‘Maintenance Software and a CAMO Operation’

Continuous Airworthiness Management Summit, (C.A.M.S.)

London

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www.commsoft.aero
Commsoft’s Customer Base

- 51 direct customer users
- 28 indirect customers (via CAMO)

- Total 79 customers supported
- 32 countries, 6 continents

- Approx. 600 aircraft managed
- Approx. 45 aircraft types covered

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What is CAMO / FTM?

- Continuing airworthiness maintenance organisation or fleet technical management combines technical records management, maintenance planning and technical services.
- Essential part of an airline set-up known as Engineering Department.
- Relieves airlines of managing data and maintenance activities.
- FTM services are normally provided by MROs as part of a package of maintenance and engineering services.
- An area of significant importance due to the direct link to safety and reliability of an airline’s fleet.
- Can be sub-contracted by an airline with the FTM provider being approved by the local aviation authority.
- Quality department of the airline performs oversight functions on FTM provider.
- Lessors increasingly interested in compliance from FTM & CAMO.
CAMO MRO IT System Requirements?

- User-friendly, intuitive system
  - Facilitates sub-contractor use and access to customer
  - Recognises staff turnover

- Reasonable ‘organic’ pricing in line CAMO/FTM offering
  - per aircraft tail
  - per user
  - per module

- Easy remote access
  - Windows RDP gives ‘any where’ access

- System that provides features and functions that assists FTM services to be timely, accurate, flexible and comprehensive to the customer

- Has the necessary modules that reduces human resource requirements
CAMO MRO IT System Requirements?

- Provides instant reports relating to aircraft airworthiness and aircraft performance
  - Lease redelivery and returns are key
  - Lessor / LLP status reports
  - Reliability Reporting
  - Comprehensive security controls, audit and transaction logs

- Customized to suit customer’s needs
  - Customer templates, formats easily accommodated
  - Adapts to customers’ workflows and processes
  - Responds to AMP revisions, AD/SB/EO changes

- System that provides constant upgrades at reasonable pricing
  - System must keep pace with diverse third party customer base’s needs
  - Must keep pace with new mobile technologies

- Supplier relationship and data migration support are key
  - Timely support is critical to dynamic CAMO / FTM environment
• Lack of experienced human resources with the dramatic growth in number of airlines over recent years
• Significantly higher number of aircraft with increased utilisations meaning more maintenance activities at shorter frequencies
• Increased requirements for experienced and sufficient personnel to carry out work needed to maintain a high level of fleet safety
• Some airlines unprepared to meet re-delivery requirements to aircraft lessors leading to delayed re-deliveries and higher costs
• Timely planning of maintenance activities and accurate work scope development can reduce overall maintenance costs to airlines
• Airlines frequently changing lessors / lessors moving aircraft from fleets
Experiencing large growth in aviation requiring more trained human resources
Mostly carried out in-house or sub-contracted to MROs as part of packaged services
Needs more technical services specialists in aircraft structures and powerplants
Being served by an experienced and qualified team with strong focus on airworthiness
Allows airlines to focus on core activities
Review of maintenance costs through proper, timely and accurate analysis of maintenance and engineering activities
Proper records management in alignment with aircraft lease redelivery conditions
Critical support to ‘start up’ operations
MRO IT system business model allows customers to ‘start small’ and then grow with the system:

- Customers pay monthly lease fees.
- Fees can include software and hardware leasing.
- New modules can be added at anytime to include additional functionality.
- Fees are scaled in accordance with the number of concurrent users of the system.
- The software is continuously developed with no ‘new versions’
- Timely data migration / validation support as a service
- Workcard, AMP revision support service support
CAMO Implementation

- FINANCIALS
- DIGITAL DOCUMENTS
- INTEGRATED MAINTENANCE PLANNING
- DEFECT SYSTEMS
- PLANNING
- DATA CAPTURE
- TECHNICAL RECORDS
- RELIABILITY SYSTEM
- INVENTORY

Implementation, data migration & validation is key
CAMO Implementation Issues

• MRO IT Implementation Requires Careful Planning
  • Access to data and records
  • Ability to export data electronically from current MRO IT system
  • Availability of experienced customer staff to verify processes, changes, data and records
  • MRO IT system changes usually reveals past errors and issues
  • Management must be available to assess issues / accept fixes

• Customer Implementation Challenges
  • Customer templates, formats must be accommodated
  • Customers’ workflows and processes may have to change
  • Data quality frequently an issue (formats, missing data, incorrect data)
  • AD/SB status frequently an issue

• Regulatory Authorities Oversight
  • Australian CASA has just issued an AWB on correct MRO IT implementation, use and data verification
  • Australian CASA grounded a helicopter operation for not re-verifying data during MRO IT system change
  • French DGAC cited MRO IT system misuse as contributory factor to an accident in Oceania
Closed Loop System

MASTER INFORMATION

PLANNING

LINE, HANGAR OR WORKSHOP

W.I.P. / DEFECTS

RE-SCHEDULE

UPDATE PLAN

MASTER INFORMATION

FINANCIAL DATA

UPDATE SCHEDULE

DEMANDS

PROGRAM DATA

PICK

STOCK

PURCHASE

W.I.P. / DEFECTS

RE-SCHEDULE

FULL END-TO END PROCESS CONTROL
MULTI-LEVEL TRACKING AND CONTROL
MRO IT Functionality

- Reliability
- Engineering
- Line Maintenance
- Records
- Planning
- Inventory
- Documents
- Data Collection
- Financial
- IMP Scheduling

**RELIABILITY, TECH LOG & DEFECTS**

**AD/SB/EO EVALUATION / AMP REVISION**

**LINE MAINTENANCE CONTROL**

**TECHNICAL RECORDS & FORECASTING**

**PLANNING & WORKPACK PRODUCTION**

**INVENTORY CONTROL, PURCHASING & DEMANDS**

**DIGITAL DOCUMENTATION SYSTEM**

**SHOP FLOOR DATA COLLECTION AND HR**

**FINANCIAL CONTROL & ANALYSIS / INVOICING**

**INTEGRATED MAINTENANCE PLANNING**

**IDEALLY IMPLEMENTED AS MODULES IN AN INTEGRATED SYSTEM**
### Aircraft Utilisation and Status Report

**Report Period:** 01-May-2009 To 31-May-2009

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<tr>
<td>MARTIN BRADSWORTH</td>
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### Typical LLP Status Report

**LLP Status Report for Engine Assembly**

- **Aircraft Installed on:** DEMC-1
- **Install Date:** 03-Nov-2008
- **Limiting Parameters**
  - **Part Number:** 335-008-414-0
  - **Serial Number:** JN10370
  - **First Due Date:** 08-Mar-2010

**Since New**
- **B1:** 22741
- **B2:** 6813
- **C1:** 1

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Reliability Reports

MIREPS by ATA Chapter & Totals per Month

- Huge savings in man-hours used to produce reports.
- Reports use up to date data and not data which is weeks old.
- A single tool is used to produce all the reliability reporting across the airline.
Reliability Reporting

- Automatically generates real-time reliability reports.
- Reports are available at the click of a button.
- Reports can be tailored to include or exclude data as required.

Example: PIREPS by ATA Chapter per Month
• AD/SB can be automatically downloaded and then uploaded into OASES.
• Airlines generate their own customised evaluation process.
• Evaluation workflow is automatically triggered and sends emails to nominated individuals / Departments.
• System can be set to chase evaluators after a fixed number of days.
• Documentation effects can also be tracked and the relevant departments notified.
• Add AD / SB tasks to the maintenance database and can fully integrate them into the planning cycle at any desired time.
• AD /SB Statements show status of fleet
### AD Statement

**Registration** | **Model** | **MSN** | **MSN** | **CSN**
--- | --- | --- | --- | ---
YR-NIR | B737-300 | 26965 | 28506-24 | 19023

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Users demanding filters & customisation
• AMP Revision Evaluation and Input into the MRO IT database from OEM data.
• MRO IT should hold current AMP in the live system as well as the new MPD revision.
• Once the new AMP has been approved, it should be made live in MRO IT (by one click).
• Maintenance Schedule Management/Control.
• Package Analysis.
• AMP Comparison.
• AMP Printing.
• AMP Revision created from live database.
The MRO IT system manages the capture and analysis of technical logs and defects. It accepts electronic feeds from e-enabled aircraft, EFB, ETL, and operations systems (including ACARS). The system manages and controls defects and their associated component changes. Customisable repetitive defect alerting is also offered.

Techlog/Defect Mgt.
• Maintains and manages the current aircraft build and configuration status

• Tracks the expired life detail of all known components

• Tracks the completion status of all aircraft and component maintenance activities

• Together with the anticipated aircraft utilisation these details are used to forecast the likely due dates for all life maintenance activities.

• Full work scope / work pack generation
  – All man-hours, material and workcards/documentation and completions ideally controlled from one screen

• Models APU/Bump ratings, others
Fleets, aircraft, zones and technician classifications can be defined.

Full maintenance programme can be established in MRO IT system, comprising work cards and card packages.

Work cards can be designed to a customer specification including barcodes, logos, pictures and coloured text.

Manufacturer task card data can be automatically added to work-packs, printed or e-mailed to the hangar.
• System must have commercial and technical flexibility
  • Business model adapted to FTM / CAMO model
  • Adaptable to third party customers’ workflows
  • Data migration/validation responsiveness to aid fleet movement, starts up, transient staff support

• System must demonstrate compliance with comprehensive reports
  • Reliability, repetitive defect reporting
  • Lessor asset status
  • AD/SB status & AMP revisions

• Must Meet Diverse ‘Customers’ Demands:
  • CAMO / FTM provider’s third party customers
  • Aircraft lessors
  • Airworthiness authorities
Sample OASES Customers