

The Benefits of Autopilot Coupling for Flight Inspection Operations

and its Impact on Safety, Efficiency and
Air Traffic

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LIGHT
INSPECTION
EN VOL

CANADA

Introduction



- Aerodata FIS provide a variety of Flight Inspection related information to Cockpit
- AFI, the service provider of Aerodata AG, played a crucial part in evaluating as well as implementing and using these systems operationally

Cockpit Setup 1

- EADI
- EHSI



Cockpit Setup 2

- MFD
- User Interface



System Setup



PFD



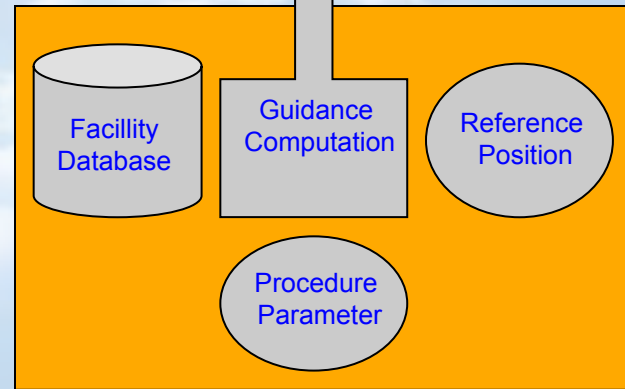
Autopilot

EHSI



MFD

FIS



FIS ARINC429 Guidance Data

Operating Modi 1

Calibration Track & Best Track to Starting Point

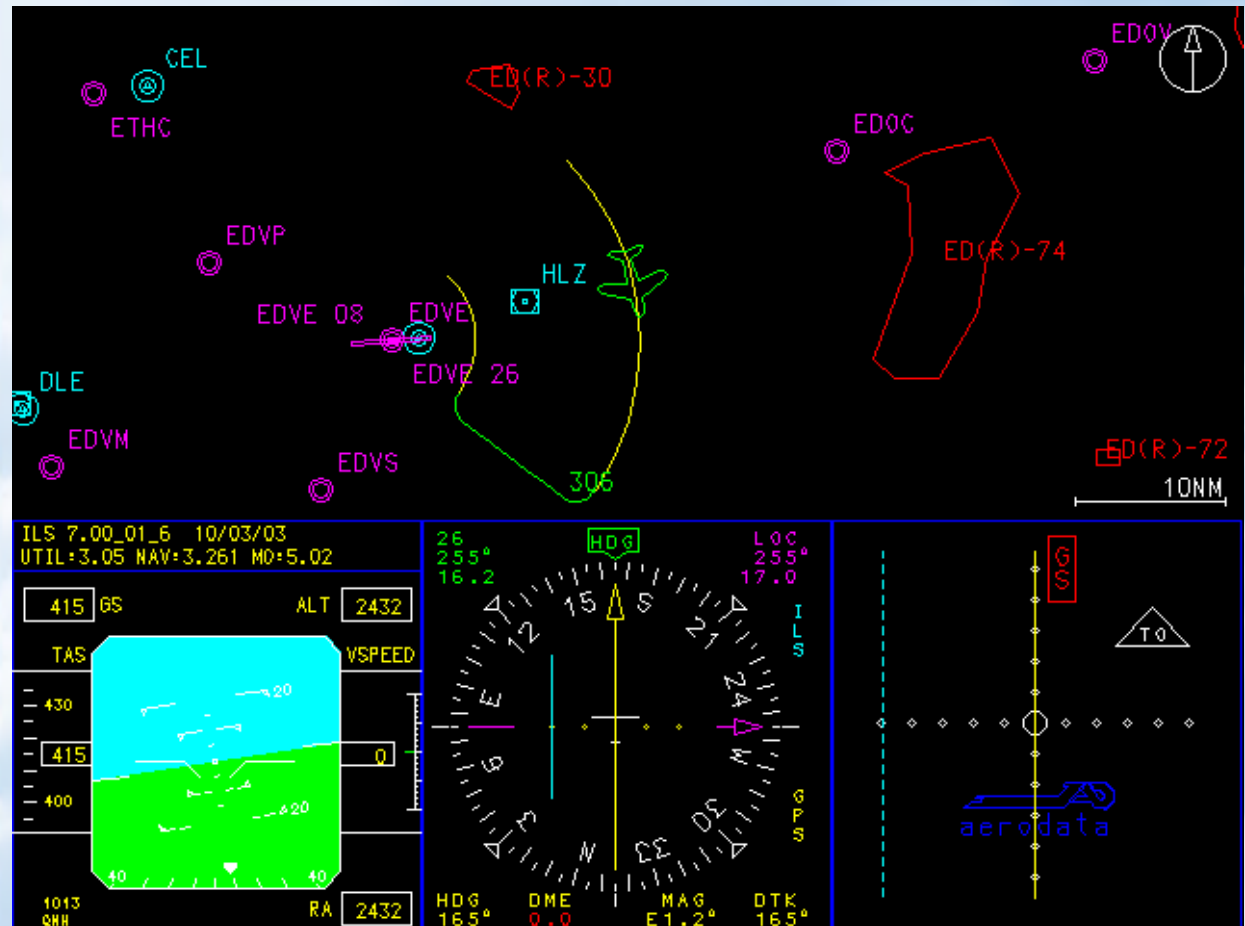
- efficient Pattern
- stabilized Intercepts & Approaches



Operating Modi 2

Part Orbit / Coverage Procedures

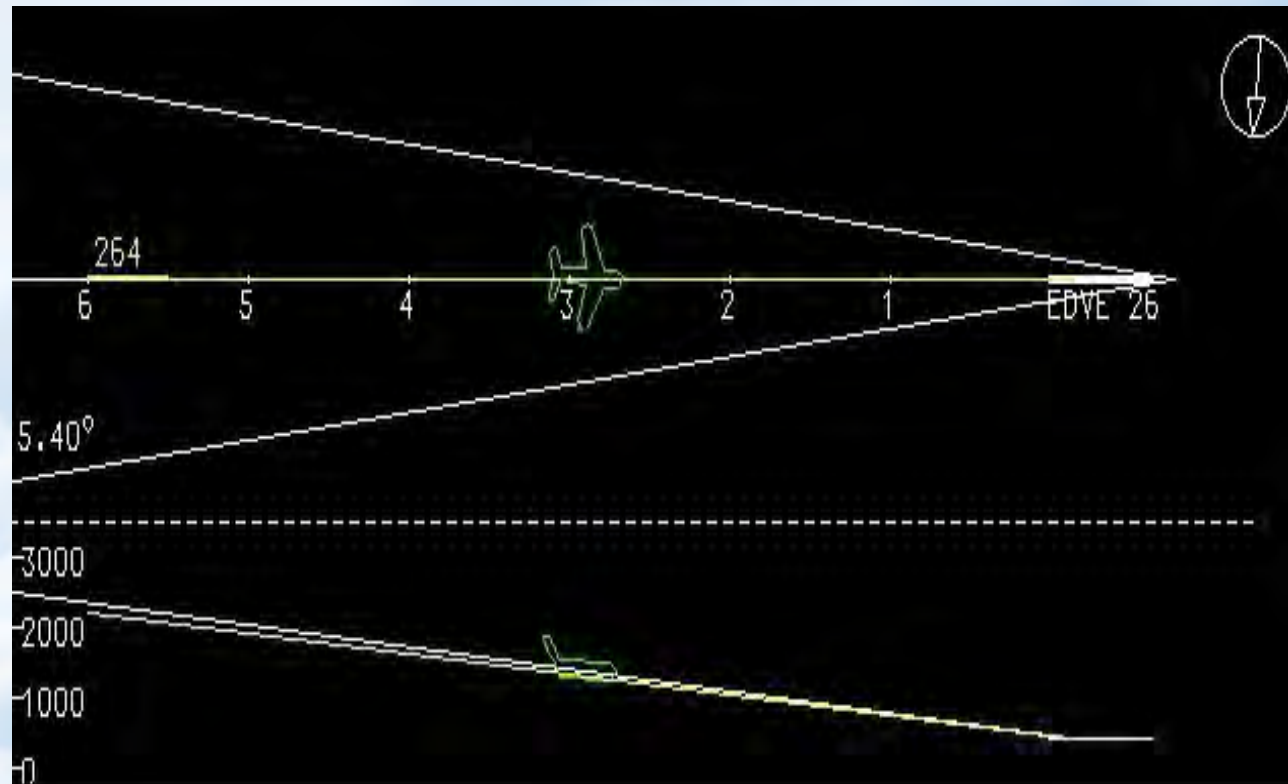
- high accuracy
- repeatable



Operating Modi 3

Selected Approach Indicator

- allows non-verbal verification of selected procedure by cockpit crew



Prerequisites



- **established Standard Operating Procedures (SOP) for Flight Inspection Missions required; including**
 - * **Communication Procedures Cockpit / Cabin**
 - * **expanded Instrument Scan**
- **thorough Training on Cockpit / Mission Equipment**
- **thorough Training and Understanding of FIS Mission**

Limitations



- **Depending on Aircraft Type and Autopilot Type Autopilot will not cope very well in certain Weather conditions (e.g. Tailwinds, Windshear)**

Benefits 1

Marked Safety Benefits by



- **Increased Situational Awareness**
- **More Resources available for
Airspace Surveillance**
(extremely important at congested Airports /
Airspace, e.g. Glider Activity)
- **Reduced Crew Workload**
- **Reduced Fatigue Levels**
(for both Cockpit & Cabin Crew)

Benefits 2

Efficiency and Cost Benefits by

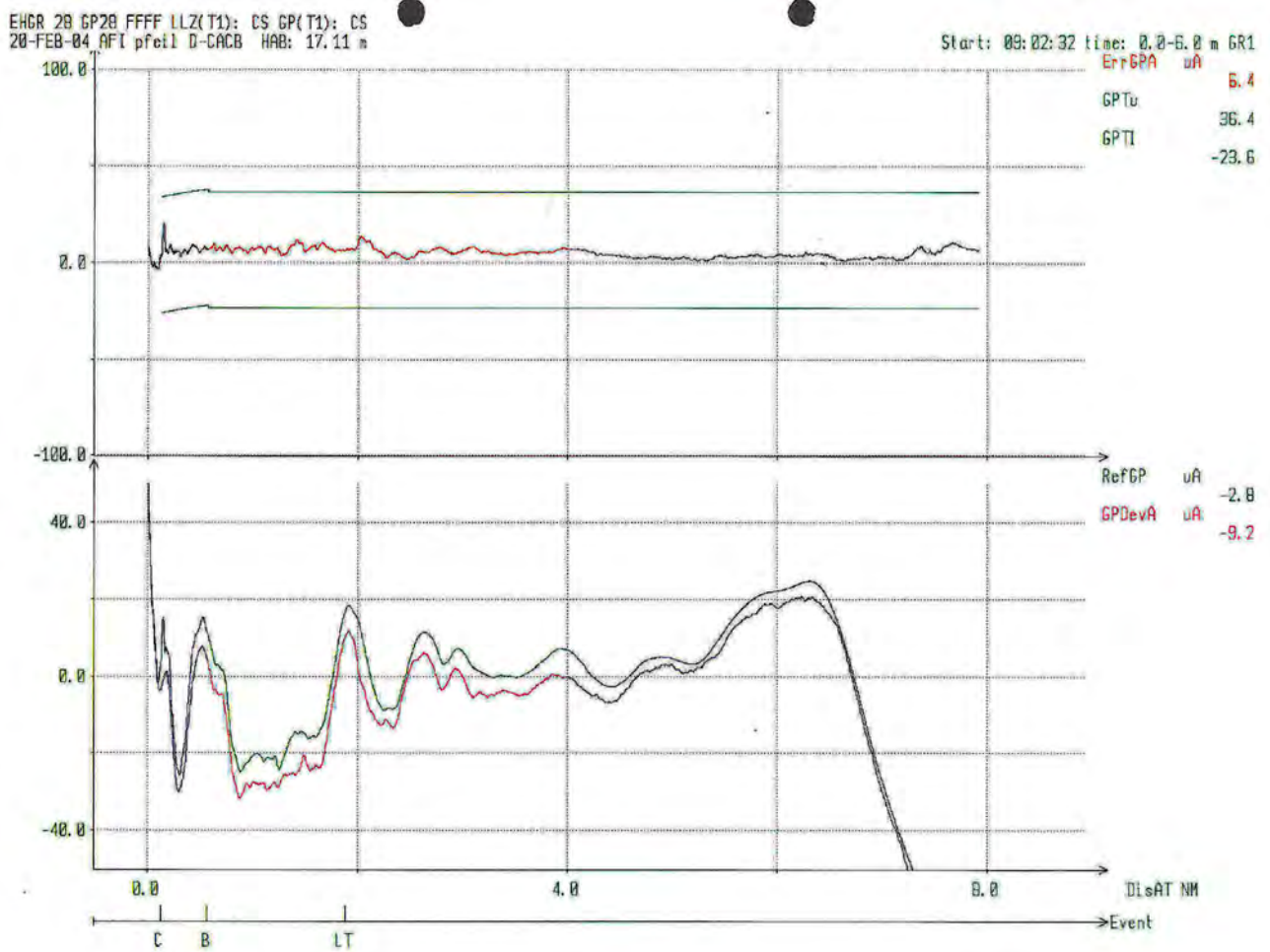
- **predictable and accurate pattern**
= reduces Workload for ATC

- **more accurate Approach Profiles**
= Calibration more accurate by reducing
Flight Technical Error :

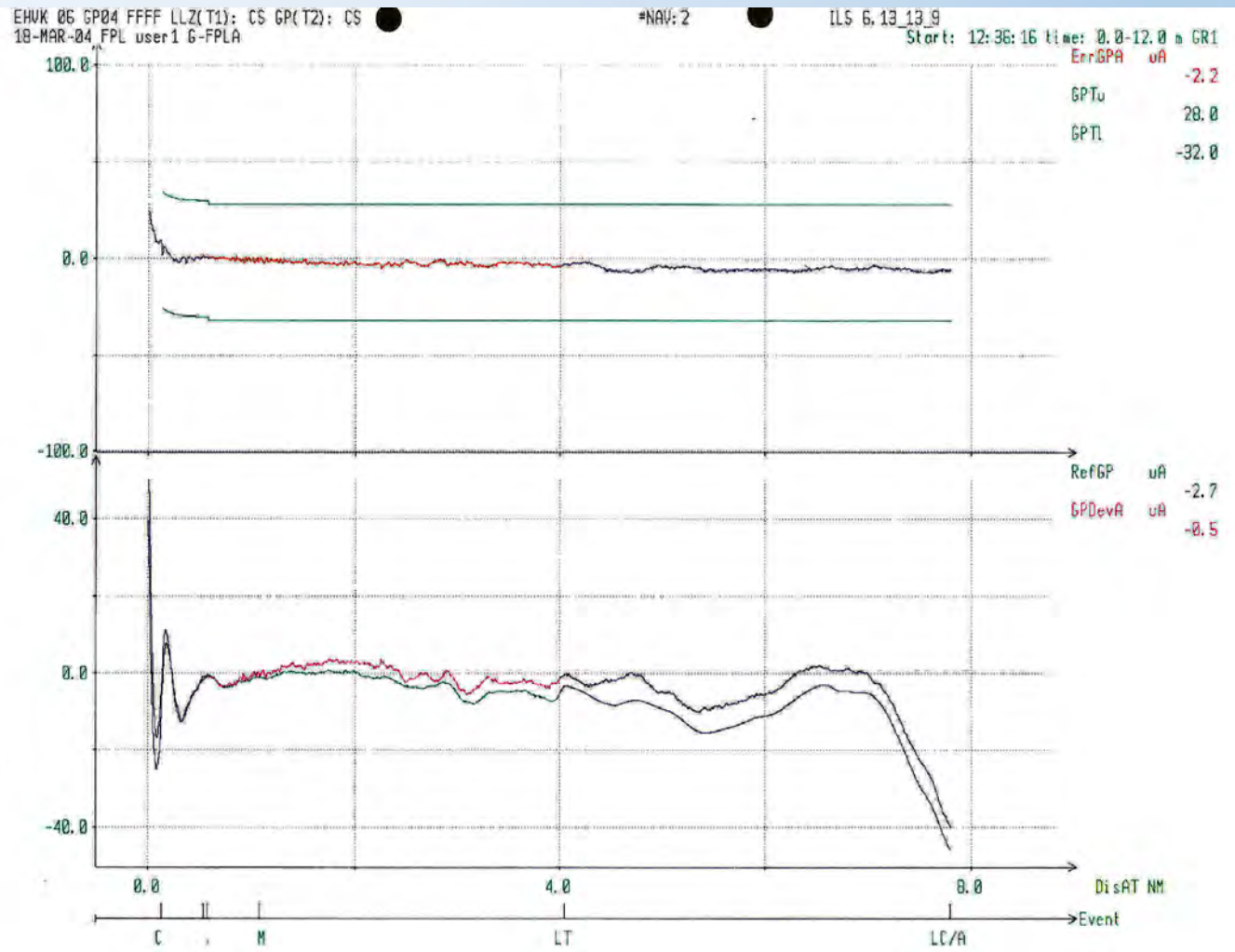


Benefits 3

Approach Profiles without A/P Coupling:



Approach Profiles with A/P Coupling:



Benefits 5

Efficiency and Cost Benefits cont'd



- **reduces Flight Time on Calibration Missions**
- **thus reducing impact on other Traffic**
- **allows Calibration Flights in reduced Weather Conditions**
- **reduces costs and improves productivity**