



# *Great Ideas Competition*



***(VERSATILE DEPOT  
AUTOMATIC TEST  
STATION)***

Presented By:  
Dempsey Ventress  
402d EMXG/MXVOPE  
13 Nov 07



# Robins Depot

(Home of the 402d Electronics Maintenance Group)



Complex covers 16+ acres, 700,000 SF of environmentally-controlled, secure work area



# Robins Depot (Cont'd)



## Technologies span 1950's through 2007 under one roof

- Antennas and Radomes
- Cockpit Instruments
- Gyros
- Electronic Warfare
- HF,UHF, VHF Radios
- LANTIRN
- Computers & Peripherals
- Radar: Navigational, Terrain Following, Search, Attack, Fire Control, Bomb/Nav, and Doppler
- Infrared Scanners
- Precision Measurement Equipment
- LASER Designators
- Optical Systems
- Throttle Quadrants
- Video / Data Recorders
- Global Positioning System
- Instrument Landing Systems
- TACAN
- Transponders
- Heads-Up Display
- JTIDS
- LORAN Receivers
- Radio Beacons
- RADAR Altimeters
- Lead Computing Sights
- Test Equipment
- Surveillance



# Robins Depot Automatic Test Equipment (ATE)



- **268 automatic testers in Robins depot**
- **Average age is 26+ years**
- **150+ different configurations**
- **100 one-of-a-kind testers**
- **Difficult and expensive to maintain**
- **Repair parts unavailable**
- **Legacy tester knowledge base dwindling**
- **Test programs not transportable**



# Legacy Testers



**Marathon 8200**  
**ALQ-172**  
**Vintage 1972**



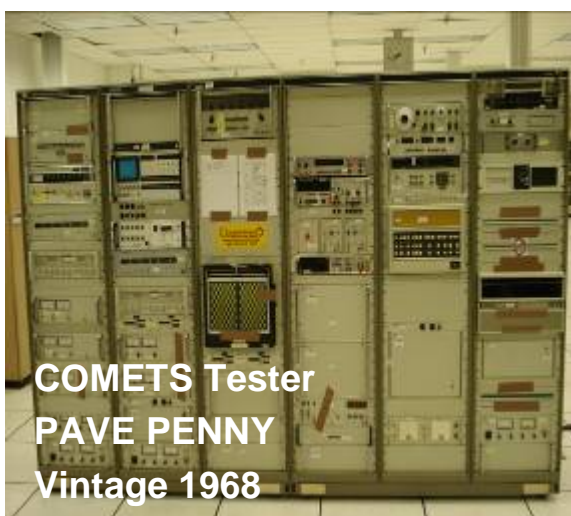
**W-J 1580 RF Tester**  
**ALQ-172**  
**Vintage 1988**



**DTS-70**  
**F-15 Digital CCAs**  
**Vintage 1977**



**W-J 1560A RF Tester**  
**APR-46**  
**Vintage 1979**



**COMETS Tester**  
**PAVE PENNY**  
**Vintage 1968**



**Teradyne L-Series**  
**F-15 Digital CCAs**  
**Vintage 1977**



# Common-Core Tester Idea

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- **Created and designed a common-core tester concept as the solution for Robins depot**
  - **Idea implements a Digital-Analog (DA) tester with a common-core set of state-of-the-art instrumentation**
  - **DA tester provides capability to test 80% of current depot workload**
  - **Addition of RF auxiliary unit increases testing capability to 95% of current depot workload**
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# Common-Core Tester Idea (Cont'd)



- Idea provides capability to move workload among common-core testers
- Idea received AFMC funding beginning in FY06
- **Organic Build**
  - Received command approval in July, 2006 to proceed with organic build
  - Creates in-house experts
  - Air Force creates and controls all data

➤ **V DATS**  **IS BORN!**



➤ The hardware and software design and construction of **VDATS** was accomplished by a technical team of hardware and software engineers and technicians from the 402d Electronics and Software Maintenance Groups (EMXG & SMXG) at Robins AFB

➤ Construction began in January 2007







- The 402d SMXG at Robins created the **VDATS** self-test and calibration software as well as the instrument wrappers and drivers
- The building of 8 VDATS DAs and 2 RF Auxiliary units was completed by August 2007
- Plan is to build total of 40 DAs and 18 RF auxiliary units through FY10



# VDATS DA-1 (Digital- Analog Tester)





## VDATS DA-2 with RF Auxiliary Unit





## Replacing Legacy ATE: Scheduled for Replacement thru FY10

- COMETS
- DTS-70
- AN/ALM-258
- MMTS
- WJ1560
- IFTE
- AN/ALM-261-A
- AN/ALM-261-B
- AN/ALM-258
- JSTARS DATSA
- DATSA (partial)
- IE390
- Genrad 1799
- Genrad 2225
- HP VXi Tester
- ALM205A
- ALM205B
- CARA
- AN/ALM-195
- LANTIRN Analog
- LANTIRN RFTS
- Schlumberger 790
- A-10 IATS
- Northrop AIS
- Teradyne L Series





# Benefits of VDATS



- Workload transportable between testers
- No production line stoppages
  - Reduces backorders and customer wait time
  - Helps reduce MICAPS
- Training reduced to one tester type
- Retiring graybeard technician no longer irreplaceable
- Reduces number of tester Technical Order (TO) types



# Benefits of **VDATS** (Cont'd)



- Can test 95% of Robins depot workload
- Reduced footprint saves floor space
- VDATS minimizes spare parts inventory
- Simplifies instrument upgrades
- Throughput twice that of legacy tester
- All Unit Under Test (UUT) software translated into or created in the commercial ANSI "C" language
- New-hire software engineers know "C"



# Current State with Legacy ATE



**Legacy tester goes down**

**Aircraft can become grounded**



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# Future State

With **VDATS**

VDATS Down    Move to another VDATS

**Mission Capable**



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# V-DATS in Action



## August 2007



## Test Program Success



# Management



- **All software non-proprietary**
- **Air Force controls configuration of all hardware and software**
  - **Managed by 542d Combat Support Wing Automatic Test Systems Program Office at Robins**
- **Full procurement data package will be complete and available January, 2008**



# has Grown



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- **Workload Consolidation at Robins**
    - **Building 40 VDATS to replace 80 existing testers**
    - **Eliminating 26 different testers by FY12**
  - **VDATS as a Family of Testers**
    - **Named as an Air Force Family of Testers (August, 2007)**
    - **Approved as a DOD Family of Testers (September, 2007)**
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# Summary



- **VDATS greatly reduces the number of unique testers**
- **Addresses obsolescence and issues of Diminishing Manufacturing Sources (DMS)**
- **Flexibility to handle future workloads**
- **Provides uninterrupted supply of repaired assets to the WARFIGHTER**



**A GREAT IDEA WHOSE TIME HAS COME !**



Questions?