

**ATR**



**Flight Safety Conference**

29<sup>th</sup> – 30<sup>th</sup> November 2023

# Flight Safety Enhancements

**Santo Giuseppe ALLOTTA**

Engineering Integration & Program Chief Engineer

**Cyril CIZABUIROZ**

HO Flight Test – Experimental Test Pilot



# Since last conference

## Continuous Product Development/Flight Safety enhancement for all Variants



- 650 MODs certified (10% Major MODs)
- 1640 Service Bulletin/Conversion Instructions (250 (15% of 1640) NEW SB/CI, 60% of them concern Continued Airworthiness):
  - 39% Operator Specific Requests
  - 24% Product Improvement
  - 24% Regulation & Obsolescence
  - 13% Continued Airworthiness)
- 1500 Flight Test Hours
- 120 AOMs

- ATR External Change Catalogue



- ATR Upgrade Services Catalogue



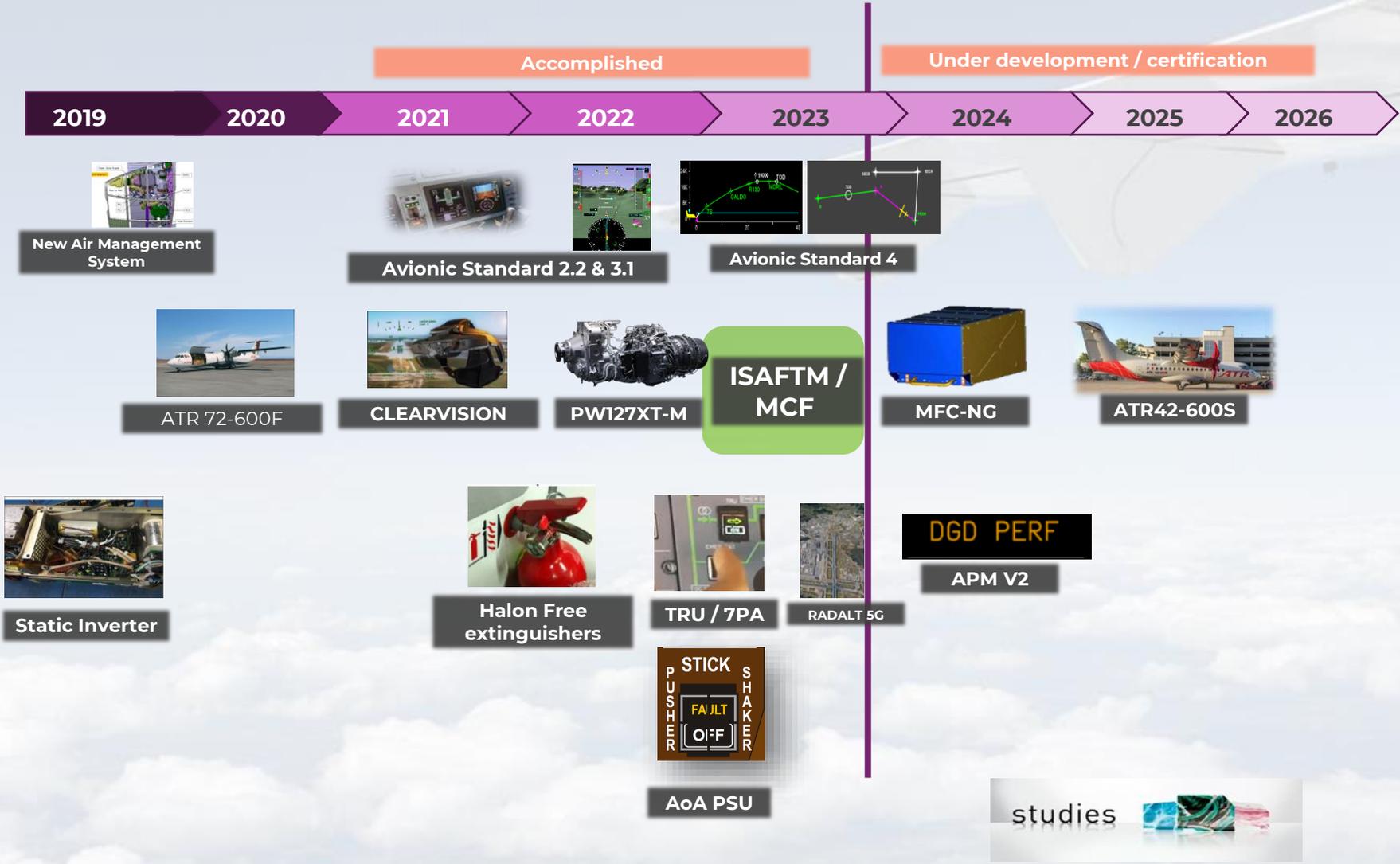
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## KEY ACHIEVEMENTS

- PW127XT-M certification
- Enhanced Vision Systems entry into service
- Freighter certification and entry into service
- New Air Management System (NAMS)
- Smart Lander

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# Major Achievements / short term Product enhancement



# OIM 2023/005 Issue 1 : ISAFTM / MCF

## Background:

- In 2008, an Airbus 320 accident, with 7 people. Undergoing an acceptance flight after a period of maintenance, for validation of the airworthiness of the aircraft prior to hand-over to its owner.
- No existing regulation at the time of the event.
- EASA published regulation in 2012.
- **ISAFTM : In Service Aircraft Technical Flight Manual = Demo Flight**
- **MCF : Maintenance Check Flight = Technical Flight**

# OIM 2023/005 Issue 1 : ISAFTM / MCF

## ISAFTM – In Service Aircraft Technical Flight Manual

- June 2023, ATR provided :
  - a detailed profile for flights to be performed on request of the operator,
  - to verify the compliance of the aircraft with the contractual specifications of the lessee/lessor or buyer.
  - covering a demonstration flight [Air Ops regulation, GM1 Article 2(1)(d)]
- **Must comply with ATR FCOM normal procedures and aircraft flight envelop**
- no mandatory training, no regulation link
- ATR Flight Test documentation including:
  - Definition of a Demonstration Flight
  - Conditions (A/C status, flight envelope, crew, procedures)
  - Flight profile including detailed checks and expected results
- **Available on ATRactive portal**

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ATR 42/72 "500 version" – IN-SERVICE AIRCRAFT TECHNICAL FLIGHT MANUAL – DEMONSTRATION FLIGHT – June 23

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**ATR 42/72 "500 version"**

### **IN-SERVICE AIRCRAFT TECHNICAL FLIGHT MANUAL DEMONSTRATION FLIGHT**

ATR 42/ 72 -500	MSN:	Registration:
AIRLINE:		Date:

## MCF – Maintenance Check Flight

- As per Regulation (EU) No 965/2012, Annex 1
- Flight carried out for :
  - On AMM request
  - Authority request after maintenance
  - Maintenance request
  - Troubleshooting purposes
  - Checking of the functioning of systems after maintenance

- **Flight carried out by qualified Flight Crews (mandatory training and recurrent)**
- Allowing Abnormal and Emergency Procedures
- **Right flight profile and procedures must be approved by local authority**
- ATR propose a MCF Course (lessons, FFS, Flight)

**If any doubt on flight classification, contact ATR**

**Support**

### WHO IS ELIGIBLE?

Pilots and Flight Engineers needing to perform ATR Maintenance Check Flights as required by the Manufacturer Aircraft Maintenance Manual, or the organization responsible for the continuing airworthiness or as by the Maintenance Organization. These flights intend to verify in flight the correct functioning of one or more systems after maintenance or defect rectification, or assist in fault isolation or troubleshooting.

The course does not address the purpose of demonstration flights also called acceptance flight which are the Flights at the end of lease or upon transfer of ownership. This can be done using ATR ISATFM (In Service Aircraft Technical Flight Manual).

### PREREQUISITES

#### 2 Captains:

- Rated and current on ATR type
- Experience: at least 2 Years' experience / 3000 Flight Hours total / 1000 Flight Hours on ATR

#### 2 Technical Flight Engineers being either:

- A Flight Engineer who has followed maintenance type rating course "In approved PART 147" training center or equivalent, or can justified of a technical knowledge on the aircraft,
- A Maintenance Engineer who has successfully followed the applicable maintenance type rating course "In approved PART 147" training center or equivalent, or
- A pilot,
- Already certified for RUN-UP task.

Optimum crewing : two Captains and two Flight Engineers.

FFS sessions and flights must be duplicated if pilots want to be validated as Captain and Flight Engineer.

### OBJECTIVES

- Offer practical guidance and instruction in ATR technical flights
- Improve the quality of an ATR operator's technical flight check processes and practices
- Enhance knowledge, skills and attitudes and increase the safety of an operator's technical flight checking.

### COURSE OUTLINE

This course is offered to customers who request help as they wish to create their own check schedule, duly considering the local regulation and constraints. ATR provides appropriate MCF training so that customers are able to perform Level 'A' flights by themselves. As a result, the flight needs to be done in the customer's facilities, on their aircraft, using their maintenance staff and taking into account their limitations (airfield, weather, etc.).

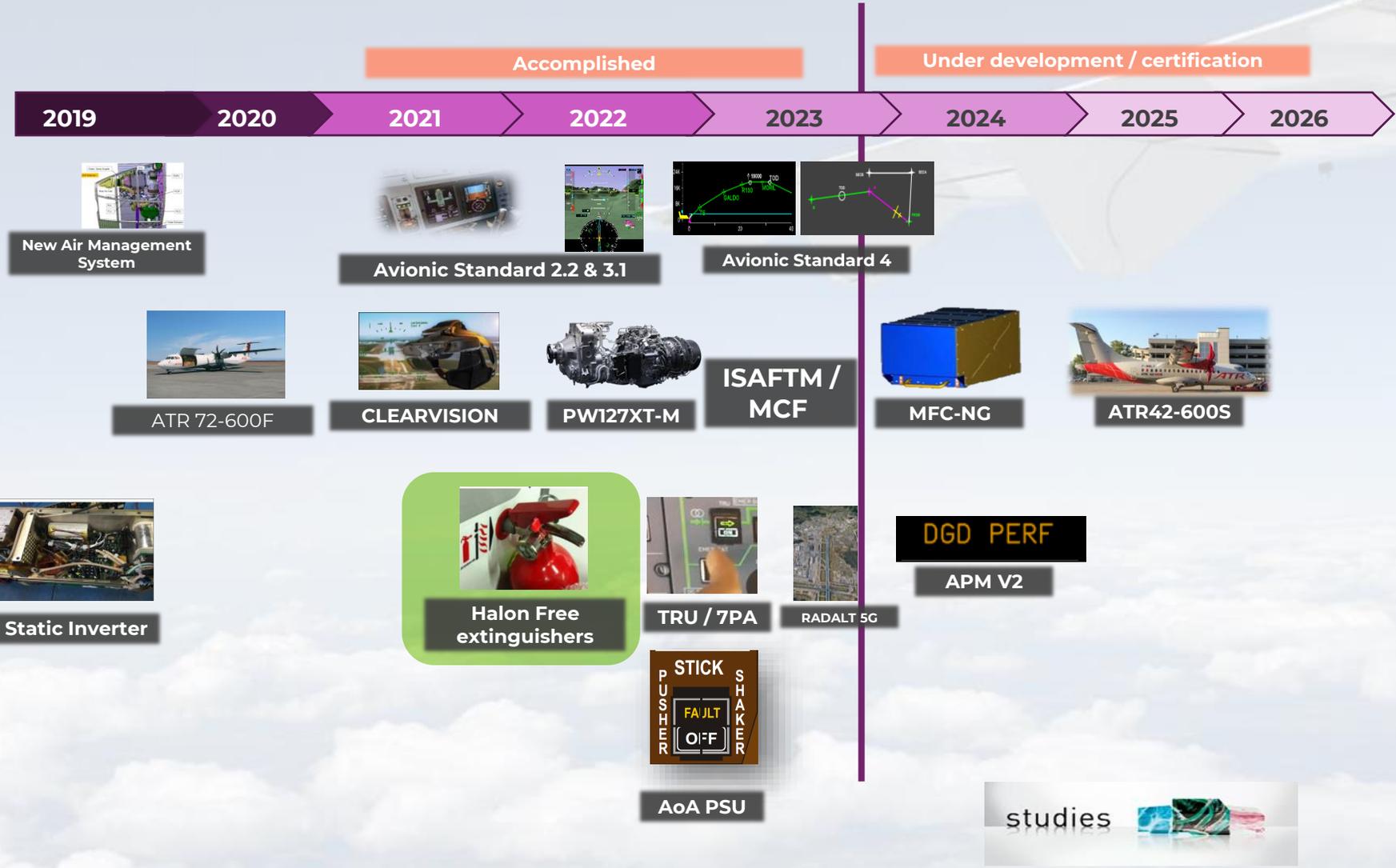
### DOCUMENTATION

- MCF run-up
- Course documentation

### PROGRAMME

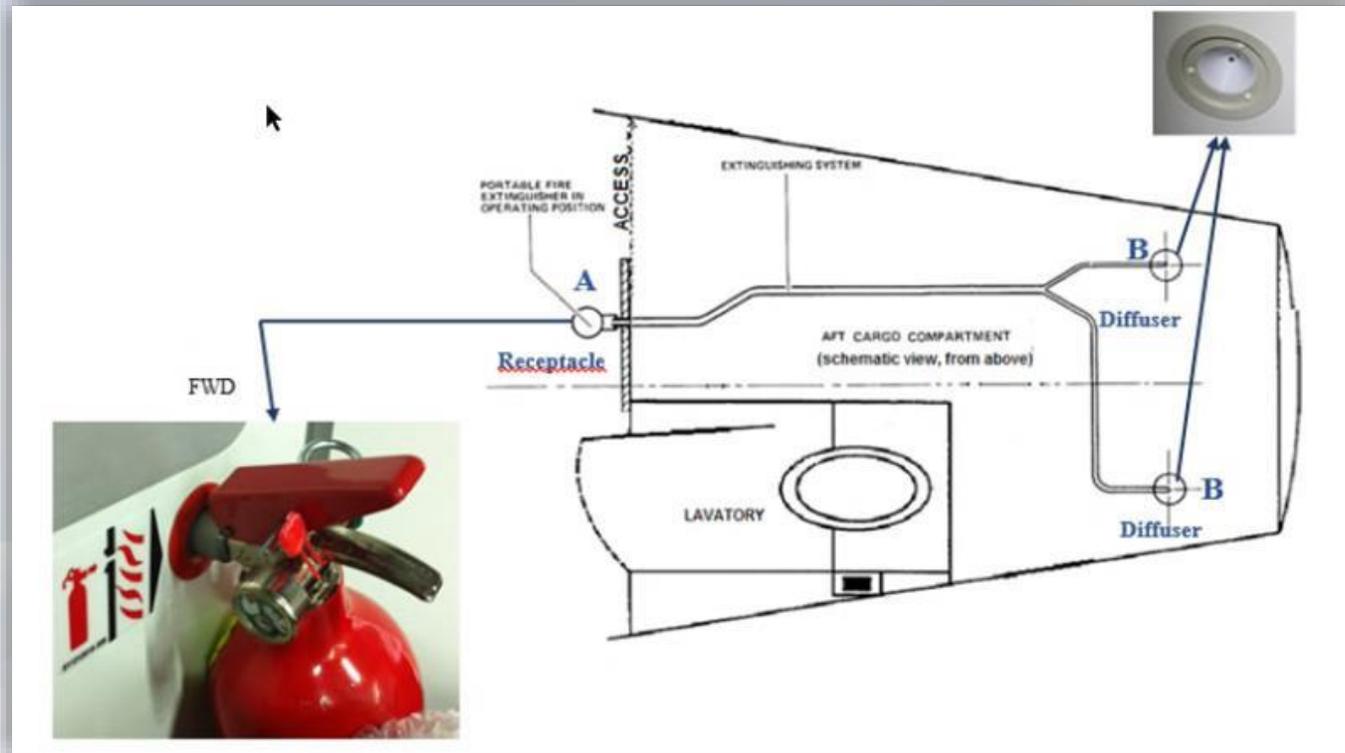
WEEK 1		
DAY 4	DAY 5	
GROUND SCHOOL	GROUND SCHOOL	
WEEK 2		
DAY 1	DAY 2	DAY 3
FFS 1 Full Flight Simulator (4:00 per crew)	Debriefing FFS 1 FFT self study (4:00 per crew) Briefing FFS 2	FFS 2 (4:00 per crew)
WITHIN 4 WEEKS TIME IN THE AIRLINE TECHNICAL BASE		
Flight 1 (1:40) Captain #1 + Flight Engineer #1	Flight 2 (1:40) Captain #2 + Flight Engineer #2	

# Major Achievements / short term Product enhancement



# Portable halon free fire extinguishers

- Reminder: it is necessary to replace associated receptacle and diffusers installed in aft cargo compartment while installing halon free extinguishers



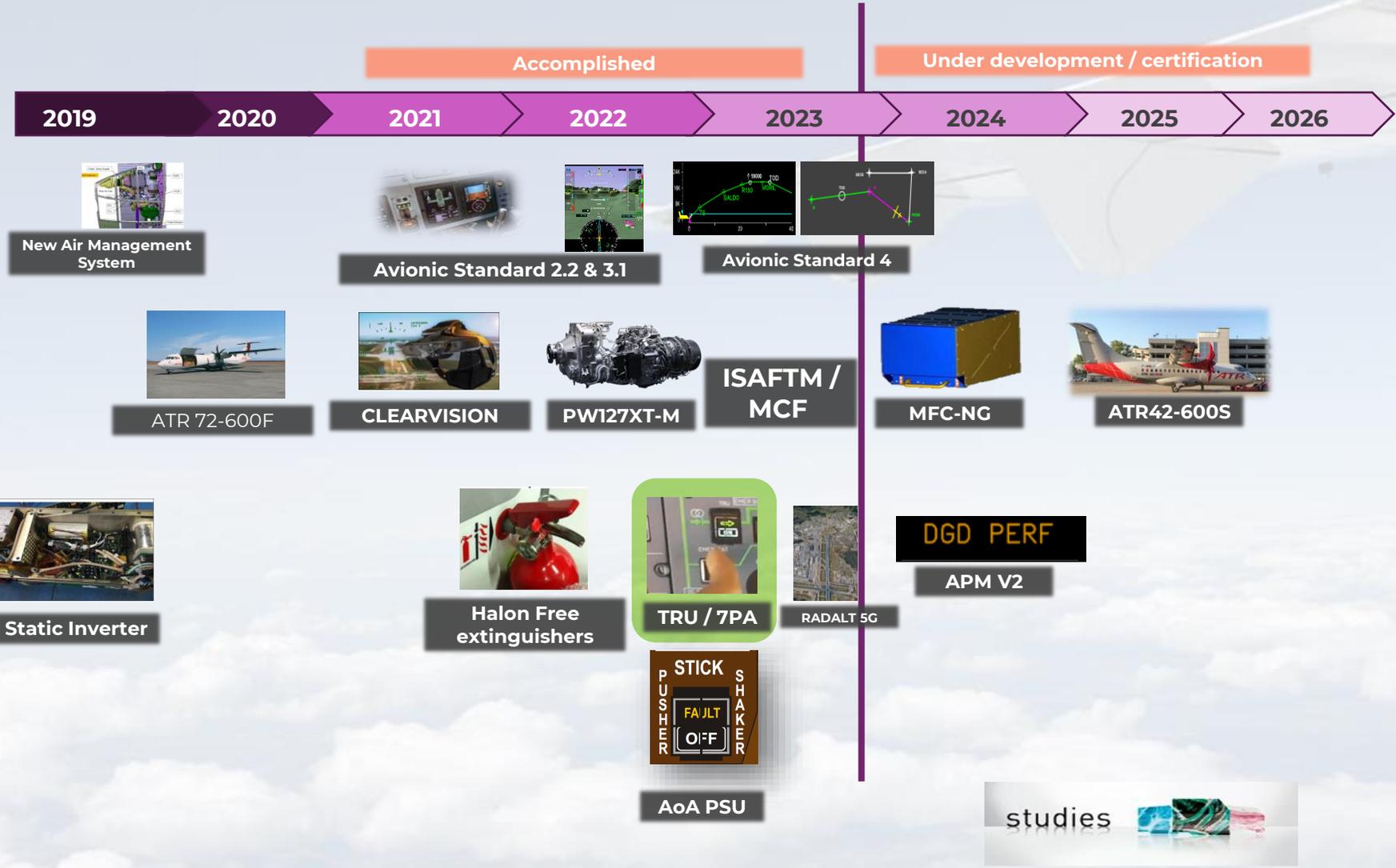
Referenced doc:

**Service Letter ATR72-26-6002 revision 01**

**SB ATR72-26-1028 revision 02**

**SB ATR42-26-0033 revision 01**

# Major Achievements / short term Product enhancement



# Risk of temporary loss of EMER electrical network

*Impacted fleet – ATR42-400/500 – ATR 72 all*

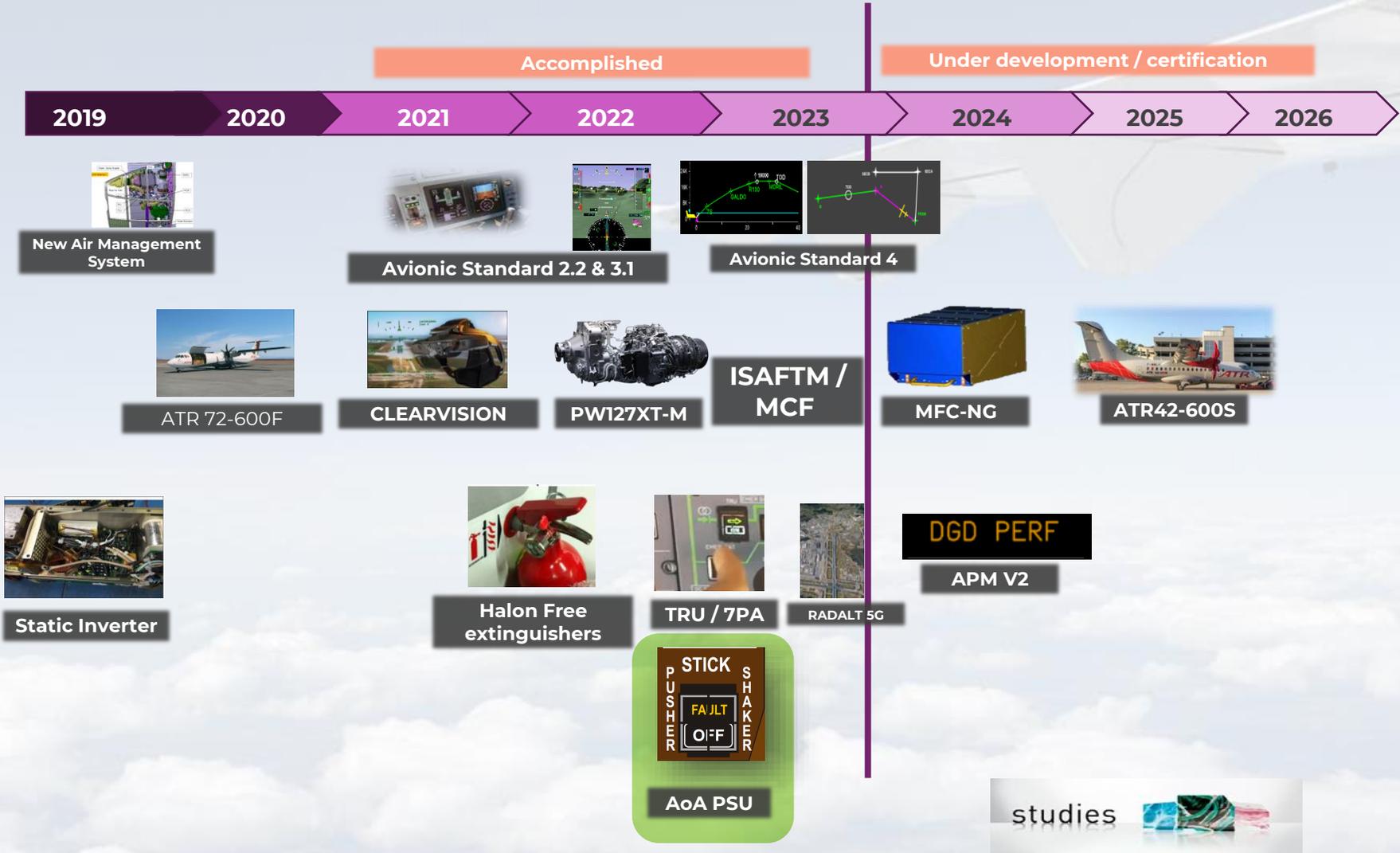
- Risk of temporary loss of EMER Electrical Network covered by the EASA AD 2021-0120-E
- **Final Fix (TRU use no longer required)**
  - AOM 2021/05 issue 8 released on 13th April 2023 detailing corrective action (MOD 10367)
  - EASA AD 2023-0078 released on 12th April 2023 (effective on 26<sup>th</sup> April 2023)
- 2 webinars performed on 09<sup>th</sup> March 2023

## AOM 2021/05 issue 8

- Wiring modification & Battery toggle switch 7PA replacement within 12 months
- Contactor 1PA repetitive operational test every 1000FH



# Major Achievements / short term Product enhancement



# Spurious stall warning

*Impacted fleet - ATR42-200/300/320*

- Risk of spurious stall warning covered by the EASA AD 2021-0024 & 2023-0134
- **Final Fix**
  - MOD 18049 certified
  - Service bulletin ATR42-31-0121 released
  - AOM 2020/13 issue 6 released in July 2023

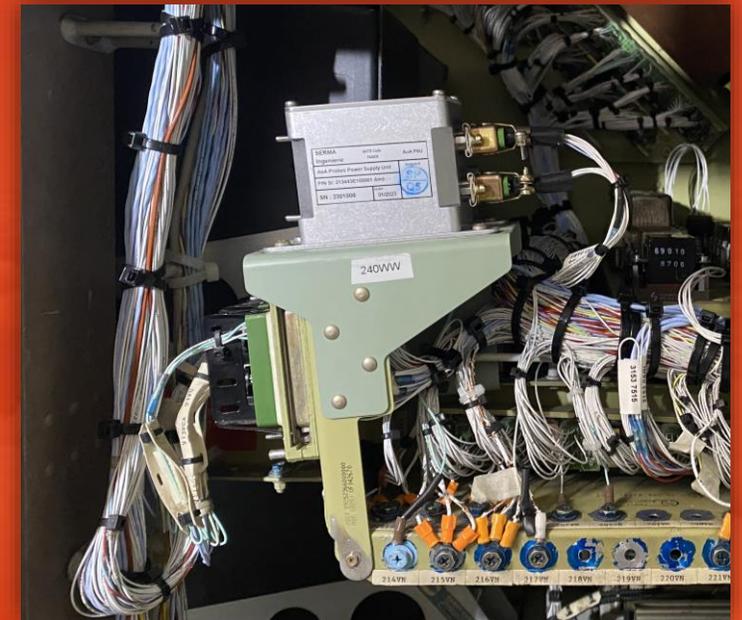


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## AOM 2020/13 issue 6

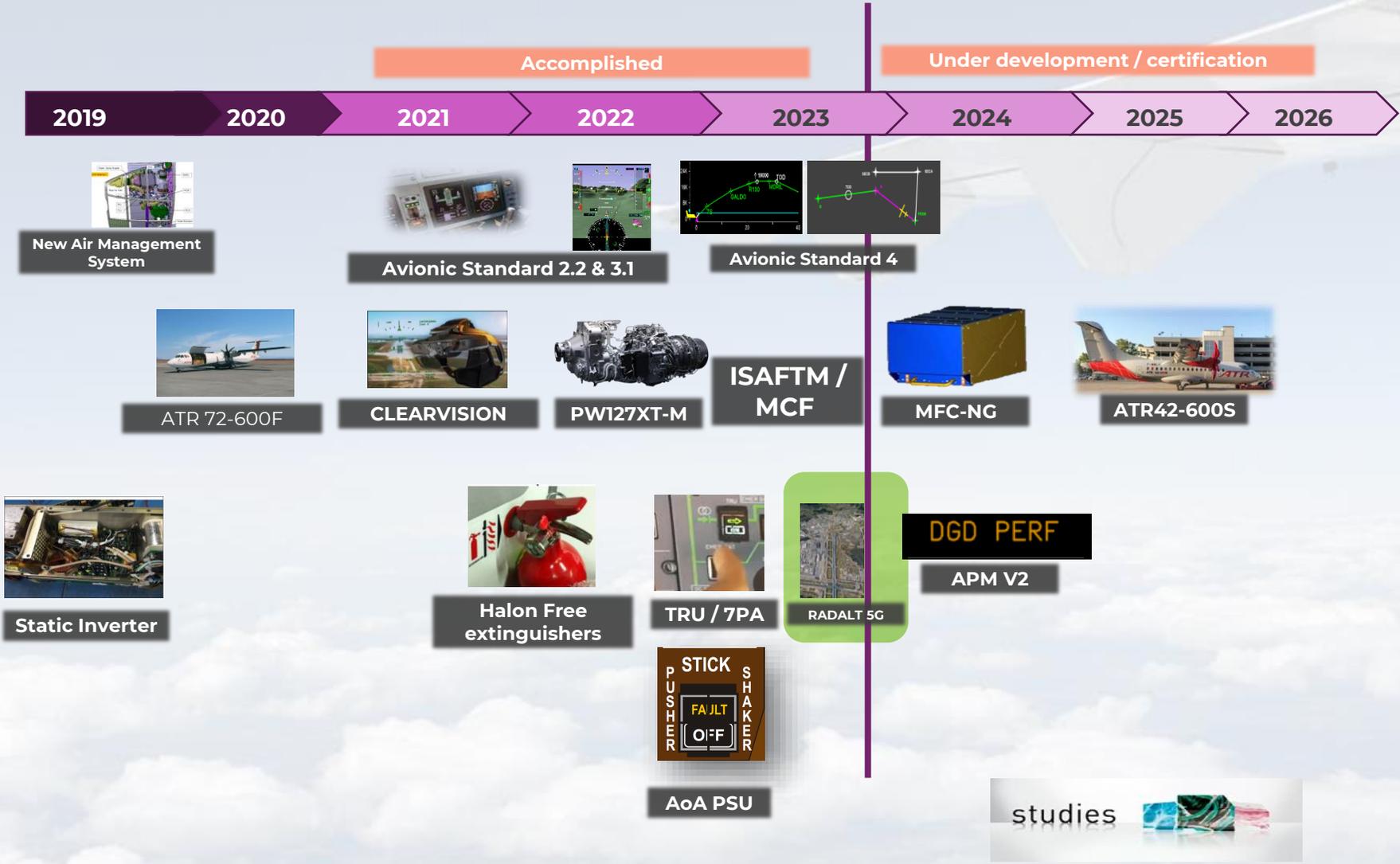
Installation of final fix:

- Man-hours: 50hours
- Before 19 sept 2024



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# Major Achievements / short term Product enhancement



# Radio altimeter interference with 5G

- FAA AD 2021-023-12 released on 09 December 2022
- FAA NPRM 2022-01647 released on 06 January 2023
- **Design changes**
  - RA type ERT-011
    - MOD 18047 certification expected: EASA 30 Nov./FAA 15 Dec. 2023
  - RA type ERT-550 (“-600” version)
    - MOD 10389 certified (EASA/FAA)
    - MOD 10390 certified (EASA/FAA)

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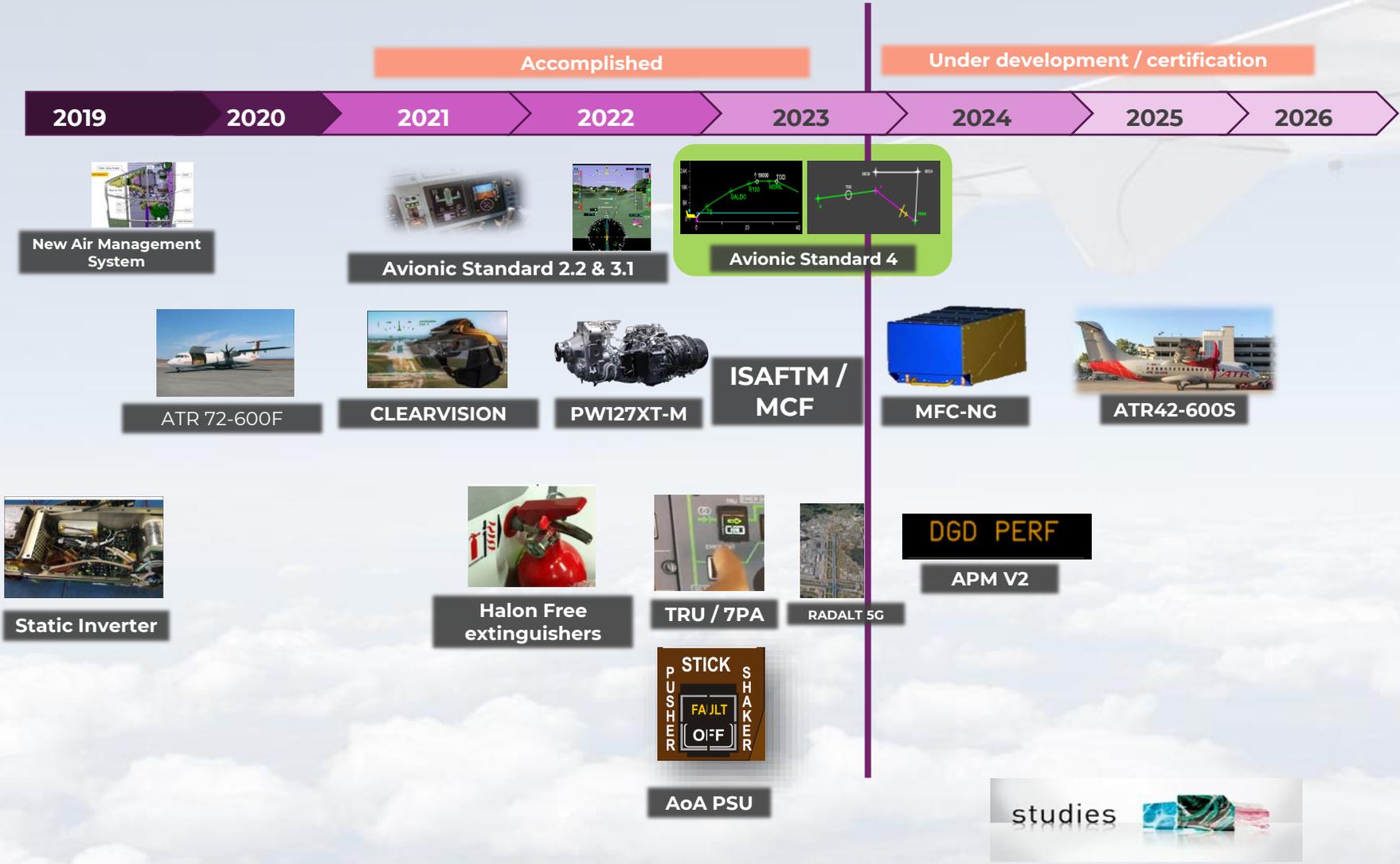
## AOM 2021/11 issue 5

- To keep flight crews informed of this new potential threat, and
- To ensure a systematic report is addressed to ATR and the National Aviation



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# Major Achievements / short term Product enhancement



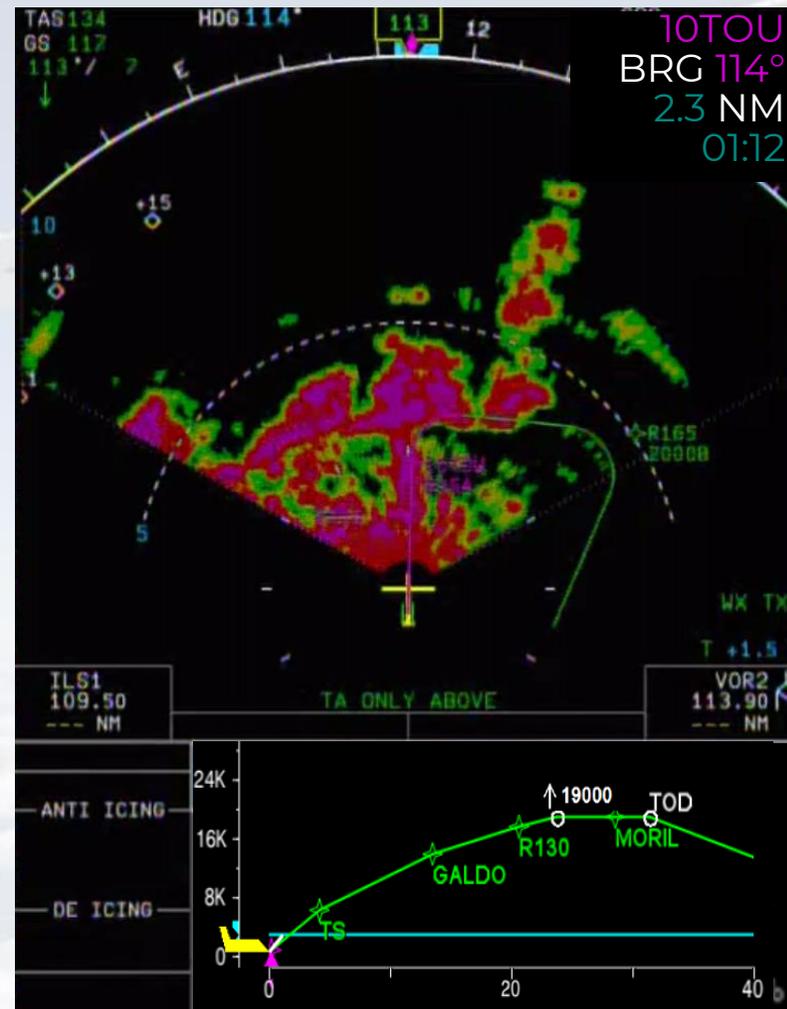
# NAS Std 4 - Key features

- Vertical Situation Display (VSD)
  - Increase vertical navigation awareness
  - 3D trajectory reconstruction
  - Conformity with ND
  - **A/C energy awareness (Velocity Vector)**



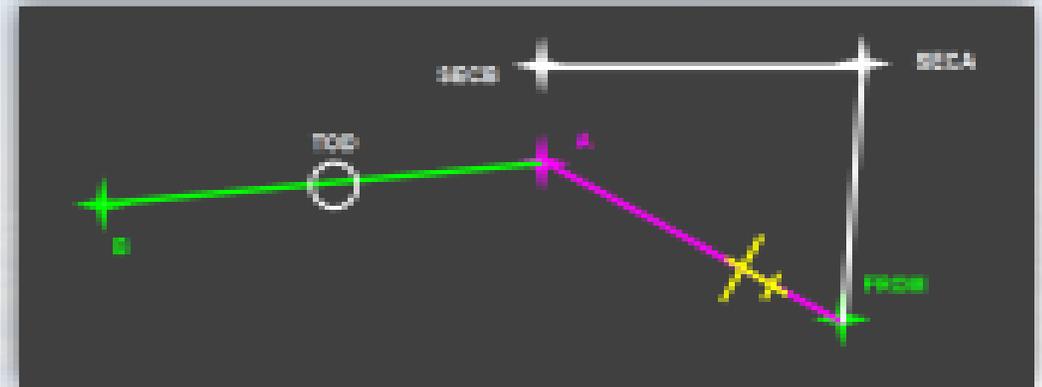
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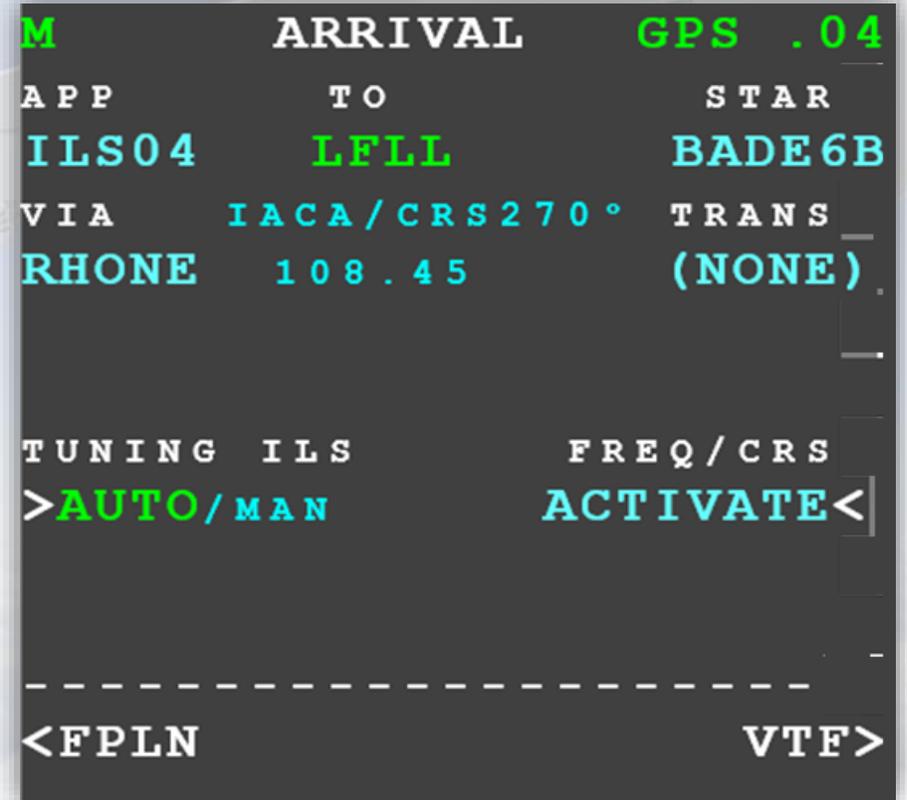
# NAS Std 4 - Key features

- SEC FPLN on ND - Basic
  - **Increases crew awareness** during SEC FPLN construction
  - **Provides crew with the complete picture**



# NAS Std 4 - Key features

- RNP to ILS automatic transition - FM keys
- Once ILS approach is inserted in the FPLN, associated FREQ & CRS are automatically tuned at 40NM from destination.
- Manually arming the approach mode, the aircraft is guided to the FAF following the FPLN, then automatically transitions to an ILS guidance type down to the decision point.
- **Decrease crew workload.**



The screenshot shows a flight display with the following information:

M	ARRIVAL	GPS .04
APP	TO	STAR
ILS04	LFLL	BADE6B
VIA	IACA / CRS 270°	TRANS
RHONE	108.45	(NONE)
-----		
TUNING ILS	FREQ / CRS	
>AUTO/MAN	ACTIVATE<	
-----		
<FPLN	VTF>	

# Conclusion

-  ATR continuous investment on product safety enhancements
-  Take benefit of technology & training to improve your safety margins
-  Implement AOMs and In Service actions as soon as possible