AT-930DG
Flight Inspection System

Airfield Technology

SERIES 900
Flight Inspection Systems

Airfield Technology
Company Information

Background

✈ **Established in 1991**

✈ **Founded by engineers with extensive experience in flight inspection and radio navigation aids engineering**

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SERIES 900
Flight Inspection Systems

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Company Information

Primary Areas of Business

- ✈ Flight Inspection System Design & Manufacturing
  - ▪ Series 900 Flight Inspection Systems
  - ▪ Custom System Designs
  - ▪ Upgrades of Existing Systems
- ✈ Radio Navigation Aid Technical Services
  - ▪ Flight Inspection Services
  - ▪ Technical Support Services
  - ▪ Installation

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Company Information

Facilities

- ✈ Offices located at Johnson County Executive Airport (OJC) in Olathe, Kansas USA
  - ▪ Kansas City metropolitan area
  - ▪ Numerous local navigation aids available for testing systems
  - ▪ Numerous aircraft services available, including FAA certified maintenance & repair centers
- ✈ Hardware and software engineering facilities
- ✈ Manufacturing & training areas

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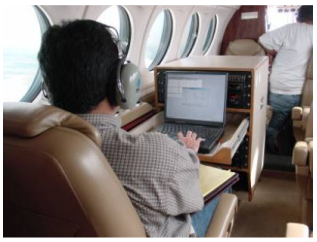
Company Information

Flight Inspection Systems

- ✈ **Designed with Total Systems Experience**
  - **Experience with flight inspection *and* navigation aids designed into systems**
  - **Systems display exact information required to evaluate and adjust facilities easily and quickly**
- ✈ **Evolution of Series 900 Systems**
  - **Very small, portable, semi-automatic systems using theodolite and DOS operating system**
  - **Advanced semi-automatic systems using theodolite, standard GPS and Windows operating system**
  - **Automatic systems using Differential GPS position reference and Windows operating system**



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Company Information

Flight Inspection System References

Year	Customer	Location	Aircraft
2001	COCESNA	Central America	King Air B200
2000	COCESNA	Central America	Cessna 441
2000	Mongolia CAA	Mongolia	Antonov AN-24
1999	Airport Systems	USA	Various
1998	NAI	Canada	Various
1997	Airways Corporation	New Zealand	Mitsubishi MU-2
1997	Radiola Corporation	New Zealand	Cessna 421
1996	FAA – Los Angeles	USA	Various
1995	FAA – Oklahoma City	USA	King Air 350
1995	FAA – Oklahoma City	USA	Beech Baron

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Series 900 Flight Inspection Systems

Model AT-920

Flight Inspection System

- ✈ Semi-Automatic Flight Inspection System
- ✈ Very Small and Lightweight
- ✈ Theodolite and Standard GPS Position References
- ✈ Inspects ILS, VOR, DME, Marker Beacon and Approach Lighting
- ✈ Provides Real-Time Display of Flight Inspection Data on the Ground

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Series 900 Flight Inspection Systems

Model AT-930DG

Flight Inspection System

- ✈ Automatic, All-Weather Operation
- ✈ Differential GPS Position Reference
- ✈ Real-time Color Computer Display
- ✈ Lightweight & Portable
- ✈ Modular Design
- ✈ WinFIS Software
- ✈ ICAO & FAA Compliant

AT-930DG Flight Inspection System

Standard Inspection Capabilities

- ✈ Instrument Landing System (ILS)
  - • Category I, II, & III
- ✈ VHF Omnirange (VOR)
- ✈ Distance Measuring Equipment (DME)
- ✈ Marker Beacon (MKR)
- ✈ Non-Directional Beacon (NDB)
- ✈ VHF Communications
- ✈ Radar (PSR, SSR, PAR)
- ✈ Lighting (VASI, PAPI)

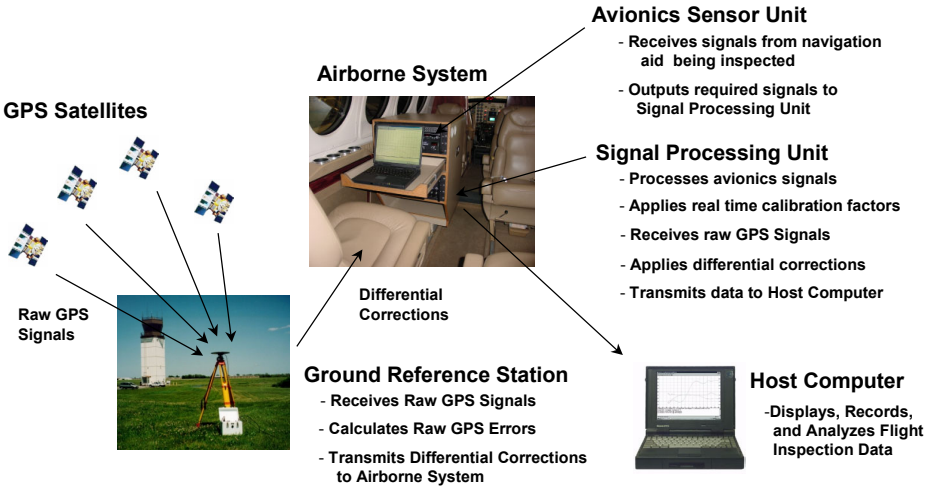
AT-930DG Flight Inspection System

Optional Inspection Capabilities

- ✈ UHF Communications
- ✈ TACAN
- ✈ Microwave Landing System (MLS)
- ✈ Non-Precision GPS Approach
- ✈ Local Area DGPS (LAAS) / Ground Based Augmentation System (GBAS)
- ✈ Wide Area DGPS (WAAS) / Space Based Augmentation System (SBAS)

AT-930DG Flight Inspection System

System Overview



AT-930DG Flight Inspection System

Airborne Equipment

- ✈ Avionics Sensor Unit (ASU)
- ✈ Signal Processing Unit (SPU)
- ✈ Host Computer
- ✈ Color Printer
- ✈ Inverter
- ✈ Intercom
- ✈ Antennas
- ✈ Cockpit CDI

AT-930DG Flight Inspection System

Avionics Sensor Unit (ASU)

✈ Modular – Any avionics sensors may be used

✈ Basic unit uses Honeywell - Bendix/King avionics

- Lightweight
- Economical
- Worldwide service available
- Complete set of spare avionics

AT-930DG Flight Inspection System

Avionics Sensor Unit (ASU)

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Flight Inspection Systems

AT-930DG Flight Inspection System

Signal Processing Unit (SPU)

Features

- ✈ Interfaces with all types of avionics sensors
- ✈ Dual DGPS receivers for added accuracy and confidence
- ✈ Digital Signal Processing for accuracy & calibration stability
- ✈ Can upgrade existing systems to use DGPS and WinFIS
- ✈ Easy growth path for future navigation systems (LAAS/GBAS, WAAS/SBAS)

AT-930DG Flight Inspection System

Signal Processing Unit (SPU)

Differential GPS

- ✈ Dual DGPS Receivers
  - 12 Channels
  - Dual Frequency (L1/L2)
  - 10 Hz Position Outputs
  - Centimeter Level
  - Accuracy Monitoring

AT-930DG Flight Inspection System

Signal Processing Unit (SPU)

ILS Digital Signal Processing

- ✈ ILS Signals Analyzed Using DSP
  - • Analog Filters Not Required
  - • 16-bit, high-speed, high-accuracy A/D Converters
  - • DSP Software 90/150 Hz Filters
    - • Eliminates Calibration Errors
  - • 1.5 KHz CDI & SDM Updates
    - • Prevents Time Skew Errors

AT-930DG Flight Inspection System

Operator Console

Composite core, honeycomb material

- High strength
- Lightweight
- Portable
- Easy maintenance

Avionics Sensor Unit

Signal Processing Unit

Aircraft seat rail attachments for easy removal and re-installation

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Ground Equipment

- ✈ Ground Reference Station (GRS)
- ✈ GPS Antenna
- ✈ Telemetry Antenna
- ✈ Digital Theodolite (optional)

AT-930DG Flight Inspection System

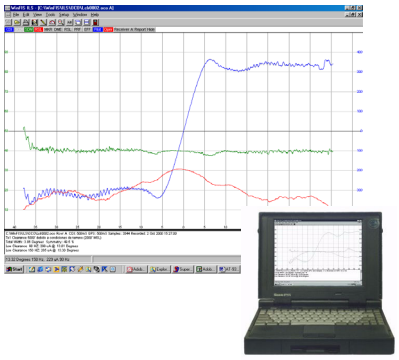
Ground Reference Station (GRS)

- ✈ All-Weather Operation
- ✈ 12 channel, Dual Frequency GPS
- ✈ Rugged, Weatherproof Construction
- ✈ Non-Volatile Memory
- ✈ High-Speed Radio Modem
- ✈ Small & Lightweight
- ✈ Operates on 90-250 VAC, 50-60 Hz or from 12V Battery Power
- ✈ Interfaces with Digital Theodolite

AT-930DG Flight Inspection System

Host Computer

- ✈ IBM PC compatible computer
- ✈ Embedded or portable computer options
- ✈ Displays, records, and analyzes flight inspection data
- ✈ Controls airborne equipment

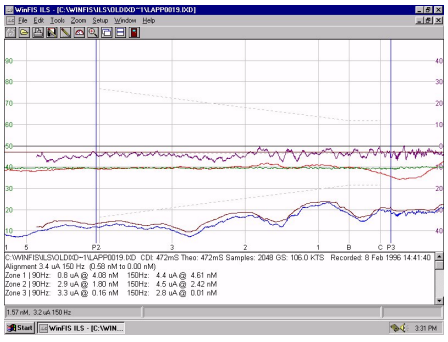


AT-930DG Flight Inspection System

WinFIS Software

- ✈ *Win – FIS*

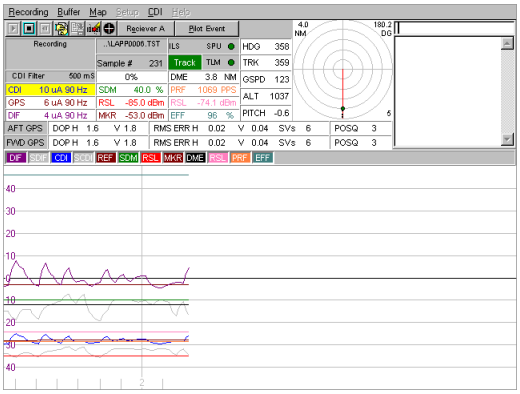
  Windows - Flight Inspection System
- ✈ Runs under Microsoft Windows
- ✈ Familiar interface
- ✈ Easy to learn & use



AT-930DG Flight Inspection System

WinFIS Software

- ✈ Real-Time, Color Display
- ✈ Digital Numeric Parameters
- ✈ Simulated Chart Recorder Graphics
- ✈ Real-Time Notes Entry
- ✈ Trace On/Off Switches



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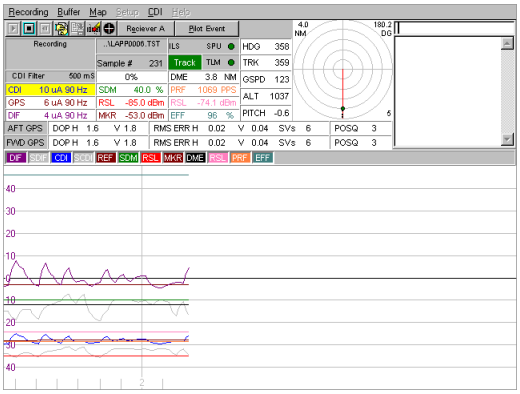
AT-930DG Flight Inspection System

WinFIS Software

- ✈ Receiver “Split Alarms”
- ✈ Primary Receiver Selection
  - Data from both receivers always recorded
- ✈ Status Indicators
  - Signal Processing Unit (SPU)
  - Telemetry (TLM)
  - Tracking



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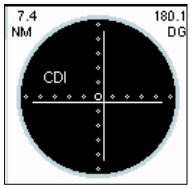
AT-930DG Flight Inspection System

WinFIS Software

- ✈ Radar-type Map Display
  - ▪ Displays position of aircraft relative to the facility being inspected

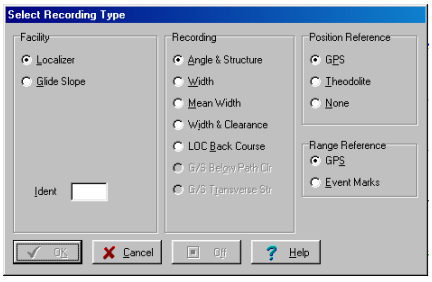
- ✈ CDI Display
  - ▪ Displays same information as cockpit CDI.
  - ▪ Can display ILS, VOR, GPS or Orbit Controller deviations



AT-930DG Flight Inspection System

WinFIS Software

- ✈ Pre-programmed inspection functions selected from pull-down menus



AT-930DG Flight Inspection System

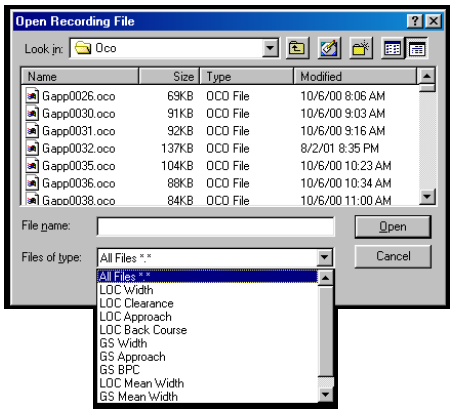
WinFIS Software

✈ All data stored as disk files on host computer hard drive

✈ Backup data using removable disk, CD-R, or local area network (LAN)

✈ No special hardware or software required for central base data archiving

✈ View, analyze and print data using WinFIS from any Windows compatible computer & printer



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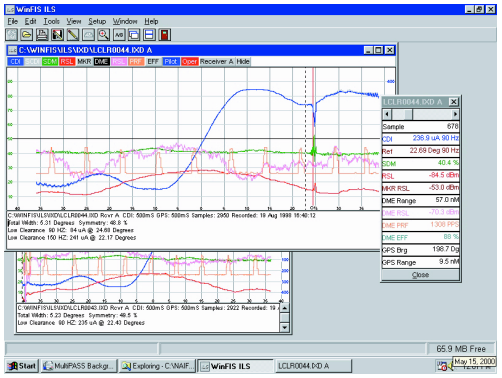
WinFIS Software

✈ Automatic analysis of common flight inspection parameters

✈ After inspection analysis of individual data samples

✈ Print recordings in color from any computer running WinFIS software

✈ Report generator function



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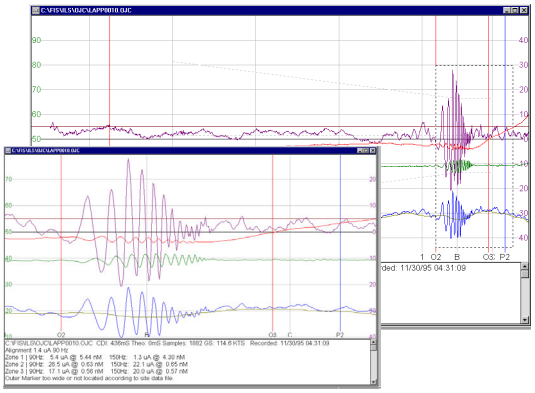
WinFIS Software

- ✈ Graphical “Zoom” Tool
- ✈ Zoom in for larger view of areas on screen
- ✈ Print zoomed in views



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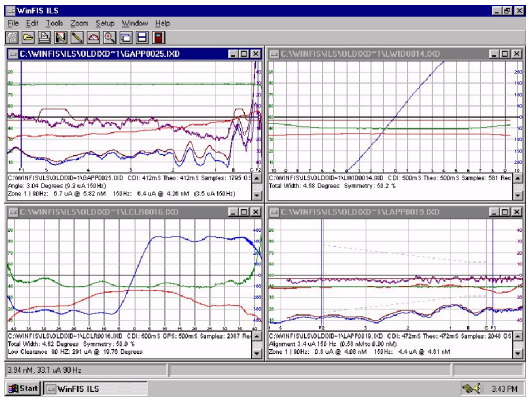
WinFIS Software

- ✈ View multiple recordings on screen at the same time
- ✈ Compare results of previous inspections



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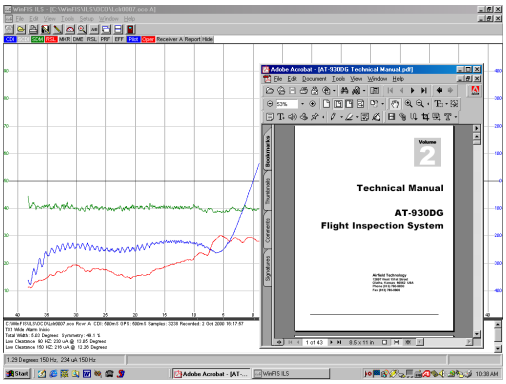
WinFIS Software

✈ Windows multi-tasking allows additional programs to be running at the same time as WinFIS

- Word or Excel (reports, flight inspection procedures, etc.)
- Adobe Acrobat Reader (manuals, ICAO 8071, etc.)
- Other programs



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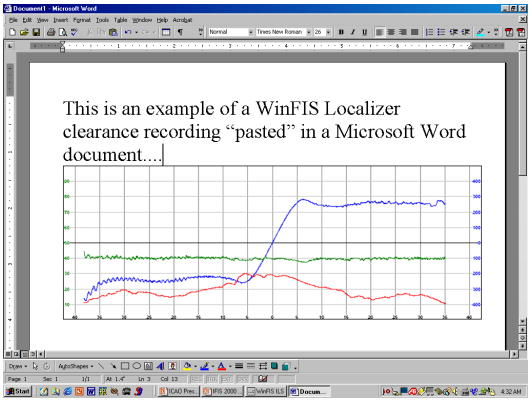
WinFIS Software

✈ Windows "Cut" and "Paste" functions allow recordings and analysis results to be easily used in other documents

✈ Microsoft Word, Excel, etc.



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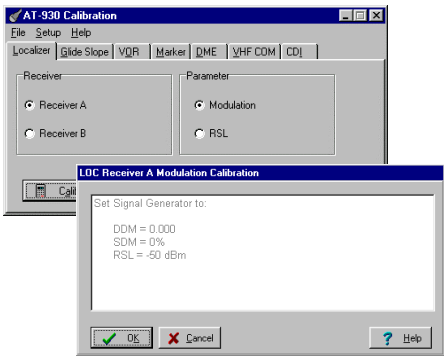
WinFIS Software

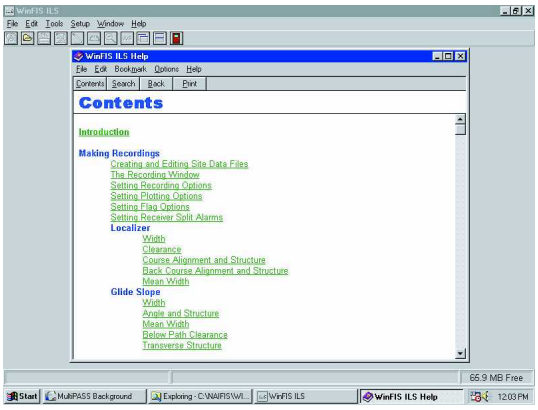
- ✈ Semi-Automatic Calibration
  - ▪ All calibration factors are digital and stored in non-volatile memory in SPU
  - ▪ System guides the user with messages on screen for required signal generator settings



AT-930DG Flight Inspection System

WinFIS Software

- ✈ Built-in “Help” files
  - ▪ Available for all WinFIS functions
  - ▪ Can be used while operating system
  - ▪ Context sensitive – displays information based on what the operator is doing



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