Anti-ice Fault Spurious EICAS Messages

*Eff. All GX aircraft*

*By Isaac Messallem – Customer Support Engineering*

**ATA 30-10**

A recent condition was discovered on an aircraft where the WING ANTI-ICE FAULT advisory message could intermittently be posted on the EICAS when the Wing Anti-Ice is selected ON. This message can occur both during engine ground run or in-flight.

Troubleshooting, using CAIMS revealed that a LEFT OUTBD WAI TEMP SENSOR message was posted on one aircraft and RIGHT OUTBD WAI TEMP SENSOR was posted on the other. The BMC NVM was downloaded and it was determined that the BMC had detected a sensor miscompare. The miscompare is generated following a temperature difference greater than 5°C between the two sensors within the OUTBD dual sensor assembly. The Wing Anti-ice Sensor assembly was tested and it was found that the two sensors

within the assembly are within tolerance of each other. To isolate a miscompare condition, we had to disconnect the respective Wing Anti-Ice Temp Sensor and compare the resistance of the dual temperature sensor assembly. The two sensors should read  $\pm 1.32\Omega$  of each other in the following range  $501.22\Omega$  at  $0^\circ\text{C}$  to  $578.41\Omega$  at  $40^\circ\text{C}$ .

Further investigation of the temperature signal revealed that there was a significant difference on the digital signal after being processed by the DAU and the BMC. This finding led to the conclusion that this is a nuisance indication.

If you have any further queries, please contact your respective Field Service Representative. We shall keep you posted of the progress towards the final solution. ●

## Overspeed Warning

*Eff. Aircraft 9004 and Subs*

*By Isaac Messallem – Customer Support Engineering*

**ATA 31-50**

An overspeed warning condition has occurred on a number of aircraft during the cruise phase of the flight both in production and in service. At the time of occurrence, one aircraft happened to be instrumented and the data was captured on tape for analysis. Further investigation revealed that the SFCU had generated a spurious **Flaps not at zero** signal and subsequently caused the Aural warning to go off. This was most likely caused by a software glitch. In addition, if the auto throttles are engaged, it may cause the throttles to retract back to Flight Idle. This condition is presently under engineering investigation together with Honeywell and Sundstrand. We will continue to keep you posted on any future development. ●

## Fuel Thermal Management System

*Eff. Aircraft 9004 and Subs*

*By Eldon Singer – Customer Support Engineering*

**ATA 28**

During flight testing, and just recently on one of the in-service aircraft, it has been demonstrated that on some flights greater than 5 hours in duration, the fuel in the outer wing tanks has cooled to the point that the "WING FUEL LO TEMP" Caution message has posted. The message posts when the lowest measured fuel temperature in the wings reaches  $-35^\circ\text{C}$ . When this is observed, the current AFM procedure requires that the aircraft descend in altitude or increase its speed to correct the low temperature condition.

After reviewing two possible solutions, Bombardier has chosen to use the engine fuel/oil heat exchanger to warm cold fuel coming from the tanks and recirculate the warm fuel back

to the tanks through return lines. Flight testing of the new system is to be completed by the end of this year and it is expected that a service bulletin to install the new system will be available to customers during the second quarter of 2000. ●

## Flap System Shutdown Caused by Skew Detection

*Eff. Aircraft 9004 and Subs*

*By Jimmy Avgoustis – Customer Support Engineering*

**ATA 27-50**

Three aircraft recently have experienced a flap system shutdown caused by a skew detection command. The skew related shutdowns occurred on two aircraft without any flap selection and the third aircraft reported an immediate shutdown after flaps were selected. We are investigating the sensitivity of the skew detection system.

Bombardier Aerospace and Sextant Avionique, the Bombardier partner responsible for the slat/flap system, are working closely with their supplier Hamilton Sundstrand in supporting us to quickly resolve this issue. ●

## 2000 Maintenance and Operations Seminar

*By Ian Mitchell – Manager, Business Administration*

As 1999 draws to a close, plans are well underway for the 2000 Maintenance and Operations Seminar that will take place from June 27 – 29 at the Wyndham Anatole Hotel in Dallas, Texas. On Monday June 26, we will be hosting a golf day for those of you who need to experience a day of frustration release.

Our current plans show us getting off to a start on Tuesday June 27 at 8:30 a.m. and running through until approximately 3:00 p.m. on Thursday June 29. Wrapping up at 3:00 p.m. will allow those who need to travel home that evening the opportunity to do so.

As our agenda comes together, the emphasis is on the seminar topics. Once again, we are relying on you to help us determine the items for discussion. So, if you have any topics that you would like us to address, please do not hesitate in sending them to me by fax at (514) 855-7808 or by e-mail at [ian.mitchell@notes.canadair.ca](mailto:ian.mitchell@notes.canadair.ca).

Early in 2000, we will be sending to you a preliminary program agenda, as well as a registration form for the seminar. To ensure that we have a good handle on all participants who wish to attend, you will be required to complete the registration form and return it to us at your earliest convenience. Please do not contact the hotel directly, as they will advise you that there are no rooms available.

Until the next update, I would like to extend to you, your co-workers and family the very best wishes for the holiday

season from all of us within Customer Support of Bombardier Aerospace Business Aircraft. ●

## ACAS II and TCAS II Change 7.0 Requirement

**Eff.** Aircraft 9005-9999

**By** Stephane Beauchamp – Customer Support Engineering

**ATA** 34-43

### Reference

- Bombardier Advisory Wire GX 700T-0007, November 99

In 1995, the ECAC (European Civil Aviation Conference) States members agreed on mandatory implementation of ACAS II (Airborne Collision Avoidance System, which is the European acronym for TCAS II with Change 7.0, incorporated). Change 7.0 is an upgrade to the present TCAS II 6.04A system to incorporate improvements defined by the United States Federal Aviation Administration (FAA) from observations of TCAS systems to provide an international standard for collision avoidance logic, surveillance logic and aural messages.

This change, while not being mandated by the FAA in the United State airspace at this time, is required to meet the upcoming ACAS II mandates in the ECAC States Airspace for January 1, 2000 and in other countries (India, Argentina, Australia, Japan and Hong Kong) at a later date.

### Description

ACAS II mandates TCAS II Change 7.0 together with Mode S transponder compliance with ICAO Annex 10, Mode S SARPS, Amendment 73 in order to comply with the ICAO standards and recommended practices functionality. The Mode S transponder, however, need not comply with ICAO Mode S/ACAS II SARPs until 1 January 2003 provided that it is compatible with ACAS II and TCAS II Change 7.0 with a minimum Level 2 or Class 2 datalink unit capability. The Mode S datalink requirements are not finalized at this time, however, the manufacturers will upgrade their transponders as required to meet any future new specifications.

An implementation transition period has been established extending from 1 January 2000 until 31 March 2001. For those operators that will not meet the 1 January 2000 deadline, for reasons other than cost, an Exemption Application (with no operational limitation) for the ACAS II requirement must be completed as follows:

- Operators within the European Civil Aviation Conference (ECAC) member States who operate under the terms of a JAA AOC (Air Operator Certificate) should apply to the Authority who issued their AOC.

- Operators within the ECAC member States who do not operate under the terms of a JAA AOC should apply to the Authority who issued their AOC and concurrently to Eurocontrol ASU (ACAS Support Office).
- All other operators should apply to the Eurocontrol ASU (ACAS Support Office) who will co-ordinate the applications with the ECAC States Airspace Authorities.

### Actions

1. The Exemption Application (form is available in the Annex of Advisory Wire GX 700T-0007) for the ACAS II requirement should be immediately forwarded to the appropriate authority who issued their AOC or to Eurocontrol ASU (ACA Support Office via Fax or Web site) as described in Section 3.0.

ACAS Support Office Fax: 32.2.729.3719

Tel: 32.2.729.3133

E-mail: [acas@eurocontrol.be](mailto:acas@eurocontrol.be)

Web Site: [www.eurocontrol.be/projects/eatchip/acas/](http://www.eurocontrol.be/projects/eatchip/acas/)

SITA: BRUAC7X

or

Antony Hayes, Eurocontrol ACAS

Program Support Fax: 32.2729.9193

E-mail: [antony.hayes@eurocontrol.be](mailto:antony.hayes@eurocontrol.be)

2. For the Global Express, the TCAS by Honeywell is installed at the factory. The TCAS computer RT-950 part number 7517900-10001 must be upgraded to Change 7.0 part number 7517900-10003 via the Honeywell Service Bulletin C24-3841-027 scheduled to be released in November 99. Since the Service Bulletin is a software upgrade only, it will be possible to be performed directly on the aircraft.

Bombardier Aerospace approval for the new part number is scheduled for the 2<sup>nd</sup> Qtr 2000. Once the new part number is approved, the Illustrated Parts Catalogue will be revised accordingly and the Honeywell SB will be sent under a Bombardier cover letter.

The transponder RCZ-833E part number 7510700-766 currently installed is a Level 3. It meets the ACAS II requirements and therefore does not require any changes.

Please contact Pat Montey, Tel: 602.436.8795 at Honeywell for the details of their upgrade program. For technical questions, contact Mike Garrison, Global Express Engineering at Honeywell, Tel: 602.436.7311.

### Web Sites:

FAA:

[www.faa.gov](http://www.faa.gov) Select Search, then ACAS and GO, Select Euro-ACAS to view the U.S. Operator Requirements for European ACAS II/Mode S Equipment Program document.

Honeywell:

[www.cas.honeywell.com](http://www.cas.honeywell.com) ●

# Abnormal Autothrottle Disconnect

**Eff.** All GX aircraft

**By** Ghislain Portelance – Customer Support Engineering

## ATA 22-30

There have been several autothrottle abnormal disconnects reported on in-service aircraft and on production flight test. A production aircraft was instrumented to record data to determine the precise cause of the disconnect. Analysis of the data indicated that the problem was caused by Arinc label 337 (Max cruise EPR) from the left hand FADEC being invalid for one second. The IAC uses this label as an input to the laws controlling the operation of the autothrottle and will perform a disconnect if the data becomes invalid. This event is annunciated as a continuous flashing AT on the PFD accompanied by an AUTOTHROTTLE aural, which can only be cancelled by pilot action. Once the label becomes valid, the autothrottle can be re-engaged and will continue to operate normally.

BMW Rolls-Royce are investigating the problem and will propose a long-term solution. The findings so far are inconclusive. What has been determined is that the fault can be masked by introducing fault integration to the ARINC checks within the EEC software, thus preventing the intermittent faults. The fault integrator will be introduced into the next software built standard which is planned for release in 3<sup>rd</sup> quarter of 2000.

In the meantime, Bombardier engineering and flight test have concluded that the AT disconnect anomaly is well annunciated by the cockpit indications and aural provide adequate indication to the pilot. It is presently covered by TR No. BD 700/7 in the FCOM to advise the flight crew of change to procedure which address abnormal autothrottle disconnects during flight. ●

# Nuisance Battery CAS Message

**Eff.** All GX aircraft

**By** François Pelletier – Customer Support Engineering

## ATA 24-23

The "AV BATT FAIL" and "APU BATT FAIL" caution messages posted on the CAS message list may be nuisance messages caused when the power connector on the battery is disconnected and reconnected during maintenance or storage. The battery charger will keep the battery fail signal latched until AC power is available. In this case, if the battery master switch is selected "ON", the battery charger via the

electrical power distribution system will post the "AV BATT FAIL" and/or "APU BATT FAIL" on EICAS.

To clear the "AV BATT FAIL" and/or "APU BATT FAIL" CAS message, the AC power (EXT AC, APU or VFG) must be applied to the battery charger.

We will keep you informed of the upcoming solution. ●

# Authorized Service Facility Feedback

**By** Danny O. Cain – Manager, Authorized Service Facilities

The Bombardier Aerospace global maintenance network for Learjet, Challenger, and Global Express Authorized Service Facilities (ASF) has been established to provide our owners and operators with the finest service and maintenance program in the business aircraft industry.

Each of the ASFs meets the requirements for training, Ground Support Equipment (GSE), technical publications, liability insurance, as well as other stringent criteria. An annual review of each ASF is carried out to determine that compliance of the contract standards is being adhered to.

To continue the tradition of excellence in Customer Support, we are asking you, the owners and operators, to provide feedback relating to experiences when dealing with the ASFs. Each comment will be reviewed and used to further improve the standard of the service provided by the facilities.

Please forward your comments to my attention by any of the following methods:

- Telephone 316-946-6885
- Fax 316-946-7375
- e-mail danny.cain@learjet.com ●

# Service Bulletin Status

**Eff.** All GX aircraft

**By** Pierre Parent – Service Bulletins

The Optional Service Bulletins that follow were released on November 30/99.

- Flight Management System (FMS) – Addition of a Third FMS (FMS 3) 700-34-004
- Global Positioning System (GPS) – Addition of a Second GPS (GPS 2) 700-34-005
- Cabin Windows – Additional Window Installation 700-56-001

The following Optional Service Bulletins are at the final development stages and are planned to be released on December 22/99:

- Satellite Communications (SATCOM) System – Installation 700-23-001
- Communications – Cabin Communication System (CCS) “Office in the Sky” Installation 700-23-003
- Airborne Data Link System (ADLS) – Installation 700-23-005
- Addition of the Emergency Locator Transmitter (ELT) System 700-25-003

We are at the final development stages pending release of final engineering for the following Optional Service Bulletins and anticipate these will be released in the 1<sup>st</sup> quarter of 2000:

- Lightning Sensor System (LSS) – Installation 700-34-003
- Moisture Control – Cabin Humidification System Installation 700-21-001

At the present time, the Humidification System is going through its final stage of flight testing. Once this activity is completed, the results and the reports of the tests will be forwarded to Transport Canada (TC) by the engineering group for approval. Then TC should complete the Statement of Compliance (SOC). This should be completed by late December of 1999.

An update of the Optional Service Bulletin and new developments will be revised in the next issue of this publication. In the meantime, do not hesitate to contact the Service Bulletin Group if you need additional information. ●

## Computer Integrated Maintenance Management System (CIMMS)

***How to manage your account more easily and decrease the workload!***

By **Cal Flannery – Field Service Representative and Vittorio Armenti – CIMMS Lead Maintenance Analyst**

The purpose of this article is to provide options that will enable operators to decrease their workload, while still maintaining accurate records through the Computer Integrated Maintenance Management System (CIMMS) program.

Since its inception, it has been the objective of CIMMS to assist Bombardier aircraft operators in maintaining accurate records, while attempting to keep the workload to a minimum. It has been the aim of CIMMS to provide clear avenues in which an operator may relay the necessary data pertaining to his

aircraft's status. Lately, however, those avenues have not been as clearly defined as Bombardier feels its operators need them to be.

It must be recognized by both the operator and Bombardier, that CIMMS is solely a contract service to assist the operator in maintaining up-to-date accurate reports of aircraft status, maintenance records and maintenance requirements. The system will only be as accurate as the information provided by the operator to CIMMS personnel. Operators must respect the fact that they should not rely on contracted maintenance services to provide maintenance records that impact the status or requirements of their aircraft. Even though facilities can be relied upon to update CIMMS for maintenance work performed and component changes, it is the responsibility of the operators to ensure this information is relayed to CIMMS.

Conversely, CIMMS is responsible for the accurate maintenance of these records, as well as providing the most up-to-date information. Changes that impact the maintenance and scheduling requirements of an aircraft, as outlined by the most recent amendments to the inspection program, also fall under CIMMS responsibility.

Operators are responsible for individual items not brought to the attention of Bombardier by a vendor. For example, items added at completion centers, that have pertinent service bulletins or airworthiness directives, but do not have a Bombardier cover letter (indicating Bombardier's awareness of the information), must be added to the aircraft status by the operator. Ultimately, control of these records, as well as aircraft scheduling is determined by the operator and indicated to CIMMS personnel.

The following items provide easier paths for operators to utilize the CIMMS service:

### ◆ Job Instruction Cards (JICs) on CD-ROM –

- The JICs provide maintenance procedures, sign off areas and a remarks section for added actions taken, so multiple action items can be addressed on a single card, thereby eliminating the need for multiple cards.
- They eliminate the need for researching the code, maintenance manual reference/outline and completion of a blank Component Removal Card.
- Another benefit would be if a tire was changed and a NDT performed, rather than complete an additional card referencing the NDT, note that the NDT was performed in the remark area and CIMMS will update the aircraft records. This alleviates the need for multiple cards.
- JIC CD-ROM offers a one stop option for obtaining multiple task cards. Alternate programs that provide

the same service as CIMMS may utilize several notebooks outlining task cards and maintenance manual procedures. The JIC CD-ROM offers all the same information at a single computer terminal.

- There are several ways to find pertinent items on the JIC CD-ROM. Searches can be performed by way of typing the component, accessing the interval schedule menu or by the table of contents. All will provide a menu listing items related to the search. CIMMS personnel can assist in familiarizing an operator with the use of the CD-ROM.

◆ **Blank Component Removal Cards (Pink Sheets) –**

These cards are provided to the operator for the purpose of making changes to the CIMMS record of maintenance actions taken or component changes. Utilizing the Blank Component Removal Card (Pink Sheet), it is not necessary to either research pertinent code for an item or complete multiple cards for CIMMS. An operator can simply note on the card that other actions have been accomplished alongside this task (i.e., NDT performed with tire change, etc.), as well as disregarding the need to research a code. Alternate programs providing the same service as CIMMS, rely heavily on code referencing, while CIMMS does not.

◆ **Logbook Entries –**

Simply coordinate with your CIMMS account representative to forward a copy of the pertinent aircraft logbook entry, for the purpose of updating your aircraft status. No codes or CIMMS cards are required, thereby reducing an operator's task to a simple logbook entry.

◆ **Inspection Summary Cards (CIMMS 20B) –**

These cards are provided to operators for the purpose of signing off multiple tasks on a common form during an inspection. The JIC CD-ROM provides the task procedures, while the CIMMS 20B provides the single document for multiple sign offs. Maintenance Manual references are also outlined on the CIMMS 20B, in the form of the Time Limits and Maintenance Checks (TLMC) (Chapter 5) codes, assigned to the task and outlined on the document. Should an operator decide to use the actual maintenance manual, rather than the JIC CD-ROM, the TLMC codes are outlined on the CIMMS 20B.

◆ **On-Line Service –** CIMMS has on-line capability with no additional charge to your CIMMS account (as do alternate records services). An operator has the opportunity to access, project, print and amend their aircraft status by way of CIMMS on-line service. The service requires no additional software other than a standard Internet access provider.

◆ **Segmented Status Sheets –** CIMMS outlines an operator's status in individualized categories, such as airframe, APU, engine, etc. This provides the operator with the capability to isolate required actions for maintenance planning/performance without having to research and decipher the 'bulk status' for individual aircraft zones, etc.

Finally, the following are suggestions that may assist an operator in utilizing the CIMMS service and ease their workload:

◆ Become familiar with the JIC CD-ROM. The search features and information available at the touch of a key may surprise you. Even operators joining CIMMS from another system will appreciate how easy it is to access information from their computer terminals.

◆ Speak to your CIMMS analyst regarding on-line service and options available to help alleviate paperwork overload.

After investigating your CIMMS service options, you may be pleasantly surprised to find that you have less work than you used to have! ●

# Spares Operations

By **John DiLella – Manager, Spare Operations**

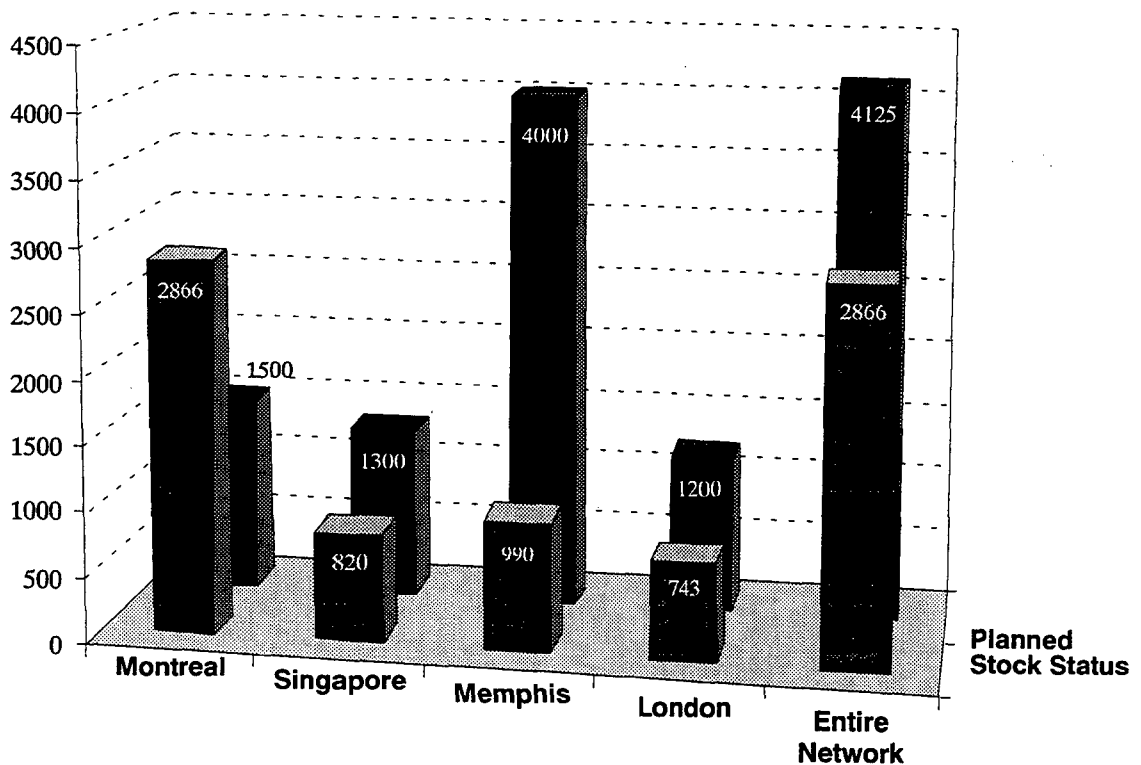
With the initial deliveries of the Global Express, we thought this would be a good opportunity to provide you with an update of our Spares Operation in support of the aircraft.

Years before the first aircraft entered service, the spares engineering group had begun the process of obtaining the provisioning data, such as reliability data, stocking recommendation, and potential spares from our suppliers. This information was fed into our computer database for analysis and interpretation and the result was an initial spares recommendation document. It was then turned over to the inventory management group to place the material recommendation on order. Naturally, as we gain knowledge

from the aircraft in service by data gathering and monitoring performance trends, adjustments and refinements will be made where necessary to keep pace with your operational requirements.

Based on our logistics expertise, our Spares Operation organization has been working to deploy the material from the Montréal factory warehouse out to the Distribution Centers located in Memphis U.S., London UK, and Singapore. This is to ensure that your material requirements are met when and where needed. Bombardier stocks a comprehensive range of material including not only Bombardier manufactured parts but also vendor components.

The following chart depicts the status of the planned inventory, per part number, against the target levels for each Distribution Center and the entire network.



Of course, we have not been spared from the usual AOG orders. All AOG orders are handled with the utmost urgency with continuous status update to ensure the material arrives at the final destination as promised.

Bombardier Aerospace Business Aircraft has decided not to amalgamate the prices for the Global Express parts into the existing Spare Parts Price catalogs. Because of the low commonality in the Global Express part numbers with other

programs, a separate *Spare Parts Price Catalog* will be produced for the Global Express.

The price catalog will contain the same various options that some of you have been accustomed to in the Challenger program. Parts prices will be listed for outright purchase, component exchange, component rentals and further, a section for the outright purchase and rental of Ground Support Equipment (GSE).

Our pricing philosophy is to be market competitive in terms of the total package of products and service offered. Through continuous improvement initiatives, pricing analysts review the material costs, and recommend quantity buys to lower the cost of operation. Price differences and anomalies are investigated for a resolution to your satisfaction.

Bombardier Aerospace Business Aircraft is committed to support your material requirements in making this a very successful program. You can rely on our continued after-sales service and support by a team of highly dedicated logistics professionals. ●

## *January* PUBS

*The following Revisions are scheduled for distribution in January 2000*

- There are no Revisions scheduled for the month of January 2000

## ATA 24

**BD-700** The APU failed to start the first time due to low voltage output to the starter from the batteries. This was confirmed with CAIMS. On the second attempt, DC external cart was used and the APU still failed to start. Troubleshooting led to the starter fuse in the ASCA being blown. It was replaced with the spare fuse and the battery voltages were also topped up with the chargers. The APU started normally.

## ATA 28

**BD-700** Nine hours into flight the aircraft had a "LOW FUEL TEMP" CAS MSG. Flying above equator @ North 32° or when greater than 45,000 feet, airspeed .83M, fuel temp

-36°C OAT -70°C, type fuel jet A proceeded down to FL 410, increased speed to .84M, fuel temp to -35°C and toggled between amber and green. Flight crew diverted to an alternate destination.

## ATA 28

**BD-700** Fuel was detected seeping from the witness drain of the left wing electrical fuel pumps wiring conduit. The witness drain is located on the A/C underside between the MLG doors along with other witness drains. The line was pressure checked and failed. After gaining access to the fuel tank, MS fittings for the left pump conduits were found loose in the tank. ●

## Service Bulletins Released

### GLOBAL EXPRESS SERVICE BULLETINS RELEASED

SB NUMBER / COMPLIANCE	TITLE	EFFECTIVITY	STATUS	DIST. DATE
700-23-002 Optional	Modification - Third Very High Frequency (VHF 3) Communication System - Installation	9005 - 9999	Basic	Oct 29/99
700-23-004 Optional	Modification - Flight Compartment Printer - Installation	9005 - 9999	Basic	Oct 29/99
700-27-019 Recommended	Modification - Pitch Trim System - Incorporation of Motors with Improved Brake Material on the Horizontal Stabilizer Trim-Actuator (HSTA)	9005 - 9031	Basic	Oct 29/99
700-28-002 Optional	Modification - Refuel/Defuel System - Addition of Refuel/Defuel Control Panel in Flight Compartment	9005 - 9999	Basic	Oct 29/99
700-28-027 Recommended	Special Check/Rework - Fuel Feed and Transfer Systems - Possible Damage of Fuel Pump Wiring in Conduits	9005 - 9023 9026 - 9032	Basic	Oct 29/99
700-30-015 Recommended	Modification - Anti-icing System - Duct Supports at FS708.00 to give added Clearance to the Belly Fairing	9005 - 9009	Basic	Oct 29/99
700-45-001 Optional	Modification - Central Aircraft-Information Maintenance-System (CAIMS) - Installation of the CAIMS Report-to-Printer Switch	9005 - 9999	Basic	Oct 29/99
700-11-008 Recommended	Modification - Interior Placards - Replacement and Repositioning of the Hydraulic System Accumulator Charging Decals	9005 - 9033	Basic	Nov 30/99
700-11-009 Recommended	Special Check/Modification of Specified AFT Equipment-Compartment Decals	9005 - 9029	Basic	Nov 30/99
A700-26-006 Recommended	Special Check/Modification - Fire Extinguishing System - Harness Connection to the Firex Bottle Cartridges	9005 - 9054	Rev. 03	Nov 30/99
A700-34-001 Recommended	Special Check/Modification - On-Board Data-Loader System - Verification and/or Installation of Latest Aircraft Database Version (GEX003V2 or Later)	9005 - 9032	Basic	Nov 30/99
700-34-004 Optional	Modification - Flight Management System (FMS) - Addition of a Third FMS (FMS 3)	9002 - 9999	Basic	Nov 30/99

## GLOBAL EXPRESS SERVICE BULLETINS RELEASED

700-34-005 <b>Optional</b>	Modification – Global Positioning System (GPS) – Addition of a Second GPS	9002 – 9999	Basic	Nov 30/99
700-49-006 <b>Recommended</b>	Modification – Air-Inlet Door System – Replacement of Right Hinge Arm for Correct Rigging	9005 – 9022 9024 – 9038	Rev. 02	Nov 30/99
700-57-021 <b>Recommended</b>	Rework – Leading Edge Slats – Aerodynamic Clean-up	9006 – 9006	Rev. 02	Nov 30/99

## GLOBAL EXPRESS VENDOR SERVICE BULLETINS RELEASED

SB NUMBER / COMPLIANCE	TITLE	EFFECTIVITY	STATUS	DIST. DATE
Cover Letter 700L-0553	Vendor Service Bulletins (Issued for Information only)	Refer to Cover Letter	N/A	Oct 29/99

## Alert and Advisory Wires – Issued to Date

### ADVISORY WIRES

DIST. DATE	TITLE	NUMBER	ADVISORY	ALERT
June 15/99	EMS CDU Electrical Power Isolation	BD700T-0001	✓	
August 5/99	Engine Core Fairing Fasteners: Increased Inspection Interval	GX700T-0003	✓	
September 16/99	EICAS Message “L-R FACEC Fault”	BD700T-0004	✓	
September 23/99	Central Maintenance System – CAIMS Member System Functionality Status	BD700T-0002	✓	

# infoservice

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Information published in  
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contained in Technical Manuals  
takes precedence at all times.

# Publications Status

The following is a list of the most recent revision for each manual. If you require information concerning Temporary Revisions, please contact Gisèle Laliberté in Technical Publications at (514) 855-5001 Ext: 56268.

Global Express Publications			
Manual	Rev. No	Rev. Date	TR Status
BD-700-AIFM Airport Facilities	Basic	Mar 31/1998	
BD-700-AIPC Aircraft Illustrated Parts Catalog	4	Nov 03/1999	
BD-700-AMM Part 2 Aircraft Maintenance	4	Nov 03/1999	05-1; 12-11; 21-1; 22-1; 22-2; 23-1; 24-8; 24-9; 24-10; 26-13; 26-14; 26-15; 27-4; 27-5; 27-6; 27-7; 27-8; 27-9; 27-10; 32-8; 32-9; 34-1; 45-2; 52-8; 52-9; 52-10; 52-11; 52-12; 52-13; 52-14; 71-5; 78-1; 79-1
BD-700-ARM Aircraft Recovery	2	Apr 30/1999	
BD-700-FIM Fault Isolation	4	Nov 03/1999	
BD-700-FRM Fault Reporting	4	Nov 03/1999	
BD-700-ITEM Illustrated Tool & Equipment	1	Aug 02/1999	
BD-700-MFM Maintenance Facilities	1	Aug 02/1999	
BD-700-MPD Maintenance Planning Document	2	Nov 03/1999	
BD-700-SDS AMM Part 1 – System Description	4	Nov 03/1999	
BD-700-SRM Structural Repair	1	Apr 30/1999	
BD-700-SSM System Schematic	4	Nov 03/1999	
BD-700-CCH Completion Centre Handbook	4	Nov 03/1999	
BD-700-TLMC Time Limits / Maintenance Checks	2	Nov 03/1999	5-2-1; 5-2-2; 5-2-3; 5-2-4
BD-700-WBM Weight & Balance	3	Aug 02/1999	
BD-700-WDM Wiring Diagrams	4	Nov 03/1999	
BD-700-WLM Wiring List Manual	4	Nov 03/1999	
BD-700-AFM Airplane Flight	9	Oct 31/1999	
BD-700-FCOM Flight Crew Operating	8	Sep 01/1999	<b>700/6; 700/7; 700/8-1</b>
BD-700-QRH Quick Reference Handbook	8	Sep 01/1999	<b>700/3</b>
BD-700 NDT Nondestructive Testing Manual	1	Apr 30/1999	
LEGEND: <b>Bold</b> = new Unbold = in effect <del>Strikethrough</del> = removed/incorporated			

The following is a list of the most recent issue of manuals available on CD-ROM. If you require further information, please contact Felice Mariotti in Technical Publications at (514) 855-7169.

# Global Express CD-ROM

Disk Number	Issue/Version	Date of Issue	Contents
700/001	Issue 5, Version 1	Nov 1999	AIRCRAFT ILLUSTRATED PARTS CATALOG, <b>Rev. 4</b> AIRCRAFT MAINTENANCE MANUAL (Part II), <b>Rev. 4</b> FAULT ISOLATION/FAULT REPORTING MANUAL, <b>Rev. 4</b> MAINTENANCE PLANNING DOCUMENT, <b>Rev. 2</b> TIME LIMITS/MAINTENANCE CHECKS, <b>Rev. 2</b> WIRING LIST MANUAL, <b>Rev. 4</b> WIRING MANUAL (DIAGRAMS), <b>Rev. 4</b> WIRING MANUAL (STANDARD PRACTICES), <b>Rev. 3</b>
700/002	Issue 5, Version 1	Nov 1999	AIRCRAFT RECOVERY MANUAL, <b>Rev. 2</b> AIRPORT FACILITIES MANUAL, Basic COMPONENT MAINTENANCE MANUAL LISTING, <b>Rev. 1</b> ILLUSTRATED TOOLS AND EQUIPMENT MANUAL, <b>Rev. 1</b> NONDESTRUCTIVE TESTING MANUAL, <b>Rev. 1</b> <b>STRUCTURAL REPAIR MANUAL, Rev. 1</b> SYSTEM DESCRIPTION SECTION (AMM PART I), <b>Rev. 4</b> SYSTEM SCHEMATIC MANUAL, <b>Rev. 4</b> WEIGHT AND BALANCE MANUAL, <b>Rev. 3</b>
700/JIC	Issue 2, Version 1	Nov 1999	JOB INSTRUCTION CARDS, <b>Rev. 4</b>
			LEGEND: <b>Bold</b> = new Unbold = in effect <del>Strikethrough</del> = removed/incorporated



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Bombardier Aerospace, Business Aircraft  
Customer Support



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*“To provide the finest support  
in the industry by understanding  
and fulfilling customer needs”*

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