F-15 Service Usage Data Collection Overview and Lessons Learned

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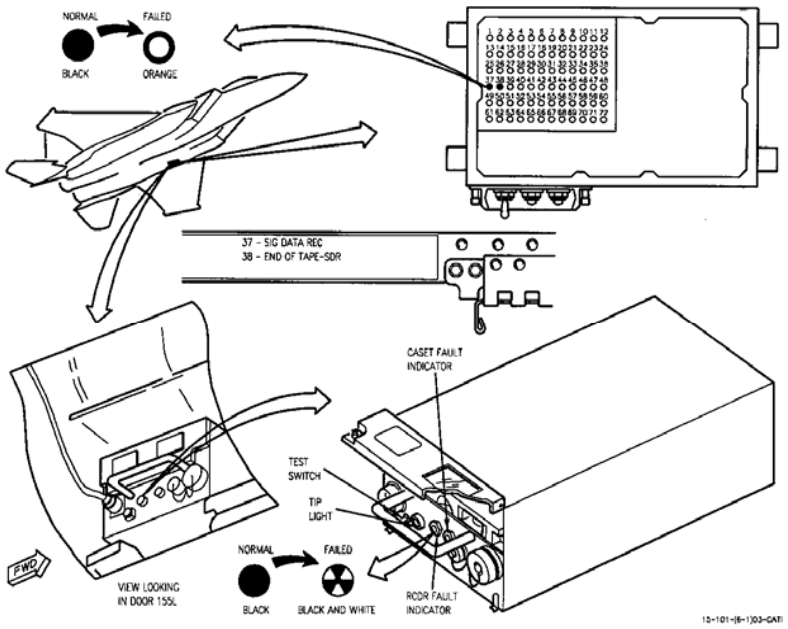
Agenda
(F-15 Usage Data Sources)

- On-board Data Recorder
- Counting Accelerometer (C/A)
- Component Swap
- Component Repair
- Inspection Feedback
- Conclusions/Summary

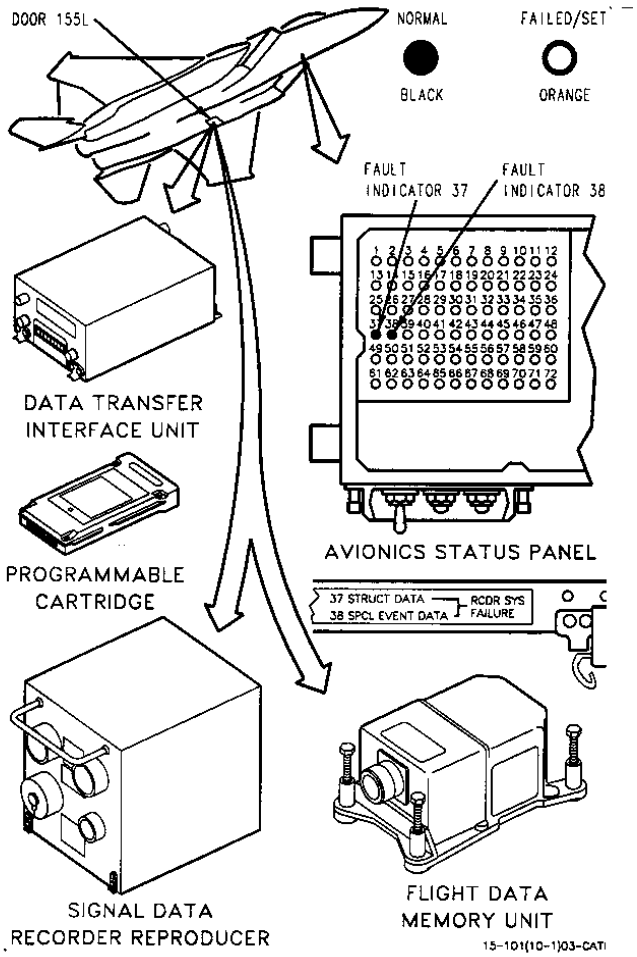
On-board Data Recorder

- SDR: 1/5 F-15 A/B/C/D
  - Installation
    - Otherwise empty bay with structural door
  - Recording Criteria
    - Rate-based, relatively few parameters
  - Data Handling/Transmittal
    - Specially designed, Mil-Spec tape cassettes shipped to central facility with special equipment for reading



On-board Data Recorder

- SFDR: 1/5 F-15E
  - Installation
    - Same bay as SDRS
    - Solid state cartridge
    - Includes Crash-survivable memory
  - Recording Criteria
    - Event-based
    - 15 hr download interval
  - Data Handling/Transmittal
    - Transcription performed at O-level, data can be emailed.

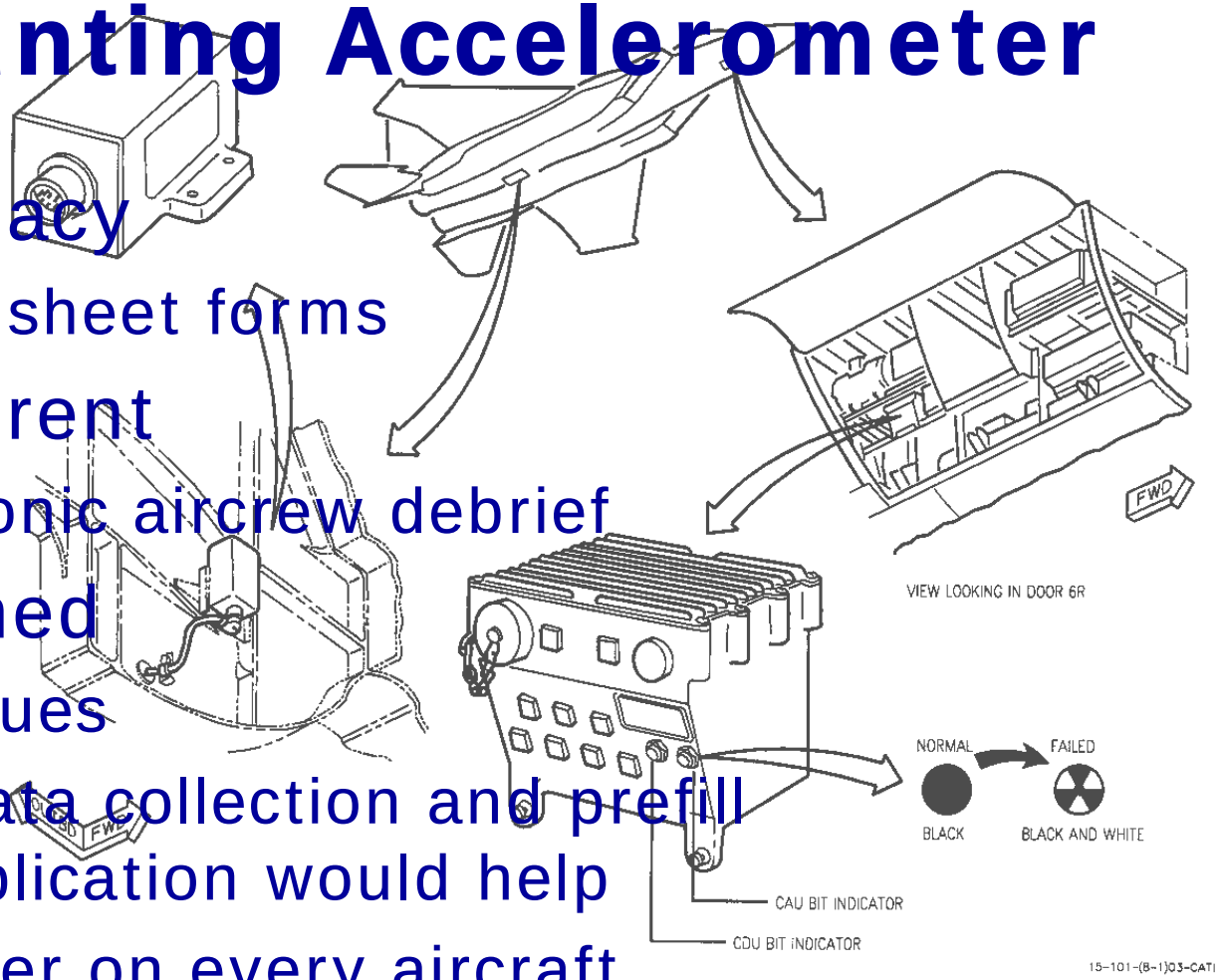


On-board Data Recorder

- Lessons Learned
  - Installation – Drive out complexity and streamline flight line operations. ASIP is the least of your maintainer's worries.
  - Recording Criteria – Keep it simple. Rate-based, generic criteria minimize the chance of having to perform fleet software updates.
  - Data Handling/Transmittal – Again, must streamline this process. Electronic is most efficient but must address bandwidth and security concerns. Hardcopy (cdrom) is not dead. Who needs access?
  - Sustainment – Long-lived systems must be maintained. How many times will computers and software need to be updated/replaced over 30 years? A plan up front will allow for budgeting.

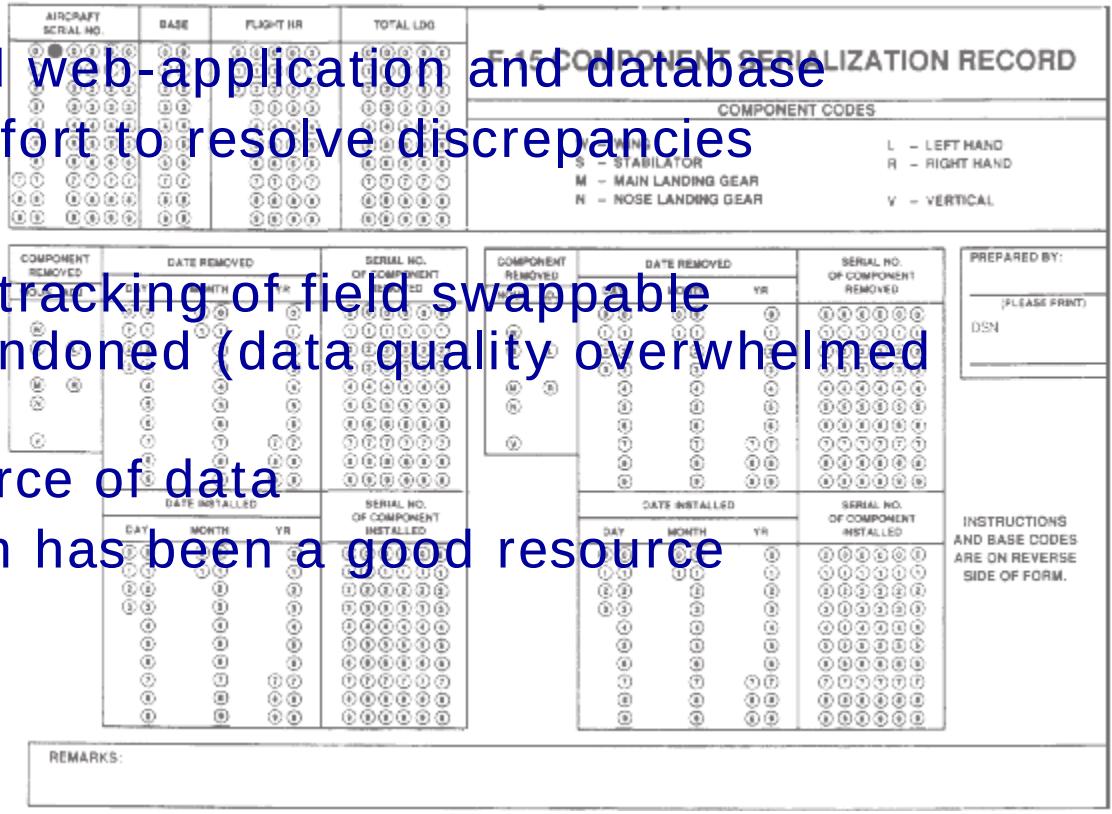
C/A – Counting Accelerometer

- AFTO 239 Legacy
  - Paper bubble sheet forms
- AFTO 239 Current
  - Part of electronic aircrew debrief
- Lessons Learned
  - Both have issues
  - Automated data collection and prefill of debrief application would help
  - A data recorder on every aircraft would eliminate C/A data issues.



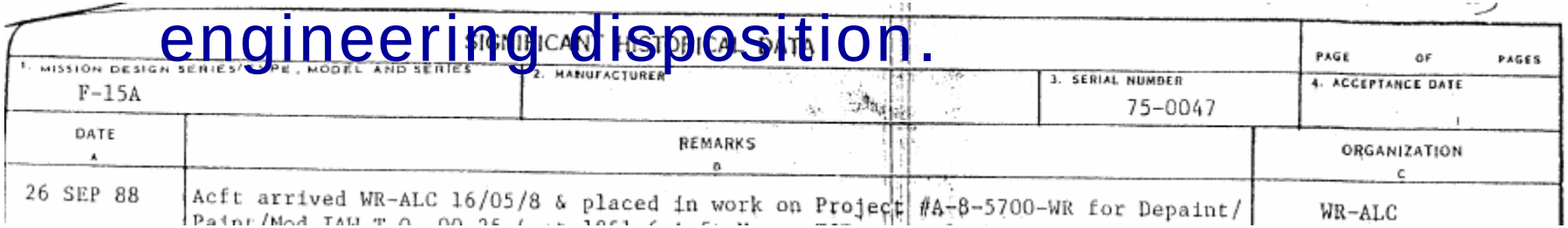
Component Swap

- Legacy (AFTO 238)
  - Paper bubble sheet forms
- Current (Eagle Modification Action Plan-EMAP, AFTO 95)
  - Contractor developed web-application and database
  - Much investigative effort to resolve discrepancies
- Lessons Learned
  - Despite great effort, tracking of field swappable components was abandoned (data quality overwhelmed ability to investigate)
  - Depot is primary source of data
  - EMAP web application has been a good resource



Component Repair

- AFTO 95, AFTO 3
  - Mainly documents depot activity (major structure replacement).
  - Looking for “Zero Damaging Repairs”
- Lessons Learned
  - Find as many related data sources as possible.
  - Not all repairs of interest require engineering disposition.



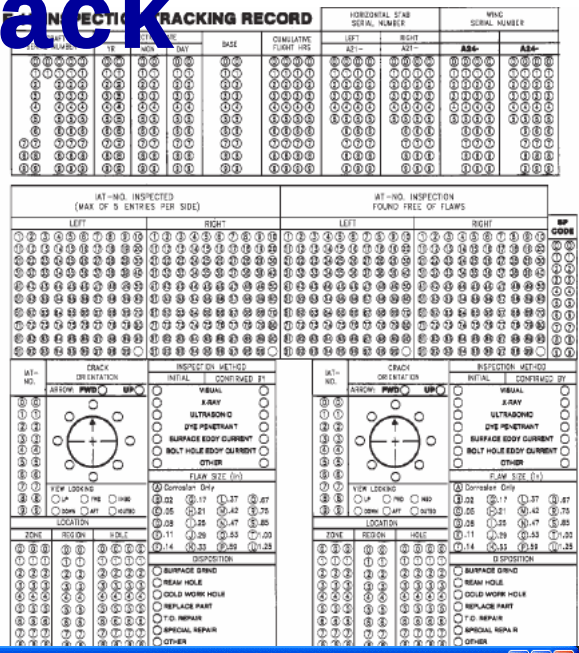
SIGNIFICANT HISTORICAL DATA

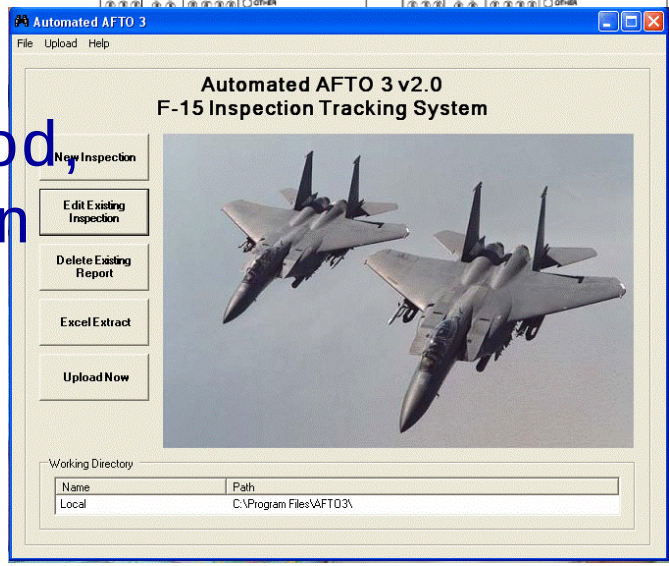
1. MISSION DESIGN SERIES/TYPE, MODEL AND SERIES	2. MANUFACTURER	3. SERIAL NUMBER	4. ACCEPTANCE DATE	PAGE OF PAGES
F-15A		75-0047		

DATE (A)	REMARKS (B)	ORGANIZATION (C)
26 SEP 88	Acft arrived WR-ALC 16/05/8 & placed in work on Project #A-8-5700-WR for Depaint/	WR-ALC

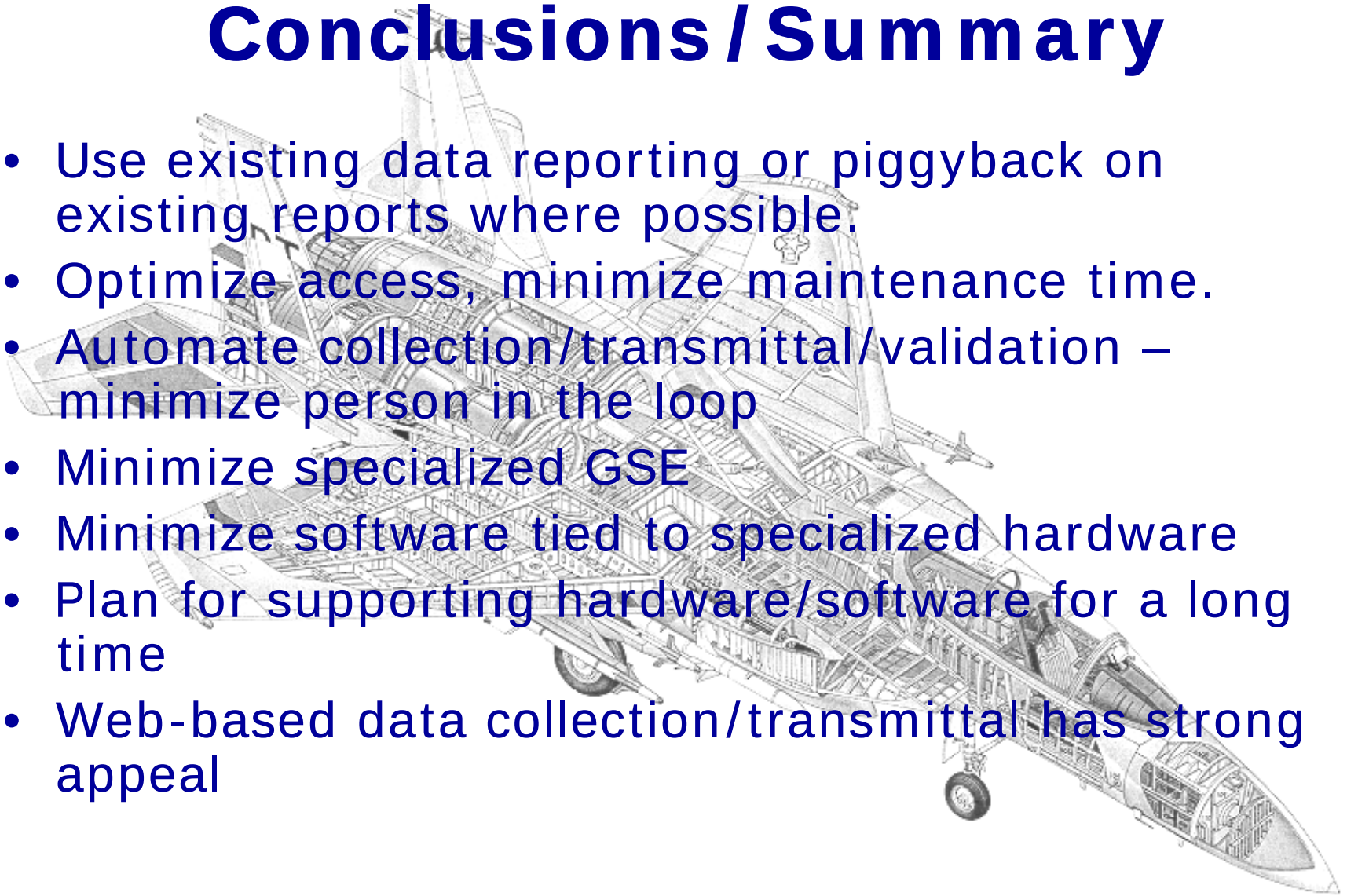
Inspection Feedback

- AFTO 3 Legacy
  - Paper bubblesheet form
- AFTO 3 Current
  - PC-based software and automated data transmittal
- Lessons Learned
  - Very difficult to implement and maintain no matter what method, but is a central ASIP need. Plan on spending time maintaining feedback.





Conclusions / Summary



- Use existing data reporting or piggyback on existing reports where possible.
- Optimize access, minimize maintenance time.
- Automate collection/transmittal/validation – minimize person in the loop
- Minimize specialized GSE
- Minimize software tied to specialized hardware
- Plan for supporting hardware/software for a long time
- Web-based data collection/transmittal has strong appeal