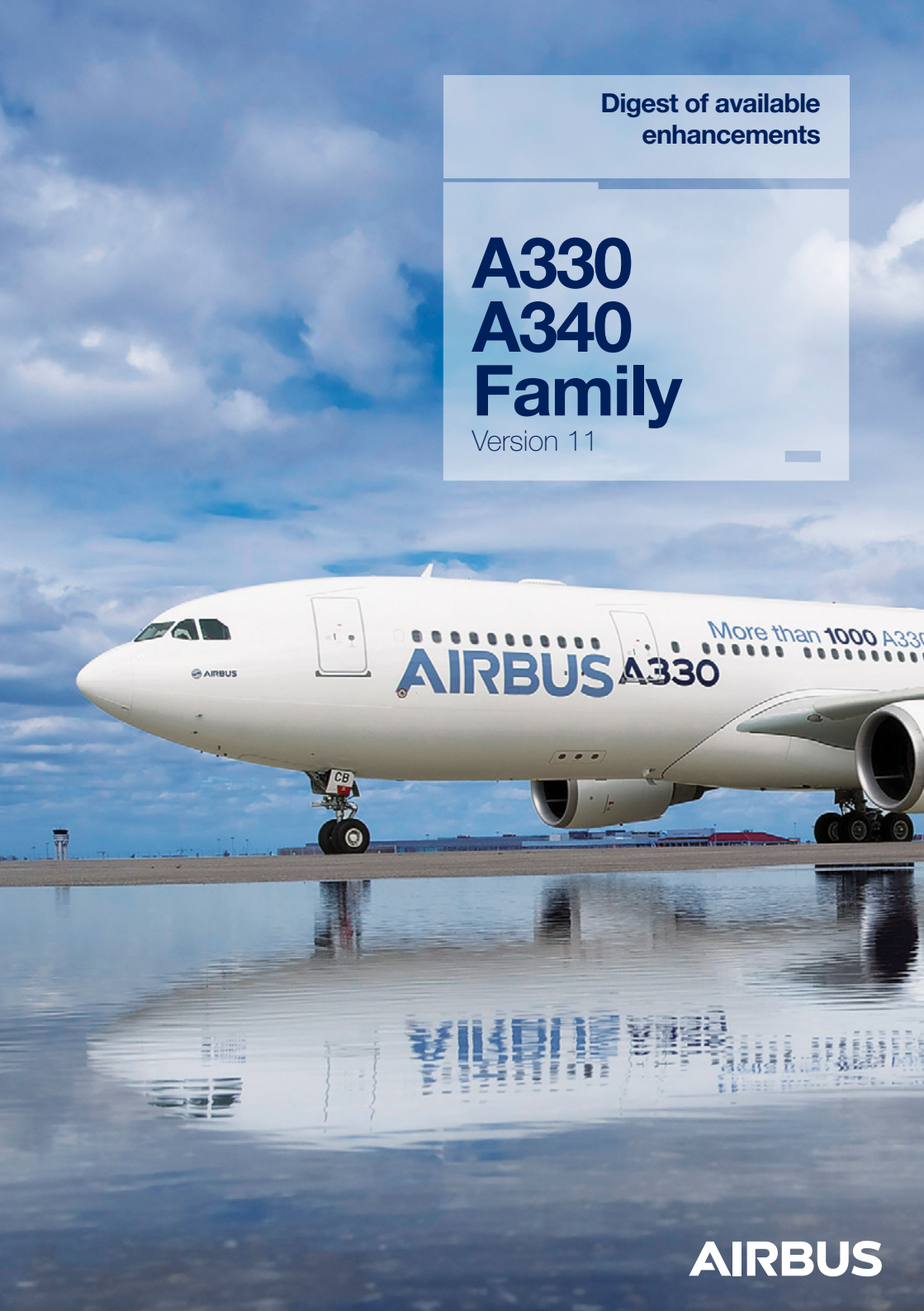
Digest of available enhancements

A330 A340 Family

Version 11



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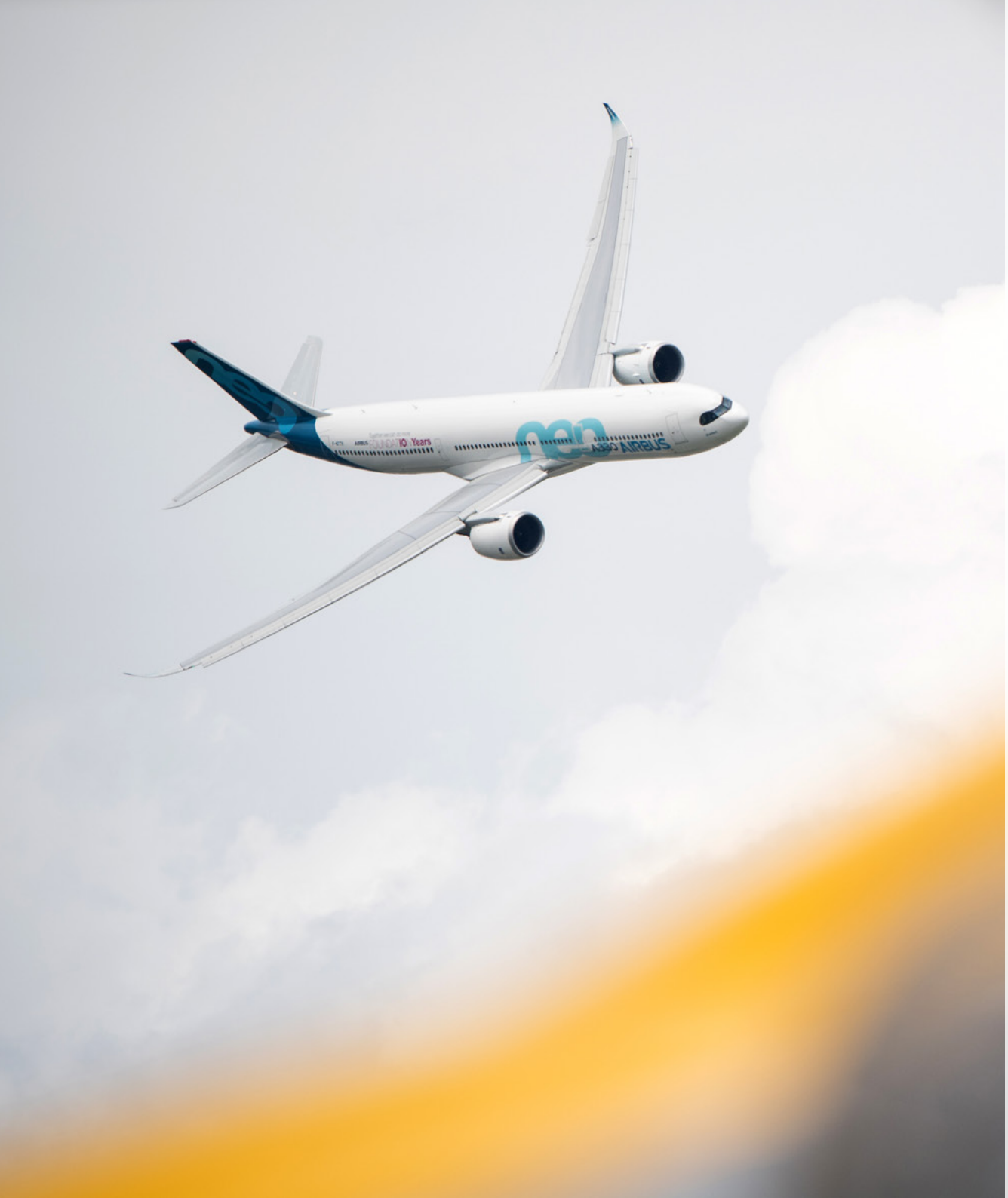

Dear customers,

The objective of this leaflet is to present an updated overview of available operational/safety enhancements for which your fleet might be eligible.

This extract focuses on selected design evolutions which are part of the “Safety Beyond Standard” Airbus initiative, which aims at further enhancing the safety of the fleet beyond requirements.

Additional objective is to reduce the number of OEBs that are still applied on some aircraft despite the availability of fixes to close such OEBs.

This list does not claim to be exhaustive nor does it include items already covered by mandatory actions.

For a detailed description and guidelines on any of the items included in this leaflet, you must refer to the latest revision of the Airbus documentation.

Should you have any specific questions, please do not hesitate to contact Airbus either through your Field Representative or your Customer Support Director.

We hope that, while each operator has the responsibility to adapt its operations to local airworthiness rules and to define training and procedures in line with its own operational conditions, this leaflet will be beneficial to your operations.

Best Regards,

Yannick Malinge
SVP – Head of Aviation Safety

Safety Beyond Standard

Airbus launched the Safety Beyond Standard initiative to further enhance the safety of the fleet beyond requirements.

One of the primary objectives is to enhance the A320 and A330 family aircraft so that they are similar to the A350 in terms of operational capability, resilience, and assistance to the flight crew in abnormal conditions.

The Safety Beyond Standard initiative aims to reduce exposure to identified safety threats, starting with Loss of Control In-flight (LOC-I), Controlled Flight Into Terrain (CFIT), Runway Excursion (RE), fire, smoke, cabin depressurization, abnormal ground control, and abnormal fuel situations. Safety Beyond Standard is a continuous improvement initiative, therefore, additional enhancements will be proposed in the next issues of this digest.

To reduce the threat of LOC-I for example, design enhancements are developed to achieve these three high-level objectives:

- Increase autopilot availability;
- Increase flight envelope protection availability;
- Enhance flight crew interface and awareness.

On the following pages, you will find several available enhancements that are part of the Safety Beyond Standard initiative. They are identified with the tag shown below.

Safety Beyond Standard

A summary table of these enhancements is also available on the next page.

For more information on the Safety Beyond Standard enhancements, please also refer to the ISI 22.00.00104.

Several safety enhancements of the Safety Beyond Standard initiative are subject to an Airbus monitored retrofit campaign (refer to each individual enhancement for Retrofit Information Letter references).

Contact

For more information on the Safety Beyond Standard initiative, please contact your Field Representative or your Customer Support Director.

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Table of contents – ATA chapter

Introduction of new pack controller to avoid dual temporary pack flow fluctuation

Cabin depressurization prevention
IFTB/Diversion/Emergency descent prevention ATA 21

A330/A340 A/C	Cancel OEB 33, OEB 44

Description of safety topic

In cruise, in high humidity condition, ice could build up inside both packs and reduce the air flow provided to the cabin. The pack controller logic is not able to cope with this phenomenon and the cabin pressure reduces. Eventually, the “EXCESS CAB ALT” ECAM warning is triggered and an emergency descent is performed.

Available enhancements

Upgraded Pack Controller software A-07, B-02 or C-07:

- **SB A330-21-3143**, **A340-21-4142**: Pack controller A-07;
- **SB A330-21-3144**, **A340-21-4143**: Pack controller B-02;
- **SB A330-21-3169**, **A340-21-4156**: Pack controller A-08 AND B-03;
- **SB A330-21-3168**, **A340-21-4155**, **A340-21-5048**: Pack controller C-07.

Note: refer to TFU 21.50.00.002 and OIT 999.0085/10 which describes details regarding an incompatibility between new pack controller std C-07 and old zone controller.

Additional benefits

OEB 33 is cancelled by introduction of these new pack controllers.

OEB 44 is cancelled by introduction of new Pack Controller C-07 (on A340 only).

Other references

- ISI 21.53.00004
- TFU 21.50.00.002 & OIT 999.0085/10

Introduction of new cabin pressure controller and flight deck monitoring

Safety Beyond Standard

UPDATED

Cabin depressurization prevention / IFTB /
Diversion / Emergency descent prevention ATA 21

A330/A340 A/C	No OEB

Description of safety topic

Cases of abnormal pressurization behavior has occurred due to abnormal Cabin Pressure Controller (CPC) behavior, leading the cabin pressure altitude to increase and consequential emergency descent.

Available enhancements

The available enhancements consist of two enhancements that can be embodied separately:

1. **Nord Micro CPC** PN 20793-42BD introduces software improvements offering greater system robustness against uncommanded cabin depressurization:
   - **SB A330-21-3163, SB A340-21-4151, SB A340-21-5045**;

   Upgrade of existing Nord Micro CPC PN 20793-42BC to PN 20793-42BD can be performed by Nord Micro Vendor Service Bulletin (VSB):
   - **VSB 20793-21-012**: 20793-42BC upgrade to 20793-42BD by Nord Micro VSB;
2. **Additional Flight Deck Indication**: display of ECAM memo “OXY PAX ON” to the flight crew as additional indication that masks are deployed:
   - Gaseous Oxygen System: **SB A330-35-3029**, **SB A340-35-4029**, **SB A340-35-5021**;
   - Chem. Oxygen System: **SB A330-35-3037**, **SB A340-35-4032**, **SB A340-35-5024**.

Aircraft prerequisites

CPC’s from PN 20793-30BA and subsequent can be updated to PN 20793-42BC by embodiment of the following VSB (where applicable):

- **VSB 20793-21-003**, **VSB 20793-21-006**, **VSB 20793-21-011**.

To take full benefit of the implementation of the improvements offered by the CPC PN 20793-42BD additional wiring between the SDAC and CPC has to be added for aircraft pre mod 51838D44346:

- **SB A330-21-3102, SB A340-21-4111**.

The ECAM memo introduction requires at least FWC T4/L12 and SDAC C9-0 standards or subsequent.

Additional benefits

For aircraft fitted with older CPC, the replacement with a newer P/N (including 20793-42BD) will bring an additional benefit replacing the removable pressure sensor protection by fixed ones, preventing risk of erroneous pressure measurement in case the protections are left in place after maintenance.

Introduction of new cabin zone controller

UPDATED

Loss of pressurization prevention

ATA 21

A340-500/600 A/C

Cancel OEB 33, OEB 44

Description of safety topic

On A340-500/600 with Zone Controller 978C0000-07, AIR PACK VALVE 1 FAULT and AIR PACK VALVE 2 FAULT cautions can occur in cruise, either simultaneously or at an interval of a few seconds. If the ECAM procedure to switch off one pack is then applied, spurious ECAM AIR PACK 1+2 FAULT can trigger. This requires switching off the remaining pack and descent to FL 100.

OEB43 was issued to enable flight crew to attempt a zone controller reset prior to applying the ECAM procedure.

Note: OEB43 is not applicable to A330 or A340-200/300 aircraft.

Available enhancements

For **A340-500/600** the zone controller PN 978C0000-08 cancels this misbehaviour:

- **SB A340-21-5051**: INTRODUCE ZONE CONTROLLER C08.

Other references

- TFU 21.00.00.062 – AIR CONDITIONING – Cockpit and Cabin temperature – Introduce modified Zone Controller

Introduction of a label to remind precautions during ground air pre-conditioning

Safety Beyond Standard

Ground personnel injury prevention
Aircraft damage prevention

ATA 21

A330/A340 A/C

No OEB

Description of safety topic

During the operation of the ground air supply, with the Outflow Valve closed, and with a fully closed cabin, there is risk of aircraft damage and injury to personnel in the event of an unrecognized build-up of cabin pressure.

Available enhancements

The introduction of new warning labels adjacent to LP/HP ground connection access panels gives additional recommendations to minimize the possibility of cabin residual pressure during ground air supply.

This reduces the risk of aircraft damage and/or injury to persons inside the aircraft during operation of the ground air supply. This is embodied by the following SBs:

- **SB A330-21-3171**;
- **SB A340-21-4158**;
- **SB A340-21-5050**.

Other references

Article in Safety First #27.

Introduce new APSU and improve the DSCS residual pressure warning function

Safety Beyond Standard

Ground personnel injury prevention

ATA 21
ATA 52

A330/A340 A/C — No OEB

Description of safety topic

Due to current aircraft logic, the Residual Pressure Warning system (RPWS) is not operative on ground with no Aircraft electrical power. If the operating procedures are not fully adhered to this could lead to opening of the door when the aircraft is pressurized, with risk of injury.

Available enhancements

Introduction of modified relay logic, which enables correct ground conditions to be sent to the RPWS to correctly indicate aircraft cabin pressurization:

- **SB A330-52-3096** / **A340-52-4102** / **A340-52-5024**: introduce ASPSU P/N 3214-92 and improve the DSCS residual pressure warning function.

Aircraft prerequisites

SB A330-52-3096 or **A340-52-4102** requires prior or simultaneous accomplishment of Service Bulletins A330-52-3020 / SB A340-52-4028 or production modification 42998.

Additional benefits

These service bulletins also improve enhancements to prevent false activation of the RPWS and improve Autonomous Standby Power Supply Unit (ASPSU) battery life.

Other references

- TFU 52.71.00.021 Residual Pressure Warning System improvement
- OIT 999.0009/12 ATA 52-71 Residual Pressure Warning System
- Article in Safety First N°27

FMGEC Pre GenePi hardware – Flight Mode Annunciator (FMA) enhancements

UPDATED

Enhancement of AP and FD engagement logics

ATA 22

A330/A340 A/C with PRE Genepi hardware — Cancel OEB 20, OEB 48

Description of safety topic

This enhancement has been developed to upgrade Flight Management System (FMS) software and to take new Flight Guidance and Envelope (FGE) functionalities into account. For example, in Alternate law:

- Automatic AP disengagement at VLS-10 and Vmo/Mmo+6kts;
- AP & FD disengagement if at STALL warning;
- AP & FD disengagement if VLS and AOA not available;
- FD will not re-engage automatically after an automatic disengagement.

In addition, an enhancement of the Flight Mode Annunciator (FMA) to improve flight crew awareness in case of Auto Pilot / Flight director modes reversion is available.

Available enhancements

- A330 GE:
  - **SB A330-22-3200**, FMGEC L11B9,
  - **SB A330-22-3198**, FMGEC T2B9,
  - **SB A330-22-3223**, FMGEC P3B9;
- A330 PW/RR:
  - **SB A330-22-3201**, FMGEC L11CD9,
  - **SB A330-22-3199**, FMGEC T2CD9,
  - **SB A330-22-3222**, FMGEC P3CD9;
- For A340-200/300:
  - **SB A340-22-4093**, FMGEC T2A12,
  - **SB A340-22-4095**, FMGEC L11A12,
  - **SB A340-22-4096**, FMGEC P3A12;
- For A340-500/600:
  - **SB A340-22-5041**, FMGEC T2E9,
  - **SB A340-22-5042**, FMGEC P3E9.

Note: L11 FMS cancels OEB20 (Erroneous vertical profile during RNAV, LOC and LOC B/C approaches).

The triple click aural alert and specific display on the PFD can be activated via pin programming via **SB A340-22-4041**, activating FMA enhancement function.

Aircraft prerequisites

A340-200/300 FMA enhancements requires at least:

- **SB A340-31-4041**: DMC software V110X or subsequent (refer to page 29);
- **SB A340-31-4042**: FWC standard L7-0 or subsequent, and new SDAC standard C3-0A.

Other references

- Presentation during 20th and 22nd Flight Safety Conferences
- ISI 22.83.00004 FMGEC – Evolution & interchangeability

FMGEC GenePi hardware – Flight Mode Annunciator (FMA) enhancements

UPDATED

Enhancement of AP and FD engagement logics ATA 22

A330 A/C with Genepi hardware — Cancel OEB 20, OEB 48

Description of safety topic

FMGEC enhancements have been developed to introduce additional features to avoid any undesirable aircraft deviation and to improve the take-off securing function.

The latest standards also introduce Enhancements to the AP and FD engagement logic.

The modifications introduce the following enhancements:

In Alternate law:

- Automatic AP disengagement at VLS-10 and Vmo/Mmo+6kts;
- AP & FD disengagement at STALL warning;
- AP & FD disengagement if VLS and AOA not available;
- FD will not re-engage automatically after an automatic disengagement.

The following functionality is also introduced with these FMGEC standards:

- NAV Go Around logic is available and enhanced;
- Protection in case of pitch up during glide capture is available;
- Take-Off Surveillance function (TOS) is improved with introduction of the MCDU Alert message “Take Off Speed Too Low”.

The Thales FMS standard T5B also fixes the Erroneous vertical profile in final approach linked to FOT 999.0064/16.

Note: Safety Beyond Standard enhancements available for this FMGEC refer to page related to P6H7 and T6H7.

Available enhancements

The modification is available as follows:

- **SB A330-22-3227** and **A330-22-3234**, FMGEC T5BH3;
- **SB A330-22-3230**, FMGEC Std P4H3.

Other references

Presentation during 20th and 22nd Flight Safety Conference:

- ISI 22.83.00004 FMGEC – Evolution & interchangeability

Introduction of the FGE H7

NEW

Safety Beyond Standard

Enhancement of AP availability ATA 22

A330 family fitted with FMGEC Genepi — No OEB

Description of safety topic

The FGE standards H7 introduce several enhancements:

- Safety Beyond Standard evolutions including:
  - Enhance autopilot robustness in case of FMS failure,
  - Introduction of Alternate AP function (activation via SB 22-3350) which keeps the AP/FD/ATHR available in situation of unreliable airspeed or airspeed loss,
  - Introduction of SLS (Satellite Landing System) function (activation via optional SB);
- Protection against secondary glide slope capture;
- New FMA messages “FCU ALT ABOVE A/C” and “FCU ALT BELOW A/C” to warn the crew that the A/C is descending or climbing without limit.

Available enhancements

The following SBs are subject to Airbus monitored retrofit campaign:

- **SB A330-22-3338** for standard P6H7 PEG II (RIL G22M22002366);
- **SB A330-22-3356** for standard P6H7 PEG I (RIL G22M22002366);
- **SB A330-22-3334** for standard T6AH7 HW4 (RIL G22M22002397);
- **SB A330-22-3361** for standard T7H7 HW1 (dispatch in 2024).

Aircraft prerequisites

SB A330-31-3263 installing the EIS standard L13 is required to benefit of the new FMA messages (but not mandatory to install FGE H7).

Additional benefits

Improved FMGEC startup sequence to reduce failures on ground (ref TFU 22-83-00-037).

Contacts

For more information on the monitored retrofit campaign, please contact Retrofit Operations at the following email address: **monitored.retrofit@airbus.com**

Introduce Alternate Autopilot (AP) function

NEW

Safety Beyond Standard

Enhanced availability of autopilot

ATA 22

A330-900 — No OEB

Description of safety topic

In the frame of Safety Beyond Standard (SBS) initiative, Alternate AP function has been developed to enhance the availability of the autopilot in case of multiple Air Data Reference (ADR) failures.

With Alternate AP function activated:

- The AP/FD/ATHR will remain engaged in case only one ADR is available or only back-up speed is available (with some limitations);
- In case no more air data is available:
  - AP/FD/ATHR remain available keeping the aircraft stable in level flight and heading in clean configuration;
  - Auto thrust law keeps speed based on the Pitch/Thrust procedure.

Available enhancements

Alternate AP function is activated through the embodiment of:

- **SB A330-22-3350**.

Aircraft prerequisites

- Activation of UAMM Step 2 function

Other references

- ISI 31.60.00066 – UAMM Steps 1 and 2 (Reversible BUSS) on SA and LR A/C equipped with EIS2

Improved Shedding of Commercial DC Loads

Safety Beyond Standard

Cabin electrical smoke prevention

ATA 24

A330/A340 A/C — No OEB

Description of safety topic

The commercial DC loads cannot be shed by the COMMERCIAL p/b.

In case of arcing in the commercial DC circuit the fault isolation must be performed by directly pulling the C/B associated to the faulty equipment or by more extensive shedding, eventually ending in EMER ELEC CONFIG.

Available enhancements

Modification of the commercial busbars 602PP and 603PP supply in order to shed them, isolating the DC circuit feeding the galleys by coupling the 602PP and 603PP supply with the already available commercial pushbutton on the overhead electrical panel.

After embodiment of the modification the COMMERCIAL p/b will also shed the commercial DC loads:

- **SB A330-24-3049**;
- **SB A340-24-4063**;
- **SB A340-24-5025**.

Segregation of the 26 VAC power supply for AOA1 and AOA3

Temporary loss of the ADR 1 & 3 prevention

ATA 24

A330/A340 A/C — No OEB

Description of safety topic

Electrical interferences on the 115 VAC single phase can affect the 26 VAC which can cause a defect in the Angle of Attack (AOA) monitoring and thus lead to the temporary loss of the Air Data Reference (ADR) 1 & 3.

Available enhancements

Segregation of the power supply for AOA1 and AOA3 in order to prevent double loss of ADR1 and ADR3 due to a single phase failure is available via the following SBs:

- **SB A330-24-3047**;
- **SB A340-24-4061**;
- **SB A340-24-5024**.

Modification of static inverter

Safety Beyond Standard

Cockpit smell and smoke prevention

ATA 24
ATA 25

A330 A/C — No OEB

Description of safety topic

Some operators have reported the failure of the cockpit additional electrical-supply static inverter (FIN 3NA) leading to “strong acrid electrical type” smell followed by light smoke from the central pedestal in the cockpit.

The failed static inverters are fitted on their power supply board with a defective capacitor which can fail and overheat at a point in time leading, subsequently, to electrical smell and light smoke in the cockpit.

Available enhancements

This modification consists in replacing the defective capacitor by a new one through the embodiment of **VSB 1830-25-37**.

This embodiment fulfils one of the requirements of the Airbus Inspections Service Bulletins (SB) **A330-25-3680**.

Other references

- OIT 999.0096/16
- TFU 24.00.00.114

New cockpit stowage box robust to Portable Equipment Devices lithium battery runaway

Safety Beyond Standard

Enhancement of fire containment

ATA 25

A330/A340 A/C up to MSN 355 (included) — No OEB

Description of safety topic

The cockpit lateral stowage boxes may be used for the stowage of Lithium battery powered portable devices.

Airbus continuous development testing has identified that, in the event of a Lithium battery fire, the structural integrity of the stowage box, made from honeycomb, may not be ensured. This could result in reduced protection of adjacent systems, such as the cockpit oxygen mask lines.

The modification consists in changing the material of the lateral stowage boxes from honeycomb to aluminium.

The accomplishment of this modification will enhance the protection of surrounding systems in case of portable devices lithium battery fire.

Available enhancements

The retrofit of the cockpit stowage boxes (or lateral consoles) provides a mitigation against the risk coming from PED (Personal Electronic Devices) lithium battery fire runaway.

New design / reinforcement of the stowage box structure can be implemented via:

- **SB-A330-25-3734**;
- **SB-A340-25-4376**.

The above mentioned service bulletins are subject to a monitored retrofit campaign via RIL LR25M19006946.

Other references

- TFU 25.10.00063

Contact

For more information on the monitored retrofit campaign please contact Retrofit Operations at the following email address **monitored.retrofit@airbus.com**

Installation of additional FCS sensor for heated floor panels controlling

Safety Beyond Standard

Cabin electrical smoke prevention

ATA 25

A330/A340 A/C — No OEB

Description of safety topic

On A/C fitted with heated floor panels (HFP), in case of damage on the HFP itself, the HFP power is not shut down. As a consequence, if power is still supplied to HFP, there is a risk of short circuit at the damage location, leading to locally hot temperature: burn smell in cabin, burn marks on non textile floor.

Available enhancements

A modification has been developed to install a Fault Current Sensor (FCS) for the most HFP affected positions to allow the current detection by the IPCU and switch off the HFP. The SB will allow to power off the HFP as soon as a current variation is detected (i.e. when a HFP is damaged). This modification can be embodied via:

- **SB A330-25-3749**;
- **SB A340-25-4379**;
- **SB A340-25-5242**.

Additional benefits

The SB will allow to power off HFP as soon as a current variation is detected (i.e. when a HFP is damaged).

Other references

TFU 25.27.00021

Introduction of a protection cover on cockpit seats

NEW

Pilot potential injury prevention — ATA 25

A330/A340 A/C — No OEB

Description of safety topic

During operation of the seat adjustment mechanism, in particular cases, it is possible to trap the finger between seat and seat pedestal, which can cause crush injuries to the finger tip(s).

Available enhancements

Installation of a cover to prevent positioning of the hand between the seat underside and the fixed seat base.

This enhancement can is embodied via:

- **VSB TAAI1-25-621** (seat TAAI- series);
- **VSB 2510144-25-620** (seat series PN 2510144 & 2510145).

Other references

- TFU 25.11.00.025
- ISI 25.11.00003

Introduction of new CIDS STD 59B

Safety Beyond Standard

Spurious cargo smoke warning prevention — ATA 26

A330 fitted with CIDS-SDF (Post mod 58244) — No OEB

Description of safety topic

Spurious messages are normally triggered in case all devices (Smoke detectors and Fire Extinguishing Data Converter) installed on the same CAN BUS are considered faulty or not behaving properly by the SDF.

In some cases this can lead to triggering of spurious smoke warning, if coupled with failure on the Multi-criteria Smoke detector.

Available enhancements

A new CIDS/SDF software P/N Z063H000059B (PAX) / Z067H000061A (Freighter) has been developed to implements new smoke detector polling sequence. This is more robust to smoke detector elongated boot up time in case of power supply variation.

- **SB A330-23-3390** – **VSB Z063H-23-023** applicable to A330 aircraft (PAX);
- **SB A330-23-3379** – **VSB Z067H-23-001** applicable to A330 Freighter aircraft.

Aircraft prerequisites

Applicable to aircraft with Enhanced CIDS with SDF function (Post mod 58244).

Other references

- TFU 26.10.00.016

Introduction of Flight Control Data Concentrator (FCDC) L27/M26/P17 HS software standard

Safety Beyond Standard

Flight Crew situational awareness

ATA 27

A330 Enhanced — No OEB

Description of safety topic

FCDC standard contributes to the following enhancements:

- Capability for Unreliable Airspeed Mitigation Means (UAMM) step 2 function (refer to ISI 31.60.00066);
- Capability for the triggering of new alert “BANK BANK”;
- Capability for the triggering of new alert “F/CTL LAWS REDUNDANCY LOST”;
- Improvement of the triggering logic of “DUAL INPUT” alert.

Available enhancements

New FCDC standard is introduced with **SB A330-27-3239** – Introduce High Speed FCDC STD L27/M26/P17 HS on enhanced aircrafts.

Aircraft prerequisites

The following prerequisites are needed:

- **SB A330-27-3211** Introduce High Speed FCDC Std L25/M24/P15 HS on enhanced aircraft (i.e. on A330 enhanced already fitted with HS FCDC hardware); or
- **SB A330-27-3210** Replace FCDC Std L25/M24/P15 Low Speed by High Speed (i.e. on A330 enhanced not yet fitted with HS FCDC hardware).

Other references

- ISI 31.60.00066
- RIL G27M20005671 R01 related to **SB A330-27-3211** only

Contacts

For more information on the monitored retrofit campaign, please contact Retrofit Operations at the following email address: **monitored.retrofit@airbus.com**

Introduction of new Flight Control Data Concentrator (FCDC) software

IFTB / diversion prevention
Flight crew awareness

ATA 27

A330/A340 A/C — No OEB

Description of safety topic

FCDC software is introduced to address:

- Spurious flight control surface indications and/or warnings which can occur although the corresponding flight control surfaces are in correct position;
- Improve flight crew awareness to use MAN PITCH TRIM when Auto Trim function is lost.

Available enhancements

New FCDC software introduces improvements to address spurious flight control surface indications and awareness to use MAN PITCH TRIM when Auto trim function is lost:

For A330/A340 -200 &-300 enhanced (post-MOD 49144):

- **SB A330-27-3212** / **SB A340-27-4200** FCDC standard L25/M24/P15 Low Speed (LS).

For A330 enhanced (post-MOD 49144) with High Speed FCDC:

- **SB A330-27-3211** FCDC standard L25/M24/P15 High Speed (HS).

For A340-500/600:

- **SB A340-27-5069** FCDC Standard I6.

For A330/A340 -200 &-300 basic (pre-MOD 49144):

- **SB A330-27-3232** / **SB A340-27-4211** FCDC standard L26/M25/P16.

Other references

- TFU 27.90.00.036
- TFU 27.95.00.045

Introduction of Flight Control Primary Computer (FCPC) P17A/M28 NEO and P17A/M30 NEO

Safety Beyond Standard

Flight controls laws enhancement
Flight Crew situational awareness enhancement ATA 27

A330-900 & A330-800 — No OEB

Description of safety topic

The main improvements provided by FCPC P17A/M28 NEO standard on A330-900 are the following:

- FCPC capability for Unreliable Airspeed Mitigation Mean (UAMM) step 2 function (refer to ISI 31.60.00066);
- FCPC capability for the triggering of new alert “BANK BANK”;
- Enhancement of flight control laws reconfiguration logics in case of multiple ADC failures.

The main improvement provided by FCPC P17A/M30 NEO standard on A330-900 is the following:

- Improvement of airspeed monitoring for small hidden drift detection.

Available enhancements

New FCPC P17A/M30 NEO standard is introduced with **SB A330-27-3241** applicable to both A330-900 and A330-800.

Additional benefits

FCPC capability for A330-900 AFM Step 3 performance improvement.

Inspection and replacement of Jettison fuel valve to prevent valve body fracture

Safety Beyond Standard

Fuel leak prevention ATA 28

A330/A340 A/C post SB A330-57-3078 and A340-57-4086 (MOD 51414) — No OEB

Description of safety topic

Despite initial inspection program affecting some specific aircraft, some Jettison valve bodies may still be subject to fracture.

Such fracture could lead to significant fuel leaks on ground or in flight.

Aircraft prerequisites

Additional inspection and Jettison fuel valve replacement has been defined:

- **SB A330-28-3117**;
- **SB A340-28-4132**.

Introduction of red STALL STALL message on PFD

Safety Beyond Standard

Flight Crew situational awareness ATA 31

A330/A340 A/C No OEB

Description of safety topic

Red ‘STALL STALL’ message will appear on the PFD in addition to aural stall warning to reinforce flight crew awareness.

Available enhancements

For aircraft fitted with EIS1: the activation of the red STALL warning is automatic as soon as the right EIS1 standard is installed for EIS1 technology, which is described in the page of this leaflet with title “Introduction of EIS1 DMC standard V114-1 and V515”.

For aircraft fitted with EIS 2: the activation has to be performed by embodiment of the following SBs:

- **A330-31-3211**;
- **A340-31-4168**;
- **A340-31-5062**.

Aircraft prerequisites

For EIS2, the following SBs standard prerequisite apply (EIS2 standard L9E):

- **A330-31-3209**;
- **A340-31-4167**;
- **A340-31-5061**.

In addition, pin programming provisions have to be installed on aircraft EIS 2 as per below SBs:

- **A330-31-3240**;
- **A340-31-4180**;
- **A340-31-5074**.

Introduction of EIS1 DMC standard V114-1 and V515X

Safety Beyond Standard

Flight Crew situational awareness ATA 31

A330 and A340-200/300 A/C fitted with EIS1 No OEB

Description of safety topic

To reinforce flight crew awareness in case of stall warning conditions or during Go Around maneuver, enhancements have been introduced in the new EIS1 DMC standard.

Available enhancements

EIS1 DMC standards V114-1 and V515X include enhancements which introduce functionalities for:

- Red ‘STALL STALL’ message on PFD in addition to aural stall warning to reinforce flight crew awareness;
- Display “For Go Around Set TOGA” on FMA if TOGA not correctly set during Go Around;
- **SB A330-31-3218**: Introduction of DMC standard V515X;
- **SB A340-31-4188**: Introduction of DMC standard V114-1.

SB A330-31-3218 and **A340-31-4188** are subject to an Airbus monitored retrofit campaign ref. RIL LR31M17000688.

Other references

- TFU 31.62.00.058

Contacts

For more information on the monitored retrofit campaign please contact Retrofit Operations at the following email address **monitored.retrofit@airbus.com**

Introduction of EIS2 Standard L14

Safety Beyond Standard

Digital Back-Up Speed Scale capability
Back-Up Speed Scale improvement

ATA 31

A330 A/C — No OEB

Description of safety topic

The main improvements included in the EIS2 L14 standard are the following:

- Provision for ADT (Autonomous Distress Tracking) design with distress logics and detection;
- BUSS (Back-Up Speed Scale) update for A330 NEO;
- Capability for Alternate autopilot function;
- Capability for excessive bank angle visual alert;
- Red Stall message on PFD - Introduced with L9E standard;
- Safety Beyond Standard enhancements:
  - Capability for Reversible BUSS with digital back up speed (UAMM step 2) – Introduced with EIS2 L13 standard.

Available enhancements

The EIS2 L14 standard is introduced through the **SB A330-31-3284**.

Other references

- TFU 31.60.00080

Excessive Bank Angle Alert

UPDATED

Safety Beyond Standard

Flight Crew situational awareness

ATA 31

A330 Enhanced — No OEB

Description of safety topic

In pre-mod configuration, when aircraft is not protected (non-normal law), there is no warning for excessive bank angle.

Available enhancements

In post-mod configuration, when the bank angle exceeds 45 degrees in non-normal law (aircraft not protected) :

- an aural alert “BANK BANK” is triggered;
- a “BANK BANK” message is displayed on PFD (and HUD if equipped).

Aircraft prerequisites

The pre-requisites for this function are:

- FCPC:
  - For NEO:
    - for A330-800: P17A/M26A,
    - for A330-900: P17A/M28NEO;
  - For CEO:
    - for A330-200 retrofit P19/M24A (to be issued),
    - for A330-300 P19/M28CEO (to be issued);
- FCDC L27/M26/P17 High Speed;
- For audio alert: FWC T9.2 or subsequent;
- For visual alert (only available on aircraft fitted with EIS2): EIS2 L13 or subsequent;
- If HUD installed, HUD L7.

Introduction of Reversible Back-Up Speed Scale (BUSS) capability

Safety Beyond Standard

Irreversible loss of 3 ADR
Loss of automatic cabin pressure regulation prevention

ATA 31
ATA 34

A330 A/C — No OEB

Description of safety topic

BUSS (Back-Up Speed Scale) provides flight crew with an alternate speed scale in case of unreliable airspeed. Activation of the BUSS requires crew to select OFF the 3 ADR, which leads to the loss of automatic pressure regulation.

Available enhancements

Reversible BUSS display allows the crew to reselect the ADRs speed scales when the measurements return to normal. Activation / deactivation of reversible BUSS on Primary Flight Display (PFD) is achieved by means of new pushbutton installed in the cockpit.

UAMM Step 1: reversible BUSS has been introduced to allow the flight crew to display the BUSS in a reversible manner through a dedicated push-button.

- **SB A330-31-3242** for the wiring provisions and activation of the function (installation of “BKUP SPD/ALT” pushbutton on lighted plates, connection of wiring provisions and activation of hardware pin-programming at DMC level). This SB is subject to a monitored retrofit campaign via RIL LR31M17002422.

Aircraft prerequisites

See SB content.

Other references

- TFU 34.00.00.224
- ISI 31.60.00066 – UAMM Steps 1 and 2 (reversible BUSS) on SA and LR A/C equipped with EIS2

Contacts

For more information on the monitored retrofit campaign please contact Retrofit Operations at the following email address **monitored.retrofit@airbus.com**

Activation of ATC/Transponder monitoring function

ATC/XPDR inadvertently switched OFF prevention
Mid-air collision prevention

ATA 31
ATA 34

A330/A340 A/C — No OEB

Description of safety topic

An investigation has identified cases of ATC/Transponder being inadvertently switched OFF leading to the loss of ATC/XPDR and TCAS functions.

A recommendation was issued to increase crew awareness of transponder (XPDR) being inadvertently switched off.

Available enhancements

New ATC/XPDR monitoring function has been developed and is activated with SDAC pin programming:

- **SB A330-31-3154**, **A330-31-3151**, **A330-34-3237**;
- **SB A340-31-4141**, **A340-31-4139**, **A340-34-4242**;
- **SB A340-31-5047**, **A340-31-5045**, **A340-34-5075**.

Aircraft prerequisites

This function requires at least the following SDAC and FWC standards:

- **SB A330-31-3140**, **A340-31-4133**, **A340-31-5042**: Introduction of SDAC standard C9;
- **SB A330-31-3146**, **A340-31-5043**: Introduction of FWC standard T3;
- **SB A340-31-4134**: Introduction of FWC standard L12.

Introduction of new FWS standard T10

NEW

Safety Beyond Standard

Digital Back-Up Speed scale capability Runway excursion prevention

ATA 31

A330 family — No OEB

Available enhancements

FWC T10 standard introduces capability for Safety Beyond Standard functions. The main capabilities introduced are:

- Reversible BUSS with digital back-up speed (UAMM Step 2).

FWC T10 standard introduces also following enhancements:

- Introduction of ADT (Autonomous Distress Tracking) function monitoring;
- Introduction of AGB (Attention Getting Box) for A330 CEO A/C;
- Introduction of BRAKES RETRACT BRK FAULT alert for A330 NEO;
- Introduction of Autobrake disengagement awareness enhancement (A-BRK OFF ECAM super memo, AUTOBRAKE OFF Synthetic voice audio).

FWC T10 standard is introduced through **SB A330-31-3294**, subject to a monitored retrofit campaign Ref RIL G31M23000266.

Aircraft prerequisites

For BRAKES RETRACT BRK FAULT alert monitoring availability, SDAC C14 standard is required.

Other references

- TFU 31.50.00084
- SBIT 23-0052
- Presentation during 26th Flight Safety Conference in Dubai in 2022

Contacts

For more information on the monitored retrofit campaign please contact Retrofit Operations at the following email address **monitored.retrofit@airbus.com**

Activation of the parking brake monitoring function

Safety Beyond Standard

Unexpected parking brake activation prevention

ATA 32

A330/A340 A/C — No OEB

Description of safety topic

Unexpected parking brake application or non-activation occurs when the Position of the Park Brake Control valve does not match the position of the Park Brake Handle. This may happen in case of :

- Either Park Brake Control Valve failure to set (jammed closed) or slow to operate when commanded ON;
- Or Park Brake Control Valve failure to release (jammed open) or slow to operate when commanded OFF;
- Or upon other failure conditions (e.g. harness failure, Park Brake handle switch failure).

Available enhancements

New parking brake monitoring logic was introduced in FWC standard L12 (A330) or T3 (A340) to enable detection of discrepancy between the parking brake handle position and the parking brake Selector Valve and trigger appropriate ECAM warning on ground.

In order to activate the parking brake monitoring function, an additional wiring is needed, running from the SDAC to the parking brake handle:

- **SB A330-32-3244**;
- **SB A340-32-4285**, **A340-32-5105**.

Other references

- TFU 32.45.51.002

Introduction of new cabin attendant working light cover to prevent water condensation causing short circuit

Safety Beyond Standard

Cabin electrical smoke prevention

ATA 33

A330/A340 A/C — No OEB

Description of safety topic

The attendant work-light panels 5046VE with the power unit are installed at the door linings LH/RH.

From time to time, accumulated or condensed water in the door insulation blanket could cause a short circuit in the power unit.

Available enhancements

Solution introduced to protect the power unit against condensed water:

- **SB A330-33-3044**;
- **SB A340-33-4028**;
- **SB A340-33-5008**.

Introduction of static pressure probes obstruction monitoring on ground

Prevention of unreliable airspeed and altitude events

ATA 34

A330/A340 family A/C — No OEB

Description of safety topic

Non-detection of obstructed static pressure probes on ground in some specific cases.

Available enhancements

On-ground static pressure monitoring measured by the Air Data Reference (ADR) 1 and 2 is activated at FWC level by:

- **SB A330-31-3160** / **SB A340-31-4143** / **SB A340-31-5052**: Activate static pressure monitoring.

Aircraft prerequisites

This function requires at least the following FWC:

- **SB A330-31-3125** Install FWC standard T2-0;
- **SB A340-31-4125** Install new FWC standard L11-0 on A340;
- **SB A340-31-5038** Install FWC standard T2-0.

Introduction of static pressure lines disconnection monitoring

Prevention of unreliable airspeed and altitude events

ATA 34

All A330/A340 A/C fitted with Honeywell ADIRU pre P/N HG2030AE21

No OEB

Description of safety topic

In case of pressure line disconnection between the static probe and the Air Data Module (ADM) the pressure measured by the ADM is incorrect.

In case of multiple pressure line disconnections, this may lead to multiple erroneous displays in the cockpit (standby/Captain/First Officer) presenting similar but wrong altitude and airspeed information.

Available enhancements

A new ADR monitoring is available from Honeywell ADIRU PN HG2030AE21 (Mod. 51144). If the difference between left and right static pressure is greater than 30mbar, the associated ADR FAULT warning message is triggered on ECAM. The latest Honeywell ADIRU block II (embedding improvement introduced by HG2030AE21) is the PN HG2030AE25 or HG2030AE45:

- **SB A330-34-3390** / **SB A340-34-4334** / **SB A340-34-5144**: Introduction of ADIRU PN HG2030AE25 (from P/N HG2030AE24);
- **SB A330-34-3389** / **SB A340-34-4333** / **SB A340-34-5143**: Introduction of HG2030AE45 (from HG2030AE25 or HG2030AE44).

Note: All Honeywell ADIRU BIII (i.e. PN HG2030BExx) and all Northrop Grumman ADIRUs on the A330/A340 family fleet have this new monitoring.

Additional benefits

ADIRU PN HG2030AE25/HG2030AE45 also brings the following enhancements:

- Update of MAGVAR map with 2015 coefficients optimized for 2020;
- Gyro life monitoring function.

Other references

- OIT 999.0032/08

Installation of Thales Angle of Attack Probe on the Standby position

Standby Angle of Attack probe blockage robustness enhancement

ATA 34

A330/A340 A/C fitted with Collins AOA probe

No OEB

Description of safety topic

AOA probe blockage may occur in very specific weather conditions when water droplets from the atmosphere are trapped between the moving vane of the AOA probe and the AOA exterior face plate, becoming frozen while A/C is climbing.

Detailed analysis demonstrated that Collins AOA probe PN 0861ED and PN 0861ED2 are potentially affected by this blockage mode.

Available enhancements

This modification installs Thales AOA probe PN C16291AB on standby position instead of UTAS AOA probe PN 0861ED or PN 0861ED2.

UTAS AOA probe

Thales AOA probe

Thales AOA probe PN C16291AB can be installed on standby position via **SB A330-34-3323** / **A340-34-4305** / **A340-34-5120**.

Additional benefits

Cancelation of ISB A330-34-3304 / A340-34-4286 / A340-34-5099 (inspection of UTAS aoa probes for damaged o-ring) – Applicable to PN 0861ED only.

Other references

- OIT 999.0017/15 rev 01
- TFU 34.11.00.011
- ISI 34.10.00007

Introduction of new bi-colored Pitot and AOA probes markings on fuselage

Pitot and AOA probes on-ground damage prevention

ATA 34

A330/A340 A/C — No OEB

Description of safety topic

Pitot probes and Angle of Attack (AOA) probes may be damaged on ground due to inadvertent impact (with jetways for instance).

Available enhancements

Addition of bi-colored markings around Pitot and AOA probes to better highlight the sensitivity of this equipment.

This modification applies:

- For A330 aircraft **SB A330-11-3026**;
- For A340 aircraft **SB A340-11-4020** and **A340-11-5011**.

Other references

- ISI 34.11.00026 – A320FAM and A330/A340 Pitot probes – Description, evolutions and maintenance recommendations
- ISI 34.10.00007 – A320FAM and A330/A340 Angle Of Attack (AOA) probes – Description, evolutions and maintenance recommendations

Improved TAT probes

Improvement of Autopilot and Auto Thrust availability

ATA 34

A330/A340 A/C — No OEB

Description of safety topic

Failure of the two sensing elements inside the CAPT or F/O Total Air Temperature (TAT) probe can lead to loss of Flight Director, Autopilot and Autothrust.

On A330/A340, loss of CAPT TAT (both sensing elements) leads to AP/FD/ATHR loss on FMGEC1 only. These functions remain available on FMGEC2

Available enhancements

Replacement of the current TAT probe with an improved one, in order to improve robustness of the TAT two sensing elements.

Depending on aircraft configuration there are three types of TAT that could be installed:

- **SB A330-34-3217** / **A340-34-4220** / **A340-34-5033**: Installation of AUXITROL “NON-ASPIRATED” TAT Probe PN RP350-00;
- **SB A330-34-3246** / **A340-34-4245** / **A340-34-5077**: Introduction of UTAS “NON-ASPIRATED” TAT Probe PN 0102ME2GE;
- **SB A330-34-3250** / **A340-34-4246** / **A340-34-5078**: Introduction of UTAS “ASPIRATED” TAT Probe PN 0102LM2GE.

Other references

- TFU 34.10.00.015 – Dual breakdown of TAT sensing elements inducing loss of Auto-Pilot and reversion to ALTN law
- ISI 34.11.00027 – A320FAM and A330/A340 Total Air Temperature (TAT) probes – Description, evolutions and maintenance recommendations

Other data

The following standards have been developed to prevent reversion to ALTN LAW in case of TAT dual sensing element failure:

- ON BASIC A340: WITH FCPC L18 (**SB A340-27-4131**);
- ON BASIC A330: WITH FCPC P8/M17 (**SB A330-27-3132**);
- ON A340 ENHANCED: WITH FCPC L17 (EIS STD);
- ON A330 ENHANCED: WITH FCPC P7/M16 (**SB A330-27-3118**);
- ON A340-500/600: WITH FCPC W9 (**SB A340-27-5026**).

Introduction of new Pitot probe PN 0851MC

Prevention of unreliable airspeed events

ATA 34

A330/A340 A/C — No OEB

Description of safety topic

Isolated cases of Pitot probe blockage due to icing are experienced in service with the current installed probes Collins PN 0851HL, which meet all applicable certification requirements.

Available enhancements

Airbus and its supplier (Collins), have developed new Pitot probes PN 0851MC, which are certified to more stringent icing conditions: CS25 Appendix P (Mixed phase and Ice crystals) and CS25 appendix O (Supercooled large Droplet).

- **SB A330-34-3367**
- **SB A340-34-4321**
- **SB A340-34-5130**

Other references

- TFU 34.11.00.017
- ISI 34.11.00026

Flight Path Angle Availability improvement

Flight crew awareness

ATA 34

A330/A340 A/C with Honeywell ADIRU P/N HG2030ADxx or pre P/N HG2030AE24 or PN HG2030BExx pre std L4.2 — No OEB

Description of safety topic

This modification introduces an improvement of the Flight Path Angle (FPA) availability in the case of loss of airspeed.

Available enhancements

Introduction of Honeywell ADIRU standard PN HG2030AE24:

- **SB A330-34-3292**;
- **SB A340-34-4272**;
- **SB A340-34-5092**.

Introduction of Honeywell ADIRU standard PN HG2030AE44:

- **SB A330-34-3303**;
- **SB A340-34-4285**;
- **SB A340-34-5098**.

Introduction of Honeywell ADIRU PN HG2030BExx standard L4.2 (or subsequent):

- **SB A330-34-3279**;
- **SB A340-34-4260**.

Aircraft prerequisites

Aircraft with Honeywell ADIRU P/N HG2030ADxx or pre P/N HG2030AE24 or PN HG2030BExx pre std L4.2.

Other references

- Honeywell **VSB HG2030AE-34-0011** converts ADxx and AExx to AE24
- The latest Honeywell ADIRU block II (embedding improvement introduced by HG2030AE24) is the PN HG2030AE25 or HG2030AE45:
  - **SB A330-34-3390** / **SB A340-34-4334** / **SB A340-34-5144**: Introduction of ADIRU PN HG2030AE25 (from P/N HG2030AE24)
  - **SB A330-34-3389** / **A340-34-4333** / **A340-34-5143**: Introduction of HG2030AE45 (from HG2030AE25 or HG2030AE44)
- **VSB HG2030BE-34-0007** converts L4.1 to L4.2
- ISI 34.12.00003 ADIRU mixability matrices

Improved initialization function during ADIRS alignment

Simplification of ADIRU alignment to prevent loss of flight plan and Navigation Data

ATA 34

A330/A340-200/300 A/C — No OEB

Description of safety topic

Incorrect aircraft position entry during Air Data Inertial Reference Unit (ADIRU) alignment can lead to loss of auto pilot and reversion to alternate law, incorrect indication on the Navigation Display and erroneous heading indication on takeoff.

Available enhancements

This enhancement introduces:

- Automatic position initialization;
- Cross-check of manual initialization position with GPS position;
- Shortened alignment time.

This enhancement is activated by modification of pin-programming of the ADIRU 1 – 3:

- **SB A330-34-3287**: Activate Alignment Improvement Function on ADIRU;
- **SB A340-34-4268**: Activate Alignment Improvement Function on ADIRU;
- **SB A340-34-5035**: Activate Alignment Improvement Function on ADIRU.

Aircraft prerequisites

The improved ADIRU alignment function requires the aircraft to be fitted with:

- Any HONEYWELL ADIRU PN HG2030BExx;

-OR-

- LITTON ADIRU PN 465020-0303-0314 (or subsequent PN) and MMR;

-OR-

- Honeywell ADIRU PN HG2030AE21 (or subsequent PN) and Global Positioning System Sensor Unit (GPSSU) or Multi-Mode Receiver (MMR.)

Note: the latest Honeywell ADIRU block II (embedding improvement introduced by HG2030AE21) is the PN HG2030AE25 or HG2030AE45:

- **SB A330-34-3390** / **SB A340-34-4334** / **SB A340-34-5144**: Introduction of ADIRU PN HG2030AE25 (from P/N HG2030AE24);
- **SB A330-34-3389**/**A340-34-4333**/**A340-34-5143**: Introduction of HG2030AE45 (from HG2030AE25 or HG2030AE44).

Other references

- ISI 34.10.00006 - ADIRU alignment and maintenance recommendations

Introduction of New T3CAS Standard

Prevention of spurious EGPWS warnings

ATA 34

A330/A340 A/C — No OEB

Description of safety topic

Spurious terrain warnings can be experienced with T3CAS STD 1.2 (PN 9005000-10202) due to the latitude or the longitude remaining permanently frozen if the unit is powered on for more than 149 hours.

Available enhancements

Introduction of T3CAS std 1.3 PN 9005000-10204 which cancels the Airworthiness Directive 2014-0242 related to the “timer limitation” issue and the associated maintenance procedure given in the here below mentioned MPD task and AOT.

Additional robustness improvements regarding erroneous Global Positioning System (GPS) and Radio Altimeter inputs were added in this new standard. This enhancement is introduced via the following SBs:

- **SB A330-34-3320**;
- **SB A340-34-4298**;
- **SB A340-34-5110**.

Note: T3CAS std 2.0 PN 9005000-11203 will also offer ROPS capability in addition with the above improvements and will be available on request through the RFC/RMO process.

Aircraft prerequisites

This function requires at least the following standards:

- T3CAS STANDARD 1.2.

Other references

- ACSS **VSB 9005000-34-6013**
- AD 2014-0242 (FAA & EASA)
- AOT A34L003-13
- TFU 34.72.20.002

Introduction of modification packages to prevent a bleed loss

UPDATED

Cabin depressurization prevention IFTB/ Diversion/Emergency descent prevention

ATA 36

A330 A/C — No OEB

Description of safety topic

Some operators reported Dual Bleed Loss events during take-off, cruise or descent due to low or over pressure conditions.

Available enhancements

The following modification package addresses bleed overpressure issues (cf. TFU 36.11.00.069):

- **VSB 964-21-04**: FCV modification with increased internal leakage rate (PN 964A0000-06);
- **VSB 3290718-36-1890**: new amendment introduced to OPV (PN 6743A01) for pressure resetting;
- New pressure transducer PN ZRA691-00. Retrofit of 8HA1 position:
  - **SB A330-36-3039** (GE fleet),
  - **SB A330-36-43044** (PW fleet),
  - **SB A330-36-3043** New Pressure Transducers PN ZRA691-00 introduced to prevent condensed water accumulation and membrane blockage.

The following modification package addresses bleed low pressure issues with HPV NOT OPEN ECAM message (cf. TFU 36.11.00.083 and TFU 36.11.00.121):

- for CEO A/C: **VSB 6763-36-08** Replacement of the 4 screws by socket head screws and installation with lock-wire through Liebherr;
- for NEO A/C: **SB A330-36-3051** (introduces PN 71070A020001).

The following modification package addresses bleed low pressure at take-off due to PRV lock-up phenomenon (cf. TFU 36.11.00.112):

- **SB A330-36-3053** (introduces PN 6764B080000);
- **SB A330-36-3054** (introduces PN 6764C010000).

Please refer to the TFU for further details and other available enhancements.

Other references

- TFU 36.11.00.069: DUAL BLEED LOSS – OVER PRESSURE
- TFU 36.11.00.065: DUAL BLEED LOSS – OVER TEMPERATURE
- TFU 36.11.00.112: PRV lock-up scenario
- TFU 36.11.00.083: HPV NOT OPEN
- TFU 36.11.00.121: ATA36-A330NEO-HPV NOT OPEN Fault
- TFU 36.11.52.016: PRV low reliability issue

Corrective ATSU SW standard CLR7.5 &7.5.1

Loss of communication prevention

ATA 46

A330 A/C — No OEB

Description of safety topic

CLR 7.5

A330/A340 DATALINK CSB/CLR7.2 and CSB/CLR7.4 issue named “ACK and TOSS”.

Some ATC ground centres have experienced some cases in which they didn’t receive the flight crew answer to their CPDLC (FANS A ATC) uplink datalink message requests.

Some Airlines have experienced some cases in which the flight crew didn’t receive the ATC ground centre and Airline AOC centre answers to their CPDLC (FANS A ATC) and AOC downlinks messages requests. However, there were no fault indications in the flight-deck.

CLR7.5.1

Incompatibility found between ATSU SW CLR7.5 and HW40 and 50. As consequence, SBs cannot be applied on a/c fitted with ATSU HW40 and HW50.

Available enhancements

Corrective ATSU SW standard CLR7.5 A330, A340 family will be provided FoC for a/c currently on CLR7.4 FANSA+ configuration:

- **SB A330-46-3169**;
- **SB A340-46-4071**;
- **SB A340-46-5109**.

Corrective ATSU SW standard CLR7.5.1 A330, A340 family will be provided FoC for a/c currently on CLR7.4 FANSA+ configuration and equipped with HW 40& 50.

Other references

- TFU 46.21.00.006

APU auto shut down in case of oil contamination

Safety Beyond Standard

APU oil contamination enhancement

ATA 49

A330/A340-200/300 A/C — No OEB

Description of safety topic

A number of APU removals due to oil circuit contaminated by particles have been reported.

Available enhancements

The modification utilizes new Electronic Control Box (ECB) logic and an electric differential pressure (DP) switch. The DP indicator, fitted on both lube filter and generator scavenge filter, detects excessive filter blockage and imminent filter bypass conditions. When a blockage condition is detected, the DP switches will enable the APU auto-shutdown for certain conditions.

- **SB A330-49-3028**;
- **SB A340-49-4032**.

Other references

- TFU 49.90.00.018
- **VSB GTCP331-49-7936**

Introduction of new latch cowls flags

Fan cowl door loss prevention

ATA 71

A330/A340 A/C — No OEB

Description of safety topic

Fan cowl door loss events during flight can be caused by incorrect closure of the Fan Cowl Doors (FCD) latches further to maintenance or servicing action on the engine(s).

Available enhancements

Installation of the “LATCH COWLS BEFORE FLIGHT” red flags that is visible by the mechanics and the flight crew when the FCD latches are unlatched is done via:

- On A330: **SB A330-71-3034**;
- On A340-200/300: **SB A340-71-4009**;
- On A340-500/600: **SB A340-71-5005**.

Other references

- TFU 71.13.00.074
- ISI 00.00.00184
- OIT 999.0029/13
- OIT 999.0030/13
- Article in Safety First N°14
- Presentation during 20th Flight Safety Conference in Dubai in 2014

Introduction of Rolls-Royce EEC software

UPDATED

Prevention of In-Flight Shut Down events — ATA 73

A330 A/C fitted with Rolls-Royce Trent 700 engines — No OEB

Description of safety topic

The EEC software A14.2 brings enhancements to prevent significant operational interruptions such as In Flight Shut Down events:

- Correction to 'Spurious OIL LO PR', which was a main driver of In Flight Shut Down events;
- 'ENG STALL' display time in the cockpit is reduced from 60s to 5s, in order to prevent undue pilot-commanded In Flight Shut Down.

The EEC software A15 inherits the previous corrections.

Available enhancements

EEC software A14.2 is available through embodiment of:

- Airbus **SB A330-73-3059**;
- Rolls-Royce **VSB RB.211-73-J569**.

EEC software A15 is available through embodiment of:

- Airbus **SB A330-73-3060**;
- Rolls-Royce **VSB RB.211-73-J947**.

Introduction of improved primary fuel hose on GE CF6-80E1

NEW

Fuel leak prevention — ATA 73

A330 A/C fitted with CF6-80E1 Engines — No OEB

Description of the safety topic

Several fuel leaks have been reported due to primary fuel hose becoming unseated from its connection to pylon following heavy maintenance events.

It has been identified that these leaks were the result of an incorrect assembly at the interface between the hose upper flange and the pylon, which later became unseated due to stress generated from flight.

Available enhancements

A new design of primary fuel hose has been introduced through Collins **VSB CF6-80E1-NAC-73-004** covered by an Airbus **SB A330-73-3066**.

The above mentioned service bulletin is subject to a monitored retrofit campaign via RIL G73D22019610.

Other references

- TFU 73.11.00002
- FAIR 17.0210

Contacts

For more information on the monitored retrofit campaign please contact Retrofit Operations at the following email address **monitored.retrofit@airbus.com**

Introduction of upgraded thrust reverser actuating system (primary door lock and door actuator)

Thrust reverser door deployment in flight prevention

ATA 78

A340-200/300 A/C

No OEB

Description of safety topic

Single thrust reverser door deployment in flight can occur on CFM 56-5C.

In addition, “REV UNLOCK” events due to a thrust reverser door becoming ajar can also occur.

Available enhancements

An upgraded thrust reverser actuating system (primary door lock, door actuator and warning placard on Thrust reverser cowl:

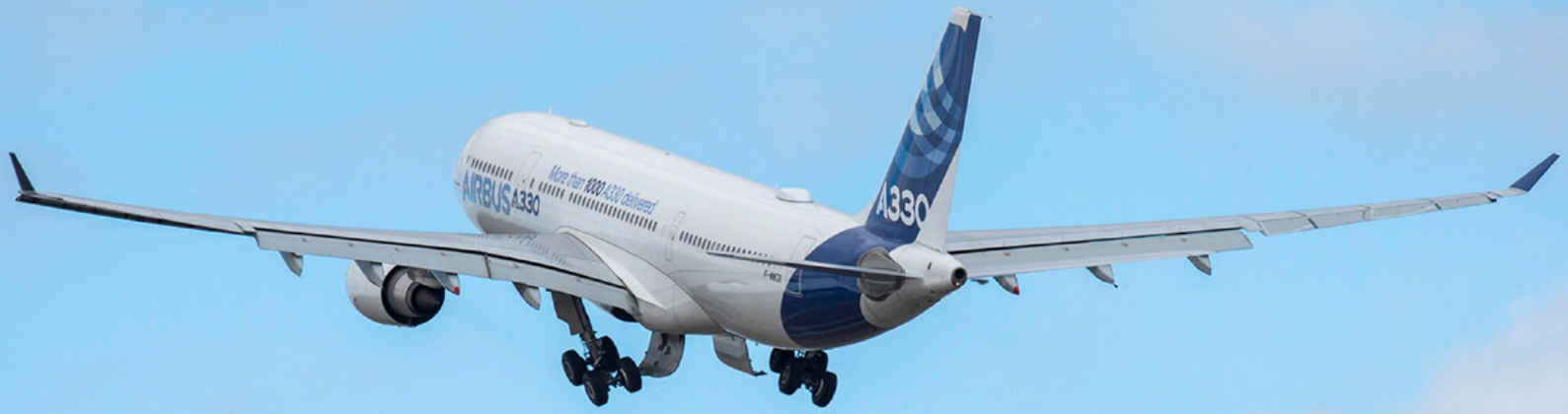
- **SB A340-78-4038**;
- **SB A340-78-4042**;
- **SB A340-78-4043**;
- **SB A340-78-4044**.

Note: Only 6 doors are recommended the other 10 doors are mandated via EASA AD 2010-0044.

Other references

- TFU 78.30.00.052
- OIT 999.0083/09
- Presentation during 16th Flight Safety Conference
- Article in Safety first N°03

Safety functions



FMS Landing System & FLS and FINAL APP (RNP AR) coexistence

NEW

FLS to fly straight-in Non-Precision Approach with ILS look alike and enhanced situational awareness

Safety function

A330 family — No OEB

Description of safety topic

The majority of CFIT / undershoot accidents have occurred during a Non Precision Approach. Various contributing factors were identified. Among these, one of the most common is a loss of situational awareness (lateral and/or vertical). FLS is the function developped to fly Non Precision Approaches (when straight-in) with guidance cues that provides an enhanced situation awareness (lateral and vertical).

Available enhancements

FMS Landing System (FLS) enables the pilot to fly a published straight-in Non-Precision Approach (NPA) in the same manner as a precision approach.

The aircraft is guided along a “virtual” beam composed from an anchor point, a course and a slope; and computed by the MMR, corrected from temperature.

Benefits:

- ILS look alike; Harmonised way to fly all approaches; Reducing the workload in approach; Angular vertical guidance with low T° compensation; Easing the beam capture; Enhancing crew awareness (e.g. virtual LOC beam displayed on ND).

FLS is the approach mode activated by default however FINAL APP is automatically selected when an RNAV RNP AR approach is selected or when the Approach geometry not compatible with FLS.

Note: FLS function is adressing the Final APP mode limitations: e.g. Restricted capture conditions, not flexible with ATC constraints (vectoring), no T° compensation for cold weather, no vertical guidance for LOC only.

Aircraft prerequisites

Activation of the FLS and Coexistence is done by modification of the FMS OPC software. The FLS function requires a minimum level of equipment for FMGEC, EIS2, MMR, DFDR, FWC, TAWS, ADIRU, CMC.

Contacts

Contact your Product Sales focal point or Customer Support Director to trigger RFC/RMO process to be included in the SB effectivity.

Runway Overrun Prevention System (ROPS)

Runway overrun prevention

Safety function

A330 family A/C — No OEB

Description of safety topic

Accident and hull losses statistics show that runway excursion remains a significant safety issue.

Available enhancements

ROPS provides alerts to the flight crew when a high risk of runway overrun is detected during air and ground phases. The following enhancements have been introduced with ROPS Step 2:

- Undue ROP alerts at low speed near runway end corrected with FMGEC H3;
- Undue ROW/ROP alert due to Long Flare logic corrected with FMGEC H5;
- Undue ROP alerts at high speed (DRY RWY) corrected with FMGEC H6.

The following enhancements have been introduced with ROPS Step 2+:

- Update the ROP algorithm to enhance performance monitoring and improve alert accuracy during the deceleration;
- Install a dedicated rotary switch on the cockpit panel to select between wet or dry runway condition. The runway status selected is displayed in the navigation display;
- Introduce a dedicated inhibition P/B located in the overhead panel.

There are 4 SBs associated with ROPS step 2+:

- **SB 22-3305**: Install runway condition rotary switch and activate ROPS Step 2+ function;
- **SB 22-3306**: Install P/B OFF and activate ROPS inhibition capability;
- **SB 22-3285**: Install wiring provisions for RWY COND selector (ROPS Step 2+ function);
- **SB 22-3286**: Install wiring provisions for ROPS OFF P/B and TOS2 OFF P/B.

Aircraft prerequisites

Refer to prerequisite table page 60.

Note for ROPS Step 2+: the ROPS OFF installation is a prerequisite to the installation of the DRY/WET selector.

Other references

- Safety first #8
- 24th Flight Safety Conference: Descent, Approach & Landing Energy Management

Contacts

Contact your Product Sales focal point or Customer Support Director to trigger RFC/RMO process to be included in the SB effectivity.

Soft Go Around activation

Prevention of overspeed and high pitch sensory illusion during Go Around

Safety function

A330 CEO equipped with GE & PW engines — No OEB

Description of safety topic

The SGA function provides a lower than TOGA initial thrust level, such that it ensures a reduced acceleration and requirement to pitch up and a lower but constant final rate of climb whatever the aircraft weight, speed, altitude and Slat/Flaps configuration.

Airbus has designed the SGA climb capability to be sufficient to be able to deal with the world's most demanding missed approaches. The target rate of climb is either 2000 or 2300 ft/min, depending on the aircraft model.

Performance of the SGA function is demonstrated to be at least as good as if the Go Around was performed with TOGA thrust with One Engine Inoperative (OEI).

The Soft Go-Around function is only available when all engines are operating:

If the Go Around is performed with one engine inoperative, TOGA thrust must be used.

In the case of an engine failure during a soft Go Around, the flight crew must also select TOGA thrust.

At any time during a soft Go Around, the TOGA thrust can be applied if needed by setting the thrust levers to the TOGA position.

Available enhancements

With this function, the flight crew may decrease the Go Around thrust setting by adjusting thrust levers to FLX/MCT position after TOGA thrust setting. FMGEC will then provide a thrust target to FADEC, which is adjusted to track a constant rate of climb fulfilling operational requirements. This adjusted thrust target will lower the longitudinal acceleration and prevent VFE overspeed.

Aircraft prerequisites

Prerequisite SB list dependant on your aircraft configuration.

Refer to **SB A330-22-3204** for details.

Other references

- Safety First Jan 2017

AP/FD TCAS

UPDATED

Enhance crew response to TCAS alerts

Safety function

A330 A/C — No OEB

Description of safety topic

Surprise and stress induced by TCAS Resolution Advisories (RA) may lead to nonoptimum crew response, resulting in undue aircraft altitude deviations, injuries in the cabin, lack of proper communication with Air Traffic Control (ATC).

Available enhancements

With the Auto Pilot (AP) engaged, the AP/FD TCAS function flies the TCAS RA maneuver automatically.

With the AP disengaged, the function provides guidance for manual flying through the FD.

The SBs below allow to activate the function.

- **A330-22-3208** or **A330-22-3207** will activate the AP/FD TCAS function for A330 CEO
- **A330-22-3289** will activate the AP/FD TCAS function for A330 NEO

Aircraft prerequisites

Prerequisite SB list dependant on your aircraft configuration.

Other references

- Article in Safety first #33

Contacts

Contact your Product Sales focal point or Customer Support Director to trigger RFC/RMO process to be included in the SB effectivity.

Prerequisite summary

This table shows the safety enhancements that can be implemented on the A330/A340 fleet. The installation of the latest standard of computer could enable the implementation of several safety enhancements.

It is proposed as a quick reference guide. For further details refer to the individual page within this leaflet.

PAGE	Enhancement	A340 FMGEC L11A12	A330 FMGEC T5AH3/P5H3	A330 FWC T3 – A340 FWC L12	A330 FWC T6	A330 FWC T7 – A340 FWC L14	A330 FWC T9.2	EIS 1 V515 / V114	EIS 2 L9E	EIS L13	A330 NEO FCPC P17A/M26A or P17A/M28NEO	FCDC L27/ M26/P17 (high speed)	Honeywell ADIRU HG2030AE21	Honeywell ADIRU HG2030AE24	NG ADIRU -0314	SDAC C9	SDAC C10
13	A340 Triple Click	✓				✓		✓									
13/14	AP/FD Enhancements	✓	✓			✓											
14	Nav Mode at GA		✓														
14	Take off Securing		✓														
14	Improved Glide Capture		✓														
28	“For GA SET TOGA” displayed on FMA		✓					✓	✓								
29	STALL STALL on PFD							✓	✓								
30	Excessive Bank angle alert						✓			✓	✓	✓					
32	ATC XPDR Monitoring			✓												✓	
33	UAMM Step 1				✓				✓				✓		✓		
33	UAMM step 2						✓			✓	✓	✓					
34	Parking Brake application					✓											✓
43	ADIRU Alignment Improvement												✓		✓		
44	Flight Path Angle Display Improvement													✓			
57	ROPS Capable		✓			✓		✓	✓								✓

Abbreviations

ADR	Air Data Reference
ADIRS	Air Data Inertial Reference System
ADIRU	Air Data Inertial Reference Uni
AEVMU	Advanced Engine Vibration Monitoring Units
AFS	Automatic Flight System
AOA	Angle Of Attack
AOC	Airline Operational Control
AOT	Alert Operators Transmission
AMU	Audio Management Unit
APU	Auxiliary Power Unit
ASPSU	Autonomous Standby Power Supply Unit
ATC	Air Traffic Control
ATSU	Air Traffic Service Unit
ATC/XPDR	Air Traffic Control Transponder
BSCU	Brake and Steering Control Unit
BUSS	Back-Up Speed Scale
CAN	Controller Area Network
CEO	Current Engine Option
CFIT	Controlled Flight Into Terrain
CIDS	Cabin Intercommunication Data System
CMC	Central Maintenance Computer
CPC	Cabin Pressure Controller
CPDLC	Controller-Pilot DataLink Communication
DC	Direct Current
DFDR	Digital Flight Data Recorder
DMC	Display Management Computer
DMU	Data Management Unit
DSCS	Door and Slide Control System
DU	Display Unit
ECAM	Electronic Centralized Aircraft Monitoring
EEC	Engine Electronic Controller
EGPWS	Enhanced Ground Proximity Warning System
EIS	Electronic Instrument System
EIVMU	Engine Interface and Vibration Monitoring Unit
FADEC	Full Authority Digital Engine Control
FAI	Forum with Airlines for Interactive Resolution
FANS	Future Air Navigation System
FCDC	Flight Control Data Concentrator
FCPC	Flight Control Primary Computer
FD	Flight Director
FDR	Flight Data Recorder
FDIMU	Flight Data Interface Management Unit
FGE	Flight Guidance and Envelope
FMA	Flight Mode Annunciator
FMGC	Flight Management and Guidance Computer
FMGEC	Flight Management Guidance and Envelope Computer
FMS	Flight Management System
FOT	Flight Operations Transmission
FPA	Flight Path Angle
FWC	Flight Warning Computer
GCU	Generator Control Unit
GPSSU	Global Positioning Sensor System Unit
HUD	Head-Up Display
IFSD	In Flight Shut Down
IFTB	In Flight Turn Back
ILS	IInstrument Landing System
ISB	Inspection Service Bulletin
ISI	In-Service Information
LOC	Localizer
MCDU	Multipurpose Control & Display Unit
MMR	Multi Mode Receiver
MPD	Maintenance Planning Document
NEO	New Engine Option
OEB	Operations Engineering Bulletin
OIT	Operator Information Transmission
OPC	Operational Program Configuration
OPV	Overpressure Valve
PA	Passenger Address
PFD	Primary Flight Display
PN	Part Number
RFC/RMO	Request For Change/Retrofit Modification Order
RIL	Retrofit Information Letter
RNAV	Area Navigation
RNP AR	Required Navigation Performance – Authorization Required
RPWS	Residual Pressure warning System
SB	Airbus Service Bulletin
SBIT	Service Bulletin Information Transmission
SBS	Safety Beyond Standard
SDAC	System Data Acquisition Concentrator
SDF	Smoke Detection Function
SGA	Soft Go Around
STD	Standard
SW	Software
TAWS	Terrain Awareness and Warning System
TCAS	Trafic Collision Avoidance System
TCAP	TCAS Alert Prevention
TFU	Technical Follow UpTOGA
TOGA	Takeoff/Go Around
TRV	Thermal Relief Valve
UAMM	Unreliable Airspeed Mitigation Means
VAC	Voltage Alternating Current
VLS	Lowest Selectable Speed
VSB	Vendor Service Bulletin
XPDR	Transponder

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AIRBUS

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