Collins Aerospace Pro Line 21 and Pro Line Fusion® Program Updates

CJP Presentation 10/17/2009
Objectives

- Follow-up from CJP Conference
  - Temperature Compensation issues and TCAS II display
  - LPV / TCAS upgrades
    - WAAS/LPV CJ1, CJ2, CJ1+, CJ2+, Encore Plus
    - CJ4 TCAS update (TSS-4100 upgrade with ECU-3000 and TSSE-4100)
  - CJ 1+/2+/3 - Pro Line Fusion® flight deck upgrade
    - Vspeeds, Datalink, Roadmap, Training, Value Prop.

  Follow-up Questions from CJP Convention
TCAS II RA Display Issue

• Issue
  • Incorrect Fly-To Cue display in some scenarios (eg: corrective climb with positive pitch angle)
  • Potential conflict with RA aural
  • Some display SW versions are not TSO-compliant
  • TCAS LRU outputs are correct, as well as aural

• Impact
  • PL Fusion-equipped King Airs and CJ3 are impacted
  • Collins OPS bulletin, aligned with FAA and EASA, recommends turning off RA while the display SW is being corrected
  • This temporarily turns the TCAS II system into TCAS I (TA-only)
  • FAA does not mandate TCAS II in US airspace for impacted Textron aircrafts
  • In other regions like EASA, operators may have to request temporary waivers beyond MEL grace period

• Corrective action
  • Completed- SIL 523-0826420-301000
Temperature Compensation
Pro Line 4 and Pro Line 21 aircrafts with FMS 3.3.x and 4.x

• **Issue**
  • When a “climb to” altitude is manually edited or compensated for temperature, FMS may turn aircraft in wrong direction

• **Impact**
  • Collins OPS bulletin in 2018 recommended operators to turn off the temperature compensation feature

• **Corrective action**
  • An Airworthiness Directive from the FAA is expected to mandate the removal of the temperature compensation feature
  • Removal procedure at approved service centers or dealership
  • Approach procedures are not being removed from the FMS
  • FAQs: [https://www.rockwellcollins.com/Landing/FMS/FAQ-OPSB016617R1.aspx](https://www.rockwellcollins.com/Landing/FMS/FAQ-OPSB016617R1.aspx)
WAAS/LPV upgrade

Available at Textron Service Centers

- Eligible Aircrafts
  - Citation Jets 1 + / 2 + / 3

- Benefits
  - Access to non-ILS runways with reduced minimums (200ft DA, half-mile visibility)
    - About 4,000 LPV approaches now available in US, serving airports (1,200 of which without ILS)
  - Based on SBAS technology (WAAS in the US)
    - Same GPS can be used for ADS-B out compliance
    - Independent from temperature for vertical navigation

- Upgrade (Textron Service Center)
  - New hardware
    - DBU-5000
    - OCM-3110
  - Upgrades through Service Bulletins
    - FMC-3000
    - IOC-3110
    - GPS-4000S

- Or included in baseline Pro Line Fusion® flight deck upgrade (CJ3)
Citation Jets 1+/2+/3 - Pro Line Fusion® Upgrade

Bringing the latest airspace modernization and situational awareness technologies

- Currently available for the CJ3 at ALL Collins Aerospace Dealer Network
  - 35 aircraft flying today
- Aircraft Value-Add Bundle for latest compliance and enhanced flight deck experience
  - ADS-B out
  - Dual GPS
  - 5 year nav-database subscription included
  - LPV / RNP / RF Legs
  - Three 14.1 inch landscape touchscreens
  - Configurable windows
  - Graphical flight planning
  - High-Resolution SVS with exclusive Airport dome
  - Electronic Navigation Charts
  - USB database loading
- SW update currently under development in close collaboration
  - Adds CJ1+/2+ to STC (Textron only for first 6 months after STC approval)
  - Restores integrated Vspeeds / FMS fuel sense
  - Adds Predictive FMS performance computation
  - Adds CPDLC / FANS / ATN B1 datalink option
# Citation Jets 1+/2+/3 - Pro Line Fusion® Roadmap

Next amendment will bring CJ1+/2+ model types, and align with our core forward-fit SW product line for long-term support and future upgrades.

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Follow-up Questions

- **Long term support for Pro Line 21 other than Fusion**
  - Long-term support of Pro Line 21 avionics, outside of Pro Line Fusion path:
    - **Collins is working on long term solutions for PL21**
      - Update Q2 2020
    - **Next Gen Datalink-CPDLC (US and EU)**
      - Aircraft under 100,000 pounds and/or built prior to February 2020 are exempt from mandate in EU
      - CJ Fusion AC available option Q3 2020
      - CJ4 Textron is working on a SB early 2020
      - PL21 CJ 1+,2+,3 Roadmap expected in Q2 2020
    - **Sirius SXM Stand Alone**
      - Fusion AC Q3, 2020 FOC if currently equipped with XM
      - PL21 AC Q4 2020
      - CJ4 Textron SB in 2021
- **Pro Line Fusion Flight Training Device**
  - Working with FSTAT to announcement at NBAA
Follow-up Questions

- Pro Line Fusion Affordability-
  2nd GPS
  5 Years Nav-data base
  Wiring Harness
  Open Channel
  ADSB Credits

- 1st come 1st served vs Best equipped best severed.

  [https://www.faa.gov/documentlibrary/media/advisory_circular/ac_90-117.pdf](https://www.faa.gov/documentlibrary/media/advisory_circular/ac_90-117.pdf)

  Similar to RVSM/ADSB airspace
Questions?